

# University of Missouri

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**UNIVERSITY CATALOG 2020-21**

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Honors-General (GN_HON) .....	1976	Music-Music Education (MUS_EDUC) .....	2147
Hospitality Management (HSP_MGMT) .....	1980	Music-Music History And Literature (MUS_H_LI) .....	2149
Human Development And Family S (H_D_FS) .....	1985	Music-Music Theory (MUS_THRY) .....	2152
Industrial And Manufacturing Systems (IMSE) .....	1996	Natural Resources (NAT_R) .....	2156
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# University of Missouri

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Welcome to the University of Missouri 2020-2021 catalog! We are pleased to provide an interactive and searchable catalog online.

The catalog is a comprehensive reference for your academic studies. It includes a list of all degree programs offered at MU, including bachelors, masters, specialists, doctorates, minors, certificates, and emphasis areas. It details the university wide requirements, the curricular requirements for each program, and in some cases provides a sample plan of study. The catalog includes a complete listing and description of approved courses. It also provides information on academic policies, contact information for supporting offices, and a complete listing of faculty members.

Information in the catalog is current as of May 2020. The next catalog will be published in May 2021. In the interim, new courses will be announced in myZou (<https://myzou.missouri.edu>) (MU's online student information system), and are usually available in October for the upcoming Spring semester, and in March for the upcoming Summer and Fall semesters. Mid year changes to current courses (titles, descriptions and credit hours) are not reflected here, and will only show in myZou. For more information about which year's edition of the catalog applies to whom and under what circumstances, go to Catalog Editions (p. 855) in the Academic Policies section.

Use the search box above, or click on the left hand menus to navigate through the catalog. There is also a PDF version available through the Print Options link above.

We welcome your feedback and suggestions to make this catalog better for the future. We would also appreciate reports of any broken links inside the catalog. Feedback may be provided by sending an email to [muregistrarcatalog@missouri.edu](mailto:muregistrarcatalog@missouri.edu). ([muregistrarcatalog@missouri.edu](mailto:muregistrarcatalog@missouri.edu))

Brenda Selman  
University Registrar

# Degrees, Majors (Degree Programs), Emphasis Areas, Minors and Certificates

Superscripts on emphasis areas correspond to superscripts on that degree program's majors where the emphasis is applicable. See tables following the degree listing for Keys to the College and Degree abbreviations.

Degree Programs (emphasis)	College	Undergraduate	Graduate	Professional
AI and Machine Learning	ENGR		Cert (p. 602)	
Academic Medicine	MED		MS (p. 760)	
Accountancy	BUS	BSAcc (p. 381), Minor (p. 383)	MAcc (p. 383), PhD (p. 384)	
Adult Gerontology Clinical Nurse Specialist	NURS		Cert (p. 749)	
Aerospace Engineering	ENGR	Minor (p. 598)	Cert (p. 602)	
Aerospace Studies	A&S	Minor (p. 356)		
Afro-Romance Literatures in Translation	A&S	Minor (p. 356)		
Agribusiness Management	CAFNR	BS (p. 51), Minor		
Agricultural Education (Communications and Leadership*, Teacher Certification*)	CAFNR	BS* (p. 57), Minor (p. 62)	PhD (p. 62)	
Agricultural Leadership	CAFNR	Minor (p. 133)		
Agricultural Leadership, Communication and Education	CAFNR		MS (p. 63)	
Agricultural Systems Management	CAFNR	BS (p. 65), Minor (p. 67)		
Agricultural and Applied Economics	CAFNR		MS (p. 54), PhD (p. 55)	
Agriculture	CAFNR	BS (p. 67)		
Agroforestry	CAFNR		Cert (p. 135)	
American Constitutional Democracy	A&S	Minor (p. 356), Cert (p. 353)		
American Law	GRAD		LLM (p. 761)	
Ancient Mediterranean Studies	A&S	BA (p. 144), Minor (p. 144)	MA (p. 144), PhD (p. 145)	
Ancient Studies	GRAD		Minor (p. 814)	
Animal Sciences	CAFNR	BS (p. 69), Minor (p. 71)	MS (p. 71), PhD (p. 72)	
Anthropology	A&S	BA (p. 148), Minor (p. 151)	MA (p. 151), PhD (p. 152)	
Applied Behavior Analysis	EDUC		MS (p. 417), Cert (p. 418)	
Applied Mathematics	A&S		MS (p. 250)	
Architectural Studies (Architectural Studies*, Interior Design*, Design with Digital Media^', Environment and Behavior^')	HES	BS* (p. 645), Minor (p. 648)	MA^ (p. 648), MS^ (p. 650)	
Art	A&S	BA (p. 155), BFA (p. 155), Minor (p. 156)		
Art History	A&S	BA (p. 158), Minor (p. 159)		

Assurance	BUS		Cert (p. 413)
Astronomy	A&S	Minor (p. 358)	
Atlantic History and Politics	A&S		MA (p. 159)
Biochemistry	CAFNR	BS (p. 74)	MS (p. 75), PhD (p. 76)
Biological Engineering	ENGR	BSBE (p. 539)	MS (p. 541), PhD (p. 542)
Biological Sciences (Medical Science and Human Biology*)	A&S	BA (p. 163), BS* (p. 165), Minor (p. 168)	MA (p. 169), PhD (p. 169)
Biomaterials Engineering	ENGR	Cert (p. 597)	
Biomedical Engineering	ENGR	BS (p. 544)	
Biomedical Sciences	VETM	Cert (p. 755)	
Biomedical Sciences (Biomedical Sciences*, Comparative Medicine^, Pathobiology*, Veterinary Medicine and Surgery*, Veterinary Sciences*)	GRAD		MS* (p. 763), MS(post DVM)^ (p. 764), PhD (p. 768)
Black Studies	A&S	Minor (p. 358)	Minor (p. 373)
Business	BUS	Minor (p. 385)	MS (p. 386)
Business Administration ( Business^, Economics*, Finance and Banking*, International Business-Economics*, International Business-Finance*, International Business-Management*, International Business-Marketing*, Management*, Marketing*, Real Estate*)	BUS	BSBA* (p. 389)	MBA (p. 402), PhD^ (p. 404)
Canadian Studies	A&S	Minor (p. 358)	
Captive Wild Animal Management	CAFNR	Minor (p. 133)	
Care Management	NURS		MS (p. 730), Cert (p. 731)
Center for the Digital Globe	GRAD		Cert (p. 807)
Chemical Engineering (Biochemical*, Environmental*, Materials*)	ENGR	BSCHE* (p. 548)	MS (p. 551), PhD (p. 552)
Chemistry	A&S	BA (p. 171), BS (p. 172), Minor (p. 174)	MS (p. 174), PhD (p. 175)
Chinese Studies	A&S	Minor (p. 359)	
Civil Engineering	ENGR	BSCiE (p. 554)	MS (p. 556), PhD (p. 556)
Clinical and Diagnostic Sciences (Clinical Laboratory Science^, Diagnostic Medical Ultrasound*, Imaging Sciences^, Nuclear Medicine*, Radiography*, Respiratory Therapy*^)	HP	BHS* (p. 606)	MHS^ (p. 607)
College Teaching	EDUC		Cert (p. 526)
College Teaching	GRAD		Minor (p. 815)
Communication	A&S	BA (p. 176)	MA (p. 178), PhD (p. 178)
Community Processes	GRAD		Cert (p. 808)
Computational Neuroscience	ENGR	Minor (p. 599)	
Computer Engineering	ENGR	BSCoE (p. 560)	MS (p. 562)

Computer Science	ENGR	BS (p. 566), Minor (p. 569)	MS (p. 569), PhD (p. 569)
Conservation Biology - Interdisciplinary	GRAD		Cert (p. 809)
Constitutional Democracy	A&S	BA (p. 180)	
Construction Management	ENGR	Minor (p. 599)	Cert (p. 603)
Creative Writing	A&S	Minor (p. 359)	
Criminology/Criminal and Juvenile Justice	HES	Minor (p. 706)	
Cyber Security	ENGR	Cert (p. 597)	
Data Science and Analytics (BioHealth Analytics*, Geospatial Analytics*, High Performance Computing*, Human Centered Science Design*, Strategic Communications and Data Journalism*)	GRAD		MS* (p. 768), Cert (p. 771)
Dietetics	HES		MS (p. 653)
Digital Global Studies	PROVOST	Cert (p. 807)	
Digital Humanities	EDUC		Cert (p. 526)
Digital Merchandising	HES	Cert (p. 705)	
Digital Storytelling	A&S	BA (p. 183), Minor (p. 183)	
Dispute Resolution	GRAD		LLM (p. 772)
Dispute Resolution	LAW		Cert (p. 819)
Dispute Resolution for Non-Lawyers	LAW		Cert
Early Childhood Education	EDUC	BSEd (p. 419)	
East Asian Studies	A&S	Minor (p. 360)	
Economics (Econometrics and Quantitative Economics*)	A&S	BA (p. 186), BS (p. 187), Minor (p. 188)	MA* (p. 189), PhD^ (p. 190)
Education	EDUC	Minor (p. 525)	
Education Policy	EDUC		Cert (p. 527)
Educational Leadership	EDUC		EdD (p. 452)

<p>Educational Leadership and Policy Analysis (Educational Administration**; Educational Policy Studies**; Higher Education**); PK-12 Educational Leadership and Administration, Elementary Principal, Certification^; PK-12 Educational Leadership and Administration, Secondary Principal, Certification^; PK-12 Educational Leadership and Administration, Elementary and Secondary Principal, Certification^; PK-12 Educational Leadership and Administration, Superintendent, Certification'; PK-12 Educational Leadership Administration, Elementary Principal and Superintendent, Certification'; PK-12 Educational Leadership and Administration, Elementary and Secondary Principal and Superintendent, Certification')</p>	<p>EDUC</p>	<p></p>	<p>MA* (p. 449), MEd^ (p. 450), EdSp' (p. 453), PhD** (p. 458)</p>
<p>Educational Studies (Interdepartmental*)</p>	<p>EDUC</p>	<p>BES* (p. 461)</p>	<p></p>
<p>Educational, School, and Counseling Psychology (Career Counseling Psychology^; Counseling Psychology**; Educational Psychology**; Health Education and Promotion**; Mental Health Practices in Schools^; Positive Coaching and Athletic Leadership^; School Counselor, Elementary, Certification^; School Counselor, Elementary and Secondary, Certification^; School Counselor, Secondary, Certification^; School Psychology^; School Psychology, Certification**; Sport Psychology^; Statistics, Measurement, and Evaluation in Education**)</p>	<p>EDUC</p>	<p></p>	<p>MA* (p. 421), MEd^ (p. 426), EdSp' (p. 439), PhD** (p. 442)</p>
<p>Electrical Engineering</p>	<p>ENGR</p>	<p>BSEE (p. 577)</p>	<p>MS (p. 579)</p>



Electrical and Computer Engineering	ENGR		PhD (p. 573)
Elementary Education (Elementary Education*)	EDUC	BSEd* (p. 462)	
Elementary Mathematics Specialist	EDUC		Cert (p. 527)
Energy Engineering	ENGR	Minor (p. 600)	
Engineering	ENGR	Minor (p. 580)	ME (p. 581)
Engineering Sustainability	ENGR	Minor (p. 600)	
English	A&S	BA (p. 192), Minor (p. 194)	MA (p. 194), PhD (p. 196), Cert (p. 199)
English Writing	A&S	Minor (p. 194)	
Entrepreneurship and Innovation Management	BUS	Minor (p. 412)	
Environmental Sciences (Atmosphere*, Land and Soil*, Outreach and Education*, Water*)	CAFNR	BS* (p. 78), Minor (p. 84)	
Epidemiology	GRAD		Cert (p. 640)
Equine Science and Management	CAFNR	Cert (p. 132)	
Family Nurse Practitioner	NURS		Cert (p. 750)
Film Studies (Film Production*)	A&S	BA* (p. 200), Minor (p. 202)	
Finance	BUS		MS (p. 410)
Financial Literacy for Helping Professionals	HES	Minor (p. 706)	
Financial and Housing Counseling	HES		Cert (p. 708)
Fitness Programming and Management	HES	BS (p. 655)	
Food Safety and Defense	CAFNR		Cert (p. 136)
Food Science and Nutrition	CAFNR	BS (p. 89), Minor (p. 91)	
Food and Hospitality Systems	CAFNR		MS (p. 85), PhD (p. 87)
Forestry	CAFNR	Minor (p. 134)	
French	A&S	Minor (p. 361)	
General Studies	A&S	BGS (p. 203)	
Genetics Area Program	GRAD		PhD (p. 774)
Geographical Information Science - Interdisciplinary	A&S	Cert (p. 210)	Cert (p. 211)
Geography (General Geography*, Geographic Information Sciences*, Physical/Environmental*, Regional/Cultural*)	A&S	BA* (p. 205), Minor (p. 210)	MA (p. 210)
Geological Sciences	A&S	BA (p. 212), BS (p. 213), Minor (p. 214)	
Geology	A&S		MS (p. 214), PhD (p. 215)
Geospatial Intelligence	A&S		Cert (p. 368)
Geriatric Care Management	HES		Cert (p. 708)
German	A&S	BA (p. 217), Minor (p. 218)	MA (p. 218)
Gerontological Social Work	HES		Cert (p. 709)

Gerontology	HES		Cert (p. 708)
Global Education and Leadership	EDUC		Cert (p. 527)
Global Public Affairs	A&S		Cert (p. 369)
Global Public Health	HP		Cert (p. 640)
Global Supply Chain Management	PROVOST	Cert (p. 807)	Cert (p. 810)
Grantsmanship	A&S		Cert (p. 369)
Health Administration	GRAD		MHA (p. 776)
Health Ethics	GRAD		Cert (p. 810)
Health Informatics	GRAD		Cert (p. 784)
Health Informatics and Bioinformatics (Bioinformatics*, Health Informatics*)	GRAD		MS* (p. 779)
Health Science (Health and Wellness Services*, Leadership and Policy*, Pre-Professional*, Rehabilitation Sciences*)	HP	BHS* (p. 618)	
Health System Innovations	NURS		Minor (p. 751)
Health and Rehabilitation Science	HP		PhD (p. 616)
Healthcare Project Management	MED		Cert (p. 727)
Higher Education Administration	EDUC		Cert (p. 528)
History (Public History*)	A&S	BA* (p. 220), Minor (p. 221)	MA (p. 221), PhD (p. 223)
Hospitality Management (Conference and Event Planning Management*, Food and Beverage Management*, Lodging Management*, Sport Venue Management*)	CAFNR	BS* (p. 92), Minor (p. 96)	
Human Development and Family Science (Child Development and Education*, Child Life Specialist*, Early Childhood Education in a Mobile Society*, Family and Community Services^, Family and Consumer Sciences Education*, Family and Lifespan Development*, Gerontology^, Youth Development^)	HES	BS* (p. 658), Minor (p. 664)	MA^ (p. 665), MS (p. 668)
Human Environmental Sciences (Architectural Studies*, Family and Consumer Sciences^, Human Development and Family Studies*, Personal Financial Planning*, Textile and Apparel Management*)	HES	BS^ (p. 669)	PhD* (p. 670)

Human Resource Management	BUS	Cert (p. 411)	
Industrial Engineering	ENGR	BSIE (p. 584)	MS (p. 585), PhD (p. 586)
Informatics (Bioinformatics*, Health Informatics*)	GRAD		PhD* (p. 786)
Informatics for Public Health	MED		Cert (p. 811)
Information Science and Learning Technologies	EDUC		PhD (p. 465)
Information Technology	ENGR	BS (p. 589), Minor (p. 591)	
Interactive Media	JOURN		Cert (p. 725)
Interdisciplinary (Black Studies*, Environmental Studies*, Peace Studies*, Women's and Gender Studies*)	A&S	BA* (p. 227)	
International Agriculture, Food & Natural Resources	CAFNR	Minor (p. 134)	
International Development	GRAD		Minor (p. 816)
International Studies (East Asian Studies*, Environmental Studies*, European Studies*, International Business*, Latin American Studies*, Peace Studies*, South Asian Studies*)	A&S	BA* (p. 234)	
Investments	BUS		Cert (p. 414)
Italian Area Studies	A&S	Minor (p. 361)	
Japanese Studies	A&S	Minor (p. 361)	
Jazz Studies	A&S	Minor (p. 361), Cert (p. 354)	Cert (p. 369)
Journalism (Health Communication^, Interactive Media^, Media Management^, Strategic Communication*^)	JOURN	BJ* (p. 716), Minor (p. 719)	MA^ (p. 720), PhD (p. 724)
Korean Studies	A&S	Minor (p. 362)	
Latin American Studies	A&S	Minor (p. 362)	
Law (Criminal Justice*, Tax Law*)	LAW		JD* (p. 818)
Law and Conflict Resolution	JOURN		Minor (p. 725)
Leadership and Public Service	A&S	Minor (p. 362)	
Learning Technologies and Design (Online Education^', Technology in Schools^')	EDUC		MS^ (p. 486), EdSp' (p. 489)

Learning, Teaching and Curriculum (Art Education** ; Art Education, Certification**; Early Childhood Education** ; Early Childhood Education, Certification**; Elementary Education** ^ ^ ; English Education** ; Foreign Language Education ; General^^ ; Language and Literacies for Social Transformation ; Literacy Education** ^ ; Mathematics Education** ^ ; Mathematics Education, Certification** ; Reading Education^^ ; Science Education** ^ ; Science Education, Certification** ; Social Studies Education** ; Teaching English to Speakers of Other Languages**)	EDUC		MEd** (p. 467), EdSp^ (p. 478), EdD^^ (p. 476), PhD' (p. 480)
Library and Information Science (Archival Studies*, E-Learning Information Professionals*, Library Media Specialist, Certification*)	EDUC		MLIS* (p. 491)
Life Science Innovation and Entrepreneurship	GRAD		Cert (p. 811)
Lifespan Development	A&S		Cert (p. 370)
Linguistics	A&S	BA (p. 242), Minor (p. 243)	Minor (p. 243)
Luso-Brazilian Area Studies	A&S	Minor (p. 362)	
Marketing Analytics	BUS	Cert	Cert (p. 414)
Mathematics (Actuarial Science and Mathematical Finance*)	A&S	BA (p. 245), BS* (p. 246), Minor (p. 248)	MA (p. 248), MST (p. 251), PhD (p. 252)
Mechanical Engineering	ENGR	BSME (p. 594)	
Mechanical and Aerospace Engineering	ENGR		MS (p. 595), PhD (p. 596)
Medical Pharmacology and Physiology	GRAD		MS (p. 792), PhD (p. 793)
Medical/Health Physics	ENGR	Minor (p. 601)	
Medicine	MED		MD (p. 824)
Medieval and Renaissance Studies	A&S	Minor (p. 363)	Minor (p. 373)
Microbiology	GRAD		MS (p. 795), PhD (p. 797)
Microbiology	VETM	BS (p. 753), Minor (p. 755)	
Middle East Studies	A&S	Minor (p. 364)	
Middle School Education (Language Arts*, Mathematics*, Science*, Social Studies*)	EDUC	BSEd* (p. 495)	
Military Science	A&S	Minor (p. 365)	
Missouri Studies	A&S	Minor (p. 365)	

Multicultural Education	EDUC		Cert (p. 528)
Multicultural Psychology	EDUC		Minor (p. 532)
Multicultural Studies	A&S	Cert (p. 355)	
Museum Studies	A&S		Minor (p. 374)
Music (Collaborative Piano', Composition*', Conducting', Jazz Performance and Pedagogy', Music Education*', Music History*, Music Theory*', Musicology^, Performance*', Piano Pedagogy')	A&S	BA (p. 256), BM* (p. 256), Minor (p. 266)	MA^ (p. 266), MM' (p. 268)
Music Education	A&S		PhD (p. 276)
Music Entrepreneurship	A&S	Cert (p. 355)	Cert (p. 371)
Musical Theatre	A&S	Minor (p. 365)	
Musicology	A&S		Minor (p. 374)
Native American & Indigenous Studies	A&S	Minor (p. 366)	
Natural Resource Science and Management (Fisheries and Wildlife Sciences*, Forest Resources*, Human Dimensions*, Terrestrial Ecosystems*)	CAFNR	BS* (p. 97)	
Natural Resources (Agroforestry*; Fisheries and Wildlife Sciences*^; Forestry*^; Human Dimensions of Natural Resources*^; Parks, Recreation and Tourism*; Soil, Environmental and Atmospheric Sciences*^; Water Resources*^)	CAFNR		MS* (p. 103), PhD^ (p. 109)
Naval Science	ENGR	Minor (p. 601)	
Neural Engineering-Signals	ENGR	Cert (p. 598)	
Neural Engineering-Systems	ENGR	Cert (p. 598)	
Neuroscience	A&S	Cert (p. 355)	
Neuroscience	GRAD		MS (p. 801), PhD (p. 802), Cert (p. 803)
Nonprofit Management	A&S		Cert (p. 371)
Nuclear Engineering	ENGR	Minor (p. 601)	

Nursing (Adult-Gerontology Clinical Nurse Specialist*^, Family Nurse Practitioner*^, Leadership in Nursing and Health Care Systems*, Nurse Educator*, Nurse Leadership and Innovations in Health Care^, Pediatric Clinical Nurse Specialist*^, Pediatric Nurse Practitioner-Primary Care*^, Psychiatric Mental Health Nurse Practitioner*, Psychiatric-Mental Health Nurse Practitioner (Across the Lifespan)^)	NURS	BSN (p. 733)	MS* (p. 735), PhD (p. 740), DNP^ (p. 742)
Nursing Education	NURS		Minor (p. 751)
Nutrition and Exercise Physiology (Exercise Physiology^; Human Physiology and Translational Sciences*; Nutrition and Foods*; Nutrition; Nutritional Sciences^; Physical Activity, Nutrition and Human Performance*)	HES	BS* (p. 675)	MS^ (p. 680), PhD' (p. 683)
Nutritional Sciences	HES	Minor (p. 707)	
Occupational Therapy	HP		
Occupational Therapy Assistant	HP	BHS (p. 625)	
Online Educator	EDUC		Cert (p. 529)
Organizational Change and Conflict Management	A&S		Cert (p. 812)
Parks, Recreation and Sport (Natural Resource Recreation Management*, Recreation Administration*, Sport Management*, Tourism Development*)	CAFNR	BS* (p. 115)	
Participatory Health Research	NURS		Cert (p. 750)
Pathobiology Area Program	GRAD		PhD (p. 804)
Pathology and Anatomical Sciences	GRAD		MS (p. 806)
Peace Studies	A&S	Minor (p. 366)	
Pediatric Clinical Nurse Specialist	NURS		Cert (p. 750)
Personal Financial Management Services	HES	Minor (p. 692)	
Personal Financial Planning (Consumer and Family Economics^, Financial Counseling*, Personal Financial Management Services*, Personal Financial Planning*^)	HES	BS* (p. 688), Cert (p. 691)	MS^ (p. 692), Cert (p. 694)
Philosophy	A&S	BA (p. 278), BS (p. 279), Minor (p. 280)	MA (p. 280), PhD (p. 280)

Physical Therapy	HP		
Physics (Astronomy*; Biological Physics*, Materials Science*)	A&S	BA (p. 283), BS* (p. 284), Minor (p. 287)	MS (p. 287), PhD (p. 288)
Plant Sciences (Breeding, Biology and Biotechnology*; Crop Management*; Horticultural Science and Design*)	CAFNR	BS* (p. 120), Minor (p. 124)	
Plant, Insect and Microbial Sciences	CAFNR		MS (p. 124), PhD (p. 126)
Political Science (Pre-Law*, Public Policy^)	A&S	BA* (p. 291), Minor (p. 295)	MA^ (p. 296), PhD (p. 296)
Positive Psychology	EDUC		Cert (p. 529)
Pre-Professional Physical Therapy	HP	BHS (p. 627)	
Precision Agriculture Technology	CAFNR	Cert (p. 132)	Cert (p. 136)
Psychiatric Mental Health Nurse Practitioner	NURS		Cert (p. 751)
Psychological Statistics and Methods	A&S		Minor (p. 374)
Psychology (Child Clinical & Developmental Psychology^, Child Development & Developmental Psychology*, Clinical & Quantitative Psychology^, Clinical Psychology*^, Cognition & Neuroscience*^, Developmental Psychology*^, Quantitative Psychology^, Quantitative Psychometrics*, Social/Personality Psychology*^)	A&S	BA (p. 298), BS (p. 300), Minor (p. 303)	MA* (p. 304), PhD^ (p. 306)
Public Affairs	A&S		MPA (p. 311), PhD (p. 312)
Public Engagement	GRAD		Cert (p. 758)
Public Health (Health Promotion and Policy*, Veterinary Public Health*)	HP	BHS (p. 629)	MPH* (p. 631), Cert (p. 634)
Public Health Communication	HP		Cert (p. 812)
Public Management	A&S		Cert (p. 372)
Public Policy	A&S		Cert (p. 372)
Qualitative Research	EDUC		Cert (p. 530)
Quantitative Research	EDUC		Cert (p. 530)
Radioenvironmental Sciences	ENGR	Minor (p. 601)	
Religious Studies	A&S	BA (p. 313), Minor (p. 314)	
Risk Management and Insurance	BUS	Cert (p. 412)	
Romance Languages (French*^, Spanish*^, Language Teaching^)	A&S	BA* (p. 315)	MA^ (p. 317), PhD (p. 322)
Romance Literatures in Translation	A&S	Minor (p. 366)	

Rural Sociology	CAFNR	Minor (p. 128)	MS (p. 128), PhD (p. 129)
Russian	A&S	BA (p. 325), Minor (p. 326)	
Russian and Slavonic Studies	A&S		MA (p. 326)
Sales and Customer Development	BUS	Cert (p. 412)	
Science and Agricultural Communications	CAFNR	Minor (p. 135)	
Secondary Education (Art Education*, Biology*, Chemistry*, Earth Science*, General Science*, Language Arts*, Mathematics Education*, Physics*, Social Studies*)	EDUC	BSEd* (p. 501)	
Serious Game and Simulation Design	EDUC		Cert (p. 531)
Social Justice	HES	Minor (p. 707)	
Social Work	HES	BSW (p. 696)	MSW (p. 698), PhD (p. 700)
Social Work - Gerontology	HES	Minor (p. 707)	
Society and Sustainability	GRAD		Cert (p. 812)
Sociology	A&S	BA (p. 328), Minor (p. 329)	MA (p. 329), PhD (p. 329)
South Asian Studies	A&S	Minor (p. 366)	
Spanish	A&S	Minor (p. 367)	
Special Education (Administration and Supervision of Special Education*; Autism*; Behavior Disorders* ; Combined Early Childhood and Autism*; Cross Categorical, Certification*; Cross Categorical Special Education*; Early Childhood Special Education* ; Gifted Education*; Learning Disabilities* ; Special Education, General**)	EDUC	BSEd* (p. 513)	MA** (p. 514), MEd^ (p. 516), EdSp (p. 521), PhD'' (p. 522)
Speech, Language and Hearing Sciences (Speech-Language Pathology*)	HP	BHS (p. 635)	MHS* (p. 636)
Sports Analytics	A&S	Cert (p. 356)	Cert (p. 372)
Statistics (Biostatistics*; Data Analytics*)	A&S	BA (p. 331), BS (p. 332), Minor (p. 334)	MA* (p. 334), PhD (p. 336), Minor (p. 337)
Strategic Studies	A&S	Minor (p. 367)	
Sustainability	CAFNR	Cert (p. 133)	
Sustainable Energy and Policy	ENGR		Cert (p. 603)
Taxation	BUS		Cert (p. 415)
Teaching English to Speakers of Other Languages	EDUC		Cert (p. 531)
Teaching High School Physics	A&S		Cert (p. 290)



Textile and Apparel Management	HES	BS (p. 702), Minor (p. 704)	MA (p. 704), MS (p. 705)
Theatre (Design/Technical*, Performance*, Writing for Performance*)	A&S	BA* (p. 339), Minor (p. 342)	MA (p. 342), PhD (p. 344)
User Experience and Usability	EDUC		Cert (p. 531)
Veterinary Medicine	VETM		DVM (p. 837)
Veterinary Science	VETM	Cert (p. 756)	Cert (p. 756)
Visual Studies	A&S		MA (p. 348), MFA (p. 349), PhD (p. 351)
Wellness	HES	Minor (p. 708)	
Women's and Gender Studies	A&S	Minor (p. 368)	Minor (p. 375)
Youth Development Program Management and Evaluation	HES		Cert (p. 709)
Youth Development Specialist	HES		Cert (p. 710)

College abbreviations	
CAFNR	College of Agriculture, Food and Natural Resources
A&S	College of Arts and Science
BUS	Trulaske College of Business
EDUC	College of Education
ENGR	College of Engineering
GRAD	Graduate School
HP	School of Health Professions
HES	College of Human Environmental Sciences
JOURN	School of Journalism
LAW	School of Law
MED	School of Medicine
NURS	Sinclair School of Nursing
PROVOST	Office of the Provost
VETM	College of Veterinary Medicine

Degree abbreviations	
BA	Bachelor of Arts
BES	Bachelor of Education Studies
BFA	Bachelor of Fine Arts
BGS	Bachelor of General Studies
BHS	Bachelor of Health Science
BJ	Bachelor of Journalism
BM	Bachelor of Music
BS	Bachelor of Science
BSAcc	Bachelor of Science Accounting
BSBA	Bachelor of Science Business Administration

BSBE - Bachelor of Science Biological Engineering
BSchE - Bachelor of Science Chemical Engineering
BSCiE - Bachelor of Science Civil Engineering
BSCoE - Bachelor of Science Computer Engineering
BSEd - Bachelor of Science Education
BSEE - Bachelor of Science Electrical Engineering
BSIE - Bachelor of Science Industrial Engineering
BSME - Bachelor of Science Mechanical Engineering
BSN - Bachelor of Science Nursing
BSW - Bachelor of Social Work
Cert - Certificate
DNP - Doctor of Nurse Practitioner
DPT - Doctor of Physical Therapy
DVM - Doctor of Veterinary Medicine
EdD - Doctor of Education
EdSp - Education Specialist
JD - Juris Doctorate
LLM - Master of Laws
MA - Master of Arts
MAcc - Master of Accounting
MBA - Master of Business Administration
MD - Doctor of Medicine
ME - Master of Engineering
MEd - Master of Education
MFA - Master of Fine Arts
MHA - Master of Health Administration
MHS - Master of Health Science
MM - Master of Music

MOT - Master of Occupational Therapy
MPA - Master of Public Affairs
MPH - Master of Public Health
MS - Master of Science

MST - Master of Science for Teachers
MSW - Master of Social Work
PhD - Doctor of Philosophy

# Major and Career Exploration

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The University of Missouri has many resources to assist you in exploring majors and career possibilities. For guidance, visit the Majors and Careers (<https://career.missouri.edu/majors-careers/>) website or view specific resources below.

- If you are considering a change of major or are exploring multiple majors, schedule an appointment with an advisor in the Discovery Center (<https://discoverycenter.missouri.edu/>) by calling (573)884-9700 or through MU Connect (<https://mizzou.starfishsolutions.com/starfish-ops/dl/instructor/serviceCatalog.html?bookmark=service/3761489>) Discovery Center service in your success network.
- If you have decided on a major, visit an academic advisor in the School or College that you are interested in to discuss the process of declaring the major (<https://advising.missouri.edu/majors-minors/changing-major/>).
- If you would like to learn more about your career interests, abilities, values and talents, visit the MU Career Center (<http://career.missouri.edu/connect/>). No Appointment is necessary to explore career options with one of our staff members.
- If you would like information about MU majors and degree programs, visit:
  - the Degrees, Majors (Degree Programs), Emphasis Areas, Minors and Certificates (p. 20) page in the catalog,
  - the MU Majors (<https://majors.missouri.edu>) website.
- If you want information on what you can do with a major, contact or visit:
  - Faculty or staff in the home academic department for that major,
  - the What Can I do With This Major (<https://career.missouri.edu/majors-careers/explore-mu-majors/>) website
- If you are interested in information about occupations you're considering, visit O\*Net (<https://www.onetonline.org/>) or the Occupational Outlook Handbook (<http://www.bls.gov/ooh/>).
- If you are curious about employment opportunities including internships and after-graduation employment, contact or visit the appropriate MU Career Services Office (<http://hiremizzoutigers.com/career-offices/>).
- See MoScores (<https://scorecard.mo.gov/>) for career and salary information for each credential offered by a public institution in higher education.

# University Level Academic Degree Requirements

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## Undergraduate

Undergraduate Requirements (University) (p. 35)

Common Credit Limitations (p. 35)

General Education Requirements (p. 36)

## Degree Audits for Undergraduates

The degree audit is an automated report reflecting a student's academic progress toward the completion of a degree. Degree Audits are not available for all programs; however, please consult with the appropriate college or school for audit information.

**MU students can** request a degree audit by logging in to myDegreePlanner (<https://mydegreeplanner.missouri.edu>). Students may also access myDegreePlanner via myZou, in the Student Center, by clicking on the Request Degree Audit link. The audit automatically pulls in the student's MU course work, transfer courses and courses in progress.

This is available to current students, admitted students, and those who last attended less than three terms ago.

**Past MU students** can request a degree audit by contacting the Academic Advising Unit of the division in which they were last enrolled at MU. For contact information, go to <http://advising.missouri.edu/contact/>.

**Prospective students**, can access a preliminary MU degree audit via <https://www.transferology.com/index.htm> (<https://www.transferology.com/>). (<https://www.transferology.com/>) Information on the college credits already earned will have to be manually entered before it can be evaluated against current degree requirements.

For additional details on degree audits, go to <http://registrar.missouri.edu/degree-audits/index.php> (<http://registrar.missouri.edu/degree-audits/>).

## Graduate and Professional

Master's Requirements (University) (p. 37)

Educational Specialist Requirements (University) (p. 41)

Doctoral Requirements (Graduate School) (p. 43)

Doctoral Requirements (Law School) (p. 46)

Details on the academic requirements for medical students can be found at <https://medicine.missouri.edu/>.

Details on the academic requirements for veterinary medical students can be found at <http://cvm.missouri.edu/about-the-college/>.

## Undergraduate Requirements (University)

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Undergraduate students must complete all University requirements as well as all requirements specified for the degree(s) and major(s), and requirements of the college or school, and department offering the degree. This would include the University general education requirements as well as the following:

- A second MU Writing Intensive course\* must be completed in a student's major. It needs to be a 3000/4000 level MU WI course approved as part of the curriculum by the faculty of a student's major.
- Complete an approved capstone course\* with MU course work in the student's major.
- Complete 30 of the last 36 credits with MU authored courses.
- Complete no fewer than 120 credit hours of coursework.
- Earn no less than a 2.00 GPA, as defined by the GPA of Record.
- Pass the Missouri Higher Education Civics Achievement Examination with a score of seventy percent or greater.

\* Must be completed with a grade of C- or better.

## Common Credit Limitations

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The following credit limitations are applicable to all undergraduate students, regardless of degree program. Please check with advisor for more information.

### Chemistry

- A student can earn a maximum of 10 hours of credit towards graduation from the following courses: CHEM 1000 Introductory Chemistry, CHEM 1100 Atoms and Molecules with Lab CHEM 1320 College Chemistry I, CHEM 1330 College Chemistry II. CHEM 1310 (General Chemistry I) is also included in this maximum if you took the course prior to Fall 2013.

### Economics

- Students may not receive credit towards graduation for more than one of the following courses: ECONOM 1014 Principles of Microeconomics, ECONOM 1024, ECONOM 1051, or ABM 1041 Applied Microeconomics.
- Students may not receive credit towards graduation for more than one of the following courses: ECONOM 1015 Principles of Macroeconomics, ECONOM 1051H General Economics - Honors or ECONOM 1000 General Economics for Journalists, or ABM 1042 Applied Macroeconomics.

### History

- Students may not earn credit towards graduation for both HIST 1100 Survey of American History to 1865 and HIST 1400 American History.
- Students may not earn credit towards graduation for both HIST 1200 Survey of American History Since 1865 and HIST 1400 American History.

### Mathematics

- Students can only have a total of 5 hours of credit towards graduation from the following courses: MATH 1320 Elements of Calculus, MATH 1400 Calculus for Social and Life Sciences I, MATH 1500 Analytic Geometry and Calculus I.
- Students can only have a total of 5 hours of credit towards graduation from the following courses: MATH 1100 College Algebra, MATH 1120, MATH 1140 Trigonometry, MATH 1160 Precalculus Mathematics.
- No hours for MATH 1050 Quantitative Reasoning will count for credit if a student has already earned credit for MATH 1300 Finite

Mathematics, MATH 1400 Calculus for Social and Life Sciences I, or MATH 1500 Analytic Geometry and Calculus I.

## Physics

- Students may not earn credit towards graduation for both PHYSCS 1210 College Physics I and PHYSCS 2750 University Physics I.
- Students may not earn credit towards graduation for both PHYSCS 1220 College Physics II and PHYSCS 2760 University Physics II.

## Psychology

- Students may not receive credit towards graduation for more than one of the following courses: PSYCH 2410 Developmental Psychology, H\_D\_FS 3420 Early and Middle Childhood, or ESC\_PS 2500 Child Development.

## Statistics

- Students may not receive credit towards graduation for more than one of the following courses: STAT 1200 Introductory Statistical Reasoning, STAT 1300 Elementary Statistics, or STAT 1400 Elementary Statistics for Life Sciences.
- Students may not receive credit towards graduation for more than one of the following courses: STAT 2500 Introduction to Probability and Statistics I or STAT 2530 Statistical Methods in Natural Resources.
- Students may only receive a maximum of 4 hours of credit towards graduation from the following courses: STAT 1200 Introductory Statistical Reasoning, STAT 1300 Elementary Statistics, STAT 1400 Elementary Statistics for Life Sciences, STAT 2200 Introductory Statistical Methods, STAT 2500 Introduction to Probability and Statistics I, or STAT 2530 Statistical Methods in Natural Resources.
- A student may not receive credit toward an undergraduate degree for any statistics course numbered 2999 or below if a statistics course numbered 4000 or above was successfully completed prior to or concurrent with the course in question. Exceptions may be approved at the discretion of the department.

## General Education Requirements

General education requirements are the foundation of knowledge upon which all University of Missouri degrees are built. They are specifically intended to prepare students as citizens who must make informed judgments about issues that go beyond the narrow area of their academic specialization. Students must complete the University General Education Requirements listed below. With careful planning, some courses may be chosen to meet both University General Education Requirements and one or more of the divisional, degree and major requirements. Students are strongly encouraged (and in some divisions they are required) to meet with an academic advisor to ensure adequate progress towards the selected degree and major. More information can be found at: <https://generaleducation.missouri.edu/>.

### University General Education Requirements for all MU degrees

**These requirements are applicable to student subject to the 2019-20 version of the catalog. To reference earlier additions of the University Catalog go to Archived Catalogs (<http://catalog.missouri.edu/>**

**archives/) under the General Information section on the catalog home page.**

- Math and Quantitative Reasoning<sup>1</sup> (1 course)  
Students may satisfy this requirement by:
  - Completing an appropriate math course (MATH 1050 (<https://currentcatalog.missouri.edu/search/?P=MATH%201050>), MATH 1100 (<https://currentcatalog.missouri.edu/search/?P=MATH%201100>) or MATH 1160 (<https://currentcatalog.missouri.edu/search/?P=MATH%201160>)) or STAT 1200 (<https://currentcatalog.missouri.edu/search/?P=STAT%201200>)<sup>1</sup>
  - Completing a calculus course at MU (MATH 1400, MATH 1500, MATH 1700, or MATH 2300)<sup>1</sup>, which provides back-credit for MATH 1100 (or MATH 1160)
  - Transferring a calculus course (MATH 1400 or MATH 1500) with a grade of C- or higher, which provides a limited college algebra exemption. See the college algebra exemption page (<https://www.math.missouri.edu/math-placement/college-algebra-exemption/>) for more information.
  - Transferring STAT 2500<sup>1</sup> or receiving AP credit for STAT 2500, which provides a limited college algebra exemption. See the college algebra exemption (<https://www.math.missouri.edu/math-placement/college-algebra-exemption/>) page for more information.
  - Passing the Proctored ALEKS exam with a sufficient score, thereby demonstrating proficiency in college algebra.
  - Possessing the minimum ACT or SAT Math subscores, thereby providing an exemption. (See [mathplacement.missouri.edu](http://mathplacement.missouri.edu) (<http://mathplacement.missouri.edu>) for further details.)
- English Exposition and Argumentation (ENGLSH 1000 or ENGLSH 1000H) or transferable equivalent<sup>1</sup> (1 course)
- First Writing Intensive course, this may be satisfied by completing<sup>1, 2</sup> (3 credits)
  - A writing intensive-designated coursework from anywhere in the University curriculum, or from an English Composition I transfer course equivalent from another Missouri regionally-accredited institution (ENGLSH 1010W).
- American History or Government<sup>2, 4</sup> (3 credits)
- Distribution Requirement (27 credits) providing a breadth and depth of knowledge in three broad areas of study. The course work must include at least one course numbered 2000 or higher in two of the areas of distribution as described below.
  - Must include 9 credits in these sciences: biological science, physical science, and / or mathematical science<sup>3</sup>
    - including at least one biological or physical science and its related laboratory component. See MU General Education (<https://generaleducation.missouri.edu/courses/?category=all&status=all&level=all&prop=lab-course>) site for a list of Lab courses.
    - representing two different areas of science
  - Must include 9 credits of behavioral and/or social science
    - Courses must be from at least two different departments in these areas
  - Must include 9 credits of humanities and/or fine arts
    - including courses from at least two different departments in these area

- For the full list of courses that fulfill this distribution and the noted exceptions, go to: <http://generaleducation.missouri.edu/courses/>
- 1 Must be completed with a grade of C- or better.
  - 2 Designated courses may also be used toward the distribution requirement.
  - 3 Must be courses in mathematics or statistics with College Algebra as a prerequisite.
  - 4 Fulfills State Law Requirement.

## Transfer Students and University General Education Requirements

MU general-education requirements may be completed at MU or are considered completed for students who:

- Transfer to MU with an AA degree from a regionally-accredited Missouri institution or
- Complete CORE 42 at MU or at another CORE 42 signatory Missouri institution
- Complete general education at a CORE 42 signatory Missouri institution

Transfer credits for other students are evaluated on a course-by-course basis. All students must complete University graduation requirements beyond the University general education requirements.

### CORE 42 Transfer Curriculum

The CORE 42 Transfer Curriculum is a block of at least 42 credit hours that will transfer as a block and be considered to have met all General Education requirements at all Missouri public colleges and universities, as well as independent Missouri institutions that have signed onto the agreement via the Missouri Department of Higher Education (visit <https://dhe.mo.gov/core42.php>). (<https://dhe.mo.gov/core42.php>)

Students who complete the CORE 42 curriculum will meet the general education requirements.

To complete the curriculum, students must earn a minimum number of credit hours in five knowledge areas:

- Mathematical sciences – three credit hours
- Natural sciences – seven credit hours, including a course with a lab
- Humanities and fine arts – nine credit hours from at least two disciplines
- Social and behavioral sciences – nine credit hours, including a civics course
- Written and oral communications – nine credit hours (six in written communications and three in oral communications)

Credits earned beyond the minimum in each Knowledge area count toward the 42-hour minimum.

### MOTR Course Equivalencies

Courses designated with a Missouri Transfer (MOTR) course number, guarantees the one-to-one transfer of these courses among all Missouri public institutions of higher education.

For more information about CORE 42 and MOTR Course Equivalencies, visit <https://dhe.mo.gov/core42.php>.

NOTE: Many departments, degrees and majors have more specific requirements for foundation course work in addition to the University, general-education requirement. However, the reverse is not true.

Departments or academic units may not have fewer general education requirements than described by the University general education requirements. Careful planning will allow students to simultaneously meet University, general-education requirements and prepare for many of the more specific foundation courses required by their field of study.

## Master's Requirements (University)

The purpose of this section is to provide an overview of Graduate Faculty Senate's policies for graduate education at MU. Students considering a master's degree should read all of the information below to fully understand the requirements of advanced study (e.g., residency, plan of study and time lines for completion) at MU.

MU confers a variety of master's, dual master's degrees (<http://gradschool.missouri.edu/academics/process/dual-masters-process/>) or **dual master's/ professional degrees** to students who satisfy the general requirements of the Graduate School and the specific requirements of the degree-granting department or area program. Designated **graduate minors** and **certificates** are available in some academic fields. **Thesis and non-thesis options** are available for select plans of study; students must consult with individual degree programs for more information.

### Master's Residency Requirements

The faculty of each graduate program determines its own residency requirements for master's degrees, subject to initial review by the Graduate Faculty Senate. Consult with the academic program for requirements. For academic programs that choose to maintain the traditional regulation concerning residency for master's students, the following applies: the student must complete a minimum of 24 semester hours of MU graduate courses which are taught by MU faculty and which are approved by the academic program and the Graduate School. Students who cannot fulfill residency requirements are encouraged to consider Mizzou Online for available degrees.

### Graduation and Commencement Deadlines and Forms

It is recommended that students refer often to the S (<https://gradschool.missouri.edu/current-students/graduation-commencement/masters-timelines-deadlines/>) for Graduation and Commencement for Master's Students (<https://gradschool.missouri.edu/current-students/graduation-commencement/masters-timelines-deadlines/>) to avoid missing any important graduation or commencement deadlines. In addition to various deadlines, student must also submit a variety of necessary paperwork. By the end of the first year of master's work at MU, a student must begin submitting degree program forms, which will aid the department and the Graduate School in planning an academically appropriate course of study and in tracking the student's progress toward degree completion. These forms include the following:

*Program of Study.* Outlines the course work to be included in the student's degree program. This form should be submitted to the Graduate School by the end of the second semester unless the degree can be completed in two semester. In that case, the form is due by the end of the first semester. Plan of Study (M1) form (pdf) (<https://gradschool.missouri.edu/wp-content/uploads/2020/05/m1digitalsignature520.pdf>)

*Request for Thesis Committee* (thesis option only). Is a membership proposal for the student's thesis committee. This form should be submitted to the Graduate School at least one semester before the thesis defense is held. Request for Thesis Committee (M2) form (pdf) (<https://gradschool.missouri.edu/wp-content/uploads/2020/03/M2-formDigitalSignature.pdf>)

*Report of Master's Examining Committee*. Reports the results of the thesis defense, master's comprehensive exam, project presentation, portfolio review, etc. Due to the Graduate School two weeks prior to graduation. Report of Master's Examining Committee (M3) form (pdf) (<http://gradschool.missouri.edu/forms-downloads/repository/m3.pdf>). (<https://gradschool.missouri.edu/wp-content/uploads/2020/03/m3DigitalSignature-2.pdf>)

## Choosing an Advisor

Graduate Committee Membership for Jointly Appointed Faculty Chapter 320 of the Collected Rules and Regulations for the University of Missouri requires that all jointly appointed faculty members will have designated Primary Appointment and Primary Departments well as affiliation with one or more involved academic programs. These affiliations affect membership status of jointly appointed faculty on graduate student committees as follows:

- Faculty members may serve as advisor/committee chair when their Primary Appointment is in the graduate student's home academic program.
- When the graduate student's home academic program is the involved academic program for a jointly appointed faculty member, this person may serve as chair/advisor with the approval of the director of graduate studies from the student's home academic department.

## Graduate Committee Membership for Adjunct Faculty

Adjunct Faculty may serve as a Committee Chair or Committee Member only in academic programs in which they are appointed and approved for Graduate Faculty membership. Service on graduate committees outside the academic program in which they are appointed requires a recommendation by the director of graduate studies from the student's home academic program and approval by Dean of the Graduate School.

## Master's Plan of Study

The Graduate Faculty Senate has established a campus wide minimum of 30 hours of graduate credit beyond the bachelor's degree (or its equivalent) for a master's degree. Fifteen of the 30-hour minimum must be selected from courses numbered at 8000 or 9000 level. No more than 40 percent of the 30-hour credit requirement can be satisfied by a combination of special investigations, Research, Readings and / or Problems courses. Master's Plan of study. (<http://gradschool.missouri.edu/academics/process/plan-of-study/masters.php>)

## Completing a Plan of Study Form

After performing satisfactorily for a minimum of one semester, the student, with the advisor's assistance, completes the Plan of Study form (pdf) (<http://gradschool.missouri.edu/forms-downloads/repository/m1.pdf>) that outlines the plan of study for the student's graduate program. The form is forwarded through the academic program's director of graduate studies to the Graduate School for approval. The Plan of Study form must be filed with the Graduate School by the end of the

student's second semester of enrollment or at least one semester prior to graduation. Upon approval of the program by the Graduate School, the student is a candidate for the degree. If a change is necessary to a student's approved Plan of Study form, a Plan of Study Substitution form (<https://gradschool.missouri.edu/wp-content/uploads/2020/03/subformdigitalsignatures.pdf>) must be used.

**Note:** An academic program may have additional credit hour (or other) requirements. Check with the program of interest to confirm degree requirements.

## Transfer Credit Toward a Master's Degree

A maximum of 20 percent of the number of credit hours required for a student's degree may be graduate credits transferred from another university, including another campus of the University of Missouri system upon the recommendation of the advisor, the approval of the academic program director of graduate studies and the Graduate School.

## How to Request Transfer of Credit

1. The request or transfer credit must first be approved by the student's advisor and the department's director of graduate studies.
2. Once approved the student submits their Plan of Study or Course Substitution form to add the transfer work to the Plan of Study along with an unopened, official transfer transcript if one is not currently on file with the Graduate School.
3. Once the Graduate School has received the request it will be reviewed to determine if minimum requirements have been met.
4. If approved then the Graduate School will process the request so that the transfer credit appears on the MU student record.

## Minimum Transfer Requirements

Transfer course work:

- must be less than eight years old by the time the master's degree is conferred;
- was taken for graduate credit and clearly marked as such on the transfer transcript, complete with credit hours and a grade;
- is limited to no more than 20 percent of the total course work on the student's Plan of Study form;
- is from a regionally accredited institution in the U.S. or an overseas institution that is recognized by its country's Ministry of Education as a graduate degree granting institution.

## Credit Toward a Second Master's Degree

A student who has completed one master's degree at the University of Missouri or elsewhere may, upon recommendation of the advisor and approval by the academic program's director of graduate studies and the Graduate School, present a maximum of eight hours of credit earned in the previous program toward a second master's degree.

## Forming a Master's Thesis Committee

When a thesis is required for completion of a master's degree, the student is required to submit a Request for Thesis Committee (M2 form) (<https://gradschool.missouri.edu/wp-content/uploads/2020/03/M2-formDigitalSignature.pdf>) or a dual-masters Request for Thesis Committee (DM2 form) (<https://gradschool.missouri.edu/wp-content/uploads/2020/03/DM2-form2020Fillable.pdf>) for approval by the academic program's director of graduate studies and the Graduate School by the end of the student's second semester. A thesis committee is composed of three members of the MU faculty: a major advisor from the academic

program, a second reader from the academic program and either a third reader from the academic program or an outside reader who is a member of the graduate faculty from a different MU graduate program.

After the Request for Thesis Committee form has been filed, any changes must be submitted through the Change of Committee form (<https://gradschool.missouri.edu/wp-content/uploads/2020/03/cocformdigitalsignature.pdf>).

## Approval of a Non-MU Faculty Member

Upon approval of the academic program's director of graduate studies, the student may petition the Graduate School to allow a person who is not a member of the MU graduate faculty to serve as the third reader. The petition should include a written justification for such a request and a copy of the person's curriculum vitae. If approved, the third reader will receive Graduate Faculty Status C (<https://gradschool.missouri.edu/faculty-staff-resources/graduate-faculty-senate/graduate-faculty-membership-types/>). The Graduate School maintains a database of all faculty with graduate status; the student should contact the Graduate School to see if the intended third reader holds graduate faculty status.

## The Thesis Process

If a thesis is required, it must be the student's own work and must demonstrate a capacity for research and independent thought. A student writing a thesis should refer to the Graduate School's thesis and dissertation guidelines (<https://gradschool.missouri.edu/current-students/thesis-dissertation/thesis-dissertation-guidelines/>). Academic programs may have additional requirements. The Graduate School sets deadlines for master's students (<https://gradschool.missouri.edu/current-students/graduation-commencement/graduation-checklist/>) for completion and submission of the thesis.

## Thesis Acceptance

A thesis must be approved by the major advisor, a second reader from the academic program and third reader who may be from the academic program or another member of the graduate faculty. Students need to supply committee members with copies for review/evaluation. After successfully defending the thesis, the student will make any needed adjustments in format and corrections, based on input from the committee. The thesis is then submitted electronically as a PDF file or on a CD.

Review the Graduate School web pages for additional information on the master's thesis process (<http://gradschool.missouri.edu/academics/thesis-dissertation/process/>).

A searchable thesis and dissertation archive is maintained by the MU Libraries.

## Grades at the Graduate Level-Graduation Requirement

To become eligible for a master's degree, a student must have completed all MU graduate work attempted with a GPA of 3.0 (A=4.0) or higher. Review grading policies (p. 867) for more information.

## Examination Process

### Thesis Option

Where a thesis is presented in partial fulfillment of graduation requirements, students must form a thesis committee. In the final semester, the student must successfully present (defend)

the thesis. Three members of the student's committee must sign the Report of the Master's Degree Examining Committee (pdf) (<https://gradschool.missouri.edu/wp-content/uploads/2020/03/m3DigitalSignature-2.pdf>), which is then forwarded through the academic program's director of graduate studies to the Graduate School by the semester deadline.

### Non-Thesis Option

Where no thesis is presented by the candidate, a final examination committee, composed of three members from the academic program, is designated by the academic program's director of graduate studies with the approval of the Graduate School. During the final semester, the Report of the Master's Examining Committee (pdf) (<https://gradschool.missouri.edu/wp-content/uploads/2020/03/m3DigitalSignature-2.pdf>), signed by the director of graduate studies, is forwarded to the Graduate School by the semester deadline. All candidates for the MA or MS degrees must complete either a thesis or a substantial independent project that cannot be coauthored.

## Enrollment at the Master's Level

For general master's enrollment requirements go to the Graduate School's web page on master's enrollment requirements (<http://gradschool.missouri.edu/academics/progress/graduate-stud-progress/master-stud-progress.php>).

## Enrollment

The master's candidate must be enrolled at the University during the semester or session in which a thesis is defended, a master's project is presented, or the completion of a master's comprehensive exam is certified. Students who do not wish to enroll in course work during this time can enroll in "Graduate Examination" hours only.

**Note:** Registration in the "Graduate Examination" does not count toward enrollment certification. Students enrolled in the "Graduate Examination" are not considered full-time or part-time. Students who enroll in the Graduate Examination will no longer have a valid student ID; they will not have regular access to the Student Health Center, MU Libraries, the Student Recreation Center, or campus computing centers. If a student needs to use any of these services, registration in a one-, two-, or three-hour course (including graduate research courses) is required. Extra fees apply for access to these services.

Graduate students must be enrolled in at least 9 credit hours to be considered full-time students and at least 4.5 credit hours to be considered half-time students during fall and spring terms. For summer terms, graduate students must be enrolled in 4.5 hours to be considered full-time and 2.25 to be considered half-time students.

Students with financial aid or a visa should discuss plans with the Student Financial Aid (<http://financialaid.missouri.edu/>) office before registering for Graduate Examination hours. International students with a visa should discuss plans with MU's International Center (<http://international.missouri.edu/>) before registering for the Graduate Examination. Failure to do so could result in serious consequences for a student's financial aid or visa status.

## Scheduling Exams and Defenses

Comprehensive exams, thesis defenses, portfolio presentations, and other capstone activities must be conducted during the regular semester session. Dates that are excluded from graduation examinations



include breaks between semester sessions, national holidays where the University is not in operation, and weekends.

### Time Limit for Master’s Degree Completion

The program for the master’s degree must be completed within a period of eight years beginning with the first semester of enrollment in which the student is accepted to a degree program or from the date of the oldest coursework used on the plan of study. Individual academic programs may stipulate a shorter time period. Time spent in the armed services will not count toward the eight year limit (see also Active Duty Policy). For any extension of this time limitation, the student must petition the Graduate School by submitting a request to their advisor who, in turn, submits a written request to the Graduate School that is endorsed by the academic program’s director of graduate studies. The Graduate School will notify the advisor and director of graduate studies of the final decision via email.

For academic advice or assistance with degree program planning, students should contact their advisors. See master’s graduation requirements. (<http://gradschool.missouri.edu/academics/graduation-requirements/masters-grad-requirements.php>)

### Reasonable Rate of Progress for Master’s Students

Reasonable rate of progress is governed by both the campus-wide policies of the Graduate Faculty Senate as well as academic program regulations, which may be more restrictive. Failure to satisfy the Graduate Faculty Senate’s rate of progress policies, which leads to dismissal, is handled through the Request for Extension (<http://gradschool.missouri.edu/academics/progress/requests-for-extensions-appeals.php>) process.

### Deadline for Submission of Thesis After Successful Defense

After successful defense of the thesis, students must comply with their academic program’s enrollment requirements. International students should also consult the International Center so that they comply with visa requirements. Students are required to submit their final thesis by the end of the following semester after a successful defense unless a letter asking for an extension is submitted to the dean of the Graduate School by the student’s advisor and program’s director of graduate studies.

### Extension Requests for Master’s Students

If extenuating circumstances inhibit a student’s rate of progress, the student must follow the Request for Extension (<http://gradschool.missouri.edu/academics/progress/requests-for-extensions-appeals.php>) process. To do so, the student petitions the Graduate School by submitting a request to their advisor who, in turn, submits a written request to the Graduate School that is endorsed by the academic program’s director of graduate studies.

### Dismissal

Dismissals arising from violation of academic program policies may be appealed using the Appeals Process. For additional details, graduate students should refer to the Dismissal Policy (<http://gradschool.missouri.edu/academics/progress/probation-termination.php>) and the Extension Requests and Appeals Process (<http://gradschool.missouri.edu/academics/progress/requests-for-extensions-appeals.php>).

## Dual Degrees: Master’s Students

As the US workforce becomes increasingly interdisciplinary, some master’s students elect to concurrently pursue two advanced study degrees. All dual-degree programs at the graduate level require Graduate Faculty Senate approval. Please refer to the A-Z list of graduate degree programs (<http://gradschool.missouri.edu/academics/programs/a-z/>) to learn what is currently available.

The two types of dual master’s degrees are the dual master’s degree and the dual master’s-professional degree.

Degree Type	Dual Master’s Degree	Dual Master’s-Professional Degree
Description	This is a cooperative degree, arranged between two graduate degree granting programs and approved by the Graduate Faculty Senate.	This is a cooperative degree arranged between a graduate degree granting program and a professional degree granting program (e.g., law or medicine) and approved by the Graduate Faculty Senate.
Application Processes	Students must simultaneously submit a separate application to both degree programs to be considered for admittance. Because some students may not be aware of an approved dual-degree program before their arrival at MU, the option to participate in an approved dual-degree program may be postponed until no later than the end of a student’s second semester at MU. Start your online application process at <a href="http://gradschool.missouri.edu/admissions/index.php">http://gradschool.missouri.edu/admissions/index.php</a> ( <a href="http://gradschool.missouri.edu/admissions/">http://gradschool.missouri.edu/admissions/</a> )	The Graduate School oversees the master’s degree portion of the dual master’s/ professional degree. Students must apply to both the Graduate School and the professional program, notifying both of their interest in the dual program. Start your online application process to the Graduate School at <a href="http://gradschool.missouri.edu/admissions/index.php">http://gradschool.missouri.edu/admissions/index.php</a> ( <a href="http://gradschool.missouri.edu/admissions/">http://gradschool.missouri.edu/admissions/</a> )

Forms and Policies      Students must fill out an Application for Dual Enrollment (pdf) no later than the end of a student's second semester at MU.

For Graduate School policies and forms pertaining to the master's portion of the dual master's/professional degree, refer to the Master's Degrees Requirements and Policies on the website.

## Note on Dual Degrees for Law Students

Dual-degree programs with the Law School enable students to earn the Juris Doctor (JD) concurrently with a Master's or PhD degree. Dual-degree students must fulfill entrance requirements for both schools, including any entrance exam (if required) and the LSAT. Contact the Law School (p. 817) for more information on their dual-degree programs.

## Note on Dual Degrees for Medical Students

Additional information concerning medical dual degrees for both master's and doctoral students can be found on the doctoral dual degree (<http://gradschool.missouri.edu/academics/graduation-requirements/dual-degree-requirements.php>) page.

## Counting Credits

A student must complete a minimum of 18 hours of graduate courses for each degree program respectively. A minimum of 3 hours must be 8000-level courses. Additionally, the student must complete 12 hours of shared 8000-level graduate credit, which can include thesis/project research credit, as applicable.

Thus,  $18 + 18 + 12 = 48$  hours of graduate credit which is the minimum total hours for a dual master's degree program.

For example, for a dual master's degree program in Applied Mathematics and Electrical Engineering, a student's plan of study must show 18 hours of Applied Mathematics graduate course work that applies only to the Applied Mathematics degree and 18 hours of Electrical Engineering graduate course work that applies only to the Electrical Engineering degree. The additional 12 hours of shared 8000-level graduate credit brings the total earned graduate credit hours to 48.

## Transfer Credit

Up to eight hours of transfer credit may be applied as follows: to one of the two degree programs, or divided between the two degree programs. The eight hours of transfer credit cannot be applied to each degree program separately.

## Advising & Committees

There will be a separate advisor and committee for each degree program.

*Dean's Note:* the option of a combined committee structure may be included in proposals for Graduate Faculty Senate consideration, e.g., co-advisors who would also serve as outside members, plus one additional member from each degree program, for a total of four committee members.

## Dual Degree Progress Forms

Special dual master's degree program forms will be used to certify plans of study, committee members and final defense/examinations. The forms are available from the Master's (<https://gradschool.missouri.edu/current->

<https://gradschool.missouri.edu/academics/graduation-commencement/timeline-deadlines/master-timeline.php>) teps for Graduation and Commencement (<https://gradschool.missouri.edu/current-students/graduation-commencement/masters-timelines-deadlines/>).

## Conferral of Dual Degrees

The University will confer two separate diplomas upon completion of all degree requirements for both programs.

## Educational Specialist Requirements

This degree, offered through the College of Education, is a 30-hour program of specialization built upon the educational specialist degree, of which 24 hours must be taken with MU faculty. Six semester hours must be completed within one semester or summer session to provide an in-residence experience. Students have eight years to complete the degree from the time they are first admitted to the degree program. A student is required to take a final examination, and the report of the results must be approved by a majority of the candidate's advisory committee members and submitted to the Graduate School. For additional information on the Educational Specialist degree (<http://gradschool.missouri.edu/academics/graduation-requirements/educ-spec-requirements.php>), consult the College of Education's site (<http://education.missouri.edu/>).

## Required Educational Specialist Forms

The Graduate School obtains students' official academic records as soon as they complete their first term of enrollment. Each of the following forms is completed at the departmental/program level, routed for required signatures and forwarded to the Graduate School in 210 Jesse Hall.

Forms are reviewed by staff in the Graduate School, given the Dean's signature if approved, and an electronic copy is made available to the academic program office. If changes/corrections are needed, or if any signatures are missing, the forms will be returned to the department for corrective measures. If any faculty signatures are illegible, we ask that departments print the correct spelling below any such signatures.

Request for the Educational Specialist Advisory Committee (<http://gradschool.missouri.edu/forms-downloads/repository/s1.pdf>) (*S-1 form, PDF*)

The S-1 form serves as official documentation of who serves on a student's advisory committee. It should be submitted to the Graduate School by the end of a student's second semester or at least one semester prior to degree completion.

Plan of Study for the Educational Specialist Degree (<https://gradschool.missouri.edu/wp-content/uploads/2020/03/s2DigitalSignature.pdf>) (*S-2 form, PDF*)

The S-2 form provides the student, academic program/department, and the Graduate School with a plan for all the course work that will comprise a plan of study. It serves as a general plan to follow. Changes on the plan of study can be made easily by submitting a Course Substitution form (<https://gradschool.missouri.edu/wp-content/uploads/2020/03/subformdigitalsignatures.pdf>). The S-2 form should be submitted to the Graduate School preferably by the end of a student's second semester or at least one semester prior to degree completion.

Report of the Educational Specialist Examining Committee  
(<https://gradschool.missouri.edu/wp-content/uploads/2020/03/s3DigitalSignature.pdf>) (S-3 form, PDF)

This form is submitted by the academic program/department and reports the final results of a student's comprehensive examination. Students are encouraged to consult with their departments to make sure the departments submit the S-3 form shortly after the exam has been assessed.

## Transfer Credit Toward the Educational Specialist Degree

A maximum of 20 percent of the number of credit hours required for a student's degree may be graduate credits transferred from another university, including another campus of the University of Missouri system, upon the recommendation of the advisor, the approval of the academic program director of graduate studies, and the Graduate School.

**Note:** The Graduate School will review the transfer request to determine if the credit meets the minimum guidelines. If so, the Graduate School will process the request so that each transfer course will appear on the student's transcript.

## How to Request Transfer of Credit

1. The request or transfer credit must first be approved by the student's advisor and the department's director of graduate studies.
2. Once approved, the student submits their Plan of Study or Course Substitution form to add the transfer work to the Plan of Study along with an unopened, official transfer transcript if one is not currently on file with the Graduate School.
3. Once the Graduate School has received the request, it will be reviewed to determine if minimum requirements have been met.
4. If approved, the Graduate School will process the request so that the transfer credit appears on the MU student record.

## Minimum Transfer Requirements

Transfer course work:

- must be less than eight years old by the time the educational specialist degree is conferred;
- was taken for graduate credit and clearly marked as such on the transfer transcript, complete with credit hours and a grade;
- is limited to no more than 20 percent of the total course work on the student's Plan of Study form;
- is from a regionally accredited institution in the U.S. or an institution outside the U.S., that is recognized by its country's Ministry of Education as a graduate degree granting institution.

## Special Types of Credit for the Educational Specialist Degree

A maximum of six semester hours completed with a grade of B or better may be accepted in transfer from institutions accredited to offer doctoral degrees. Off-campus courses authorized for graduate credit and offered by MU faculty members and courses offered through MizzouOnline taught by MU faculty may be included in the program.

## Grades at the Graduate Level (Graduation Requirement)

To become eligible for an educational specialist degree, a student must have completed all MU graduate work attempted with a GPA of 3.0 (A=4.0) or higher. Review grading policies (p. 867) for more information.

## Enrollment

The educational specialist candidate must be enrolled at the University during the regular semester session in which comprehensive exams are taken or portfolio or other capstone project is presented.

## Time Limit for Educational Specialist Degree Completion

The program for the educational specialist degree must be completed within a period of eight years, beginning with the first semester of enrollment in which the student is accepted to a degree program or from the date of the oldest coursework used on the plan of study. Individual academic programs may stipulate a shorter time period.

Time spent in the armed services will not count toward the eight year limit (see Active Duty Policy (<http://catalog.missouri.edu/academicpolicies/militaryactiveduty/>)). For any extension of this time limitation, the student must petition the Graduate School by submitting a request to the advisor who, in turn, submits a written recommendation to the Graduate School that is endorsed by the academic program's director of graduate studies. The Graduate School staff will notify the advisor via email of the final decision.

For academic advice or assistance with degree program planning, students should contact their advisors.

## Reasonable Rate of Progress for Educational Specialist Students

Reasonable rate of progress is governed by both the campus-wide policies of the Graduate Faculty Senate, as well as academic program regulations that may be more restrictive. If a student is not satisfying the rate of progress policies, they are subject to dismissal.

## Extension Requests for Educational Specialist Students

Extenuating circumstances that inhibit a student's rate of progress are handled through the Request for Extension (<http://gradschool.missouri.edu/academics/progress/requests-for-extensions-appeals.php>) process. The decision regarding an extension is made by the dean of the Graduate School, and is binding.

## Dismissal

Dismissals arising from violation of academic program policies may be appealed using the Appeals Process. For additional details, graduate students should refer to the Dismissal Policy (<http://gradschool.missouri.edu/academics/progress/probation-termination.php>) on the Graduate School website.

## Doctoral Requirements (Graduate Studies)

The University of Missouri grants types of doctoral degrees: the doctor of philosophy (PhD), the doctor of education (EdD), and the doctor of nursing practice (DNP). Consult with individual departments to learn about the availability of degrees. To obtain a doctoral degree, a student must follow the general regulations of the Graduate Faculty Senate, as well as special requirements of the degree program. It is the student's responsibility to adhere to all regulations and satisfy the graduation requirements of the Graduate School and the degree program. An individual who has held, at any time, a regular tenure-track appointment in an MU academic program is not eligible for a doctoral degree from that department or the area program in which that department participates.

### Selecting a Doctoral Advisor

The student selects an advisor or co-advisors, by mutual consent, from doctoral faculty members who are dissertation supervisors in the department or area program in which the major work is planned. When the graduate student's home academic program is the involved academic program for a jointly appointed faculty member, the person may serve as chair/advisor with the approval of the director of graduate studies from the student's home academic program. In the event that an advisor retires or leaves MU, they may continue to serve as a student's advisor unless there is written academic program policy prohibiting such an arrangement. If the program allows a faculty member who has left MU to serve, a co-advisor should also be identified so that there is a faculty member at MU to provide further support to the student. If an advisor is unable or unwilling to continue to serve, the academic program, with the leadership of the director of graduate studies, will assist to ensure that a replacement is found.

### Doctoral Qualifying Examination or Process and Forming a Doctoral Program Committee

A department or program determines the nature of the qualifying examination or process. The unit may also limit the number of times this examination or process may be attempted. In conjunction with the completion of the qualifying examination, the student's advisor must recommend the doctoral program committee. The committee must be approved by the academic program's director of graduate studies and the Graduate School. The Qualifying Examination Results and Doctoral Committee Approval (D1) (<http://gradstudies.missouri.edu/forms-downloads/repository/d1.pdf>) form should be submitted to the Graduate School within the first 2 years of doctoral study.

### Committee Changes

Changes to the committee must be submitted on the Change of Committee form (<https://gradschool.missouri.edu/wp-content/uploads/2020/03/cocformdigitalsignature.pdf>).

### Membership Requirements for Doctoral Committees

The doctoral program committee shall be composed of a minimum of four members of the MU graduate faculty and will include at least three members from the student's department or degree program (e.g., Interdisciplinary Neuroscience, Genetics Area Program, Informatics) and an outside member from a different MU department or program. At least

two of the doctoral committee members must be MU doctoral faculty, one of whom must be the chair or co-chair. For students pursuing an EdD, an outside member is not required.

Additional committee members with specialized expertise who do not meet the criteria for the MU graduate faculty or doctoral faculty may serve on a doctoral committees as a fifth or sixth member, with special permission of the Dean of the Graduate School.

### Graduate Committee Membership for Jointly Appointed Faculty

Chapter 320 of the Collected Rules and Regulations ([http://www.umsystem.edu/ums/rules/collected\\_rules/personnel/ch320/](http://www.umsystem.edu/ums/rules/collected_rules/personnel/ch320/)) for the University of Missouri requires that all jointly appointed faculty members will have a designated Primary Appointment and Primary Department, as well as affiliation with one or more involved departments or units. These affiliations affect membership status of jointly appointed faculty on graduate student committees as follows:

#### Doctoral Committee Member

A faculty member can serve only as an Internal Member when their Primary Appointment is in the graduate student's home academic program. When a graduate student's home academic program is the involved academic program for a jointly appointed faculty member, they may serve as either an internal or external member of the committee.

#### Graduate Committee Membership for Adjunct Faculty

Adjunct faculty may serve as a committee chair or committee member only in academic programs in which they are appointed and approved for graduate or doctoral faculty membership as appropriate for the student's degree (master's or doctoral). Service on graduate committees outside the academic program in which an adjunct member is appointed requires a recommendation by the director of graduate studies and/or department chair/director from the student's home academic program and approval by the Dean of the Graduate School.

#### Duties

All members of the doctoral program committee will be intimately involved and will actively participate in the activities of the doctoral student at all the stages of the student's career at MU, except, in some cases, in the qualifying examination/process. The committee also may participate in the assessment of a student's background and potential for success in the academic program's doctoral program. Committee members may call a meeting of the full committee at any time to discuss the student's progress.

### Doctoral Plan of Study & Degree Requirements

The doctoral program committee provides academic program approval of the student's Plan of Study (<https://gradschool.missouri.edu/wp-content/uploads/2020/03/d2digitalsignature.pdf>), which will prepare the student for research or scholarly investigation in the chosen field of study. The plan of study includes a list of the courses and the credit to be earned. By successfully completing the plan by deadlines, a doctoral student will:

- Prepare the student for research or scholarly investigation in the chosen field of study.
- Satisfy the credit-hour and residency requirement of the academic program.

- Satisfy any special requirements (proficiency in foreign languages, collateral field, doctoral minor, other special research skills) imposed by the department or area program.
- Satisfy the requirement for a minimum of 15 hours of MU coursework at the 8000/9000 level (exclusive of research, readings, and problems).

The committee also recommends to the Dean of the Graduate School, as part of the Plan of Study, any request for transfer of graduate credit. Changes to the plan of study should be submitted on the Plan of Study Course Substitution form (<http://gradstudies.missouri.edu/forms-downloads/repository/subform.pdf>).

## Doctoral Credit-Hour Requirement

MU requires a minimum of 72 credit hours beyond the baccalaureate degree for doctoral degrees. The student's doctoral program committee must approve all course work used to satisfy the credit-hour requirement and may require additional course work beyond these minimums.

## Transfer Credit

The doctoral committee may recommend up to 30 hours of post-baccalaureate graduate credit from a regionally accredited university be transferred toward the total hours required for the doctoral degree. It is the responsibility of the doctoral committee to determine the appropriateness of course work for transfer credit. All requests for exceptions to this policy must be approved by the Dean of the Graduate School.

## Extension & Correspondence Credit in Doctoral Programs

The doctoral committee may recommend that courses taken through MU's Extension division be counted toward the credit-hour requirement. Extension or correspondence course work from institutions other than MU may not be used to meet the total hours required for the doctoral degree.

## Time Limits on Transfer Credits

All courses to be applied to the plan of study must be completed within eight years of filing the plan.

## Grades at the Graduate Level

To become eligible for a degree, a doctoral student must have completed all MU graduate work attempted with a GPA of 3.0 (A=4.0) or higher. Review grading policies (p. 867) for more information.

## Foreign Language Proficiency

In general, an English-speaking student may establish foreign language proficiency, if it is required, by demonstrating an ability to translate into English two foreign languages; or by demonstrating a high order of fluency in one language; that is the ability to read, write, and converse in that language and to translate that language into English and English into that language. However, very few programs require a foreign language proficiency.

## Plan of Study Completion Before Doctoral Comprehensive Exam

The student must substantially complete the course work outlined in the Plan of Study to the satisfaction of the doctoral program committee and the Graduate School before being declared ready for the

comprehensive examination (<https://gradstudies.missouri.edu/wp-content/uploads/2018/03/d3.pdf>).

## Doctoral Comprehensive Examination

The student must be enrolled to take the doctoral comprehensive examination (<https://gradstudies.missouri.edu/wp-content/uploads/2018/03/d3.pdf>). It is to be administered only when MU is officially in session. The comprehensive examination is designed by the academic program. It consists of written and oral sections. It must be completed at least seven months before the final defense of the dissertation. The two sections of the examination must be completed within one month.

## Written Section

The written section or sections of the examination may be conducted in one or both of the following two ways:

1. The written sections may be arranged and supervised by the major advisor, in which case questions are prepared and assessed by the doctoral program committee.
2. The major advisor may delegate responsibility for arranging, preparing, supervising, and assessing the written sections of the examination to one or more departmental/program committees appointed for this purpose.

## Successful Completion

For the comprehensive examination to be successfully completed, the doctoral program committee must vote to pass the student on the entire examination, both written and oral sections, with no more than one dissenting or abstaining vote from the committee. A report of examination results, carrying the signatures of all members of the committee, must be sent to the Graduate School and the student no later than two weeks after the comprehensive examination is completed.

## Exam Failure

A failure of either the written or oral section of the exam constitutes failure of the comprehensive exam. If a failure is reported, the committee also must include in the report an outline of the general weaknesses or deficiencies of the student's work. The student and the committee members are encouraged to work together to identify steps the student might take to become fully prepared for the next examination.

## Request for Clarification

If the student believes that the advice given by the committee is inadequate, the student may send a written request for clarification to the committee. A copy of this request should be sent to the Graduate School as well. The committee must respond to this request in writing within two weeks and a copy must be filed with the Graduate School.

## Retaking the Comprehensive Examination

The student who fails may not take a second comprehensive examination for at least 12 weeks. Failure to pass two comprehensive examinations automatically prevents candidacy.

## Doctoral Candidacy & Continuous Enrollment

Candidacy for a doctoral degree is established by passing the comprehensive examination. Status as a continuously enrolled doctoral student begins the term after the term in which the comprehensive

exam was successfully completed. Students must maintain continuous enrollment during their candidacy (the period after successful completion of the comprehensive examination).

## Procedure for Continuous Enrollment

Candidacy is maintained by enrolling in 9090 Research (or 9990 Research for some Engineering students) for two semester hours each fall and spring semester and for one semester hour each summer session, or an equivalent number of hours through enrollment in other coursework, up to and including the term in which the dissertation is defended. Continuous enrollment provides access to an advisor's support, doctoral program committee guidance, and university research facilities for completion of the dissertation. Failure to enroll continuously in the appropriate number of hours until the doctoral degree is awarded may terminate candidacy.

## Reestablishing Candidacy After Time Off

Candidacy may be reestablished by registering for the hours missed during the time off and completing the requirements specified by the student's doctoral program committee. Registration fees owed may not exceed the amount owed for seven terms, regardless of the number of terms beyond seven for which the student failed to continuously enroll. The committee's requirements may include a second comprehensive examination or evidence of currency in the research field as suggested by publications in refereed journals or other measures. Candidacy is reestablished when the student's advisor and the departmental, area program, or divisional director of graduate studies submits a written request to the Graduate School explaining the basis for the decision. Once approved, a Reactivation Form (<http://gradstudies.missouri.edu/forms-downloads/repository/reactivation.pdf>) must be completed by the student and sent to the department/program for processing. Students who have an approved leave of absence during candidacy for reasons related to pregnancy, parenting, and/or other caregiving reasons do not have to register for the missed hours, but do have to complete the necessary hours for graduation requirements. Other exceptions are made at the discretion of the Dean of the Graduate School.

## The Doctoral Dissertation

The dissertation must be written on a subject approved by the candidate's doctoral program committee, must embody the results of original and significant investigation and must be the candidate's own work.

A report of the dissertation defense (<http://gradstudies.missouri.edu/forms-downloads/repository/d4.pdf>), carrying the signatures of all members of the committee (<http://gradstudies.missouri.edu/academics/process/forming-committees/doctoral.php>), is sent to the Graduate School before the deadline preceding the anticipated date of graduation. For the dissertation to be successfully defended, the student's doctoral committee must vote to pass the student on the defense with no more than one dissenting or abstaining vote. The dissertation defense form reports whether the student has successfully orally defended the dissertation.

## Required Dissertation Format

Every doctoral candidate should review the Guidelines for Preparing Theses and Dissertations from the Graduate School (students can enroll in a Canvas Organization that also provides this information and mechanism to submit the approved written dissertation) and should consult their director of graduate studies for academic program style

requirements. All dissertation defenses shall be open to the general faculty. Academic programs are encouraged to announce dissertation defense dates to academic program colleagues.

## Submission of Dissertation to the Graduate School

The final copy of the dissertation must be submitted to the Graduate School electronically or as a PDF file on a CD-ROM. Specific instructions are provided in the Guidelines for Preparing Theses and Dissertations. Once the final copy of the dissertation is approved by the Graduate School and all other degree program requirements have been met, the student will be recommended for degree conferral.

## Reasonable Rate of Progress

Reasonable rate of progress is governed by both the campus wide policies of the Graduate Faculty Senate listed below, as well as academic program regulations, which may be more restrictive. Failure to satisfy the Graduate Faculty Senate's rate of progress policies leading to dismissal is handled by the Request for Extension process (<http://gradstudies.missouri.edu/academics/progress/requests-for-extensions-appeals.php>). For academic advice or assistance with degree program planning, students should contact their advisors. Dismissals arising from violation of academic program policies may be appealed using the Appeals Process (<http://gradstudies.missouri.edu/academics/progress/requests-for-extensions-appeals.php>). Students should also refer to the section on the Dismissal Policy (<http://gradstudies.missouri.edu/academics/progress/probation-termination.php>) for additional details.

## Time Limits for Doctoral Degree Completion

The Graduate Faculty Senate policy governs the Reasonable Rate of Progress established for doctoral students:

Effective fall semester 2000, a doctoral student must successfully complete the comprehensive examination within a period of five years beginning with the first semester of enrollment as a doctoral student. In addition, the program for the doctoral degree must be completed within five years of passing the comprehensive examination. Individual departments or area programs may stipulate a shorter time period. For an extension of this time the student must petition the Graduate School by submitting a request to the advisor who, in turn, submits a written recommendation to the Graduate School, which has been endorsed by the department or area program director of graduate studies.

## Doctoral Degree Extension Request

Regardless of when a student entered the program or passed the comprehensive exam, any candidate requiring additional time must submit a request for an extension. On petition of the candidate and the candidate's academic program, an extension of time may be granted by the Graduate School. Academic programs specifically reserve the right to re-certify currency in the discipline. All requests for extensions should be endorsed by the academic program's director of graduate studies and accompanied by a description of the process whereby currency in the discipline is certified, if required, by the academic programs. See also Active Duty Policy (<https://veterans.missouri.edu/forms/active-duty-form/>).

## Dual Doctoral Degrees

### Dual Doctoral-Professional Degrees

As the US workforce becomes increasingly interdisciplinary, some graduate students elect to concurrently pursue a PhD (doctoral) degree in combination with professional degree. Examples include the MD/PhD and the JD/PhD. Dual degrees are cooperatively arranged between a graduate degree granting program and a professional degree granting program. The Graduate School oversees the doctoral (PhD) degree portion of the dual doctoral/ professional degree. Dual degrees are approved by the Graduate Faculty Senate.

Students must apply to **both** the Graduate School and the professional degree program, notifying both of their interest in a dual program. Please refer to the A-Z list of graduate degree programs (<http://gradstudies.missouri.edu/academics/programs/a-z/>) to learn what is currently available.

Because some students may not be aware of an approved dual degree program before their arrival at MU, the option to participate in an approved dual degree program may be postponed until no later than the end of a student's second semester at MU.

The governing policies for dual degrees are the same for master's and doctoral students. Please refer to the dual-degree information for master's students (<http://gradstudies.missouri.edu/academics/process/dual-masters-process/>) for more information.

### Dual Degrees for Medical Students

The MD/PhD program is for the student seeking a biomedical research career. Additional years are integrated into the medical curriculum to satisfy requirements for the PhD. (A MD/MS dual degree is another option). The graduate degree (MS or PhD) is typically accomplished after completion of the MD program. PhD programs are available in diverse areas at MU.

Students are accepted to the joint program by a single committee. Students interested in this dual degree program should inquire at the dean's office in the School of Medicine.

### Financial Support

Financial support may be provided for the graduate portion of the dual-degree program. Fellowship support may be provided for the PhD portion of this program, while loan and scholarship funds may be available for the MD curriculum.

### Applying Credit

Students participating in the MD/PhD Program at the University of Missouri may apply up to 30 hours of credit for courses taken during the preclinical phase of the MD program towards the 72 hour requirement for the PhD degree. These MD courses, however, cannot be used to satisfy the requirement for 15 hours of 8000/9000 of graduate level course work.

The following table lists the distribution of credits for the preclinical courses among areas of study that can be used by the student and their committee in determining how many credit hours should be applied toward the PhD.

Course	Applicable Hours Toward the PhD
Biochemistry	6 hrs
Microbiology	4 hrs

Immunology	3 hrs
Pharmacology	4 hrs
Physiology	4 hrs
Pathology	6 hrs
Neurosciences	3 hrs

### Advising & Committees

There will be a separate advisor and committee for each degree program.

*Note:* The option of a combined committee structure may be included in proposals for Graduate Faculty Senate consideration, e.g., co-advisors who would also serve as outside members, plus one additional member from each degree program, for a total of four committee members.

### Dual Degree Progress Forms

Special dual degree program forms will be used to certify plans of study, committee members and final defense/examinations.

### Timelines for PhD Completion

Policies governing doctoral degree completion, including but not limited to examinations, forms, continuous enrollment, and dissertation format, defense and submission, are detailed in the doctoral degree requirements section of the Catalog and website.

### Conferral of Dual Degrees

Upon completion of all degree program requirements, the Graduate School and the professional school will confer separate diplomas.

## Doctoral Requirements (School of Law)

The Juris Doctor (J.D.), or 'law degree,' is a three year post-baccalaureate program. Students must complete 89 credit hours of law courses roughly one-half of which are required courses.

[View JD Degree Requirements Here \(p. 818\)](#)

The wide variety of academic courses are complemented by a variety of clinics and skills courses designed to provide graduates with a solid foundation for the practice of law.

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# Undergraduate & Graduate

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Information in the catalog is current as of May 2020. The next catalog will be published in May 2021. In the interim, new courses will be announced in myZou (<https://myzou.missouri.edu/>), MU's online student information system. Courses are usually available in October for the spring semester and in March for the summer and fall semesters. Midyear changes to current courses (titles, descriptions and credit hours) are not reflected here and can only be viewed in myZou.

## Undergraduate Study

MU grants 25 percent of the bachelor's degrees from Missouri public universities. Mizzou provides an intellectually diverse environment with 360-degree learning for students from every state in the nation and more than 120 countries.

Offering more than 300 degree programs and emphasis areas, nearly 100 minors, and 24 certificates, MU is a member of the prestigious Association of American Universities. Dedicated to interdisciplinary education, MU faculty and students from different schools and colleges often collaborate. For example, some courses in the sciences are taught in conjunction with MU's medical school, and humanities classes include areas such as music composition and creative writing.

MU is also dedicated to the Missouri Method, a philosophy of hands-on learning that includes operating a floral shop (Tiger Garden), preparing income taxes for families, studying abroad, volunteering for credit, providing health care, working at the country's only university-owned TV network affiliate (KOMU), performing at Carnegie Hall and co-authoring articles in leading scientific journals. Mizzou students also hold patents and create startup companies.

For more information about undergraduate study, contact the MU Office of Admissions (<https://admissions.missouri.edu/>).

## Graduate Study

MU Graduate Studies offers over 200 master's degree programs and emphasis areas, more than 100 doctoral degree programs and emphasis areas, five educational specialist degree programs, 15 graduate minors and 74 graduate certificates. Opportunities for e-learning, including online graduate degrees, are available. An alphabetical list of graduate degrees is available in this catalog as part of comprehensive degree list (p. 20). For more information, contact the MU Office of Graduate Studies (<https://gradschool.missouri.edu/>).



## College of Agriculture, Food and Natural Resources

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### Administration

Christopher R. Daubert, Vice Chancellor of Agriculture and Dean of the College of Agriculture, Food & Natural Resources  
Bryan L. Garton, Senior Associate Dean and Director of Academic Programs  
Shari Freyermuth, Assistant Dean of Academic Programs and Director of Student Services  
Shibu Jose, Associate Dean for Research and Director of the Missouri Agricultural Experiment Station  
Robert Kallenbach, Associate Dean and Senior Program Director of Agriculture and Environment Extension

### Office of Academic Programs Staff

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Matt Arri, Director of Career Services  
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Jasmine Lopez, Administrative Assistant  
Megan McCauley, Coordinator of Student Services  
Tara O'Brien, Student Recruitment and Event Specialist  
Julie Scroggs, Director of Student Recruitment  
Cheryl Stevens, Administrative Assistant

### CAFNR Division Directors

Bill Lamberson, Animal Sciences  
Michael Chapman, Biochemistry  
Joe Parcell, Applied Social Sciences  
Jinglu Tan, Food Systems and Bioengineering  
Bruce Barrett, Plant Sciences  
Pat Market, Natural Resources

### About the College

The University of Missouri's College of Agriculture, Food and Natural Resources "food for life" philosophy cultivates this world through visionary and transformative solutions for the environment, food systems, economies and communities while striving to create a healthy world.

From incoming freshmen to postdoctoral scientists, students prepare for a wide range of careers. Professional development through campus organizations and interactions among business and industry partners prepare our graduates to have an impact in areas such as food systems, business, government policy, environmental awareness, education, law, medicine and other areas.

The Missouri Agricultural Experiment Station develops new technologies in animal, biochemical, plant, food and natural resource sciences to keep the state's agribusiness system competitive in global markets and to provide consumers with a safe, low-cost food access.

Technology reaches the citizens of Missouri through the college's Agriculture and Environment Extension program. Specialists within the college and in all 114 counties around the state interact with the public for real-world research applications to solve problems.

Finally, the college helps developing nations to become trade partners by helping improve their economies through better agricultural practices. This also allows for an exchange of knowledge and understanding among students, teachers and researchers from cultures around the world.

### Undergraduate

- Admissions (p. 48)
- B.S. Degree Requirements (p. 48)
- University graduation and CAFNR Requirements (p. 48)
- CAFNR Honors Requirements (p. 48)
- Probation, Suspension and Dismissal (p. 49)
- Advising (p. 49)
- Career Development and Professional Opportunities (p. 49)
- Experiential Learning (p. 49)
- Study Abroad (p. 49)
- Student Activities (p. 50)

### Admissions

Students admitted to the University of Missouri are encouraged to enter the College of Agriculture, Food and Natural Resources (CAFNR) as freshmen. Current Mizzou students who are looking to transfer divisions into CAFNR need to contact the Office of Academic Programs first as some degree programs have specific GPA requirements.

### Bachelor of Science (B.S.) Degree Requirements

Students should refer to degree program sections for course requirements and credit hour requirements. There are no specific college-wide degree requirements.

### University Graduation and CAFNR Requirements

- Students are required to meet all University graduation and degree program requirements to earn their degree. Refer to specific CAFNR degree programs to determine course requirements.
- Complete 30 of the last 36 hours with MU course work. Obtain approval of advisor, degree program advisor chair, and associate dean prior to enrolling in courses at another institution.
- Earn no less than a 2.00 GPA, as defined by the GPA of Record (UM cumulative GPA).

### Transfer Credits

- University general education requirements are considered fulfilled for students transferring with completed CORE42 or an Associate of Arts (AA) degree from a regionally accredited Missouri institution. Some programs will require specific foundational courses, which may also meet University general education requirements.
- Transfer credit from a regionally accredited non-Missouri institution will be evaluated on a course by course basis.

### CAFNR Honors Requirements

Students are eligible to enter the honors program when they have obtained a cumulative GPA of 3.3 or above based on 30 credits earned at the University of Missouri. Transfer students are eligible after completing 15 credits at MU with a cumulative GPA of 3.3 or higher.

Students must be admitted to the honors program prior to the first day of classes for the last semester they are enrolled in residence in CAFNR. No student is admitted retroactively. The student is officially admitted to the program upon approval of the associate dean of academic programs.

Eligible students should complete an application as early in their undergraduate degree program as possible. The honors program application should be signed by at least two faculty members and the undergraduate advisor chair before it can be approved. The faculty members co-signing the application will comprise the honor student's advisory committee.

An honors project is required and should be planned by the student and approved by the honor student's advisory committee. The honors project should involve a significant research effort by the honors student, culminating in a written and oral presentation of the results. Departmental honors program requirements must be approved by the CAFNR Honors Program Oversight Committee (Office of Academic Programs).

Students are officially admitted to the CAFNR Honors Program when the application has been approved and signed by the CAFNR associate dean of academic programs. To remain in good standing in the CAFNR Honors Program, a student must maintain a cumulative GPA of 3.3 or more. A student whose GPA falls below 3.3 will be allowed a two-semester grace period to raise the GPA to the 3.3 level.

## Dual Enrollment for Senior Undergraduates

Qualified undergraduate students are eligible to enroll in up to 12 hours of graduate credit during the last 30 hours of their undergraduate program. Graduate credit cannot be counted toward undergraduate degree credit requirements. See the Office of Graduate Studies (<http://gradstudies.missouri.edu/>) for additional details.

## Probation, Suspension and Dismissal

In addition to the Academic Standing Policy (p. 853) of the University, CAFNR's academic standing policies can be located at <https://cafnr.missouri.edu/current-students/academic-standing/>. (<http://CAFNR.missouri.edu>)

## Advising

When entering the college, each student is assigned a faculty advisor/mentor to assist in defining career goals and planning courses for a program of study that leads to graduation. The advisor also serves as a resource person for the student in a variety of academic and individual situations.

One of a student's first priorities is to meet and become acquainted with their advisor early in the semester. The student should consult with their advisor when planning or changing the academic program. The advisor and advisor chair must approve the program of study for graduation.

Questions dealing with advising should be directed to Office of Academic Programs, 2-64 Agriculture Building, (573) 882-8301.

## Career Development and Professional Opportunities

CAFNR believes in career development as a key part of the student experience. Our college provides career resources targeted specifically toward student interests and strengths. The CAFNR Career Services

team focuses efforts to help educate, empower, and connect CAFNR students with their future careers. The resources in CAFNR expand beyond résumé reviews, mock interviews and one-on-one sessions to explore career possibilities. We focus on making valuable employer connections to help expand each student's professional network. Students also have access and are encouraged to use [www.HireMizzouTigers.com](http://www.HireMizzouTigers.com) (<http://www.hiremizzoutigers.com/>) to search open job and internship postings.

CAFNR graduates find rewarding careers in a variety of career fields, including: private industry, state and federal agencies, start-ups, production agriculture, and more.

You can receive relevant career planning updates from CAFNR delivered directly to your social media newsfeed. Simply like us at [www.Facebook.com/CAFNRcareers](https://www.facebook.com/CAFNRcareers/) (<https://www.facebook.com/CAFNRcareers/>).

We invite you to reach out in the traditional ways, too! Stop by our office in 2-64 Agriculture Building, call us at (573) 882-0088 or email [CAFNRcareerservices@missouri.edu](mailto:CAFNRcareerservices@missouri.edu). You can schedule an appointment with us by going to MU Connect (<https://muconnect.missouri.edu/>).

Check out our student outcomes by going utilizing this link. (<https://undergraduatestudies.missouri.edu/career-outcomes/>) By utilizing this link, you can see how MU has done as a whole and you can see the student outcomes data for CAFNR as well!

For additional resources to help you in your quest to become career ready, visit the CAFNR Career Services (<https://undergraduatestudies.missouri.edu/career-outcomes/>) home page.

We host two career fairs each year: one in the fall and one in the spring.

We encourage students to download the Career Fair Plus App (<https://cfplus.page.link/K3RZ/>) on their smart phones. With this tool, you'll be able to see a complete roster of all of the employers attending our career fair, the majors/positions they are recruiting for, as well as a map of the career fair.

Our online Student Development Plan (<https://appsprod.missouri.edu/StudentPlan/Account/Login/?ReturnUrl=%2fStudentPlan>) is designed to help you be academically successful and career ready. Check out this great resource today!

## Experiential Learning

Employers want to hire students who have experience! CAFNR students have a variety of options when it comes to experiential learning. CAFNR's focus on internships, study abroad, industry tours, and student organizations help students gain relevant experience that employers want to see. Exploring these opportunities gives students the professional growth and network needed for career success after graduation.

Click here to check out some of the most recent student experiences (<https://www.facebook.com/media/set/?set=a.631051863580078.1073741826.565193606832571&type=3>) to see the kinds of opportunities CAFNR students explore. Interested in gaining your own experiences? We want to help you reach your goals! You can reach us in a variety of ways. Stop by our office in 2-64 Agriculture Building, call us at (573) 882-0088 or email [CAFNRcareerservices@missouri.edu](mailto:CAFNRcareerservices@missouri.edu).

## Study Abroad

CAFNR provides students with opportunities to study abroad on semester, summer, spring break and winter break programs. Study

Abroad complements and enhances a student's academic program by helping students gain independence and self-confidence, better understand new cultures and the world around them, and enhance their résumé. Study abroad experiences increase a student's skill-set and add the valuable international dimension to their degree that employers seek.

For more information about CAFNR study abroad programs, contact Shanon Dickerson, CAFNR Director of Study Abroad, Office of Academic Programs, 2-64 Agriculture Building, at dickersonsm@missouri.edu or (573) 882-8301.

## Student Activities

CAFNR encourages each student to complete a "signature experience," as part of the "RISE" experience: **R**esearch, **I**nternational, **S**ervice Learning and **E**xperiential Learning.

CAFNR students have numerous opportunities for undergraduate research internships and opportunities across disciplines. Discover a new view of the world by participating in CAFNR Study Abroad. CAFNR offers study abroad programs in fifteen countries. Build your leadership skills and friendships in the 40+ CAFNR-specific clubs and organizations. CAFNR degree programs sponsor student organizations for a tailored student experience, as well as college-wide opportunities.

Take your CAFNR experience beyond the classroom – gain real-world experience through our full-service floral shop, café, ice cream parlor, meat market, policy centers, research laboratories, and at our research centers throughout Missouri.

## Graduate

Graduate programs in CAFNR take an innovative, high-tech approach to the opportunities, challenges, and issues that face agriculture, food and natural resources. Students are highly engaged with expert faculty mentors who are impacting the future with findings on health breakthroughs, sustainable agriculture techniques and food safety. Prospective students are able to choose from a range of academic programs consistently recognized for excellence:

- Animal Sciences
- Applied Social Sciences
  - Agricultural Leadership, Communication and Education
  - Agricultural and Applied Economics
  - Rural Sociology
- Biochemistry
- Biological Engineering
- Food and Hospitality Systems
- Natural Resources
  - Agroforestry
  - Fisheries and Wildlife
  - Forestry
  - Human Dimensions of Natural Resources
  - Parks, Recreation and Tourism
  - Soil, Environmental and Atmospheric Sciences
  - Water Resources
- Plant, Insect and Microbial Sciences
  - Crop, Soil and Pest Management
  - Entomology
  - Horticulture

- Plant Breeding, Genetics and Genomics
- Plant Stress Biology

Find CAFNR degree program descriptions by following the links in the left navigation column.

**Note:** Prospective graduate students must apply to *both* the degree program of interest and to the MU Graduate School. In most cases, the entire application process may be completed online. Find admission and application details by selecting the degree program of interest in the left navigation column.

## Agribusiness Management

Harvey James, Chair  
Agricultural and Applied Economics  
College of Agriculture, Food and Natural Resources  
146 Mumford Hall  
(573) 884-9682  
HJames@missouri.edu

The Division of Applied Social Sciences offers a Bachelor of Science degree in Agribusiness Management. The degree program trains students in business, management, economics, entrepreneurship, policy, finance and marketing. Agribusiness Management courses stress management topics, so students gain a strong understanding of how firms operate and how to manage people and businesses working throughout the agrifood value chain. Additionally, to tailor the learning experience to areas that most interest them, Agribusiness Management students may choose from one of two specializations: management or public policy.

Through coursework and real-world experiences, the Agribusiness Management program encourages students to develop quantitative, analytical and critical thinking skills. With this preparation, Agribusiness Management graduates have the knowledge they need to succeed as managers, leaders and decision-makers in food and agriculture firms, natural resources organizations and the policy arena.

Our faculty conduct research in diverse disciplines, including communication, governance, management, operations and policy, and they incorporate their insights into their teaching. Plus, faculty work to share their research findings in ways that those insights can be applied to help people in the food and agriculture system do their jobs better, lead better, communicate better and ultimately enable our world's food and agriculture system to function better.

## Faculty

**Professor** M. L. Cook\*\*, H. S. James\*\*, N. Kalaitzandonakes\*\*, L. M. J. McCann\*\*, J. Parcell\*\*, W. Thompson\*\*, C.B. Valdivia\*\*, R. E. Westgren\*\*, P. Westhoff\*\*

**Research Professor** S. Meyer

**Associate Professor** S.A. Low\*\*, K. C. Moore\*, M. E. Sykuta\*\*

**Assistant Professor** M. Segovia\*, T. Skevas\*\*

**Extension Professor** R. Massey\*\*

**Extension Associate Professor** D. S. Brown\*\*, J. Kruse

**Extension Assistant Professor** M.L. Rahe, A. Spell

**Assistant Teaching Professor** J. Palacios Rivera

**Research Assistant Professor** J. Binfield, J. Grashuis, S. Zhao

**Instructor** M. Foreman, J. Moreland, L. F. Sowers

**Adjunct Faculty** H. Gedikoglu, D. Miller, M. Sveum

**Professor Emeritus** M. Bennett, C. Braschler, M. E. Bredahl, T. Brown, J. Dauve, B. J. Deaton\*, G. Devino, J. Findeis\*\*, C. Headley, N. A. Hein, J. E. Ikerd, T. Johnson\*\*, M. S. Kaylen\*, S. F. Matthews, W. H. Meyers\*\*, M. J. Monson\*, R. Plain\*, A. A. Prato, V. J. Rhodes, K. Schneeberger, J.I. Stallmann\*\*, D. L. VanDyne, P. F. Warnken, H. Williamson Jr.\*, A. W. Womack\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BS in Agribusiness Management (p. 51)
- Minor in Agribusiness Management (<http://catalog.missouri.edu/undergraduate/collegeofagriculturefoodandnaturalresources/agribusinessmanagement/minor-agribusiness-management/>)

The Agribusiness Management program uniquely equips students with the quantitative, analytical and critical thinking skills that are necessary for succeeding in their careers. Our faculty teach business, economics, entrepreneurship, finance, marketing and management concepts in the context of production agriculture and the global food system.

Combined with stressing conceptual understanding, the program immerses students in opportunities to apply their skills and experience real-world problem-solving. With this preparation, our graduates are equipped to help the food and agriculture industry in increasing food, fiber and biofuel production; meeting the world's growing needs; and acting as good stewards toward our natural resources.

Students are admissible to transfer into this program with 2.7 cumulative GPA. You are directly admissible into the program when you meet the University admissions requirements.

## Graduate

While MU does not offer graduate degrees specifically in agribusiness management, the University does offer post-baccalaureate opportunities in a number of related areas, both within the College of Agriculture, Food and Natural Resources, and in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 20).

# BS in Agribusiness Management

## Degree Program Description

Earning an Agribusiness Management degree will equip you with the necessary quantitative, analytical and critical thinking skills to help you succeed as a leader and decision-maker in the global agrifood system. Our faculty teach business, economics, entrepreneurship, finance, marketing and management concepts in the context of production agriculture and the global food system. While stressing conceptual understanding, the program immerses you in opportunities to apply your skills and experience real-world problem-solving.

Agribusiness Management career opportunities include agribusiness and food industry sales, commodity and food product marketing, entrepreneurial endeavors, farm management and production, financial

management and analysis, human and public relations, policy and law and supply chain management.

## Major Program Requirements

Students earning a Bachelor of Science in Agribusiness Management are required to complete all University general education (p. 36), University graduation (p. 35) and degree requirements, including selected foundational courses, which may fulfill some University general education requirements.

If you are planning to transfer courses (including AP credit) and would like information on how they apply to a degree program(s), you can email [CAFNRadvising@missouri.edu](mailto:CAFNRadvising@missouri.edu) for general recommendations.

Students are admissible to transfer into Agribusiness Management with a 2.7 cumulative GPA. You are directly admissible as a freshman when you meet the University admissions requirements.

### Foundational Courses

MATH 1100	College Algebra	3
MATH 1400	Calculus for Social and Life Sciences I	3-5
or MATH 1500	Analytic Geometry and Calculus I	
BIO_SC 1010 & BIO_SC 1020	General Principles and Concepts of Biology and General Biology Laboratory	5
BIOCHM 2110	The Living World: Molecular Scale	3-4
or BIOCHM 2112	Biotechnology in Society	
or CHEM 1100	Atoms and Molecules with Lab	
or CHEM 1320	College Chemistry I	
ABM 1041	Applied Microeconomics	3
or ECONOM 1014	Principles of Microeconomics	
ABM 1042	Applied Macroeconomics	3
or ECONOM 1015	Principles of Macroeconomics	
COMMUN 1200	Public Speaking	3
PHIL 1200	How to Think: Logic and Reasoning for Everyday Life	3

### Core requirements

ABM 1200	Applied Computer Applications	3
ABM 2183	The Agricultural Marketing System	3
ABM 2223	Agricultural Sales	3
ABM 2225	Statistical Analysis	3
ABM 3282	Agribusiness Finance	3
or FINANC 3000	Corporate Finance	
ABM 4240	Microeconomics Theory and Applications	3
or ECONOM 4351	Intermediate Microeconomics	
ABM 4251	Agricultural Prices	3
ACCTCY 2036	Accounting I	3
or ACCTCY 2026		
ACCTCY 2037	Accounting II	3
or ACCTCY 2027		

### Supporting Agriculture Sciences Electives

**9**  
Courses in agricultural systems management, animal sciences, biochemistry, environmental science, fisheries & wildlife, forestry, food science & nutrition, natural resources, and plant sciences

### International Electives

ABM 3150	International Agribusiness	3
ABM 3271	International Agricultural Development	3
ABM 3272	International Food Trade and Policy	3

AFNR 2190	International Agriculture and Natural Resources	3
AFNR 2191	International Agriculture and Natural Resources - Humanities	3
Any Foreign Language Course		3
<b>Students should select one option - Management or Public Policy</b>		
<b>Management Option Requirements</b>		<b>15</b>
ABM 3256	Agribusiness and Biotechnology Law	3
ABM 3283	Fundamentals of Entrepreneurship	3
ABM 3286	Economics of Managerial Decision Making	3
<b>Select 2 of the 3 following capstone courses</b>		
ABM 4971W	Agribusiness Management Strategy - Writing Intensive	3
ABM 4972	Agri-Food Business and Cooperative Management	3
ABM 4983W	Strategic Entrepreneurship in Agri-Food - Writing Intensive	3
<b>Business Electives</b>		<b>15</b>
ABM 3150	International Agribusiness	3
ABM 3224W	New Products Marketing - Writing Intensive	3
ABM 3230	Agricultural and Rural Economic Policy	3
ABM 3241W	Ethical Issues in Agriculture - Writing Intensive	3
ABM 3260	General Farm Management	3
ABM 3294	Agricultural Marketing and Procurement	3
ABM 3295	Real Money: Speculative Trading for Beginners	3
ABM 4223	Professional Solution Selling	3
ABM 4295	Agricultural Risk Management	3
ABM 4301	Topics in Agribusiness Management (Introduction to Supply Chain Management)	3
ABM 4301	Topics in Agribusiness Management (Introduction to Transportation)	3
ABM 4940	Internship Opportunities (ABM 4940 internship must have prior approval)	3
ABM 4971W	Agribusiness Management Strategy - Writing Intensive (If not taken for capstone requirement)	3
ABM 4972	Agri-Food Business and Cooperative Management (If not taken for capstone requirement)	3
ABM 4983W	Strategic Entrepreneurship in Agri-Food - Writing Intensive (If not taken for capstone requirement)	3
ABM 4990W	Economic Analysis of Policy and Regulation - Writing Intensive	3
ECONOM 3229	Money, Banking and Financial Markets	3
HSP_MGMT 3100	Guest Service Management	3
HSP_MGMT 4100	Hospitality Human Resources Management	3
Any 3000+ level course in ACCTCY, FINANC, MANGMT, or MKTNG (except FINANC 3000).		3
<b>Public Policy Option Requirements</b>		<b>12</b>
ABM 2070W	Environmental Economics and Policy - Writing Intensive	3
ABM 3230	Agricultural and Rural Economic Policy	3

ABM 3271	International Agricultural Development	3
or ABM 3272	International Food Trade and Policy	
ABM 4990W	Economic Analysis of Policy and Regulation - Writing Intensive	3
<b>Public Policy Electives</b>		<b>15</b>
ABM 3150	International Agribusiness	3
ABM 3241W	Ethical Issues in Agriculture - Writing Intensive	3
ABM 3256	Agribusiness and Biotechnology Law	3
ABM 3271	International Agricultural Development (cannot be used for both core degree requirement and as a policy elective)	3
ABM 3272	International Food Trade and Policy (cannot be used for both core degree requirement and as a policy elective)	3
ABM 3286	Economics of Managerial Decision Making	3
ABM 3294	Agricultural Marketing and Procurement	3
ABM 4940	Internship Opportunities (ABM 4940 internship must have prior approval)	3
ABM 4972	Agri-Food Business and Cooperative Management	3
ECONOM 3367W	Law and Economics - Writing Intensive	3
ECONOM 4315	Public Economics	3
ENV_SC 4400	Environmental Law, Policy, and Justice	3
LAW 5591	Food Law and Policy (Junior or Senior standing and requires adviser approval)	3
NAT_R 4353	Natural Resource Policy/Administration	3
POL_SC 4320W	Public Policy - Writing Intensive	3
POL_SC 4420	Politics of International Economic Relations	3

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
ABM 1041 or ECONOM 1014	3	ABM 1042 or ECONOM 1015	3
ABM 1010	3	BIO_SC 1010	3
ABM 1200	3	ENGLISH 1000	3
MATH 1100	3	MATH 1400	3
POL_SC 1100, 2100, HIST 1100, or HIST 1200	3	PHIL 1200	3
		15	15
Second Year			
Fall	CR	Spring	CR
ABM 2183	3	ABM 2223	3
ACCTCY 2036, 2026, or 2136H	3	ABM 2225	3
CHEM 1100, 1320, BIOCHM 2110, or BIOCHM 2112	3	ABM 3256	3
COMMUN 1200	3	ACCTCY 2037, 2027, or 2137H	3

Supporting Agriculture Science Elective	3 BIO_SC 1020	2			
	15	14			
<b>Third Year</b>					
<b>Fall</b>	<b>CR</b>	<b>Spring</b>	<b>CR</b>	<b>Summer</b>	<b>CR</b>
ABM 3282 or FINANC 3000	3	ABM 3286	3	ABM 4940	3
ABM 3283	3	ABM 4251	3		
ABM 4240 or ECONOM 4351	3	Supporting Agriculture Science Elective	3		
International Elective Supporting Agriculture Science Elective	3	Business Elective	6		
	15	15			3
<b>Fourth Year</b>					
<b>Fall</b>	<b>CR</b>	<b>Spring</b>	<b>CR</b>		
ABM 4971W	3	ABM 4972 or 4983W	3		
Business Elective	6	Humanities Elective	3		
Free Electives	4	General Electives	9		
	13	15			

Total Credits: 120

## Agricultural and Applied Economics

Harvey James, Chair  
 Agricultural and Applied Economics  
 College of Agriculture, Food and Natural Resources  
 146 Mumford Hall  
 (573) 884-9682  
 Fax (573) 882-3958  
 HJames@missouri.edu

The Agricultural and Applied Economics Program offers a BS degree with a major in Agribusiness Management and MS and PhD degrees with a major in Agricultural and Applied Economics. A minor in Agricultural Economics is also available. Agricultural and Applied Economics is home to several programs and research centers where students can seek on-campus work experience.

- Contracting and Organizations Research Institute (CORI): An interdisciplinary research institute, CORI is dedicated to studying how economic enterprises organize and structure themselves and determining the effects of legal, political, social and economic institutions on the structure and performance of economic organizations.
- Food Equation Institute (FEI): The Food Equation Institute formed to determine how data collected throughout the food and agricultural products value chain and related innovation make the greatest impact on society.
- Economics and Management of Agrobiotechnology Center (EMAC): A research institute devoted to studying the effects of biotechnology on agriculture, food production and value chains, EMAC provides rigorous, data-based analysis of economic, management and policy issues affecting decision-making in agricultural biotechnology.

- Food and Agricultural Policy Research Institute (FAPRI): To estimate how different policy options affect prices and quantities, producers, consumers and government costs, FAPRI staff use economic models of key commodity markets. FAPRI works with collaborators at MU and other institutions so that the analysis can estimate impacts on crop, livestock and biofuel markets in the U.S. and other countries.
- McQuinn Center for Entrepreneurial Leadership (MCEL): The center dedicates its focus to researching and promoting entrepreneurship in the food and agriculture sector.
- Missouri Institute of Cooperatives (MIC): Coordinates information and leadership training for cooperatives serving Missouri.
- Graduate Institute of Cooperative Leadership (GICL): Annually, the institute trains mid-level cooperative managers to develop leadership and management skills required by the evolving global agricultural marketplace. As emerging leaders, these participants also benefit from the institute's focus on facilitating their personal career growth.

### Our Extension Programs

- Agricultural Business and Policy Extension: The Agricultural Business and Policy Extension group serves rural Missouri by helping farms, agribusinesses and communities understand their opportunities and challenges and make informed decisions. The team has four focuses: sharing how market risks may shift market outlook; studying relevant industry issues; communicating potential effects of domestic and trade policy decisions; and assessing diversification and new business opportunities for farms, businesses and commodity groups.
- Community Regional Economic and Entrepreneurial Development Program (ExCEED): ExCEED, An MU Extension program, works to build vibrant communities with informed leaders, resilient economies, ready access to food and health resources, entrepreneurial mindsets, financial preparedness and inclusive environments.

## Faculty

**Professor** M. L. Cook\*\*, H. S. James\*\*, N. Kalaitzandonakes\*\*, L. M. J. McCann\*\*, J. Parcell\*\* J. I. Stallman\*\*, C. B. Valdivia\*\*, R. E. Westgren\*\*, P. Westhoff\*\*

**Associate Professor** S. A. Low\*\*, M. J. Monson\*, K. C. Moore\*, M. E. Sykuta\*\*, W. Thompson\*\*

**Assistant Professor** M. Segovia\*, T. Skevas\*\*

**Extension Professor** R. Massey\*\*

**Extension Associate Professor** D. S. Brown\*\*, J. Kruse

**Assistant Teaching Professor** J. Palacios Rivera

**Research Assistant Professor** J. Binfield, J. Grashuis

**Instructor** M. Foreman, J. Moreland, L. F. Sowers

**Adjunct Faculty** H. Gedikoglu, D. Miller

**Professor Emeritus** M. Bennett, C. Braschler, M. E. Bredahl, T. Brown, J. Dauve, B. J. Deaton, G. Devino, J. Findeis\*\*, G. A. Grimes, C. Headley, N. A. Hein, J. E. Ikerd, V. Jacobs, M. S. Kaylen\*, T. Johnson\*\*, S. F. Matthews, W. H. Meyers\*\*, D. D. Osborn, R. Plain\*, A. A. Prato, V. J. Rhodes, K. Schneeberger, D. L. VanDyne, P. F. Warnken, H. Williamson Jr.\*, A. W. Womack\*\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

While MU does not offer an undergraduate degree specifically in agricultural and applied economics, the University does offer a bachelors degree in the closely related area of Agribusiness Management (p. 51), as well as other related areas both within the College of Agriculture, Food and Natural Resources, and in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 20).

## Graduate

- MS in Agricultural and Applied Economics (p. 54)
- PhD in Agricultural and Applied Economics (p. 55)

Agricultural and Applied Economics  
138A Mumford Hall; Columbia, MO 65211  
(573) 882-3747  
<https://dass.missouri.edu/>

**Director of Graduate Studies:** Harvey James ([hjames@missouri.edu](mailto:hjames@missouri.edu))

The graduate program of the Division of Applied Social Sciences (DASS) at the University of Missouri (MU) is recognized for its innovative approach to graduate training. As a graduate student, you will have the opportunity of working with leading scholars engaged in a diverse range of challenging research projects.

We offer MS (p. 54) and PhD (p. 55) programs in **Agricultural and Applied Economics** with three focus areas, MS (p. 128) and PhD (p. 129) programs in **Rural Sociology**, and MS (p. 63) and PhD (p. 62) programs in **Agricultural Education and Leadership**.

## Agricultural and Applied Economics Focus Areas

### Managerial, Behavioral & Organizational Economics (MS, PhD)

The Managerial, Behavioral & Organizational Economics (<https://dass.missouri.edu/graduate-studies/managerial-behavioral-and-organizational-economics/>) area provides a coherent area of study for preparing students for academic careers in applied economics, management, and related cognate fields; and for careers in government and industry. The program is based upon a set of courses offered in the Division that supports MS and PhD training in microeconomic theory, neo-institutional economics, behavioral economics, and organizational economics. These core courses are augmented by courses in qualitative and quantitative methods and a cognate area that supports the student's research. The cognate area is chosen in consultation with the major advisor and committee input

### Environmental and Development Economics (MS, PhD)

In the Environmental and Development Economics (<https://dass.missouri.edu/graduate-studies/environmental-and-development-economics/>) area, you will develop skills and knowledge to address some of society's most pressing problems. There are many linkages among development and environmental and natural resource policy issues, both in developed and developing economies. This is especially true where agriculture plays a significant role in the livelihoods of people and rural communities, because soil and water resources are critical determinants of both agricultural productivity and human well-being, but also because of the importance of agriculture and resources for the quality of life of all humans. The importance of these linkages is evidenced by the emphasis on sustainable development in policy circles. Because institutions affect

environmental outcomes, risk, and economic development, comparing institutions across differing contexts can provide useful insights for policy. Behavioral economics is an emerging research area that can be applied productively to environmental and development issues. You will apply theory from economics and other social sciences, use rigorous analytical tools for translational research to analyze real-world problems and policies that can address them.

### Public Policy Analysis (MS, PhD)

The Public Policy Analysis (<https://dass.missouri.edu/graduate-studies/public-policy-analysis/>) area seeks knowledge about how agricultural and food policy and innovation influence markets and, ultimately, human well-being. The program relies on a rigorous approach to agricultural economics that underpins applied analysis, including experimental and behavioral economic models, strategic interaction models, structural economic models, investment or firm models, systems simulation, mathematical programming and econometrics. It relies on coursework and research with widely recognized centers for agricultural economics, such as the Food and Agricultural Policy Research Institute (FAPRI) (<https://www.fapri.missouri.edu/>), Agricultural Markets and Policy (AMAP) (<https://amap.missouri.edu/>), the Economics and Management of Agrobiotechnology Center (EMAC) (<https://emac.missouri.edu/>) and the Food Equation Institute (FEI).

## Application Process

You need to submit the following to the Division of Applied Social Sciences:

- Application for Admissions Form ([https://dass.missouri.edu/wp-content/uploads/sites/20/2019/02/Grad\\_AppForm.pdf](https://dass.missouri.edu/wp-content/uploads/sites/20/2019/02/Grad_AppForm.pdf)) (PDF)
- Recommendation Form
- Short essay explaining why you want to study at the University of Missouri
- Official transcripts
- GRE score report (required for Agricultural and Applied Economics)
- TOEFL score, if applicable

Apply online through the University of Missouri Graduate School:

- Online University of Missouri graduate studies application (<https://gradschool.missouri.edu/admissions/apply/>)

## Application Deadlines

For priority consideration for assistantships, fellowships and scholarships, applications should be submitted by **Jan. 15** for Fall enrollment and **Sept. 1** for Spring enrollment.

## Financial Assistance

Requests for financial assistance should be made at the time students apply for admittance into the program.

## MS in Agricultural and Applied Economics

### Degree Requirements

For the MS degree, students must complete a minimum of 30 hours selected from courses in one of three focus areas (Environmental and Development Economics; Managerial, Behavioral & Organizational Economics; Public Policy Analysis). Specific course requirements are

determined by each focus area. All course work needs to be from courses numbered 7000-9000. The program includes graduate-level courses in microeconomic theory and quantitative methods. Students opting for the MS thesis must complete at least six credit hours of research as part of the minimum 30 hours. An alternative MS non-thesis program requires that additional course work be substituted for thesis research. *Note: Focus areas do not appear on diplomas or transcripts.*

- 9 hours designated as the MS focus area core
- 6 hours of AAE 8090 Masters Thesis Research
- 15 hours of Agricultural and Applied Economics courses and/or electives

## Thesis/Non-Thesis Requirements

Students in the Thesis track are expected to produce a thesis with the organization, degree of analysis, and style of presentation that can be readily converted into a professional publication.

Students in the non-Thesis track substitute coursework for the Thesis hours. Students also write a technical paper that analyzes an issue or problem of mutual interest to the student and advisor, such as a phenomenon in local, regional, or national economy; an analysis of a policy implementation or change; or a firm-level decision, such as a feasibility study or an organizational case study.

## Admissions

The Division's Graduate Studies Committee and Focus Area faculty oversee the admissions process. Admission into the MS program is determined by an assessment of program prerequisites and application materials. Domestic and international students are equally welcome to apply.

Prerequisites for the MS program include at least two courses in economics, agricultural economics or equivalent; a course in differential calculus; and a statistics course. Applicants who have not met these prerequisites or have limited background in economics may be required to correct these deficiencies or take certain courses without graduate credit before being formally admitted into the program. Minimum requirements for admission into the MS program are a Bachelor's degree (BA or BS) or equivalent and undergraduate GPA 3.0. The Test of English as a Foreign Language (TOEFL) or an equivalent English competency test is required of applicants whose first language is not English, with minimum TOEFL scores of 80 if internet-based. Applicants should also take the GRE or GMAT exams.

## For More Information

For further information on admissions or financial assistance, write to Harvey James, director of graduate studies, 146 Mumford Hall, Columbia, MO 65211, or [hjames@missouri.edu](mailto:hjames@missouri.edu).

## PhD in Agricultural and Applied Economics

The PhD program emphasizes preparation for research, teaching and extension work in academia, as well as for careers in agrifood business, government and international agriculture. The program usually requires about three years beyond the master's program to complete. The size, quality and diversity of the faculty provide a broad choice of advisors and

research topics. Students and their advisory committees have latitude in developing a plan of study.

Doctoral candidates will choose specialties from one of the following Focus Areas (FAs) (will not appear on transcripts or diplomas).

**Environmental and Development Economics:** In this area, you will develop skills and knowledge to address some of society's most pressing problems. There are many linkages among development and environmental and natural resource policy issues, both in developed and developing economies. This is especially true where agriculture plays a significant role in the livelihoods of people and rural communities, because soil and water resources are critical determinants of both agricultural productivity and human well-being, but also because of the importance of agriculture and resources for the quality of life of all humans. The importance of these linkages is evidenced by the emphasis on sustainable development in policy circles. Because institutions affect environmental outcomes, risk, and economic development, comparing institutions across differing contexts can provide useful insights for policy. Behavioral economics is an emerging research area that can be applied productively to environmental and development issues. You will apply theory from economics and other social sciences, use rigorous analytical tools for translational research to analyze real-world problems and policies that can address them.

**Managerial, Behavioral & Organizational Economics:** This area provides a coherent area of study for preparing students for academic careers in applied economics, management, and related cognate fields; and for careers in government and industry. The program is based upon a set of courses offered in the Division that supports MS and PhD training in microeconomic theory, neo-institutional economics, behavioral economics, and organizational economics. These core courses are augmented by courses in qualitative and quantitative methods and a cognate area that supports the student's research. The cognate area is chosen in consultation with the major advisor and committee input.

**Public Policy Analysis:** This area seeks knowledge about how agricultural and food policy and innovation influence markets and, ultimately, human well-being. The program relies on a rigorous approach to agricultural economics that underpins applied analysis, including experimental and behavioral economic models, strategic interaction models, structural economic models, investment or firm models, systems simulation, mathematical programming and econometrics. It relies on coursework and research with widely recognized centers for agricultural economics, such as the Food and Agricultural Policy Research Institute (FAPRI) (<https://www.fapri.missouri.edu/>), Agricultural Markets and Policy (AMAP) (<https://amap.missouri.edu/>), the Economics and Management of Agrobiotechnology Center (EMAC) (<https://emac.missouri.edu/>) and the Food Equation Institute (FEI).

## Degree Requirements

The general course requirements for the PhD consist of theory and methods courses, followed by a well-balanced selection of elective and research courses in agricultural and applied economics and other disciplines at the graduate level. The course of study will prepare students for the qualifying exam taken after the first year of courses, the comprehensive exam assessing competency in his or her chosen fields of study, and independent research. A dissertation embodying the results of original research must be written on a subject approved by the



program committee. An oral examination over the dissertation completes the degree requirements.

The minimum requirements for the PhD are as follows:

- 72 credit hours (minimum) from courses numbered 7000 – 9000, and within the 72 credit minimum are the following constraints:
- No more than 30 credit hours can be transferred from an MS program
- 15 credits must be from courses numbered 8000 – 9000, exclusive of dissertation research, problems or independent study
- 6 credit hours designated as the PhD Focus Area Theory core
- 6 credit hours designated as the PhD Focus Area Methods core (can be met from any combination of quantitative, qualitative, mixed or other methods courses)
- 3 credit hours of AAE 8510 Research Methods and Design
- 12 credit hours of AAE 9090 Doctoral Dissertation Research in Agricultural and Applied Economics
- 45 credit hours designated as electives and/or additional required Focus Area courses

## Sample Plan of Study

Fall semester, year 1: Advanced microeconomics theory; Other Focus Area theory or methods course; Elective

Spring semester, year 1: Focus Area theory or methods courses

Fall semester, year 2: Focus Area field courses and/or Electives

Spring semester, year 2: AAE 8510 Research Methods and Design; Focus Area field courses and/or Electives

Subsequent semesters: Field Courses and/or Electives; Research and Dissertation hours

## Qualifying Process

After completing the first year sequence, students complete a qualifying exam process determined by the research Focus Area faculty. Examinations are completed in May with a retake, if needed, offered in August. Students must pass the qualifying exam process to continue in the PhD program.

## Comprehensive Examination Process

Students take the Comprehensive Exam after passing the qualifying exam process and completing coursework, including core courses and field courses. The Comprehensive Exam consists of three parts: the written dissertation proposal, a written comprehensive exam, and an oral examination. The Comprehensive Exam is administered by the student's Doctoral Program Committee.

## Dissertation Requirements

Two types of dissertations are acceptable. The first type of dissertation is organized around a single topic and typically is a lengthy monograph of your research findings. The second type of dissertation is a compilation of three narrow-topic essays that are loosely related to a single, general theme or topic. Students select dissertation topics in consultation with their Doctoral Program Committee.

## Admissions

The Division's Graduate Studies Committee and Focus Area faculty oversee the admissions process. Admission into the PhD program is determined by an assessment of program prerequisites and application

materials. Domestic and international students are equally welcome to apply.

Prerequisites for the PhD program include courses in intermediate microeconomics; intermediate macroeconomics; econometrics or regression and correlation analysis; differential calculus; and statistics. Applicants who have not met these prerequisites or have limited background in economics may be required to correct these deficiencies or take certain courses without graduate credit before being formally admitted into the program. A master's degree in economics, agricultural economics, or a related field, is preferred but not required for admittance into the PhD program. Minimum requirements for admission into the PhD program are a Bachelor's degree (BA or BS) or equivalent and undergraduate GPA 3.0. The Test of English as a Foreign Language (TOEFL) or an equivalent English competency test is required of applicants whose first language is not English, with minimum TOEFL scores of 80 if internet-based. Applicants should also take the GRE or GMAT exams.

### For More Information

For further information on admissions or financial assistance, write to Harvey James, director of graduate studies, 146 Mumford Hall, Columbia, MO 65211, or [hjames@missouri.edu](mailto:hjames@missouri.edu).

## Agricultural Education

Jon C. Simonsen, Associate Professor & Chair  
College of Agriculture, Food and Natural Resources  
126 Gentry Hall  
(573) 882-7451  
Fax: (573) 884-4444

Administrative Assistant: [swaimc@missouri.edu](mailto:swaimc@missouri.edu)

<https://dass.missouri.edu/degrees-and-programs/agricultural-education-degree/>

Agricultural Education and Leadership graduates are the teachers, communicators, leaders, trainers, and advocates for the agricultural industry. Ag Education, Communications, and Leadership faculty know the most valuable agricultural resource is our people. Faculty invest in students to help students to identify and achieve their own goals through integrated advising, teaching, engagement, and research. Agricultural Education students facilitate change through evaluating and growing processes and people. Our program has cultivated close relationships with a variety of agricultural youth organizations and companies; faculty use these connections to provide authentic learning opportunities where students work alongside industry professionals. Students in agricultural education use the flexibility of the degree program to customize their undergraduate experience. Students may choose an emphasis in Agricultural Education-Teaching or Agricultural Communications and Leadership

Successful Agricultural Education students have a strong interest in agriculture and a talent for working with people. Our graduates teach, communicate, lead, and grow people in the agricultural industry using the technical, human, and conceptual skills they improve through their undergraduate program. Popular careers include Agriculture teacher, Public Relations Specialist, Strategic Communications Specialist, Workforce Development trainer, commodity organization representative, governmental agriculture specialist, and Youth Specialist. Many of our graduates live in work in rural Missouri communities as the Agriculture teacher/FFA Advisor. These teachers work on a year-round contract

to facilitate student success in FFA, Classroom teaching, agricultural mechanics, greenhouse, and food science laboratories, and Supervised Agricultural Experience Programs. A large proportion of our Agricultural Communications and Leadership graduates go to work for agricultural businesses, agricultural communications and marketing firms, commodity organizations, governmental agriculture organizations, or for University of Missouri Extension. These individuals use their leadership and communication skills to lead advocacy campaigns, implement brand strategy, crisis communication, graphic design, membership services, human resources, producer programs, youth development, and many other careers. Graduates of Agricultural Education are hired for a variety of careers, as their broad-based knowledge of agriculture and their ability to develop/work with people is needed by many organizations.

The program offers the BS with a major in Agricultural Education, as well as an MS and a PhD.

Minors in Agricultural Leadership, Agricultural Communications, and Agricultural Education are also available.

## Faculty

**Professor** B. L. Garton\*\*, L. G. Schumacher\*\*

**Associate Professor** J. C. Simonsen\*\*

**Assistant Professor** D. A. Cletzer\*\*

**Assistant Teaching Professor** J. D. Tummons\*\*

**Instructor** R.L. Mott\*, J. Y. Peckman

**Professional Development Specialist** C. M. Abbott

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BS in Agricultural Education (p. 57)
  - with emphasis in Communications and Leadership (p. 58)
  - with emphasis in Teacher Certification (p. 59)
- Minor in Agricultural Education (p. 62)

Agricultural Education and Leadership graduates are the teachers, communicators, leaders, trainers, and advocates for the agricultural industry. Ag Education, Communications, and Leadership faculty know the most valuable agricultural resource is our people. Faculty invest in students to help students to identify and achieve their own goals through integrated advising, teaching, engagement, and research. Agricultural Education students facilitate change through evaluating and growing processes and people. Our program has cultivated close relationships with a variety of agricultural youth organizations and companies; faculty use these connections to provide authentic learning opportunities where students work alongside industry professionals. Students in agricultural education use the flexibility of the degree program to customize their undergraduate experience. Students may choose an emphasis in Agricultural Education-Teaching or Agricultural Communications and Leadership

Successful Agricultural Education students have a strong interest in agriculture and a talent for working with people. Our graduates teach, communicate, lead, and grow people in the agricultural industry using the technical, human, and conceptual skills they improve through their undergraduate program. Popular careers include Agriculture teacher,

Public Relations Specialist, Strategic Communications Specialist, Workforce Development trainer, commodity organization representative, governmental agriculture specialist, and Youth Specialist. Many of our graduates live in work in rural Missouri communities as the Agriculture teacher/FFA Advisor. These teachers work on a year-round contract to facilitate student success in FFA, Classroom teaching, agricultural mechanics, greenhouse, and food science laboratories, and Supervised Agricultural Experience Programs. A large proportion of our Agricultural Communications and Leadership graduates go to work for agricultural businesses, agricultural communications and marketing firms, commodity organizations, governmental agriculture organizations, or for University of Missouri Extension. These individuals use their leadership and communication skills to lead advocacy campaigns, implement brand strategy, crisis communication, graphic design, membership services, human resources, producer programs, youth development, and many other careers. Graduates of Agricultural Education are hired for a variety of careers, as their broad-based knowledge of agriculture and their ability to develop/work with people is needed by many organizations.

## Major Core Requirements

See university general education and graduation requirements as well as the College of Agriculture, Food and Natural Resources listings. Information about the agricultural education degree is also available at <https://dass.missouri.edu/degrees-and-programs/agricultural-education-degree/>

## Emphasis Areas

Students majoring in the agricultural education select the Teacher Certification emphasis or Communications and Leadership emphasis.

## Graduate

- PhD in Agricultural Education (p. 62)

Agricultural Education and Leadership  
121 Gentry Hall, Columbia, MO 65211  
(573) 882-7451  
[aged@missouri.edu](mailto:aged@missouri.edu)  
<http://dass.missouri.edu/aged/grad/>

The agricultural education programs are designed for students with interests in agricultural education and leadership development. Coursework includes program and professional development, evaluation, teaching and learning theories and practices, social sciences research methods, organization and administration, leadership and communication.

The department also offers a MS in Agricultural Leadership, Communication and Education (p. 63).

## BS in Agricultural Education

### Degree Program Description

Graduates of Agricultural Education are the teachers, communicators, leaders, trainers, and advocates for the agricultural industry. Ag Education, Communications, and Leadership faculty know our most valuable agricultural resource is people - our faculty invest in students to help them achieve their goals through integrated advising, teaching, engagement, and research. Agricultural Education students facilitate change through evaluating and growing processes and people. Our program has cultivated close relationships with a variety of agricultural

youth organizations and companies; faculty use these connections to provide authentic learning opportunities where students work alongside industry professionals. Students in agricultural education use the flexibility of the degree program to customize their undergraduate experience. Students may choose an emphasis in Teacher Certification or Communications and Leadership

Successful Agricultural Education students have a strong interest in agriculture and a talent for working with people. Our graduates teach, communicate, lead, and grow people in the agricultural industry using the technical, human, and conceptual skills they improve through their undergraduate program. Popular careers include Agriculture teacher, Public Relations Specialist, Strategic Communications Specialist, Workforce Development trainer, commodity organization representative, governmental agriculture specialist, and Youth Specialist. Many of our graduates live in work in rural Missouri communities as the Agriculture teacher/FFA Advisor. These teachers work on a year-round contract to facilitate student success in FFA, Classroom teaching, agricultural mechanics, greenhouse, and food science laboratories, and Supervised Agricultural Experience Programs. A large proportion of our Agricultural Communications and Leadership graduates go to work for agricultural businesses, agricultural communications and marketing firms, commodity organizations, governmental agriculture organizations, or for University of Missouri Extension. These individuals use their leadership and communication skills to lead advocacy campaigns, implement brand strategy, crisis communication, graphic design, membership services, human resources, producer programs, youth development, and many other careers. Graduates of Agricultural Education are hired for a variety of careers, as their broad-based knowledge of agriculture and their ability to develop/work with people is needed by many organizations.

### Major Program Requirements

Students earning a Bachelor of Science in Agricultural Education are required to complete all University general education (p. 36), University graduation (p. 35), and degree requirements, including selected foundational courses, which may fulfill some University general education requirements.

Approximately one-third of the course work for the degree is completed in agricultural education or professionally related courses. In addition, the curriculum includes courses in agriculture, food and natural resource disciplines including agricultural economics, agricultural systems management, animal sciences, food science, horticulture, plant sciences and natural resources.

Students majoring in agricultural education select the Teacher Certification emphasis or Communications and Leadership emphasis. Please see the individual emphasis areas (p. 57) for degree and major requirements.

If you are planning to transfer courses (including AP credit) and would like to information on how they apply to a degree program(s), you can email CAFNRadvising@missouri.edu for general recommendations.

### Foundational Courses

MATH 1100	College Algebra	3
BIOCHM 2110	The Living World: Molecular Scale	3
or BIOCHM 2112	Biotechnology in Society	
or CHEM 1100	Atoms and Molecules with Lab	
or CHEM 1320	College Chemistry I	

BIO_SC 1010 & BIO_SC 1020	General Principles and Concepts of Biology and General Biology Laboratory	5
or BIO_SC 1030	General Principles and Concepts of Biology with Laboratory	
or BIO_SC 1200	General Botany with Laboratory	
or BIO_SC 1500	Introduction to Biological Systems with Laboratory	
ABM 1041	Applied Microeconomics	3
or ECONOM 1014	Principles of Microeconomics	
AG_ED_LD 2250	Introduction to Leadership	3
or AG_ED_LD 2260	Team and Organizational Leadership	
AGSC_COM 2220	Verbal Communication in Agriculture, Food and Natural Resources	3

### Semester Plan

Please refer to the Emphasis in Communications and Leadership (p. 58) or Teacher Certification (p. 59) for semester plan information.

## BS in Agricultural Education with Emphasis in Communications and Leadership

### Degree Program Description

Agricultural Education students combine their passion for agriculture and their talents working with people to lead and teach the next generation of agriculturalists. Our graduates lead people and agricultural organizations in wide variety of roles. The Agricultural Communications and Leadership emphasis is a highly flexible degree program which allows students to create a customized plan of study to meet their needs. Our faculty work in partnership with industry, government, and extension leaders to create authentic, hands-on learning experiences, where students work alongside industry professionals to tackle authentic projects and problems. In addition to agricultural education and leadership course requirements, students complete course work in agribusiness management, agricultural sales and marketing, plant sciences, animal sciences, agricultural systems management, natural resources and food science. All students complete at least one internship with an agricultural business, public or private agency or commodity organization.

### Major Program Requirements

Students earning a Bachelor of Science in Agricultural Education are required to complete all University general education (p. 36), University (p. 35) graduation, and degree requirements, including selected foundational courses (p. 57), which may fulfill some University general education requirements.

### Communications and Leadership Emphasis

The communications and leadership emphasis focuses on developing students' leadership, communication and human relation skills. Students are encouraged to develop a diverse background by completing course work in a variety of disciplines in the College of Agriculture, Food and Natural Resources. Students also have the opportunity to specialize and earn minors in disciplines of interest. The capstone experience involves a supervised internship with an agricultural business, public or private

agency, or commodity organization in the area of education, training, communication and/or development.

**Emphasis Core Requirements**

AG_ED_LD 1000	Orientation to Agricultural Education and Leadership	1
PSYCH 1000	General Psychology	3
RU_SOC 1000	Rural Sociology	3
AGSC_COM 1160	Foundations of Agricultural Science Communications	3
AGSC_COM 2210	Communicating Science to the Public	3
AGSC_COM 2220	Verbal Communication in Agriculture, Food and Natural Resources	3
AG_ED_LD 2250	Introduction to Leadership	3
AG_ED_LD 2260W	Team and Organizational Leadership - Writing Intensive	3
AG_ED_LD 2270	Leadership Development in Youth Organizations	3
AG_ED_LD 3010	Leadership in Today's World	3
AGSC_COM 3210W	Fundamentals of Communications - Writing Intensive	3
AGSC_COM 3240	Communicating on the Web	3
AG_ED_LD 4240	Leading Organizational and Community Change	3
AG_ED_LD 4340	Designing and Delivering Educational/Leadership Programs	3
AG_ED_LD 4993	Internship in Agricultural Education and Leadership	3

**Agribusiness Management**

ABM 2223	Agricultural Sales	3
ABM 3241W	Ethical Issues in Agriculture - Writing Intensive	3
or ABM 3283	Fundamentals of Entrepreneurship	

**Animal Science**

Animal Science Elective		3
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**Plant and Soil Science**

Plant Science Elective		3
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**Natural Resources/ Hospitality Management/Ag Systems Management**

Natural Resources/Hospitality Management/Ag Systems Management Elective		3
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**Electives**

CAFNR Electives		21
General Electives		9-13

**Semester Plan**

First Year			
Fall	CR	Spring	CR
AG_ED_LD 1000	1	MATH 1100	3
ABM 1041	3	HIST 1100	3
AG_ED_LD 2250	3	PLNT_S 2075	3
ENGLSH 1000	3	ABM 2223	3
AGSC_COM 1160	3	PSYCH 1000	3
	13		15
Second Year			
Fall	CR	Spring	CR
BIO_SC 1200	5	CHEM 1100	3
AG_ED_LD 2270	3	AN_SCI 1175	4

AGSC_COM 2220	3	AG_ED_LD 2260W	3
PHIL 1200	3	RU_SOC 1000	3
		ABM 3241W	3
	14		16

Third Year					
Fall	CR	Spring	CR	Summer	CR
AGSC_COM 3210W	3	AFNR 2190	3	AG_ED_LD 4993	3
AGSC_COM 2210	3	AG_ED_LD 3010	3		
AGSC_COM 3240	3	COMMUN 3390	3		
AN_SCI 1011	4	ABM 3230	3		
ABM 3283	3	PLNT_S 2220	2		
	16		14		3

Fourth Year			
Fall	CR	Spring	CR
AG_ED_LD 4240	3	AG_ED_LD 4340	3
COMMUN 3310	3	AG_S_M 4020	3
ABM 4230	3	AG_S_M 2340	3
MANGMT 3000	3	FINANC 1000	3
NAT_R 2160	3	COMMUN 3460	3
	15		15

Total Credits: 121

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# BS in Agricultural Education with Emphasis in Teacher Certification

## Degree Program Description

Agricultural Education students combine their passion for agriculture and their talents working with people to lead and teach the next generation of agriculturalists. Our graduates lead people and agricultural organizations in wide variety of roles. Students completing a degree in Agricultural Education, Teacher Certification are well prepared to teach agriculture, advise an FFA chapter, and supervise SAEP student projects. Our faculty work in partnership with state and national leaders in Agricultural Education/FFA to create authentic, hands-on learning experiences, where students work alongside industry professionals to tackle authentic projects and problems. In addition to agricultural education course requirements, students complete course work in agribusiness management, agricultural sales and marketing, plant sciences, animal sciences, agricultural systems management, natural resources and food science.

## Major Program Requirements

Students earning a Bachelor of Science in Agricultural Education are required to complete all University general education (p. 36), University graduation (p. 35), and degree requirements, including selected foundational courses (p. 57), which may fulfill some University general education requirements.

## Teacher Certification Emphasis

The Teacher Certification emphasis prepares students to meet state teacher licensure requirements to teach agriculture in Missouri public schools at the secondary and adult levels. In addition to courses in Agricultural Education and the College of Education, the curriculum includes 45 hours of coursework in agriculture, food and natural

resources. The capstone experience involves a semester-long teaching internship in a selected secondary agriculture program.

<b>Emphasis core requirements</b>		<b>28</b>
AG_ED_LD 1000	Orientation to Agricultural Education and Leadership	1
AG_ED_LD 2270	Leadership Development in Youth Organizations	3
AG_ED_LD 2271	Early Field Experience	1
AG_ED_LD 4310	Intracurricular Program Management in Agricultural Education	3
AG_ED_LD 4320	Methods of Teaching I	3
AG_ED_LD 4321	Field Experience I	1
AG_ED_LD 4330	Methods of Teaching II	3
AG_ED_LD 4331	Field Experience II	1
AG_ED_LD 4087	Internship Seminar in Agricultural Education and Leadership	3
AG_ED_LD 4995	Student Teaching Internship in Agriculture	9
<b>College of Education</b>		<b>18</b>
LTC 4565	Reading and Writing in the Content Areas II	3
LTC 4460	Teaching English to Speakers of Other Languages	3
ESC_PS 2010	Inquiry Into Learning I	3
LTC 2040	Inquiring into Schools, Community and Society I	3
SPC_ED 4020	Teaching the Exceptional Learner	3
LTC 4560	Reading and Writing in the Content Areas	3
<b>Agribusiness Management</b>		<b>6</b>
ABM 2223	Agricultural Sales	3
AND Agribusiness Management Elective		3
<b>Animal Sciences</b>		<b>6-8</b>
AN_SCI 1165	Biology of Animal Production I with Laboratory	3-4
or AN_SCI 1164	Biology of Animal Production I	
AN_SCI 1175	Biology of Animal Production II with Lab	3-4
or AN_SCI 1174	Biology of Animal Production II	
<b>Plant Sciences</b>		<b>3</b>
PLNT_S 2110	Plants and their Cultivation	3
or SOIL 2100	Introduction to Soils	
or PLNT_S 3275	Grain Crops	
or PLNT_S 3270	Forage Crops	
<b>Agricultural Systems Management</b>		<b>6</b>
AG_S_M 1020	Introduction to Agricultural Systems Management	3
AG_ED_LD 3320	Metal Fabrication and Laboratory Management	3
<b>Horticulture</b>		<b>7</b>
PLNT_S 2075	Environmental Horticulture	3
PLNT_S 3260	Greenhouse Management	3-4
or PLNT_S 4365	Greenhouse Crops Production	
or PLNT_S 3230W	Plant Propagation - Writing Intensive	
<b>Electives</b>		<b>18</b>
CAFNR electives		6-8
General Electives		9

## Semester Plan

Please visit with an advisor actual plans may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
AG_ED_LD 1000		1 MATH 1100*	3
ABM 1041^		3 HIST 1100*	3
ENGLISH 1000*		3 PLNT_S 2075	3
AG_ED_LD 2250		3 AN_SCI 1165	4
PLNT_S 2110		3 ABM 2223	3
		13	16

Second Year			
Fall	CR	Spring	CR
ESC_PS 2010		3 CHEM 1100*	3
AG_ED_LD 2271		1 LTC 2040	3
AG_S_M 1020^		3 AN_SCI 1175	4
AG_ED_LD 2270		3 AGSC_COM 2220	3
BIO_SC 1200		5 ABM 3241W	3
		15	16

Third Year			
Fall	CR	Spring	CR
SPC_ED 4020^		3 AG_ED_LD 4320	3
AG_ED_LD 4310		3 AG_ED_LD 4321^	1
PLNT_S 3260		4 LTC 4460	3
AGSC_COM 3210W		3 LTC 4560	3
ABM 3260		3 SOIL 2100	3
		AN_SCI 2111W	3
		16	16

Fourth Year			
Fall	CR	Spring	CR
AG_ED_LD 3320		3 AG_ED_LD 4087	3
AG_ED_LD 4330^		3 AG_ED_LD 4995^	9
AG_ED_LD 4331^		1	
LTC 4565		3	
AN_SCI 3275		3	
AFNR 2190		3	
AN_SCI 3085		1	
		17	12

Total Credits: 121

\* Denotes University General Education Requirements

^ Denotes Degree Program Requirements

## Teacher Education Courses

Students proceed through three phases as they complete the baccalaureate program. Each phase includes training in technology as well as clinical experience. University general education and content requirements are completed each semester in addition to the required program area courses. A student admitted to a professional program (Phase II) must maintain the standards met at the time of admission.

The Director of Teacher Certification will monitor student GPAs each semester. Students must maintain the following minimum GPA (UM and overall) to maintain in good standing.

Phases	Minimum	Minimum	Minimum ag
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	<b>cumulative GPA (UM and overall)</b>	<b>professional (education) GPA</b>	<b>Content GPA</b>
Phase I	2.000	2.000	2.000
Phase II	2.750	3.000	3.000
Phase III	2.750	3.000	3.000

Students in Phase II or III must maintain the minimum GPA for their phase to be considered in good standing. If a student in Phase II or III is determined to not be in good standing, the Director of Teacher Certification will change the student to Phase I status and will notify the student in writing. Students may apply to be readmitted to Phase II upon meeting all the minimum GPAs required of that level.

### Phase I

Students are automatically enrolled into Phase I upon entering the degree program. This phase provides students with an immersion into the discipline and culture of teaching and learning before focusing on a teaching specialty. Phase I coursework includes the following courses: ESC\_PS 2010, LTC 2040, AG\_ED\_LD 2270, AG\_ED\_LD 2271, and AG\_ED\_LD 4310.

### Phase II

This phase occurs over a three-semester sequence and focuses increasingly on a chosen teaching emphasis and on interdisciplinary teaching. Experiences in this phase focus on instructional strategies, human development, classroom and behavior management and educational measurement. This phase provides students with experience in the methods of teaching in a specific subject area as well as emerging problems and practices within the field of education.

- Application to Phase II is required. Students become eligible for consideration for admittance to Phase II after meeting the following criteria:
- Current enrollment in the Agricultural Education program
- Minimum 2.750 UM GPA of record and overall GPA (on a 4.000 scale)
- Content GPA of 3.000 (on a 4.000 scale)
- Professional (education) GPA of 3.000 (on a 4.000 scale)
- Passing score on the Missouri General Education Assessment (or acceptable ACT as identified by DESE)
- Completion of the Missouri Educator Profile (or other required dispositions instrument as identified by DESE)
- ENGLSH 1000 ([http://catalog.missouri.edu/search/?P=ENGLSH %201000](http://catalog.missouri.edu/search/?P=ENGLSH%201000)) with a "C" range grade or higher
- MATH 1100 ([http://catalog.missouri.edu/search/?P=MATH %201100](http://catalog.missouri.edu/search/?P=MATH%201100)) with a "C" range grade or higher
- Demonstration of competence of Phase I learning markers as demonstrated by satisfactory completion of Phase I courses (ESC\_PS 2010, LTC 2040, AG\_ED\_LD 2270, AG\_ED\_LD 2271, AG\_ED\_LD 4310, AG\_ED\_LD 4320, and AG\_ED\_LD 4320 with a grade of "S" (satisfactory), or 'C' (2.00) or higher in each course
- Demonstrated competence of Phase I mid-preparation benchmarks (as documented by Phase I instructors)
- Possession of characteristics associated with effective performance in a professional role at the level(s) and in the major(s) selected
- Completion of application for progression

Decisions regarding Phase II admission are made by the Director of Teacher Certification. Meeting minimum requirements for admission to Phase II does not guarantee admission to Phase II. Students may be allowed to take Phase II courses if conditionally admitted into Phase II by faculty. Faculty will consider conditional Phase II admits on a case-by-case basis and can re-approve conditional status so long as students submit an approved plan for meeting Phase II requirements to the College of Education each semester. However, conditionally admitted students will not be fully admitted until they meet all listed requirements. Students are not eligible for Phase III admittance until fully admitted into Phase II.

### Phase III

Phase III occurs during the last year, including student placement in a public school district for the entire semester, for approximately 16 weeks (12 credit hours).

Application for Phase III is required. To qualify for the teaching internship, applicants must meet the following requirements:

- Admission to Phase III in the program area
- Successful completion of all Phase II requirements
- Demonstration of competence of Phase II learning markers as demonstrated by satisfactory completion of Phase II courses (AG\_ED\_LD 4320, AG\_ED\_LD 4330, AG\_ED\_LD 4331, SPC\_ED 4020, LTC 4460, LTC 4560, LTC 4565) with a grade of "S" (satisfactory), or 'C' (2.00) or higher in each course.
- A minimum of 90 completed credit hours
- Completion of at least the preceding semester in residence
- A minimum 2.750 UM GPA of record and an overall GPA of 2.750 (on a 4.000 scale)
- Content GPA of 3.000 (on a 4.000 scale)
- Professional (education) GPA of 3.000 (on a 4.000 scale)
- Completion of specific prerequisite professional education and subject area course requirements for the level at which the teaching internship is to be accomplished

Teaching internship placements are available in several districts across the State of Missouri. Applications are accepted approximately a year preceding internship. More information concerning student teaching internships may be obtained from John Tummons, Director of Teacher Certification. 123 Gentry Hall.

## Teacher Certification

### Licensures

Completion of the bachelor's degree and any additional requirements for certification must be completed before the graduate is eligible for an Initial Professional Certificate from the Department of Elementary and Secondary Education in the State of Missouri.

- Recommendation for initial certification after graduation requires:
- Passing score on the Content Area Exam (and official scores submitted to the University of Missouri)
- Passing score on the Missouri Pre-Service Teacher Assessment
- Official transcripts with the degree posted submitted to Office of Assessment in 2 Hill Hall.
- Submission of an IPC application from the DESE web application website (<https://apps.dese.mo.gov/weblogin/login.aspx>) to MU

- The Department of Elementary and Secondary Education also requires that students seeking additional certification in other teaching subjects take the Content Area Exam in those additional subjects in order to be considered a Highly Qualified Teacher

A student recommended for teacher certification must meet the following criteria:

- Cumulative UM GPA of record of 2.750
- Overall GPA of 2.750 for all college course work completed
- Cumulative GPA of 3.000 in all content area course work
- 2.000 in each professional education course with overall 3.000 GPA on all professional education course work
- Satisfactory score on the Missouri Pre-Service Teacher Assessment
- Satisfactory score on the Content Area Exam required by the State of Missouri
- Satisfactory completion of minimum required professional and technical agriculture coursework
- An official copy of the student's transcript with baccalaureate degree posted submitted to the Office of Assessment in 2 Hill Hall.
- Complete online application for an Initial Professional Certificate through the Department of Elementary and Secondary Education (DESE) web application

## Minor in Agricultural Education

Agricultural Education faculty collaborate with industry professionals to design and deliver authentic, problem-based learning in agriculture, food, and natural resource systems. Students completing the Agricultural Education minor will learn to design, deliver, and assess learning in a variety of work-based contexts.

### Requirements

The minor requires 15 credits of agricultural education course work with a minimum of 6 credits at the 3000 level or above.

### Application for Minor

Students interested in this minor should complete the online form located on the CAFNR website (<https://cafnr.missouri.edu/current-students/forms-requirements/>).

## PhD in Agricultural Education

### Degree Requirements

A total of 72 credit hours beyond the baccalaureate degree must be completed. The student's doctoral program committee must approve all course work used to satisfy the credit-hour requirement and may require additional course work beyond the minimum.

Within the 72 credit hour requirement, students should complete 12 credit hours of course work that focuses on developing an area of expertise. The student's doctoral program committee will approve the area and content of the concentration. Concentrations may include, but are not limited to, Teacher Education, Extension Education, and Communication/Journalism.

AG_ED_LD 8410	Philosophical Foundations of Agricultural Education and Leadership	3
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AG_ED_LD 8330 & AG_ED_LD 8350 or AG_ED_LD 9410	Advanced Methods of Teaching and College Teaching of Agriculture, Food and Natural Resources Foundations and Practices of Teacher Education	6
AG_ED_LD 8430	Evaluation of Educational Programs	3
AG_ED_LD 8250	Leadership Theory and Application	3
	Theory Course (in consultation with doctoral committee)	3
ESC_PS 7170 or SOCIOL 7120	Introduction to Applied Statistics Social Statistics	3
AG_ED_LD 8510	Research Methods and Design	3
AG_ED_LD 9510	Data Collection, Analysis and Interpretation	3
AG_ED_LD 8540	Methods of Qualitative Research	3
	Advanced Studies in Methods/Analysis - examples include but not limited to:	6
ESC_PS 9620 or SOCIOL 9287	Qualitative Methods in Educational Research II Seminar in Qualitative Methods in Sociology	
	Electives (including minimum of 12 credit hours for Concentrations) *	27
AG_ED_LD 9090	Doctoral Research in Agricultural Education and Leadership	9

\* Electives - should be selected in consultation of the student's advisor and must be approved by the student's committee, and should total 27 credit or more.

Concentrations - should total at least 12 credits and are counted as part of the electives, should focus on developing an area of expertise such as Teacher Education, Adult Education, Journalism, Educational Leadership, etc.

### Qualifying Process

Please contact the department for information about the qualifying process.

### Comprehensive Examination Process

Candidacy for a doctoral degree is established by passing the comprehensive examination. The comprehensive examination includes written and oral sections and is completed as the candidate is completing the prescribed coursework.

### Dissertation Requirements

After passing the comprehensive examination, the program for the doctoral degree must be completed within five years. Upon completions of the dissertation research project, the candidate defends the dissertation before his/her doctoral research committee. Details regarding the dissertation process can be found in the program's Graduate Handbook (<http://dass.missouri.edu/aged/grad/grad-handbook.pdf>).

During the time when a student is working on the dissertation, candidacy is maintained by enrolling in AG\_ED\_LD 9090 Doctoral Research in Agricultural Education and Leadership, for two credit hours each fall and spring semester, and for one credit hour each summer semester, up to and including the term in which the dissertation is defended. Continuous enrollment provides access to an advisor's support, doctoral program committee guidance, and University research facilities for completion of the dissertation. Failure to continuously enroll in AG\_ED\_LD 9090 until the doctoral degree is awarded terminates candidacy.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Agricultural Education program (<https://gradstudies.missouri.edu/degrecategory/agricultural-education/>) and the minimum requirements of the graduate faculty, enforced by the Graduate School (<https://gradstudies.missouri.edu/admissions/eligibility-process/>). Because requirements vary, you must refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admission to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

## Agricultural Leadership, Communication and Education

Jon Simonsen, Associate Professor and Chair  
College of Agriculture, Food and Natural Resources  
126 Gentry Hall  
(573) 884-7375  
Fax: (573) 884-4444

Administrative Assistant: [swaimc@missouri.edu](mailto:swaimc@missouri.edu)  
Agricultural Leadership, Communication and Education website (<https://dass.missouri.edu/graduate-studies/agricultural-leadership-communication-and-education/>)

The agricultural education degree program provides students with the opportunity to combine an interest in agriculture, food and natural resources with their enjoyment of working and communicating with people. A degree in agricultural education leads to careers in which students can influence the understanding of agriculture and its role in society and the global economy.

The department offers the BS and PhD in Agricultural Education, as well as an MS in Agricultural Leadership, Communication and Education. A minor is also available.

## Faculty

**Professor** B. L. Garton\*\*, L. G. Schumacher\*\*

**Associate Professor** J. C. Simonsen\*\*

**Assistant Professor** D. A. Cletzer\*

**Assistant Teaching Professor** J. D. Tummons\*

**Assistant Extension Professor** R. Mott\*

**Instructor** J. Peckman

**Professional Development Specialist** C. M. Abbott

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

While MU does not offer undergraduate degrees specifically in agricultural leadership, communication and education, the University does offer bachelors degrees in the closely related areas of Agricultural Education (p. 57), as well as other related areas both within the College of Agriculture, Food and Natural Resources, and in the other

Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 20).

## Graduate

- MS in Agricultural Leadership, Communication and Education (p. 63)

The department also offers a BS (p. 57) and PhD (p. 57) in Agricultural Education.

## MS in Agricultural Leadership, Communication and Education

### Degree Requirements

The program consists of a minimum of 30 credits of graduate coursework beyond the bachelor's degree. For a full explanation of the thesis/non-thesis options, see section below on Thesis/Non-Thesis Requirements (p. 64).

#### Core course required for all students (regardless of option):

Education and Communication 3

AG\_ED\_LD 8330 Advanced Methods of Teaching

JOURN 8000 Mass Media Seminar

Ag Communication Theory Course through AG\*IDEA

Leadership 3

AG\_ED\_LD 8250 Leadership Theory and Application

Philosophy and Ethics 3

AG\_ED\_LD 8410 Philosophical Foundations of Agricultural Education and Leadership

LTC\_V 8310 Foundations of Career and Technical Education

JOURN 8080 Media Ethics

Communicating Ethical Issues through AG\*IDEA

Research Methods and Design 3

AG\_ED\_LD 8510 Research Methods and Design

#### Additional course requirements for Creative Component Option

Select one of the following: \* 3

AG\_ED\_LD 8430 Evaluation of Educational Programs 3

AG\_ED\_LD 8540 Methods of Qualitative Research 3

AG\_ED\_LD 8080 Creative Component in Agricultural Education and Leadership 1-3

ESC\_PS 7170 Introduction to Applied Statistics 3

Specialization and/or Electives (example, not limited to) \*\* 14-15

AG\_ED\_LD 7340 Designing and Delivering Educational/Leadership Programs 3

AG\_ED\_LD 7350 Inservice Course in Agricultural Education and Leadership \*\*\* 1-99

AG\_ED\_LD 8351 Induction Year Teaching I 1-2

AG\_ED\_LD 8352 Induction Year Teaching II 1-2

AG\_ED\_LD 8087 Seminar in Agricultural Education and Leadership 1-99

AG\_ED\_LD 8340 Student and Teacher Development in Agricultural Education and Leadership 3

AG\_ED\_LD 8350 College Teaching of Agriculture, Food and Natural Resources 3

#### Additional course requirements for Creative Component with Teacher Certification option



Consult with faculty on layering Teacher Certification requirements with the Creative Component option.

**Additional course requirements for Thesis Option**

AG_ED_LD 8090	Thesis Research in Agricultural Education and Leadership	1-99
ESC_PS 7170 or AG_ED_LD 8540	Introduction to Applied Statistics Methods of Qualitative Research	3
Specialization and/or Electives (example, not limited to)		9-11
AG_ED_LD 7340	Designing and Delivering Educational/ Leadership Programs	3
AG_ED_LD 7350	Inservice Course in Agricultural Education and Leadership	1-99
AG_ED_LD 8351	Induction Year Teaching I	1-2
AG_ED_LD 8352	Induction Year Teaching II	1-2
AG_ED_LD 8087	Seminar in Agricultural Education and Leadership	1-99
AG_ED_LD 8340	Student and Teacher Development in Agricultural Education and Leadership	3
AG_ED_LD 8350	College Teaching of Agriculture, Food and Natural Resources	3
AG_ED_LD 8430	Evaluation of Educational Programs	3

\* or equivalent, in consultation with your advisor/committee

\*\* Additional courses selected by the student and approved by her/his graduate committee may be selected to meet the goals of the student.

\*\*\* Limited to 8 credits maximum

## Sample Plan of Study

Because students in the M.S. program are from a wide variety of circumstances, and pursue the M.S. at all different paces, a sample plan of study is not easily produced. Students are encouraged to work out their plan of study with their advisor.

## Thesis/Non-Thesis Requirements

The program offers students three options:

### 1. Creative Component Option

This option is oriented toward improving a practitioner's professional proficiency in teaching, curriculum development, program planning and evaluations. The program of study should include courses and learning experiences that will develop the student's knowledge and skills in the processes of learning and teaching. The Creative Component option requires a minimum of 30 hours of graduate credit (to include a minimum of 27 hours of formal graduate courses, plus a maximum of 3 hours of 8080 Creative Component) with a minimum of 15 credit hours at the 8000 level and a minimum of 15 credit hours taken in Agricultural Education and Leadership. Candidates must also complete an approved creative component project.

### 2. Creative Component with Teacher Certification Option

This option is designed for individuals who have earned a B.S. degree in an agricultural discipline and desire the initial teacher certification to teach agriculture at the secondary level. Included in the course work for this option are some of the classes needed for certification to teach secondary high school agriculture in Missouri.

### 3. Thesis Option

This option is research-oriented, focusing on designing and conducting research in the social sciences. The program of study should include

courses and learning experiences that will maximize a student's progress in developing skills that will enable the student to continue his/her education in a research-oriented area. The Thesis option requires a minimum of 30 hours of graduate credit (to include a minimum of 24 hours of formal graduate courses, plus a maximum of six hours of 8090 Research) with a minimum of 15 credit hours at the 8000 level and a minimum of 15 credit hours taken in Agricultural Education and Leadership. Candidates must also complete an approved thesis based on original research.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MS in Agricultural Education program (<https://gradstudies.missouri.edu/degrecategory/agricultural-education/>) and the minimum requirements of the Graduate School (<https://gradstudies.missouri.edu/admissions/eligibility-process/>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

## Agricultural Systems Management

Leon G. Schumacher, Program Chair  
 Agricultural Systems Management  
 Division of Food Systems and Bioengineering  
 207 Agricultural Engineering Building  
 (573) 882-2731  
 ASM@missouri.edu

Agricultural systems management integrates physical systems with agricultural science and management skills to provide graduates with abilities to function in sales, service and maintenance management positions in agribusiness industries. The uniqueness of agricultural systems management graduates lies in their knowledge of the principles of physical systems that are the backbone of modern agricultural and food industries. The department offers the Bachelor of Science with a major in Agricultural Systems Management. A minor is also available.

## Faculty

**Professor** D. Brune\*, L. Schumacher\*, J. Tan  
**Assistant Professor** J. Zhou  
**Associate Extension Professor** T. Lim\*  
**Assistant Extension Professor** J. Zulovich\*  
**Extension Specialist** D. Downing  
**Instructor** K Funkenbusch  
**Professor Emeritus** S. Borgelt, A Thompson

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BS in Agricultural Systems Management (p. 65)
- Minor in Agricultural Systems Management (p. 67)

The Department of Agricultural Systems Management also offers a Certificate in Precision Agriculture Technology. (p. 132)

## Graduate

While MU does not offer graduate degrees in ASM, the University does offer post-baccalaureate opportunities in a number of related areas, both within the College of Agriculture, Food and Natural Resources, and in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 20).

# BS in Agricultural Systems Management

## Degree Program Description

Agricultural Systems Management combines interests in technology, machines, and business. The business and technical skills acquired prepares students for a variety of careers in many industries, including Agricultural and Power Equipment Manufacturing, Equipment Sales, Food Production and Processing, and Government. In Agricultural and Power Equipment Manufacturing, companies such as Caterpillar, Case IH and John Deere seek product developers, managers and supervisors trained in the latest in precision agriculture, hydraulics, electrical circuits, engines and machinery management. In Equipment Sales, local and regional dealerships who sell agricultural machinery to agricultural producers seek technical sales representatives who possess strong product knowledge and an understanding of business finance and marketing to provide producers with the equipment they need. In Food Production and Processing, companies such as Anheuser-Busch, Archer Daniels Midland, Frito-Lay, Pioneer Hi-Bred, Cargill and Purina Mills seek grain elevator and mill operators and managers to properly handle, store and process agricultural crops and materials. In Government, state and federal agencies such as the Missouri Department of Natural Resources, the U.S. Department of Agriculture and the Natural Resources Conservation Service seek consultants and specialists to oversee and regulate pesticide application, water handling and irrigation systems, animal waste management systems, and watershed management.

## Major Program Requirements

Students who earn a Bachelor of Science in Agricultural Systems Management, the management of technical agricultural systems, are required to complete all University general education (p. 36), University graduation (p. 35) and degree requirements, including selected foundational courses, which may fulfill some University general education requirements. **Two tracks of learning are available:** 1) **Agricultural Systems Management (ASM)** and 2) **Precision Agriculture Technology (PAT)**.

If you are planning to transfer courses (including AP credit) and would like to information on how they apply to a degree program(s), you can email CAFNRadvising@missouri.edu for general recommendations.

### Foundational Courses

MATH 1100	College Algebra	3
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ABM 2225	Statistical Analysis	3
or MATH 1140	Trigonometry	
or MATH 1400	Calculus for Social and Life Sciences I	
or MATH 1500	Analytic Geometry and Calculus I	
or STAT 1200	Introductory Statistical Reasoning	
CHEM 1100	Atoms and Molecules with Lab	3
or CHEM 1100H	Atoms and Molecules with Laboratory - Honors	
or CHEM 1320	College Chemistry I	
or CHEM 1320H	College Chemistry I - Honors	
BIO_SC 1010 & BIO_SC 1020	General Principles and Concepts of Biology and General Biology Laboratory	5
or BIO_SC 1030	General Principles and Concepts of Biology with Laboratory	
or BIO_SC 1200	General Botany with Laboratory	
or BIO_SC 1500	Introduction to Biological Systems with Laboratory	
ABM 1041	Applied Microeconomics	3
ABM 1042	Applied Macroeconomics	3
COMMUN 1200	Public Speaking	3
or COMMUN 1200H	Public Speaking - Honors	
AGSC_COM 2220	Verbal Communication in Agriculture, Food and Natural Resources	3

### CORE Requirements

ACCTCY 2036	Accounting I	3
or ACCTCY 2026	Accounting I	
AG_S_M 1020	Introduction to Agricultural Systems Management	3
AG_S_M 1040	Physical Principles for Agricultural Applications	3
AG_S_M 2199	Seminar in Professional Development	1-3
AG_S_M 2340	Pesticide Application Equipment	3
AG_S_M 3007	Topics in Agricultural Systems Management-Physical	3
AG_S_M 4140	Electricity: Wiring and Equipment	3
AG_S_M 4360	Precision Agriculture Science and Technology	3
AG_S_M 4460	Irrigation and Drainage	3
AG_S_M 4970	Agricultural Systems Management - Capstone	3

**Two tracks of learning are available: 1) Agricultural Systems Management (ASM) and 2) Precision Agriculture Technology (PAT).**

### ASM General Track

AG_S_M 2220	Agricultural/Industrial Structures	3
AG_S_M 2360	Fluid Power	3
AG_S_M 4020	Agricultural Safety and Health	3
AG_S_M 4160	Internet of Things for Precision Agriculture Technology	3
AG_S_M 4220	Material Handling and Conditioning	3
AG_S_M 4320	Agricultural Equipment and Machinery	3
AG_S_M 4390	Optimization and Management of Food and Agricultural Systems	3
AG_S_M 4420	Surface Water Management	3
ABM 3256	Agribusiness and Biotechnology Law	3
ABM 3260	General Farm Management	3

**Precision Agricultural Technology Track (PAT)**

AG_S_M 4366	Data Management and Analysis Using Precision Agriculture Technology	3
AG_S_M 4940	Agricultural Systems Management Internship	2-5
ABM 1200	Applied Computer Applications	3
ABM 2223	Agricultural Sales	3
ABM 2225	Statistical Analysis	3
SOIL 2100	Introduction to Soils	3
SOIL 2106	Soil Science Laboratory	2
SOIL 4313	Soil Fertility and Plant Nutrition	3
PLNT_S 2125	Plant Structure and Function	3
PLNT_S 3275	Grain Crops	3
NAT_R 2325	Introduction to Geographic Information Systems	3

select at least 19 hours of professional electives from below

**Professional Electives**

AG_S_M 4160	Internet of Things for Precision Agriculture Technology	3
AG_S_M 4320	Agricultural Equipment and Machinery	3
AG_S_M 4220	Material Handling and Conditioning	3
AG_S_M 4390	Optimization and Management of Food and Agricultural Systems	3
AG_S_M 4420	Surface Water Management	3
AG_S_M 3350	Problems in Agricultural Systems Management	1-5
AG_S_M 4350	Problems in Agricultural Systems Management	1-5
AG_S_M 4365	Machinery Management Using Precision Agriculture Technology	3
AG_S_M 4368	Profit Strategies Using Precision Agriculture Technology	3
ABM 3260	General Farm Management	3
ABM 3295	Real Money: Speculative Trading for Beginners	3
SOIL 4308	Soil Conservation	3
SOIL 4320	Genesis of Soil Landscapes	4
PLNT_S 3210	Principles of Weed Science	4
PLNT_S 3710	Introductory Entomology	3
PLNT_S 3270	Forage Crops	3

In consultation with their advisor, students may select elective courses to bring their total credit hours to the 120 hour minimum. Typically electives are chosen to provide emphasis in one of the following areas:

- Natural resource and environment
- Materials handling and crop processing
- Power and machinery systems
- Production agriculture

**Example ASM Track Semester Plan**

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
AG_S_M 1020		3 AG_S_M 1040	3
AG_S_M 2199		3 ABM 1042	3
ABM 1041		3 ENGLISH 1000	3
MATH 1100		3 HIST 1100, 1200, POL_SC 1100, or POL_SC 2100	3
BIO_SC 1010		3 BIO_SC 1020	2
			14
			15

Second Year			
Fall	CR	Spring	CR
AG_S_M 2360		3 AG_S_M 2220	3
Humanistic Studies and/or Fine Arts		3 AG_S_M 2340	3
AGSC_COM 2220		3 AG_S_M 3007	3
ABM 2223		3 SOIL 2100	3
CHEM 1100		3 STAT 1200	3
			15

Third Year			
Fall	CR	Spring	CR
AG_S_M 4140		3 AG_S_M 4020	3
AG_S_M 4160		3 AG_S_M 4220	3
AG_S_M 4360		3 AG_S_M 4365	3
AGSC_COM 3240		3 ABM 3224W	3
COMMUN 1200		3 ACCTCY 2036	3
			15

Fourth Year			
Fall	CR	Spring	CR
AG_S_M 4320		3 AG_S_M 4368	3
AG_S_M 4366		3 AG_S_M 4390	3
AG_S_M 4970		3 AG_S_M 4460	3
PLNT_S 3210		4 PLNT_S 3275	3
ABM 3260		3 ABM 3256	3
			16

Total Credits: 120

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**Example PAT Track Semester Plan**

First Year			
Fall	CR	Spring	CR
AG_S_M 1020		3 AG_S_M 1040	3
AG_S_M 2199		1 ABM 1042	3
ABM 1041		3 ENGLISH 1000	3
MATH 1100		3 AGSC_COM 2220	3
BIO_SC 1200		5 HIST 1100	3
			15

Second Year			
Fall	CR	Spring	CR
AG_S_M 2360		3 AG_S_M 2340	3
AG_S_M 4140		3 AG_S_M 3007	3
ABM 1200		3 AG_S_M 4390	3
ABM 3224W		3 SOIL 2100	3
CHEM 1100		3 SOIL 2106	2
			15

Third Year			
Fall	CR	Spring	CR
AG_S_M 4320		3 AG_S_M 4220	3
AG_S_M 4360		3 AG_S_M 4365	3
AG_S_M 4940		2 PLNT_S 2125	3
PLNT_S 3210		4 SOIL 4313	3
AGSC_COM 3240		3 NAT_R 2325	3
		15	15

Fourth Year			
Fall	CR	Spring	CR
AG_S_M 4366		3 AG_S_M 4368	3
AG_S_M 4970		3 AG_S_M 4460	3
ABM 2223		3 ABM 2225	3
ABM 3260		3 ABM 3256	3
SOIL 4320		4 PLNT_S 3275	3
		16	15

Total Credits: 120

## Minor in Agricultural Systems Management

### Requirements

15 credit hours of Agricultural Systems Management coursework. Nine (9) of the 15 credit hours must be 3000 level or above.

### Application for Minor

Students interested in this minor should complete the online form located on the CAFNR website (<https://cafnr.missouri.edu/current-students/forms-requirements/>).

## Agriculture

The agriculture degree program is for students searching for a well-rounded education that builds on the diversity of disciplines in the College of Agriculture, Food and Natural Resources (CAFNR). The flexibility of the agriculture degree enables students to tailor a program to fit their individual interests and career goals. Students earn a Bachelor of Science in Agriculture.

### Faculty

See Listing for Faculty in areas of concentration by referring to the degree listings available under the College of Agriculture, Food and Natural Resources.

### Undergraduate

- BS in Agriculture (p. 67)

Office of Academic Programs  
 2-64 Agriculture Building  
 (573) 882-8301  
[www.cafnr.missouri.edu](http://www.cafnr.missouri.edu) (<http://www.cafnr.missouri.edu>)

Students choose agriculture for a variety of reasons. Some may enter the program with a specific career goal in mind, while others may choose agriculture to obtain a broader education that will provide greater flexibility.

## Graduate

While the College of Agriculture, Food and Natural Resources does not offer a graduate degree in Agriculture, the College does offer graduate degrees and certificates in a number of disciplines. The catalog provides a complete list of these degree options (p. 20) for all Schools and Colleges that make up the University of Missouri.

## BS in Agriculture

### Degree Program Description

The agriculture degree program is for students searching for a well-rounded education that builds on the diversity of disciplines in the College of Agriculture, Food and Natural Resources (CAFNR). The flexibility of the agriculture degree enables students to tailor a program to fit their individual interests and career goals.

### Major Program Requirements

Students earning a Bachelor of Science in Agriculture are required to complete all University general education (p. 36), University graduation (p. 35), and degree requirements, including selected foundational courses, which may fulfill some University general education requirements.

If you are planning to transfer courses (including AP credit) and would like information on how they apply to a degree program(s), you can email [CAFNRadvising@missouri.edu](mailto:CAFNRadvising@missouri.edu) for general recommendations.

### Foundational Courses

MATH 1100	College Algebra	3
CHEM 1100	Atoms and Molecules with Lab	3
or CHEM 1320	College Chemistry I	
or BIOCHM 2110	The Living World: Molecular Scale	
or BIOCHM 2112	Biotechnology in Society	
BIO_SC 1010 & BIO_SC 1020	General Principles and Concepts of Biology and General Biology Laboratory	5
or BIO_SC 1030	General Principles and Concepts of Biology with Laboratory	
or BIO_SC 1200	General Botany with Laboratory	
or BIO_SC 1500	Introduction to Biological Systems with Laboratory	
ABM 1041	Applied Microeconomics	3
or ECONOM 1014	Principles of Microeconomics	
ABM 1042	Applied Macroeconomics	3
or ECONOM 1015	Principles of Macroeconomics	
AGSC_COM 2220	Verbal Communication in Agriculture, Food and Natural Resources	3
or COMMUN 1200	Public Speaking	

### Degree and Major Courses

- Students in agriculture also must complete three areas of concentration from CAFNR programs that offer a major or a minor. The primary concentration area requires completion of 18 or more credits. Two additional concentration areas of at least 15 credits each are also required. (See below.)
- These courses shall not be used to fulfill the requirements of a minor.
- Within each concentration area, at least six credits must be at the 3000-level or above.

- Within each concentration area, at least 50 percent of the credits must be earned through MU courses.
- Credits used to meet the University general education requirements can be used to meet requirements in concentration areas.
- Talk with your advisor regarding thematic concentration areas.
- No more than six credits in the primary area and three credits in the secondary areas may consist of problems, readings, internships, travel courses and other non-structured courses.
- The capstone experience for agriculture majors can be a capstone course in a concentration area, an internship or capstone project. This capstone is in addition to credits in the concentration areas.

## Areas of Concentration

Agribusiness Management  
 Agricultural Education  
 Agricultural Leadership  
 Agricultural Systems Management  
 Animal Sciences  
 Biochemistry  
 Captive Wild Animal Management  
 Environmental Sciences  
 Food Science and Nutrition  
 Forestry  
 Hospitality Management  
 Natural Resource Science and Management  
 Parks, Recreation and Sport  
 Plant Sciences  
 Rural Sociology  
 Science and Agricultural Communications

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
ABM 1041	3	MATH 1100	3
ENGLSH 1000	3	ABM 1042	3
HIST 1100	3	BIO_SC 1020	2
Electives	3	Humanities Elective	3
Concentration Area(s)	3	BIO_SC 1010	3
15		14	

Second Year					
Fall	CR	Spring	CR	Summer	CR
AGSC_COM 2220	3	STAT 1200	3	Study Abroad recommended	3
CHEM 1100	3	Elective	3		
Humanities Elective	3	Concentration Area(s)	9		
Concentration Area(s)	6				
15		15		3	

Third Year					
Fall	CR	Spring	CR	Summer	CR
Electives	6	BIOCHM 2112	3	Internship Recommended	3

Concentration Area(s)	9	Concentration Area(s)	6
		Writing Intensive Elective	3
		Other Elective	3
15		15	

Fourth Year			
Fall	CR	Spring	CR
Concentration Area(s)	9	Concentration Area(s)	9
Electives	3	Senior Capstone Elective	3
12		13	

Total Credits: 120

## Animal Sciences

Division of Animal Sciences  
 College of Agriculture, Food and Natural Resources  
 S102 Animal Science Research Center  
 (573) 882-7446  
 Fax: (573) 882-6827  
<http://animalsciences.missouri.edu>

**Division Director:** Dr. William Lamberson

Animal sciences is a broad field centered on the study of agriculturally important animals and their products. Graduates in animal sciences have employment opportunities in many areas including agribusiness (feed, pharmaceutical and meat industries; dairy and poultry products; public relations and research), production and management (farming/ranching; managers of livestock and poultry operations; zookeepers; consultants and technical service representatives), governmental agencies (USDA) and educational institutions (extension, teaching and research).

Students seeking admission into graduate and professional schools usually concentrate more courses in the sciences than students focused on production and management, who select more business-related courses. Students and their faculty advisors select courses that fit the students' needs, interests and objectives. The most specialization occurs at the graduate level.

The division offers BS, MS and PhD degrees with majors in Animal Sciences. A minor in Animal Sciences is also available as is a minor in Captive Wilde Animal Management and a certificate in Equine Science and Management.

## Faculty

**Curators Professor** R. S. Prather\*\*, M. F. Smith\*\*, T. E. Spencer\*\*

**Chancellor's Professor** D. J. Patterson\*\*, R. M. Roberts\*\*, J. F. Taylor\*\*

**Professor** C. G. Elsik\*\*, R. D. Geisert\*\*, W. R. Lamberson\*\*, M. C. Lucy\*\*, T. B. McFadden\*\*, T. J. Safranski\*\*, M. C. Shannon\*, J. N. Spain\*, P. Sutovsky\*\*, W. C. Warren\*\*, B. R. Wiegand\*\*

**Associate Professor** J. E. Decker\*\*, J. A. Green\*\*, K. Lee, A. M. Meyer\*\*, R. M. Rivera\*\*, R. D. Schnabel\*\*, B. Telugu, K. Wells\*\*

**Assistant Professor** E. A. Bailey\*\*, A. Z. Balboula\*, S. K. Behura\*, D. W. Brake\*\*, M. S. Ortega\*, A. L. Patterson\*, J. M. Thomas\*

**Assistant Extension Professor** C. R. Bromfield

**Assistant Teaching Professor** N. C. Anderson, T. A. Strauch\*

**Research Professor** T. Ezashi\*

**Assistant Research Professor** P. Dhakal, J. Kim

**Adjunct Professor** D. B. Lubahn\*, L. A. Lyons

**Associate Adjunct Professor** C. Conant\*\*, A. G. Schrum\*\*

**Assistant Adjunct Professor** Y. Agca, D. Bickkart, M. Haag, W. Pittroff, L. C. Schulz\*\*, J. Sexten, K. Stewart, C. Tubbs, T. Wuliji\*, A. Wurst

**Instructor** A. K. Byrne, M. J. Crosby, T. DeJong, S. A. Hamilton, T. E. Peckman, H. M. Twenter

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BS in Animal Sciences (p. 69)
- Minor in Animal Sciences (p. 71)

\*The Division of Animal Sciences offers a Certificate in Equine Science and Management (p. 132) and a Minor in Captive Animal Management (p. 133)\*

## Divisional Honors Program

In addition to the guidelines for the honors program in the College of Agriculture, Food and Natural Resources, students must meet the following requirements for the honors program in animal sciences. A student must be a junior or senior to participate in the honors program.

- Successful completion of either an internship or undergraduate research or a combination of both for 6 credits in animal sciences honors
- Program approval by a three-member departmental honors committee
- Submission of a written report plus an oral or poster presentation

## Ag Scholars Program

This program provides early assurance of admission to the MU College of Veterinary Medicine to selected students pursuing undergraduate animal science studies at the University of Missouri.

High School seniors and MU freshman with an ACT composite score of 27 or more or an equivalent SAT score are eligible to apply for the Ag Scholars Program.

Applicants must have demonstrated experience in livestock production and health. Examples of appropriate experience may include participation in a livestock enterprise as either a family member or employee; enrollment in at least two years of high school agricultural coursework; and participation in FFA, 4H or equivalent organizations with projects directly related to livestock production or health; or completion of an internship of a least 250 supervised hours working in livestock production or a livestock health enterprise prior to applying for program admission.

For additional information, contact:

Preveterinary Medical Scholars and Ag Scholars Programs  
W-203 Veterinary Medicine Bldg.  
College of Veterinary Medicine  
University of Missouri  
Columbia, Missouri 65211

(573) 884-3341

## Agreement with the College of Veterinary Medicine

The Division of Animal Sciences and the College of Veterinary Medicine or the University of Glasgow (Scotland) have an articulation agreement which enables MU Animal Sciences majors who are admitted to the College of Veterinary Medicine before completing their B.S. degree to earn a B.S. degree in Animal Sciences while working toward their DVM. In order to earn a B.S. degree in Animal Sciences the following requirements must be met:

- All General Education (p. 36) requirements established by the University of Missouri campus.
- All MU Animal Sciences requirements except for Animal Science senior electives; courses from the College of Veterinary Medicine will substitute for the Animal Sciences senior electives.

The student may also substitute up to 20 hours completed in the College of Veterinary Medicine in lieu of general electives in order to complete the total number of student credit hours necessary for a B.S. degree in Animal Sciences.

The B.S. degree in Animal Sciences will be granted after meeting the requirements listed above and earning a total of 120 credits.

## Graduate

- MS in Animal Sciences (p. 71)
- PhD in Animal Sciences (p. 72)

Division of Animal Sciences  
920 E. Campus Drive, Columbia, MO 65211  
(573) 882-8336  
<https://animalsciences.missouri.edu/graduate/>

**Director of Graduate Studies:** Allison Meyer

## About Animal Sciences Graduate Programs

The Division of Animal Sciences has a broad-based teaching program, and our faculty members are noted for teaching and mentoring excellence. Our PhD program was recently ranked among the best in the country by the National Research Council and our research program among the best in the world by Reuters. Our graduate program has maintained or increased numbers, support, and placement rates over the past five years. The Division strives to maintain a diverse faculty qualified to teach relevant courses in five discipline areas (reproductive and environmental physiology, ruminant and monogastric nutrition, genetics/genomics, meat science and livestock production) and across six species (swine, dairy cattle, beef cattle, poultry, companion animals and horses) to serve the demand for graduates to be employed nationwide in research, teaching and industry.

## BS in Animal Sciences

### Degree Program Description

Humans have been improving the value of animals as companions, transportation, laborers and food since the first dogs, horses, donkeys and cattle were domesticated. Animal Sciences provides an in-depth focus on whole-animal biology and contributes to advances in livestock

production, the equine industry, animal health and human health through cutting-edge research and direct application of that new knowledge.

Animal Scientists apply the latest in genetics, physiology and nutrition to all of these diverse fields. By employing a whole-animal approach to science, this degree prepares students for any number of career paths, including agribusiness, livestock production, the equine industry, research, pre-veterinary medicine, captive wild animal management, and animal products. In agribusiness, our graduates are in demand to fill sales and management positions with feed and pharmaceutical companies such as Land O'Lakes, MFA, Zoetis and Elanco. In livestock production, graduates who prefer to work directly with animals find rewarding positions as managers of various farm companies, such as Tyson Foods, Smithfield, Cargill and other private companies. In the equine industry students are placed in positions at prominent equine breeding, sales, or training facilities. Graduates with a passion for research are needed as lead scientists and laboratory technicians in industry and academia. An animal sciences degree provides a solid science and husbandry foundation for the study of veterinary medicine.

Some vets specialize in care for companion animals, such as dogs and cats, while others focus on livestock, horses or wildlife. In captive wild animal management, zoological parks hire animal sciences graduates to manage the care and well-being of the park's collection, and graduates may also be involved with research and conservation efforts. In animal products, students with a specific interest in meat, dairy products and eggs are in high demand for positions with companies such as Farmland, Hormel, Hy-Vee and Sam's Club. Opportunities abound in procurement, sales, quality assurance and food safety.

## Major Program Requirements

Students earning a Bachelor of Science in Animal Sciences are required to complete all University general education, (p. 36) University graduation, and degree requirements, including selected foundational courses, which may fulfill some University general education requirements.

### Foundational Courses

ENGLISH 1000	Exposition and Argumentation	3
MATH 1100	College Algebra	3
BIO_SC 1500	Introduction to Biological Systems with Laboratory	5
or F_W 1100	Introductory Zoology with Laboratory	
CHEM 1320	College Chemistry I	4
BIOCHM 2110	The Living World: Molecular Scale	3
or BIOCHM 2112	Biotechnology in Society	
or CHEM 2030	Survey of Organic Chemistry	
or CHEM 2100	Organic Chemistry I	
Statistics or higher math course		3
ACCTCY 2010	Introduction to Accounting	3
or ABM 1041	Applied Microeconomics	
or ABM 1042	Applied Macroeconomics	
or ECONOM 1014	Principles of Microeconomics	
or ECONOM 1015	Principles of Macroeconomics	
or FINANC 1000	Principles of Finance	
or FINANC 2000	Survey of Business Finance	
or FINPLN 2183	Personal and Family Finance	
COMMUN 1200	Public Speaking	3
or AGSC_COM 2220	Verbal Communication in Agriculture, Food and Natural Resources	

### Degree Requirements

AN_SCI 1010	Orientation to Animal Sciences	1
AN_SCI 1165	Biology of Animal Production I with Laboratory	4
AN_SCI 1175	Biology of Animal Production II with Lab	4
AN_SCI 2010	Careers in Animal Sciences	1
AN_SCI 2214	Animal Products and Biotechnology	4
AN_SCI 2111W	Sophomore Seminar: Societal Issues Facing Animal Agriculture - Writing Intensive	3
AN_SCI 3254	Physiology of Domestic Animals	5
or MPP 3202	Elements of Physiology	
or BIO_SC 3700	Animal Physiology	
AN_SCI 3242	Principles and Applications of Animal Nutrition	4
AN_SCI 3213	Genetics of Agricultural Plants and Animals	3
AN_SCI 3264	Physiology of Domestic Animals II	3
AN_SCI 4314	Physiology of Reproduction	3
AN_SCI 4323	Applied Livestock Genetics	2
or AN_SCI 4324	Genomics of Plants and Animals	

### Advanced Nutrition (select 1)

AN_SCI 4312	Monogastric Nutrition	3
or AN_SCI 4332	Ruminant Nutrition	

### Animal Sciences Production Systems (Choose 2; 1 must be WI)

AN_SCI 4975W	Beef Production and Management - Writing Intensive	3
or AN_SCI 4975	Beef Production and Management	
or AN_SCI 4976	Dairy Production	
or AN_SCI 4976W	Dairy Production - Writing Intensive	
or AN_SCI 4977	Horse Production	
or AN_SCI 4978	Swine Production	
or AN_SCI 4978W	Swine Production - Writing Intensive	
or AN_SCI 4979W	Poultry Production Writing Intensive	

### Animal Science Senior Electives (Select 3)

(7 hr. Min)

AN_SCI 3085	Problems in Animal Science (Swine Science On-Line; min. 2 courses; see advisor or Undergraduate Advising Office for specific courses that qualify)	1-12
or AN_SCI 3214	Principles of Meat Science	
or AN_SCI 3231	Principles of Dairy Foods Science	
or AN_SCI 3275	Meat Animal Evaluation	
or AN_SCI 4010	Pasture-Based Dairy Management	
or AN_SCI 4312	Monogastric Nutrition	
or AN_SCI 4323	Applied Livestock Genetics	
or AN_SCI 4324	Genomics of Plants and Animals	
or AN_SCI 4332	Ruminant Nutrition	
or F_S 4344	Processing Muscle Foods	
or AN_SCI 4354	Physiology and Biochemistry of Muscle as Food	
or AN_SCI 4384	Reproductive Management	
or AN_SCI 4386	Equine Reproduction	
or AN_SCI 4387	Equine Breeding Management	
or AN_SCI 4436	Animal Welfare	
or AN_SCI 4437	Stress Physiology	
or AN_SCI 4940	Internship in Animal Science & Technology	
or AN_SCI 4950	Undergraduate Research in Animal Science	
or AN_SCI 4975	Beef Production and Management	

or AN_SCI 4976	Dairy Production
or AN_SCI 4977	Horse Production
or AN_SCI 4978	Swine Production
or AN_SCI 4979	Poultry Production
or AFNR 2190	International Agriculture and Natural Resources
or approved international study	

## Semester Plan

Below is a sample plan of study, semester by semester. **A student's actual plan may vary based on course choices where options are available.**

First Year			
Fall	CR	Spring	CR
AN_SCI 1010		1 AN_SCI 1175	4
AN_SCI 1165		4 BIO_SC 1500 or F_W 1100	5
ABM 1041		3 ENGLISH 1000	3
MATH 1100		3 Elective	3
HIST 1100		3	
		14	15
Second Year			
Fall	CR	Spring	CR
AN_SCI 2010		1 AN_SCI 2111W	3
AN_SCI 2214		4 AN_SCI 3254	5
CHEM 1320		4 AGSC_COM 2220	3
Humanities		3 Humanities	3
Social Science		3 Elective	2
		15	16
Third Year			
Fall	CR	Spring	CR
AN_SCI 3242		4 AN_SCI 4314	3
AN_SCI 3213		3 AN_SCI 4323 or 4324	2
CHEM 2030 or 2100		3 AN_SCI 3264	3
Elective		6 STAT 1200	3
		Elective	3
		16	14
Fourth Year			
Fall	CR	Spring	CR
Production System (WI)		3 Production System	3
Sr. Elective		3 Sr. Elective	3
Sr. Elective		3 Elective	3
Adv. Nutr.		3 Elective	3
Elective		3 Elective	3
		15	15

Total Credits: 120

## Minor in Animal Sciences

### Requirements

To earn a minor in animal sciences, a student must meet the following requirements.

- Minimum of 15 credit hours in Animal Sciences (AN\_SCI)
- Minimum of 9 credit hours of course work in Animal Sciences courses numbered 3000 or above.

- Students may select any combination of animal sciences courses excluding problems and internships to meet the requirements; however, all students will be expected to meet prerequisites of animal sciences courses.
- Up to six transfer credits can be applied toward the minor; however, transfer credits can only apply toward the lower level courses. Hence, a student must complete nine credit hours of Animal Science credits at MU that are 3000 level or higher.

### Application for Minor

Students interested in this minor should complete the online form located on the CAFNR website (<https://cafnr.missouri.edu/current-students/forms-requirements/>).

## MS in Animal Sciences

### Degree Requirements

You and your committee develop a program of study cooperatively. An official form must accompany any changes in a program. A satisfactory scholastic standard must be maintained. All courses taken for graduate credit must have a cumulative average of 3.0 or higher. If the GPA falls below 3.0 cumulative, you will be placed on academic probation. There will be no waiver of fees during this probationary period. You must regain a 3.0 level at the end of the following semester or become subject to dismissal. This GPA must be maintained exclusive of problems, research and department seminars.

Graduate students taking 7000 level courses should expect course requirements beyond those of undergraduate students in order to warrant receiving graduate credit for those courses. The Division of Animal Sciences allows no more than two 7000 level Animal Science courses in a graduate program.

### Seminars

Two credit hours in seminar are required for the Master of Science degree. To meet the seminar requirement courses must require presentations of technical information. Seminars provide an opportunity to develop skills in presenting technical information to a group of peers and permit you to become acquainted with specialists in the area of animal and biological sciences.

### Responsible Conduct of Research

M.S. students are encouraged to take a course in "Responsible Conduct of Research". This requirement can be met by taking either:

BIOCHM/BIO_SC 8060	Ethical Conduct of Research	1
V_PBio 8641	Introduction to Research Ethics	1
Other Responsible Conduct of Research course approved by the Director of Graduate Studies		1

### Teaching Expectations

To fulfill the requirement for teaching, all graduate students are required to assist with teaching for two semesters. Students are encouraged to volunteer to assist with additional courses.

### Sample Plan of Study

Because students in the M.S. program are from a wide variety of circumstances, and pursue the M.S. at all different paces, a sample plan



of study is not easily produced. Students are encouraged to work out their plan of study with their advisor.

## Thesis/Non-Thesis Requirements

Course Work	24
(15 hours must be at 8000-level)	(minimum)
8090 research	6
	(minimum)
Seminars	2
	(minimum)
Approved Thesis	
<b>Total Minimum Hours</b>	<b>30</b>

## Thesis Option Requirements

A thesis is comprised of original research findings from the MS program. This typically takes the form of a literature review followed by one or more data chapters. The thesis defense seminar will be presented by the student for division faculty, staff, students, committee members, and other interested persons. It must summarize the thesis research conducted by the student during the MS program. It also provides the doctoral committee members an opportunity to evaluate the work completed by the student.

## Non-Thesis Option Requirements

Non-Thesis M.S. program does not serve in preparing a student for candidacy for a Ph.D. program.

Course Work	36
including 3 hours of 8450 research	
<b>Total Minimum Hours</b>	<b>36</b>

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MS in Animal Science program (<https://gradstudies.missouri.edu/degrecategory/animal-sciences/>) and the minimum requirements of the Graduate School (<https://gradstudies.missouri.edu/admissions/eligibility-process/>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

### Admission Contact Information:

Gloria Johnson  
 920 E. Campus Drive  
 Columbia, MO 65211  
 (573) 882-8336  
<https://animalsciences.missouri.edu/graduate/>

## PhD in Animal Sciences

### Degree Requirements

You and your committee develop a program of study cooperatively. An official form must accompany any change in a program. A satisfactory scholastic standard must be maintained. All courses taken for graduate credit must have a cumulative average of 3.0 or higher. If the GPA falls

below 3.0 cumulative, you will be placed on academic probation. There will be no waiver of fees during this probationary period. You must regain a 3.0 level at the end of the following semester or become subject to dismissal. This GPA must be maintained exclusive of problems, research and departmental seminars.

Graduate students taking 7000 level courses should expect course requirements beyond those of undergraduate students in order to warrant receiving graduate credit for those courses. The Division of Animal Sciences allows no more than two 7000 level Animal Sciences courses in a graduate program.

The number of credit hours in formal course work and in research varies with the student's background, training, interests, and the nature of the research. A dissertation based on original research is required of each candidate. Completion of requirements for a doctoral degree is generally expected within four years (five years without prior MS) after initiation of a PhD program.

### Seminars

Four credit hours of seminar beyond the B.S. degree, are required for the PhD degree. To meet the seminar requirement courses must require presentations of technical information. Seminars provide an opportunity to develop skills in presenting technical information to a group of peers and permit you to become acquainted with specialists in the area of animal and biological sciences.

### Responsible Conduct of Research

PhD students are required to take a course in "Responsible Conduct of Research". This requirement can be met by taking either:

BIOCHM/BIO_SC 8060	Ethical Conduct of Research	1
V_PBio 8641	Introduction to Research Ethics	1
Other Responsible Conduct of Research course approved by the Director of Graduate Studies		1

### Teaching Expectations

To fulfill the requirement for teaching, all graduate students are required to assist with teaching for two semesters. Students are encouraged to volunteer to assist with additional courses.

### Qualifying Process

The qualifying process is determined by the doctoral committee. The committee may accept successful completion of a master's degree, may require an exam, or may require presentation of a dissertation proposal as evidence of the student being qualified to continue to pursue the Ph.D.

### Comprehensive Examination Process

The format of the comprehensive exam is determined by the doctoral committee. It is usually in two parts, a written exam consisting of questions submitted by each committee member, followed by an oral examination by the doctoral committee.

### Dissertation Requirements

A dissertation is required for PhD students, comprised of original research findings from their program. This typically takes the form of a literature review followed by multiple data chapters. These data chapters are often presented as independent journal articles, but may also take the form of Introduction, Materials and Methods, Results, and Discussion.

The dissertation defense seminar will be presented by the student for division faculty, staff, students, committee members, and other interested persons. It must summarize the thesis research conducted by the student during the PhD program. It also provides the doctoral committee members an opportunity to evaluate the work completed by the student.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Animal Sciences program (<https://gradstudies.missouri.edu/degrecategory/animal-sciences/>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you must refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admission to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

## Admission Contact Information

Gloria Johnson  
920 E. Campus Drive  
Columbia, MO 65211  
(573) 882-8336  
<http://animalsciences.missouri.edu/academics/graduates.php> (<https://animalsciences.missouri.edu/graduate/>)

## Biochemistry

Michael Chapman, Wurdack Professor & Chair  
College of Agriculture, Food and Natural Resources  
117 Schweitzer Hall  
Phone: (573) 882-4845  
Fax: (573) 882-5635

A course of study in Biochemistry emphasizes the application of chemical principles to biological systems and leads to the Bachelor of Science in Biochemistry. The program requires rigorous course work in the basic sciences, culminating with a two course capstone experience of discipline specific problems and laboratory techniques. Students are encouraged to gain research experience through independent projects in faculty labs. The biochemistry degree prepares students for further study in graduate or professional school or for a career in biochemistry, biotechnology or the biological, chemical or medical sciences.

## Faculty

**Professor** L. Beamer\*\*, D. Burke\*\*, M. Chapman\*\*, S. J. Chen\*, S. Deutscher\*\*, W. Folk\*\*, K. Gates\*, M. Hannink\*\*, D. Lubahn\*\*, T. Mawhinney\*\*, S. Peck\*\*, M. Petris\*\*, C. Phillips\*\*, T. Quinn\*\*, G. Stacey\*\*, L. Sumner\*\*, J. Tanner\*\*, J. Thelen\*, P. Tipton\*\*, S. Van Doren\*\*, G. Weisman\*\*, S. Zhang\*\*, X. Zou\*\*  
**Associate Professor** M. Baldwin\*\*, P. Cornish\*\*, A. Heese\*\*, G. King\*, A. Koo\*\*, M. Martin\*, B. Peculis\*, M. Siegel\*  
**Assistant Professor** X. Heng\*\*  
**Research Professor** L. Erb\*  
**Associate Research Professor** B. Mooney  
**Assistant Research Professor** Z. Lei, V. Mossine, T. White\*  
**Associate Teaching Professor** S. Freyermuth  
**Assistant Teaching Professor** R. Mehra-Chaudhary, T. Reilly

**Emeriti Faculty** D. Emerich, G. Hagen, G. Hazelbauer, M. Henzl, B. McClure, V. Peterson, J. Polacco, D. Randall, L. Randall, R. M. Roberts, F. Schmidt, K. Sharma, G. Sun, R. Tsika, J. Wall

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BS in Biochemistry (p. 74)

## Graduate

- MS in Biochemistry (p. 75)
- PhD in Biochemistry (p. 76)

College of Agriculture, Food and Natural Resources; School of Medicine  
117 Schweitzer Hall  
(573) 882-4846  
<http://www.biochem.missouri.edu/>

**Director of Graduate Studies:** Charlotte Phillips

Biochemistry at the University of Missouri is a division of the College of Agriculture, Food and Natural Resources and a department of the School of Medicine. As a nationally ranked top 10 biochemistry department among public medical schools, we offer outstanding training that help students achieve their goals. We have 39 core faculty members and approximately 10 additional members, all of whom are available to mentor students in biochemistry. Nearly all facets of contemporary biochemical research are represented in their collective research interests. Our highly interactive program is an integral part of a campus-wide network of research programs including life sciences, genetics, nutrition, plant biochemistry and structural biology.

## Interdisciplinary Area Programs

- PhD in Nutrition Area Program (p. 684)
- PhD in Genetics Area Program (p. 773)
- Minors in Business (p. 385), and College Teaching (p. 815)

The graduate programs of the Department of Biochemistry prepare students for professional careers in academic institutions, industry and government. The Department of Biochemistry is administered by the College of Agriculture, Food and Natural Resources and the School of Medicine. It provides a great range of opportunities for multidisciplinary study in plant, animal and microbial biochemistry, molecular biology, structural biology, and chemical biology.

## Faculty Research

Virtually every important area of biochemistry and molecular biology is represented among the research interests of the faculty. These interests focus on plant biochemistry, hormonal control of plant and animal-cell metabolism, growth-factor structure and function, enzyme reaction mechanisms, biochemistry of development, biochemistry of human disease, lipid and carbohydrate metabolism, molecular biology, analytical biochemistry, proteomics, systems biochemistry, and structural biochemistry.

## Facilities

The department has modern, well-equipped laboratories in the Life Sciences Center, Schweitzer Hall, Schlundt Annex, and Stephens Hall. Additional faculty are housed in the Animal Sciences Research Center, Chemistry Building, Dalton Cardiovascular Research Center, Mason Eye Institute, and the Truman Veterans Hospital.

## Plans of Study

All students participate in individually planned research programs and have a supervised teaching experience along with course work. Students are expected to complete a program of courses in biochemistry and selected courses in modern biology and chemistry.

## Careers

Biochemistry at the University of Missouri provides world-class training that can open the door to a wide variety of career opportunities in the life sciences. Our graduates have career opportunities available in academia, industry, agriculture or medicine.

## Required Application Materials

All pre-requisites and application materials must be submitted by the annual deadline.

## MD/PhD in Biochemistry Dual Degree Program

Students already accepted into the School of Medicine at MU may apply to the Department for acceptance into the MD/PhD program. Students matriculating in the MD/PhD degree program must complete degree requirements of both the School of Medicine and the Graduate School. For information and for application forms, email [gradprogram@missouri.edu](mailto:gradprogram@missouri.edu) or write the Director of Graduate Admissions in Biochemistry, 117 Schweitzer Hall, Columbia, MO 65211, or visit the website <http://www.biochem.missouri.edu>.

## BS in Biochemistry

### Degree Program Description

Biochemists are the locksmiths of life science. They use their imagination, ingenuity and understanding of the basics of living processes to unlock life's mysteries. By unraveling the complexities of nature, they improve the quality of life. Biochemistry combines the tools of biology, chemistry and genetics to fight human disease, increase the production and quality of food, and protect the environment. The knowledge acquired through the program prepares students for careers in many areas, including Medicine, Biotechnology, Agriculture and Government.

**Premedical Track Students** interested in a medical career may choose from a variety of science-based majors. The most common choice of students is biochemistry because it is a collaborative program between CAFNR and the School of Medicine. The Biochemistry degree provides excellent preparation for the intellectual demands of the medical profession. This training includes, as part of the degree requirements, all of the science courses necessary for application to medical school or related professional fields. Many graduates of this program matriculate at medical, dental, veterinary, pharmacy or optometry schools.

In **Biotechnology**, some of the nation's largest and most respected private biotechnology companies, such as Bayer, Dow Chemical and Pfizer, employ biochemists in a wide range of specialties, including molecular biology, genetic engineering, pharmaceutical development and microbiology. Many graduates have chosen to pursue Masters or Doctoral degrees at major research institutions across the country. Some have been selected for internships at National Institute of Health and others have earned National Science Foundation Pre-Doctoral Awards.

In **Agriculture**, biochemists find employment with agricultural industry companies such as Cargill, Bayer (Monsanto), and Nestle Purina. They may work on projects to develop new varieties of crops that resist drought and insects, nutritionally correct animal feed, or herbicide resistant crops.

In **Government**, state and federal agencies such as the U.S. Food and Drug Administration, the State Public Health Lab and Epidemiology for Public Health Lab employ biochemists in many fields. They might perform genetic testing and biological sample testing, research epidemics in the region, or identify food-borne pathogens.

## Major Program Requirements

Students earning a Bachelor of Science in Biochemistry are required to complete all University general education (p. 36), University graduation (p. 35), and degree requirements, including selected foundational courses, which may fulfill some University general education requirements.

### Foundational Courses

CHEM 1320 or CHEM 1320H	College Chemistry I College Chemistry I - Honors	4
BIO_SC 1500 or BIO_SC 1500H	Introduction to Biological Systems with Laboratory Introduction to Biological Systems with Laboratory Honors	5
MATH 1500 or MATH 1500H	Analytic Geometry and Calculus I Analytic Geometry and Calculus I - Honors	5
AGSC_COM 2220	Verbal Communication in Agriculture, Food and Natural Resources	3

### Degree and Major Courses

#### Major core requirements

<b>Biochemistry</b>		<b>25-26</b>
BIOCHM 1090	Introduction to Biochemistry	3
BIOCHM 1094	Introductory Biochemistry Laboratory (Spring semester only)	2
BIOCHM 2480	Introduction to Macromolecular Structure and Function (Spring semester only)	2
BIOCHM 2484 or BIOCHM 2484HW	Macromolecular Techniques Laboratory (Fall semester only) Macromolecular Techniques Laboratory - Honors/ Writing Intensive	2-3
BIOCHM 4270	Biochemistry (I: First semester of two semester sequence)	3
BIOCHM 4272	Biochemistry (II: Continuation of BIOCHM 4270)	3
BIOCHM 4300	Physical Chemistry of Biological Systems (Fall semester only)	3
BIOCHM 4974W	Biochemistry Laboratory - Writing Intensive	5

BIOCHM 4970	Senior Capstone in Biochemistry (Capstone)	2
<b>Biological Sciences</b>		<b>3-4</b>
BIO_SC 2200	General Genetics	3-4
or AN_SCI 3213	Genetics of Agricultural Plants and Animals	
or PLNT_S 3213	Genetics of Agricultural Plants and Animals	
<b>Chemistry</b>		<b>12</b>
CHEM 1330	College Chemistry II	4
CHEM 2100	Organic Chemistry I	3
CHEM 2110	Organic Chemistry II	3
CHEM 2130	Organic Laboratory I (Concurrent with CHEM 2110)	2
<b>Mathematics</b>		<b>5</b>
MATH 1700	Calculus II	5
<b>Physics</b>		<b>8-10</b>
PHYSICS 1210	College Physics I	4-5
or PHYSICS 2750	University Physics I	
PHYSICS 1220	College Physics II	4-5
or PHYSICS 2760	University Physics II	
<b>Advanced science *</b>		<b>9 or more</b>

\* Science courses that are not used to fulfill other major requirements. For an approved list of courses email [mubchemadvising@missouri.edu](mailto:mubchemadvising@missouri.edu). 6 of the 9 credit hours must be 3000 level or above.

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
BIOCHM 1090		3 CHEM 1330	4
CHEM 1320		4 ENGLSH 1000	3
BIO_SC 1500		5 MATH 1500	5
RU_SOC 1000		3 BIOCHM 1094	2
		Elective (Social or Behavioral Science)	3
		15	17
Second Year			
Fall	CR	Spring	CR
CHEM 2100		3 CHEM 2110	3
BIO_SC 2200		4 CHEM 2130	2
BIOCHM 2484		2 BIOCHM 2480	2
MATH 1700		5 BIO_SC 2300	4
		Elective	3
		14	14
Third Year			
Fall	CR	Spring	CR
BIOCHM 4270		3 BIOCHM 4272	3
PHYSICS 1210		4 PHYSICS 1220	4
HIST 1100		3 AGSC_COM 2220	3
Elective (Writing Intensive)		3 Advanced Science Elective (3000 level or above)	4
Elective		2	
		15	14

Fourth Year			
Fall	CR	Spring	CR
BIOCHM 4300		3 BIOCHM 4970	2
Advanced Science Elective (3000 level or above)		3 BIOCHM 4974W	5
Humanities Elective		3 Humanities Elective	3
Elective		6 Electives	6
		15	16

Total Credits: 120

## MS in Biochemistry

- Degree Requirements (p. 75)
- Qualifying Process (p. 76)
- Research Rotations (p. 76)
- Department Seminars (p. 76)
- Admissions Support (p. 76)

Admission to the Biochemistry program to pursue a M.S. degree is not an option, as students are accepted with the intent that they will fulfill the Ph.D. requirements. Only under unforeseen circumstances, such as illness, a change in academic interest, or other personal reasons, is a student allowed to transfer to the M.S. degree.

## Degree Requirements

Requirements are the same as for doctoral candidates, although successful completion of a comprehensive examination is not a requirement for the Master's candidate. Students opting for a M.S. degree must complete a research project, and write and defend a Master's thesis in front of their Master's committee. The Master's Committee should consist of at least three faculty members including the mentor. At least two of the faculty should be from the Biochemistry Graduate Program, and at least one faculty member from outside of the advisor's primary department.

The Graduate School requires 30 hours of advanced study to be completed for the M.S. degree (<https://gradschool.missouri.edu/current-students/masters/>), including a minimum of 15 hours of 8000-9000 level course work. Along with courses and seminars, students embark on lab rotations, thesis research, qualifying exams and committee meetings, culminating in the thesis defense. A student must complete nine credit hours per fall/spring semester, or four per summer semester, to remain a full-time graduate student.

### Core Course Work

BIOCHM 8240	Introduction to Graduate Biochemistry I *	4
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### Elective Course Work

MS/PhD students are required to take additional 8000/9000-level science courses (9 total hours). The following are recommended and pre-approved. Other Graduate level sciences courses may complete this requirement with approval by the GEC before enrolling.

BIOCHM 8260	Macromolecular Systems Integration	4
BIOCHM 8432	Enzymology and Metabolic Regulation #	3
BIOCHM 8434	Signaling in Molecular Cell Biology #	3
BIOCHM 9001	Topics in Biochemistry (Structure Biology and Molecular Association) #	2
BIOCHM 9432	Molecular Biology II #	4

### Ethics Seminar

BIOCHM 8060	Ethical Conduct of Research	1
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### Seminars

BIOCHM 9087	Seminar in Biochemistry	1
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Students should enroll in the first round during the first semester. IN the fall, it is designed to teach the fundamental techniques of oral presentation of scientific information, slide preparation, computer graphics, overhead preparation, etc., as well as research-compliance training. Students should complete additional hours in the spring semesters while pursuing the MS.

### Thesis Research

BIOCHM 9090	Research in Biochemistry	1-99
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Enroll in sufficient hours to maintain full-time status, and obtain the 30 credit hour minimum for completion.

- \* All graduate students are required to earn a grade of B or better.
- # A student who earns a grade of C or lower in any of these courses must retake the course.

## Qualifying Process

The Qualifying Exam (QE) assesses the student's foundational knowledge, including knowledge of proteins and enzymes, metabolism, nucleic acids and gene expression, and supramolecular structure and gene expression. The decision of the timing and format of the QE is at the discretion of the student's Graduate Program Committee (GPC). However, the QE should be completed before the end of the fall semester (December) of their second year. The format can be oral or written.

The criteria and format of the QE component can range from basic questioning of the student, including specific assessments in the context of the student's research interests or as extensive as providing a student in advance with a formalized set of specific foundational concepts or topics and evaluating the student orally or in a written format.

## Research Rotations

Starting in the fall semester of the first year, each student completes three laboratory rotations with the aim of identifying a lab in which to conduct thesis research. By the end of the second semester, most students have chosen their labs. Each rotation should be conducted for a period of at least eight weeks. Two rotations are performed in the first semester, with the second rotation ending December 31. The third rotation begins January 1 or soon after. One-half of the student's time and effort should be directed toward the rotation project and other half toward course work. The rotation laboratory should serve as an academic home, and the student should participate in all usual laboratory activities, including weekly group meetings.

## Department Seminars

Students are expected to attend all department seminars (<https://biochem.missouri.edu/>).

## Admissions Support

Applicants are required to meet two sets of minimum qualifications for admission: the admission requirements of the PhD in Biochemistry program (<https://gradschool.missouri.edu/degrecategory/biochemistry/>) and the minimum admission requirements for the Graduate School (<https://gradschool.missouri.edu/admissions/eligibility-process/>). Because requirements vary, you must refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admission to the University of Missouri, your application materials will be

reviewed by both the Graduate School and the degree program to which you have applied.

Biochemistry Graduate Admissions Support  
[gradprogram@missouri.edu](mailto:gradprogram@missouri.edu)  
 117 Schweitzer Hall  
 Columbia, MO 65211  
 (573) 882-4846, (800)647-2414

## PhD in Biochemistry

### Degree Requirements

Along with courses and seminars, students embark on lab rotations, dissertation research, qualifying and comprehensive exams and committee meetings, culminating in the dissertation defense. Prior to successfully completing the comprehensive examination, a student must complete nine credit hours per semester, or four per summer, to remain a full-time graduate student. Following successful completion of the comprehensive exam, each student should register for a minimum of two hours of thesis/dissertation research per semester (or one in summer) to maintain continuous enrollment. More than the minimum may be needed to obtain the 72 credit hours required by the MU Graduate School (<http://gradschool.missouri.edu/>) for completion of the PhD.

#### Core Course Work

BIOCHM 8240	Introduction to Graduate Biochemistry I *	4
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#### Elective Course Work

PhD students are required to take additional 8000/9000-level science courses (9 total hours required). The following are recommended and pre-approved. Other Graduate level sciences courses may complete this requirement with approval by the GEC before enrolling.

BIOCHM 8260	Macromolecular Systems Integration	4
BIOCHM 8432	Enzymology and Metabolic Regulation #	3
BIOCHM 8434	Signaling in Molecular Cell Biology #	3
BIOCHM 9001	Topics in Biochemistry (Structural Biology and Molecular Association) #	2
BIOCHM 9432	Molecular Biology II #	4

#### Ethics Seminar

BIOCHM 8060	Ethical Conduct of Research	1
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- \* All graduate students are required to earn a grade of B or better.
- # A student who earns a grade of C or lower in any of these courses must retake the course.

## Department Seminars

Students are expected to attend all department seminars (<http://www.biochem.missouri.edu/news-events/seminars/>).

## Teaching Experience

An important part of graduate education is learning to communicate effectively as a teacher. Enrollment in BIOCHM 9001 helps prepare the students for their teaching assistant experience, which consists of one semester in an undergraduate laboratory or lecture venue. This is a required component of PhD degrees and typically is performed in the second year of graduate study. Students must satisfy this teaching experience requirement with a grade of B or better to remain in good standing as a graduate student in Biochemistry. This teaching experience usually involves assisting a faculty member in one of several courses and interacting with the students fairly extensively. Missouri requires that

students whose first language is not English demonstrate adequate oral proficiency before assisting in teaching.

## Qualifying Process

The Qualifying Exam (QE) assesses the student's foundational knowledge, including knowledge of proteins and enzymes, metabolism, nucleic acids and gene expression, and supramolecular structure and gene expression. The decision of the timing and format of the QE is at the discretion of the student's Doctoral Program Committee (DPC). However, the QE should be completed before the end of the fall semester (December) of their second year. The format can be oral or written. The criteria and format of the QE component can range from basic questioning of the student, including specific assessments in the context of the student's research interests or as extensive as providing a student in advance with a formalized set of specific foundational concepts or topics and evaluating the student orally or in a written format.

## Comprehensive Examination Process

Students who have passed the qualifying exam should complete the Comprehensive Exam during the next two semesters following a satisfactory performance of the Qualifier Exam and in any case no later than five semesters following matriculation. This examination involves writing a proposal for doctoral research in the format of a federal postdoctoral fellowship application. The student must then orally defend the proposal before his/her doctoral program committee plus a member of the graduate education committee. This is designed to assess the student's ability to think critically about science and to communicate effectively both in writing and in an oral presentation.

## Dissertation Requirements

### BIOCHM 9087

Students should enroll in the first round of the one-hour seminar BIOCHM 9087 during the first semester. BIOCHM 9087 in the fall semester is designed to teach the fundamental techniques of oral presentation of scientific information, slide preparation, computer graphics, overhead preparation, etc., as well as research-compliance training. Students should complete three additional semesters of BIOCHM 9087 in spring semesters for a total of four credit hours. A student's first spring BIOCHM 9087 seminar is devoted to a presentation of the proposed dissertation research. The second should provide an update of research progress or a review of major journal papers in the student's research area. The third should be a practice for the dissertation defense. The student's thesis committee is expected to attend these presentations at the invitation of the student. A meeting with the doctoral program committee (DPC) can be arranged after the seminar presentation and may serve as the required annual meeting.

## Thesis/Dissertation Research

### BIOCHM 9090

Prior to successfully completing the comprehensive examination, a student must complete nine credit hours per semester, or four per summer, to remain a full-time graduate student. Following successful completion of both parts of the comprehensive exam, each student should register for a minimum of two hours of thesis/dissertation research per semester (or one in summer) to maintain continuous enrollment. More than the minimum may be needed to obtain the 72 credit hours required by the MU Graduate School (<http://gradschool.missouri.edu/>) for completion of the Ph.D.

## Research Rotations

Starting in the fall semester of the first year, each student completes three laboratory rotations with the aim of identifying a lab in which to conduct PhD thesis research. By the end of the second semester, most students have chosen their labs. Each rotation should be conducted for a period of at least eight weeks. Two rotations are performed in the first semester, with the second rotation ending Dec. 31. The third rotation begins Jan. 1 or soon after. One-half of the student's time and effort should be directed toward the rotation project and the other half toward course work. The rotation laboratory should serve as an academic home, and the student should participate in all usual laboratory activities, including weekly group meetings.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Biochemistry program (<https://gradstudies.missouri.edu/degrecategory/biochemistry/>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you must refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admission to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

Biochemistry Graduate Admissions Support  
117 Schweitzer Hall  
Columbia, MO 65211  
(573) 882-4846, (800) 647-2414  
[gradprogram@missouri.edu](mailto:gradprogram@missouri.edu)

## Environmental Sciences

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Stephen H. Anderson, Program Coordinator  
Environmental Sciences  
School of Natural Resources  
College of Agriculture, Food, and Natural Resources  
329 Anheuser-Busch Natural Resources Building  
(573) 882-6303

Earth's environment provides conditions conducive for life: an oxygenated atmosphere; water resources; and soil as a medium for plant growth. Environmental processes occurring on the planet govern the movement of air, energy, matter, and water. Through the study of **Environmental Sciences**, students will learn the science and experience the beauty of the outdoor environment. This degree program addresses how human activities can adversely alter some environmental processes and environmental quality, techniques to improve environmental quality, modeling of environmental processes and practices that minimize human impacts on the environment. The **Environmental Sciences** degree provides a strong science foundation through general science coursework and specialized studies of the atmosphere, land and soil, water, and environmental outreach and education. The degree combines interests in predicting and understanding weather patterns, monitoring environmental change, conserving and managing soil and biological organisms, assuring healthy streams and adequate water supplies, and improving environmental quality with the shaping of new policies and educating others about the natural environment and environmental issues. Example careers include Atmospheric Scientist, Climatologist,

Environmental Specialist, Environmental Technician, Hydrologist, Land Manager, Meteorologist, Soil Scientist, and Water Quality Specialist. Employment may occur in a variety of sectors, including federal, state, county and city government agencies, non-government agencies (NGOs), and private consulting firms.

## School of Natural Resources

The School of Natural Resources is one of six Divisions in the College of Agriculture, Food and Natural Resources. It is Missouri's and the Midwest's only school with comprehensive academic and research programs focused on biological, physical, and social aspects of natural resources science and management. The School applies an integrated, scientific approach to develop sustainable solutions to environmental challenges and to train the next generation of natural resources and recreation professionals and leaders. This integrated approach results in creative course offerings, enhanced educational opportunities, stimulation of novel research, advanced understanding of natural systems, and expanded knowledge and management of human interactions with the environment. The School is housed in the Anheuser-Busch Natural Resources Building containing state-of-the-art teaching, research and outreach extension facilities.

## Faculty

**Professor** S. H. Anderson\*\*, N.I. Fox\*\*, A. R. Lupo\*\*, P. S. Market\*\*

**Professor Emeritus** C. J. Gantzer, P. P. Motavalli

**Assistant Professor** N. Aloysius, A. Argerich, D. Hall, C.J. Li, R. North, R. Rotman

**Associate Professor Emeritus** R. J. Miles, S.E. Mudrick

**Extension Associate Professor** P. E. Guinan\*

**Instructor** E. Aldrich, P. Quackenbush

**Research Professor** R. P. Udawatta \*\*

**Research Assistant Professor** S. Bardhan\*, J. D. Wood\*

**Adjunct Assistant Professor** K.S. Veum\*

**Adjunct Associate Professor** C. Baffaut\*, F. Eivazi\*, R. N. Lerch\*\*, M. Nathan, J. Yang\*

**Adjunct Professor** N. R. Kitchen\*\*, R. J. Kremer\*, P. C. Scharf\*, W. G. Stevens\*, C. K. Wikle\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BS in Environmental Sciences (p. 78)
  - with emphasis in Atmosphere (p. 79)
  - with emphasis in Land and Soil (p. 80)
  - with emphasis in Outreach and Education (p. 81)
  - with emphasis in Water (p. 82)
- Minor in Environmental Sciences (p. 84)

## Graduate

Options for graduate study in SEAS will be offered through the MS in Natural Resources with an emphasis in SEAS (p. 107) and the PhD in Natural Resources with an emphasis in SEAS (p. 112). Focus areas in soil science, environmental science or atmospheric science are available through these options. Details on both degree programs, including

recommended preparation, admission criteria, required application materials, degree requirements and financial aid, are provided in the graduate tab of the Natural Resources section (p. 103) of the catalog under the College of Agriculture, Food and Natural Resources.

## BS in Environmental Sciences

### Degree Program Description

Earth's environment provides conditions conducive for life: an oxygenated atmosphere; water resources; and soil as a medium for plant growth. Environmental processes occurring on the planet govern the movement of air, energy, matter, and water. Through the study of **Environmental Sciences**, students will learn the science and experience the beauty of the outdoor environment. This degree program addresses how human activities can adversely alter some environmental processes and environmental quality, techniques to improve environmental quality, and practices that minimize human impacts on the environment.

The **Environmental Sciences** degree provides a strong science foundation through general science coursework and specialized studies of the atmosphere, land and soil, water, and environmental outreach and education. The degree combines interests in predicting and understanding weather patterns, monitoring environmental change, conserving and managing soil and biological organisms, assuring healthy streams and adequate water supplies, and improving environmental quality with the shaping of new policies and educating others about the natural environment and environmental issues. Example careers include Atmospheric Scientist, Climatologist, Environmental Specialist, Environmental Technician, Hydrologist, Land Manager, Meteorologist, Soil Scientist, and Water Quality Specialist. Employment may occur in a variety of sectors, including federal, state, county and city government agencies, non-government agencies (NGOs), and private consulting firms.

### Major Program Requirements

Students earning a Bachelor of Science in Environmental Sciences are required to complete all University general education (p. 36), University graduation requirements (p. 35) and degree requirements, including selected foundational courses, which may fulfill some University general education requirements.

### Foundational

MATH 1100	College Algebra	3-5
or MATH 1160	Precalculus Mathematics	
MATH 1400	Calculus for Social and Life Sciences I	3-5
or MATH 1500	Analytic Geometry and Calculus I	
CHEM 1320	College Chemistry I	4
Economics/Business Elective (select from ABM, ECONOM, FINPLN, FINANC, MANGMT, MRKTNG)		3
STAT 1200	Introductory Statistical Reasoning	3
COMMUN 1200	Public Speaking	3
or AGSC_COM 2220	Verbal Communication in Agriculture, Food and Natural Resources	
or AGSC_COM 2210	Communicating Science to the Public	
ENV_SC 1100	Introduction to Environmental Science	3
ATM_SC 1050	Introductory Meteorology	3

NAT_R 2325	Introduction to Geographic Information Systems	3
or GEOG 3040	Introduction to Geographic Information Systems GIS	

## Semester Plan

Refer to the Semester Plans for the BS in Environmental Sciences designed for the emphasis areas of Atmosphere (p. 79), Land and Soil (p. 80), Water (p. 82), and Outreach and Education (p. 81).

# BS in Environmental Sciences with Emphasis in Atmosphere

## Degree Program Description

Earth's environment provides conditions conducive for life: an oxygenated atmosphere; water resources; and soil as a medium for plant growth. Environmental processes occurring on the planet govern the movement of air, energy, matter, and water. Through the study of **Environmental Sciences**, students will learn the science and experience the beauty of the outdoor environment. This degree program addresses how human activities can adversely alter some environmental processes and environmental quality, techniques to improve environmental quality, and practices that minimize human impacts on the environment.

The **Environmental Sciences** degree provides a strong science foundation through general science coursework and specialized studies of the atmosphere, land and soil, water, and environmental outreach and education. The degree combines interests in predicting and understanding weather patterns, monitoring environmental change, conserving and managing soil and biological organisms, assuring healthy streams and adequate water supplies, and improving environmental quality with the shaping of new policies and educating others about the natural environment and environmental issues. Example careers include Atmospheric Scientist, Climatologist, Environmental Specialist, Environmental Technician, Hydrologist, Land Manager, Meteorologist, Soil Scientist, and Water Quality Specialist. Employment may occur in a variety of sectors, including federal, state, county and city government agencies, non-government agencies (NGOs), and private consulting firms.

## Major Program Requirements

Students earning a Bachelor of Science in Environmental Sciences are required to complete all University general education (p. 36), [University \(p. 35\) graduation](#), and degree requirements, including selected foundational courses, which may fulfill some University general education requirements.

## Foundational

MATH 1100	College Algebra	3-5
or MATH 1160	Precalculus Mathematics	
MATH 1400	Calculus for Social and Life Sciences I	3-5
or MATH 1500	Analytic Geometry and Calculus I	
CHEM 1320	College Chemistry I	4
Economics/Business Elective (select from ABM, ECONOM, FINPLN, FINANC, MANGMT, MRKTNG)		3
STAT 1200	Introductory Statistical Reasoning	3
COMMUN 1200	Public Speaking	3
or AGSC_COM 2220	Verbal Communication in Agriculture, Food and Natural Resources	

or AGSC_COM 2210	Communicating Science to the Public	
ENV_SC 1100	Introduction to Environmental Science	3
ATM_SC 1050	Introductory Meteorology	3
NAT_R 2325	Introduction to Geographic Information Systems	3
or GEOG 3040	Introduction to Geographic Information Systems GIS	

## Core Emphasis Requirements

<b>Mathematical Science</b>		<b>21</b>
MATH 1160	Precalculus Mathematics	5
MATH 1500	Analytic Geometry and Calculus I	5
MATH 1700	Calculus II	5
MATH 2300	Calculus III	3
MATH 4100	Differential Equations	3
<b>Physics</b>		<b>10</b>
PHYSICS 2750	University Physics I	5
PHYSICS 2760	University Physics II	5
<b>Additional Emphasis Area Requirements</b>		<b>23</b>
ATM_SC 2720	Weather Briefing	2
ATM_SC 3600	Climates of the World	3
ATM_SC 4710	Synoptic Meteorology I	4
ATM_SC 4720	Synoptic Meteorology II	4
ATM_SC 4310	Atmospheric Thermodynamics	4
ATM_SC 4550	Physical Meteorology	3
ATM_SC 4590	Radar Meteorology	3
<b>Capstone Experience</b>		<b>4</b>
ATM_SC 4320	Atmospheric Dynamics	4
<b>Electives approved by faculty or professional advisor to complete 120 credit total; select at least one additional writing intensive course</b>		<b>24</b>

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
MATH 1500		5 MATH 1700	5
HIST 1100 or POL_SC 1100		3 AGSC_COM 2220	3
ENV_SC 1100		3 ATM_SC 2720	2
ATM_SC 1050		3 NAT_R 2325	3
		Related Disciplinary Elective	3
			14
<hr/>			
Second Year			
Fall	CR	Spring	CR
ABM 1041 or 1042		3 ATM_SC 3600	3
MATH 2300		3 MATH 4100	3
PHYSICS 2750		5 PHYSICS 2760	5
ENV_SC 2600		3 Related Disciplinary Elective	3
			14
<hr/>			
Third Year			
Fall	CR	Spring	CR
ATM_SC 4710		4 ATM_SC 4720	4
ATM_SC 4550		3 CHEM 1320	4
Related Disciplinary Elective		3 ATM_SC 4590	3



Humanities Elective	3 Humanities Elective-Upper Level WI	3
Computer Elective	3	
		14

Fourth Year			
Fall	CR	Spring	CR
ATM_SC 4310		4 ATM_SC 4320	4
Related Disciplinary Elective		9 Related Disciplinary Electives	9
STAT 1200		3 General Elective	3
		16	16

Total Credits: 120

## BS in Environmental Sciences with Emphasis in Land and Soil

### Degree Program Description

Earth's environment provides conditions conducive for life: an oxygenated atmosphere; water resources; and soil as a medium for plant growth. Environmental processes occurring on the planet govern the movement of air, energy, matter, and water. Through the study of **Environmental Sciences**, students will learn the science and experience the beauty of the outdoor environment. This degree program addresses how human activities can adversely alter some environmental processes and environmental quality, techniques to improve environmental quality, and practices that minimize human impacts on the environment.

The **Environmental Sciences** degree provides a strong science foundation through general science coursework and specialized studies of the atmosphere, land and soil, water, and environmental outreach and education. The degree combines interests in predicting and understanding weather patterns, monitoring environmental change, conserving and managing soil and biological organisms, assuring healthy streams and adequate water supplies, and improving environmental quality with the shaping of new policies and educating others about the natural environment and environmental issues. Example careers include Atmospheric Scientist, Climatologist, Environmental Specialist, Environmental Technician, Hydrologist, Land Manager, Meteorologist, Soil Scientist, and Water Quality Specialist. Employment may occur in a variety of sectors, including federal, state, county and city government agencies, non-government agencies (NGOs), and private consulting firms.

### Major Program Requirements

Students earning a Bachelor of Science in Environmental Sciences are required to complete all [University general education \(p. 36\)](#), [University graduation \(p. 35\)](#), and degree requirements, including selected foundational courses, which may fulfill some University general education requirements.

#### Foundational

MATH 1100	College Algebra	3-5
or MATH 1160	Precalculus Mathematics	
MATH 1400	Calculus for Social and Life Sciences I	3-5
or MATH 1500	Analytic Geometry and Calculus I	
CHEM 1320	College Chemistry I	4
Economics/Business Elective (select from ABM, ECONOM, FINPLN, FINANC, MANGMT, MRKTNG)		3
STAT 1200	Introductory Statistical Reasoning	3

COMMUN 1200	Public Speaking	3
or AGSC_COM 2220	Verbal Communication in Agriculture, Food and Natural Resources	
or AGSC_COM 2210	Communicating Science to the Public	
ENV_SC 1100	Introduction to Environmental Science	3
ATM_SC 1050	Introductory Meteorology	3
NAT_R 2325	Introduction to Geographic Information Systems	3
or GEOG 3040	Introduction to Geographic Information Systems GIS	

### Core Emphasis Area

<b>Biological Science</b>		<b>15</b>
BIO_SC 1200	General Botany with Laboratory	5
BIO_SC 1500	Introduction to Biological Systems with Laboratory	5
BIO_SC 3650	General Ecology	5
or FOREST 4320	Forest Ecology	
<b>Chemistry</b>		<b>4</b>
CHEM 1330	College Chemistry II	4
<b>Geology</b>		<b>8</b>
GEOLOGY 1100	Principles of Geology with Laboratory	4
GEOLOGY 2400	Surficial Earth Processes and Products with Laboratory	4
<b>Policy/Regulation</b>		<b>3</b>
NAT_R 4353	Natural Resource Policy/Administration	3
or ENV_SC 4400W	Environmental Law, Policy, and Justice - Writing Intensive	
<b>Soil Science</b>		<b>5</b>
SOIL 2100	Introduction to Soils	3
SOIL 2106	Soil Science Laboratory	2
<b>Additional Emphasis Area Requirements</b>		<b>30-32</b>
PLNT_S 2125	Plant Structure and Function	3-4
or FOREST 2151	Dendrology	
ENV_SC 3250	Pollutant Fate and Transport	3
ENV_SC 3290	Soils and the Environment	3
SOIL 4313	Soil Fertility and Plant Nutrition	3-4
or FOREST 4330	Practice of Silviculture	
or F_W 4600	Ecosystem Management	
ENV_SC 4940	Environmental Science Internship	3

Select from the following Disciplinary Elective courses approved by academic advisor to achieve an additional 15 credits at the 3000/4000 levels. Must take at least one Atmospheric, Environmental, or Soil Science course, and one course that involved computer modeling.

AG_S_M 4360	Precision Agriculture Science and Technology
AG_S_M 4420	Surface Water Management
ATM_SC 3600	Climates of the World
BIOL_EN 4150	Soil and Water Conservation Engineering
ENV_SC 4305	Environmental Soil Physics
ENV_SC 4306	Environmental Soil Physics Laboratory
ENV_SC 4312	Environmental Soil Microbiology
ENV_SC 4318	Environmental Soil Chemistry
ENV_SC 4320	Hydrologic and Water Quality Modeling
F_W 3600	Introduction to Conservation Biology
F_W 4500	Animal Population Dynamics and Management
F_W 4600	Ecosystem Management

FOREST 3207	Forest Fire Control and Use	
FOREST 4375	Forest Stand Dynamics	
FOREST 4380	Forest Resource Management	
FOREST 4390	Watershed Management and Water Quality	
GEOG 3610	Physical Geography of the United States	
GEOG 3630	Earth Surface Systems	
GEOG 3830	Remote Sensing	
GEOG 4710	Spatial Analysis in Geography	
GEOG 4940	Advanced Geographic Information Systems (GIS II)	
NAT_R 4385	Landscape Ecology and GIS Analysis I	
PLNT_S 3270	Forage Crops	
PLNT_S 3275	Grain Crops	
RU_SOC 3310	Society, Agriculture and Natural Resources	
SOIL 4313	Soil Fertility and Plant Nutrition	
<b>Capstone Experience</b>	<b>4</b>	
SOIL 4320	Genesis of Soil Landscapes	4

### Semester Plan

First Year				
Fall	CR	Spring	CR	
HIST 1100 or POL_SC 1100	3	ENGLISH 1000	3	
ENV_SC 1100	3	MATH 1100	3	
BIO_SC 1200	5	GEOL 1100	4	
ATM_SC 1050	3	BIO_SC 1500	5	
	14		15	

Second Year				
Fall	CR	Spring	CR	
CHEM 1320	4	CHEM 1330	4	
AGSC_COM 2220	3	SOIL 2100	3	
FOREST 4320	5	Disciplinary Elective	3	
ENV_SC 2600	3	SOIL 2106	2	
		Business Elective	3	
	15		15	

Third Year					
Fall	CR	Spring	CR	Summer	CR
STAT 1200	3	NAT_R 2325	3	ENV_SC 4940	3
FOREST 2151	4	ENV_SC 3250	3		
ENV_SC 3290W	3	MATH 1400	3		
GEOL 2400	4	Humanities Elective	3		
		Related Disciplinary Elective	3		
	14		15		3

Fourth Year			
Fall	CR	Spring	CR
SOIL 4320	4	FOREST 4330	4
ENV_SC 4306	2	General Elective	1
ENV_SC 4305	3	Related Disciplinary Elective	3
Related Disciplinary Elective	3	Humanities Elective	3

Computer Science Course	3 NAT_R 4353	3
	15	14

Total Credits: 120

## BS in Environmental Sciences with Emphasis in Outreach and Education

### Degree Program Description

Earth's environment provides conditions conducive for life: an oxygenated atmosphere; water resources; and soil as a medium for plant growth. Environmental processes occurring on the planet govern the movement of air, energy, matter, and water. Through the study of **Environmental Sciences**, students will learn the science and experience the beauty of the outdoor environment. This degree program addresses how human activities can adversely alter some environmental processes and environmental quality, techniques to improve environmental quality, and practices that minimize human impacts on the environment.

The **Environmental Sciences** degree provides a strong science foundation through general science coursework and specialized studies of the atmosphere, land and soil, water, and environmental outreach and education. The degree combines interests in predicting and understanding weather patterns, monitoring environmental change, conserving and managing soil and biological organisms, assuring healthy streams and adequate water supplies, and improving environmental quality with the shaping of new policies and educating others about the natural environment and environmental issues. Example careers include Atmospheric Scientist, Climatologist, Environmental Specialist, Environmental Technician, Hydrologist, Land Manager, Meteorologist, Soil Scientist, and Water Quality Specialist. Employment may occur in a variety of sectors, including federal, state, county and city government agencies, non-government agencies (NGOs), and private consulting firms

### Major Program Requirements

Students earning a Bachelor of Science in Environmental Sciences are required to complete all University general education (p. 36), University graduation (p. 35), and degree requirements, including selected foundational courses, which may fulfill some University general education requirements.

### Foundational

MATH 1100	College Algebra	3-5
or MATH 1160	Precalculus Mathematics	
MATH 1400	Calculus for Social and Life Sciences I	3-5
or MATH 1500	Analytic Geometry and Calculus I	
CHEM 1320	College Chemistry I	4
Economics/Business Elective (select from ABM, ECONOM, FINPLN, FINANC, MANGMT, MRKTNG)		3
STAT 1200	Introductory Statistical Reasoning	3
COMMUN 1200	Public Speaking	3
or AGSC_COM 2220	Verbal Communication in Agriculture, Food and Natural Resources	
or AGSC_COM 2210	Communicating Science to the Public	
ENV_SC 1100	Introduction to Environmental Science	3
ATM_SC 1050	Introductory Meteorology	3

NAT_R 2325	Introduction to Geographic Information Systems	3
or GEOG 3040	Introduction to Geographic Information Systems GIS	

### Core Emphasis Requirements

<b>Biological Science</b>		<b>10</b>
BIO_SC 1200	General Botany with Laboratory	5
BIO_SC 1500	Introduction to Biological Systems with Laboratory	5
<b>Environmental Policy</b>		<b>3</b>
NAT_R 4353	Natural Resource Policy/Administration	3
or ABM 2070W	Environmental Economics and Policy - Writing Intensive	
<b>Geology/Geography</b>		<b>6-7</b>
GEOL 1100	Principles of Geology with Laboratory	4
or GEOL 1200	Environmental Geology with Laboratory	
GEOG 1600	Climate Change: Science and Public Policy	3
GEOG 2660	Environmental Geography	3
<b>Learning/Education</b>		<b>13-14</b>
AG_ED_LD 4340	Designing and Delivering Educational/Leadership Programs	3
ESC_PS 2000	Experiencing Cultural Diversity in the United States	3
ESC_PS 2010	Inquiry Into Learning I	3
ESC_PS 2014	Inquiry into Learning I - Field Experience	1
NAT_R 2080	Outdoor Recreation Consortium	2
NAT_R 4024	Foundations of Environmental Education	3
<b>Soil Science</b>		<b>5</b>
SOIL 2100	Introduction to Soils	3
SOIL 2106	Soil Science Laboratory	2
<b>Additional Emphasis Area Requirements</b>		<b>30</b>
ENV_SC 3290	Soils and the Environment	3
ENV_SC 3250	Pollutant Fate and Transport	3
ENV_SC 4940	Environmental Science Internship	3
PRST 3230	Outdoor Recreation Policy	3
PRST 3231	Interpretation of Natural and Cultural Resources	3
Select from the following disciplinary elective classes approved by academic advisor to achieve an additional 15 credit hours at the 3000/4000 levels (must take at least one Atmospheric, Environmental, or Soil Science course).		15
ATM_SC 3600	Climates of the World	
BIO_SC 3650	General Ecology	
or FOREST 4320	Forest Ecology	
ENV_SC 4305	Environmental Soil Physics	
ENV_SC 4312	Environmental Soil Microbiology	
ENV_SC 4318	Environmental Soil Chemistry	
NAT_R 3400	Water Quality and Natural Resource Management	3
ENV_SC 4600	Sustainability Science Problem Solving	3
F_W 3600	Introduction to Conservation Biology	
PRST 4250	Parks, Health and Wellness	3
PRST 4340	Recreation Land Management	
<b>Capstone Experience</b>		<b>3</b>
ENV_SC 4320	Hydrologic and Water Quality Modeling	3

1-3 Electives approved by faculty or professional advisor to complete 120 total credits

### Semester Plan

First Year					
Fall	CR	Spring	CR		
BIO_SC 1200		5 ATM_SC 1050		3	
MATH 1100		3 ESC_PS 2000		3	
HIST 1100		3 CHEM 1320		4	
ENV_SC 1100		3 GEOG 1600		3	
		AGSC_COM 2220		3	
			14	16	
Second Year					
Fall	CR	Spring	CR		
ENGLSH 1000		3 SOIL 2100		3	
BIO_SC 1500		5 SOIL 2106		2	
ENV_SC 4024		3 GEOL 1100		4	
ESC_PS 2014		1 Disciplinary Elective		6	
STAT 1200		3			
			15	15	
Third Year					
Fall	CR	Spring	CR	Summer	CR
ESC_PS 2010		3 ENV_SC 3250		3 ENV_SC 4940	3
ENV_SC 3290W		3 MATH 1400		3	
Disciplinary Elective		3 NAT_R 2325		3	
SOIL 4305		3 Business Elective		3	
SOIL 4306		2 Disciplinary Elective		3	
			14	15	3
Fourth Year					
Fall	CR	Spring	CR		
PRST 3230		3 PRST 3231		3	
PRST 4340		3 NAT_R 4353		3	
Computer Course		3 Disciplinary Elective		3	
Humanities Elective		3 General Elective		3	
WI					
SOIL 4320		4			
			16	12	

Total Credits: 120

## BS in Environmental Sciences with Emphasis in Water

### Degree Program Description

Earth's environment provides conditions conducive for life: an oxygenated atmosphere; water resources; and soil as a medium for plant growth. Environmental processes occurring on the planet govern the movement of air, energy, matter, and water. Through the study of **Environmental Sciences**, students will learn the science and experience the beauty of the outdoor environment. This degree program addresses how human activities can adversely alter some environmental processes and environmental quality, techniques to improve environmental quality, and practices that minimize human impacts on the environment.

The **Environmental Sciences** degree provides a strong science foundation through general science coursework and specialized studies of the atmosphere, land and soil, water, and environmental outreach

and education. The degree combines interests in predicting and understanding weather patterns, monitoring environmental change, conserving and managing soil and biological organisms, assuring healthy streams and adequate water supplies, and improving environmental quality with the shaping of new policies and educating others about the natural environment and environmental issues. Example careers include Atmospheric Scientist, Climatologist, Environmental Specialist, Environmental Technician, Hydrologist, Land Manager, Meteorologist, Soil Scientist, and Water Quality Specialist. Employment may occur in a variety of sectors, including federal, state, county and city government agencies, non-government agencies (NGOs), and private consulting firms.

## Major Program Requirements

Students earning a Bachelor of Science in Environmental Sciences are required to complete all University general education (p. 36), [University graduation](#) (p. 35), and degree requirements, including selected foundational courses, which may fulfill some University general education requirements.

### Foundational

MATH 1100	College Algebra	3-5
or MATH 1160	Precalculus Mathematics	
MATH 1400	Calculus for Social and Life Sciences I	3-5
or MATH 1500	Analytic Geometry and Calculus I	
CHEM 1320	College Chemistry I	4
Economics/Business Elective (select from ABM, ECONOM, FINPLN, FINANC, MANGMT, MRKTNG)		3
STAT 1200	Introductory Statistical Reasoning	3
COMMUN 1200	Public Speaking	3
or AGSC_COM 2220	Verbal Communication in Agriculture, Food and Natural Resources	
or AGSC_COM 2210	Communicating Science to the Public	
ENV_SC 1100	Introduction to Environmental Science	3
ATM_SC 1050	Introductory Meteorology	3
NAT_R 2325	Introduction to Geographic Information Systems	3
or GEOG 3040	Introduction to Geographic Information Systems GIS	

### Core Emphasis Requirements

<b>Biological Science</b>		<b>15</b>
BIO_SC 1200	General Botany with Laboratory	5
BIO_SC 1500	Introduction to Biological Systems with Laboratory	5
BIO_SC 3650	General Ecology	5
or FOREST 4320	Forest Ecology	
F_W 2700	Ichthyology	4
<b>Chemistry</b>		<b>4</b>
CHEM 1330	College Chemistry II	4
<b>Geology</b>		<b>7</b>
GEOL 1100	Principles of Geology with Laboratory	4
or GEOL 1200	Environmental Geology with Laboratory	
GEOL 2400	Surficial Earth Processes and Products with Laboratory	4
<b>Policy/Regulation</b>		<b>3</b>
NAT_R 4353	Natural Resource Policy/Administration	3
<b>Soil Science</b>		<b>5</b>

SOIL 2100	Introduction to Soils	3
SOIL 2106	Soil Science Laboratory	2
<b>Additional Emphasis Area Requirements</b>		<b>27</b>
ENV_SC 3250	Pollutant Fate and Transport	3
ENV_SC 3290W	Soils and the Environment - Writing Intensive	3
NAT_R 3400	Water Quality and Natural Resource Management	3
ENV_SC 4940	Environmental Science Internship	3

Students may identify a specific track and select from the following disciplinary elective classes approved by an academic advisor to achieve an additional 15 credit hours at the 3000/4000 levels (must take at least one Atmospheric, Environmental or Soil Science course).

Students not wishing to work in a specific track may select from either list to achieve an additional 15 credit hours at the 3000/4000 levels and at least one course must be in Atmospheric, Environmental, or Soil Science

(Tracks do not appear on transcripts or diplomas)

<b>Hydrology Track</b>		
AG_S_M 4420	Surface Water Management	3
ATM_SC 3600	Climates of the World	3
ATM_SC 4400	Micrometeorology	3
ATM_SC 4590	Radar Meteorology	3
BIOL_EN 4150	Soil and Water Conservation Engineering	3
CV_ENG 3700	Fluid Mechanics	3
CV_ENG 3702	Hydrology	4
ENV_SC 4305	Environmental Soil Physics	3
ENV_SC 4306	Environmental Soil Physics Laboratory	2
ENV_SC 4318	Environmental Soil Chemistry	3
FOREST 4390	Watershed Management and Water Quality	3
NAT_R 3400	Water Quality and Natural Resource Management	3
GEOL 4100	Groundwater Hydrology	3
<b>Water Quality Track</b>		
AG_S_M 4420	Surface Water Management	3
BIOL_EN 4150	Soil and Water Conservation Engineering	3
ENV_SC 4305	Environmental Soil Physics	3
ENV_SC 4306	Environmental Soil Physics Laboratory	2
ENV_SC 4312	Environmental Soil Microbiology	3
ENV_SC 4318	Environmental Soil Chemistry	3
F_W 3900	Ecology of Fishes	3
F_W 4800	Environmental Toxicology	3
FOREST 4390	Watershed Management and Water Quality	3
GEOL 4300	Introduction to Low-Temperature Geochemistry	3
NAT_R 3400	Water Quality and Natural Resource Management	3
PLNT_S 4720	Aquatic Entomology	3
SOIL 4313	Soil Fertility and Plant Nutrition	3
<b>Capstone Experience</b>		<b>3</b>
ENV_SC 4320	Hydrologic and Water Quality Modeling	3
<b>Electives approved by faculty or professional advisor to complete 120 credits</b>		<b>1-7</b>

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
HIST 1100 or POL_SC 1100		3 CHEM 1320	4
BIO_SC 1200		5 ENGLISH 1000	3
General Elective		2 MATH 1100	3
ENV_SC 1100		3 NAT_R 2325	3
ATM_SC 1050		3	
		16	13

Second Year			
Fall	CR	Spring	CR
BIO_SC 1500		5 CHEM 1330	4
ENV_SC 3290W		3 GEOL 1200	4
ENV_SC 2600		3 SOIL 2100	3
AGSC_COM 2220		3 Business Elective	3
		SOIL 2106	2
		14	16

Third Year					
Fall	CR	Spring	CR	Summer	CR
BIO_SC 3650		5 NAT_R 3400	3	ENV_SC 4940	3
GEOL 2400		4 ENV_SC 3250	3		
STAT 1200		3 Disciplinary Elective	3		
Humanities Elective WI		3 General Elective	5		
		15	14		3

Fourth Year			
Fall	CR	Spring	CR
ENV_SC 4305		3 MATH 1400	3
ENV_SC 4306		2 Disciplinary Elective	6
ENV_SC 4320		3 Computer Elective	3
Disciplinary Elective		6 NAT_R 4353	3
		14	15

Total Credits: 120

## Minor in Environmental Sciences

A minor in Environmental Sciences provides students an opportunity to enhance their understanding of environmental processes, interrelationships between various components of the environment, and environmental issues. The breadth of knowledge and skills acquired can complement other degrees (i.e., biology, geography, geological sciences, natural resource science and management, and plant science) and enhance employment opportunities.

The minor in Environmental Sciences with a focus on atmospheric science prepares students for jobs in broadcast meteorology as well as for certification required by government agencies.

The minor in Environmental Sciences with a focus on soil science prepares students for employment in government regulatory and management agencies conducting soil science research or managing soil resources, environmental and agricultural consulting firms providing

clients with soil assessments and testing services, and agricultural research and development.

The minor in Environmental Sciences with a focus on water science prepares students for positions in local, state, and federal agencies managing and monitoring water resources, environmental consulting firms that help clients solve water quality and quantity challenges, and water testing laboratories.

## Requirements

- 15 credit hours completed under the curriculum designators: ATM\_SC, ENV\_SC, and/or SOIL.
- 9 of these credit hours must be at the 3000-level or above.

Students may choose to complete a broad range of environmental sciences coursework or gain greater depth of knowledge through a focused study of atmospheric science, soil science, or water science.

All coursework must be approved by an academic advisor within the Environmental Sciences degree program.

## Application for Minor

Students interested in this minor should complete the online form located on the CAFNR website (<https://cafnr.missouri.edu/current-students/forms-requirements/>).

## Food and Hospitality Systems

Food and Hospitality Systems  
 246 William Stringer Wing  
 (573) 882-4113  
 Fax:(573) 884-0104

Azlin Mustapha, Director of Graduate and Certificate Studies  
 (573) 882-2649  
 mustaphaa@missouri.edu

Typical employment areas for graduates of the food and hospitality program include quality assurance, quality control, product development, sensory science, flavor chemistry, higher education, hospitality management, and agricultural systems management.

## Faculty

### Food Science Faculty:

- Professor** M. Lin\*\*, A. Mustapha\*\*
- Associate Professor** A. D. Clarke\*\*, I. U. Gruen\*\*, B. Vardhanabhuti\*\*
- Assistant Professor** K. Krishnaswamy\*
- Adjunct Associate Professor** L. Occena-Po\*
- Adjunct Assistant Professor** G. Zheng\*
- Research Professor Emeritus** M. Ellersieck\*
- Professor Emeritus** F. H. Hsieh\*, R. T. Marshall\*, N. Unklesbay\*

### Hospitality Management Faculty:

- Professor** E. C. Tse\*\*
- Associate Professor** S. Cho\*\*, D.-Y. Kim\*\*, H. L. Marshall\*
- Assistant Professor** A. Alexander\*, P. Liu\*\*, M. Palermo\*

### Agricultural Systems Management Faculty:

- Professor** L. Schumacher\*\*
- Assistant Professor** J. Zhou\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

While MU does not offer undergraduate degrees specifically in Food and Hospitality Systems, the University does offer undergraduate opportunities in a number of related areas, both within the College of Agriculture, Food and Natural Resources, and in the other Schools and Colleges that make up the University. Undergraduate degrees related to Food and Hospitality Systems are Food Science and Nutrition, Hospitality Management and Agricultural Systems Management. The catalog provides a complete list of these degree options (p. 20).

## Graduate

- MS in Food and Hospitality Systems (p. 85)
- PhD in Food and Hospitality Systems (p. 87)

College of Agriculture, Food and Natural Resources  
246 William Stringer Wing  
(573) 882-4113  
<https://foodscience.missouri.edu/graduate-studies/>

**Director of Graduate and Certificate Studies:** Azlin Mustapha

The Food and Hospitality Systems Graduate Program offers three tracks for its M.S. and Ph.D. programs: Food Science, Hospitality Management, and Agricultural Systems Management. The online Graduate Certificate in Food Safety and Defense is also academically housed and administered in the Food and Hospitality Systems Graduate Program.

## About Food Science

Candidates are prepared for careers in research or advanced professional careers in the food industry, academia in junior and 4-year colleges, and in supporting roles in academics or industry. Graduates also may play leadership roles in extension, food production, marketing, regulation and quality assurance, or government agencies. Selected careers include research and development for private industry or the federal government, food plant supervision, technical operation, product development, nutrition, distribution, food safety and regulatory work, and higher education.

## Facilities and Resources

Departmental cooperation with the food industry is excellent. Specialized facilities for food science study and research include chemical, microbiological, engineering, sensory and analytical laboratories, as well as pilot plants to study food processing.

## About Hospitality Management

Graduates will have an understanding of hospitality management concepts as well as core concepts in individual and organizational behaviors, and be able to relate them to real problems of marketing, human resource management, strategic management, and financial planning at the levels of the organization and the industry. The goal of the HM track of the FHS graduate program is to produce preeminent scholars who can contribute to research and industry sectors in hospitality and tourism. Graduates will be marketable to academic programs in hospitality and tourism management, business, park and leisure or

consumer and retailing, as well as to industry or government, depending on the student's specific choice of cognate area and research.

## Facilities and Resources

Departmental cooperation with the hospitality industry is excellent. Special facility for food and restaurant consumer-related studies include the Eckles Cafe teaching and research laboratory.

## About Agricultural Systems Management

Agricultural Systems Management program is striving to advance agricultural production and management by adopting the emerging technologies, including smart sensing, internet of things, drones (UAS), and artificial intelligence. Students are heavily exposed to the research and teaching environments in smart technologies and gain hands-on experiences in areas of precision agriculture, smart/digital agriculture, plant high-throughput phenotyping, and agricultural mechanization (such as planting, irrigation, spray, harvesting). Candidates are prepared for careers in research or advanced professional careers in agricultural equipment, grain handling, and farm management industries. They are also trained for positions in higher education, research institutes, and industry. Graduates also may have leadership roles in extension, food production, marketing, regulation and quality assurance, or government agencies. Selected careers include research and development for private industry or the federal government, plant supervision, technical operation, product development, product testing, distribution, agricultural safety and regulatory work, and higher education.

## Facilities and Resources

Departmental cooperation with the agricultural industry is excellent. Special facilities for study and research include electrical and mechanical precision and automated agriculture, and waste management laboratories, as well as internships that support the equipment and material handling industry. Students are able to access drones, systems for internet of things and smart sensing, smart farm equipment and high performance computing resources.

## Funding

Assistantships are available on a competitive basis to qualified students from funds provided by the Agricultural Experiment Station, research contracts and grants. Fellowships supported by industry and professional societies, based on national competition, are also available.

## MS in Food and Hospitality Systems

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### Degree Requirements

- Minimum of 30 hours of graduate-level coursework.
- 15 hours must be at the 8000-level or above.
- Maximum of 40% of coursework can be F\_S 8090 or F\_S 8085 hours.

While a basic goal of the M.S. program is to provide students with specialized skills and training in research methods, the graduate faculty believe that it is important for M.S. students to understand the breadth of the discipline as well.

There are three tracks in the Food and Hospitality Systems (FHS) M.S. program: **Food Science, Hospitality Management and Agricultural Systems Management.** Each track includes specific required courses.

*Note: Tracks do not appear on transcripts or diplomas. Emphasis areas appear on transcripts.*

**Food Science Track Required Courses:**

<b>Chemistry and Analysis</b>			<b>3-4</b>
F_S 7310	Food Chemistry and Analysis		4
or F_S 7311	Investigation of Food Properties		
or F_S 7315	Food Chemistry and Analysis Laboratory		
<b>Engineering/Processing</b>			<b>3-4</b>
F_S 7160	Food Process Engineering		3
or F_S 7330	Principles of Food Processing		
<b>Microbiology</b>			<b>3-5</b>
F_S 7370	Food Microbiology		3
F_S 7375	Food Microbiology Laboratory		2

**Hospitality Management Track Required Courses (pick 4 in addition to FS 7941):**

HSP_MGMT 7100	Hospitality Human Resources Management		3
HSP_MGMT 7110	Hospitality and Tourism Marketing		3
HSP_MGMT 7180	Strategic Management in the Hospitality Industry		3
HSP_MGMT 7200	Destination Management		3
HSP_MGMT 7400	Hospitality Finance Management		3
F_S 7941	Internship in Food Science (Operational-based, minimum of 150 field hours)		1

**Agricultural Systems Management Track Required Courses (pick 4):**

AG_S_M 7020	Agricultural Safety and Health		3
or AG_S_M 7140	Electricity: Wiring and Equipment		
AG_S_M 7220	Material Handling and Conditioning		3
AG_S_M 7320	Agricultural Equipment and Machinery		3
or AG_S_M 7360	Precision Agriculture Science and Technology		
AG_S_M 7390	Optimization and Management of Food and Agriculture Systems		3
AG_S_M 7420	Surface Water Management		3
or AG_S_M 7460	Irrigation and Drainage		

## Plan of Study

The student and the major advisor, in consultation with the FHS M.S. Program Committee will prepare a plan of study (M1 form). The plan of study includes a list of the formal courses, readings, problems, research hours and seminars that the students will use to fulfill the requirements for the M.S. degree. The M1 form must be turned in to the FHS Graduate Program Coordinator by the end of the second semester of the student's graduate program for submission to the Graduate School.

**Minimum Requirements**

F_S 8402	Research Methods in Food Science		2
F_S 8087	Seminar in Food Science (Must be taken in FHS; 1 cr required, maximum of 2 cr.)		1
Two 8000-level courses (excluding Readings or Problems courses)			6
Statistics Course			3
F_S 8090	Research in Food Science		6

## Thesis Requirements

A FHS Masters Degree Program Committee must be identified prior to approval of the research topic for the M.S. thesis and no later than by the end of the second semester. An acceptable FHS M.S. Program Committee must include at least three graduate faculty members, at least two of whom must be from the FHS Graduate Program, including the advisor chair who must be a faculty in the track the student is in. At least one committee member must be a graduate faculty member from MU, but outside of the FHS Graduate Program. A signed M2 form which lists the names and academic programs of the committee members must be turned in to the FHS Graduate Program Coordinator by the end of the second semester of the student's graduate program for submission to the Graduate School.

The defense for the M.S. degree program will include the following components:

1. Exit seminar presented to the M.S. graduate program committee and the public.
2. Oral examination to demonstrate mastery of the course of study.
3. Defense of the research presented in the M.S. thesis.

In addition to the departmental requirements, the Graduate School is requiring that all graduating students include a public abstract. The public abstract will be used by the MU Graduate School to record and track graduate student's research interests.

## Exit Seminar

Immediately before the final examination, the M.S. student must present a seminar on his or her research. The seminar must take place when MU is officially in session, and is open to the general university audience. The FHS Graduate Program Coordinator will announce the exit seminar to appropriate colleagues within and outside the program. All members of the M.S. Program Committee will attend and the student must be enrolled at the time of the seminar presentation and the final examination that follows.

## Final Examination

After the student's exit seminar has been presented, the FHS M.S. Program Committee will conduct a final oral examination. The candidate should be prepared to defend his/her research and discuss any related areas. A report of the examination, carrying the signatures of at least three members of the committee, must be submitted to the Graduate School before the deadline preceding the anticipated date of graduation. For the thesis to be considered successfully defended, the student's FHS M.S. Program Committee must vote to pass the student on the defense with no more than one dissenting or abstaining vote. The signed M3 form which shows the results of the student's final exam must be turned in to the FHS Graduate Program Coordinator for submission to the MU Graduate School immediately following the completion of final exam.

A final copy of the thesis must be submitted to the Graduate School electronically. A final bound copy of the thesis and at least one manuscript suitable for publication must be turned in to the FHS Graduate Program.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MS in the Food and Hospitality Systems Graduate Program (<https://gradstudies.missouri.edu/degrecategory/food-and-hospitality->

systems/) and the minimum requirements of the MU Graduate School (<https://gradschool.missouri.edu/admissions/eligibility-process/>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

## PhD in Food and Hospitality Systems

### Degree Requirements

- Minimum of 72 hours of graduate level coursework beyond the Bachelor's degree.
- 15 hours must be at the 8000-level or above, exclusive of readings, research, problems and independent study hours.
- Maximum of 30 hours of post-baccalaureate graduate credits (exclusive of readings, research, problems and independent study hours) from a regionally accredited university may be transferred in.

While a basic goal of the Ph.D. program is to provide students with highly specialized research skills and knowledge in a particular subdivision of Food and Hospitality Systems, the faculty believe that it is important for Ph.D. students to understand the breadth of the discipline as well.

There are three tracks in the Food and Hospitality Systems (FHS) Ph.D. program: **Food Science**, **Hospitality Management** and **Agricultural Systems Management**. Courses required for all three tracks and those required for each track, respectively, are listed below.

*Note: Tracks do not appear on transcripts or diplomas. Emphasis areas appear on transcripts.*

#### Required Courses for Food Science, Hospitality and Agricultural Systems Management Tracks:

Statistics		6-9
STAT 7110	Statistical Software and Data Analysis	3
or STAT 7150	Applied Categorical Data Analysis	
or STAT 7210	Applied Nonparametric Methods	
or STAT 7310	Sampling Techniques	
or STAT 7410	Biostatistics and Clinical Trials	
or STAT 7510	Applied Statistical Models I	
or STAT 7530	Analysis of Variance	
or STAT 7540	Experimental Design	
or STAT 7560	Applied Multivariate Data Analysis	
Ethics		1-2
PLNT_S 8010	Professionalism and Ethics	2
or BIO_SC 8060	Ethical Conduct of Research	
or V_PBio 8641	Introduction to Research Ethics	
or MPP 8415	Responsible Conduct of Research thru Engagement, Enactment and Empowerment NIH and other Federal Age	
or PSYCH 8910	Responsible Conduct of Research	
Career Development		1-4
AG_ED_LD 8350	College Teaching of Agriculture, Food and Natural Resources	1-4
or GRAD 9010	Preparing Future Faculty I	
or GRAD 9020	Preparing Future Faculty II	

or GRAD 9050	Preparing Future Professionals for Post-Graduate Studies Careers
or GRAD 9072	Science Policy and Public Engagement
or GRAD 9082	Science Policy and Public Engagement
or GRAD 9304	Instructional and Communication Strategies for Effective College Teaching

Food Science Track Required Courses:		15-19
Chemistry and Analysis		3-4
F_S 7310	Food Chemistry and Analysis	3-4
or F_S 7311	Investigation of Food Properties	
or F_S 7315	Food Chemistry and Analysis Laboratory	
Engineering/Processing		3-4
F_S 7160	Food Process Engineering	3
or F_S 7330	Principles of Food Processing	
Microbiology		3-5
F_S 7370	Food Microbiology	3
F_S 7375	Food Microbiology Laboratory	2
Quality Assurance		3
F_S 7360	Food Quality Assurance	3
Commodity Groups		3
F_S 7331	Technology of Dairy Products and Ingredients	3
or F_S 7344	Processing Muscle Foods	
or F_S 7440	Principles of Winemaking and Wine Chemical Analysis	

Hospitality Management Track Required Courses:		15
HSP_MGMT 7100	Hospitality Human Resources Management	3
HSP_MGMT 7110	Hospitality and Tourism Marketing	3
HSP_MGMT 7180	Strategic Management in the Hospitality Industry	3
HSP_MGMT 7200	Destination Management	3
HSP_MGMT 7400	Hospitality Finance Management	3
F_S 7941	Internship in Food Science (Minimum of two internships, 150 field hours each; first internship operational-based, second internship managerial-based)	2

Agricultural Systems Management Track Required Courses:		15
AG_S_M 7020	Agricultural Safety and Health	3
or AG_S_M 7140	Electricity: Wiring and Equipment	
AG_S_M 7220	Material Handling and Conditioning	3
AG_S_M 7320	Agricultural Equipment and Machinery	3
or AG_S_M 7360	Precision Agriculture Science and Technology	
AG_S_M 7390	Optimization and Management of Food and Agriculture Systems	3
AG_S_M 7420	Surface Water Management	3
or AG_S_M 7460	Irrigation and Drainage	

### Plan of Study

The plan of study, completed under the guidance of a FHS Doctoral Degree Program Committee, consists of a list of formal courses and research or problems hours. The signed D2 form listing the committee-approved courses in the student's plan of study must be turned in to the FHS Graduate Program Coordinator no later than the end of the student's third semester for submission to the Graduate School. See a Sample Plan of Study at this link: <https://gradschool.missouri.edu/wp-content/uploads/2018/03/d2.pdf>



### Minimum Requirements

Hours beyond the baccalaureate degree		72
Graduate level courses (excluding Problems, Research or Independent Study)		15
F_S 9087	Seminar in Food Science (Must be taken in FHS; 2 cr. required; maximum of 4 cr.)	1
F_S 9090	Research in Foods Science	6

## Dissertation Requirements

### Doctoral Degree Program Committee

A FHS Doctoral Degree Program Committee must be identified by the end of the student's second semester. This committee must include at least four MU graduate faculty members, three of whom must be from the FHS Graduate Program, including the advisor chair. The advisor chair and at least one other committee member must also be members of MU Doctoral Faculty. At least one committee member must be a graduate faculty member from MU but outside the chosen track in the FHS Graduate Program.

### Qualifying Exam

To fulfill the Ph.D. Qualifying Exam, a proposal of the Ph.D. dissertation research must be presented to and approved by the student's Doctoral Degree Program Committee before the start of the student's third semester. The D1 form must be submitted to the FHS Graduate Program Coordinator for submission to the Graduate School by the same time to indicate the results of this Qualifying Exam. The student's Doctoral Degree Program Committee shall determine the course of action for students who do not pass the Qualifying Exam.

### Research

Students are expected to begin their research once their proposal has been approved by the FHS Doctoral Degree Program Committee at their Qualifying Exam. Students are required to conduct periodic committee meetings to update the Doctoral Degree Program Committee on his/her research progress throughout the Ph.D. program. Significant modifications of the research studies following initial approval of the proposed Ph.D. research during the Qualifying Exam must be approved by the student's Doctoral Degree Program Committee. Upon completion of the research, a dissertation based on original research must be reviewed and approved by the student's Doctoral Degree Program Committee. All Ph.D. candidates are required to prepare at least one manuscript, judged acceptable by the major advisor and at least one additional member of the student's Doctoral Degree Program Committee, for submission to a refereed journal, prior to the final dissertation defense.

## Comprehensive Examination Process

### Exit Seminar

Immediately before the defense of the dissertation, the student must present a formal dissertation exit seminar on his/her Ph.D. research. The seminar is open to the general university audience. The FHS Graduate Program Coordinator will announce the seminar dates to appropriate colleagues within and outside the program at least two weeks prior to the seminar date. The dissertation defense must take place when MU is officially in session and the candidate must be enrolled at MU at the time..

## Final Examination

After the seminar has been presented, a final defense oral examination will be conducted by the FHS Doctoral Degree Program Committee. The candidate should be prepared to defend his/her research and to discuss any related areas.

A report of the examination (D4 form), carrying the signatures of all members of the committee, must be turned in to the FHS Graduate Program Coordinator for submission to the MU Graduate School before the deadline preceding the anticipated date of graduation. For the dissertation to be considered successfully defended, the student's Doctoral Degree Program Committee must vote to pass the student on the defense with no more than one dissenting or abstaining vote.

A final copy of the dissertation must be submitted to the MU Graduate School electronically. A bound hard copy must be submitted to the FHS Graduate Program.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the Ph.D. in Food and Hospitality Systems Graduate Program (<https://gradschool.missouri.edu/degreecategory/food-and-hospitality-systems/>) and the minimum requirements of the Graduate School (<https://gradschool.missouri.edu/admissions/eligibility-process/>). Because requirements vary, you *must* refer to the degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

## Food Science and Nutrition

Food Science and Nutrition  
246 William Stringer Wing  
(573) 882-4113  
Fax:(573) 884-0104

<http://foodscience.missouri.edu>

Jinglu Tan, Division Director  
(573) 882-2369  
tanj@missouri.edu

Andrew Clarke, Program Coordinator and Undergraduate Advisor Chair  
(573) 882-2610  
clarkea@missouri.edu

Typical employment areas for graduates of the food science and nutrition program include quality assurance, quality control, product development, food processing, sensory science and flavor chemistry. The food science curriculum meets the accreditation standards established by the Institute of Food Technologists.

## Faculty

**Professor** M. Lin\*\*, A. Mustapha\*\*

**Associate Professor** A. D. Clarke\*\*, I. U. Gruen\*\*, B. Vardhanabhuti\*\*

**Assistant Professor** K. Krishnaswamy\*

**Adjunct Associate Professor** L. Occena-Po\*

**Adjunct Assistant Professor** G. Zheng\*

**Adjunct Instructor** M. Jones

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BS in Food Science and Nutrition (p. 89)
- Minor in Food Science and Nutrition (p. 91)

The department offers the Bachelor of Science degree with a major in Food Science and Nutrition within four tracks, namely Food Science, Food Business, Enology and Culinary Sciences. A minor is available.

Note: Tracks do not appear on transcripts or diplomas.

## Graduate

The Food and Hospitality Systems Graduate Program offers M.S. and Ph.D. graduate degrees under three track options: Food Science, Hospitality Management and Agricultural Systems Management. We also offer an online graduate certificate program in Food Safety and Defense. The catalog provides a complete list of these degree options (p. 20).

## BS in Food Science and Nutrition

### Degree Program Description

From creating low-fat ice cream flavors that don't taste low-fat, to developing packaging that protects food from E. coli and other pathogens, food scientists work to ensure the foods that fill your shopping cart are safe, nutritious and delicious. Food Science and Nutrition uses the latest in food manufacturing to turn agricultural commodities into products that consumers want to buy. A degree in food science and nutrition provides the skills needed to succeed in a variety of food science careers. The degree can be individualized by choosing between three degree tracks: Food Science, Food Business, Culinary Science. Some careers include Food technologist, product developers and quality assurance supervisors. Food technologists are employed by some of the world's largest and most respected private industry companies, including Del Monte Foods, General Mills, H.J. Heinz and Kellogg. They apply the principles of many scientific disciplines, such as biology, chemistry, engineering, physics, molecular biology, nutrition and microbiology to the challenges of food production. Product developers find employment with many of the same companies as food technologists. Their job, however, focuses more on other aspects of food manufacturing such as consumer acceptability, economics, production feasibility and marketing. Developers also explore new ways to enhance nutritional value and health benefits. Quality assurance supervisors work in private industry but also are employed by government agencies such as the U.S. Department of Agriculture and the Food and Drug Administration. They are responsible for reviewing safety and manufacturing protocol to ensure that the food you eat is safe and of the highest quality.

### Major Program Requirements

Students earning a Bachelor of Science in Food Science and Nutrition are required to complete all University general education (p. 36), University graduation (p. 35), and degree requirements, including

foundational courses, which may fulfill some University general education requirements.

If you are planning to transfer courses (including AP credit) and would like to information on how they apply to a degree program(s), you can email CAFNRadvising@missouri.edu for general recommendations.

#### Foundational Courses

MATH 1100	College Algebra	3
CHEM 1320	College Chemistry I	4
BIO_SC 1500	Introduction to Biological Systems with Laboratory	5
ABM 1041	Applied Microeconomics	3
or ECONOM 1014	Principles of Microeconomics	
ABM or Business course at the 2000-level or higher		3
COMMUN 1200	Public Speaking	3
or AGSC_COM 2220	Verbal Communication in Agriculture, Food and Natural Resources	
PHIL 2400	Ethics and the Professions	
ABM 3241W	Ethical Issues in Agriculture - Writing Intensive	3
or PHIL 2400	Ethics and the Professions	
or PHIL 2420	Ethical Issues in Business	
or PHIL 2600	Rational Decisions	
or PHIL 2700	Elementary Logic	

#### Core Degree Requirements

F_S 1030	Food Science and Nutrition	3
F_S 2172	Elements of Food Microbiology	3
F_S 2199	Seminar in Professional Development	1
F_S 4199	Food Industry Senior Seminar	1
F_S 4310	Food Chemistry and Analysis	4
F_S 4370	Food Microbiology	3
AG_S_M 1040	Physical Principles for Agricultural Applications	3
or PHYSCS 1210	College Physics I	
CHEM 1330	College Chemistry II	4
CHEM 2030	Survey of Organic Chemistry	3
CHEM 2130	Organic Laboratory I	2
BIOCHM 3630	General Biochemistry	3
MATH 1400	Calculus for Social and Life Sciences I	3-5
or MATH 1500	Analytic Geometry and Calculus I	
ABM 2225	Statistical Analysis	3
or STAT 1300	Elementary Statistics	

#### EXPERIENTIAL LEARNING

AFNR 2191	International Agriculture and Natural Resources - Humanities	3
or AFNR 2190	International Agriculture and Natural Resources	
or F_S 4941	Internship in Food Science	

#### CAPSTONE

F_S 4970W	Food Product Development - Writing Intensive	3
or F_S 4980	Food Quality Assurance	

### Food Science Track

(Note: Tracks are not listed on transcripts or diplomas.)

#### Food Science Track Core Courses (33 credits required)

NEP 2340	Human Nutrition I	3
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F_S 4330 or F_S 4160	Principles of Food Processing Food Process Engineering	3
F_S 4311	Investigation of Food Properties	3
F_S 4315W	Food Chemistry and Analysis Laboratory - Writing Intensive	3
F_S 4375	Food Microbiology Laboratory	2
F_S 4380	Sensory Analysis of Food and Beverages	3

**Commodity Block**

Choose two selections from the Commodity Block 12

**Professional Electives**

Choose courses from the Professional Electives 4

**Food Business Track**

(Note: Tracks are not listed on transcripts or diplomas.)

**Food Business Track Core Courses (33 credits required)**

**Business Courses**

ABM 1042 or ECONOM 1015	Applied Macroeconomics Principles of Macroeconomics	3
ACCTCY 2036 or ACCTCY 2037	Accounting I Accounting II	3
ABM 3224	New Products Marketing	3
ABM 3260	General Farm Management	3
ABM 3256	Agribusiness and Biotechnology Law	3
FINANC 2000	Survey of Business Finance	3
Ag Business elective (choose one: ABM 2183, AG_EC 2223, AG_EC 3230, AG_EC 3150, AG_EC 3271, AG_EC 3272, AG_EC 3286, or AG_EC 3294)		3

**Commodity Course**

Choose either F\_S 4331, F\_S 4344, or F\_S 4345 3

**Professional Electives**

Choose courses from the list of Professional Electives 6

**Culinary Science Track**

(Note: Tracks are not listed on transcripts or diplomas.)

**Culinary Science Track Core Courses (33 credits required)**

**Core Hospitality Mgmt courses**

HSP_MGMT 1100	Introduction to Hospitality Management	3
HSP_MGMT 2100	Hospitality Law	3
HSP_MGMT 2300	Fundamentals of the Food and Beverage Industry	3

HSP\_MGMT 3310 Food Service Budgeting and Controls 3

**Core Food Science courses**

NEP 2340	Human Nutrition I	3
F_S 4330 or F_S 4160	Principles of Food Processing Food Process Engineering	3
F_S 4380	Sensory Analysis of Food and Beverages	3

**Commodity Course**

Choose one of F\_S 3214, F\_S 3231 or F\_S 4345 3

**Professional Electives**

Choose courses from the Professional Electives 9

**Commodity Blocks**

Select two pairs of courses to fulfill science track requirements

F_S 3214 & F_S 4344	Principles of Meat Science and Processing Muscle Foods	6
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F_S 3231 & F_S 4331	Principles of Dairy Foods Science and Technology of Dairy Products and Ingredients	6
F_S 2195 & F_S 4345	Grapes and Wines of the World and Principles of Viticulture and Winemaking	6

**Professional Electives**

Select courses from this list to fulfill specific track requirements

F_S 1020	World Food and You	3
F_S 2131	Dairy Products Evaluation	2
F_S 3210	Kitchen Chemistry	3
F_S 3385	Problems in Food Science	1-3
F_S 4301	Topics in Food Science	1-3
F_S 4354	Physiology and Biochemistry of Muscle as Food	3
F_S 4385	Problems in Food Science	1-3
F_S 4390	Optimization and Management of Food and Agricultural Systems	3

**Electives**

Electives to fulfill 120 credits with the following as suggested courses:

PSYCH 1000	General Psychology	3
RU_SOC 1000 or SOCIOL 1000	Rural Sociology Introduction to Sociology	3
GEOG 1600	Climate Change: Science and Public Policy	3

**Semester Plan**

Below is a sample plan of study for the Food Science Track, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
F_S 1030		3 CHEM 1330	4
MATH 1100		3 ENGLISH 1000	3
CHEM 1320		4 MATH 1400 or 1500	3
MO STATE LAW		3 BIO_SC 1500	5
		13	15

Second Year			
Fall	CR	Spring	CR
Humanities Elective		3 AG_S_M 1040	3
Food Science Commodity Course		3 F_S 2172	3
Electives		3 BIOCHM 3630	3
CHEM 2030		3 Food Science Commodity Course	3
CHEM 2130		2 AGSC_COM 2220	3
F_S 2199		1	
		15	15

Third Year			
Fall	CR	Spring	CR
ABM 1041		3 NEP 2340	3
STAT 1400		3 F_S 2199	1
F_S 4370		3 F_S 4980	3
F_S 4375		2 F_S 4315W	3

Psychology, Sociology or Rural Sociology	3	Food Science Commodity Course	3
		Professional Elective	3
14		16	
<b>Fourth Year</b>			
<b>Fall</b>	<b>CR</b>	<b>Spring</b>	<b>CR</b>
F_S 4199		1 F_S 3190	3
F_S 4310		4 F_S 4311	3
F_S 4330		3 F_S 4380	3
Food Science Commodity Course		3 ABM course	3
F_S 4970W		3 Elective	3
Philosophy course		3	
17		15	

Total Credits: 120

## Minor in Food Science and Nutrition

### Requirements

The minor requires completion of 15 credit hours as outlined below. Nine (9) of the 15 credit hours need to be fulfilled with 3000-level or higher Food Science courses. Cross-listed courses can be taken in either in food science or the cross-listed subject.

Food Science Courses (minimum)		15
F_S 1030	Food Science and Nutrition	3
One of the following disciplinary courses:		3-4
F_S 4160	Food Process Engineering	
F_S 4310	Food Chemistry and Analysis	
F_S 4311	Investigation of Food Properties	
F_S 4315W	Food Chemistry and Analysis Laboratory - Writing Intensive	
F_S 4330	Principles of Food Processing	
F_S 4370	Food Microbiology	
F_S 4380	Sensory Analysis of Food and Beverages	
One of the following capstone courses:		3
F_S 4970W	Food Product Development - Writing Intensive	
F_S 4980	Food Quality Assurance	
Two other Elective Courses in Food Science		5-6

### Application for Minor

Students interested in this minor should complete the online form located on the CAFNR website (<https://cafnr.missouri.edu/current-students/forms-requirements/>).

## Hospitality Management

Seonghee Cho, Program Chair  
 Hospitality Management  
 226 Gentry Hall  
 (573) 882-4100  
 Fax: (573) 882-0596  
 HRMDept@missouri.edu

<https://dass.missouri.edu/degrees-and-programs/Hospitality-Management-Degree/> (<https://dass.missouri.edu/degrees-and-programs/hospitality-management-degree/>)

As one of the largest industries in the United States, the hospitality and travel industry plays a vital role in economic development and employment. The industry contributes \$1.7 trillion to GDP in 2018 and it is forecasted to contribute more than \$2.6 trillion by 2027. The Bureau of Labor Statistics reports that the leisure and hospitality industry provides 15.8 million jobs in the United States and with an increase in the most number of jobs in management. With the growth of the industry, the job prospects are bright and the need for a well-trained workforce is greater than ever.

### B.S. Degree in Hospitality Management

The Hospitality Management program provides students with the skills they need to succeed in a variety of hospitality management careers. As Hospitality Management students, they will gain an understanding of the principles involved in leading a successful hospitality organization. At the same time, students will have the opportunity to practice those principles in applied courses and through an internship.

To customize the Hospitality Management program, students may choose to specialize in one of four areas: [conference and event management](#), [food and beverage management](#), [lodging management](#) or [sports venue management](#).

### Faculty

**Professor E. Tse\*\***

**Associate Professor S. Cho\*\*, D. Kim\*\***

**Associate Teaching Professor H. L. Marshall\***

**Assistant Professor P. Liu\***

**Assistant Teaching Professor A. Alexander\*, M. Palmero\***

**Adjunct Professor B. Langford**

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

### Undergraduate

- BS in Hospitality Management (p. 92)
  - with emphasis in Conference and Event Planning Management (p. 93)
  - with emphasis in Food and Beverage Management (p. 94)
  - with emphasis in Lodging Management (p. 95)
  - with emphasis in Sport Venue Management (p. 95)
- Minor in Hospitality Management (p. 96)

The mission of the program is to develop and nurture a forward-thinking and innovative new generation of successful, ethical hospitality leaders in today's global community. The curriculum leading to the B.S. Hospitality Management allows students to be anchored in theories and principles of hospitality management and develop skills and competencies that are essential to hospitality operations. Students in the major have an option to specialize in one of four emphasis areas, Conference and Event (C&E), Food and Beverage (F&B), Lodging Management (Lodging), and Sports and Venue (SVM).

Students transferring into Hospitality Management from other MU degree programs or from other institutions must have a cumulative GPA of **2.50**.

A grade of C- or higher is required for all business core, hospitality core, emphasis area, and professional elective courses. Please see the BS in Hospitality Management (p. 92) page for the major program requirements.

## Graduate

The graduate program, Master's and Doctor of Philosophy (Ph.D.), is jointly offered under the **Food and Hospitality Systems** Program as one of the three tracks: Food Science, Hospitality Management and Agricultural Systems Management. The Hospitality Management graduate program is established with the objectives for the generation of new knowledge and intellectual curiosity through research. The program provides an understanding of the body of knowledge in the discipline of hospitality and develops abilities to achieve scholarly success. These abilities include competency in research, teaching/communication, problem-solving and critical reasoning skills.

After graduation, it is likely that a Masters student will advance their careers in the hospitality industry or continue their Ph.D. study. Ph.D. graduates will likely join the faculty of a college or university that will require research and publication as part of the promotion and tenure process. This goal is accomplished by creating a scholarly research environment, which exposes students the learning opportunity and trains them for teaching, research, writing, publishing, and consulting. The atmosphere is interdisciplinary and incorporates a number of opportunities for students to engage in a variety of types of information exchange and growth.

For additional information regarding Master's and Ph.D. study, please visit the Food and Hospitality System (p. 84) Overview and choose the **Hospitality Management** track.

## BS in Hospitality Management

### Degree Program Description

A B.S. degree in Hospitality Management (HM) provides students with business and managerial skills to succeed in a wide variety of hospitality and venue management careers. The curriculum includes core business principles, hospitality management concepts, and advanced skills in one of the emphasis areas, Conference & Events Planning Management, Food & Beverage Management, Lodging Management, and Sports Venue Management. The essence of these areas is that hospitality is about creating a unique and memorable experience for guests.

The **Conference and Event Management** specialization equips students with the skills and knowledge they need to plan meetings, implement conferences and events and manage event operations and logistics. Students learn the basics of developing and running an event and get the opportunity to practice those skills through hands-on experience — whether planning a wedding, private party, business meeting, conference, fund-raising function, community event, festival or mega-event.

The **Lodging Management** emphasis equips students for careers as hotel general managers. For students who choose this specialization, the learning experience includes observing the global hotel industry's development and learning every aspect — such as housekeeping, sales, marketing, finance and food and beverage outlet management — of

managing a hotel. To enhance their in-classroom learning, students gain hands-on experience through managerial job shadowing and internships.

The **Sports Venue Management** emphasis provides specialized instruction in managing and operating sports venues as spaces for live entertainment, including sport and non-sport events. Students who successfully complete the Sports Venue Management curriculum will be prepared to assume leadership positions in the dynamic sports venue and entertainment industries.

The **Food and Beverage Management** emphasis teaches students food and beverage management principles, and students participate in hands-on experiences in food service settings to gain practical skills in food production, food safety, marketing, finance, and restaurant management. Students will learn how to operate a food service operation as an entrepreneur or a professional manager.

## Major Program Requirements

Students earning a Bachelor of Science in Hospitality Management are required to complete all University general education (p. 36), University graduation, (p. 35) and degree requirements, including selected foundational courses, which also fulfill University general education requirements.

Students majoring in Hospitality Management may select one of the following emphasis areas:

- Conference and Event Planning Management (p. 93)
- Food and Beverage Management (p. 94)
- Lodging Management (p. 95)
- Sport Venue Management (p. 95)

A student may also earn a second emphasis by using the emphasis core requirements towards professional electives in the other (see emphasis area pages for additional details).

Students in Hospitality Management are required to earn a C- grade in all core courses: business, hospitality management, emphasis area, and professional electives.

Students are admissible to transfer into this program with a 2.0 term GPA and 2.5 cumulative GPA. You are directly admissible into the program when you meet the University admissions requirements.

If you are planning to transfer courses (including AP credit) and would like to information on how they apply to a degree program(s), you can email CAFNRadvising@missouri.edu for general recommendations.

### Foundational Courses

AGSC_COM 2220	Verbal Communication in Agriculture, Food and Natural Resources	3
or COMMUN 1200	Public Speaking	
F_S 1030	Food Science and Nutrition	3
or BIO_SC 1010	General Principles and Concepts of Biology	
ABM 1041	Applied Microeconomics	3
or ECONOM 1014	Principles of Microeconomics	
ABM 1042	Applied Macroeconomics	3
or ECONOM 1015	Principles of Macroeconomics	
MATH 1100	College Algebra (required for Food & Beverage Emphasis)	3
or MATH 1050	Quantitative Reasoning	

### Business Core Requirements (minimum grade of C-)

AG_ED_LD 2250	Introduction to Leadership	3
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or AG_ED_LD 2260	Team and Organizational Leadership	
ACCTCY 2036	Accounting I	3
or ACCTCY 2010	Introduction to Accounting	
FINANC 2000	Survey of Business Finance	3
MANGMT 3000	Principles of Management	3
MRKTNG 3000	Principles of Marketing	3
<b>Hospitality Management Core Requirements (minimum grade of C-)</b>		
HSP_MGMT 1100	Introduction to Hospitality Management	3
HSP_MGMT 2100	Hospitality Law	3
HSP_MGMT 2190	Seminar in Professional Development	1
HSP_MGMT 3100	Guest Service Management	3
HSP_MGMT 4100W	Hospitality Human Resources Management - Writing Intensive	3
HSP_MGMT 4110	Hospitality and Tourism Marketing	3
HSP_MGMT 4180	Strategic Management in the Hospitality Industry	3
HSP_MGMT 4993	Internship in Hospitality Management	3
<b>Emphasis Area Requirements (minimum grade of C-)</b>		<b>30</b>

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year					
Fall	CR	Spring	CR		
HSP_MGMT 1100	3	AGSC_COM 2220	3		
F_S 1030	3	Biological or Physical Science with Lab	3		
MATH 1100 or 1050	3	Missouri State Law Requirement	3		
ENGLSH 1000	3	Professional Elective	3		
Humanities & Fine Arts	3	Emphasis Area Course	3		
		15	15		
Second Year					
Fall	CR	Spring	CR		
ABM 1041	3	HSP_MGMT 2190	1		
AG_ED_LD 2250 or 2260	3	MANGMT 3000	3		
Professional Elective	3	ACCTCY 2036	3		
Biological, Physical or Mathematical Science	3	HSP_MGMT 2100	3		
Elective	2	Elective	3		
		14	13		
Third Year					
Fall	CR	Spring	CR	Summer	CR
HSP_MGMT 3100	3	MANGMT 3000	3	HSP_MGMT 4993	3
FINANC 2000	3	HSP_MGMT 4100W	3		
ABM 1042	3	Emphasis Area Course	3		
Emphasis Area Course	3	Professional Elective	3		

Unrestricted Elective	3	Humanities & Fine Arts	3
		15	15
<b>Fourth Year</b>			
Fall	CR	Spring	CR
HSP_MGMT 4180	3	Emphasis Area Course	3
HSP_MGMT 4110	3	Professional Elective	3
Emphasis Area Course	3	Professional Elective	3
Elective	3	Elective	3
Elective	3	Elective	3
		15	15
Total Credits: 120			

## BS in Hospitality Management with Emphasis in Conference and Event Planning Management

### Degree Program Description

The Conference and Event Management emphasis equips students with the skills and knowledge they need to plan meetings, implement conferences and events and manage event operations and logistics. Students learn the basics of developing and running an event and get the opportunity to practice those skills through hands-on experience — whether planning a wedding, private party, business meeting, conference, fund-raising function, community event, festival or mega-event.

### Major Program Requirements

#### Conference & Event Planning Management Emphasis Requirements

In addition to completing major program requirements (p. 92), students must complete the following additional requirements:

Emphasis Area Requirements (minimum grade of C-)		
HSP_MGMT 2200	Fundamentals of Conference and Events Industry	3
HSP_MGMT 3200	Conference and Meeting Management	3
HSP_MGMT 3310	Food Service Budgeting and Controls	3
or HSP_MGMT 4400	Hospitality Finance Management	
HSP_MGMT 4200	Destination Management	3
HSP_MGMT 4280W	Special Events Management - Writing Intensive	3
<b>Hospitality Professional Electives (minimum grade of C-)</b>		<b>15</b>
Total Credits		30

### Semester Plan

First Year			
Fall	CR	Spring	CR
HSP_MGMT 1100	3	AGSC_COM 2220	3
F_S 1030	3	Biological or Physical Science with Lab	3
MATH 1100	3	Professional Elective	3

ENGLISH 1000	3 Missouri State Law Requirement	3
Humanities & Fine Arts	3 Elective	3
15		15

Second Year			
Fall	CR	Spring	CR
AG_ED_LD 2250 or 2260	3	HSP_MGMT 2100	3
ABM 1041	3	HSP_MGMT 2190	1
ACCTCY 2036	3	HSP_MGMT 2200	3
Professional Elective	3	MANGMT 3000	3
Biological, Physical or Mathematical Science	3	Elective	3
15		16	

Third Year					
Fall	CR	Spring	CR	Summer	CR
HSP_MGMT 3100	3	HSP_MGMT 4100W	3	HSP_MGMT 4993	3
HSP_MGMT 3200	3	HSP_MGMT 4400	3		
FINANC 2000	3	MRKTNG 3000	3		
ABM 1042	3	Professional Elective	3		
Unrestricted Elective	3	Humanities & Fine Arts	3		
15		15		3	

Fourth Year			
Fall	CR	Spring	CR
HSP_MGMT 4180	3	HSP_MGMT 4280W	3
HSP_MGMT 4200	3	Professional Elective	3
HSP_MGMT 4110	3	Professional Elective	3
Elective	5	Elective	3
14		12	

Total Credits: 120

# BS in Hospitality Management with Emphasis in Food and Beverage Management

## Degree Program Description

The Food and Beverage Management emphasis teaches students food and beverage management principles, and students participate in hands-on experiences in food service settings to gain practical skills in food production, food safety, marketing, finance and restaurant management. Students will learn how to operate a food service operation as an entrepreneur or a professional manager.

## Major Program Requirements

### Food & Beverage Management Requirements

In addition to completing major program requirements (p. 92), students must complete the following additional requirements:

#### Emphasis Area Requirements (minimum grade of C-)

HSP_MGMT 2300	Fundamentals of the Food and Beverage Industry	3
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HSP_MGMT 3300	Food Production Management	3
HSP_MGMT 3310	Food Service Budgeting and Controls	3
HSP_MGMT 4380W	Managing Food Service Businesses - Writing Intensive	3
HSP_MGMT course (3000-level or above)		3
<b>Hospitality Professional Electives (minimum grade of C-)</b>		<b>15</b>
Total Credits		30

## Semester Plan

First Year			
Fall	CR	Spring	CR
HSP_MGMT 1100	3	AGSC_COM 2220	3
F_S 1030	3	Missouri State Law Requirement	3
MATH 1100	3	Biological or Physical Science with Lab	3
ENGLISH 1000	3	Professional Elective	3
Humanities & Fine Arts	3	Elective	3
15		15	

Second Year			
Fall	CR	Spring	CR
AG_ED_LD 2250 or 2260	3	HSP_MGMT 2100	3
ABM 1041	3	HSP_MGMT 2190	1
ACCTCY 2036	3	HSP_MGMT 2300	3
Professional Elective	3	MANGMT 3000	3
Biological, Physical, or Mathematical Science	3	ABM 1042	3
15		16	

Third Year					
Fall	CR	Spring	CR	Summer	CR
HSP_MGMT 3100	3	MRKTNG 3000	3	HSP_MGMT 4993	3
HSP_MGMT 3310	3	HSP_MGMT 3300	3		
HSP_MGMT 4110	3	Humanities & Fine Arts	3		
FINANC 2000	3	Professional Elective	3		
Unrestricted Elective	3	Elective	3		
15		15		3	

Fourth Year			
Fall	CR	Spring	CR
HSP_MGMT 4180	3	HSP_MGMT 4100W	3
HSP_MGMT 4380W	3	HSP_MGMT course (3000-level or above)	3
HSP_MGMT 4110	3	Professional Elective	3
Elective	3	Elective	5
12		14	

Total Credits: 120

# BS in Hospitality Management with Emphasis in Lodging Management

## Degree Program Description

The Lodging Management emphasis equips students for careers as hotel general managers. For students who choose this specialization, the learning experience includes observing the global hotel industry's development and learning every aspect — such as housekeeping, sales, marketing, finance and food and beverage outlet management — of managing a hotel. To enhance their in-classroom learning, students gain hands-on experience through managerial job shadowing and internships.

## Major Program Requirements

### Lodging Management Emphasis Requirements

In addition to completing major program requirements, students must complete the following additional requirements:

#### Emphasis Area Requirements (minimum grade of C-)

HSP_MGMT 2400	Fundamentals of Lodging Industry	3
HSP_MGMT 3400	Lodging Operations and Management	3
HSP_MGMT 4400	Hospitality Finance Management	3
HSP_MGMT 4480W	Advanced Lodging Management - Writing Intensive	3
HSP_MGMT course (3000-level or above)		3
<b>Hospitality Professional Electives</b>		<b>15</b>
Total Credits		30

## Semester Plan

First Year			
Fall	CR	Spring	CR
HSP_MGMT 1100	3	HSP_MGMT 2100	3
F_S 1030	3	AGSC_COM 2220	3
ENGLSH 1000	3	Biological or Physical Science with Lab	3
MATH 1100	3	Missouri State Law Requirement	3
Humanities & Fine Arts	3	Elective	3
15		15	

Second Year			
Fall	CR	Spring	CR
HSP_MGMT 2400	3	HSP_MGMT 2100	3
AG_ED_LD 2250 or 2260	3	HSP_MGMT 2190	1
ABM 1041	3	ACCTCY 2036	3
Professional Elective	3	MANGMT 3000	3
Biological, Physical or Mathematical Science	3	Elective	3
15		13	

Third Year					
Fall	CR	Spring	CR	Summer	CR
HSP_MGMT 3100	3	HSP_MGMT 3400	3	HSP_MGMT 4993	3

FINANC 2000	3	HSP_MGMT 4100W	3
ABM 1042	3	HSP_MGMT 4400	3
Professional Elective	3	MRKTNG 3000	3
Elective	3	Humanities & Fine Arts	3
15		15	

Fourth Year			
Fall	CR	Spring	CR
HSP_MGMT 4180	3	HSP_MGMT 4480W	3
HSP_MGMT 4110	3	Professional Elective	3
HSP_MGMT course (3000-level or above)	3	Professional Elective	3
Professional Elective	3	Elective	3
Elective	3	Elective	2
15		14	

Total Credits: 120

# BS in Hospitality Management with Emphasis in Sport Venue Management

## Degree Program Description

The Sports Venue Management emphasis provides specialized instruction in managing and operating sports venues as spaces for live entertainment, including sport and non-sport events. Students who successfully complete the Sports Venue Management curriculum will be prepared to assume leadership positions in the dynamic sports venue and entertainment industries.

## Major Program Requirements

### Sport Venue Management Requirements

In addition to completing major program requirements, students must complete the following additional requirements:

#### Emphasis Area Requirements (minimum grade of C-)

HSP_MGMT 2500	Fundamentals of Sport Venue Industry	3
HSP_MGMT 3500	Sport Venue Operation Management	3
HSP_MGMT 4400 or HSP_MGMT 3310	Hospitality Finance Management or Food Service Budgeting and Controls	3
HSP_MGMT 4500	Management and Promotion of Live Entertainment	3
HSP_MGMT 4580W	Sport Venue and Facility Management - Writing Intensive	3
<b>Hospitality Professional Electives (minimum grade of C-)</b>		<b>15</b>
Total Credits		30

## Semester Plan

First Year			
Fall	CR	Spring	CR
HSP_MGMT 1100	3	AGSC_COM 2220	3
F_S 1030	3	Biological or Physical Science with Lab	3
MATH 1100	3	Professional Elective	3



ENGLISH 1000	3 Missouri State Law Course	3
Humanities & Fine Arts	3 Elective	3
15		15

Second Year			
Fall	CR	Spring	CR
HSP_MGMT 2500	3	HSP_MGMT 2100	3
AG_ED_LD 2250 or 2260	3	HSP_MGMT 2190	1
ABM 1041	3	ACCTCY 2036	3
Professional Elective	3	MANGMT 3000	3
Biological, Physical or Mathematical Science	3	Elective	3
15		16	

Third Year					
Fall	CR	Spring	CR	Summer	CR
HSP_MGMT 3100	3	MRKTNG 3000	3	HSP_MGMT 4993	3
HSP_MGMT 3310	3	HSP_MGMT 3500	3		
HSP_MGMT 4500	3	Humanities & Fine Arts	3		
FINANC 2000	3	Professional Elective	3		
ABM 1042	3	Elective	3		
15		15		3	

Fourth Year			
Fall	CR	Spring	CR
HSP_MGMT 4180	3	HSP_MGMT 4100W	3
HSP_MGMT 4580W	3	Professional Elective	3
HSP_MGMT 4110	3	Professional Elective	3
Elective	3	Unrestricted Elective	5
12		14	

Total Credits: 120

## Minor in Hospitality Management

The minor in Hospitality Management is for students interested in enhancing their understanding of the hospitality industry.

### Requirements

A student must complete **18 credit hours of coursework with 9 credit hours at the 3000 level or higher.**

#### HSP\_MGT Core Requirements (12 credits)

HSP_MGMT 1100	Introduction to Hospitality Management	3
HSP_MGMT 2100	Hospitality Law	3
HSP_MGMT 3100	Guest Service Management	3
HSP_MGMT 3310	Food Service Budgeting and Controls (OR)	3
HSP_MGMT 4400	Hospitality Finance Management	

#### HSP\_MGT Emphasis Area Requirements (6 credits) select two courses from one emphasis area

##### Conference & Event Management

HSP_MGMT 2200	Fundamentals of Conference and Events Industry	3
HSP_MGMT 3200	Conference and Meeting Management	3

#### Lodging Management

HSP_MGMT 2400	Fundamentals of Lodging Industry	3
HSP_MGMT 3400	Lodging Operations and Management	3

#### Sports Venue Management

HSP_MGMT 2500	Fundamentals of Sport Venue Industry	3
HSP_MGMT 3500	Sport Venue Operation Management	3

#### Food & Beverage Management

HSP_MGMT 2300	Fundamentals of the Food and Beverage Industry	3
HSP_MGMT 3300	Food Production Management	3

### Application for Minor

Please use the **CAFNR Online Minor Form** to complete the application process for the minor.

## Natural Resource Science and Management

Charles Nilon, Degree Program Coordinator  
 School of Natural Resources  
 302 Anheuser-Busch Natural Resources Building  
 Phone: (573) 882-3738  
 Fax: (573) 882-9526  
 nilonc@missouri.edu  
<https://cafnr.missouri.edu/degrees-and-programs/>

The Natural Resource Science and Management degree addresses the science, art, and craft of creating, managing, using, conserving, and repairing natural and human-dominated ecosystems. The degree will allow students to apply biological, physical, social, political and managerial sciences to the conservation of plant and animal species in forests, grasslands, rivers and streams, and urban areas. The degree also develops students' skills in working with diverse groups of people. Students with degrees in Natural Resource Science and Management work as fisheries biologists, foresters, interpreters, naturalists, and wildlife biologists for state and federal agencies, nature centers and museums, and consulting firms. Four emphasis areas are offered: Fisheries and Wildlife Sciences, Forest Resources, Human Dimensions, and Terrestrial Ecosystems. All students are encouraged to integrate their classroom learning experiences with research and internship experiences.

### School of Natural Resources

The School of Natural Resources is one of six Divisions in the College of Agriculture, Food and Natural Resources. It is Missouri's and the Midwest's only school with comprehensive academic and research programs focused on biological, physical, and social aspects of natural resources science and management. The School applies an integrated, scientific approach to develop sustainable solutions to environmental challenges and to train the next generation of natural resources and recreation professionals and leaders. This integrated approach results in creative course offerings, enhanced educational opportunities, stimulation of novel research, advanced understanding of natural systems, and expanded knowledge and management of human interactions with the environment. The School is housed in the Anheuser-Busch Natural Resources Building containing state-of-the-art teaching, research and outreach extension facilities.

### Faculty

**Professor** H. S. He\*\*, S. Jose\*\*, D. R. Larsen\*, C. H. Nilon\*\*

**Associate Professor** M. Morgan\*\*, S. Wilhelm-Stanis\*\*, H. E. Stelzer\*\*  
**Assistant Professor** A. Argerich\*, M. Byrne\*, S. Halsey\*, B. O. Knapp\*\*, J. Li\*, R. North\*, R. M. Rotman\*, M. Weegman\*  
**Extension Associate Professor** R. A. Pierce II\*  
**Teaching Associate Professor** D. Vaught  
**Teaching Assistant Professor** T. Strauch  
**Research Professor** M. A. Gold\*\*, R. Udawatta\*\*  
**Research Associate Professor** C. Lin\*\*, M. C. Stambaugh\*\*  
**Research Assistant Professor** S. Bardhan\*, T. Bonnot\*, J. Whittier\*\*, J. D. Wood\*  
**Curators' Emeritus Professor** J. R. Jones\*\*  
**Cooperative Assistant Professor** D. Dey\*, J. Kabrick\*\*, L. S. Pile  
**Cooperative Associate Professor** S.A Amelon\*\*, E. B. Webb\*\*  
**Cooperative Professor** C.P. Paukert\*\*, S. R. Shifley\*, F. R. Thompson III\*\*, J. Van Sambeek\*\*

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BS in Natural Resource Science and Management (p. 97)
  - with emphasis in Fisheries and Wildlife Sciences (p. 98)
  - with emphasis in Forest Resources (p. 99)
  - with emphasis in Human Dimensions (p. 100)
  - with emphasis in Terrestrial Ecosystems (p. 101)

## Graduate

While the College of Agriculture, Food and Natural Resources does not offer a graduate degree specifically in Natural Resource Science and Management, there are many options available for graduate studies in Natural Resources. Please refer to the list of graduate degrees on the Natural Resources (p. 103) section of the catalog for more information.

## BS in Natural Resource Science and Management

The Natural Resource Science and Management degree addresses the science, art, and craft of creating, managing, using, conserving, and repairing natural and human-dominated ecosystems, in a sustainable manner, to meet desired societal goals. The degree has elements that belong to the biological, physical, social, political and managerial sciences that are applied to conserving plant and animal species in forests, grasslands, rivers and streams, and urban areas. The degree also develops students' skills in working with diverse groups of people. Students with degrees in Natural Resource Science and Management work as fisheries biologists, foresters, interpreters, naturalists, and wildlife biologists for state and federal agencies, nature centers and museums, and consulting firms.

Students pursuing a degree in Natural Resource Science and Management individualize their degree by choosing one of four emphasis areas. The Forest Resources emphasis prepares students to manage forests in order to protect wildlife habitats and the environment while meeting the ever-growing demand for wood products. The Human Dimensions emphasis trains students to apply social sciences to address

questions about how people's attitudes, knowledge, values and behaviors impact management of our natural resources. The Fisheries and Wildlife Science emphasis focuses upon development of skills in conservation of wildlife habitat, protection of endangered species, and management of wild animal populations. The Terrestrial Ecosystem emphasis allows students to combine interests in wildlife management and forestry to both conserve biodiversity and satisfy the needs of society for renewable natural resources using the practice of ecosystem management.

## Major Program Requirements

Students earning a Bachelor of Science in Natural Resource Science and Management are required to complete all University general education (p. 36), University graduation, (p. 35) and degree requirements, including selected foundational courses, which may fulfill University general education requirements.

Students majoring in Natural Resource Science and Management may select one of the following emphasis areas:

- Forest Resources (p. 99)
- Fisheries and Wildlife Science (p. 98)
- Human Dimensions (p. 100)
- Terrestrial Ecosystems (p. 101)

A student may complete the B.S. in Natural Resource Science and Management without selecting a specific emphasis area by completing an additional (beyond the major/core requirements) 39 credit hours of coursework with NAT\_R, FOREST, or F\_W course designators, or other related courses approved by their faculty advisor. Of these 39 credit hours, at least 30 should be at the 3000- or 4000-level.

Students are admissible to transfer into this program with a 2.0 term GPA and 2.0 cumulative GPA, and are directly admissible into the program when they meet the University admissions requirements.

Students planning to transfer courses (including AP credit) and seeking information on how they apply to a degree program(s), can email CAFNRadvising@missouri.edu for general recommendations.

Foundational Courses		15
MATH 1100	College Algebra	3
BIO_SC 1200	General Botany with Laboratory	5
CHEM 1320	College Chemistry I	4
ABM 1041	Applied Microeconomics	3
or ABM 1042	Applied Macroeconomics	
or ABM 2070W	Environmental Economics and Policy - Writing Intensive	
Major Requirements		48-49
NAT_R 1070	Ecology and Renewable Resource Management	3
ATM_SC 1050	Introductory Meteorology	3-4
or PHYSCS 1210	College Physics I	
MATH 1400	Calculus for Social and Life Sciences I	3
SOIL 2100	Introduction to Soils	3
SOIL 2106	Soil Science Laboratory	2
FOREST 2151	Dendrology	4
NAT_R 2325	Introduction to Geographic Information Systems	3
or GEOG 3040	Introduction to Geographic Information Systems GIS	
STAT 2500	Introduction to Probability and Statistics I	3
NAT_R 3110	Natural Resource Biometrics	3

PRST 3231	Interpretation of Natural and Cultural Resources	3
or ENV_SC 4024	Foundations of Environmental Education	
F_W 3600	Introduction to Conservation Biology	3
FOREST 4320	Forest Ecology	5
or BIO_SC 3650	General Ecology	
NAT_R 4353	Natural Resource Policy/Administration	3
or ENV_SC 4400W	Environmental Law, Policy, and Justice - Writing Intensive	
or PRST 3230	Outdoor Recreation Policy	
F_W 4650	Natural Resource Planning and Management (Capstone)	4
FOREST 4940	Forestry Internship	3
or F_W 4940	Fisheries and Wildlife Internship	
or FOREST 4950	Forestry Undergraduate Research	
or F_W 4950	Undergraduate Research in Fisheries and Wildlife	
<b>Emphasis Area Requirements</b>		<b>39-43</b>

### Semester Plan

Below is a sample semester plan for the B.S. in Natural Resource Science and Management. Please consult with your advisor prior to registering for courses.

First Year			
Fall	CR	Spring	CR
BIO_SC 1200	5	ATM_SC 1050	3
MATH 1100	3	CHEM 1320	4
ENGLSH 1000	3	Humanities & Fine Arts	3
NAT_R 1070	3	Emphasis Area Course	3
		14	13

Second Year			
Fall	CR	Spring	CR
MATH 1400	3	NAT_R 2325	3
FOREST 2151	4	SOIL 2100	3
ABM 1041	3	STAT 2500	3
Missouri State Law Requirement	3	Emphasis Area Course	4
Humanities & Fine Arts	3	Emphasis Area Course	3
		16	16

Third Year					
Fall	CR	Spring	CR	Summer	CR
BIO_SC 3650W or FOREST 4320	5	F_W 3600	3	FOREST 4940 or F_W 4940	3
NAT_R 3110	3	PRST 3231	3	Emphasis Area Course	3
SOIL 2106	2	Emphasis Area Course	3		
Humanities & Fine Arts	3	Emphasis Area Course	4		
Emphasis Area Course	3				
		16	13	6	

Fourth Year			
Fall	CR	Spring	CR
Emphasis Area Course	3	NAT_R 4353	3
Emphasis Area Course	3	F_W 4650	4
Emphasis Area Course	3	Emphasis Area Course	3
Behavioral or Social Science	3	Emphasis Area Course	4
		12	14

Total Credits: 120

## BS in Natural Resource Science and Management with Emphasis in Fisheries and Wildlife Sciences

### Degree Program Description

The Natural Resource Science and Management degree with an emphasis in Fisheries and Wildlife Sciences has a strong focus on taxonomy and adds additional required courses on research and management techniques. Students with degrees in Natural Resource Science and Management with an emphasis in Fisheries and Wildlife work as conservation biologists, ecologists, fisheries biologists, ornithologists, and wildlife biologists.

### Major Program Requirements

In addition to completing major program requirements (p. 97), students must complete the following additional requirements:

#### Emphasis Core Requirements

F_W 1100	Introductory Zoology with Laboratory	5
F_W 2500	Introduction to Genetics and Evolution for Conservation	3-4
or BIO_SC 2200	General Genetics	
F_W 2900	Principles of Wildlife Management	4
F_W 4300	Fisheries Management	3
F_W 4400	Techniques for Fisheries Management and Conservation	3-4
or F_W 4700	Wildlife Ecology Methods	
or ENV_SC 4300	Methods in Aquatic Ecology	
F_W 4500	Animal Population Dynamics and Management	3

#### Professional Electives

NAT_R 2080	Outdoor Recreation Consortium	9
ENV_SC 3400	Water Quality and Natural Resources Management	
or FOREST 4390	Watershed Management and Water Quality	
F_W 3700	Animal Behavior	
F_W 3900	Ecology of Fishes	
ENV_SC 4100	Lake Ecology	
ENV_SC 4200	Stream Ecology and Hydrology	
F_W 4200	Urban Wildlife Conservation	
F_W 4220	Human Dimensions of Fish and Wildlife Conservation	
F_W 4600	Ecosystem Management	

F_W 4800	Environmental Toxicology	
F_W 4810	Wildlife Disease Ecology	
F_W 4880	Waterfowl Ecology and Management	
<b>Zoology Courses (Choose 3 courses, with no more than 5 credits from BIO_SC)</b>		<b>12</b>
F_W 2600	Ornithology	
F_W 2700	Ichthyology	
F_W 3660	Mammalogy	
BIO_SC 3260	Invertebrate Zoology	
PLNT_S 3710 & PLNT_S 3715	Introductory Entomology and Insect Diversity	
Total Credits		42-44

### Semester Plan

Below is a sample semester plan for the Fisheries and Wildlife Emphasis Area. Please consult with your advisor prior to registering for courses.

First Year					
Fall	CR	Spring	CR		
BIO_SC 1200	5	ATM_SC 1050	3		
ENGLISH 1000	3	CHEM 1320	4		
MATH 1100	3	F_W 1100	5		
NAT_R 1070	3	Humanities & Fine Arts	3		
		14	15		
Second Year					
Fall	CR	Spring	CR		
ABM 1041	3	SOIL 2100	3		
F_W 2900	4	STAT 2500	3		
MATH 1400	3	F_W 2500	3		
Humanities & Fine Arts	3	NAT_R 2325	3		
Missouri State Law Requirement	3	Zoology Course	4		
		16	16		
Third Year					
Fall	CR	Spring	CR	Summer	CR
BIO_SC 3650	5	F_W 3600	3	F_W 4940	3
NAT_R 3110	3	PRST 3231	3		
FOREST 2151	4	Zoology Course	4		
SOIL 2106	2	Professional Elective	3		
Behavioral or Social Science	3	Humanities & Fine Arts	3		
		17	16	3	
Fourth Year					
Fall	CR	Spring	CR		
F_W 4500	3	NAT_R 4353	3		
F_W 4300	3	F_W 4400	4		
Professional Elective	3	F_W 4650	4		
Professional Elective	3	Zoology Course	4		
		12	15		
Total Credits: 124					

## BS in Natural Resource Science and Management with Emphasis in Forest Resources

### Degree Program Description

The Natural Resource Science and Management degree with an emphasis in Forest Resources expands the knowledge base in fire ecology, silviculture, and forest stand dynamics in order for graduates to better address the challenges of managing forest resources in the 21st Century. Students with a degree in Natural Resource Science and Management with an emphasis in Forest Resources will be accredited by the Society of American Foresters and may find employment as community foresters, consulting foresters, ecologists, and resource foresters.

### Major Program Requirements

In addition to completing major program requirements (p. 97), students must complete the following additional emphasis area requirements:

Emphasis Core Requirements		
FOREST 2541	Forest Utilization	1
FOREST 2542	Forest Measurement and Inventory	1
FOREST 2544	Introduction to Silviculture and Management	1
FOREST 3207	Forest Fire Control and Use	2
FOREST 3212	Forest Health and Protection	4
FOREST 4330	Practice of Silviculture	4
FOREST 4350	Forest Economics	3
FOREST 4380	Forest Resource Management	3
FOREST 4390	Watershed Management and Water Quality	3
NAT_R 4365	GIS Applications	3
PLNT_S 2125 or PLNT_S 4400	Plant Structure and Function or Plant Anatomy	3-4
ENV_SC 4560	Observing the Earth from Space	3
<b>Professional Electives (approved by advisor to complete 120 total credits)</b>		<b>7</b>
Total Credits		38-39

### Semester Plan

Below is a sample semester plan for the Forest Resources Area. Please consult with your advisor prior to registering for courses.

First Year					
Fall	CR	Spring	CR		
BIO_SC 1200	5	CHEM 1320	4		
ENGLISH 1000	3	PHYSICS 1210 or ATM_SC 1050	3		
MATH 1100	3	Missouri State Law Requirement	3		
NAT_R 1070	3	Humanities & Fine Arts	3		
		14	13		
Second Year					
Fall	CR	Spring	CR	Summer	CR
FOREST 2151	4	SOIL 2100	3	FOREST 2541	1

MATH 1400	3	STAT 2500	3	FOREST 2542	1
ABM 1041	3	NAT_R 2325	3	FOREST 2544	1
Humanities & Fine Arts	3	FOREST 3207	2	FOREST 4940 or 4950	3
		PLNT_S 2125	3		
		13			6

Third Year					
Fall	CR	Spring	CR		
FOREST 4320	5	FOREST 3212	4		
NAT_R 3110	3	FOREST 4350	3		
SOIL 2106	2	PRST 3231	3		
Behavioral or Social Science	3	NAT_R 4365	3		
Humanities & Fine Arts	3	Professional Elective	3		
		16			16

Fourth Year					
Fall	CR	Spring	CR		
FOREST 4330	4	NAT_R 4353	3		
FOREST 4390	3	F_W 3600	3		
FOREST 4380	3	F_W 4650	4		
EnvSc 4560	3	Professional Elective	4		
Observing Earth from Space					
		13			14

Total Credits: 119

# BS in Natural Resource Science and Management with Emphasis in Human Dimensions

## Degree Program Description

The Natural Resource Science and Management degree with an emphasis in Human Dimensions targets students who wish to link a solid background in taxonomy and ecology with social sciences. Students may focus on outdoor interpretation, natural resources economics, and resource policy. Students with degrees in Natural Resource Science and Management with an emphasis in Human Dimensions can find employment as interpretive naturalists, natural resource educators.

## Major Program Requirements

In addition to completing major program requirements (p. 97), students must complete the following additional emphasis area requirements:

### Emphasis Core Requirements

ABM 2070W	Environmental Economics and Policy - Writing Intensive	3
PRST 3230	Outdoor Recreation Policy	3
NAT_R 3400	Water Quality and Natural Resource Management	3
or FOREST 4390	Watershed Management and Water Quality	
NAT_R 4024	Foundations of Environmental Education	3
F_W 4220	Human Dimensions of Fish and Wildlife Conservation	3
PRST 4340	Recreation Land Management	3

F_W 4400	Techniques for Fisheries Management and Conservation	4
or F_W 4700	Wildlife Ecology Methods	
or ENV_SC 4300	Methods in Aquatic Ecology	

### Zoology Courses (Choose 3 courses, with no more than 5 credits from BIO\_SC) 12

F_W 2600	Ornithology	
F_W 2700	Ichthyology	
F_W 3660	Mammalogy	
BIO_SC 3260	Invertebrate Zoology	
PLNT_S 3710 & PLNT_S 3715	Introductory Entomology and Insect Diversity	

### Professional Electives 9

NAT_R 2080	Outdoor Recreation Consortium	
ENV_SC 2600	Sustainability Foundations: An Introduction to Sustainability	
SOCIOL 3330	Environmental Justice	
RU_SOC 3310	Society, Agriculture and Natural Resources	
PRST 4250	Parks, Health and Wellness	
FOREST 4350	Forest Economics	
NAT_R 4365 or GEOG 4790	GIS Applications Geographic Information Systems for the Social Sciences	
RU_SOC 4370	Environmental Sociology	
ENV_SC 4400W	Environmental Law, Policy, and Justice - Writing Intensive	

Total Credits 43

## Semester Plan

Below is a sample semester plan for the Human Dimensions Emphasis Area. Please consult with your advisor prior to registering for courses.

First Year					
Fall	CR	Spring	CR		
BIO_SC 1200	5	ATM_SC 1050	3		
ENGLISH 1000	3	CHEM 1320	4		
MATH 1100	3	NAT_R 2325	3		
NAT_R 1070	3	Humanities & Fine Arts	3		
		14			13

Second Year					
Fall	CR	Spring	CR		
MATH 1400	3	SOIL 2100	3		
ABM 1041	3	STAT 2500	3		
FOREST 2151	4	Zoology Course	4		
Missouri State Law Requirement	3	Professional Elective	3		
Humanities & Fine Arts	3				
		16			13

Third Year						
Fall	CR	Spring	CR	Summer	CR	
BIO_SC 3650	5	F_W 3600	3	F_W 4940 or FOREST 4940	3	
NAT_R 3110	3	NAT_R 3400 or FOREST 4390	3			

SOIL 2106	2 PRST 3231	3
ABM 2070W	3 Zoology Course	4
Humanities & Fine Arts	3 Professional Elective	3
		3
16		16

Fourth Year		
Fall	CR Spring	CR
F_W 4220	3 NAT_R 4353	3
NAT_R 4024	3 PRST 4340	3
PRST 3230	3 F_W 4650	4
Behavioral or Social Science	3 F_W 4400	4
Professional Elective	3 Zoology Course	4
15		18

Total Credits: 124

## BS in Natural Resource Science and Management with Emphasis in Terrestrial Ecosystems

### Degree Program Description

The Natural Resource Science and Management degree with an emphasis in Terrestrial Ecosystems combines interests in wildlife management and conservation and forestry focusing on basic and applied concepts important in land management and species conservation. Students with degrees in Natural Resource Science and Management with an emphasis in Terrestrial Ecosystems are accredited by the Society of American Foresters and may find employment as conservation biologists, ecologists, land stewards, and resource foresters.

### Major Program Requirements

In addition to completing major program requirements (p. 97), students must complete the following additional emphasis area requirements:

#### Emphasis Core Requirements

FOREST 2541	Forest Utilization	1
FOREST 2542	Forest Measurement and Inventory	1
FOREST 2544	Introduction to Silviculture and Management	1
FOREST 3207	Forest Fire Control and Use	2
FOREST 3212	Forest Health and Protection	4
FOREST 4330	Practice of Silviculture	4
FOREST 4350	Forest Economics	3
FOREST 4390	Watershed Management and Water Quality	3
or NAT_R 3400	Water Quality and Natural Resource Management	
F_W 1100	Introductory Zoology with Laboratory	5
F_W 2900	Principles of Wildlife Management	4
F_W 4600	Ecosystem Management	4
PLNT_S 2125	Plant Structure and Function	3
or PLNT_S 4400	Plant Anatomy	
PLNT_S 3710 & PLNT_S 3715	Introductory Entomology and Insect Diversity	5
or F_W 2600	Ornithology	
or F_W 3660	Mammalogy	

ENV_SC 4560	Observing the Earth from Space	3
Total Credits		43

### Semester Plan

Below is a sample semester plan for the Terrestrial Ecosystems Emphasis Area. Please consult with your advisor prior to registering for courses.

First Year		
Fall	CR Spring	CR
BIO_SC 1200	5 F_W 1100	5
ENGLSH 1000	3 CHEM 1320	4
MATH 1100	3 Missouri State Law Requirement	3
NAT_R 1070	3 Humanities & Fine Arts	3
14		15

Second Year					
Fall	CR Spring	CR Summer	CR	CR	CR
FOREST 2151	4 STAT 2500	3 FOREST 2541			1
MATH 1400	3 SOIL 2100	3 FOREST 2542			1
ABM 1041	3 SOIL 2106	2 FOREST 2544			1
ATM_SC 1050	3 NAT_R 2325	3 F_W 4940 or FOREST 4940			3
Behavioral & Social Science	3 FOREST 3207	2			
16		13	6		

Third Year		
Fall	CR Spring	CR
F_W 2900	4 FOREST 4350	3
FOREST 4320	5 F_W 2600 or 3660	4
NAT_R 3110	3 FOREST 3212	4
Humanities & Fine Arts	3 PLNT_S 2125	3
15		14

Fourth Year		
Fall	CR Spring	CR
F_W 4600	4 NAT_R 4353	3
FOREST 4330	4 PRST 3231	3
FOREST 4390 or NAT_R 3400	3 F_W 3600	3
ENV_SC 4560	3 F_W 4650	4
Observing Earth from Space	Humanities & Fine Arts	3
14		16

Total Credits: 123

## Natural Resources

Hong S. He, Director of Graduate Studies  
 School of Natural Resources  
 203 Anheuser-Busch Natural Resources Building  
 heh@missouri.edu  
 573-882-7717

Sharon Burnham, Graduate Program Assistant

The School of Natural Resources  
203 Anheuser-Busch Natural Resources Building  
573-882-7242

The School of Natural Resources offers a comprehensive natural resources graduate program emphasizing an integrated approach to natural resource management. SNR offers M.S. and Ph.D. degrees in Natural Resources in the following emphasis areas: agroforestry (M.S. only); fisheries and wildlife sciences; forestry; human dimensions of natural resources; parks, recreation and tourism (M.S. only); soil, environmental and atmospheric sciences, and water resources. SNR is noted for its small classes, hands-on student research opportunities, active student organizations, high-tech classrooms, personalized advising and strong professional orientation. Students enrolled in the SNR graduate program will have opportunities to work with the leading scientists in the field and choose a variety of research subjects ranging from theoretical to applied studies in Missouri and around the world.

### School of Natural Resources

The School of Natural Resources (SNR) is one of six Divisions in the College of Agriculture, Food and Natural Resources. It is Missouri's and the Midwest's only school with comprehensive academic and research programs focused on biological, physical, and social aspects of natural resources science and management. The School applies an integrated, scientific approach to develop sustainable solutions to environmental challenges and to train the next generation of natural resources and recreation professionals and leaders. This integrated approach results in creative course offerings, enhanced educational opportunities, stimulation of novel research, advanced understanding of natural systems, and expanded knowledge and management of human interactions with the environment. The School is housed in the Anheuser-Busch Natural Resources Building containing state-of-the-art teaching, research and outreach extension facilities.

## Faculty

### Graduate and/or Doctoral Faculty by Emphasis Area

#### Agroforestry

- Stephen Anderson, Ph.D., Professor
- Alba Argerich, Ph.D., Assistant Professor
- Sougata Bardhan, Ph.D., Assistant Research Professor
- Zhen Cai, Ph.D., Assistant Research Professor
- Mark V. Coggeshall, Ph.D., Cooperative Assistant Professor
- Ashley Conway, Ph.D., Assistant Research Professor
- Michael A. Gold, Ph.D., Research Professor, Graduate Emphasis Area Coordinator
- Hong S. He, Ph.D., Professor
- Shibu Jose, Ph.D., Associate Dean of CAFNR
- Christine Li, Ph.D., Assistant Professor
- Chung-ho Lin, Ph.D., Research Assistant Professor
- Sarah Lovell, Ph.D., H.E. Garrett Endowed Chair, Professor, Director of The Center for Agroforestry
- Hank Stelzer, Ph.D., Associate Professor
- Ranjith Udawatta, Ph.D., Research Professor
- P. Leszek Vincent, Ph.D., Adjunct Assistant Professor

#### Fisheries and Wildlife

- Sybill K. Amelon, Ph.D., Cooperative Associate Professor
- Thomas Bonnot, Ph.D., Assistant Research Professor
- Michael Byrne, Ph.D., Assistant Professor
- Samniqueka Joi\_Weaver, Ph.D., Assistant Professor
- Charles Nilon, Ph.D., Professor
- Graig Paukert, Ph.D., Cooperative Professor
- Robert Pierce, Ph.D., Associate Extension Professor
- Frank Thompson III, Ph.D., Cooperative Professor
- Elisabeth Webb, Ph.D., Associate Cooperative Professor
- Mitch Weegman, Ph.D., Assistant Professor, Graduate Emphasis Area Coordinator
- Joanna Whittier, Ph.D., Assistant Research Professor

#### Forestry

- Noel Aloysius, PhD, Assistant Professor
- Mark V. Coggeshall, PhD, Research Assistant Professor
- Dan Dey, PhD, Cooperative Professor
- Michael A. Gold, PhD, Research Professor
- Hong S. He, PhD, Professor, Graduate Emphasis Area Coordinator
- Shibu Jose, PhD, Associate Dean, CAFNR Office of Research and Extension
- John Kabrick, PhD, Cooperative Assistant Professor
- Azad Henareh Khalyani, PhD, Adjunct Assistant Professor
- Benjamin O. Knapp, PhD, Associate Professor
- Sarah Lovell, Ph.D., H.E. Garrett Endowed Chair, Professor, Director of The Center for Agroforestry
- Chung-ho Lin, PhD, Research Associate Professor
- Michael C. Stambaugh, PhD, Research Associate Professor
- H. E. "Hank" Stelzer, PhD, Associate Professor
- Jeffrey Wood, PhD (<https://cafnr.missouri.edu/person/jeffrey-d-wood/>), Research Assistant Professor

#### Human Dimension in Natural Resources

- Charles Nilon, PhD, Professor, Graduate Emphasis Area Coordinator
- Francisco Aguilar, PhD, Associate Professor
- Mark Morgan, PhD, Associate Professor
- Robert Pierce, PhD, Extension Assistant Professor
- Robin Rotman, JD (<https://cafnr.missouri.edu/person/robin-m-rotman-jd/>), Assistant Professor
- Sonja Wilhelm Stanis, PhD, Associate Professor

#### Parks, Recreation and Tourism

- Damon Hall, PhD, Assistant Professor
- Christine Li, PhD, Assistant Professor
- Dana Massengale, PhD, Assistant Teaching Professor
- Mark Morgan, PhD, Associate Professor, Graduate Emphasis Area Coordinator
- Sonja Wilhelm Stanis, PhD, Associate Professor
- Jennifer Wentz, MS, Assistant Teaching Professor
- David R. Vaught, PhD, Associate Teaching Professor
- Shuangyu Xu, PhD, Assistant Professor

#### Soil, Environmental and Atmospheric Sciences

- Claire Baffaut, PhD (<https://cafnr.missouri.edu/person/claire-baffaut/>), Adjunct Associate Professor
- Bob Lerch, PhD, Adjunct Associate Professor
- Tony Lupo, PhD (<https://cafnr.missouri.edu/person/anthony-lupo/>), Professor
- Newell Kitchen, PhD (<https://cafnr.missouri.edu/person/newell-kitchen/>), Adjunct Professor
- Patrick Market, PhD (<https://cafnr.missouri.edu/person/patrick-s-market/>), Professor
- Neil Fox, PhD (<https://cafnr.missouri.edu/person/neil-i-fox/>), Professor
- Stephen Anderson, PhD (<https://cafnr.missouri.edu/person/stephen-h-anderson/>), Professor, Graduate Emphasis Area Coordinator
- Sougata Bardhan, PhD (<https://cafnr.missouri.edu/person/sougata-bardhan/>), Research Assistant Professor
- Ranjith Udawatta, PhD (<https://cafnr.missouri.edu/person/ranjith-udawatta/>), Research Professor
- Jeffrey Wood, PhD (<https://cafnr.missouri.edu/person/jeffrey-d-wood/>), Research Assistant Professor
- Kristen Veum, PhD (<https://cafnr.missouri.edu/person/kristen-s-veum/>), Adjunct Assistant Professor

#### Water Resources

- Noel Aloysius, Ph.D. (<https://cafnr.missouri.edu/person/noel-alloysius/>), Assistant Professor
- Stephen H. Anderson, PhD (<https://cafnr.missouri.edu/person/stephen-h-anderson/>), Professor
- Alba Argerich, PhD (<https://cafnr.missouri.edu/person/alba-argerich-ph-d/>), Assistant Professor
- Neil I. Fox, PhD (<https://cafnr.missouri.edu/person/neil-i-fox/>), Professor
- Damon Hall, PhD (<https://cafnr.missouri.edu/person/damon-hall/>), Assistant Professor
- Tony Lupo, PhD (<https://cafnr.missouri.edu/person/anthony-lupo/>), Professor
- Rebecca North, PhD (<https://cafnr.missouri.edu/person/rebecca-north/>), Assistant Professor, Graduate Emphasis Area Coordinator
- Robin Rotman, JD (<https://cafnr.missouri.edu/person/robin-m-rotman-jd/>), Assistant Professor
- Ranjith Udawatta, PhD (<https://cafnr.missouri.edu/person/ranjith-udawatta/>), Research Professor

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

While the College of Agriculture, Food and Natural Resources does not offer an undergraduate degree specifically in Natural Resources, there are many options available for graduate studies in Natural Resources including degrees in Environmental Sciences (<http://catalog.missouri.edu/undergraduategraduate/collegeofagriculturefoodandnaturalresources/environmentalsciences/bs-environmental-sciences/>); Natural Resources Science and Management ([\[naturalresourcescienceandmanagement/#text\]\(http://catalog.missouri.edu/undergraduategraduate/collegeofagriculturefoodandnaturalresources/parksrecreationandsport/\)\); and Parks, Recreation and Sport \(<http://catalog.missouri.edu/undergraduategraduate/collegeofagriculturefoodandnaturalresources/parksrecreationandsport/>\).](http://catalog.missouri.edu/undergraduategraduate/collegeofagriculturefoodandnaturalresources/</a></p>
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## Graduate

- MS in Natural Resources (p. 103)
  - with emphasis in Agroforestry (p. 104)
  - with emphasis in Fisheries & Wildlife Sciences (p. 105)
  - with emphasis in Forestry (p. 106)
  - with emphasis in Human Dimensions of Natural Resources (p. 106)
  - with emphasis in Parks, Recreation and Tourism (p. 107)
  - with emphasis in Soil, Environmental and Atmospheric Sciences (p. 107)
  - with emphasis in Water Resources (p. 108)
- PhD in Natural Resources (p. 109)
  - with emphasis in Fisheries & Wildlife Sciences (p. 111)
  - with emphasis in Forestry (p. 111)
  - with emphasis in Human Dimensions of Natural Resources (p. 112)
  - with emphasis in Soil, Environmental and Atmospheric Sciences (p. 112)
  - with emphasis in Water Resources (p. 113)

## MS in Natural Resources

Graduate research programs leading to the M.S. in Natural Resources are designed to prepare students for careers in academic institutions, consulting firms, industry, and state and federal agencies. The MS in Natural Resources has emphasis areas in [Agroforestry](http://catalog.missouri.edu/undergraduategraduate/collegeofagriculturefoodandnaturalresources/naturalresources/ms-naturalresourcesagroforestryemphasis/) (<http://catalog.missouri.edu/undergraduategraduate/collegeofagriculturefoodandnaturalresources/naturalresources/ms-naturalresourcesagroforestryemphasis/>), [Fisheries & Wildlife Science](http://catalog.missouri.edu/undergraduategraduate/collegeofagriculturefoodandnaturalresources/naturalresources/ms-fisheries-wildlife-sciences/) (<http://catalog.missouri.edu/undergraduategraduate/collegeofagriculturefoodandnaturalresources/naturalresources/ms-fisheries-wildlife-sciences/>), [Forestry](http://catalog.missouri.edu/undergraduategraduate/collegeofagriculturefoodandnaturalresources/naturalresources/ms-forestry/) (<http://catalog.missouri.edu/undergraduategraduate/collegeofagriculturefoodandnaturalresources/naturalresources/ms-forestry/>), [Human Dimensions of Natural Resources](http://catalog.missouri.edu/undergraduategraduate/collegeofagriculturefoodandnaturalresources/naturalresources/ms-naturalresourceshumandimensionsofnaturalresources/) (<http://catalog.missouri.edu/undergraduategraduate/collegeofagriculturefoodandnaturalresources/naturalresources/ms-naturalresourceshumandimensionsofnaturalresources/>), [Parks Recreation and Tourism](http://catalog.missouri.edu/undergraduategraduate/collegeofagriculturefoodandnaturalresources/naturalresources/ms-parks-recreation-tourism/) (<http://catalog.missouri.edu/undergraduategraduate/collegeofagriculturefoodandnaturalresources/naturalresources/ms-parks-recreation-tourism/>), [Soil, Environmental and Atmospheric Sciences](http://catalog.missouri.edu/undergraduategraduate/collegeofagriculturefoodandnaturalresources/naturalresources/ms-soil-environmental-atmospheric-sciences/) (<http://catalog.missouri.edu/undergraduategraduate/collegeofagriculturefoodandnaturalresources/naturalresources/ms-soil-environmental-atmospheric-sciences/>), and [Water Resources](http://catalog.missouri.edu/undergraduategraduate/collegeofagriculturefoodandnaturalresources/naturalresources/ms-naturalresourceswaterresourcesemphasis/) (<http://catalog.missouri.edu/undergraduategraduate/collegeofagriculturefoodandnaturalresources/naturalresources/ms-naturalresourceswaterresourcesemphasis/>). Please see the individual emphasis area pages for additional degree requirements and admissions information.

## Degree Requirements

1. A minimum of 30 hours of course work
2. 15 hours or more at the 8000 course level
3. GPA 3.0 or greater



4. Research, problems, special investigations, and special readings courses shall not exceed 12 of the 30 hours

Each student's coursework requirements, including the selection of specific courses in the above categories, will be listed in the student's plan of study and approved by their graduate committee.

## Thesis option

Students in the thesis option will write a thesis based on their research. A thesis is a research report of original research. Students with thesis option should participate in a public defense of his/her thesis followed by an oral examination by the student's graduate committee. Thesis and defense requirements are as defined by the MU Graduate School. The public defense should be announced at least two weeks prior to the defense.

## Non-Thesis option

A non-thesis option is also available that requires additional coursework and a research project. No more than 6 credits are allowed to non-thesis research project. The non-thesis option is most appropriate for M.S. candidates who view the Master's Degree as the terminal degree, aspire for practitioner work within the profession, and/or desire additional course work to balance their program of study. Students choosing the non-thesis option will write a technical report based on their project and participate in a public oral defense of his/her report followed by an oral examination by the student's graduate committee. The report requirements are defined by the graduate committee. The public defense should be announced at least two weeks prior to the defense.

## Academic Process for M.S. Students

### M1 Plan of study for Master's Degree

Together with their advisor, the student completes the M1 form and provides it to the emphasis area coordinator or Director of Graduate Studies. This form provides the student, the school, and the MU Graduate School with a plan for all course work, transfer credit and research hours that will comprise a student's program of study. This form should be completed by the end of the second semester.

### M2 Request for Thesis Committee

The M2 form accompanies the M1, and should be submitted at the same time, by the end of the second semester. It is required of both thesis and non-thesis students.

### M3 Report of Master's Examining Committee

The M3 form reports the final results of master's thesis or project defense. Submit to the MU Graduate School as soon as possible after the exam, project presentation or thesis defense.

Every candidate should review the Dissertation & Thesis Guidelines (<http://gradschool.missouri.edu/academics/thesis-dissertation/diss-thesis-guideline/>) from the Graduate School and should consult the Emphasis Area Coordinator for academic program style requirements.

## Thesis Committee

A thesis committee is composed of three members of the MU faculty: a major adviser from the emphasis area, a second reader from the emphasis area and an outside reader who is a member of the graduate faculty from a different MU graduate program.

## Admission Requirements

1. Bachelor's degree in a relevant discipline from an accredited institution
2. Undergraduate GPA: 3.0 on a scale of 4.0
3. Graduate Record Exam score (GRE) is recommended but not required if an applicant demonstrates in-depth knowledge in their corresponding field
4. Minimum TOEFL scores: iBT 80; paper-based: 550

*Applicants will be reviewed on a case-by-case basis. Particular attention is given to the type and quality of professional experience since completion of the undergraduate degree.*

## How to Apply

1. We recommend each applicant secure an adviser first before formal application. Information about potential advisers in all emphasis areas can be found at <https://snr.missouri.edu/graduate-studies/>
2. All application materials must be submitted to the Apply Yourself (<https://applygrad.missouri.edu/apply/>) online application system.
3. Statement of interest
4. Résumé or CV
5. GRE scores (check for the emphasis area recommendations)
6. TOEFL scores (if applicable)
7. Emphasis area application (<https://snr.missouri.edu/wp-content/uploads/sites/5/2018/04/Emphasis-area-application.pdf>) (if applicable)
8. A minimum of three letters of recommendation and the accompanying evaluation sheets from people who can attest to the candidate's scholastic ability and experience relevant to graduate study.
9. Publications (optional)

## Application Deadlines

The application deadlines are rolling. However, to ensure eligibility for some fellowship/scholarship competitions of the Graduate School, the following deadlines are recommended.

1. December 15 for the summer semester
2. January 15 for the fall semester
3. Oct. 15 for the spring semester

## Financial Aid from the Program

Check the School website (<https://snr.missouri.edu/> (<https://snr.missouri.edu/graduate-studies/>)) or contact individual faculty for details on graduate assistantships that may be available.

## MS in Natural Resources with Emphasis in Agroforestry

Agroforestry, as a farming system that integrates crops and/or livestock with trees and shrubs, has a long history of interdisciplinary research at the University of Missouri. The interdisciplinary emphasis area capitalizes on existing agroforestry research collaborations across The School of Natural Resources (SNR) departments in building an academic program that could attract and serve quality graduate students from Missouri, the nation and the world. The agroforestry emphasis area offers both a thesis and non-thesis option. The program also offers an online option

designed for professionals working in natural resources around the globe who already have an undergraduate degree in a related field. Please visit the online webpage for more information: <http://online.missouri.edu/degreeprograms/cafnr/agroforestry/masters/>. For a listing of Faculty membership of the graduate Agroforestry Emphasis Area: <https://snr.missouri.edu/graduate-studies/agroforestry-graduate-program/>

## Degree Requirements

Students seeking the agroforestry graduate emphasis will develop their course of study to incorporate 12 hours of a core curriculum of designated courses. This has been designed to include theoretical foundations in both the biophysical and socioeconomic components of agroforestry. The curriculum leads the student through a progression of learning and applying concepts related to (A) Agroforestry Fundamentals; (B) Biophysical Foundation; and (C) Socio-economic Foundation (Table 1).

Each student's coursework requirements, including the selection of specific courses in the above categories, will be listed in the student's plan of study and approved by their graduate committee.

### The 12-cr core curriculum for the Agroforestry Emphasis M.S. program

#### A. Agroforestry Fundamentals

FOREST 7385	Agroforestry I: Theory, Practice and Adoption	3
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#### B. Biophysical Foundation

FOREST 7390	Watershed Management and Water Quality	3
ENV_SC 7396	Agroforestry for Watershed Restoration	3
FOREST 8385	Ecological Principles of Agroforestry	3
ENV_SC 7320	Hydrologic and Water Quality Modeling	3
NAT_R 8325	Introduction to Geographic Information Systems	3
NAT_R 8024	Program Development and Evaluation in Informal Settings	3
NAT_R 8300	Urban Biodiversity, Conservation, and Planning	3
BIOCHM 8120	Advanced Medicinal Plant Science	3
FOREST 9087	Seminar in Forestry	1
BIOCHM 8130	Commercial Use of Biodiversity	3
AG_ED_LD 8087	Seminar in Agricultural Education and Leadership	1-99
AG_ED_LD 8510	Research Methods and Design	3
AG_ED_LD 8250	Leadership Theory and Application	3
AG_ED_LD 8540	Methods of Qualitative Research	3

#### C. Sociol-economic Foundation

FOREST 8395	Agroforestry Economics and Policy	3
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## Contacts

Dr. Michael Gold  
203 Anheuser-Busch Natural Resources Building  
Columbia, MO 65211  
[goldm@missouri.edu](mailto:goldm@missouri.edu)  
(573) 884-1448

## MS in Natural Resources with Emphasis in Fisheries and Wildlife Sciences

The Fisheries and Wildlife Sciences Emphasis Area is focused on resource management at organismal, population, or ecosystem scales. Our MS program is designed to prepare students for a professional career with state and federal agencies, private conservation organizations, consulting firms or academic institutions. An applicant contemplating graduate work in the Fisheries and Wildlife Sciences Emphasis Area (including limnology, conservation biology) should have a strong background in biological and physical sciences, including biology, botany, zoology, ecology, physiology, and genetics. In addition, such taxonomic courses as plant taxonomy, invertebrate zoology, ichthyology, ornithology, and mammalogy are highly desirable, as is a background in chemistry, mathematics, statistics, and physics.

## Degree Requirements

Master's students must complete, with a B average or better, a minimum of 30 hours of course work (15 hours or more at the 8000 course level). Research, problems, special investigations, and special readings courses shall not exceed 12 of the 30 hours.

Candidates are expected to design and have approved by their committee a plan of study during their first semester in residence and a thesis proposal by their second semester. A thesis acceptable to the student's graduate committee shall be completed and defended in a final oral examination. All candidates must complete the oral examination and a final thesis seminar before the degree is conferred. For additional information about thesis requirements please see the MS in Natural Resource (p. 103) page.

## Application and Admission Information

Dr. Mitch Weegman  
203 Anheuser-Busch Natural Resources Building  
Columbia, MO 65211  
[weegmanm@missouri.edu](mailto:weegmanm@missouri.edu) ([nilonc@missouri.edu](mailto:nilonc@missouri.edu)); (573) 882-3537

## Admission requirements

- Bachelor's degree in a relevant discipline from an accredited institution
- Undergraduate GPA\*: 3.2 on a scale of 4.0 in last 60 hours
- Minimum TOEFL scores: 550 (paper-based test), 80 (Internet-based test)
- Experience in research or management of natural resources. Practical skills are strongly considered.

*\*Students whose GPAs do not meet the requirements will be evaluated individually. Applicants will be reviewed on a case-by-case basis.*

We require applicants to contact Fisheries and Wildlife faculty to determine the availability of research assistantships prior to applying to the program.

All application materials must be submitted to the Apply Yourself (<https://applygrad.missouri.edu/apply/>) online application system. In addition, we require:

- A minimum of three letters of recommendation and the accompanying evaluation sheets from people who can attest to the candidate's scholastic and conservation field work abilities
- Fisheries and Wildlife Sciences emphasis area application
- Written response to 1 of 5 questions listed on the Fisheries and Wildlife Sciences Graduate Program Admissions page
- TOEFL scores (when applicable)
- Publications (optional)
- Résumé or CV

A background of 25 to 30 hours in biological sciences courses is desirable. Minor deficiencies may be remedied during the graduate program; major deficiencies may require preparatory coursework prior to consideration for admission.

## MS in Natural Resources with Emphasis in Forestry

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### Degree Requirements

Forestry graduates interested in research or teaching may concentrate much of their course work in one or more of the related sciences with a thesis appropriate to forestry. Specialized graduate education is available in forest management, forest soils, forest landscape ecology, fire ecology, hydrology, geographic information systems, physiological ecology, physiology, policy, silviculture, stand dynamics, water quality, wood quality and tree-ring analysis.

Students often conduct joint research with natural resource specialists at the Northern Research Station (U.S. Forest Service), the Missouri Department of Conservation, the Missouri Department of Natural Resources, the National Park Service, and the U.S. Fish and Wildlife Service.

Graduate students typically enroll in courses from across campus. For graduate students of Forestry emphasis area who lack academic or experiential background in forestry, the graduate committee may recommend several courses to compensate for that deficiency. Forestry graduate students commonly enroll in dual undergraduate / graduate courses at the 7000 level, FOREST 7330, FOREST 7320, FOREST 7390.

For a graduate student emphasizing forestry, Natural Resources Seminar (NAT\_R 9087) is the only required course in the graduate student's program of study. All graduate students are expected to attend graduate seminars regardless of whether the student is enrolled in the seminar course. PhD students are required to be enrolled in the seminar twice.

Those without a baccalaureate degree in forestry may wish to further their education in forest science or to attain professional competence by completing course work in forestry. Work required of students without a forestry degree who want a professional forestry education includes courses in dendrology (FOREST 2151), utilization of forest resources (FOREST 2541), forest resource measurements (FOREST 4380 or FOREST 7380), forest inventory (FOREST 2542), forest ecology (FOREST 4320 or FOREST 7320), silviculture (FOREST 2544), watershed management, and (FOREST 7390). Some of these courses do not carry graduate credit.

## Contact Information

### Director of Graduate Studies

Hong S. He, Ph.D., Professor  
School of Natural Resources  
University of Missouri  
203 Anheuser-Busch Natural Resources Building  
Columbia, Missouri 65211-7250  
(573) 882-7717  
Email: heh@missouri.edu

## MS in Natural Resources with Emphasis in Human Dimensions of Natural Resources

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The Human Dimensions of Natural Resources Emphasis Area (HDNR) addresses research and management questions including peoples' attitudes, knowledge, values, perceptions, and behaviors associated with natural resources. As an interdisciplinary emphasis area, HDNR considers applicants with backgrounds in social sciences, environmental education, natural resources management and conservation, or related disciplines.

The MS is a research-based degree. The student is expected to work closely with a faculty advisor to develop a research topic and a program of study. Students who complete a thesis are expected to publish their findings in peer-reviewed journals. A non-thesis option is also available that requires additional coursework and a research project.

### Degree Requirements

All students in the HDNR Emphasis Area are required to participate in the HDNR first year seminar course, and to take at least one course from each of three categories:

1. Human dimensions research methods
2. Quantitative and/or qualitative data analysis
3. Social science theory

Each student's coursework requirements, including the selection of specific courses in the above categories, will be listed in the student's plan of study and approved by their graduate committee.

### Thesis/Non-Thesis Requirements

#### Thesis Option

Students in the thesis option will complete 30 credit hours of coursework with no more than 12 credits for thesis research. Students choosing the thesis option will prepare a written research proposal and make an oral defense of that proposal within 12 months of their initial enrollment in the program. Students in the thesis option will write a thesis based on their research, present a public seminar announced at least two weeks prior to their defense date, and participate in an oral defense of their thesis

#### Non-Thesis Option

Students in the non-thesis option will complete 36 credit hours of coursework with no more than 12 credits for project research. Students choosing the non-thesis option will be required to write a project plan and to make an oral defense of that plan within the first year following their initial enrollment in the program. Students choosing the non-thesis option will write a technical report based on their project, present a public

seminar announced at least two weeks prior to the defense of their report, and participate in an oral defense of their report.

## Application and Admission Information

Dr. Charles Nilon  
 302 Anheuser-Busch Natural Resources Building  
 Columbia, MO 65211  
 nilonc@missouri.edu; (573) 882-3738

## MS in Natural Resources with Emphasis in Parks, Recreation and Tourism

Since virtually everyone participates in some form of leisure, the primary benefit of Parks, Recreation and Tourism (PRT) is to improve quality of life issues. The unique interaction of people, places, and activities establish our profession as one of the world's oldest and largest industries. Students learn how to manage leisure service delivery systems by combining theory with practice. This degree is designed to prepare students for advanced positions within PRT, or admission into doctoral programs.

### Degree Requirements

Students are required to take a minimum of four 8000 level classes in the School of Natural Resources, including PRST 8400 (<http://catalog.missouri.edu/search/?P=PRST%208400>) Constructs of Leisure and PRST 8430 (<http://catalog.missouri.edu/search/?P=PRST%208430>) Research Methods in Parks, Recreation and Tourism, in addition to two other courses, as agreed upon with their Advisor. All students must also take a graduate level analysis course (i.e., statistics, qualitative analysis, or mixed analysis). Please see the MS in Natural Resources (p. 103) for major program requirements and thesis options.

### Contacts

Dr. Mark Morgan, Associate Professor  
 Graduate Program Emphasis Coordinator of Parks, Recreation & Tourism  
 School of Natural Resources  
 303H ABNR  
 (573) 882-9525  
 markmorgan@missouri.edu  
<https://cafnr.missouri.edu/person/mark-morgan/>

## MS in Natural Resources with Emphasis in Soil, Environmental and Atmospheric Sciences

The Master of Science in Natural Resources with an emphasis in Soil, Environmental and Atmospheric Sciences is designed to prepare students for academic careers in research and teaching or other advanced scientific or professional careers. Students entering the MS program are required to have a BS degree.

MS candidates conduct original research under the supervision of a faculty advisor or advisors and with the participation of a master's committee. The Soil, Environmental and Atmospheric Sciences program expects students to take part in professional and educational activities by giving presentations at conferences and presenting seminars. MS candidates complete a thesis and are expected to publish their research

results in peer-reviewed scientific journals. A non-thesis option is also available that requires additional coursework and a research project.

## Degree Requirements

The degree program with emphasis in SEAS must include:

- 30 hours of graduate credit, with at least 15 hours comprised of 8000- or 9000-level courses.
- A minimum of one credit hour of graduate seminar must be included in each student's graduate program.
- All students enrolled in graduate programs are required to participate in a supervised teaching activity.

**For an atmospheric science focus area**, appropriate atmospheric science courses must be selected and approved in consultation with the student's advisor and graduate thesis committee.

**For a soil science focus area**, at least 12 credit hours of soil science courses at the 7000, 8000, and 9000 levels, exclusive of problems and thesis research, must be included in the student's graduate program.

**For an environmental science focus area**, at least six credit hours of environmental science courses at the 7000, 8000, and 9000 levels, exclusive of problems and thesis research, must be included in the student's graduate program. To meet the six credit hour requirement, courses must be selected from the following list of approved environmental science courses:

ATM_SC 7520	Environmental Biophysics	3
ENV_SC 7305	Environmental Soil Physics	3
ENV_SC 7306	Environmental Soil Physics Laboratory	2
ENV_SC 7312	Environmental Soil Microbiology	3
ENV_SC 7318	Environmental Soil Chemistry	3
ENV_SC 7320	Hydrologic and Water Quality Modeling	3
ENV_SC 8400	Solute Transport in the Vadose Zone	3
FOREST 7390	Watershed Management and Water Quality	3
FOREST 8390	Physical Hydrology	3
SOIL 7308	Soil Conservation	3
SOIL 7313	Soil Fertility and Plant Nutrition	3
SOIL 7314	Soil Fertility and Plant Nutrition Laboratory	2
SOIL 7320	Genesis of Soil Landscape	4
SOIL 9422	Pedology	3
Total Credits		41

To complete the environmental science focus area, an additional six credit hours must be selected from courses listed above or from the following programs: biochemistry, biological engineering, biological sciences, chemical engineering, chemistry, civil and environmental engineering, fisheries and wildlife sciences, forestry, geography, geological sciences, and natural resources. Selection of these courses will be determined in consultation with faculty members serving on a student's thesis committee.

### Integrated B.S./M.S. Program

Undergraduate students enrolled in Environmental Sciences are eligible to apply for the integrated degree program in soil, environmental and atmospheric sciences that will enable outstanding undergraduates in Environmental Sciences to obtain a B.S. and a M.S. (thesis required) after the successful completion of both degree requirements in five

years. The program provides a challenging curriculum that will include opportunities and training in undergraduate and graduate-level research and prepare the student for a successful professional career. Increasingly, employers in competitive technical fields are looking for highly-motivated students with graduate training to meet the demands for their work force and this program will provide talented students with a unique and expedited pathway to develop their educational background and professional skills.

## Overview

Undergraduate students in Environmental Sciences interested in the integrated B.S./M.S. program will be encouraged to participate in an undergraduate research experience during the summer of their sophomore year. They will apply and then be selected to enter the integrated B.S./M.S. program during the second semester of their junior year. Selected students will need to meet admission requirements for the Graduate School. Once selected the students will initiate work on their research during the summer of their junior year. During their senior year they will complete their undergraduate credits and can take up to 12 graduate-level credits (courses with numbering 7000 or higher) under MU's dual enrollment program. After completing the B.S. degree, students will continue their research and take the remaining coursework on their M.S. plan of study necessary to meet the 30 credit hour minimum required by the Graduate School for the M.S. degree. Several scholarships are currently available at the University of Missouri to assist outstanding students for the costs of their undergraduate and graduate education and for conducting undergraduate research, including the Honors College Discovery Fellowships Program and CAFNR and Life Sciences Undergraduate Research Fellowships.

## Recommended Preparation

Appropriate undergraduate majors in preparation for graduate studies in the soil, environmental and atmospheric sciences emphasis area include: agronomy, atmospheric science, biochemistry, biology, biogeochemistry, botany, chemistry, earth science, civil and environmental engineering, environmental science, forestry, geosciences, hydrology, mathematics, microbiology, physics, soil science, and watershed management. Check with the Emphasis Area Coordinator for specific recommendations for preparation for each graduate focus area.

## Completion of a BS Degree

Undergraduate GPA of 3.0 for the last 60 hours of coursework

- **Atmospheric science focus area applicants:** undergraduate program should include integral calculus and one year of college physics.
- **Environmental science focus area applicants:** undergraduate program should include general and organic chemistry, introductory biology, calculus, geology, physics, and ecology.
- **Soil science focus area applicants:** completed courses in general and organic chemistry, calculus, geology and physics. Inadequacies in courses must be remedied through additional course work immediately after admission.

## Admission Procedures for the Integrated BS/MS

Students seeking admission into the program should submit an application to the SEAS Graduate Emphasis Area Coordinator at the beginning (i.e., January 30th) of the Spring semester of their junior year.

A faculty committee will consider several criteria for admission into the Integrated B.S./M.S. Program including:

1. the student's undergraduate GPA (60 or more credits; minimum GPA of 3.5 at the time of enrollment)
2. a formal statement of interest indicating the intended emphasis area (i.e., soil science, environmental science or atmospheric science)
3. three letters of recommendation with one letter being a formal nomination letter from a SEAS faculty member

A student who meets the eligibility requirements will be extended an offer of admission by the middle of the Spring semester. All students must select a faculty mentor/advisor after admission to the program. A faculty advisory committee will be selected for each student and they will meet during the semester to approve a course of study and assist the student in designing and conducting their research program. Students will prepare a research proposal to be reviewed and accepted by their advisory committee. After approval of the research proposal, students will initiate their research during the summer of their junior year. Formal application of the student into the Graduate School will take place during the final semester of the student's senior year and is contingent on the student's successful completion of B.S. degree requirements and meeting eligibility requirements for the graduate program. Students will be required to maintain a cumulative 3.0 GPA during the program, write an M.S. thesis and meet other M.S. degree requirements.

## MS in Natural Resources with Emphasis in Water Resources

The Water Resources graduate emphasis area offers M.S. degree programs specializing in (but not limited to) the occurrence, circulation, distribution, chemical and physical properties, and environmental interaction of surface and subsurface waters, including groundwater. Specific areas of investigation could include lakes and reservoirs, floods and droughts, groundwater aquifers, water use, water quality, water contamination, plant water use, measurement methods, hydrologic modeling and international water resources.

Participating faculty in the Water Resources emphasis area are engaged in both scientific understanding of water resources (biological, chemical and physical) and its management, and the decision-making processes used to address competing societal values (social, economic and legal). The program has no geographic boundaries but benefits from a distinct midcontinent climate, and physiography. Multi-use watersheds (e.g., forest, agriculture, urban), streams, lakes, rivers, wetlands and subsurface waters are ideal areas for basic and applied research that is easily transferable to other regions. One of the program's major global impacts is the training of highly qualified graduate professionals that are equipped to address many of the complex contemporary water resource problems around the world.

Water Resources program applicants must meet the general requirements set forth by the University of Missouri Office of Graduate School for the M.S. degree, and meet any additional application criteria of the Water Resources graduate emphasis area. Students often self-fund, apply for teaching assistantships, or are supported by grant-funded research assistantships. Other opportunities may be available to eligible students. Applicants should contact specific faculty to determine the availability of position(s) in the potential advisor's research program and assistantships or scholarships prior to applying. If encouraged to

apply by Water Resources faculty, please apply through the University of Missouri's online application program.

## Degree Requirements

Please see the MS in Natural Resources (p. 107) page for major program requirements in addition to the emphasis area requirements below.

**Must take at least 6 credit hours from the following:**

Aquatic Ecosystem Science		
F_W 8460	Wetland Ecology	3
F_W 8520	Stream Ecology	3
NAT_R 7001	Topics in Natural Resources	1-99
NAT_R 7100	Lake Ecology	3
FOREST 7390	Watershed Management and Water Quality	3
NAT_R 7300	Methods in Aquatic Ecology	3
NAT_R 8450	Advanced Limnology (offered Spring 2020)	3
Climate and Climatology		
ATM_SC 7400	Micrometeorology	3
ATM_SC 7590	Radar Meteorology	3
ATM_SC 9300	Introduction to Chaos Theory	3
ATM_SC 8400	Atmospheric General Circulation	3
ATM_SC 8600	Advanced Climate Dynamics	3
Hydrologic Science and Water Quality		
ATM_SC 7550	Physical Meteorology	3
ENV_SC 7320	Hydrologic and Water Quality Modeling	3
CV_ENG 7710	Soil and Water Conservation Engineering	3
GEOL 7100	Groundwater Hydrology	3
GEOL 7130	Groundwater Modeling	3
GEOL 8240	Hydrogeologic Processes	3
ENV_SC 7305	Environmental Soil Physics	3
ENV_SC 7306	Environmental Soil Physics Laboratory	2
ENV_SC 8400	Solute Transport in the Vadose Zone	3
Water Management Technology		
NAT_R 8290	Hydrologic Measurement and Synthesis	2
ATM_SC 7510	Remote Sensing for Meteorology and Natural Resources	3
ATM_SC 9590	Advanced Applications of Weather Radar	3
ATM_SC 7590	Radar Meteorology	3
Elective Courses		
AG_S_M 7420	Surface Water Management	3
AG_S_M 7440	Water Quality and Pollution Control	3
BIOL_EN 8250	Water Management Theory	3
AG_S_M 7460	Irrigation and Drainage	3
CV_ENG 7230	Introduction to Water Quality	3
CV_ENG 7240	Water Quality Analysis	3
CV_ENG 7290	Wastewater Treatment and Process Design	3
CV_ENG 7700	Hydraulics of Open Channels	3
CV_ENG 8200	Water Quality Modeling	3
CV_ENG 8215	Environmental Transport Phenomena	3
CV_ENG 8225	Aquatic Chemistry	3
CV_ENG 8270	Design of Water and Wastewater Treatment Facilities	3

GEOL 7300	Introduction to Low-Temperature Geochemistry	3
GEOL 7500	Organic Geochemistry	3

## Admissions

Applicants should contact specific faculty to determine the availability of potential advisors, available position(s) in the potential advisors lab, and of available research assistantships prior to applying.

An applicant contemplating graduate work in water resources should have a strong background in physical sciences, including calculus, chemistry, and physics. Those considering interdisciplinary degrees should also have a background in biology, botany, zoology, ecology and other natural sciences. A background of 25 to 30 hours in physical sciences courses is desirable. Minor deficiencies may be remedied during the graduate program; major deficiencies may require preparatory coursework prior to consideration for admission. Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MS in Natural Resources with emphasis in Water Resources (<https://gradstudies.missouri.edu/degreecategory/natural-resources/>) and the minimum requirements of the Graduate S (<https://gradstudies.missouri.edu/admissions/eligibility-process/>) school (<https://gradstudies.missouri.edu/admissions/eligibility-process/>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

## Emphasis Area Coordinator:

Rebecca North, Ph.D.  
 Assistant Professor of Water Quality  
 School of Natural Resources  
 University of Missouri  
 303L Anheuser-Busch Natural Resources Building  
 Columbia, MO. 65211-7220  
 (573)-882-2832

## PhD in Natural Resources

- Degree Requirements (<http://catalog.missouri.edu/undergraduategraduate/collegeofagriculturefoodandnaturalresources/naturalresources/phd-naturalresources/##degree>)
- Admission Requirements (<http://catalog.missouri.edu/undergraduategraduate/collegeofagriculturefoodandnaturalresources/naturalresources/phd-naturalresources/##admission>)

The PhD degree in natural resources is designed to prepare students for academic careers in research and teaching or other advanced scientific or professional careers. PhD candidates conduct original research under the supervision of a faculty adviser or advisers and with the participation of a doctoral committee. Students are expected to engage in coursework to prepare for careers in research, industry or academia. The PhD degree is conferred only upon those students who, after extensive study, have demonstrated a high level of achievement in their particular emphasis area and have completed independent research contributing to knowledge in the field. Ph.D. candidates complete a dissertation and are expected to publish their research results in peer-reviewed scientific

journals. Students entering the PhD program usually have a master's degree, but this is not an absolute requirement.

The PhD in Natural Resources has emphasis areas in Fisheries & Wildlife Sciences, Forestry, Human Dimensions of Natural Resources, Soil, Environmental & Atmospheric Sciences, and Water Resources.

Please see the individual emphasis area pages for additional degree requirements and admissions information.

## Degree Requirements

1. A minimum of 72 hrs beyond the Baccalaureate degree for the PhD.
2. A maximum of 30 hours of post baccalaureate graduate credit from an accredited university can be transferred toward the PhD degree program, subject to committee approval.
3. The program must include a minimum of 15 hours of 8000 level course work, exclusive of problems, readings and research.
4. Graduate seminar is required (see each emphasis area for specific requirements).
5. PhD students are strongly recommended to submit their research results in peer-reviewed journals.

## Doctoral Qualifying Examination

The qualifying examination determines whether the student's background is adequate to enter the PhD program. It also is intended to ascertain if there are areas of weakness in which a candidate will be required to gain background through appropriate course work or areas that prohibit entry into the program. The PhD student must complete the qualifying exam no later than the end of the 2nd semester.

### D-1 Qualifying Examination Results and Doctoral Committee Approval Form

Submission of the D-1 form follows a meeting of the student's graduate committee and approval by the committee, of the student's proposal and plan of research and coursework. This form is to be submitted to the Graduate School within one month of exam completion.

### D-2 Plan of Study

The D-2 form accompanies the D-1, and is also to be submitted to the Graduate School within one month of exam completion.

## Doctoral Comprehensive Examination

The comprehensive exam is to determine if a student has acquired sufficient depth and breadth of knowledge in selected areas of concentration, and to evaluate the candidate's capacity to apply that knowledge in solving applied or theoretical problems. After successfully completing the required course work with a GPA of 3.0 (A=4.0) or better, students must pass a written and oral comprehensive examination administered by their doctoral committee. A comprehensive exam must be taken a minimum 7 months before dissertation defense.

### D-3 Doctoral Comprehensive Exam Result Form

The D-3 forms should be completed and filed with the Graduate School within one month of exam completion.

## Final Examination

The final examination is directed primarily toward exploration of the dissertation research project. An independent scholarly dissertation approved by the student's advisor and doctoral committee must be completed. Every candidate should review the Dissertation & Thesis

Guidelines from the Graduate School and should consult the Emphasis Area Coordinator for academic program style requirements.

D-4 Report of the Dissertation Defense Form

The D-4 form should be completed and filed with the Graduate School as soon as possible after the defense.

## Doctoral Committee

The committee shall be composed of a minimum of 4 members of the MU graduate faculty and will include a major adviser from the emphasis area, a second and a third reader from the School of Natural Resources, and an outside reader who is a member of the graduate faculty from a different MU graduate program. At least 2 of the committee members must be MU doctoral faculty.

## Admission Requirements

1. M.S. degree or equivalent in a relevant discipline or B.S. degree with adequate background from an accredited institution
2. Minimum GPA: 3.0 on a scale of 4.0
3. Graduate Record Exam score (GRE) is recommended in some emphasis areas but not required if an applicant demonstrates in-depth knowledge in his/her corresponding field
4. Minimum TOEFL scores: iBT 80; paper-based: 550

*Applicants will be reviewed on a case-by-case basis. Particular attention is given to the type and quality of professional experience since completion of the undergraduate degree.*

## How to Apply

1. We recommend each applicant secure potential advisers first before formal application. Information about potential adviser in all emphasis areas can be found at <https://snr.missouri.edu/graduate-studies/>
2. All application materials must be submitted to the Apply Yourself online application system.
3. Statement of interest
4. Résumé or CV
5. GRE scores (check for the emphasis area requirement)
6. TOEFL scores (if applicable)
7. Emphasis area application (if applicable)
8. A minimum of three letters of recommendation and the accompanying evaluation sheets from people who can attest to the candidate's scholastic ability and experience relevant to graduate study.
9. Publications (optional)

## Application Deadlines

1. There is no application deadline. However, to ensure eligibility for some fellowship/scholarship competition of the Graduate School, the following deadlines are recommended.
2. December 15 for the summer semester
3. January 15 for the fall semester
4. Oct. 15 for the spring semester

## Financial Aid from the Program

Check the School website (<https://snr.missouri.edu/>) or contact individual faculty for details on graduate assistantships that may be available.

## PhD in Natural Resources with Emphasis in Fisheries and Wildlife Sciences

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The PhD degree in Natural Resources in the Fisheries and Wildlife Sciences Emphasis Area is focused on resource management at organismal, population, or ecosystem scales. Our PhD degree is designed to prepare students for academic careers in research and teaching or other advanced scientific positions. Students entering the PhD program often have completed an MS degree, but this is not a requirement. An applicant contemplating graduate work in the Fisheries and Wildlife Sciences Emphasis Area (including limnology, conservation biology) should have a strong background in biological and physical sciences, including biology, botany, zoology, ecology, physiology, and genetics. In addition, such taxonomic courses as plant taxonomy, invertebrate zoology, ichthyology, ornithology, and mammalogy are highly desirable, as is a background in chemistry, mathematics, statistics, and physics.

### Degree Requirements

PhD students must complete, with a B average or better, a minimum of 72 hours of course work beyond a BS (15 hours or more at the 8000 course level, exclusive of problems, readings and research). A maximum of 30 hours of graduate credit (post-BS) from an accredited university can be transferred toward the PhD program.

Candidates are expected to design and have approved by their committee a plan of study during their first semester in residence and a dissertation proposal by their second semester. Candidates also are required to undertake a qualifying exam in their second semester, which is intended to determine course work for greater ecological understanding and pairing with research. Candidates will undertake a comprehensive exam a minimum of 6 months prior to the dissertation defense. The objectives of the comprehensive examination are to (1) determine if a student has acquired sufficient depth and breadth of knowledge in selected areas of concentration, and (2) evaluate the candidate's capacity to apply that knowledge in solving applied or theoretical problems. The comprehensive exam is comprised of development of a post-doctoral proposal or policy research paper, and an oral exam. A dissertation acceptable to the student's graduate committee shall be completed and defended in a final oral examination. All candidates must complete an initial proposal, qualifying exam, comprehensive exam and final oral examination, and deliver a final dissertation seminar before the degree is conferred.

### Application and Admission Information

Dr. Mitch Weegman  
203 Anheuser-Busch Natural Resources Building  
Columbia, MO 65211  
weegmanm@missouri.edu; (573) 882-3537

### Admission requirements

- Bachelor's degree in a relevant discipline from an accredited institution
- Undergraduate GPA\*: 3.2 on a scale of 4.0 in last 60 hours
- Minimum TOEFL scores: 550 (paper-based test), 80 (Internet-based test)

- Experience in research or management of natural resources. Practical skills are strongly considered.

\*Students whose GPAs do not meet the requirements will be evaluated individually. Applicants will be reviewed on a case-by-case basis.

We require applicants to contact Fisheries and Wildlife faculty to determine the availability of research assistantships prior to applying to the program.

All application materials must be submitted to the Apply Yourself (<https://applygrad.missouri.edu/apply/>) online application system. In addition, we require:

- A minimum of three letters of recommendation and the accompanying evaluation sheets from people who can attest to the candidate's scholastic and conservation field work abilities
- Fisheries and Wildlife Sciences emphasis area application
- Written response to 1 of 5 questions listed on the Fisheries and Wildlife Sciences Graduate Program Admissions page
- TOEFL scores (when applicable)
- Publications (optional)
- Résumé or CV

A background of 25 to 30 hours in biological sciences courses is desirable. Minor deficiencies may be remedied during the graduate program; major deficiencies may require preparatory coursework prior to consideration for admission.

## PhD in Natural Resources with Emphasis in Forestry

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The PhD in Natural Resources with an emphasis in forestry is designed to prepare students for academic careers in research and teaching or other advanced scientific or professional careers. Students entering the PhD program will often have a master's degree, but this is not an absolute requirement.

### Degree Requirements

For Ph.D. graduate students emphasizing forestry, Natural Resources Seminar (NAT\_R 9087) is the only required course in the graduate student's program of study. All Ph.D. graduate students are expected to enroll in the seminar class twice and attend graduate seminars regardless of whether they are enrolled in the seminar course. Natural Resources Ph.D. program with an emphasis on forestry expects students to take part in professional and educational activities by giving presentations at conferences and presenting seminars.

- A minimum of 72 hrs beyond the Baccalaureate degree for the PhD.
- The program must include a minimum of 15 hours of 8000 level course work, exclusive of problems, readings and research.
- A minimum of two credit hours of graduate seminar must be included in each student's graduate program.
- PhD students are required publish their research results in peer-reviewed scientific journals
- The PhD degree is conferred only upon those students who, after extensive study, have demonstrated a high level of achievement in their particular specialization in forestry and have completed significant independent research in their field.

**Students without a Forestry Undergraduate Degree**



Those without a baccalaureate degree in forestry may wish to further their education in forest science or to attain professional competence by completing course work in forestry. Work required of students without a forestry degree who want a professional forestry education includes courses in dendrology (FOREST 2151), utilization of forest resources (FOREST 2541), forest resource measurements (FOREST 4380 or FOREST 7380), forest inventory (FOREST 2542), forest ecology (FOREST 4320 or FOREST 7320), silviculture (FOREST 2544), watershed management, and (FOREST 7390). Some of these courses do not carry graduate credit.

## Contact Information

Dr. Hong S. He  
203 ABNR Bldg.  
Columbia, MO 65211  
heh@missouri.edu

## PhD in Natural Resources with Emphasis in Human Dimensions of Natural Resources

The Human Dimensions of Natural Resources Emphasis Area (HDNR) addresses research and management questions including peoples' attitudes, knowledge, values, perceptions, and behaviors associated with natural resources. As an interdisciplinary emphasis area, HDNR considers applicants with backgrounds in social sciences, environmental education, natural resources management and conservation, or related disciplines. The Ph.D. degree in HDNR is designed to prepare students for careers in academic research and teaching, or advanced scientific professions.

### Degree Requirements

All students in the HDNR Emphasis Area are required to participate in the HDNR first year seminar and to take at least one course from each of three categories:

1. Human dimensions research methods
2. Quantitative and/or qualitative data analysis
3. Social science theory

Each student's coursework requirements, including the selection of specific courses in the above categories, will be listed in the student's plan of study and approved by their graduate committee.

The HDNR doctoral program of study requires a minimum of 72 hours of graduate credit from courses taken at MU, transfer credit from a Masters or equivalent degree, and research hours. Doctoral students will be expected to follow a timeline toward completion of their degree:

1. Within one year of initial enrollment in the emphasis area, doctoral students must pass a qualifying examination. The qualifying exam will include a presentation by the student of their course of study. The course of study shall be approved by the student's graduate committee. The graduate committee may also request a demonstration of the student's research aptitude, competencies in subject matter, and communication skills.
2. Within two years of initial enrollment in the emphasis area, doctoral students must present a written proposal of their research and an oral defense of that proposal to be reviewed and approved by members of the students' doctoral committee.

3. Within three years of initial enrollment in the emphasis area, doctoral students must pass a comprehensive examination. The PhD comprehensive exam will be a written examination with questions from each of the graduate committee members followed by an oral examination. Questions in the exam will cover human dimensions research methods, quantitative and/or qualitative data analysis, social science theory, and fundamental / applied concepts related to the candidates research. The format of each set of questions will be determined by the graduate committee members. The oral portion of the comprehensive examination may be combined with the research proposal oral defense.
4. Doctoral students will submit a written dissertation following the guidelines specified by the Graduate School. All doctoral students must present a public seminar announced at least two weeks prior to the seminar date, and an oral defense of their dissertation.

### Application and Admission Information

Dr. Charles Nilon  
302 Anheuser-Busch Natural Resources Building  
Columbia, MO 65211  
nilonc@missouri.edu; (573) 882-3738

## PhD in Natural Resources with Emphasis in Soil, Environmental and Atmospheric Sciences

The PhD degree in Natural Resources with an emphasis in Soil, Environmental and Atmospheric Sciences is designed to prepare students for academic careers in research and teaching or other advanced scientific or professional careers. Students entering the PhD program will often have a master's degree, but this is not an absolute requirement.

PhD candidates conduct original research under the supervision of a faculty advisor or advisors and with the participation of a doctoral committee. Students are expected to engage in coursework to prepare for careers in research, industry or academia. The Soil, Environmental and Atmospheric Sciences program expects students to take part in professional and educational activities by giving presentations at conferences and presenting seminars. PhD candidates complete a dissertation and are expected to publish their research results in peer-reviewed scientific journals.

### Degree Requirements

- The curriculum is developed by a doctoral program committee and requires a minimum of 72 semester hours beyond the baccalaureate degree.
- A minimum of two credit hours of graduate seminar must be included in each student's graduate program.
- At least 12 credit hours of soil science courses at the 7000, 8000, and 9000 levels, exclusive of problems and thesis research, must be included in the student's graduate program in the soil science focus area.
- All students enrolled in graduate programs are required to participate in a supervised teaching activity.

### Admission Contact Information

Dr. Stephen Anderson, Graduate Emphasis Coordinator  
(andersons@missouri.edu)

302 Anheuser-Busch Natural Resources Building  
 Columbia, MO 65211 USA  
 (573) 882-6303

## PhD in Natural Resources with Emphasis in Water Resources

The Water Resources emphasis area is an interdisciplinary graduate degree program within the School of Natural Resources. It encompasses all fields of natural sciences represented in the School and, through collaboration, involves related expertise from throughout the University of Missouri and beyond. Participating faculty in the Water Resources emphasis area are engaged in both the scientific understanding of water resources (biological, chemical and physical) and its management, and the decision-making processes used to address competing societal values (social, economic and legal). The program has no geographic boundaries but the location of MU suggests most research will be directed to better understanding of water movement, biogeochemical cycling and biological processes of forested- agricultural and urban landscapes of the midcontinent. The lakes, rivers, streams, wetlands and subsurface waters of the region are prime areas for basic and applied research. One of the program's major global impacts is the training of highly qualified graduate professionals that are equipped to address many of the complex contemporary water resource problems around the world.

The Water Resources graduate emphasis area offers Ph.D. degree programs specializing in (but not limited to) the occurrence, circulation, distribution, chemical and physical properties, and environmental interaction of surface and subsurface waters, including groundwater. Specific areas of investigation could include lakes and reservoirs, floods and droughts, groundwater aquifers, water use, water quality, water contamination, plant water use, measurement methods, hydrologic modeling and international water resources.

Participating faculty in the Water Resources emphasis area are engaged in both scientific understanding of water resources (biological, chemical and physical) and its management, and the decision-making processes used to address competing societal values (social, economic and legal). The program has no geographic boundaries but benefits from a distinct midcontinent climate, and physiography. Multi-use watersheds (e.g., forest, agriculture, urban), streams, lakes, rivers, wetlands and subsurface waters are ideal areas for basic and applied research that is easily transferable to other regions. One of the program's major global impacts is the training of highly qualified graduate professionals that are equipped to address many of the complex contemporary water resource problems around the world.

Upon successful completion of the School of Natural Resources Water Resources graduate program, students will possess strong technical skills in water resources and related sub-disciplines. Graduates will have developed a holistic understanding of the hydrologic cycle related to ecosystem processes as and the interdisciplinary background necessary to understand and address contemporary water resources problems. Graduates will have an appreciation of the complex interactions of biophysical processes and tightly coupled socioeconomic interactions necessary to implement water resource policy.

### Degree Requirements

Please see the PhD in Natural Resources (p. 109) page for major program requirements in addition to the emphasis area requirements

below, including information on qualifying and comprehensive examinations.

**Must take at least 9 credit hours from the following:**

Aquatic Ecosystem Science		
F_W 8460	Wetland Ecology	3
F_W 8520	Stream Ecology	3
NAT_R 7001	Topics in Natural Resources	1-99
NAT_R 7300	Methods in Aquatic Ecology	3
NAT_R 7100	Lake Ecology	3
FOREST 7390	Watershed Management and Water Quality	3
NAT_R 8450	Advanced Limnology (offered Spring 2020)	3
Climate and Climatology		
ATM_SC 7400	Micrometeorology	3
ATM_SC 7590	Radar Meteorology	3
ATM_SC 9300	Introduction to Chaos Theory	3
ATM_SC 8400	Atmospheric General Circulation	3
ATM_SC 8600	Advanced Climate Dynamics	3
Hydrologic Science and Water Quality		
ATM_SC 7550	Physical Meteorology	3
ENV_SC 7320	Hydrologic and Water Quality Modeling	3
ENV_SC 7305	Environmental Soil Physics	3
ENV_SC 7306	Environmental Soil Physics Laboratory	2
CV_ENG 7710	Soil and Water Conservation Engineering	3
ENV_SC 8400	Solute Transport in the Vadose Zone	3
GEOL 7130	Groundwater Modeling	3
GEOL 8240	Hydrogeologic Processes	3
GEOL 7100	Groundwater Hydrology	3
Water Management Technology		
NAT_R 8290	Hydrologic Measurement and Synthesis	2
ATM_SC 7510	Remote Sensing for Meteorology and Natural Resources	3
ATM_SC 7590	Radar Meteorology	3
ATM_SC 9590	Advanced Applications of Weather Radar	3
Elective Courses		
AG_S_M 7420	Surface Water Management	3
AG_S_M 7440	Water Quality and Pollution Control	3
AG_S_M 7460	Irrigation and Drainage	3
CV_ENG 7230	Introduction to Water Quality	3
CV_ENG 7240	Water Quality Analysis	3
CV_ENG 7290	Wastewater Treatment and Process Design	3
CV_ENG 7700	Hydraulics of Open Channels	3
CV_ENG 8200	Water Quality Modeling	3
CV_ENG 8215	Environmental Transport Phenomena	3
CV_ENG 8225	Aquatic Chemistry	3
CV_ENG 8270	Design of Water and Wastewater Treatment Facilities	3
GEOL 7300	Introduction to Low-Temperature Geochemistry	3
GEOL 7500	Organic Geochemistry	3

### Admissions

Water Resources program applicants must meet the general requirements set forth by the University of Missouri Office of Graduate

School for the Ph.D. degree, and meet any additional application criteria of the Water Resources graduate emphasis area. Students often self-fund, apply for teaching assistantships, or are supported by grant-funded research assistantships. Other opportunities may be available to eligible students. Applicants should contact specific faculty to determine the availability of position(s) in the potential advisor's research program and assistantships or scholarships prior to applying. If encouraged to apply by Water Resources faculty, please apply through the University of Missouri's online application program.

## Director of Graduate Studies:

Rebecca North, Ph.D.  
Assistant Professor of Water Quality  
School of Natural Resources  
University of Missouri  
303L Anheuser-Busch Natural Resources Building  
Columbia, MO, 65211-7220  
(573)-882-2832

## Parks, Recreation and Sport

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Jennifer Wentz, Program Coordinator  
School of Natural Resources  
105 Anheuser-Busch Natural Resources Building  
Phone: (573) 882-7086  
UpahJ@missouri.edu  
<https://cafmr.missouri.edu/degrees-and-programs/parks-rec-sport/>

The School of Natural Resources offers a BS in Parks, Recreation and Sport. The program is among the oldest nationally accredited programs in the United States. Emphasis areas include: Recreation Administration, Natural Resource Recreation Management, Tourism Development, and Sport Management. The program integrates classroom learning with applied research and internship experiences and is a leader in technology infusion.

All students in Parks, Recreation and Sport are required to complete a capstone internship, taken during the last year of study after all courses are completed. The semester-long internship, worth 12 credit hours, is with an on or off-campus agency or organization chosen by the student and approved by the instructor. Regional, national and international internship placements are possible. Students may receive direct financial assistance from the agency or organization during the internship. Internships outside the state of Missouri require a 2.5 GPA.

## School of Natural Resources

The School of Natural Resources is one of six Divisions in the College of Agriculture, Food and Natural Resources. It is Missouri's and the Midwest's only school with comprehensive academic and research programs focused on biological, physical, and social aspects of natural resources science and management. The School applies an integrated, scientific approach to develop sustainable solutions to environmental challenges and to train the next generation of natural resources and recreation professionals and leaders. This integrated approach results in creative course offerings, enhanced educational opportunities, stimulation of novel research, advanced understanding of natural systems, and expanded knowledge and management of human interactions with the environment. The School is housed in the Anheuser-Busch Natural Resources Building containing state-of-the-art teaching, research and outreach extension facilities.

Patrick Market, Interim Director  
The School of Natural Resources  
103 Anheuser-Busch Natural Resources Building

Sonja Wilhelm Stanis, Interim Associate Director  
The School of Natural Resources  
124 Anheuser-Busch Natural Resources Building

Business Office: (573) 882-6446  
Academic Programs Office: (573) 882-7045  
SNR@missouri.edu

## Faculty

**Associate Professor** M. Morgan\*\*, S. A. Wilhelm-Stanis\*\*  
**Assistant Professor** J. Li\*, S. Xu\*  
**Assistant Teaching Professor** D. Massengale, J. R. Upah\*,  
**Director of Internships** J. R. Upah\*  
**Instructor** K. Whisenhunt, J. Young

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BS in Parks, Recreation and Sport (p. 115)
  - with emphasis in Natural Resource Recreation Management (p. 116)
  - with emphasis in Recreation Administration (p. 117)
  - with emphasis in Sport Management (p. 117)
  - with emphasis in Tourism Development (p. 118)

Students pursuing a degree in Parks, Recreation and Sport have a selection of four emphasis areas with the option of obtaining a dual emphasis. The Natural Resources Recreation Management emphasis focuses on the combination of natural and social sciences, and the management of people and natural resources in parks, forests, refuges, and reservoirs. The Recreation Administration emphasis prepares students to work within a wide variety of public and private entities to oversee management, events, operations, and finance. The Sport Management emphasis is designed to provide students with the professional preparation, managerial skills, and leadership training required for an array of careers in the sport industry. The Tourism Development emphasis focuses on planning and management associated with tourism venues, enterprises and events.

## Graduate

School of Natural Resources  
105 Anheuser-Busch Natural Resources Building  
(573) 882-7086

Parks, Recreation and Tourism's graduate program is housed under the MS in Natural Resources with emphasis in Parks, Recreation and Tourism (p. 107). Please visit their page for more information.

**Emphasis Area Coordinator:** Dr. Mark Morgan

## About Parks, Recreation & Tourism

Since virtually everyone participates in some form of leisure, the primary benefit of Parks, Recreation and Tourism (PRT) is to address quality of life issues. The unique interaction of people, places, and activities establish our profession as one of the world's largest industries. Students learn how to manage service delivery systems by combining theory with practice.

## Career Preparation

The purpose of graduate study is to promote research and scholarship as the foundation of professional excellence, thus preparing candidates for management-level positions or admission to doctoral programs.

## BS in Parks, Recreation and Sport

### Degree Program Description

The field of parks, recreation and sport is a multi-billion dollar industry, which encompasses important environmental and social issues such as conservation, community building, human development, health and well-being, and the quality of life. The Parks, Recreation and Sport program provides students with opportunities to develop knowledge and skills for designing, managing, and evaluating various leisure services across a variety of user groups. The undergraduate degree program is comprehensive, yet tailored to meet the needs of students based on current job requirements and professional trends including leadership, communication, problem solving, accounting, and economics. All of our areas of emphasis are accredited with eligibility to sit for the Certified Park and Recreation Professional certification. A wide range of careers in Parks, Recreation and Sport include: outdoor education, park management, park ranger, resource manager, back country guide, visitor relations, recreation supervisors, facility managers, health and fitness, golf course management, park planner, cultural arts, aquatics, account executives, customer relations, game-day operations, compliance, fund raising, sales, and marketing.

### Major Program Requirements

Students earning a Bachelor of Science in Parks, Recreation and Sport are required to complete all University general education (p. 36), University graduation, (p. 35) and degree requirements, including selected foundational courses which fulfill University general education requirements.

Students majoring in Parks, Recreation and Sport may select one of the following emphasis areas:

- Natural Resources Recreation Management (p. 116)
- Recreation Administration (p. 117)
- Sport Management (p. 117)
- Tourism Development (p. 118)

A student may complete the B.S. in Parks, Recreation and Sport without selecting a specific emphasis area by completing an additional 27 credit hours beyond the major requirements (including 18 credit hours of PRST designated courses). A student may also earn a second emphasis by using the emphasis core requirements of one towards professional electives in the other (see emphasis area pages for additional details).

Students in Parks, Recreation and Sport are required to earn a C- or better in all Parks, Recreation and Sport core, internship, and emphasis area courses.

Students are admissible to transfer into this program with a 2.0 term GPA and 2.0 cumulative GPA. You are directly admissible into the program when you meet the University admissions requirements.

If you are planning to transfer courses (including AP credit) and would like to information on how they apply to a degree program(s), you can email CAFNRadvising@missouri.edu for general recommendations.

<b>Foundational Courses</b>		<b>15</b>
MATH 1050	Quantitative Reasoning	3
or MATH 1100	College Algebra	
STAT 1200	Introductory Statistical Reasoning	3
or STAT 2500	Introduction to Probability and Statistics I	
or ESC_PS 4170	Introduction to Applied Statistics	
PSYCH 1000	General Psychology	3
RU_SOC 1000	Rural Sociology	3
or SOCIOL 1000	Introduction to Sociology	
AGSC_COM 2220	Verbal Communication in Agriculture, Food and Natural Resources	3
or COMMUN 1200	Public Speaking	
<b>Parks, Recreation and Sport Core (minimum grade of C- in PRST core)</b>		<b>26</b>
PRST 1010	The American Leisure Experience	3
PRST 1011	Academic Planning and Career Orientation in Parks, Recreation and Tourism	1
PRST 2281	Business of Sport and Recreation	3
PRST 2750	Methods in Research and Evaluation	3
PRST 3210W	Personnel Management and Leadership - Writing Intensive	3
PRST 3215	Program and Event Development	4
PRST 4100	Ethics and Diversity	3
PRST 4150	Contemporary Issues in Sport	3
or PRST 4250	Parks, Health and Wellness	
PRST 4208	Administration and Organizational Behavior	3
<b>Internship (minimum grade of C- in internship courses)</b>		<b>13</b>
PRST 3189	Pre-Internship and Career Development Seminar	1
PRST 4940	Parks, Recreation, Sport and Tourism Internship	12
<b>Business and Communication Core</b>		<b>15-16</b>
ABM 1041	Applied Microeconomics	3
or ECONOM 1014	Principles of Microeconomics	
or ECONOM 1051H	General Economics - Honors	
ABM 2183	The Agricultural Marketing System	3
or ABM 3224	New Products Marketing	
or MRKTNG 3000	Principles of Marketing	
ACCTCY 2010	Introduction to Accounting	3
or ACCTCY 2026	Accounting I	
or ACCTCY 2036	Accounting I	
or ACCTCY 2136H	Honors Accounting I	
AGSC_COM 3240	Communicating on the Web	3
or COMMUN 2100	Media Communication in Society	
or ENGLISH 2030	Professional Writing	

or SOCIOL 2310	Culture and Mass Media	
or THEATR 1400	Acting for Non-Majors	
H_D_FS 2400	Principles of Human Development	3-4
or H_D_FS 2400W	Principles of Human Development - Writing Intensive	
or H_D_FS 2400H	Principles of Human Development - Honors	
<b>Emphasis Area Requirements (minimum grade of C- in emphasis courses)</b>		<b>27</b>

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
ENGLISH 1000		3 MATH 1050 or 1100	3
AGSC_COM 2220 or COMMUN 1200		3 ABM 1041 or ECONOM 1014	3
PRST 1010		3 RU_SOC 1000 or SOCIOL 1000	3
PRST 1011		1 Humanities & Fine Arts	3
Humanities & Fine Arts		3 Missouri State Law Requirement	3
Biological, Physical, or Mathematical Science		3	
		16	15
Second Year			
Fall	CR	Spring	CR
PSYCH 1000		3 ACCTCY 2010, 2026, 2036, or 2136H	3
STAT 1200, 2500, or ESC_PS 4170		3 PRST 2750	3
AGSC_COM 3240, COMMUN 2100, ENGLISH 2030, SOCIOL 2310, or THEATR 1400		3 ABM 2183, 3224, or MRKTNG 3000	3
PRST 2281		3 Professional Elective	3
Biological or Physical Science with Lab		3-4 Emphasis Area Course	3
		15-16	15
Third Year			
Fall	CR	Spring	CR
H_D_FS 2400 or 2400W		3-4 PRST 3215	4
PRST 4100		3 Emphasis Area Course	3
PRST 4150 or 4250		3 Professional Elective	3
Emphasis Area Course		3 General Elective	3
Professional Elective		3 Biological, Physical, or Mathematical Science	3
		15-16	16
Fourth Year			
Fall	CR	Spring	CR
PRST 4208		3 PRST 4940	12
PRST 3210W		3	
PRST 3189		1	
Emphasis Area Course		3	
Professional Elective		3	
Professional Elective		3	
		16	12

Total Credits: 120-122

## BS in Parks, Recreation and Sport with Emphasis in Natural Resource Recreation Management

### Degree Program Description

The public's desire for quality of life, the pursuit of happiness and for well organized leisure activities drives a \$600 billion marketplace supporting parks and recreation, more than \$152 billion in sport management, and a \$1.3 trillion investment in tourism. Students interested in Parks Recreation and Sport are individuals who are active, involved in sports and the great outdoors, and enjoy travel. The BS in Parks, Recreation & Sport with an emphasis in Natural Resource Recreation Management focuses on the combination of natural and social sciences, and the management of people and natural resources in parks, forests, refuges, and reservoirs. Areas of study include outdoor recreation, methods of interpretation, and land management. Professionals in natural resource recreation management hold integral roles in operations, visitor management, protection and administration of our federal, state, and local outdoor recreation resources. Outdoor and natural resource recreation managers are employed by local, state, and federal agencies such as state and federal park systems. Responsibilities include managing natural and cultural resources, providing information and education, park operations, planning and design, and outdoor programming. Possible careers include ranger, education/outreach, naturalist, outdoor skills specialist, landscape maintenance, program supervisor, and grants/contract administrator.

### Major Program Requirements

In addition to completing major program requirements (<http://catalog.missouri.edu/undergraduategraduate/collegeofagriculturefoodandnaturalresources/parksrecreationandsport/bs-parks-recreation-sport/>), students must complete the following additional emphasis area requirements:

### Natural Resource Recreation Management Emphasis Area Coursework

Emphasis Area Requirements (minimum grade of C-)		
NAT_R 1070	Ecology and Renewable Resource Management	3
PRST 3230	Outdoor Recreation Policy	3
PRST 3231	Interpretation of Natural and Cultural Resources	3
or NAT_R 4024	Foundations of Environmental Education	
PRST 4340	Recreation Land Management	3
<b>Professional Electives</b>		<b>15</b>

Advisor approved courses specific to the student's selected emphasis. At least 6 credits must have a PRST designator. These professional electives can be used towards a second emphasis.

Total Credits 27

# BS in Parks, Recreation and Sport with Emphasis in Recreation Administration

## Degree Program Description

The public's desire for quality of life, the pursuit of happiness and for well organized leisure activities drives a \$600 billion marketplace supporting parks and recreation, more than \$152 billion in sport management, and a \$1.3 trillion investment in tourism. Students interested in Parks, Recreation and Sport are individuals who are active, involved in sports, the great outdoors, and enjoy travel. The BS in Parks, Recreation & Sport with emphasis in Recreation Administration focuses on quality of life issues within our local and global communities. Areas of study include personnel management and leadership, recreation for individuals with disabilities, program development, and park management. Recreation administrators are engaged in a variety of public and private entities including parks and recreation systems, sports complexes, golf courses, resorts, recreation centers, aquatic theme parks and pools, and campus recreation facilities. They are responsible for management and operations, including fiscal responsibility. Careers include aquatics and facility manager, recreation specialists, camp management, adventure recreation, campus recreation, community and recreation complex manager, and golf course superintendent.

## Major Program Requirements

In addition to completing major program requirements (p. 115), students must complete the following additional emphasis area requirements:

### Recreation Administration Emphasis Area Coursework

Emphasis Area Requirements (minimum grade of C-)		
PRST 2111	Park Planning and Design	3
PRST 2355	Private and Commercial Recreation Principles and Practice	3
PRST 3220	Introduction to Recreation for Individuals with Disabilities	3
PRST 4333	Park and Sport Facility Operations	3
<b>Professional Electives</b>		<b>15</b>
Advisor approved courses specific to the student's selected emphasis. At least 6 credits must have a PRST designator. These professional electives can be used towards a second emphasis.		
Total Credits		27

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
ENGLISH 1000		3 MATH 1050 or 1100	3
AGSC_COM 2220 or COMMUN 1200		3 ABM 1041 or ECONOM 1014	3
PRST 1010		3 RU_SOC 1000 or SOCIOL 1000	3
PRST 1011		1 Humanities & Fine Arts	3
Humanities & Fine Arts		3 Missouri State Law Requirement	3

Biological, Physical, or Mathematical Science		3		
		16	15	
Second Year				
Fall	CR	Spring	CR	
PSYCH 1000		3 ACCTCY 2010, 2026, 2036, or 2136H		3
STAT 1200, 2500, or ESC_PS 4170		3 PRST 2750		3
AGSC_COM 3240, COMMUN 2100, ENGLISH 2030, SOCIOL 2310, or THEATR 1400		3 ABM 2183, 3224, or MRKTNG 3000		3
PRST 2281		3 Professional Elective		3
Biological or Physical Science with Lab		3-4 Emphasis Area Course		3
		15-16	15	
Third Year				
Fall	CR	Spring	CR	
H_D_FS 2400 or 2400W		3-4 PRST 3215		4
PRST 4100		3 Emphasis Area Course		3
PRST 4150 or 4250		3 Professional Elective		3
Emphasis Area Course		3 General Elective		3
Professional Elective		3 Biological, Physical, and Mathematical Science		3
		15-16	16	
Fourth Year				
Fall	CR	Spring	CR	
PRST 4208		3 PRST 4940		12
PRST 3210W		3		
PRST 3189		1		
Emphasis Area Course		3		
Professional Elective		3		
Professional Elective		3		
		16	12	

Total Credits: 120-122

# BS in Parks, Recreation and Sport with Emphasis in Sport Management

## Degree Program Description

The public's desire for quality of life, the pursuit of happiness and for well organized leisure activities drives a \$600 billion marketplace supporting parks, recreation, more than \$152 billion in sport management, and a \$1.3 trillion investment in tourism. Students interested in Parks Recreation and Sport are individuals who are active, involved in sports, the great outdoors, and enjoy travel. The BS in Parks, Recreation & Sport with an emphasis in Sport Management specializes in the business aspects of sport and recreation. Areas of study include governance and policy in sport and leisure, sport economics and finance, business of sport, and legal aspects of sport. In Sport Management, economics drive a wide variety of opportunities including professional and collegiate sport, professional management, sporting goods, media, administration and finance. Sport managers are hired by professional sport team's organizations and associations as well as collegiate athletics, sport facilities, in addition to positions in sporting goods, media, administration,

and finance. Possible careers include sport brand manager, marketing manager, athletic director, sport agent, media relations director, and ticket sales representative. This emphasis is preparatory for post-baccalaureate and graduate work in law, business, or sport.

## Major Program Requirements

In addition to completing major program requirements (p. 115), students must complete the following additional emphasis area requirements:

### Sport Management Emphasis Area Coursework

#### Emphasis Area Requirements (minimum grade of C-)

PRST 2010	Foundations of Sport	3
PRST 2080	Global Sport Environments	3
PRST 3282	Governance and Policy in Sport and Leisure	3
PRST 4385	Legal Aspects of Sport	3

#### Professional Electives 15

Advisor approved courses specific to the student's selected emphasis. At least 6 credits must have a PRST designator. These professional electives can be used towards a second emphasis.

Total Credits 27

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
ENGLSH 1000		3 MATH 1050 or 1100	3
AGSC_COM 2220 or COMMUN 1200		3 ABM 1041 or ECONOM 1014	3
PRST 1010		3 RU_SOC 1000 or SOCIOL 1000	3
PRST 1011		1 Humanities & Fine Arts	3
Humanities & Fine Arts		3 Missouri State Law Requirement	3
Biological, Physical, or Mathematical Science		3	
		16	15

Second Year			
Fall	CR	Spring	CR
PSYCH 1000		3 ACCTCY 2010, 2026, 2036, or 2136H	3
STAT 1200, 2500, or ESC_PS 4170		3 PRST 2750	3
AGSC_COM 3240, COMMUN 2100, ENGLSH 2030, SOCIOL 2310, or THEATR 1400		3 ABM 2183, 3224, or MRKTNG 3000	3
PRST 2281		3 Professional Elective	3
Biological or Physical Science with Lab		3-4 Emphasis Area Course	3
		15-16	15

Third Year			
Fall	CR	Spring	CR
H_D_FS 2400 or 2400W		3-4 PRST 3215	4
PRST 4100		3 Emphasis Area Course	3
PRST 4150 or 4250		3 Professional Elective	3
Emphasis Area Course		3 General Elective	3

Professional Elective	3 Biological, Physical, or Mathematical Science	3
		15-16
		16

Fourth Year			
Fall	CR	Spring	CR
PRST 4208		3 PRST 4940	12
PRST 3210W		3	
PRST 3189		1	
Emphasis Area Course		3	
Professional Elective		3	
Professional Elective		3	
		16	12

Total Credits: 120-122

## BS in Parks, Recreation and Sport with Emphasis in Tourism Development

### Degree Program Description

The public's desire for quality of life, the pursuit of happiness, and for well organized leisure activities drives a \$600 billion marketplace supporting parks and recreation, more than \$152 billion in sport management, and a \$1.3 trillion investment in tourism. Students interested in Parks, Recreation and Sport are individuals who are active, involved in sports, the great outdoors, and enjoy travel. The BS in Parks, Recreation & Sport with emphasis in Tourism Development offers students 12-week hands-on training in the area of interest. Students gain experience through coursework and internships. Tourism development, marketing and event specialists grow in careers associated with tourism venues and enterprises; resorts; local, state and regional economic development agencies; and visitor and convention services. They are responsible for promoting their clients throughout the broadly defined tourism industry. This includes organizing promotional and profitable events for venues and communities, developing public relations materials or establishing relationships with various local interest groups.

## Major Program Requirements

### Emphasis Area Requirements

In addition to completing major program requirements, students must complete the following additional requirements:

### Tourism Development Emphasis Area Coursework

#### Emphasis Area Requirements (minimum grade of C-)

PRST 2060	Tourism Management	3
PRST 4357	Domestic and International Tourism: Resources, Market, and Impacts	3
PRST 4260	Sustainable Tourism	3
HSP_MGMT 4110	Hospitality and Tourism Marketing	3

#### Professional Electives 15

Advisor approved courses specific to the student's selected emphasis. At least 6 credits must have a PRST designator. These professional electives can be used towards a second emphasis.

Total Credits 27

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
ENGLISH 1000		3 MATH 1050 or 1100	3
AGSC_COM 2220 or COMMUN 1200		3 ABM 1041 or ECONOM 1014	3
PRST 1010		3 RU_SOC 1000 or SOCIOL 1000	3
PRST 1011		1 Humanities & Fine Arts	3
Humanities & Fine Arts		3 Missouri State Law Requirement	3
Biological, Physical, or Mathematical Science		3	
			15
<hr/>			
Second Year			
Fall	CR	Spring	CR
PSYCH 1000		3 ACCTCY 2010, 2026, 2036, or 2136H	3
STAT 1200, 2500, or ESC_PS 4170		3 PRST 2750	3
AGSC_COM 3240, COMMUN 2100, ENGLISH 2030, SOCIOL 2310, or THEATR 1400		3 ABM 2183, 3224, or MRKTNG 3000	3
PRST 2281		3 Professional Elective	3
Biological or Physical Science with Lab		3-4 Emphasis Area Course	3
			15
<hr/>			
Third Year			
Fall	CR	Spring	CR
H_D_FS 2400 or 2400W		3-4 PRST 3215	4
PRST 4100		3 Emphasis Area Course	3
PRST 4150 or 4250		3 Professional Elective	3
Emphasis Area Course		3 Biological, Physical, or Mathematical Science	3
Professional Elective		3 General Elective	3
			16
<hr/>			
Fourth Year			
Fall	CR	Spring	CR
PRST 4208		3 PRST 4940	12
PRST 3210W		3	
PRST 3189		1	
Emphasis Area Course		3	
Professional Elective		3	
Professional Elective		3	
			12

Total Credits: 120-122

## Plant Sciences

Division of Plant Sciences  
 College of Agriculture, Food and Natural Resources  
 52 Agriculture Laboratory  
 (573) 882-3001  
 Fax: (573) 882-2699

Interim Division Director: Bruce Barrett

The Division of Plant Sciences is a consolidation of the disciplines of Agronomy, Entomology, Horticulture, Plant Microbiology and Pathology. Containing both a vibrant and diversified undergraduate and graduate education program, students completing B.S., M.S. or Ph.D. programs are highly competitive for the strong job market in basic or applied careers. In addition to education, the Division of Plant Sciences also provides leadership for plant, insect and microbe-based research, education and Extension programs in the college.

The division is the sole academic program in the state to address issues related to plant production, plant protection and plant biology from the laboratory to the field. We intend to be at the national and international forefront of disciplinary and interdisciplinary research, Extension and education in applied and basic aspects of plant sciences.

Division faculty contribute to advances in conventional, sustainable and alternative production systems, plant biology, genetics and breeding, plant protection and pest management, plant-insect/pathogen interactions, and plant-soil relationships.

## Faculty

**Professors** B. A. Barrett\*\*, K. W. Bradley\*\*, F. B. Fritschi\*\*, W. Gassmann\*\*, R. L. Kallenbach\*\*, B. Meyers\*, R. Mittler\*, K. A. Nelson\*\*, C. Roberts\*\*, C. P. Scharf\*, J. E. Schoelz\*\*, R. E. Sharp\*\*, R. W. Sites\*\*, R. J. Smeda\*\*, Q. Song\*\*, M. R. Warmund\*\*, B. Yang  
**Curators' Professors** H. T. Nguyen\*\*, G. Stacey\*\*  
**Endowed Professors** P. Chen\*\*  
**Associate Professors** C. Elsik\*\*, D. Finke\*\*, D. Mendoza-Cozatl\*\*, G. L. Miller\*\*, H. Naumann\*, X. Xiong\*\*  
**Assistant Professors** K. Rice\*, A. Scaboo\*\*  
**Distinguished Research Professor** J. Boyer\*  
**Assistant Research Professors** M. Hall\*, M. Stacey\*, A. Thomas\*  
**Extension Professors** W. E. Stevens\*  
**Associate Extension Professors** J. A. Lory\*, M. Nathan\*  
**Assistant Extension Professors** K. Bissonnette\*, D. Volenberg  
**Assistant Teaching Professor** M. A. Gowdy\*, C. Spinka  
**Adjunct Professors** S. H. Anderson\*, P. R. Arelli, B. Beernsten\*, P. Beuselink, K. D. Bilyeu\*\*, J. P. Gustafson\*, B. E. Hibbard\*\*, J. C. Hong, L. G. Kovacs\*\*, R. J. Kremer\*, H. B. Krishnan\*, M. D. McMullen\*\*, P. Motavalli\*, M. J. Oliver\*\*, W. Qiu\*\*, D. Schachtman, D. Stanley\*, J. Weirich  
**Adjunct Associate Professors** D. M. Burner\*, T. A. Coudron\*\*, S. Flint-Garcia\*\*, J. Gillman\*, C. F. Hwang\*\*, N. R. Kitchen\*\*, A. H. McIntosh\*, R. L. Myers, D. H. Trinklein\*, O. Yu, R. Zhang  
**Adjunct Assistant Professors** I. Baxter, J. Benne, M. Kwasniewski, K. S. Shelby\*, T.L. Slewinski, C. Topp, P. L. Vincent\*  
**Adjunct Associate Professor Emeritus** M. A. Schaeffer  
**Research Associate Professor Emeritus** J. Bruhn  
**Professor Emeritus** S. C. Anand, D. G. Blevins\*, G. M. Chippendale, E. H. Coe\*, M. Collins\*, J. T. English\*\*, R. D. Hall\*, A. Keaster, M. J. Linit\*, J. D. Mihail\*\*, G. Neuffer, T. L. Payne\*, J. C. Schultz\*\*, D. A. Slepser\*, W. J. Wiebold\*\*, J. A. Wrather\*  
**Associate Professor Emeritus** W. C. Bailey\*\*, A. L. McKendry\*\*, C. Starbuck\*  
**Assistant Professor Emeritus** B. Puttler  
**Curators' Professor Emeritus** C. J. Nelson\*  
**Endowed Professor Emeritus** J. G. Shannon\*\*



- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BS in Plant Sciences (p. 120)
  - with emphasis in Breeding, Biology and Biotechnology (p. 121)
  - with emphasis in Crop Management (p. 122)
  - with emphasis in Horticultural Science and Design (p. 123)
- Minor in Plant Sciences (p. 124)

Director for Undergraduate Programs  
 Deborah Finke  
 3-22 C Agriculture Building  
 (573) 884-5125  
 Fax: (573) 882-1469  
 FinkeD@missouri.edu

The Plant Sciences undergraduate major is a joint contribution of the disciplines of Agronomy, Entomology, Horticulture and Plant Microbiology and Pathology. From the manipulation of genes to increasing crop productivity to improving the quality of life by enhancing the landscape, plant science students are engaged in the science and art of working with plants. Educational opportunities in plant science range from basic (genetics, biotechnology and physiology) to applied (crop production and protection, and landscape design).

The division offers the BS degree with a major in Plant Sciences. Students in plant science initially receive a broad education in agriculture, the basic sciences and business. Later, they elect to enroll in a specific emphasis area designed to empower them to be competitive in career opportunities in that area. The emphasis areas are a series of interwoven courses in:

- Crop Management
- Horticultural Science and Design
- Breeding, Biology and Biotechnology

## Graduate

- MS in Plant, Insect and Microbial Sciences (p. 124)
- PhD in Plant, Insect and Microbial Sciences (p. 126)

Division of Plant Sciences  
 52 Agriculture Laboratory  
 (573) 882-3001  
<https://plantsciences.missouri.edu/graduate/> (<http://plantsci.missouri.edu/graduate/>)

**Director of Graduate Studies:** David Mendoza Cozatl

The Division of Plant Sciences offers graduate programs leading to master of science and doctor of philosophy degrees in Plant, Insect and Microbial Sciences. A student can select training from a wide range of courses and research programs to prepare for a career in research, teaching, industry and extension work.

The Division of Plant Sciences maintains excellent graduate programs with classroom instruction and research supervision provided by leading scientists in the field. A student can select training in one of several

Graduate Program Areas. Students can follow a traditional curriculum or take advantage of the cross-disciplinary expertise that exists within the Division.

## Programmatic Interactions

Students also benefit from interaction with closely allied academic units on and off campus. Students work with scientists in two campus-based USDA research units associated with the division: the Plant Genetics Unit and the Biological Control of Insects Research Laboratory. Additional opportunities exist for interaction with scientists at the Donald Danforth Plant Science Center in St. Louis. Numerous USDA and Danforth Center scientists hold adjunct appointments in the DPS. Students in the DPS are encouraged to interact with interdisciplinary programs on campus such as the Interdisciplinary Plant Group, the Molecular Biology Program, the Genetics Area Program, the Center for Agroforestry and the Missouri Precision Agriculture Center.

## Areas of Study

A student can select training from a wide range of courses and research programs to prepare for a career in research, teaching, industry and extension work. Students may complete their graduate degrees through any of the Graduate Program Areas:

- Crop, Soil and Pest Management
- Entomology
- Horticulture
- Plant Breeding, Genetics and Genomics
- Plant Stress Biology

## BS in Plant Sciences

### Degree Program Description

From the food on our plates to the homes we live in to the fuel in our vehicles, plants impact all aspects of our daily lives. As an ever-growing human population continues to increase the demand for crops and other plant products, so too does the demand for plant scientists. Plant Sciences addresses the challenges from the field to the laboratory. Students enroll in a generalized core curriculum, then further refine their expertise by choosing among a variety of emphasis areas including: Breeding, Biology & Biotechnology; Crop Management; and Horticultural Science and Design. A few of the plant sciences careers include crop management specialists, horticulturists, plant geneticists, biotechnologists, plant protection specialists, and turfgrass scientists.

### Major Program Requirements

Students earning a Bachelor of Science in Plant Sciences are required to complete all University general education (p. 36), University graduation (p. 35), and degree requirements, including selected foundational courses, which may fulfill some University general education requirements. Students earning a degree in Plant Sciences must select at least one emphasis area (p. 120).

If you are planning to transfer courses (including AP credit) and would like to information on how they apply to this degree, you can email [CAFNRadvising@missouri.edu](mailto:CAFNRadvising@missouri.edu) for general recommendations.

#### Foundational Courses

MATH 1100	College Algebra	3
BIO_SC 1200	General Botany with Laboratory	5

CHEM 1100 or CHEM 1320	Atoms and Molecules with Lab College Chemistry I	3
SOIL 2100	Introduction to Soils	3
SOIL 2106	Soil Science Laboratory	2
ABM 1041 or ABM 1042 or ECONOM 1014 or ECONOM 1015	Applied Microeconomics Applied Macroeconomics Principles of Microeconomics Principles of Macroeconomics	3
AGSC_COM 2220 or COMMUN 1200	Verbal Communication in Agriculture, Food and Natural Resources Public Speaking	3

**Major Requirements**

**General**

PLNT_S 1120	Career Development	1
PLNT_S 2125	Plant Structure and Function	3
PLNT_S 3230W	Plant Propagation - Writing Intensive	3
PLNT_S 4500	Biology and Pathogenesis of Plant-Associated Microbes	4
PLNT_S 3210	Principles of Weed Science	4
PLNT_S 3710	Introductory Entomology	3

**Professional Development (Select One)**

AG_ED_LD 2250 or AG_ED_LD 2260 or ENGLSH 2030 or AGSC_COM 3210 or AGSC_COM 3240	Introduction to Leadership Team and Organizational Leadership Professional Writing Fundamentals of Communications Communicating on the Web	3
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Select one course (3 credit hours) from ACCTCY, ABM, ECONOM, FINANC, MANGMT, MRKTNG, or FINPLN

**Emphasis Requirements**

The BS in Plant Sciences consists of three emphasis areas: Breeding, Biology & Biotechnology; Crop Management; and Horticultural Science & Design. Each emphasis area has a list of required classes and electives in addition to Major Requirements.

**Capstone Experience (select one):**

PLNT_S 4940 or PLNT_S 4950 or PLNT_S 4975	Internship in Plant Science Undergraduate Research in Plant Science Advanced Landscape Design	3
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\*PLNT\_S 4975 is for Horticultural Science & Design students only

**Total Credit Hours Required 120**

For additional course options see General Education List at <http://generaleducation.missouri.edu/Courses> (<http://generaleducation.missouri.edu/courses/>) eligible must include an "HFA" in appropriate column.

**Semester Plan**

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
ABM 1041		3 MATH 1100	3
ENGLSH 1000		3 AGSC_COM 2220	3
BIO_SC 1200		5 HIST 1200	3
PLNT_S 1120		1 AG_ED_LD 2260	3
Humanities Elective		3 Elective	3
		15	15

Second Year			
Fall	CR	Spring	CR
CHEM 1320		4 PLNT_S 2100	3
Emphasis Area courses		12 SOIL 2106 PLNT_S 2125 Emphasis Area courses	2 3 6
		16	14

Third Year			
Fall	CR	Spring	CR
PLNT_S 3230		3 AN_SCI 3213	3
PLNT_S 3210		4 PLNT_S 3710	3
Elective		3 Writing Intensive course	3
Emphasis Area courses		6 Professional Development course Emphasis Area courses	3 3
		16	15

Fourth Year			
Fall	CR	Spring	CR
PLNT_S 4500		4 Emphasis Area courses	9
Senior Capstone		3 Electives	6
Emphasis Area courses		7	
		14	15

Total Credits: 120

## BS in Plant Sciences with Emphasis in Breeding, Biology and Biotechnology

### Degree Program Description

From the food on our plates to the homes we live in to the fuel in our vehicles, plants impact all aspects of our daily lives. As an ever-growing human population continues to increase the demand for crops and other plant products, so too does the demand for plant scientists. Plant Sciences addresses the challenges from the field to the laboratory. Students enroll in a generalized core curriculum, then further refine their expertise in the Breeding, Biology & Biotechnology emphasis area. Plants are an integral component of the food, fiber, and medicinal components necessary to meet current and future population demands. Manipulation of plants at the cellular level can improve yields, pest resistance, and enhance nutritional value. Students in this emphasis area will gain classroom and real world experience (research opportunities in labs; internships with industry partners) to prepare for challenging careers or advanced education. From commercial plant breeders to lab managers, trained students are in high demand for rewarding opportunities.

### Major Program Requirements

Students are required to completed the BS in Plant Sciences (p. 120) major program requirements in addition to the emphasis area requirements.

### Emphasis Area Requirements

Manipulation of plants at the cellular and genetic level can lead to improvements in crop performance and resistance to pests, as well as

increase plant users. Job opportunities from the laboratory to the field are widespread in seed and chemical industries around the world.

**Breeding, Biology and Biotechnology Emphasis Area Requirements**

ABM 2225	Statistical Analysis	3
CHEM 1320	College Chemistry I	4
AN_SCI 3213	Genetics of Agricultural Plants and Animals	3
or BIO_SC 2200	General Genetics	
PLNT_S 3225	Plant Breeding and Genetics	3
PLNT_S 4315	Crop Physiology	3
or PLNT_S 4320	Molecular Plant Physiology	
PLNT_S 4325	Advanced Plant Breeding	3
<b>Select three:</b>		
BIOCHM 3630	General Biochemistry	3
BIO_SC 2300	Introduction to Cell Biology	4
BIO_SC 3210	Plant Systematics	4
CHEM 2100	Organic Chemistry I	3
NAT_R 3110	Natural Resource Biometrics	3
PLNT_S 3275	Grain Crops	3
PLNT_S 4313	Soil Fertility and Plant Nutrition	3
PLNT_S 4400	Plant Anatomy	4
PLNT_S 4550	Plant Biotechnology	4
<b>Total</b>		<b>27-29</b>

**Semester Plan**

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
ENGLISH 1000		3 MATH 1100	3
ABM 1041		3 HIST 1200	3
BIO_SC 1200		5 CHEM 1320	4
Humanities		3 Elective	5
PLNT_S 1120		1	
	15		15

Second Year			
Fall	CR	Spring	CR
CHEM 2100		3 SOIL 2106	2
AG_ED_LD 2250		3 PLNT_S 2125	3
PLNT_S 2100		3 BIO_SC 2300	4
ABM 2225		3 AGSC_COM 2220	3
Elective		3 Electives	3
	15		15

Third Year			
Fall	CR	Spring	CR
AN_SCI 3213		3 PLNT_S 3275	3
PLNT_S 3230		3 PLNT_S 3710	3
PLNT_S 3225		3 PLNT_S 4313	3
BIOCHM 3630		3 Writing Intensive Course	3
Electives		3 Electives	3
	15		15

Fourth Year			
Fall	CR	Spring	CR
PLNT_S 3210		4 PLNT_S 4315	3
PLNT_S 4400		4 PLNT_S 4550	4
PLNT_S 4500		4 PLNT_S 4950	3
Electives		3 Undergraduate Research	3
		Electives	2
	15		15

Total Credits: 120

**BS in Plant Sciences with Emphasis in Crop Management**

**Degree Program Description**

From the food on our plates to the homes we live in to the fuel in our vehicles, plants impact all aspects of our daily lives. As an ever-growing human population continues to increase the demand for crops and other plant products, so too does the demand for plant scientists. Plant Sciences addresses the challenges from the field to the laboratory. Students enroll in a generalized core curriculum, then further refine their expertise in the Crop Management emphasis area. Whether from a farm or urban background, developing technology in the husbandry and protection of agronomic or horticultural crops has created this productive career track. Students utilize a combination of classroom and outdoor experiences to prepare for one of many opportunities: crop consultant; agronomist; crop sales representative; pest management specialist; farmer or entrepreneur; and advanced education. Many positions are applied; the participation in crop growth and protection careers will be in demand well into the future. Crop management specialists find employment with universities, the USDA Agricultural Research Service or private companies. They answer agronomic questions specific to their region, study major field and forage crops, and examine the feasibility of growing alternative crops for niche markets.

**Major Program Requirements**

Students are required to completed the BS in Plant Sciences (p. 120) major program requirements in addition to the emphasis area requirements.

**Emphasis Requirements**

The management of food and fiber crops is key to meeting the global demands for food and energy. There are many opportunities to improve plant growth by manipulating production practices and improving control of disease, insect, and weed pests.

**Crop Management Emphasis Area Requirements**

ABM 2225	Statistical Analysis	3
AN_SCI 3213	Genetics of Agricultural Plants and Animals	3
or BIO_SC 2200	General Genetics	
CHEM 1320	College Chemistry I	4
PLNT_S 3225	Plant Breeding and Genetics	3
PLNT_S 4313	Soil Fertility and Plant Nutrition	3
PLNT_S 4315	Crop Physiology	3
<b>Select three:</b>		
CHEM 2100	Organic Chemistry I	3
PLNT_S 3270	Forage Crops	3

PLNT_S 3275	Grain Crops	3
PLNT_S 3355	Introductory Turfgrass Management	3
PLNT_S 4270	Laboratory Techniques in Forage Analysis	2
PLNT_S 4325	Advanced Plant Breeding	3
PLNT_S 4345	Principles of Viticulture and Winemaking	3
PLNT_S 4360	Precision Agriculture Science and Technology	3
<b>Total</b>		<b>27-29</b>

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
ABM 1041		3 MATH 1100	3
ENGLISH 1000		3 AG_ED_LD 2250	3
BIO_SC 1200		5 PLNT_S 2100	3
PLNT_S 1120		1 SOIL 2106	2
Humanities Elective		3 HIST 1200	3
		15	14

Second Year			
Fall	CR	Spring	CR
ABM 2225		3 PLNT_S 2125	3
AGSC_COM 2220		3 Writing Intensive Course	3
CHEM 1320		4 AN_SCI 3213	3
PLNT_S 3355		3 Electives	3
Social Science Elective		3 Humanities Elective	3
		16	15

Third Year			
Fall	CR	Spring	CR
PLNT_S 3230		3 PLNT_S 4313	3
PLNT_S 3210		4 PLNT_S 3710	3
PLNT_S 3270		3 PLNT_S 3275	3
PLNT_S 3225		3 Elective	6
PLNT_S 4270		2	
		15	15

Fourth Year			
Fall	CR	Spring	CR
PLNT_S 4500		4 PLNT_S 4315	3
Capstone		3 PLNT_S 4325	3
Electives		9 Elective	8
		16	14

Total Credits: 120

# BS in Plant Sciences with Emphasis in Horticultural Science and Design

## Degree Program Description

From the food on our plates to the homes we live in to the fuel in our vehicles, plants impact all aspects of our daily lives. As an ever-growing human population continues to increase the demand for crops and

other plant products, so too does the demand for plant scientists. Plant Sciences addresses the challenges from the field to the laboratory. Students enroll in a generalized core curriculum, then further refine their expertise in the Horticultural Science and Design emphasis area. The beauty of attractive indoor plant displays or ornamental species in landscapes adds value and satisfaction. Appreciating the plants around us and designing new ways to present them can lead to careers in nursery management, landscape designer, zoo groundskeeper, or botanic gardener. Students in this area learn the basics in the classroom and advance their skills working locally (greenhouses, landscape firms) or abroad (Epcot Center, MO Botanical Gardens). Horticulturists use their knowledge of plant growth to sustainably produce flowers, vegetables and ornamental plants to enhance the environment. Careers include botanical gardens, commercial greenhouses and nurseries, landscape design firms, or life science companies.

## Major Program Requirements

Students are required to completed the BS in Plant Sciences (p. 120) major program requirements in addition to the emphasis area requirements.

## Emphasis Area Requirements

Trees, flowers and other ornamental plants add beauty to our landscape, preserve green space, and reduce the negative impacts of climate change. Other plants such as vegetables and fruits enhance human health. Career opportunities exist to design landscapes, improve the value and beauty of homes and businesses, as well as commercially grow horticultural crops in greenhouses and other settings.

### Horticultural Science & Design Emphasis Area Requirements

ABM 2223	Agricultural Sales	3
CHEM 1100	Atoms and Molecules with Lab	3
PLNT_S 2075	Environmental Horticulture	3
PLNT_S 2210	Ornamental Woody Plants	3
PLNT_S 2215	Ornamental Herbaceous Plants	3
PLNT_S 3250	Green Industry Bidding	2
PLNT_S 3355	Introductory Turfgrass Management	3
<b>Select five:</b>		
AG_S_M 2340	Pesticide Application Equipment	3
PLNT_S 2220	Introduction to Floral Design	2
PLNT_S 2221	Everyday Floral Design	3
PLNT_S 2250	Landscape Site Analysis	2
PLNT_S 2254	Landscape Design	3
PLNT_S 3110	Horticultural Drainage and Irrigation Systems	2
AN_SCI 3213	Genetics of Agricultural Plants and Animals	3
PLNT_S 3220	Special Occasion Floral Design	3
PLNT_S 3221	Wedding Floral Design	3
PLNT_S 3222	Retail Floral Management	3
PLNT_S 3252	Arboriculture and Pruning	1
PLNT_S 3254	Landscape AutoCAD	3
PLNT_S 3260	Greenhouse Management	4
PLNT_S 4313	Soil Fertility and Plant Nutrition	3
PLNT_S 4345	Principles of Viticulture and Winemaking	3
PLNT_S 4355	Advanced Turfgrass Management	3
PLNT_S 4365	Greenhouse Crops Production	4

PLNT_S 4975	Advanced Landscape Design	4
<b>Total</b>		<b>30-38</b>

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
BIO_SC 1200		5 CHEM 1100	3
PLNT_S 1120		1 AGSC_COM 2220	3
MATH 1100		3 ENGLISH 1000	3
HIST 1100 or 1200		3 ABM 1041 or 1042	3
PLNT_S 2075		3 Humanities	3
		15	15
Second Year			
Fall	CR	Spring	CR
PLNT_S 2210		3 ABM 2223	3
PLNT_S 3210		4 PLNT_S 2125	3
PLNT_S 3254		3 PLNT_S 2250	2
		Elective	3
Social Science Course		3 Humanities Course	3
Elective		3	
		16	14
Third Year			
Fall	CR	Spring	CR
PLNT_S 2215		3 PLNT_S 3252	1
PLNT_S 3230		3 SOIL 2100	3
PLNT_S 3355		3 SOIL 2106	2
Communications Elective		3 Writing Intensive Elective	3
Elective		3 Elective	6
		15	15
Fourth Year			
Fall	CR	Spring	CR
PLNT_S 4500		4 PLNT_S 3250	2
PLNT_S 2254		3 PLNT_S 3710	3
Elective		3 PLNT_S 4975	4
Elective		3 PLNT_S 3110	2
Elective		3 Elective	3
		16	14

Total Credits: 120

## Minor in Plant Sciences

### Requirements

A minor in Plant Sciences shall consist of a minimum of 15 hours of formal coursework in Plant Sciences (PLNT\_S) designated courses. Of the 15 hours selected, a minimum of 12 hours must be numbered 2000 or above, of which at least 9 hours must be numbered 3000 or above.

**Note:** Problems, Readings, Internship, and Research courses are not acceptable courses for the Plant Sciences minor, unless approved by the Director for Undergraduate Programs.

## Application for Minor

Students interested in this minor should complete the online form located on the CAFNR website (<https://cafnr.missouri.edu/current-students/forms-requirements/>).

## MS in Plant, Insect and Microbial Sciences

### Degree Requirements

To satisfy the course requirements for a master's degree, a student must complete:

- A minimum of 30 credit hours from courses numbered 7000 - 9000
- 15 credit hours (towards the 30 credit hour requirement) must be from courses numbered at the 8000 or 9000 level
- 12 credit hours (towards the 30 credit hour requirement) can be satisfied by research, readings and problems courses
- For the Horticulture Program Area, at least 6 credits must be from formal courses, excluding Problems and other independent study courses and only 6 credit hours of research (PLNT\_S 8090) can count towards the 30 credit hour requirement, even though additional hours of research can be taken.
- With the exception of the Entomology Program Area, all students must participate in an approved teaching opportunity or an approved Extension program.

A student shall maintain a minimum grade point average of 3.0. All divisional course requirements (and any additional requirements set by the student's examination committee) shall be completed in a timely manner. All advisors will meet annually with each of their graduate advisees. They will discuss the student's performance, any problems that exist and any suggestions for improvement. The advisor will provide the student and the director of graduate studies with a written summary of the meeting as part of the annual program assessment process.

The division-wide course requirements for the master's degree are:

PLNT_S 8010	Professionalism and Ethics	2
Participation in the seminar series		
PLNT_S 9087	Seminar in Plant Science	1
PLNT_S 7087	Seminar (Must enroll twice)	1
PLNT_S 8090	Thesis Research (1 - 10 credits per semester)	1-10

## Crop, Soil and Pest Management

### Core Requirements:

PLNT_S 8010	Professionalism and Ethics	2
PLNT_S 9087	Seminar in Plant Science	1
PLNT_S 7087	Seminar (must enroll twice)	1
PLNT_S 8090	Thesis Research	1-10 per semester

## Entomology

### Core Requirements:

PLNT_S 7710	Systematic Entomology	5
PLNT_S 7820	Principles of Insect Physiology	4
PLNT_S 8010	Professionalism and Ethics	2
PLNT_S 9087	Seminar in Plant Science	1

PLNT_S 7087	Seminar (must enroll twice)	1
PLNT_S 8090	Thesis Research	1-10 per semester
PLNT_S 9810	Insect Ecology	3

One Elective formal Entomology course

## Horticulture

### Core Requirements:

PLNT_S 8010	Professionalism and Ethics	2
PLNT_S 9087	Seminar in Plant Science	1
PLNT_S 7087	Seminar (must take twice)	1
PLNT_S 8090	Thesis Research	1-9 per semester

## Plant Breeding, Genetics and Genomics

### Core Requirements:

PLNT_S 8010	Professionalism and Ethics	2
PLNT_S 9087	Seminar in Plant Science	1
PLNT_S 7087	Seminar (must take twice)	1
PLNT_S 8090	Thesis Research	1-10 per semester

### Elective Courses

#### Bridging Courses to Expand Your Background in Plant Biology

PLNT_S 7315	Crop Physiology	3
PLNT_S 7320	Molecular Plant Physiology	3
PLNT_S 7500	Biology and Pathogenesis of Plant-Associated Microbes	4
PLNT_S 7550	Plant Biotechnology	4

#### Elective Courses to Fulfill the Requirement for 15 Credit Hours at the 8000 or 9000 Level

AN_SCI 8430	Introduction to Bioinformatics Programming	4
BIO_SC 8310	Fungal Genetics and Biology	3
PLNT_S 8330	Molecular Breeding and Genomic Technology	3
PLNT_S 8362	Introduction to Plant Metabolism	2
PLNT_S 8365	Introduction to Molecular Cell Biology	2
PLNT_S 9415	Advanced Plant Physiology	3
PLNT_S 9440	Applied Quantitative and Statistical Genetics	3
PLNT_S 9540	Genetics of Plant-Microorganism Interaction	3
PLNT_S 9810	Insect Ecology	3

## Plant Stress Biology

### Core Requirements:

Choose one course:

PLNT_S 7315	Crop Physiology
PLNT_S 7320	Molecular Plant Physiology

Choose one course:

PLNT_S 7500	Biology and Pathogenesis of Plant-Associated Microbes
PLNT_S 8505	Introduction to Plant Stress Biology

### Additional Requirements

PLNT_S 8010	Professionalism and Ethics	2
PLNT_S 8530	Research with Plant Stress Agents	3

PLNT_S 9087	Seminar in Plant Science	1
PLNT_S 7087	Seminar (must enroll twice)	1
PLNT_S 8090	Thesis Research	1-10 per semester

### Participation In One of Two Readings Courses Each Year

PLNT_S 7965	Readings in Plant Stress Biology	1-9
PLNT_S 7970	Readings in Plant-Insect Interactions	1

### Elective Courses to Fulfill the 30 Credit Hour Minimum

AN_SCI 8430	Introduction to Bioinformatics Programming	4
BIO_SC 8300	Advanced Plant Genetics	3
BIOCHM 8434	Signaling in Molecular Cell Biology	3
INFOINST 8005	Applications of Bioinformatics Tools in Biological Research	3
BIO_SC 8310	Fungal Genetics and Biology	3
PLNT_S 8330	Molecular Breeding and Genomic Technology	3
PLNT_S 8362	Introduction to Plant Metabolism	2
PLNT_S 8365	Introduction to Molecular Cell Biology	2
PLNT_S 9415	Advanced Plant Physiology	1-3
PLNT_S 9440	Applied Quantitative and Statistical Genetics	3
PLNT_S 9540	Genetics of Plant-Microorganism Interaction	3
PLNT_S 9810	Insect Ecology	3

### Additional Entry Level Courses

PLNT_S 7550	Plant Biotechnology	4
PLNT_S 7400	Plant Anatomy	4
STAT 7070	Statistical Methods for Research	3

## Sample Plan of Study

There are several areas of study within the MS in Plant, Insect and Microbial Sciences degree. A student can select training from a wide range of courses and research programs to prepare for a career in research, teaching, industry and extension work. Note: Areas of Study will not appear on transcripts or diplomas. Each program area emphasizes a customized approach towards the course of study. Each student will work with their advisor and graduate committee to develop a course of study best suited to the student's educational and career goals.

## Thesis Requirements

A thesis is required for the M.S. degree in Plant, Insect and Microbial Sciences. The thesis must demonstrate the student's capacity for research and independent thought. Organization of the thesis is subject to approval of the Master's Committee.

The Thesis Defense will consist of a research seminar and final examination, the latter to demonstrate the student's mastery of the academic focus of the chosen Graduate Program Area. It is the student's responsibility to check the Graduate School's graduation deadlines when scheduling the exam. The candidate must be enrolled to defend the thesis. The examination cannot be administered when MU is not officially in session.

The seminar will be presented by the student for division faculty, staff, students, committee members, and other interested persons. It must summarize the thesis research conducted by the student during the Master's program. The seminar will be followed by the final, oral examination administered by the Master's Committee. Although the

general protocol followed during the oral examination shall be at the discretion of the Major Advisor, a typical oral examination lasts about 2 hours and is divided between defense of the thesis and non-thesis subject matter. The research seminar should be scheduled the same day (preferably) or during the week preceding the remainder of the final examination.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MS in Plant, Insect, and Microbial Sciences (<https://gradschool.missouri.edu/degrecategory/plant-insect-microbial-sciences/>) and the minimum requirements of the Graduate School (<https://gradschool.missouri.edu/admissions/eligibility-process/>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

Admission Contact Information  
 Ms. Christa Smith  
 52 Agriculture Lab; Columbia, MO 65211  
 (573) 882-3001

## Financial Aid from the Program

Financial assistance is available to qualified students at both the MS and PhD levels, as either fellowships or research assistantships. Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website (<http://plantsci.missouri.edu/graduate/>) or ask the program contact for details.

## PhD in Plant, Insect and Microbial Sciences

### Degree Requirements

To satisfy the course requirements for a doctoral degree, a student must complete:

- A minimum of 72 credit hours from courses numbered 7000-9000 (this includes dissertation research credit hours - i.e. PLNT\_S 9090).
- 15 credit hours (towards the 72 hour requirement) must be from courses numbered at the 8000 or 9000 level, exclusive of dissertation research, problems or independent study.
- For the Horticulture Program Area, all Doctoral students will have successfully completed the requirements for a master's degree before beginning a doctoral program and no more than 30 hours of dissertation research may be counted towards the 72 hr minimum.
- Two semesters of PLNT\_S 9087.
- Three semesters of PLNT\_S 7087.

### Crop, Soil and Pest Management

#### Core Requirements:

PLNT_S 8010	Professionalism and Ethics	2
PLNT_S 9087	Seminar in Plant Science (must enroll twice)	1
PLNT_S 7087	Seminar (must enroll three times)	1

PLNT_S 9090	Dissertation Research	1-10 per semester
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## Entomology

#### Core Requirements:

PLNT_S 7710	Systematic Entomology	5
PLNT_S 7820	Principles of Insect Physiology	4
PLNT_S 8010	Professionalism and Ethics	2
PLNT_S 9087	Seminar in Plant Science (must enroll twice. Only 1 credit will count towards the 15 credit hour at 8000/9000-level requirement.)	1
PLNT_S 7087	Seminar (must enroll three times)	1
PLNT_S 9090	Dissertation Research	1-10 per semester
PLNT_S 9810	Insect Ecology	3

Two elective formal Entomology courses

## Horticulture

#### Core Requirements:

PLNT_S 8010	Professionalism and Ethics	2
PLNT_S 9087	Seminar in Plant Science (must enroll twice. Only 1 credit will count towards the 15 credit hour at 8000/9000-level requirement.)	1
PLNT_S 7087	Seminar (must enroll three times)	1
PLNT_S 9090	Dissertation Research	1-10 per semester

## Plant Breeding, Genetics, and Genomics

#### Core Requirements:

PLNT_S 8010	Professionalism and Ethics	2
PLNT_S 9087	Seminar in Plant Science (must enroll twice. Only 1 credit will count towards the 15 credit hour at 8000/9000-level requirement.)	1
PLNT_S 7087	Seminar (must enroll three times)	1
PLNT_S 9090	Dissertation Research	1-10 per semester

#### Electives

#### Bridging Courses to Expand Your Background in Plant Biology

PLNT_S 7315	Crop Physiology	3
PLNT_S 7320	Molecular Plant Physiology	3
PLNT_S 7500	Biology and Pathogenesis of Plant-Associated Microbes	4
PLNT_S 7550	Plant Biotechnology	4

#### Elective Courses to Fulfill the Requirement for 15 Credit Hours at 8000 or 9000 Level

AN_SCI 8430	Introduction to Bioinformatics Programming	4
BIO_SC 8300	Advanced Plant Genetics	3
BIO_SC 8310	Fungal Genetics and Biology	3
PLNT_S 8330	Molecular Breeding and Genomic Technology	3
PLNT_S 8362	Introduction to Plant Metabolism	2
PLNT_S 8365	Introduction to Molecular Cell Biology	2
PLNT_S 9415	Advanced Plant Physiology	3

PLNT_S 9440	Applied Quantitative and Statistical Genetics	3
PLNT_S 9540	Genetics of Plant-Microorganism Interaction	3
PLNT_S 9810	Insect Ecology	3

## Plant Stress Biology

### Core Requirements:

PLNT_S 7315	Crop Physiology	3
or PLNT_S 7320	Molecular Plant Physiology	
PLNT_S 7500	Biology and Pathogenesis of Plant-Associated Microbes	4 or 2
or PLNT_S 8505	Introduction to Plant Stress Biology	
PLNT_S 8010	Professionalism and Ethics	2
PLNT_S 8530	Research with Plant Stress Agents	3
PLNT_S 9087	Seminar in Plant Science (Must enroll twice. Only 1 credit will count towards 15 credit hour 8000/9000-level requirement)	1
PLNT_S 7087	Seminar (must enroll three times)	1
PLNT_S 9090	Dissertation Research	1-10 per semester
PLNT_S 7965	Readings in Plant Stress Biology (must take one of two courses each year.)	1-9
or PLNT_S 7970	Readings in Plant-Insect Interactions	

### Elective Courses:

AN_SCI 8430	Introduction to Bioinformatics Programming	4
BIO_SC 8300	Advanced Plant Genetics	3
BIOCHM 8434	Signaling in Molecular Cell Biology	3
INFOINST 8005	Applications of Bioinformatics Tools in Biological Research	3
BIO_SC 8310	Fungal Genetics and Biology	3
PLNT_S 8330	Molecular Breeding and Genomic Technology	3
PLNT_S 8362	Introduction to Plant Metabolism	2
PLNT_S 8365	Introduction to Molecular Cell Biology	2
PLNT_S 9415	Advanced Plant Physiology	1-3
PLNT_S 9440	Applied Quantitative and Statistical Genetics	3
PLNT_S 9540	Genetics of Plant-Microorganism Interaction	3
PLNT_S 9810	Insect Ecology	3
<b>Additional Entry Level Courses:</b>		
PLNT_S 7550	Plant Biotechnology	4
PLNT_S 7400	Plant Anatomy	4
STAT 7070	Statistical Methods for Research	3

## Teaching Requirement

With the exception of the Entomology Program Area, all students must participate in an approved teaching opportunity or an approved extension program.

## Reasonable Rate of Progress

A reasonable rate of progress toward the degree is required. A Ph.D. student must successfully complete the comprehensive exam within 5 years of their first semester of enrollment as a Ph.D. student. In addition, the remaining program for the doctoral degree must be completed within 5 more years after passing the Comprehensive Exam.

## Sample Plan of Study

There are several areas of study within the PhD in Plant, Insect and Microbial Sciences degree. A student can select training from a wide range of courses and research programs to prepare for a career in research, teaching, industry and extension work. Note: Areas of Study will not appear on transcripts or diplomas. Each program area emphasizes a customized approach towards the course of study. Each student will work with their advisor and graduate committee to develop a course of study best suited to the student's educational and career goals.

## Comprehensive Examination Process

The Comprehensive Examination is a major milestone in the Ph.D. candidate's progress towards completion of the degree requirements. The candidate is expected to clearly demonstrate his/her knowledge and understanding of the principles and concepts of the chosen Graduate Program Area, related biological sciences, and the scientific method. The Comprehensive Exam should be scheduled when the student has essentially completed the required plan of study. The Comprehensive Exam must be completed at least seven months before the final examination (defense). The Comprehensive Exam Committee is the same as the Doctoral Committee.

The Comprehensive Exam requires both written and oral performance by the student to achieve candidacy. The student's advisor will select either Track I or Track II for the format of the exam. The student arranges the written and oral portion of the Comprehensive Exam with each member of the Committee.

## Dissertation Defense

A dissertation is required of every Ph.D. Candidate in the Division of Plant Sciences. This is to be a substantial scholarly manuscript of original research conducted by the student. The dissertation should reflect the depth of understanding, independent thought, and original work worthy of a Ph.D.

The Dissertation Defense consists of a research seminar and final examination. It is the student's responsibility to check the Graduate School's graduation deadlines when scheduling the exam. The seminar will be presented by the student for division faculty, staff, students, committee members, and other interested persons. The student may choose to present the seminar as part of the Division Seminar Series. It must summarize the dissertation research conducted by the student during the Doctoral program. The seminar will be followed by the final, oral examination administered by the Doctoral Committee. Although the general protocol followed during the oral examination shall be at the discretion of the Major Advisor, a typical oral examination lasts about 2 hours and is divided between discussion of the dissertation and related, dissertation subject matter. The research seminar should be scheduled the same day (preferably) or during the week preceding the remainder of the final examination.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Plant, Insect, and Microbial Sciences (<https://gradstudies.missouri.edu/degrecategory/plant-insect-microbial-sciences/>) and the minimum requirements of the Graduate School (<https://gradstudies.missouri.edu/admissions/eligibility-process/>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission



criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

## Financial Aid from the Program

Financial assistance is available to qualified students at both the MS and PhD levels, as either fellowships or research assistantships. Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website (<http://plantsci.missouri.edu/graduate/>) or ask the program contact for details.

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## Rural Sociology

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College of Agriculture, Food and Natural Resources  
Mary Hendrickson, Chair  
135 Mumford Hall  
(573) 882-7463  
[hendricksonm@missouri.edu](mailto:hendricksonm@missouri.edu)  
<https://dass.missouri.edu/>

Carol Swaim, Administrative Assistant  
121 Gentry Hall  
(573) 882-7451  
[swaimc@missouri.edu](mailto:swaimc@missouri.edu)

The Rural Sociology program participates in the Bachelor of Science in Agriculture degree offered by the College of Agriculture, Food and Natural Resources and offers a minor in rural sociology. For information about the agriculture degree, see the Agriculture degree page. Rural Sociology also offers graduate degrees.

## Faculty

**Associate Professor** M. Hendrickson\*\*  
**Assistant Professor** H. Qin\*\*  
**Teaching Assistant Professor** C. Brock\*  
**Extension Associate Professor** S. Jeanetta\*\*, M. S. Leuci\*  
**Extension Assistant Professor** J. Adams\*  
**Research Assistant Professor** C. Fulcher\*  
**Associate Professor Emeritus** J. L. Gilles, K. E. Pigg\*  
**Professor Emeritus** R. R. Campbell\*, M. Grigsby\*\*, M. F. Nolan\*, D. J. O'Brien\*\*, J. S. Rikoon\*\*, J. I. Stallmann\*\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- Minor in Rural Sociology (p. 128)

## Graduate

- MS in Rural Sociology (p. 128)
- PhD in Rural Sociology (p. 129)

Rural Sociology offers the MS and PhD degrees. The program consists of broad training in sociological theory and methodology with attention to application and policy issues.

Students entering with a bachelor's degree normally are admitted into the master's program even if they are going on to a PhD, exceptional students may be admitted to the Masters/PhD program. Up to 12 hours of makeup work may be required for students who have less than adequate undergraduate preparation in the social sciences.

## Specializations

Areas of specialization in the department are: sustainable development, community facilitation, and analytical processes

## Financial Aid from the Program

Request for financial support is made by the student at the time of application. Most of the financial support is for research assistantships. Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

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## Minor in Rural Sociology

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### Requirements

The rural sociology undergraduate minor requires 15 credits in rural sociology (RU\_SOC) courses. Nine credits must be above the 2000 level.

### Application for Minor

Students interested in this minor should complete the online form located on the CAFNR website (<https://cafnr.missouri.edu/current-students/forms-requirements/>).

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## MS in Rural Sociology

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### Degree Requirements

#### Professional Master's Degree

The principal master's degree in rural sociology is the 39-credit-hour professional master's degree. The program is designed to prepare students for positions in the public and private sectors, and it is particularly useful for positions that include applied research, policy analysis or community development. Students who wish to complete a master's degree in rural sociology followed by a doctoral degree in the program also are encouraged to pursue the degree.

The professional master's degree has two options:

1. The community facilitation option for individuals interested in working for government, extension and non-governmental agencies in the field of community development
2. The analytical processes option for students wishing to do policy analysis for government agencies.

Students must have a grade point average of 3.0 or greater and must have completed at least 15 hours of coursework at or above the 8000 level. Both programs require an internship

## Traditional Master's Degree

A 30-credit-hour traditional master's degree, requiring a thesis, is also offered. The degree primarily is intended for those who intend to pursue doctoral studies or who have a special reason for wanting a thesis degree. Although it requires fewer credit hours, a thesis degree normally requires one semester longer to complete than the professional master's degree.

### PROFESSIONAL MASTER'S DEGREE

#### Required Courses 15-18

RU_SOC 7325	American Community Studies	3
RU_SOC 7341	Building Communities from the Grassroots	3
RU_SOC 8450	Research in Rural Sociology (internship)	3-6
RU_SOC 8510	Research Methods and Design	3
PUB_AF 8195	Economic Analysis for Public Policy - Mid Career	3

#### Core Courses (must take three courses) 9

RU_SOC 7120	Social Statistics	3
RU_SOC 7335	Social Change and Development	3
RU_SOC 7370	Environmental Sociology	3
RU_SOC 7446	Community Social Structure	3
RU_SOC 8287	Seminar on Sustainable Development	3
RU_SOC 8436	Community, Natural Resources and Sustainability	3
RU_SOC 8444	Agriculture, Food and Community	3
RU_SOC 8447	Seminar on Contemporary Issues in Rural Sociology	1-99
RU_SOC 8610	Economic and Sociological Approaches to Collective Action	3

#### Community Facilitation Option (additional requirements)

Must take three of the following:

RU_SOC 7342	Empowering Communities for the Future
RU_SOC 7343	Creating Capacity for Dynamic Communities
RU_SOC 8130	Advanced Social Statistics
PUB_AF 8150	Collaborative Governance
PUB_AF 8190	Economic Analysis for Public Affairs
PUB_AF 8195	Economic Analysis for Public Policy - Mid Career
AG_ED_LD 8430	Evaluation of Educational Programs
SOCIOL/RU_SOC 7120	Social Statistics
RU_SOC/AG_ED_LD 8540	Methods of Qualitative Research

#### Analytical Process Option (additional requirements)

Additional Requirements:

RU_SOC 8130	Advanced Social Statistics
RU_SOC 9480	Community Survey Research
PUB_AF 8320	Spatial Analysis for Public Affairs
AG_ED_LD 8540	Methods of Qualitative Research

Must take two of the following:

PUB_AF 8150	Collaborative Governance
PUB_AF 7340	Regional and Economic Development Policy
AAE 8060	Quantitative Tools for Decision Making and Performance Evaluation

ESC\_PS 9650 Application of Multivariate Analysis in Educational Research

### TRADITIONAL MASTER'S DEGREE

#### Required Courses

RU_SOC 8130	Advanced Social Statistics
Entering graduate students should already have a basic statistics course. No credit will be received for:	
RU_SOC 7120 or STAT 1400	Social Statistics Elementary Statistics for Life Sciences
RU_SOC 8510	Research Methods and Design
SOCIOL 9187	Seminar in Sociological Theory I

Additional credit hours 18

## Thesis/Non-Thesis Requirements

### Non-Thesis Requirements

The Professional Master of Science degree does not require a thesis. Instead students are required to complete an internship.

### Thesis Requirements

Students pursuing the Traditional Master of Science degree must complete a thesis. The the thesis take approximately 1-3 semesters to complete.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MS in Rural Sociology program (<https://gradschool.missouri.edu/degrecategory/rural-sociology/>) and the minimum requirements of the Graduate School (<https://gradschool.missouri.edu/admissions/eligibility-process/>).

Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

Admission Contact: Carol Swaim  
Department of Rural Sociology  
121 Gentry Hall; Columbia, MO 65211  
573-882-7451

## PhD in Rural Sociology

### Degree Requirements

The PhD is a 72 credit hour minimum with no more than 6 hours of readings or problems courses, and a maximum of 12 dissertation research hours toward the 72 hour requirement. Coursework taken toward a master's degree in the social sciences may count toward these requirements. A student must complete thirty hours of coursework beyond the master's degree.

### Areas of Professional Expertise

In addition to the required core, every PhD student will be required to complete an "area" of concentration" comprised of a minimum of 12 credits (in the case of a minor or certificate requiring less than 12 hours, a student must complete an additional 3 hours of coursework related to this area of concentration.

Students should select from the following options:

1. An existing Graduate Certificate Program
2. An existing Graduate Minor in a substantive Area
3. Development of an individualized 'Area of Concentration'.

**Prerequisite courses (or courses taken within first year of study)**

RU_SOC 8130	Advanced Social Statistics	3
RU_SOC 8510	Research Methods and Design	3
SOCIOL 9187	Seminar in Sociological Theory I	3
<b>Core Requirements</b>		<b>27</b>
RU_SOC 7335	Social Change and Development	3
RU_SOC 8287	Seminar on Sustainable Development	3
RU_SOC 8444	Agriculture, Food and Community	3
RU_SOC 8450	Research in Rural Sociology	3
RU_SOC 9437	Synthesis of Theory and Method in Sociology	3
RU_SOC/AG_ED_LD 8540	Methods of Qualitative Research	3
RU_SOC 9480	Community Survey Research	3
SOCIOL 9487	Seminar in Sociological Theory II	3
Advanced Methods course (qualitative or quantitative)		3
<b>Area of Professional Expertise</b>		<b>12</b>

minimum

## Qualifying Process

To qualify for continuation in the Ph.D. program students must complete two full enrollment semesters at the start of their program in which they take core sequence courses and make a B or above in all courses taken. (The qualifying requirement must be met. In some cases waivers may be given within one year of enrollment in the Ph.D. program.)

## Comprehensive Examination Process

to be an official candidate for a doctoral degree the student must have passed a comprehensive examination for admission to doctoral study. This is the major examination in the doctoral training program, and must be passed BEFORE FORMAL WORK ON THE DISSERTATION IS BEGUN. It is administered by the Doctoral Program Committee.

Successful completion of a comprehensive examination must occur within five years of beginning the doctoral program. A student is ready to take the comprehensive examination when he/she has:

- Completed all of the courses listed in his/her Plan of Study with satisfactory grades.
- If they entered the program with a Masters degree that did not require a thesis, they must have written and submitted a paper for review in a scholarly journal. A copy of the paper as well as information as to where it was submitted must be in a student's file.
- Submitted and received approval from their advisory committee for their dissertation research proposal.
- Submitted an approved copy of the dissertation proposal to be kept in the student's departmental file until the dissertation is actually completed

The comprehensive examination consists of both a written and an oral examination.

- These are designed and administered by the advisory committee of the Ph.D. student.

- The comprehensive examination is designed to evaluate a student's preparedness to proceed with the dissertation.
- Students are normally given two opportunities to pass this examination.
- A copy of the completed comprehensive examination will be filed with the director of graduate studies and kept in the departmental student record.

**Written Comprehensive:** The written portion of the examination will evaluate competency in theory and methods in the student's specialty area, as well as their readiness to conduct their dissertation research. After the advisory committee indicates that a student has passed the written portion of the comprehensive examination, the oral examination will be given.

**Oral Comprehensive:** The oral portion of the examination will address issues raised on the written examination and in the student's dissertation plans. This exam is open to faculty and students; the location and time must be publicly announced a minimum of two weeks before the examination takes place. The public part of the examination will be limited to the presentation of the student's research proposal followed by questions about the proposal. Following the public oral examination the student's advisory committee will complete the examination in private.

## Dissertation Requirements

Successful completion of a dissertation or a research monograph, according to the regulations of the Graduate School is required.

- The dissertation must be completed in keeping with the Guidelines for Preparing Thesis and Dissertations (<http://gradstudies.missouri.edu/academics/thesis-dissertation/diss-thesis-guideline/>).
- The dissertation must be completed within five years of the completion of the comprehensive examination.
- All members of the committee are expected to take an active part in the preparation of the dissertation.
- The student's committee is to conduct an oral final examination ("defense") of the dissertation/monograph.
- This examination cannot be scheduled until the advisory committee members have received a completed draft copy of the dissertation.
- This examination is to be open to faculty and students and must be publicly announced at least two weeks before the exam. Candidates should provide the Rural Sociology Department Office with an announcement including (a) the title of the dissertation, (b) the date and location of the orals, and (c) the advisor's name.
- Faculty and students may attend orals and question candidates, but cannot be present when the vote on the result of the examination is taken.
- At least four committee members must vote to pass a dissertation in order for the degree to be completed.
- The candidate must be enrolled to defend their dissertation.
- The defense must be scheduled when MU is officially in session.
- The Report of the Dissertation Defense form (D-4) and the Approval Page, which must be signed by all members of the approved committee, should be sent to the Graduate School after the defense has been completed and must include an electronic copy as specified by the Graduate School.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Rural Sociology program (<https://gradstudies.missouri.edu/degrecategory/rural-sociology/>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you must refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admission to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

**Admission Contact:** Carol Swaim  
121 Gentry Hall; Columbia, MO 65211  
(573) 882-7451

## Additional Minors and Certificates - CAFNR

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### Undergraduate Certificates

- Certificate in Equine Science and Management (p. 132)
- Certificate in Precision Agriculture Technology (p. 132)
- Certificate in Sustainability (p. 133)

### Undergraduate Minors

- Minor in Agricultural Leadership (p. 133)
- Minor in Captive Wild Animal Management (p. 133)
- Minor in Forestry (p. 134)
- Minor in International Agriculture, Food & Natural Resources (p. 134)
- Minor in Science and Agricultural Communications (p. 135)

### Graduate Certificates

- Certificate in Agroforestry (p. 135)
- Certificate in Food Safety and Defense (p. 136)
- Certificate in Precision Agriculture Technology (p. 136)

# Certificate in Equine Science and Management

The Certificate in Equine Science & Management will provide students with knowledge and skills in preparation for employment in the equine industry. Coursework applies topics covered in lecture format directly to hands-on care and management of horses by utilizing the Division of Animal Sciences' Equine Teaching Facility herd. This includes basic equine handling as well as breeding, foaling, training, and sales. This certificate is available to all majors including non-degree seeking students.

## Requirements

Completed courses must add up to a minimum of 15 credit hours.

<b>Intro. Level Equine Component - Complete one of the following:</b>		<b>3-4</b>
AN_SCI 1174	Biology of Animal Production II	
AN_SCI 1175	Biology of Animal Production II with Lab	
AN_SCI 2140	Companion Animals	
<b>Required Courses:</b>		
AN_SCI 2045	Equine Practicum	1-2
AN_SCI 2195	Equine Facility Management and Marketing	3
AN_SCI 4977	Horse Production	3
<b>Equine Behavior Component - Complete one of the following:</b>		<b>2-3</b>
AN_SCI 2090	Foal Training Practicum	
AN_SCI 2095	Equine Behavior and Training **	
AN_SCI 4940	Internship in Animal Science & Technology (Must include experiential learning in equine behavior and training.)	
<b>Equine Reproduction Component - Complete one of the following:</b>		<b>2-5</b>
AN_SCI 2187	Introduction To Foaling	
AN_SCI 4387	Equine Breeding Management **	
AN_SCI 4940	Internship in Animal Science & Technology (Must include experiential learning in equine foaling or breeding.)	
Total Credits		14-20

\*\* Denotes Strongly Recommended Course for Components

## Application for Certificate

Students interested in this certificate should complete the online CAFNR form located on the CAFNR website (<https://cafnr.missouri.edu/current-students/forms-requirements/>).

## Contact

Marci J. Crosby  
 Program Coordinator  
 Animal Science  
 crosbym@missouri.edu

Hannah Twenter  
 Animal Science  
 twenterhm@missouri.edu

# Certificate in Precision Agriculture Technology

The Precision Agriculture Technology certificate provides students with the knowledge and skills to address a growing industry need in the technology of precision agriculture. The certificate program will prepare and/or enhance students' knowledge of the industry thru two key areas:

1. Coursework and intensive on-site labs that focus on precision agriculture technologies utilized by professionals in the field of precision agriculture.
2. Beneficial supporting courses including statistical analysis courses, Plant Science courses, Communications courses, and Agribusiness Management courses.

## Requirements

The certificate is composed of 12 credit hours consisting of the following 4 required courses:

Required Courses		
AG_S_M 4360	Precision Agriculture Science and Technology	3
AG_S_M 4365	Machinery Management Using Precision Agriculture Technology	3
AG_S_M 4366	Data Management and Analysis Using Precision Agriculture Technology	3
AG_S_M 4368	Profit Strategies Using Precision Agriculture Technology	3
Total Credits		12

Students are also encouraged to choose from the following suggested courses to further their depth of knowledge and skills in the area. Several of these courses have pre-requisites, so students should plan ahead to complete them in a timely manor.

Required Support Courses		
STAT 1200	Introductory Statistical Reasoning <sup>required</sup> for AG_S_M 4360	3
Suggested Support Courses		
PLNT_S 2100	Introduction to Soils	3
PLNT_S 2110	Plants and their Cultivation	3
AGSC_COM 3210	Fundamentals of Communications	3
ABM 3260	General Farm Management	3
AGSC_COM 2220	Verbal Communication in Agriculture, Food and Natural Resources	3

## Application for Certificate

Students interested in this certificate should complete the online CAFNR form located on the CAFNR website (<https://cafnr.missouri.edu/current-students/forms-requirements/>).

# Certificate in Sustainability

The Certificate in Sustainability is focused on developing sustainability problem solving skills and requires a minimum of 12 credit hours. The certificate is available to all students. Sustainability involves balancing human aspirations for a good quality of life with the environmental quality and resource needs of future generations. Advancing sustainability requires understanding interactions between ecological and social systems in order to design actions inspired by beneficiaries needs. The Sustainability Certificate will help students pursue careers in fast-growing green job and non-profit sectors of clean energy, resource conservation, transportation efficiency, pollution prevention, waste elimination, second-generation bio-fuels, green building and infrastructure design, as well as human rights and community development.

## Requirements

A minimum grade of C- is required for each course taken in the certificate. A minimum cumulative GPA in all certificate coursework is 2.0.

### Required Course

ENV_SC 2600	Sustainability Foundations: An Introduction to Sustainability	3
or BIOL_EN 2600	Sustainability Foundations: An Introduction to Sustainability	
Capstone Course		3

### Electives (6 credit hours)

SOCIOL 1120	Population and Ecology	3
or RU_SOC 1120	Population and the Environment	
or PEA_ST 1120	Population and Ecology	
ABM 2070W	Environmental Economics and Policy - Writing Intensive	3
ARCHST 2323	Sustainable Building Design Fundamentals	3
GEOG 2660	Environmental Geography	3
SOCIOL 3330	Environmental Justice	3
or PEA_ST 3330	Environmental Justice	
AFNR 2215	Introduction to the Theory and Practice of Sustainable Agriculture	3
AFNR 3215	Community Food Systems	3
ENV_SC 4400	Environmental Law, Policy, and Justice	3
IMSE 4720	Introduction to Life Cycle Analysis	3
F_W 4220	Human Dimensions of Fish and Wildlife Conservation	3

## Application for Certificate

Students interested in this certificate should complete the online CAFNR form located on the CAFNR website (<https://cafnr.missouri.edu/current-students/forms-requirements/>).

## Minor in Agricultural Leadership

The only constant is change. Leaders create and manage change through interactive processes with people and systems. Today's leadership is less dependent on formal authority and more dependent on relationships, trust, and power; thus- anyone has the potential to lead. Leadership can be learned. The minor in Agricultural Leadership empowers students to become leaders and change agents by developing

key strategic planning, communications, coaching, and evaluation skills to facilitate individual and team growth.

## Requirements

A student must complete 15 credits of coursework related to leadership and personal development from the list of approved courses. The coordinator of the minor must approve courses not on the list. With appropriate approval, an internship with a focus upon providing the student practical experiences in leadership and supervisory roles can be counted toward the 15 credit requirement.

### Approved Courses

AG_ED_LD 2250	Introduction to Leadership	3
AG_ED_LD 2260	Team and Organizational Leadership	3
AG_ED_LD 2270	Leadership Development in Youth Organizations	3
AG_ED_LD 3010	Leadership in Today's World	3
AG_ED_LD 4240	Leading Organizational and Community Change	3
AG_ED_LD 4340	Designing and Delivering Educational/ Leadership Programs	3
AGSC_COM 2220	Verbal Communication in Agriculture, Food and Natural Resources	3
ABM 2223	Agricultural Sales	3
ABM 3241W	Ethical Issues in Agriculture - Writing Intensive	3
ABM 3283	Fundamentals of Entrepreneurship	3
PRST 3210	Personnel Management and Leadership	3

## Application for Minor

Students interested in this minor should complete the online form located on the CAFNR website (<https://cafnr.missouri.edu/current-students/forms-requirements/>).

## Minor in Captive Wild Animal Management

A minor in Captive Wild Animal Management is offered jointly by the Division of Animal Sciences and the School of Natural Resources.

Students of any major are welcome to pursue this minor by taking courses in Animal Sciences, Biological Sciences, and Fisheries and Wildlife. Courses have been selected to provide a solid foundation for management of wild animals in settings such as a conservation breeding facilities, rehabilitation facilities, sanctuaries, aquariums, and zoo's.

## Requirements

### Core Courses

AN_SCI 1012	Introduction to Captive Wild Animal Management	3
or F_W 1012	Introduction to Captive Wild Animal Management	
F_W 3600	Introduction to Conservation Biology	3
AN_SCI 3242	Principles and Applications of Animal Nutrition	4
AN_SCI 3254	Physiology of Domestic Animals	5
AN_SCI 4940	Internship in Animal Science & Technology	3
or F_W 4940	Fisheries and Wildlife Internship	

AN_SCI 4910	Senior Seminar in Captive Wild Animal Management	1
or F_W 4910	Senior Seminar in Captive Wild Animal Management	

**Ecology Courses (choose one)**

BIO_SC 3400	Evolution and Ecology
BIO_SC 3650	General Ecology

**Genetics Course (choose one)**

AN_SCI 3213	Genetics of Agricultural Plants and Animals
F_W 2500	Introduction to Genetics and Evolution for Conservation

**Wild Animal Ecology & Natural History Courses (select two)**

F_W 2600	Ornithology
F_W 2700	Ichthyology
F_W 3660	Mammalogy
BIO_SC 3260W	Invertebrate Zoology - Writing Intensive
BIO_SC 3710	Introductory Entomology
or PLNT_S 3710	Introductory Entomology
BIO_SC 4640	Behavioral Biology
F_W 3700	Animal Behavior

**Advanced Physiology, Nutrition & Disease Courses (Choose two)**

AN_SCI 4312	Monogastric Nutrition
AN_SCI 4314	Physiology of Reproduction
AN_SCI 4332	Ruminant Nutrition
AN_SCI 4384	Reproductive Management
AN_SCI 4386	Equine Reproduction
or AN_SCI 4387	Equine Breeding Management
AN_SCI 4437	Stress Physiology
F_W 4810	Wildlife Disease Ecology
AN 323 Zoo Nutrition (Must be taken through Colorado State University)	

### Application for Minor

Students interested in this minor should complete the online form located on the CAFNR website (<https://cafnr.missouri.edu/current-students/forms-requirements/>).

## Minor in Forestry

### Requirements

The minor requires a minimum of 15 credit hours of coursework in the Forestry curriculum. Nine of the required hours must be taken in classes numbered at the 3000 level or above from the following courses:

FOREST 2151	Dendrology (required of all students)	4
FOREST 3207	Forest Fire Control and Use	2
FOREST 3290	Urban Forestry	2
FOREST 4320	Forest Ecology	5
FOREST 4330	Practice of Silviculture	4
FOREST 4390	Watershed Management and Water Quality	3
FOREST 4350	Forest Economics	3

### Application for Minor

Students interested in this minor should complete the online form located on the CAFNR website (<https://cafnr.missouri.edu/current-students/forms-requirements/>).

## Minor in International Agriculture, Food & Natural Resources

The world is becoming increasingly complex and integrated in nearly every category of human endeavor. An understanding of how global markets, natural resources, food production, and international trade and cooperation are affected by societies, languages, cultures, and governments is an essential component of a well-rounded 21<sup>st</sup> century education in AFNR. To facilitate these studies, the multidisciplinary International AFNR Minor offers academic recognition for achieving a level of expertise in coursework of international focus.

### Requirements

- Fifteen credit hours are required for the minor.
- At least 9 of the 15 credit hours must be approved CAFNR courses at the 3000 or 4000 level.
- There is flexibility in choice of the remaining 6 credit hours.
  - These can be (1) approved CAFNR elective courses, including study abroad, and (2) other MU courses of international focus, including foreign language, as approved by the International Education Committee.

Although the focus of this minor is not to add foreign language skills, students are strongly encouraged to invest in language to make themselves more competent in the international arena, to gain a competitive advantage for employment, and to advance their careers overall.

**Choose at least 15 hours from the following:**

ABM 3271	International Agricultural Development	3
ABM 3272	International Food Trade and Policy	3
ABM 3150	International Agribusiness	3
ABM 3230	Agricultural and Rural Economic Policy	3
AFNR 2190	International Agriculture and Natural Resources	3
AFNR 2191	International Agriculture and Natural Resources - Humanities	1-6
AFNR 2192	International Agriculture/Natural Resources-Social Science	1-6
AN_SCI 2110	Global Animal Agriculture	2
ATM_SC 3600	Climates of the World	3
F_S 2195	Grapes and Wines of the World	3
F_S 3190	Study Abroad: International Meat, Dairy and Enology	3
or F_S 3190H	Study Abroad: International Meat, Dairy and Enology - Honors	
FOREST 4385	Agroforestry I: Theory, Practice and Adoption	3
HSP_MGMT 4200	Destination Management	3
PRST 2082	Domestic and International Sports Environment	1
SOIL 4320	Genesis of Soil Landscapes	4

### Application for Minor

Students interested in this minor should complete the online form located on the CAFNR website (<https://cafnr.missouri.edu/current-students/forms-requirements/>).

Questions should be directed to the Office of Academic Programs (cafnradvising@missouri.edu).

## Minor in Science and Agricultural Communications

The Minor in Science and Agricultural Communications will equip students with the knowledge and skills necessary to advocate, publicize, and promote agricultural and natural resources organizations, as well as communicate scientific findings to lay audiences. The interdisciplinary curriculum features foundational courses in verbal communication and writing for the media, while providing students the ability to specialize based on their career interests. This minor will benefit students seeking agricultural and science communication careers, as well as provide a complement of communication and interpersonal skills for future bench scientists.

### Requirements

Students must complete a total of 16 credit hours to receive the minor.

- At least six credit hours must be at the 3000 level or above
- The coordinator must approve courses not listed.

#### Required Courses

AGSC_COM 1160	Foundations of Agricultural Science Communications	3
AGSC_COM 2220	Verbal Communication in Agriculture, Food and Natural Resources	3
AG_ED_LD 3085	Problems in Agricultural Education and Leadership	1
or AGSC_COM 3385	Problems in Science and Agricultural Journalism	
AGSC_COM 3210W	Fundamentals of Communications - Writing Intensive	3
AGSC_COM 3240	Communicating on the Web	3

#### Additional Courses

ABM 2223	Agricultural Sales	3
ABM 3224W	New Products Marketing - Writing Intensive	3
ATM_SC 4110	Broadcast Meteorology I	2
COMMUN 2100	Media Communication in Society	3
COMMUN 3310	Message Design and Writing for the Media	3
COMMUN 3390	Digital Production I	3
COMMUN 3395	Digital Production II	3
COMMUN 3460	Organizational Advocacy	3
ENGLISH 2030	Professional Writing	3
ENGLISH 2010	Intermediate Composition	3
AGSC_COM 2210	Communicating Science to the Public	3
AGSC_COM 4415	Current Issues in Science Journalism	3
or JOURN 4415	Current Issues in Science Journalism	

### Application for Minor

Students interested in this minor should complete the online form located on the CAFNR website (<https://cafnr.missouri.edu/current-students/forms-requirements/>).

### For additional information contact:

**College of Agriculture, Food and Natural Resources (CAFNR)**  
2-64 Agriculture Building

Columbia, MO 65211  
573-882-8301  
cafnradvising@missouri.edu

**Website:** <https://cafnr.missouri.edu/>

## Graduate Certificate in Agroforestry

Agroforestry is intensive land-use management combining trees and/or shrubs with crops and/or livestock. It also has new market opportunities including: Sustainable agriculture, land stewardship, habitat for wildlife, improved water quality, and diversified farm income.

This online graduate certificate, from the Center for Agroforestry at the University of Missouri, provides students with agroforestry fundamentals as well as theoretical foundations in both the biophysical and socioeconomic components of agroforestry.

Designed for individuals with years of experience in agroforestry but lacking a formal credential, it is a perfect fit for those interested in, or involved with the Peace Corps, or possessing a bachelor's degree in a related area but no formal training in agroforestry.

Holders of this certificate generally work as professional and consulting foresters, certified crop or horticulture advisors, extension agents, international development experts, soil and plant scientists, forestry and conservation science teachers and educators, and as forestry or soil and water conservation agents.

This online graduate certificate program is unique and fills a void worldwide. To the best of our knowledge, there are no similar programs in agroforestry elsewhere in the United States or abroad.

### Requirements

The online graduate certificate requires 12 credit hours to complete.

#### Required Courses

<b>Agroforestry Fundamentals</b>		<b>3</b>
FOREST 7385	Agroforestry I: Theory, Practice and Adoption	3
<b>Biophysical Foundation (choose two)</b>		<b>6</b>
FOREST 7390	Watershed Management and Water Quality	3
FOREST 8385	Ecological Principles of Agroforestry	
ENV_SC 7396	Agroforestry for Watershed Restoration	3
NAT_R 8300	Urban Biodiversity, Conservation, and Planning	3
NAT_R 8325	Introduction to Geographic Information Systems	
BIOCHM 8120	Advanced Medicinal Plant Science	3
BIOCHM 8130	Commercial Use of Biodiversity	3
<b>Socioeconomic Foundation (choose one)</b>		<b>3</b>
FOREST 8395	Agroforestry Economics and Policy	3

For information about certificate, contact:

Dr. Michael Gold,  
School of Natural Resources  
203 Anheuser-Busch Natural Resources Building  
University of Missouri  
Columbia, MO 65211  
email: [musnrforestry@missouri.edu](mailto:musnrforestry@missouri.edu)



(573) 882-7045

## Graduate Certificate in Food Safety and Defense

By providing a distance education Food Safety and Defense Graduate Certificate program, we serve the needs of industry and agencies that must protect the human food supply from accidental or deliberate contamination with pathogenic microbes and/or toxicants. In an era of terrorism and global food systems, effective control of foodborne hazards requires advanced education. There is a need for online education for food industry personnel who, while working full time, would like to pursue more in-depth specialized training in food safety and defense that is pertinent to their job.

Kansas State University, Iowa State University, University of Nebraska-Lincoln and the University of Missouri have developed pertinent food safety and defense distance education courses and have established a multi-state consortium to develop and deliver high-priority collaborative distance education programs in the food and agricultural sciences.

### Learning Outcomes

1. Synthesize a current and multi-faceted picture of key food safety and security issues.
2. Apply, in real-world situations, the scientific principles of microbial and chemical risk assessment and analysis related to food safety and defense issues.
3. Analyze and apply the concepts of HACCP (Hazard Analysis and Critical Control Point) programs, as well as other safety and defense approaches, in the management of food safety and defense in food systems.
4. Evaluate food safety and defense issues in the food industry using the perspectives of sound science, critical thinking and ethical reasoning.

### Requirements

The certificate program, available online, includes a minimum of 12 credits, 8-9 credits in core courses and at least 3 elective credits, on topics including food microbiology, foodborne toxicants, HACCP, food safety and security overview, food laws, risk assessment, food biotechnology, rapid food microbiological methods, and food fermentations, with each participating university offering at least one course on a regular basis, and each university cross-listing all courses.

Courses required for the Food Safety and Defense Graduate Certificate belong to Kansas State University, Iowa State University, University of Nebraska and the University of Missouri. For more information refer to the Food Safety and Defense Graduate Certificate website: <https://online.missouri.edu/degreeprograms/cafnr/food-safety-defense/grad-cert/admissions.aspx>

### Admission standards and prerequisites

Students must meet admissions requirements as outlined for this program: <http://online.missouri.edu/degreeprograms/cafnr/food-safety-defense/grad-cert/admissions.aspx#howtoapply> or equivalent degree at their respective universities. A tuition disbursement framework as in operation for the Great Plains Interactive Distance Education Alliance (IDEA) consortium will be used. Certificate enrollments of 20-25 students

per year are anticipated, with time to completion of 2-3 years (1-2 courses per semester). See the Great Plains IDEA (<http://www.gpidea.org/>) for further information.

Successful applicants must be a graduate of an accredited institution and must rank in the upper quartile (3.0 grade point average) of their class to gain admission. Undergraduate preparation should include emphasis in chemistry and biology or food science.

### For additional information contact:

- Azlin Mustapha, Ph.D., Professor and Director of Graduate & Certificate Programs
- E-mail: [MustaphaA@missouri.edu](mailto:MustaphaA@missouri.edu)
- Ph: 573-882-2649
- Address: 246 William Stringer Wing, University of Missouri, Columbia, MO 65211

## Graduate Certificate in Precision Agriculture Technology

The Graduate Certificate in Precision Agriculture Technology will provide students with the knowledge and skills to address a growing industry need in the technology of production agriculture.

### Requirements

For students to be awarded a Graduate Certificate in Precision Agriculture Technology they will need to complete 12 credit hours.

#### Required Courses

AG_S_M 7360	Precision Agriculture Science and Technology	3
AG_S_M 7365	Machinery Management Using Precision Agriculture Technology	3
AG_S_M 7366	Data Management and Analysis Using Precision Agriculture Technology	3
AG_S_M 7368	Profit Strategies Using Precision Agriculture Technology	3

Total Credits for Precision Agriculture Technology Certificate 12

#### Examples of Courses if Students have Taken AG\_S\_M 4000 Level Courses

AG_S_M 8360	Internet of Things for Precision Agriculture Technology	3
GEOG 7840	Geographic Information Systems I	3
GEOG 7940	Advanced Geographic Information Systems (GIS II)	3
PUB_AF 8320	Spatial Analysis for Public Affairs	3

#### Examples of Suggested Support Courses

STAT 7070	Statistical Methods for Research	3
SOIL 7313	Soil Fertility and Plant Nutrition	3
SOIL 7314	Soil Fertility and Plant Nutrition Laboratory	2
PLNT_S 8410	Advanced Weed Science	3
AG_ED_LD 8350	College Teaching of Agriculture, Food and Natural Resources	3

### For additional information contact:

Agricultural Systems Management Program  
1406 E. Rollins St.  
207 Agricultural Engineering Building

Columbia, MO 65211-5200  
Email: [mufsbasm@missouri.edu](mailto:mufsbasm@missouri.edu)  
Phone: 573-882-2731  
Website: <http://asm.missouri.edu/>

## College of Arts and Science

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### Administration

Pat Okker, Dean  
Cooper Drury, Senior Associate Dean  
Nicole Monnier, Associate Dean for Undergraduate Studies  
J. Chris Pires, Associate Dean for Research

Arts and Science Dean's Office  
317 Lowry Hall  
(573) 882-4421

### Contact Information

Arts and Science Advising Support Services  
107 Lowry Hall  
(573) 882-6411  
umcasadvising@missouri.edu

The College of Arts and Science, established in 1841, is the oldest and largest academic division in the university. The majority of MU undergraduates are enrolled in the college, which provides undergraduate and graduate programs in humanities, fine and performing arts, and social, behavioral and natural sciences. It also offers a solid foundation in basic studies for students in professional and specialized programs in other colleges. In addition to offering degrees in a wide range of academic disciplines, the College also allows creative and useful combinations of disciplines in both the Interdisciplinary Studies and General Studies baccalaureate degrees.

A liberal education is the foundation of study in many disciplines. It enables students to serve roles in society or to continue their education with advanced academic study. To these ends, the college encourages excellence in teaching and scholarship among its faculty and provides both traditional and innovative undergraduate curricula. Degree programs allow flexibility in individual courses of study.

Many students who enroll in the college during their first two years at the University have not yet decided upon a major field of study. The structure of the college is such that students generally need not commit themselves to a major until the beginning of the junior year. This allows students time to explore possibilities and to consider their likes and dislikes and their personal and professional objectives. Students are encouraged to work closely with academic advisors while deciding on a program of study.

Students planning to enter the schools of Journalism, Law, Medicine or Veterinary Medicine often spend their first two or four years in the College of Arts and Science in preparation for professional training. Most students, realizing the increased necessity for a broad background in the liberal arts for all professions, earn an undergraduate degree in the college before enrolling in the schools of Law or Medicine. Preprofessional study for veterinary medicine may be completed either in the College of Agriculture, Food and Natural Resources or in the College of Arts and Science.

### Undergraduate

- College of Arts and Science Requirements: Overview (p. 138)
- College Foundation Requirements (p. 138)

- Basic Skills (p. 139)
- Breadth of Study (p. 139)
- Depth of Study (p. 140)
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## College of Arts and Science Requirements: Overview

To earn any degree from the College of Arts and Science, a candidate must not only meet all the relevant university requirements (specified elsewhere in the Catalog) but also each of the following College requirements:

- Complete all course work required for the Arts and Science Foundation Requirements (Basic Skills, Breadth of Study, Depth of Study).
- Complete requirements for a major in the College with grades of C- or higher. (Some departments in the College require higher minimum grades in specific courses.)
- Earn sufficient elective credits to bring the total number of earned credits to 120.
- Earn a minimum of 30 credits in courses numbered 3000 or above, which may include courses in the major. These courses must be regularly accepted for credit in the College of Arts and Science. A few specifically identified math, science, and music courses numbered at the 2000-level may be used to meet this requirement; please consult an advisor.
- Completion of a course that meets the college's diversity (DI) requirement.
- Maintain a minimum cumulative GPA of 2.0 in courses taken at MU.
- Maintain a minimum GPA of 2.0 in courses taken at MU to meet requirements for the major.

## College Foundation Requirements

The purpose of the Arts and Science Foundation Requirements is to assure that students fulfill the common educational objectives of the College of Arts and Science. Courses satisfying these requirements

impart specialized knowledge and help students fulfill the broader objectives of a liberal education. Thus, these courses help students develop the following abilities:

- To communicate clearly and effectively in both writing and speech
- To generate and test hypotheses
- To locate and develop information needed to solve problems
- To think critically and use analytic skills effectively
- To examine their lives critically and objectively
- To enrich their lives through appreciation of present and past cultural achievements

Foundation requirements include three categories:

- **Basic Skills** requirements ensure competency in composition and communication, mathematics and analytic reasoning, awareness of American history and government, and where applicable, foreign language.
- **Breadth of Study** requirements are met by completing course work from a wide array of disciplines to ensure that graduates are broadly educated.
- **Depth of Study** requirements are met by completing advanced course work that allows for fuller understanding of a discipline than can be gained in introductory course work alone.

All students must complete all Arts and Science Foundation Requirements in order to earn a degree, regardless of prior baccalaureate degrees earned. Previous course work will be evaluated on a course-by-course basis. For students who earn an Associates of Arts degree from a regionally accredited Missouri institution all Breadth of Study requirements will be considered to be met. Students will be required to complete at least one Depth of Study class with MU course work. In all cases, completion of the basic English and Mathematics requirements will be evaluated on a course-by-course basis.

## Basic Skills

MATH 1100, MATH 1160, Math 1050, STAT 1200 or transferable equivalent with grade of C- or higher

- Required for BA, BFA, BGS, BM and BS degrees.
- Majors may require specific course(s) to meet this requirement.

ENGLISH 1000 or transferable equivalent with grade of C- or higher

- Required for BA, BFA, BGS, BM and BS degrees.

One Math Reasoning Proficiency course with grade of C- or higher

- Required for BA, BFA, BGS, BM and BS degrees.
- May also apply toward other degree program requirements.
- Must be chosen from the list of MRP courses designated each semester in the online Schedule of Courses.
- NOTE: *Not* required for first-time college students Summer 2019 or after.

One course in American government or history (per university General Education Requirement)

- Required for BA, BFA, BGS, BM and BS degrees.
- May also apply as a social science toward the behavioral and social science requirement.
- Should be chosen from the list of MU courses approved to meet Arts and Science Foundation Requirements.

## Foreign language

- Each student is required to attain the degree of proficiency equivalent to the completion of at least 12 hours of college-level work in a single foreign language. All MU foreign language departments require a grade of C- or higher in levels I of a language and level II of a language as prerequisites for level II and III, respectively.
- Elementary language sequence courses used towards fulfillment of the A&S foreign language requirement may not also be used towards the humanities requirement.
- Alternative for selected BS degrees: 12 credits numbered 2000 or above in an area approved by the major department substituted with the concurrence of the dean's office.
- The foreign language requirements can be waived if a student has completed four units of a single foreign language in high school. If a student chooses to meet the requirement by using high school units, any college credit for that same introductory language will not count towards graduation hours (i.e., a student who has completed 4 units of high school Spanish and has credit for SPAN 1100 will not have the SPAN 1100 count towards graduation hours). If a student wants to have the introductory college credit count towards graduation, the student must complete the language sequence.
- International students whose native language is other than English are exempt from the foreign language requirements but may not receive credit for basic skills courses in that native language. Others with native competence in one or more foreign language offered by MU may have a foreign language requirement waived by passing an exam given by a faculty member who is fluent in the language. The faculty member need not be a member of the MU faculty, but must be approved by the dean's office. The exam tests the student's ability to read, write, and speak the language at the level broadly described as "intermediate." Results of the examination are forwarded to the dean's office for evaluation. Students in this situation do not receive advanced-standing credit for their foreign language knowledge.

## Breadth of Study

Breadth of Study requirements include course work distributed among the following categories: biological, physical and mathematical sciences; behavioral and social sciences; humanities and fine arts.

### 1. Biological, physical and mathematical sciences

9 credits required for BA, BFA, BGS, BM and BS degrees.

- Must include course work from at least two of three areas.
- Must include at least one biological or physical science laboratory course.

### 2. Behavioral and social sciences

9 credits required for BFA, BGS, BM and BS degrees (except for the BS degree with majors in Biological Sciences and Psychology).

- Must include course work from both the behavioral and social sciences.
- 14-15 credits required for all BA degrees and the BS degree with majors in Biological Sciences and Psychology.
  - Must include 5-6 credits of behavioral science.
  - Must include 9 credits of social science, including course work from at least two different areas.

### 3. Humanities and fine arts

9 credits required for the BFA, BGS, BM and BS degrees (except for the BS degree with majors in Biological Sciences and Psychology).

- Must include course work from at least two different areas. 12 credits required for the BA degree, and the BS degree with majors in Biological Sciences and Psychology.
- Must include course work from at least three different areas.

#### 4. Additional breadth requirement for the BGS degree

3 credits from course work chosen from any of the following four categories: biological, physical and mathematical sciences; behavioral sciences; social sciences; humanities and fine arts.

### Parameters for meeting Breadth of Study requirements:

- Courses from the major department may not be used for breadth requirements in the BA, BFA and BS.
- Courses from the major department may be used for breadth requirements in the BM.
- Students earning degrees in special degree programs (where the courses in the major represent multiple departments) may use courses from their major departments to meet breadth requirements, but not the specific courses used in the major.
- Courses from outside the major department but required for the major may not be used to meet breadth requirements in the BFA or BA with a major in Art.
- Only one non-Arts and Science course may be used in each of the four categories: biological, physical and mathematical sciences; behavioral sciences; social sciences; humanities and fine arts.
- Courses must be chosen from the Distribution of Content List on the web site of the General Education Program. (<http://generaleducation.missouri.edu>.)
- Courses used to meet breadth requirements may also be used to meet depth requirements (see below).
- Problems, research, readings, and internship courses may not be used for breadth requirements.

### Depth of Study

Depth of Study requirements include at least 6 hours of course work numbered 2000 or above, distributed as follows:

#### BFA in Art

- 6 credits required (minimum of 2 courses).
- Must include course work from at least two of the following four breadth categories: biological, physical, mathematical sciences; behavioral sciences; social sciences; humanities and fine arts.

#### BGS in General Studies, all BA degrees, and BS with majors in Biological Sciences and Psychology

- 9 credits required (minimum of 3 courses).
- Must include course work from at least two of the following four breadth categories: biological, physical and mathematical sciences; behavioral sciences; social sciences; humanities and fine arts.

#### BS with majors in Chemistry, Geological Science, Mathematics, Physics and Statistics

- 6 credits required (minimum of 2 courses).
- Must include course work from at least two of the following three breadth categories: behavioral sciences; social sciences; humanities and fine arts.

#### BS with a major in Economics

- 6 credits required (minimum of 2 courses).
- Must include course work from at least two of the following four breadth categories: biological, physical and mathematical sciences; behavioral sciences; social sciences; humanities and fine arts.

#### BS with a major in Philosophy

- 6 credits required (minimum of 2 courses).
- Must include course work from at least two of the following three breadth categories: biological, physical and mathematical sciences; behavioral sciences; social sciences.

#### BM with a major in Music

- 6 credits required (minimum of 2 courses).
- Must include course work from at least one of the following three breadth categories: biological, physical and mathematical sciences; behavioral sciences; social sciences.
- 3 credit hours in Music (see below).

### Parameters for Meeting Depth of Study Requirements

- All courses must be numbered 2000 or above.
- At least 3 credits must be completed with MU course work.
- A student who elects 1-credit topics courses must complete a minimum of three courses in that breadth category as partial fulfillment of the depth of study requirement.
- Courses from the major department may not be used, except for the BM with a major in Music.
- Students earning degrees in special degree programs (where the courses in the major represent multiple departments) may use courses from their major departments to meet depth requirements, but not the specific courses used in the major.
- Courses from outside the major department, but required for the major, may not be used to meet depth requirements in the BFA or BA with a major in Art, the BA or BS with a major in Biology, or the BA with a major in Chemistry, Geological Science, Mathematics, Physics, or Statistics.
- Three hours (one course) of non-Arts and Science coursework may be used towards partial fulfillment of the depth of study requirement.
- Courses must be chosen from the Distribution of Content List (<https://generaleducation.missouri.edu/courses/>) on the website of the General Education Program.
- Courses used to meet depth requirements may also be used to meet breadth requirements.
- Problems, research, readings, and internship courses may not be used.

### Requirements for Major

A major consists of at least 21 credits, including at least 15 credits in courses numbered 2000 or above, 12 of which must be taken in MU course work. See detailed departmental information for additional requirements for specific majors.

All Arts and Science majors require an MU Writing Intensive course numbered 3000 or above and an MU capstone course with grades of C- or higher. In addition, some majors require course work outside the major department.

Each student must declare and receive official approval for a major by submitting a graduation plan no later than the semester after completion of 60 credits. The purpose of the graduation plan is to acquaint students with all requirements that must be met prior to graduation and to plan for the timely completion of these requirements. Departments and programs approve the graduation plan only when the student has met the following criteria:

- Completion of ENGLSH 1000 and MATH 1100 (or their equivalents) with grades of C- or higher
- Completion of any additional departmental requirements

## Requirements for an Optional Minor

A minor consists of at least 15 credits, including at least 6 credits numbered 2000 or above, within a department or program that offers a minor; 9 of the required credits must be taken in MU course work. This requirement can be reduced from 9 to 6 at the discretion of an individual department. See detailed departmental information for additional requirements for specific minors. Courses outside the major department but required for the major may be used towards a minor. In addition, courses required in the minor may be used to meet Foundation requirements.

The College of Arts and Science awards minors only to undergraduate students who are simultaneous recipients of bachelor's degrees. Students may not earn a major and a minor in the same field.

Students must meet the minimum GPA requirements for a minor, which in no case can be lower than 2.0. In addition, a student cannot receive a grade lower than a C- in any course applied towards a minor in the College.

## Requirements for an Optional Certificate

A certificate consists of at least 12 credits which must be taken in MU course work. See detailed information for additional requirements for specific certificates. Courses required for the certificate may be used to meet major, optional minor or Foundation requirements.

Students may not earn a certificate and a minor in the same field.

## Double Majors

A number of Arts and Science students choose to complete multiple majors while earning one degree. The requirements of each major, along with requirements for the degree, must be completed. Often, this does not result in the addition of hours to the degree program.

## Dual Degrees

In order to receive two bachelor's degrees, a student must complete a minimum of 132 credits and complete all of the specific requirements for both degrees. Normally, a minimum of one additional semester is required to earn both degrees. Each candidate for a dual degree is assigned advisors as appropriate.

The College of Arts and Science maintains dual-degree programs with the schools of Law, Medicine and Veterinary Medicine. To enroll in these programs, the student must have completed all of the specific course requirements for the bachelor's degree prior to admission to the professional school and also must have completed the junior year in residence in the College of Arts and Science. Under certain circumstances, Arts and Science undergraduates may be assured admission to MU's schools of Law or Medicine.

## Second Degrees

The faculty of the college has approved the following guidelines for students wishing to obtain a second undergraduate degree after completion of a bachelor's degree, in addition to any university requirements that may apply:

- A student must complete any college, general education or department requirements that are unique to the new degree program. Requirements that are in effect at the time a student begins work toward the second degree are applicable.
- Students applying for second-degree status will be considered only if they have completed (with grades C- or higher) ENGLSH 1000 and MATH 1100 (or equivalents) and have final term and cumulative GPAs no less than 2.0.
- The student must submit a graduation plan in consultation with an advisor in an appropriate department or program before the dean's office will approve a request from the student to enroll as a candidate for a second degree.
- With the exception of Interdisciplinary Studies majors with an emphasis in Black Studies, Peace Studies, or Women's and Gender Studies, the college does not approve applications for a second undergraduate degree in General Studies or Interdisciplinary Studies.
- A student who has earned a degree in Interdisciplinary Studies (excluding those with emphasis areas in Black Studies, Environmental Studies, Peace Studies, or Women's and Gender Studies) or General Studies may not pursue a second degree in a field that was used as a component of the first degree.
- Once enrolled for a second degree, a student is committed to enrolling in course work required for completion of that degree. A student will not be allowed to continue as a candidate for a second undergraduate degree if not enrolled in courses required for the second bachelor's degree.

## Graduate Dual Enrollment

A final-semester senior may dually enroll in the College of Arts and Science and the Office of Graduate Studies with permission of the deans of both divisions. This enables the student to complete some graduate course work prior to receiving the bachelor's degree.

The student must be within 15 credits of completion of the bachelor's degree and must rank in the upper half of the class.

Application forms for dual enrollment in these two schools may be obtained from the Office of Graduate Studies in 210 Jesse Hall.

## Credit Restrictions

### Maximum Credits Enrolled

With the consent of the dean, students with superior scholastic records may be allowed to register for more than 18 credits during a fall or spring semester. During the summer sessions, a student may not ordinarily be enrolled for more than 9 credits during the two four-week sessions combined and/or the eight-week session.

### Other Maximum Credit Policies

With the exception of MATH 1100 (or equivalent), ENGLSH 1000 (or equivalent), and the elementary sequence in a foreign language, the maximum number of credits from a single department that may apply

toward graduation is 54 for the BA and the BGS, 70 for the BFA, and 90 for the BM.

## Courses Forming a Sequence

Credit for a more advanced course within a sequence will not apply toward graduation if a student subsequently completes a less advanced course. (For example: completion of FRENCH 1200 after FRENCH 2100 or completion of MATH 1100 after MATH 1300.)

## Enrolling at Other Institutions

Students within the College of Arts & Science are allowed to enroll in another institution while being simultaneously enrolled at MU. Students are strongly encouraged to speak with an advisor to verify course transfer credit, degree applicability and other academic ramifications. Students, however, bear the ultimate responsibility for checking course equivalencies and requesting official transcripts be sent to the MU Office of Admissions (230 Jesse Hall). Similarly, A&S students who are likely to qualify for Latin honors are advised not to risk their eligibility for this distinction because of simultaneous enrollment at another institution (see information on Latin honors). Students who receive financial aid are advised to check with a financial aid officer to learn the implications, if any, of simultaneous enrollment in a non-MU course.

## Time Limit on Credits Earned

Credit that is applied toward a degree is considered valid for eight years. After that time, the validity of credit already on the transcript will be reevaluated. Departments of the college have the right to accept or to reject credit earned after eight years have passed.

## Advising

Students who have declared a major are assigned an advisor in that department. Students who have not yet decided on a major are assigned to a professional advisor in the Student Success Center.

## Graduation with Latin Honors

Regulations of the college regarding the awarding of Latin honors require that 54 of the final 60 credits are completed as MU course work for a letter grade (A-F). Thus, up to 6 of the final 60 credits may be taken as S/U. However, courses taken S/U during Spring 2020 will not count towards this 6-credit limit but are otherwise included towards the final 60 hours. Awarding of Latin Honors is based on the cumulative GPA.

The local chapter of Phi Beta Kappa requires completion of a minimum of 60 credits of course work on the MU campus, usually during the last two years of study. Exceptions to this latter expectation may be made for students who study abroad in an approved program during their final semesters of study.

## Probation and Dismissal

### Academic (Scholastic) Standing

In addition to University requirements defined in the Academic Standing (p. 853) section of this catalog and in the Faculty Handbook (<https://missouri.app.box.com/v/facultyhandbook/>), academic status of Arts and Science students is determined in accordance with the following faculty guidelines. In addition to semester-based courses, self-paced, intersession, summer and extension coursework also has a bearing on academic status.

- Students on scholastic probation have two semesters (as long as each semester GPA is no lower than 1.0) in which to attain good academic standing (2.0 minimum term and cumulative GPA) or be subject to dismissal.
- A student on probation may not be allowed to participate in a study abroad program or internship opportunities.
- In the application of these rules, the dean will determine how an incomplete grade in a course will be considered in determining a student's academic standing.
- The dean may, in extenuating circumstances, waive any of the foregoing regulations governing eligibility to re-enroll for an individual student.

## Internship Eligibility

In order to participate in an internship, a student must be in good academic standing (not on probation) and have completed at least one semester of college coursework after graduation from high school.

## Career Placement

Employment opportunities in the various disciplines of the liberal arts vary greatly. Departments in the college have information available describing employment opportunities. The MU Career Center in the Student Success Center offers students a variety of career planning services.

## Air Force Reserve Officer Training Corps (AFROTC)

The AFROTC provides the opportunity to become a United States Air Force officer while completing a college degree. The program combines traditional undergraduate education with military instruction in preparation for Air Force leadership challenges. Each semester academic AFROTC classes will build a foundation for application to a two-hour Leadership Lab. Scholarships are available. Visit [www.afrotc.com](http://www.afrotc.com) (<http://www.afrotc.com>) for the most current information. After graduating from college and successfully completing all AFROTC requirements, cadets receive a commission as a second lieutenant with an obligation of four years of service in the active duty Air Force. Pilots incur a ten-year commitment from the date of graduation from pilot training. A few additional career fields require a six or eight year commitment.

MU also offers a Minor in Aerospace Studies (p. 356).

For additional information contact:

Department of Aerospace Studies  
217 Crowder Hall  
(573) 882-7621  
[airforce.missouri.edu](http://airforce.missouri.edu) (<http://airforce.missouri.edu/>)

## Army Reserve Officer Training Corps (AROTC)

Army ROTC is a college elective program that teaches the skills needed to succeed in the Army or the corporate world. Students combine classroom time with hands-on experience and learn leadership and management skills. The experience of Army ROTC provides the confidence needed to excel in college and beyond. The Army ROTC program can be completed through a two- to four-year program designed to develop young men and women into junior commissioned officers in the Active Army, Army Reserve, or Army National Guard. In addition

to traditional combat roles, Army officers serve in such professional fields as aviation, medical service, finance, personnel management, communications and engineering. MU also offers a Minor in Military Science (p. 365).

For additional information contact:

Department of Military Science and Leadership  
202 Crowder Hall  
(573)-882-7721  
<http://armyrotc.missouri.edu/>

## Graduate

The College of Arts and Science is home to a broad spectrum of disciplines that prepare graduate students for challenging and rewarding careers. Our faculty mentors are known for both research and teaching excellence and many have received national acclaim for discoveries, disciplinary leadership, creative works and music or theater performance.

The School of Music (p. 255), housed within the College, offers masters degrees, a doctoral degrees and a graduate certificate in jazz studies. Music education degrees are offered in conjunction with the College of Education, Department of Learning, Teaching and Curriculum.

**Note:** Prospective graduate students must apply to *both* the degree program of interest and to the Graduate School. In most cases, the entire application process may be completed online. Find admission and application details by selecting the degree program of interest in the left navigation column.

## Ancient Mediterranean Studies

Anatole Mori, Department Chair  
College of Arts and Science  
112B Swallow Hall  
(573) 882-0679

[MoriA@missouri.edu](mailto:MoriA@missouri.edu) ([moria@missouri.edu](mailto:moria@missouri.edu))

The Department of Ancient Mediterranean Studies offers courses in the life, languages, cultures, and thought of the ancient Greeks and Romans.

The department offers a BA degree with a major in Ancient Mediterranean Studies and emphasis areas in Classical Humanities, Greek, Latin, and Classical Languages; MA degrees in Classical Languages and PhD degrees in Classical Studies. A minor in Ancient Mediterranean Studies is also available.

## Faculty

**Professor** S. Gurd\*\*, D. Trout\*\*

**Associate Professor** R. D. Marks\*\*, A. Mori\*\*, D. J. Schenker\*\*

**Assistant Professor** M. Mogetta\*, S. Yona\*

**Assistant Teaching Professor** J. Crozier\*, John McDonald\*

**Professor Emeritus** D. M. Hooley\*\*, S. Langdon\*\*, M. Rautman\*\*, K. Slane\*\*, T. Tarkow\*, B. Wallach\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BA in Ancient Mediterranean Studies (p. 144)
- Minor in Ancient Mediterranean Studies (p. 144)

## Major with Honors

The undergraduate program can also include 3-6 credits in an honors thesis course (CL\_HUM 4970H or CLASS 4970H). These credits, in addition to major requirements and a 3.5 GPA in all Classics courses (as well as a 3.3 overall GPA), lead to a BA degree with a major in Classics with Honors.

## Double Majors

A double major is a good way of integrating two related areas of interest, such as Classics, Archaeology, English and Philosophy. Students looking forward to a career in medicine or the sciences may use a double major (Classics and Biology or Chemistry, for instance) to ensure a thorough background in the humanities to balance their scientific studies. Usually minor or related field requirements for each major are satisfied by major courses in the other department. Consult with departmental advisors about specifics.

## Graduate

- MA in Ancient Mediterranean Studies (p. 144)
- PhD in Ancient Mediterranean Studies (p. 145)

### Director of Graduate Studies:

Sean Gurd  
108 Swallow Hall  
[GurdS@missouri.edu](mailto:GurdS@missouri.edu)

The Department of Ancient Mediterranean Studies offers graduate work leading to the degrees of Master of Arts and Doctor of Philosophy. The graduate faculty encourages applications from talented and committed students, whose undergraduate careers have given them an appreciation of the rich, many-faceted nature of classical studies and an interest in discovering a place of their own in it. Solid experience in Latin and Greek is of course desirable, but Missouri's MA program is specifically designed for students whose study in one or both of the languages may have come late and who need help getting up to speed rapidly.

### Career Preparation

Graduate programs in Ancient Mediterranean Studies are designed to prepare students for professional careers as teachers and scholars of classical literature and ancient civilization. Besides acquiring expertise in the traditional classical disciplines, students are encouraged to become familiar with other areas, such as later literatures and cultures, on which the classical tradition has exercised a decided effect.

### Facilities and Resources

Because MU is a contributing member of the American Academy in Rome and the American School of Classical Studies in Athens, the facilities of those organizations are available to graduate students from Missouri. Study in Athens or Rome is often feasible after the completion of a master's degree. On campus, students have at their disposal the resources of Ellis Library, which are excellent in the major fields of



Greek and Latin languages and literatures, and in ancillary fields. This collection is supplemented by the department's Walter Miller Collection. The Museum of Art and Archaeology contains many items of interest to classicists.

## BA in Ancient Mediterranean Studies

### Degree Program Description

The Ancient Mediterranean Studies major is a broad study of literature, covering a deep knowledge of the elements of language, grammar, and syntax, writing and reading skills, vocabulary building and experience with the foundational texts of the Western literary tradition that have influenced most all of subsequent literary and philosophical thought. In the course of their degree majors achieve an integrated knowledge of the primary political, social, and military events and developments in the ancient Greek and Roman world. Students completing the major will be well prepared for a variety of careers and for further study in graduate or other professional schools.

### Major Program Requirements

Below are the degree requirements. These must be met in addition to college (p. 138) and university requirements (p. 35), including University general education (p. 36).

AMS Courses at the 1000-2000 levels	6-9
AMS Courses at the 3000-level or above	15-18

(Latin or Greek language courses numbered 4300 or above can be used to replace up to two required AMS courses.)

### Semester Plan

Please note plans may vary based on student interests.

First Year			
Fall	CR	Spring	CR
MATH 1100		3 ENGLISH 1000	3
Social Science Course (MO State Law)		3 AMS 1000-2999	3
AMS 1000-2999		3 Biological/Physical/Math Science Course with lab	5
LATIN 1100 or GREEK 1100		4 LATIN 1200 or GREEK 1200	4
	13		15
Second Year			
Fall	CR	Spring	CR
LATIN 2000 or GREEK 2000 (4 cr effective SP2021)		3 LATIN 4300 or GREEK 4300 (OR AMS 4000+)	3
Behavioral Science Course		3 Minor	3
Humanities Course		3 Humanities Course (2000-level)	3
Social Science Course (2000-level)		3 Math Reasoning Proficiency Elective Course	3
Minor		3 Behavioral Science Course	3
	15		15
Third Year			
Fall	CR	Spring	CR
Humanities Course (WI)		3 Humanities Course (2000-level)	3
Biological/Physical/Math Science Course		4 Minor	3

LATIN/GREEK 4300+ OR AMS 3000+	3 AMS 3000+ (WI)	3
CL HUM 3000+ Elective Course	3 Elective Course	3
	3 Elective Course	3
	16	15

Fourth Year			
Fall	CR	Spring	CR
Minor		3 Social Science Course	3
AMS Capstone Course		3 AMS 3000+	3
AMS 3000+		3 AMS Minor Course	3
Elective Course		3 Elective Course	3
Elective Course		3 Elective Course	3
	15		15

Total Credits: 119

## Minor in Ancient Mediterranean Studies

### Requirements

Minor requires 15 credit hours

1000 through 2000-level	3-6
3000 through 4000-level	9-12

(3 credits in Greek or Latin language at the 4300-level or above may substitute for equivalent credits)

<b>Total Credits</b>	<b>15</b>
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## MA in Ancient Mediterranean Studies

- Degree Requirements (p. 144)
- Admissions (p. 144)

### Degree Requirements

The minimum course of study is 30 semester hours. Of these, at least 12 hours in classical archaeology, Greek, Latin, classics, and related fields must be at the 8000/9000 level or above. AMS 7000 is required of all students during their first year of graduate study. Students who wish to have a minor may take 10-12 hours in another department or complete an ancient studies minor.

### Languages

Some command of German and French (or Italian) is helpful from the outset, and MA candidates are required to have demonstrated proficiency in one of the languages by the time that they begin their second year of graduate study. Degree candidates take MA language tests (Latin and/or Greek) in the 2nd or 3rd year of graduate studies.

### Written Works and Oral Examination

A final oral examination is given by a faculty committee selected by the student in consultation with the advisor. This examination will include defense of either the thesis or a compiled portfolio of seminar papers. If the former option is elected, the thesis will account for six credit hours.

### Admission Criteria

Fall deadline: April 1st

**NOTE:** Deadline for teaching assistantship applicants: January 15th

Spring deadline: November 1st (Departmental support not typically available)

- Minimum GPA: 3.0 during last 2 years
- Bachelor of arts degree from an accredited college or university
- Reading knowledge of Greek and/or Latin
- GPA of at least 3.0 in Greek and/or Latin courses
- Minimum GRE score: no minimum
- Minimum TOEFL scores

Internet-based test (iBT)	Paper-based test (PBT)
61 Effective July 1, 2015 must have score of 80	500 Effective July 1, 2015 must have score of 550

## Required Application Materials

*To the Graduate School*

- 3 letters of recommendation
- Statement of interest
- 10-20 pp. writing sample
- Transcripts
- GRE scores

Application materials that cannot be submitted directly to the Graduate School may be sent to the Classical Studies program.

## Admission Contact Information

Sean Gurd  
108 Swallow Hall, Columbia, MO 65211  
gurds@missouri.edu

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

## PhD in Ancient Mediterranean Studies

### Degree Requirements

A minimum of 72 hours of graduate credit is required for the PhD degree. A maximum of 30 hours of this total may consist of hours transferred from the MA degree. At least 12 additional hours must be taken in the department at the graduate level. A minimum of eight hours of dissertation credit is required.

#### Language:

Proficiency in one ancient or modern foreign language must be demonstrated by the time of registration for the second year of graduate study; proficiency in a second language must be demonstrated by the time of registration for the third year. Further language requirements may be applicable, depending on the candidate's specific interests and plan of study.

## Examinations

### Comprehensive: Written

After completing residency, language, and course requirements, PhD candidates must pass comprehensive examinations.

### Comprehensive: Oral

The oral comprehensive examination is taken only after the candidate successfully passes the written examinations.

### Dissertation

Within one month of completion of both written and oral comprehensive exams, or at the beginning of the Fall term if the exams are taken in May, the candidate must meet with the doctoral program committee to obtain formal approval of the dissertation topic. Continuous enrollment must be maintained while the candidate completes the dissertation. At least eight hours of dissertation credit are required. A final oral defense of the dissertation is held upon completion of the dissertation.

## Admission Criteria

Fall deadline: April 1st

**NOTE:** Deadline for teaching assistantship applicants: January 15th

Spring deadline: November 1st (Departmental support not typically available)

- MA with a major in Greek, Latin, classical archaeology, classics, or the equivalent of a minimum of 21 hours of graduate work in the language(s). Reading knowledge of Greek and Latin and a reading knowledge of German and French (or Italian)
- Minimum GRE score: no minimum
- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
61	500

## Required Application Materials

*To the Graduate School*

- 3 letters of recommendation
- Statement of interest
- 10-20 pp. writing sample
- Transcripts
- GRE scores

Application materials that cannot be submitted directly to the Graduate School may be sent to the Classical Studies program.

## Admission Contact Information

Sean Gurd  
108 Swallow Hall, Columbia, MO 65211  
gurds@missouri.edu

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

## Anthropology

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### Lisa Sattenspiel, Chair

Department of Anthropology  
College of Arts & Science

#### Mailing Address:

112 Swallow Hall  
Columbia, MO 65211  
(573) 882-4731  
muasanthropology@missouri.edu  
<http://anthropology.missouri.edu>

**Welcome** to the Department of Anthropology at the University of Missouri! Our University is the oldest public land grant institution west of the Mississippi, a member of the AAU and the highest category of research universities. We are a small department with an emphasis on scientific approaches to the study of human biology, behavior, culture, and evolution. Our faculty contribute to research on indigenous peoples of the Amazon, prehistoric populations of the US Southwest, the spread of infectious diseases in human groups, human skeletal variation in the past and present, the evolution of cooperation, the genetics of nonhuman primates, and many other topics. MU students study the whole of humanity: its history, variability, artifacts, customs, beliefs and value systems which produces sophisticated problem solvers for today's complex and conflict-prone world.

## Faculty

**Professor:** L. Sattenspiel (<https://anthropology.missouri.edu/people/sattenspiel/>)\*\*

**Associate Professor:** G. E. Blomquist (<https://anthropology.missouri.edu/people/blomquist/>)\*\*, L. W. Cowgill (<https://anthropology.missouri.edu/people/cowgill/>)\*\*, K. Panchanathan (<https://anthropology.missouri.edu/people/panchanathan/>)\*\*, C. S. VanPool\*\* (<https://anthropology.missouri.edu/people/vanpool/>), T. L. VanPool\* (<https://anthropology.missouri.edu/people/vanpool-todd/>), R. S. Walker\*\* (<https://anthropology.missouri.edu/people/walker/>)

**Assistant Professor:** J. Ferguson (<https://anthropology.missouri.edu/people/ferguson/>)\*\*, S. Prall (<https://anthropology.missouri.edu/people/prall/>)\*\*

**Visiting Assistant Professor:** M. Stanton (<https://anthropology.missouri.edu/people/stanton/>)

Note: All permanent regular faculty members in the department serve as undergraduate mentors for anthropology majors.

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BA in Anthropology (p. 148)
- Minor in Anthropology (p. 151)

**Advising Contact - Kay Gregory** - [gregoryk@missouri.edu](mailto:gregoryk@missouri.edu)

**Director of Undergraduate Studies:** Dr. Greg Blomquist (<https://anthropology.missouri.edu/people/blomquist/>) - [blomquistg@missouri.edu](mailto:blomquistg@missouri.edu)

The University of Missouri Department of Anthropology offers a BA in Anthropology. Students may also earn Departmental Honors, as outlined in the next section.

Within this program, a student may concentrate in one of several optional tracks:

- Archaeology & Heritage (<https://anthropology.missouri.edu/research/>)
- Health & Human Biology (<https://anthropology.missouri.edu/research/>)
- Cultural & Human Ecology (<https://anthropology.missouri.edu/research/>)

Students can also develop their own interdisciplinary focus integrating courses across the three tracks. Tracks do not appear on transcripts or diplomas. See BA in Anthropology (p. 148) for more information.

An undergraduate major in anthropology provides a broad educational base that can be the core of a liberal arts education or the background for specific vocational or professional goals of a student. Anthropology is of particular value to students planning professional careers in a world of cultural and ethnic diversity. Anthropology majors are required to take core courses in all three focal areas of the discipline, but may emphasize one or more of them in their remaining courses. Students may also develop an interdisciplinary program in cooperation with other departments or schools. In addition, the department offers an anthropology minor to students who are majoring in other departments and who will profit by more formal training in the discipline.

The Anthropology Department provides many opportunities for students to become involved in research and encourages all students to do so. Such experiences help a student develop creativity, critical thinking skills, and skills in problem solving and writing. Students who are interested in doing anthropological research have several options, including working in close conjunction with a faculty member or working on an independent project under faculty supervision. An independent research experience may lead to an honors degree for eligible students. See BA in Anthropology (p. 148) for more information on this option.

Undergraduate training in anthropology prepares students for work in government agencies (both in the United States and overseas), museum positions, field positions in, for example, archaeology, ethnography, or human paleontology, and for graduate study leading toward college or university teaching of anthropology. An anthropology degree also provides good background for careers in business, journalism, health care, law, and many other fields.

The Department of Anthropology has a number of special facilities that are available for use in classes, for individual research opportunities, and in some cases, for the general public to visit.

These special facilities include:

- The Museum of Anthropology (<https://anthromuseum.missouri.edu/>) & Museum Support Center
- The Archaeology Laboratory
- The Skeletal Laboratory
- The Fossil Cast Collection
- MURR (<http://www.murr.missouri.edu/>) (University of Missouri Research Reactor)

## Goals of the Anthropology Curriculum

Students completing an anthropology degree are awarded a BA degree with a major in Anthropology or a BA degree with Honors in Anthropology. The undergraduate program is designed to help students

develop an appreciation of other cultures and other world views and to gain an understanding of how and why the diversity in human culture and biology came about. Several goals help faculty teach undergraduates about the nature of the discipline and how to think critically about what it is, what it means and how it is useful in today's society. These goals include:

- To recognize the broad, cross-cultural generalizations that characterize anthropology
- To recognize the value of a cross-cultural, comparative perspective
- To acquire an understanding of the basic concepts in the subfields of anthropology
- To acquire advanced knowledge in one or more of the subfields
- To acquire an awareness of the interrelationship of the subfields
- To think critically about the nature and content of anthropological questions
- To assess the structure of an argument and evaluate it and its supporting information
- To communicate effectively in writing or through oral presentation
- To strive for innovative and creative thinking
- To think independently both within and outside anthropology

Students are also encouraged to acquire experience in research design and methods (e.g., using the library and internet effectively to gather information on a problem, or understanding and using the methods of one or more subfields). To this end, the department provides abundant opportunities for students to work with faculty members on independent research projects.

## GPA Requirements

The College of Arts and Science requires that students attain a minimum GPA of 2.0 in all courses in their major department. In addition, all core courses in anthropology (ANTHRO 2020 or ANTHRO 2021/ANTHRO 2022, ANTHRO 2030, ANTHRO 2050 or ANTHRO 2051/ANTHRO 2052, ANTHRO 4990) must be completed with a grade of C- or higher and students may receive a grade below C- in no more than one other course used to satisfy the major.

## Graduate

- MA in Anthropology (p. 151)
- PhD in Anthropology (p. 152)

### Department of Anthropology

Dr. Libby Cowgill (<https://anthropology.missouri.edu/people/cowgill/>) (<https://anthropology.missouri.edu/?q=people/walker>), **Director of Graduate Studies**

CowgillL@missouri.edu (cowgill@missouri.edu)

**Main Office: (573) 882-4731**

anthropology.missouri.edu (<http://anthropology.missouri.edu>)

muasanthropology@missouri.edu

The Department of Anthropology offers graduate work leading to the degrees of Master of Arts (MA) and Doctor of Philosophy (PhD) with a current enrollment of about 30 graduate students. Our department has a broad scientific approach to understanding human biology and behavior, both past and present, that is grounded in ecological and evolutionary theory. The graduate program provides rigorous coursework with a rich combination of hands-on field and laboratory research experiences.

Students work closely with a faculty advisor who helps them pursue fellowships/grants and to develop collaborative research projects.

Active areas of research by our regular professors include:

- Archaeology (<https://anthropology.missouri.edu/research/>): archaeological theory, evolutionary archaeology, lithic artifact analysis, ceramic analysis, and material sourcing studies with regional foci in the American Southwest
- Biological anthropology (<https://anthropology.missouri.edu/research/>): skeletal biology, functional anatomy, human osteology, Neanderthals, demography, epidemiology, life history, and primate genetics
- Cultural anthropology (<https://anthropology.missouri.edu/research/>): human behavioral ecology, cultural evolution, medical anthropology, and biocultural anthropology with regional foci in Amazonia

Incoming graduate students are admitted into one of three tracks:

## Track 1: MA students

Students admitted to Track 1 will be classified as MA seeking students with the Graduate School. (<http://gradschool.missouri.edu/>) These students will complete all requirements for the MA degree as currently outlined in our Graduate Students Handbook ([http://catalog.missouri.edu/undergraduategraduate/collegeofartsandscience/anthropology/Graduate\\_Student\\_Handbook--revised-2019.pdf](http://catalog.missouri.edu/undergraduategraduate/collegeofartsandscience/anthropology/Graduate_Student_Handbook--revised-2019.pdf)), including completing a thesis (not a proposal or publication as for Track 2, see below, although eventual publication of the thesis is encouraged). Upon completion, the student can, if eligible, apply to the Anthropology program for acceptance as a PhD seeking student.

## Track 2: PhD students required to complete MA requirements

Students admitted to this track will be classified as PhD seeking students with the Graduate School (<http://gradschool.missouri.edu/>). These students will complete all course requirements for the MA. With the consent of the student's committee, a Track 2 student will complete either a thesis **OR** a proposal formatted for a major granting agency that will serve as the student's PhD dissertation proposal, **OR** a primary-authored paper that must have been submitted for publication. In each of these cases, the student will orally defend the work. Upon successful completion of these requirements, the student will be awarded an MA, and will then be eligible to continue work towards a PhD without the need to reapply to the program or change student status.

## Track 3: PhD students with MA in hand

Students admitted to this track will be classified as PhD seeking students with the Graduate School (<http://gradschool.missouri.edu/>). They will not be required to complete the MA requirements and will not earn an MA during their graduate work at MU. Upon completion of the requirements currently listed for the PhD program, including coursework, qualifying examination, comprehensive examination, teaching, and dissertation, the student will be awarded a PhD.

## Facilities and Collections

Departmental research facilities/collections include a ceramic analysis laboratory, a stone artifact analysis laboratory, a comparative faunal collection, and a skeletal biology laboratory. The Museum of Anthropology (<https://anthromuseum.missouri.edu/>) houses extensive holdings of New World (especially Missouri) archaeological and skeletal materials and ethnographic specimens from many parts of the world,

and provides opportunities for museum-oriented studies (see also the Museum Studies Graduate Minor (p. 374)). The Museum Support Center, an archaeological research and curation facility is located on the edge of campus. The University of Missouri Research Reactor provides opportunities for students interested in archaeometry. Resources in other departments or research units available by arrangement include the Electron Microscopy Facility, and the Stable Isotope Laboratory of the Department of Geological Sciences.

## Research by Location

Regular faculty members of the department conduct research in the following geographical areas, beyond Missouri: Canada (biological anthropology), Amazonia (biological & cultural anthropology), Southern Africa (cultural anthropology) and the North American Southwest (archaeology). Refer to the faculty list for interests of faculty (<https://anthropology.missouri.edu/people/>) and emeritus faculty (<https://anthropology.missouri.edu/people/emeritus/>).

## Financial Assistance

Financial assistance packages are usually granted on a competitive basis for students who enter the program in the Fall semester. This assistance comes in the form of tuition waivers and stipends provided by Life Science Fellowships, Graduate School Fellowships, teaching assistantships, or graduate instructorships.

# BA in Anthropology

## Degree Program Description

Anthropology is the study of the entire human experience, from our primate roots to our globalized present. Anthropology at MU emphasizes scientific approaches to the study of human biology, behavior, culture, and evolution. Anthropology majors are required to take core courses in all three focal areas of the discipline (archaeology, biological anthropology, and cultural anthropology) but may concentrate in one or more of these fields. The degree offers three specialized tracks of study for students who want a closer fit between the major and future employment or post-baccalaureate training: Health & Human Biology, Archaeology & Heritage, and Culture & Human Ecology. Students are *not* required to choose a track and these do *not* appear on diplomas or transcripts. Students have opportunities to become involved in research, helping them develop creativity, enhance critical thinking skills, solve problems and improve their writing. Undergraduate training in anthropology also prepares students for work in government (both in the United States and abroad), museum positions, and field positions in archaeology, ethnography, human paleontology, or forensics. It may also provide students with the opportunity to enter graduate school leading towards an academic career teaching and conducting anthropological research at a college or university. A degree in anthropology also provides students with the background to pursue careers in business, journalism, health care, law, and many other fields.

## Major Program Requirements

In addition to college foundation requirements and University graduation requirements (p. 35), such as general education (p. 36), all anthropology students are required to complete the following core courses (15 credits):

ANTHRO 2020	Fundamentals of Archaeology with Laboratory	4
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or ANTHRO 2021 & ANTHRO 2022	Fundamentals of Archaeology and Fundamentals of Archaeology Lab	
ANTHRO 2030	Cultural Anthropology	3
ANTHRO 2050	Introduction to Biological Anthropology with Laboratory	5
or ANTHRO 2051 & ANTHRO 2052	Introduction to Biological Anthropology and Biological Anthropology Laboratory	
ANTHRO 4990	Capstone Seminar in Anthropology	3
Total Credits		15

ANTHRO 4990 Capstone Seminar in Anthropology must be completed even if a student completes an additional major in another department. Some departments waive this requirement for students completing a double major. Students with second majors should check with the other department to see if they are required to complete both capstone courses.

## Electives and Specialized Tracks

A minimum of 15 additional Anthropology credits (usually 5 courses) are required for the major. *No specific courses are required but a minimum of 8 credits must be at the 3000-level or above (excluding capstone ANTHRO 4990).* Students are encouraged to follow one of the three tracks described below to specialize their elective courses. Tracks do *not* appear on diplomas or transcripts.

### HHB Track: Health & Human Biology

Coursework in this track encourages students to develop skills for careers devoted to understanding human health and biological variation from cross-cultural and evolutionary perspectives. Students are encouraged to become involved in research (<https://undergradresearch.missouri.edu/jobs-and-programs/programs/>) (see below) or internships (<https://career.missouri.edu/jobs-and-internships/internships/>) that will advance their training. Appropriate field schools can also be valuable (e.g., paleoanthropology, primatology, bioarchaeology). The department keeps an updated list of these field schools operated by other universities.

ANTHRO 1000	Introduction to Anthropology: Human Biology, Prehistory, and Culture	3
ANTHRO 1000H	Introduction to Anthropology: Human Biology, Prehistory, and Culture - Honors	3
ANTHRO 1500	Monkeys, Apes and Humans	3
ANTHRO 1500W	Monkeys, Apes and Humans - Writing Intensive	3
ANTHRO 2002	Topics in Anthropology-Biological Science	1-3
ANTHRO 2500	Primate Anatomy and Evolution	3
ANTHRO 2530	Human Evolution through Film and Literature	1-3
ANTHRO 2570	Parents and Offspring	3
ANTHRO 2580	Evolution of Human Sexuality	3
ANTHRO 2580W	Evolution of Human Sexuality - Writing Intensive	3
ANTHRO 3002	Topics in Anthropology-Biological Sciences	3
ANTHRO 3540	Human Biology and Life History	3
ANTHRO 3560	Plagues and Peoples	3
ANTHRO 3560W	Plagues and Peoples - Writing Intensive	3
ANTHRO 4360	Medical Anthropology	3
ANTHRO 4500	Human Origins	5

ANTHRO 4520	Functional Morphology of the Human Skeleton	3
ANTHRO 4540	Human Biological Variation	3
ANTHRO 4580	Evolutionary Medicine	3
ANTHRO 4880	Demographic Anthropology	3
ANTHRO 4885	Anthropological Genetics	3
ANTHRO 4890	Human Skeletal Identification and Analysis	5
ANTHRO 4950	Undergraduate Research in Anthropology	2-8
ANTHRO 4950H	Honors Research in Anthropology	3
ANTHRO 4950HW	Undergraduate Research in Anthropology - Honors/Writing Intensive	2-8
ANTHRO 4960	Undergraduate Readings in Anthropology	1-99

### A&H Track: Archaeology & Heritage

Students choosing this track develop skills for collection, interpretation, and curation of material culture from archaeological or contemporary human groups. *A field school experience is strongly recommended.* The department keeps an updated list of these field schools operated by other universities. MU-hosted field schools include AMS 2940 and varying summer study abroad courses (<https://international.missouri.edu/>). Additional research or internships opportunities, particularly with MURR (<https://www.murr.missouri.edu/>) and the Museum of Anthropology (<https://anthromuseum.missouri.edu/>), are also encouraged.

ANTHRO 1000	Introduction to Anthropology: Human Biology, Prehistory, and Culture	3
ANTHRO 1000H	Introduction to Anthropology: Human Biology, Prehistory, and Culture - Honors	3
ANTHRO 1003	Topics in Anthropology - Behavioral	1-3
ANTHRO 1200	Significant Discoveries of Archaeology	3
ANTHRO 2003	Topics in Anthropology - Behavioral	1-3
ANTHRO 2215	World Archaeology	3
ANTHRO 2800	Introduction to Field Methods in Archaeology	1-6
ANTHRO 2825	Analyzing Artifacts	3
ANTHRO 2950	Research Skills in Anthropology	1-3
ANTHRO 3003	Topics in Anthropology - Behavioral Science	3
ANTHRO 4200	Environment and Archaeology	3
ANTHRO 4240	History of Archaeology	3
ANTHRO 4280	Archaeology of Religion	3
ANTHRO 4300	Comparative Social Organization	3
ANTHRO 4340	Cultural Evolution and Change	3
ANTHRO 4500	Human Origins	5
ANTHRO 4620	North American Archaeology	3
ANTHRO 4640	Prehistory of the Greater Southwest	3
ANTHRO 4650	Prehistory of Mesoamerica	3
ANTHRO 4700	Old World Prehistory	3
ANTHRO 4800	Field Methods in Archaeology	1-8
ANTHRO 4820	Zooarchaeology	3
ANTHRO 4826	Stone Artifact Analysis	3
ANTHRO 4828	Archaeological Analysis of Ceramics	3
ANTHRO 4840	The Comparative Method in Anthropology	3
ANTHRO 4880	Demographic Anthropology	3

ANTHRO 4890	Human Skeletal Identification and Analysis	5
ANTHRO 4950	Undergraduate Research in Anthropology	2-8
ANTHRO 4950H	Honors Research in Anthropology	3
ANTHRO 4950HW	Undergraduate Research in Anthropology - Honors/Writing Intensive	2-8
ANTHRO 4960	Undergraduate Readings in Anthropology	1-99

### CHE Track: Culture & Human Ecology

This track provides training in the skills of cultural anthropologists for collecting, analyzing, interpreting, and communicating information about cultural processes and cultural variation. *Completion of the multicultural certificate (<https://multicultural.missouri.edu/>) and a minor, especially in a foreign language, are strongly recommended.* Students are encouraged to become involved in research (<https://undergradresearch.missouri.edu/jobs-and-programs/programs/>) (see below) or internships (<https://career.missouri.edu/jobs-and-internships/internships/>) that will advance their training. Appropriate field schools can also be valuable (e.g., language or cultural immersion, ethnographic field work). The department keeps an updated list of these field schools operated by other universities.

ANTHRO 1000	Introduction to Anthropology: Human Biology, Prehistory, and Culture	3
ANTHRO 1000H	Introduction to Anthropology: Human Biology, Prehistory, and Culture - Honors	3
ANTHRO 1003	Topics in Anthropology - Behavioral	1-3
ANTHRO 1060	Human Language	3
ANTHRO 1150	Introduction to Folklore Genres	3
ANTHRO 1300	Multiculturalism: An Introduction	3
ANTHRO 1350	Deviance: A Cross-Cultural Perspective	3
ANTHRO 2003	Topics in Anthropology - Behavioral	1-3
ANTHRO 2005	Topics in Anthropology - Humanities	1-3
ANTHRO 2100	Indigenous Religions	3
ANTHRO 2100H	Indigenous Religions - Honors	3
ANTHRO 2150	Introduction to Folklore Field Research	3
ANTHRO 2300	Anthropology of War	3
ANTHRO 2340	Hunters and Gatherers	3
ANTHRO 2950	Research Skills in Anthropology	1-3
ANTHRO 3003	Topics in Anthropology - Behavioral Science	3
ANTHRO 3004	Topics in Anthropology - Social Science	3
ANTHRO 3005	Topics in Anthropology - Humanities	3
ANTHRO 3150	American Folklore	3
ANTHRO 3340H	The Evolution of Human Nature - Honors	3
ANTHRO 3340HW	The Evolution of Human Nature - Honors/Writing Intensive	3
ANTHRO 3380	Native American Religions	3
ANTHRO 3470	Culture as Communication	3
ANTHRO 3490	Indian Cinema	3
ANTHRO 3560	Plagues and Peoples	3
ANTHRO 3560W	Plagues and Peoples - Writing Intensive	3
ANTHRO 3600	North American Indian Culture	3
ANTHRO 3780	Cultures of Southeast Asia	3
ANTHRO 4005	Topics in Anthropology - Humanities	1-3
ANTHRO 4001	Topics in Anthropology-General	1-3

ANTHRO 4150	Special Themes in Folklore	3
ANTHRO 4170	Oral Tradition	3
ANTHRO 4300	Comparative Social Organization	3
ANTHRO 4320	Ecological and Environmental Anthropology	3
ANTHRO 4340	Cultural Evolution and Change	3
ANTHRO 4350	Psychological Anthropology	3
ANTHRO 4360	Medical Anthropology	3
ANTHRO 4370	Anthropology of Gender	3
ANTHRO 4380	Anthropological Theories of Religion	3
ANTHRO 4385	Anthropology of Shamanism	3
ANTHRO 4412	Gender, Language, and Communication	3
ANTHRO 4420	Historical Linguistics	3
ANTHRO 4600	Ethnographic Studies of Selected Cultures	3
ANTHRO 4680	Cultures and Peoples of the Amazon	3
ANTHRO 4790	Culture and Society in South Asia	3
ANTHRO 4830	Ethnographic Methods	3
ANTHRO 4870	Field Methods in Linguistics	4
ANTHRO 4870W	Field Methods in Linguistics - Writing Intensive	4
ANTHRO 4880	Demographic Anthropology	3
ANTHRO 4950	Undergraduate Research in Anthropology	2-8
ANTHRO 4950H	Honors Research in Anthropology	3
ANTHRO 4950HW	Undergraduate Research in Anthropology - Honors/Writing Intensive	2-8
ANTHRO 4960	Undergraduate Readings in Anthropology	1-99

### Student Research

Students can gain hands-on experience doing anthropological research in their coursework. This experience will normally begin with ANTHRO 2950 Research Skills in Anthropology, an introduction to the methods used by one or more faculty members. This course will satisfy the methods requirement if a student enrolls in it for at least 3 credits. A student may independently choose a faculty mentor and arrange for course credit or can work with the department's Director of Undergraduate Studies, who will match the student's interests with those of one or more faculty members.

Students wishing to continue doing research of an independent nature may register for ANTHRO 4950 Undergraduate Research in Anthropology. Prior approval by the director of undergraduate studies is required to use these courses to satisfy the departmental methods requirement. ANTHRO 4950H Honors Research in Anthropology may be used to satisfy the requirements for an Honors BA with a major in Anthropology, but the course is not required for that degree. Specific requirements for the Honors BA are described below.

### Related Courses

Because of the interdisciplinary nature of anthropology, the Department of Anthropology strongly recommends that all students complete a cluster of at least two or three courses that complement chosen courses within the major.

These courses may be offered by a single department or may be a related set of courses from several departments (e.g., courses in ancient history from both the Ancient & Mediterranean Studies and the History

departments). The courses should be chosen with their mentor and are intended to provide background in the content of other disciplines related to the student's anthropological focus. Fulfillment of a formal minor (15 credits in another department as approved by that department) or a second major (at least 30 credits in another department as approved by that department) can also be an effective way to gain expertise in related areas. Certificates can provide further credentials as evidence of specialized training and experience (e.g. multicultural certificate) and anthropology courses can be counted toward those certificate requirements.

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
ANTHRO 2030 <sup>^</sup>		3 ANTHRO 2020 <sup>^</sup>	4
ENGLISH 1000 <sup>*</sup>		3 MATH 1100 (*)	3
HIST 1100 or POL_SC 1100 <sup>*</sup>		3 Behavioral science course <sup>*</sup>	3
Foreign language 1 <sup>*</sup>		5 Foreign language 2 <sup>*</sup>	5
		14	15
Second Year			
Fall	CR	Spring	CR
Anthropology elective <sup>^</sup>		3 ANTHRO 2050 (Satisfies lab science) <sup>^^</sup>	5
Foreign language 3 <sup>*</sup>		3 Bio./Phys./Math. Science course <sup>*</sup>	3
Bio./Phys./Math. Science course		3 Behavioral science (upper level) <sup>*</sup>	3
Social science course <sup>*</sup>		3 Humanities course <sup>*</sup>	3
Humanities course <sup>*</sup>		3 Elective	3
		15	17
Third Year			
Fall	CR	Spring	CR
Anthropology elective <sup>^</sup>		3 Anthropology elective <sup>^</sup>	3-5
Anthropology elective <sup>^</sup>		3 WI course <sup>*</sup>	3
Bio./Phys./Math. Science course (if needed)		3 Humanities (upper level) <sup>*</sup>	3
Social science (upper level) <sup>*</sup>		3 Related field course (recommended) <sup>^</sup>	3
Humanities course <sup>*</sup>		3 Elective	3
		15	15-17
Fourth Year			
Fall	CR	Spring	CR
Anthropology elective <sup>^</sup>		3 Capstone Seminar in Anthropology <sup>^^</sup>	3
Related field course (recommended) <sup>^</sup>		3 Related field course (recommended) <sup>^</sup>	3
Electives		9 Electives	9-11
		15	15-17

Total Credits: 121-125

\* Course meets University general education and/or campus graduation requirements.

<sup>^</sup> Course meets degree program requirements.

## Departmental Honors

The Honors Program is organized under the Honors College (<http://honors.missouri.edu/>) of the College of Arts and Science within the University of Missouri. To be accepted in the Honors Program, the student must achieve and maintain a minimum cumulative Grade Point Average (GPA) of 3.3 in all course work. In addition, to be accepted, and remain eligible for the honors program in the Department of Anthropology, the student must maintain a GPA of 3.5 in all anthropology courses.

The University of Missouri grants three types of Honors degrees to students in the College of Arts and Science:

1. General Honors, which is administered by the Honors College and which is obtained by completion of a suitable number of honors courses (see the Honors College for details),
2. Latin Honors (e.g., cum laude), which are conferred on students whose GPAs meet specified minimum requirements, and
3. Departmental Honors, which is administered by the Department of Anthropology.

The departmental program leading to the BA degree with Honors in Anthropology is designed for students who desire a more intensive experience in anthropology and who wish to work closely with a particular faculty member in the anthropology department on an independent research or scholarly project. A student wishing to graduate with departmental honors must fulfill the basic course requirements for the BA in Anthropology. In addition, the student, with the assistance of his/her honors advisor, is expected to develop, plan, and conduct research on an independent project. It is recommended that students in the honors program enroll in ANTHRO 4950H Honors Research in Anthropology, although projects initiated in other courses or through independent, noncredit research experiences may also be honors eligible. To complete the Honors degree, a student must submit the results of the research project as a formal honors thesis that the student defends during an oral examination conducted by an examining committee. The committee consists of three faculty members: the advisor, another faculty member, and the departmental Honors Director. *The examination is scheduled no later than the thirteenth week of the term during which the student expects to graduate.* Each member of the committee is furnished with a copy of the student's thesis or evidence of scholarly activity at least ten days before the examination. After the oral defense the student furnishes the department with one final copy of the thesis or evidence of scholarly achievement (e.g., photographs) suitable for preservation by the Department. Upon completion of the program, the examining committee recommends to the Dean of the College of Arts and Science that the student be awarded a BA with Honors in Anthropology.

## Minor in Anthropology

A minor in anthropology demonstrates an appreciation for human biological and cultural diversity and complements many programs of study including biology, psychology, sociology, history, foreign languages, fine arts, education, business, medicine, and law. A student wishing to minor in anthropology should contact the Anthropology department Director of Undergraduate Studies for an appointment.

### Requirements

The requirements for a minor in anthropology are:

- A minimum of 15 credit hours are required to complete the minor.
- A minimum of 9 credit hours must be completed at MU.
- A maximum of 6 credit hours can be at the 1000 level.
- A minimum of 3 credit hours are required at the 3000 level or above.
- No more than 6 credit hours can be in readings, research or problems courses.
- All required minor coursework must be completed with a grade of C- or higher.
- A minimum minor GPA of 2.0 is required to earn the minor.

A student cannot use minor coursework towards their major or the same coursework for multiple A&S minors. The minor must be completed and awarded at the same time as the MU undergraduate degree.

Once an A&S minor is awarded, a student cannot return to MU to complete a major in the same department.

### Application for Minor

Please fill out, sign and submit the Anthropology Minor Form (<https://anthropology.missouri.edu/undergrad/anthropology-minor/>) for consideration.

## MA in Anthropology

Students are expected to gain advanced knowledge in the three subfields represented in our program (archaeology, biological anthropology, cultural anthropology). Anthropology faculty members work closely with graduate students to conduct collaborative research as an integral component of the graduate program. Opportunities for specialization are provided through research courses leading to a thesis. A program tailored to each student's educational objectives is planned by the student and the advisory committee of at least three members, one of whom is a non-anthropology faculty member.

### Degree Requirements

MA graduate students must complete a minimum of 30 credit hours beyond the Bachelor of Arts degree. At least 9 of the required hours must be 8000-level anthropology courses and seminars, and must include at least one content course (i.e., not a readings or research course). As part of the 8000-level requirement, all students must take the departmental core courses in cultural anthropology, archaeology, and biological anthropology. ANTHRO 7950, Introduction to Post-Graduate Anthropology is also required. Students lacking a basic course in statistics are required to take at least one course, preferably during the first year of graduate work. A maximum of 12 hours may be in non-thesis research (ANTHRO 7990/ANTHRO 8990) or reading courses (ANTHRO 7960).

Students must complete the MA thesis requirement. Successful completion of the thesis will be determined by the student's advisory committee. The advisory committee for the thesis consists of at least 3 faculty members, including the advisor, another member of the anthropology department, and one member of the graduate faculty from another MU department and who generally holds a doctorate degree in another subject.



## Admission Criteria (Track One, MA Applicants)

Students admitted to this track will be classified as MA seeking students with the Graduate School. These students will complete all requirements for the MA degree as currently outlined in the Anthropology Graduate Handbook ([http://catalog.missouri.edu/undergraduategraduate/collegeofartsandscience/anthropology/ma-anthropology/Graduate\\_Student\\_Handbook--revised.pdf](http://catalog.missouri.edu/undergraduategraduate/collegeofartsandscience/anthropology/ma-anthropology/Graduate_Student_Handbook--revised.pdf)), including taking classes in core areas and completing a thesis. Upon completion, the student can, if eligible, apply to the Anthropology program for acceptance as a PhD seeking student.

Fall deadline: January 10

Spring deadline: October 15 (no departmental financial support available this term)

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
80	550
Prior to July 1, 2015 must have score of (61)	Prior to July 1, 2015 must have score of (500)

- Minimum GRE scores:

When did you take the GRE?	Verbal + Quantitative	Analytical
Prior to August 1, 2011	1000	3.0
On or After August 1, 2011	300	3.0

Minimum GPA: 3.25 in last 60 hours and in all anthropology courses  
Acceptance into the graduate program in anthropology is not limited to students with undergraduate degrees in anthropology.

## Required Application Materials

To the Graduate School (<https://applygrad.missouri.edu/apply/>):

- All required Graduate Admissions documents
- 3 letters of recommendation (through online application)
- GRE scores
- Statement of purpose
- Unofficial transcripts (Official transcripts need to be submitted to the Graduate School upon acceptance.)
- Writing Sample

## PhD in Anthropology

### Degree Requirements

MU requires a minimum of 72 semester hours beyond the BA or BS for a PhD degree. The 30 hours required for the MA count towards this total. At least 15 of the required hours must be 8000-level courses and seminars and must include at least one content course (i.e., not a readings or research course). As part of the 8000-level requirement, all students must complete the departmental core courses (or the equivalent) in cultural anthropology, archaeology, and biological anthropology. In addition, both basic and mid-level courses in statistics are required (one or both of which can be taken while earning a Master's

degree; requirement may also be waived at the discretion of the student's Doctoral Program Committee). A minimum of 3 hours of doctoral research credit (ANTHRO 9090) is also required.

PhD candidates are required to gain teaching experience by either serving as a departmental teaching assistant or graduate instructor for one semester (stipends for which are awarded competitively) or by assisting a faculty member in the preparation and teaching of a course.

### Credit Hours Required for Master's Degree (Track Two Applicants Only)

Track Two students have the same course and credit requirements for the MA degree as do Track One students. All MA students must complete a minimum of 30 credit hours beyond the Bachelor of Arts degree. At least 9 of the required hours must be 8000-level anthropology courses and seminars, and must include at least one content course (i.e., not a readings or research course). As part of the 8000-level requirement, all students must complete the departmental core courses in cultural anthropology, archaeology, and biological anthropology. Students are also required to take ANTHRO 7950, Introduction to Post-Graduate Anthropology. Students lacking a basic course in statistics are required to take at least one course, preferably during the first year of graduate work. A maximum of 12 hours may be in non-thesis research (ANTHRO 7990/ANTHRO 8990) or reading courses (ANTHRO 7960).

## Doctoral Examinations and Program Committee

### PhD Qualifying Examination

PhD students must pass an oral qualifying examination during their first year in the PhD program. The main purpose of the 2-hour oral examination is to determine if the student is prepared for doctoral work and to expose any weaknesses that should be addressed in the course of earning the PhD degree.

### Doctoral Program Committee

The Doctoral Program Committee is established during the first year of the student's PhD work. It is composed of at least 4 faculty members, at least 3 of whom must be members of the Department of Anthropology, and at least one member of the graduate faculty from another MU department and who holds a doctorate degree that is generally not in anthropology. The student's advisor and at least one other committee member must be members of the doctoral faculty at MU; all other committee members must be members of MU's graduate or doctoral faculty.

### Comprehensive Examination

An applicant for the PhD normally takes the comprehensive examination at the end of the 2nd or 3rd year in the PhD program. The comprehensive examination consists of 2 parts: 1) a written examination of up to 5 days consisting of questions submitted by members of the committee, principally, but not solely, based on a reading list and dissertation proposal prepared by the student, and 2) a 2-hour oral examination covering the questions and answers from the written examination (and anything else the committee deems appropriate). The exam must be taken at least 7 months prior to graduation, and is not administered unless classes are officially in session (including Summer session).

## Dissertation

The PhD in anthropology is awarded after an accepted dissertation has been submitted and defended successfully before the candidate's Doctoral Program Committee and filed with the Graduate School at MU. Following the advice of the committee, students may either produce a traditional book-length dissertation or write 3 or more primary-authored publishable papers that follow a coherent theme and comprise the main chapters of the dissertation. For either option, the dissertation should contain a general introductory chapter, 3 or more chapters (or manuscripts/publications), and a concluding chapter that summarizes the contributions of the individual papers. Effective for students who pursue the second option and completed the comprehensive examination in 2015 or later, at least 2 papers must be submitted for publication as peer-reviewed journal articles or book chapters prior to the defense of the dissertation (evidence of submission required).

## Admission Criteria

### Track Two (ONLY): PhD Students Required to Complete MA Requirements

Track 2 students will be classified as PhD seeking students with the Graduate School. These students will complete **all course requirements for the MA** (outlined below and in the Anthropology Graduate Handbook ([http://catalog.missouri.edu/undergraduategraduate/collegeofartsandscience/anthropology/phd-anthropology/Graduate\\_Student\\_Handbook--revised.pdf](http://catalog.missouri.edu/undergraduategraduate/collegeofartsandscience/anthropology/phd-anthropology/Graduate_Student_Handbook--revised.pdf))). With the consent of the student's committee, a Track 2 student will complete either a thesis **OR** a proposal formatted for a major granting agency that will serve as the student's PhD dissertation proposal, **OR** a primary-authored paper submitted for publication. In each of these cases, the student will orally defend the work. Upon successful completion of these requirements, the student will be awarded an MA, and will then be eligible to continue work towards a PhD without the need to reapply to the program or change student status.

#### Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
80	550
Prior to July 1, 2015 must have a score of 61	Prior to July 1, 2015 must have a score of 500

- Minimum GRE scores:

When did you take the GRE?	Verbal + Quantitative	Analytical
Prior to August 1, 2011	1000	3.0
On or After August 1, 2011	300	3.0

- Minimum GPA: 3.25 in last 60 hours and in all anthropology courses

### Required Application Materials For Track Two Applicants:

To the Graduate School (<https://applygrad.missouri.edu/apply/>):

- All required Graduate Admissions documents
- 3 letters of recommendation (through online application)
- GRE scores
- Statement of purpose

- Unofficial transcripts (Official transcripts need to be submitted to the Graduate School upon acceptance.)
- Writing Sample

### Track Three: PhD Students with MA in Hand

Students admitted to this track will be classified as PhD seeking students with the Graduate School. They will not be required to complete the MA requirements and will not earn an MA during their graduate work at MU. Upon completion of the requirements currently listed for the PhD program, including coursework, qualifying examination, comprehensive examination, teaching, and dissertation, the student will be awarded a PhD.

Fall deadline: January 10  
Spring deadline: October 15

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
80	550
Prior to July 1, 2015 must have a score of (61)	Prior to July 1, 2015 must have a score of (500)

- Minimum GRE scores:

When did you take the GRE?	Verbal + Quantitative	Analytical
Prior to August 1, 2011	1000	3.0
On or After August 1, 2011	300	3.0

- Minimum GPA: 3.5 in previous graduate work
- Master's degree

**Note:** A faculty member who is on the doctoral faculty must agree, as a condition of admission, to accept the student as a PhD advisee. These qualifications apply to all applicants, including those with an MA degree from this department. Applicants whose MA is in a field other than anthropology will be considered under the policies for individuals holding the baccalaureate degree except that the quality of graduate work will be taken into consideration.

### Required Application Materials for Track Three Applicants

To the Graduate School (<https://applygrad.missouri.edu/apply/>):

- All required Graduate Admissions documents except transcripts
- 3 letters of recommendation (through online application)
- GRE scores
- Statement of purpose
- Unofficial transcripts (Official transcripts need to be submitted to the School of Graduate Studies upon acceptance.)
- Writing Sample

## Art

Joe Johnson, Program Coordinator  
[JohnsonJoe@missouri.edu](mailto:JohnsonJoe@missouri.edu)  
<https://visualstudies.missouri.edu/art> (<https://visualstudies.missouri.edu/art/>)

Lee Ann Garrison, Director

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muassvs@missouri.edu

Academic Advisor - Kay Gregory ([gregoryk@missouri.edu](mailto:gregoryk@missouri.edu))

The School of Visual Studies Art programs develops creative thinkers, professional artists, and cultural leaders through a cross-disciplinary curriculum that balances innovation, traditional craftsmanship, and critical thinking. The Art Program faculty members are established professional artists and designers with numerous exhibitions, commissions, and awards to their credit. The Art program, founded at Mizzou in 1877, is housed principally within the Fine Arts Building and in the Bingham Commons studios.

Our studio/laboratory spaces for each media area include a fully-equipped printmaking studio, photography labs for digital and analog processes, a paper making/fiber facility, an anagama kiln, a bronze casting facility, and three state-of-the-art Mac labs housing up-to-date computers, three 44" large-format Epson printers, and a variety of video equipment.

The Art program is one of four degree programs within the School of Visual Studies, and we work collaboratively with the programs in Art History, Digital Storytelling (with animation, video and production), and Film Studies (with film production) to offer students a wide range of skills in art and design practices.

The Art program operates the George Caleb Bingham Gallery (<https://art.missouri.edu/gallery/bingham/>) in the Fine Arts Building, which exhibits the work of students, faculty, and visiting artists year-round. The School of Visual Studies Lecture Series is presented during the Fall and Spring semesters and is open to the public. We also have close working relationships with the MU's Museum of Art and Archaeology, the Sager Braudis Gallery, the Columbia Art League, and other local galleries.

A popular summer experience sponsored by the Art Program, in partnership with the International Center, is the Summer Study Abroad Program (<https://visualstudies.missouri.edu/programs/>) taking place in the Netherlands and Belgium. Students will have the opportunity to study firsthand many of the most important masterpieces in Western Art. We also offer opportunities for students to visit museums and galleries in both St. Louis and Kansas City.

You can find the works of MU art faculty and alumni in major museums, galleries, exhibitions, and collections around the world. We are dedicated to providing students with a high-quality education while helping them to develop and nurture their artistic studio practice. Our art and design students go on to careers as visual artists, graphic designers and creative thinkers working in a variety of professions. Graduates have careers in design studios, museums and galleries, and in businesses, both large and small. In our visual culture, artists and designers are needed in almost every business.

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## Faculty

**Professor** J. Brueggenjohann\*, R.B. Clarke\*, J. Johnson\*, C. Sampson\*  
**Curators Teaching Professor** D. Huelsbergen\*  
**Associate Professor** N. Boyer\*, J.H. Calvin\*, C. Daniggelis\*, L.A. Garrison\*, J. Pintz\*, R.A. Wilson\*

**Assistant Professor** C.P. Mannella\*, F. Martinez\*, T. Shaffer\*, J. Thornton\*

**Teaching Professor** M. Ballou\*

**Visiting Assistant Teaching Professor** A. Wehrwein

**Assistant Teaching Professor** M. G. Langeneckert

**Professor Emeritus** B.B. Cameron\*, W.H. Hawk, L. Kantner, L. Leong\*, L. Rugolo, O.A. Schuchard, F.H. Stack, J. Stealey\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BA in Art (p. 155)
- BFA in Art (p. 155)
- Minor in Art (p. 156)

**Director of Undergraduate Studies:** Matt Ballou

The Art Program in the School of Visual Studies offers a BFA, BA and Minor in Art. Students have the option to take studio courses in the areas of ceramics, drawing, fibers, graphic design, painting, photography, printmaking, and sculpture.

The BA degree is intended for the student desiring a liberal education with a concentration in art, while the BFA provides more professional training in the studio area. The BFA is the required undergraduate degree for admission to most Master of Fine Arts programs.

Students wishing to pursue a BA or BFA degree in Art will need to pass the Art Program BA/BFA Portfolio Review. A student will need to have completed six (6) courses in art before submitting a portfolio (although they can be enrolled in the last classes the semester they submit a portfolio.) Those courses are ARTGE\_VS 1030, ARTGE\_VS 1040, ARTDR\_VS 1050; then three studio art courses at the 2000 level. For more detailed information on the portfolio, please refer to the School of Visual Studies website.

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## Graduate

The Master of Fine Arts (MFA) offered through the Art program is now an **MFA in Visual Studies**, a change that represents a new interdisciplinary approach to art practices. Please see the new MFA in Visual Studies equivalent degree listed under the School of Visual Studies graduate degree programs (p. 347).

The Master of Fine Arts (MFA) in Visual Studies is a three-year, 60 credit, thesis-driven program that focuses on the creative goals of the individual. We guide all MFA students to find and develop a direction and language as they create a coherent and conceptually unified body of artwork.

Through an intense studio-based practice, our MFA program prepares students for advanced professional art careers and provides teaching experience to those interested in teaching at the college level. The structure of our MFA curriculum allows students direct access to faculty whose engagement of traditional studio production blends with contemporary approaches. The program supports student movement between media areas as needed to tailor a student's experience to the goals of their creative research. Additionally, the department supports

consistent integration of contemporary and historical theories of art as appropriate to each student's individual studio practice.

## BA in Art

### Degree Program Description

The School of Visual Studies Art program offers opportunities for creative development, provides instruction in visual literacy, and trains students in the necessary technical and conceptual skills needed to pursue a lifetime of creative activity. Through a variety of studio art courses, students learn critical thinking skills, creative problem solving, and become life-long learners. The Art program offers courses in ceramics, drawing, fibers, graphic design, painting, photography, printmaking, and sculpture.

The BA degree is a liberal arts degree in which students complete 30 - 40 hours of studio art courses and 9 hours of courses in Art History. Starting Fall 2015, all students wishing to pursue a BA degree in art must pass the Art Department BA/BFA Portfolio Review. Students who earn a degree in art pursue a variety of careers, including artists; illustrators; art educators; museum and gallery curators and directors; commercial and studio designers; and graphic, web, print and packaging designers. Most businesses are looking for creative thinkers and innovative problem solvers, and these are skills acquired in an art degree.

### Major Program Requirements

Art majors earning a BA degree complete art foundations courses, art core requirements, and art studio electives. No more than 40 credits in studio art may be included in the BA curriculum. Students enrolled in the BA degree program may not include art or art history courses with a grade of D.

All art majors must complete a minimum of 12 credit hours of MU art coursework numbered 2000 or above. In addition, 9 hours of Art History courses, including two 3-hour classes numbered 2000 or above, are required.

In addition, students must complete all College of Arts and Science and University graduation requirements (p. 35), including University general education (p. 36).

Starting Fall 2015, all students wishing to pursue a BA or BFA degree in art will need to pass the Art program BA/BFA Portfolio Review. A student will need to have completed six (6) courses in art before submitting a portfolio (it is acceptable to be enrolled in the last class(es) the semester the portfolio is submitted) for either the BA or BFA. The courses are ARTGE\_VS 1030, ARTGE\_VS 1040, ARTDR\_VS 1050, and three studio art courses at the 2000 level. For more detailed information on the portfolio, please refer to the School of Visual Studies website.

#### Major core requirements

Art foundations		
ARTGE_VS 1030	2-D Materials and Methods	3
ARTGE_VS 1040	3-D Materials and Methods	3
ARTDR_VS 1050	Drawing: Materials and Methods	3
Art core requirements		
ARTPA_VS 2500	Beginning Painting	3
ARTSC_VS 2800	Beginning Sculpture	3
ARTCE_VS 2100	Beginning Ceramics	3
ARTGE_VS 4975	Senior Seminar in Art	3
ART studio electives (may include 15 credits in one media area)		up to 18
AR H A courses (Art History)		9

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available. (Students focusing on graphic design will take ARTGE\_VS 4976 Fall of their fourth year instead of an Art Studio Elective which they will move to the Spring of their fourth year and take instead of ARTGE\_VS 4975)

First Year			
Fall	CR	Spring	CR
Art Foundations Course		3 Art Foundations Course	3
MATH 1100 or ENGLISH 1000		3 Foreign Language	5
Humanities Course		3 MATH 1100 or ENGLISH 1000	3
American History or Government Course		3 Behavioral Science	3
		12	14
Second Year			
Fall	CR	Spring	CR
Art Foundations Course		3 Foreign Language	3
Foreign Language		5 Art Core Requirement	3
ARH_VS 1110		3 Biological/Physical/Math Science Course (lab)	3
Social Science Course		3 Behavioral Science Course (2000+)	3
Humanities Course		3 Humanities Course	3
		17	15
Third Year			
Fall	CR	Spring	CR
Art Core Requirement		3 Art Core Requirement	3
Art Studio Elective		3 Art Studio Elective	3
AR H A Course (2000+)		3 Biological/Physical/Math Science Course	3
Biological/Physical/Math Science Course (MRP)		3 Social Science Course (2000+)	3
Humanities Course		3 General Elective	3
		15	15
Fourth Year			
Fall	CR	Spring	CR
Art Studio Elective		3 Art Studio Elective	3
Art Studio Elective		3 General Elective	3
AR H A Course (2000+, WI)		3 General (or Art) Elective	3
General Elective		3 General Elective	3
General Elective		3 ARTGE_VS 4975	3
Humanities Course (2000+)		3	
		18	15

Total Credits: 121

## BFA in Art

### Degree Program Description

The School of Visual Studies Art program offers opportunities for creative development, provides instruction in visual literacy, and trains students in the necessary technical and conceptual skills needed to pursue a lifetime of creative activity. Through a variety of studio art courses, students learn critical thinking skills, creative problem solving, and become life-long learners. Course offerings include ceramics, drawing, fibers, graphic

design, painting, photography, printmaking, and sculpture. The BFA is considered a professional degree intended to provide a solid foundation for a career in visual art. Students that earn a degree in art pursue a variety of careers, including artists; illustrators; art educators; museum and gallery curators and directors; commercial and studio designers; and graphic, web, print and packaging designers. All business are looking for creative thinkers and innovative problem solvers, skills acquired in the BFA degree.

## Major Program Requirements

Art majors earning a BFA degree complete art foundations courses, art core requirements, and art studio electives with 15 credits in one specific media area. Students enrolled in the BFA degree program may not include art or art history courses with a grade of D.

All art students are assigned a departmental faculty advisor. Students are encouraged to meet with the advisor to plan a program of study with a focus in one particular media area.

BFA students complete 60 to 70 credits in studio art, including a minimum of 15 credits in one specific media area, and 12 credits of art history, including at least two 3-hour Art History & Archaeology courses numbered 2000 or above. A minimum of 35 credit hours of studio art coursework must be taken at MU.

In addition, students must complete all College of Arts and Science and University graduation requirements (p. 35), including University general education. (p. 36)

All students wishing to pursue a BA or BFA degree in art will need to pass the Art program BA/BFA Portfolio Review. A student will need to have completed six (6) courses in art before submitting a portfolio (it is acceptable to be enrolled in the last class(es) the semester the portfolio is submitted) for either the BA or BFA. The courses are ARTGE\_VS 1030, ARTGE\_VS 1040, ARTDR\_VS 1050 and three studio art courses at the 2000 level. For more detailed information on the portfolio, please refer to the School of Visual Studies website.

### Major core requirements:

Art foundations		
ARTGE_VS 1030	2-D Materials and Methods	3
ARTGE_VS 1040	3-D Materials and Methods	3
ARTDR_VS 1050	Drawing: Materials and Methods	3
Art core requirements		
Drawing		3
ARTPA_VS 2500	Beginning Painting	3
or ARTPA_VS 2510	Beginning Watercolor Painting	
ARTSC_VS 2800	Beginning Sculpture	3
(students need a total of 6 hours from ceramics and/or fibers)		
ARTCE_VS 2100	Beginning Ceramics	3
ARTFI_VS 2300	Beginning Fibers	3
(students need a total of 6 hours from photography and/or printmaking)		
ARTPH_VS 2600	Beginning Photography	3
ARTPR_VS 2700	Introduction to Etching and Relief Printmaking	3
ARTGE_VS 4975	Senior Seminar in Art	3
ART media area electives		15
		minimum

ART studio electives	up to 19
AR H A courses (Art History and Archaeology)	12

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available. (Students focusing on graphic design will take ARTGE\_VS 4976 Fall of their fourth year instead of an Art Studio Elective which they will move to the Spring of their fourth year and take instead of ARTGE\_VS 4975)

First Year			
Fall	CR	Spring	CR
Art Foundations Course		3 Art Foundations Course	3
Art Foundations Course		3 Art Core Requirement	3
MATH 1100 or ENGLISH 1000		3 MATH 1100 or ENGLISH 1000	3
American History or Government Course		3 Behavioral Science Course	3
		Humanities Course	3
		12	15
Second Year			
Fall	CR	Spring	CR
Art Media Area Course		3 Art Media Course	3
Art Core Requirement Course		3 Art Core Requirement Course	3
ARH_VS 1110		3 Biological/Physical/Math Science Course (MRP)	3
Biological/Physical/Math Science Course (Lab)		3 Behavioral or Social Science Course	3
Humanities Course		3 ARH_VS 1120	3
		15	15
Third Year			
Fall	CR	Spring	CR
Art Media Area Course		3 Art Media Course	3
Art Core Requirement Course		3 Art Core Requirement Course	3
Art Core Requirement Course		3 Art Core Requirement Course	3
Biological/Physical/Math Science Course		3 General Elective Course	3
AR H A Course (2000+)		3 AR H A Course (2000+, WI)	3
		15	15
Fourth Year			
Fall	CR	Spring	CR
Art Media Area Course		3 Art Studio Elective	3
Art Core Requirement Course		3 Art Studio Elective	3
Art Studio Elective Course		3 General Elective Course	3
General Elective Course		3 ARTGE_VS 4975	3
General Elective Course		3 General Elective Course	3
Humanities Course (2000+)		3	
		18	15

Total Credits: 120

## Minor in Art

Students in many fields find an Art minor to be an excellent supplement to their academic programs in the context of our visually oriented, media-driven culture. The Art minor may serve individuals fulfilling a personal interest in art; those seeking to add visual skills to career preparation in such interdisciplinary fields as Journalism, Architectural Studies,

Apparel Management, and many more; also people who intend it as a component of professional studies in fields such as Education, Business Administration and Marketing.

## Requirements

The School of Visual Studies minor in Art requires a total of 18 credits, including 15 credits in studio art and 3 credits in Art History. Six credits must be studio art courses numbered 2000 or above. At least 9 of these hours must be taken while in residence at the University of Missouri. An Art Minor may not include art or art history courses with a grade of D.

## Art History

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The School of Visual Studies offers an undergraduate degree in Art History and a MA and PhD in Visual Studies. These degree programs combine the study of art, artifacts, and the built environment with the study of culture. By developing skills in visual literacy, critical thinking and writing, and historical research, students learn to situate objects and structures within their cultural contexts and to explore how they fashion, preserve, and challenge beliefs and values. The discipline of art history offers a unique perspective on the past since it considers the places history was made as well as the images, objects, and documents that recorded it. Moreover, art history's attention to the lives of objects – their production, use, and reception – makes it inherently cross-cultural and interdisciplinary. Students are encouraged to draw on other subjects of study, including archaeology, anthropology, business, gender studies, literature, music, religion, science, and technology, and to transfer that knowledge to their understanding of art history and visual studies

Art History undergraduates examine art, artifacts, and visual culture through a combination of traditional classroom work and experiential, object-centered learning opportunities. Graduate students in Visual Studies work closely with faculty advisors to create individualized programs of study that are often enhanced by interdisciplinary minors in Museum Studies and Women's and Gender Studies. Students at all levels hold internships or graduate research assistantships at museums in Missouri and nationally, and conduct research across North America and abroad with the support of Fulbright, Smithsonian, and Kress Foundation fellowships.

Local art historical research is supported by outstanding resources on campus. The Museum of Art and Archaeology, the Center for Missouri Studies, and Special Collections at Ellis Library have substantial collections of art and visual media from diverse eras and cultures that are available to students. Our students likewise engage with world-class art collections throughout the state, most notably the Saint Louis Art Museum and the Nelson-Atkins Museum of Art, Kansas City.

Degrees in Art History and Visual Studies prepare students for a variety of academic and employment opportunities. Recent graduates are employed by museums, galleries, non-profit arts organizations, government agencies, libraries, schools, and businesses across the country. They work in virtually all areas of the creative economy, including curation, museum education and public programming, architectural and cultural preservation, marketing, and social outreach. The undergraduate degree in Art History also lays the foundation for advanced study in art history, architectural studies, art education, conservation, media studies, historic preservation, museum studies, and a wide range of other fields.

## Faculty

**Professor:** M.E. Yonan\*\*

**Associate Professor:** K.A. Schwain \*\*, A.R. Stanton \*\*, J.A. van Dyke \*\*

**Assistant Professor:** J. Floyd

**Assistant Teaching Professor:** E. Hornbeck

**Professor Emerita:** P.D. Crown, K.W. Slane \*\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BA in Art History (p. 158)
- Minor in Art History (p. 159)

**Program Coordinator:** Anne Rudloff Stanton

## Double Majors and Dual Degrees

Students may combine a major in art history with a major in another department in the College of Arts and Science such as English or Ancient Medieval Studies (a double major), or with a major in another college such as Business or Journalism (a dual major). Students who graduate with dual majors will be awarded two degrees; their program of study will include an additional 12 credits. Students who plan to pursue double or dual majors should complete graduation plans in both departments.

### Program Honors

Program Honors recognizes students who have demonstrated a commitment to future professional study in art history, wish for more substantial research experience, and have built a record of excellence in art historical coursework.

Requirements:

- 3.3 Cumulative GPA
- 3.6 GPA in Art History
- Successful completion of one 4000-level AR\_H\_A course as a prerequisite
- Completion of a senior honors essay, ARH\_VS 4999

Students apply for Program Honors the semester prior to taking ARH\_VS 4999 by writing a proposal on the subject of their essay. The proposal is submitted in duplicate to the faculty member whom the student would like to have serve as the project's supervisor and to the

Director of Undergraduate Studies, but shall be considered and must be approved by the faculty as a whole. The essay's topic should reflect both the student's interests and the expertise of the faculty supervisor. The honors essay should be of substantial length, incorporate significant individual research, and engage with theoretical, historiographical, and methodological perspectives appropriate to the topic at hand. Completing these requirements to the faculty's satisfaction will earn the student departmental honors.

## Graduate

For graduate degree programs within the School of Visual Studies please refer to the Visual Studies (p. 347) program page.

## BA in Art History

### Degree Program Description

Art History combines the study of art, artifacts, and the built environment with the study of culture. By developing skills in visual literacy, critical thinking and writing, and historical research, students learn to situate objects and structures within their cultural contexts and explore how they fashion, preserve, and challenge beliefs and values. The discipline of art history offers a unique perspective on the past since it considers the places history was made as well as the images, objects, and documents that recorded it. Moreover, art history's attention to the lives of objects—their production, use, and reception—makes it inherently cross-cultural and interdisciplinary. Students are encouraged to draw on other subjects of study, including archaeology, anthropology, business, gender studies, literature, music, religion, science, and technology, and to transfer that knowledge to their understanding of art history and visual studies.

The wide range of skills acquired in the BA program prepare students for a variety of employment opportunities in the creative economy. Recent graduates are employed by museums, galleries, non-profit arts organizations, government agencies, libraries, schools, and businesses across the nation and around the world. They curate exhibitions, edit publications, develop educational programming, manage community outreach projects, teach students of all ages, and work to preserve the nation's architectural and cultural heritage. They also participate in strategic development, human resource and operations management, and long-term planning for private and public companies. Finally, many students continue their studies at the graduate level in art and architectural history, art conservation, education, law, library science, and museum studies.

### Major Program Requirements

In addition to University general education (p. 36) requirements and other college and University graduation requirements (p. 35), students must meet the following requirements:

<b>Course requirements</b>	<b>36</b>
Students must take ARH_VS 1130 and ARH_VS 2850W or WH (Students who have taken one or both halves of the traditional survey may apply them here.)	6
OR	
The General Honors Humanities Sequence (GN_HON 2111H, GN_HON 2112H, GN_HON 2113H, GN_HON 2114H)	
AND	
Four ARH_VS courses at the 3000 level or above, 12 credit hours with at least one course in three out of four distribution areas: Ancient, Medieval-Renaissance, Early Modern, Modern & Contemporary.	12

<b>AND</b>	
Two courses at the 4000 level	6
<b>PLUS</b>	
Three electives in the SVS at any level, at least two of which must be in other areas other than Art History (Art, Film Studies, Digital Storytelling)	9
ARH_VS 4970	3
Capstone: Visual Studies - Art History	

### Language Requirement

The Art History major requires study through the reading level (i.e. 12 or 13 credits) in one modern language, such as French, German, Italian, or Spanish. Students who plan to attend graduate school are strongly urged to begin study of one or more languages.

### Courses Recommended for a Well-Rounded Degree

Art History students should take additional courses in the Humanities, including anthropology, classical humanities, film studies, history, literature, religious studies, and philosophy.

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

<b>First Year</b>			
<b>Fall</b>	<b>CR</b>	<b>Spring</b>	<b>CR</b>
ENGLISH 1000		3 MATH 1100	3
American History OR Government Course		3 ARH_VS 1130	3
OR		Biological/Physical Science Course w/Lab	4
ARH_VS 2850		3 undefined	
Behavioral Science Course		3 Behavioral Science Course	3
Humanities/Fine Arts Course		Humanities/Fine Arts Course	3
ARH_VS 2850HW		3	
Humanities/Fine Arts Course		3	
Humanities/Fine Arts Course			
			16
<b>Second Year</b>			
<b>Fall</b>	<b>CR</b>	<b>Spring</b>	<b>CR</b>
ARH_VS 3000+ Distribution		3 ARH_VS 3000+ Distribution	3
Foreign Language		5 ARH_VS 3000+ Distribution	3
Math Reasoning Proficiency Course		3 Foreign Language	5
Humanities Course 2000+		3 Biological/Physical Science Course w/Lab	5
			16
<b>Third Year</b>			
<b>Fall</b>	<b>CR</b>	<b>Spring</b>	<b>CR</b>
ARH_VS 3000+ Distribution		3 ARH_VS 4000 Levbel Course	3
Foreign Language		3 SVS Elective 1000+	3
Social Science Course		3 Social Science Course 2000+	3
Humanities Course 2000+		3 Elective	3
Elective		3 Elective	3
			15

Fourth Year			
Fall	CR	Spring	CR
ARH_VS 4000 Level Class	3	ARH_VS 4970	3
SVS Elective 3000+	3	SVS Elective 1000+	3
Elective 3000+	3	Elective 3000+	3
Elective 3000+	3	Elective	3
Elective	3	Elective	2
15		14	

Total Credits: 123

## Minor in Art History

### Requirements

The minor in art history requires 15 hours of coursework in art history and critical studies. The minor is flexible and can be tailored to the individual needs of the student. At least one course should be at the introductory level (ARH\_VS 1110, ARH\_VS 1120, ARH\_VS 1130, or ARH\_VS 2850W), and at least nine hours should be taken at the 3000 level or above and can include a wide range of subjects from medieval to contemporary art and eras in between, or focused seminars on broad areas of critical inquiry such as art and gender, art and narrative, art and global exchange, and art and politics.

### Contact

Students interested in minoring should consult with the Art History Academic Advisor, gregoryk@missouri.edu.

## Atlantic History and Politics

The Kinder Institute on Constitutional Democracy and MU College of Arts & Science are pleased to now offer a one-year, interdisciplinary MA in Atlantic History and Politics. Through the degree, students complete 30 hours of coursework that examines the connections and conflicts among the diverse peoples of the Atlantic basin, from the dawn of European empires, through the age of revolutions, into the more recent 'American century.' The MA's core curriculum situates the development of nation-states, including the United States, in relation to the exchange of ideas, goods, and power across the Atlantic world, and elective coursework associated with the degree will allow students to explore the histories of Native Americans, Latin American, de-colonization and 20th-century Africa, the ancient world, slave resistance in the Caribbean, and many other subjects, and will also include coursework in political thought and public affairs.

Chief among its many unique features, the MA will kick off each July with a nine-credit hour month of study at University of Oxford. Students will live and dine in the housing of Corpus Christi College, founded in 1517, and classes will be held at the Rothermere American Institute, the largest center for the study of the United States outside of North America. Additionally, the month fill feature group excursions to such sites of historical interest as Blenheim Palace, Sulgrave Manor (ancestral homeland of George Washington), and the International Slavery Museum in Liverpool. During the fall and spring semesters, when MA candidates are required to be in residence at MU, students will take the remaining 21 credit hours of coursework for the degree. This will include an interdisciplinary seminar, discipline-specific work in the Departments of Political Science and History, an experiential professional development seminar, and nine hours of elective coursework across

multiple departments at University of Missouri. Per approval of the degree director, students can also earn up to three hours of course credit by arranging an internship or work placement position at an institution or organization that aligns with the MA's scholarly focus.

Founded in 2014, the Kinder Institute is a signature academic center at University of Missouri which engages students, faculty, and the community at large in study of and spirited dialogue about the complicated history and development of constitutional democracy both in the United States and around the globe. In addition to the MA, the Kinder Institute supports Ph.D. and postdoctoral fellowships in History and Political Science, a monograph series with University of Missouri Press, a robust series of academic colloquia and scholarly conferences, and a wide variety of undergraduate programs, including a BA in Constitutional Democracy.

### Faculty

**Kinder Institute Director, Professor J. Dyer\*\***

**Kinder Institute Associate Director, Professor J. Pasley\*\***

**Kinder Institute Endowed Chair, Professor J. Sexton\*\***

**Professor J. Dow\*\***

**Associate Professor C. Conklin\*\*, D. Dunkley\*\***

**Assistant Professor S.B. V. Kitch\*, A. Zuercher Reichardt\*, J. Selin\*\***

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

### Undergraduate

For an undergraduate degree program offered within the Kinder Institute please see the BA in Constitutional Democracy (p. 180).

### Graduate

- MA in Atlantic History and Politics (p. 159)

## MA in Atlantic History and Politics

The Kinder Institute on Constitutional Democracy and MU College of Arts & Science's one-year, 30-credit hour MA in Atlantic History & Politics immerses students in an interdisciplinary examination of the connections and conflicts that have defined the histories of the diverse peoples of the Atlantic basin, including the Americas, Africa, and Europe. Courses that students can apply to the degree likewise cover a broad sweep of time, from the dawn of European empires, through the age of revolutions, into the more recent 'American century.' The MA situates the development of modern nation-states, including the United States, in relation to the broader exchange of ideas, goods, and power across the Atlantic world, and in addition to subject-specific knowledge, students will leave the program with refined faculties of critical thinking, crisp writing, and verbal agility, traits coveted by employers in a wide range of professions.

The degree begins each July with a month of study at Corpus Christi College, University of Oxford, and continues with candidates taking graduate coursework at the University of Missouri during the fall and spring semesters.



## Degree Requirements

The curriculum for the MA in Atlantic History and Politics includes the following requirements:

- Nine hours of coursework completed at University of Oxford
- A three-credit hour interdisciplinary seminar taken during the fall semester of students' academic year on campus
- Six credit hours of discipline-specific training in the Departments of History and Political Science
- An experiential, professional development seminar sponsored by the Kinder Institute
- Nine hours of graduate-level, elective coursework in History, Political Science, Public Affairs, Black Studies, and other relevant departments

All courses in the MA must be taken at the 7000-level or above, and at least 24 credit hours must be earned through 8000- or 9000-level courses. 30 credit hours of coursework are required to complete the degree, and students must be in residence at MU for the fall and spring semesters of the MA. See below for additional elective credit requirements.

Core Requirements		21
I. Oxford Study Abroad (both courses listed are required)		9
CNST_DEM 8041	The Making of the Atlantic World	3
CNST_DEM 8042	From the Age of Revolutions to the Age of Nation-States, 1760-1900	3
CNST_DEM 8050	Britain and the World	3
II. Fall and Spring On-Campus Required Courses		12
CNST_DEM 8045	Atlantic History and Politics	3
HIST 8480	Historiography	3
POL_SC 9120	Voting and Elections	3
or POL_SC 9140	American Political Institutions	
or POL_SC 9175	Evolution of American Legislatures, 1619 to the Present	
CNST_DEM 8060	Kinder Institute Colloquia	3

### Elective Credit 9

Elective credit can come from any graduate-level course in the Departments of Political Science, History, Public Affairs, or Black Studies and must include a minimum of three credit hours taken at the 8000- or 9000-level. Students are able to petition the degree director to have three credit hours of graduate coursework from another relevant department apply toward completion of the MA. At least three credit hours of elective coursework must focus on topics outside of the United States and modern Britain. Per approval, up to three hours of course credit can also be earned by students who arrange their own internship or work placement position at an institution or organization that aligns with the degree's scholarly focus.

## Thesis Requirements

In lieu of a thesis, students will produce an article-length, discipline-appropriate paper through any 8000- or 9000-level, research-intensive course associated with the MA curriculum and be assessed on the MA's study abroad component. All assessments will be subject to the MU Graduate School's committee and defense requirements.

## Additional Degree Options

### Dual Degree JD/MA

The Kinder Institute on Constitutional Democracy and the School of Law offer an integrated program in which students may obtain both an MA degree in Atlantic History & Politics and a JD degree from the School of Law. Although an MA degree in Atlantic History & Politics normally requires one year plus one summer of study, and a JD requires three years, many students will be able to complete the program in three years plus two summers. Students also have the option of completing the program in 3.5 years.

The program outlined here meets requirements for the JD degree with 83 hours of law credit, and 6 elective credit hours in Atlantic History & Politics, for a total of 89 credit hours. Requirements for the MA degree in Atlantic History & Politics are met with 24 credit hours of courses in the Kinder Institute, the Department of History, and the Department of Political Science and 6 elective credit hours within the School of Law. The detailed program of study in Atlantic History & Politics is subject to approval by the student's advisor in the Kinder Institute on Constitutional Democracy and by the Director of Graduate Studies at the Kinder Institute on Constitutional Democracy.

Applicants to the Dual Degree Program must submit formal applications for admission to the School of Law and to the Kinder Institute on Constitutional Democracy, accompanied by a statement requesting permission to pursue the Dual Degree Program. Students must meet the requirements for admission to both programs.

### Contact

For general questions about the MA in Atlantic History and Politics, contact:

Prof. Jay Sexton, Program Director  
 (573) 882-2481  
 sextonj@missouri.edu

## Biological Sciences

D. Schulz, Director  
 College of Arts and Science  
 105 Tucker Hall  
 (573) 882-6659

The Division of Biological Sciences offers both a Bachelor of Arts and a Bachelor of Science with a major in Biological Sciences, in addition to a minor in biological sciences for students majoring in other departments. The department also offers MA and PhD degrees in Biological Sciences.

### Faculty

- Curators Professor** J. A. Birchler\*\*, J. C. Walker\*\*
- Curators Distinguished-Teaching Professor** T. E. Phillips\*\*
- Professor** D. Braun\*\*, A. Chandrasekhar\*\*, R. B. Cocroft\*\*, D. Cornelison\*\*, L. Eggert\*\*, C. Galen\*\*, M. Leal\*\*, E. Liscum III\*\*, K. J. Newton\*\*, J. C. Pires\*\*, J. Schul\*\*, D. Schulz\*\*, P. Shiu\*\*, B. Zhang\*\*
- Associate Professor** P. Brown\*\*, J. D. David\*, M. Garcia\*\*, P. McSteen\*\*, R. K. Slotkin\*\*, G. F. Summers\*, C. Tan\*\*
- Assistant Professor** R. Angelovici\*\*, C. Y. Chabu\*\*, E. King\*\*, L. Sullivan\*\*
- Research Assistant Professor** R. Bhandari
- Teaching Professor** S. L. Bush\*, B. Stone\*

**Teaching Associate Professor** R. D. Hurst

**Teaching Assistant Professor** A. Durbak

**Curators Professor Emeritus** H. C. Gerhardt\*\*, G. P. Smith\*\*, F. S. Vom Saal\*\*

**Distinguished Teaching-Professor Emeritus** J. E. Carrel\*\*

**Professor Emeritus** S. Alexander\*\*, B. G. Cumbie, J. R. Faaborg\*\*, P. H. S. Jen, M. D. Kirk, A. D. McClellan, C. D. Miles, D. Setzer\*

**Associate Professor Emeritus** L. Chapman, M. Golomb\*\*, T. Holtsford, J. Maruniak\*, D. L. Worcester

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- Department Level Requirements (p. 162)
- BA in Biological Sciences (p. 163)
- BS in Biological Sciences (p. 165)
  - with emphasis Medical Science and Human Biology (p. 167)
- Minor in Biological Sciences (p. 168)

### Undergraduate Advising Center

3 Tucker Hall

(573) 882-4068

bioadvising@missouri.edu

Carol Martin

martinc@missouri.edu

Jordan Parshall

parshallj@missouri.edu

Brittany Corneillier

CorneillierB@missouri.edu

## Departmental Honors

The department strongly encourages participation in departmental honors. The heart of the honors program is a year-long experience in laboratory, field, or theoretical work in any area of biology. Students work directly with outstanding faculty mentors from the Division of Biological Sciences or other life science units on campus.

Students may earn degrees with honors by completing BIO\_SC 4950H and BIO\_SC 4952H (6 credits) and preparing a manuscript suitable for publication in a journal or the abstract of an oral or poster presentation at an on-campus symposium or at a regional or national meeting of a professional society. Students must meet with the honors program director to arrange their research experience. The honors program requires sophomore standing (or higher) in biological sciences and a GPA of 3.3. Students with a GPA between 3.0 and 3.29 may petition the director of the honors program for admission, but all students must graduate with a GPA of 3.3 to receive departmental honors. Please contact the Biology Advising Center (3 Tucker Hall, 882-4068) to consult with the Director of the Honors Program.

## Graduate

- MA in Biological Sciences (p. 169)
- PhD in Biological Sciences (p. 169)

Division of Biological Sciences

218 Tucker Hall

1-800-553-5698

(573) 882-1847

<https://biology.missouri.edu/>

**Director of Graduate Studies:** Manuel Leal

## About Biological Sciences

The Division of Biological Sciences offers a unique integration of world-class research, award-winning graduate and undergraduate training, and outstanding community outreach. Our research mission includes the acquisition of new knowledge through basic research and coordinated translational research to improve human health, our food supply, and our environment. Graduate training programs emphasize the excitement of discovery and the development of individual creativity and critical reasoning skills, with graduate mentors who are experts at the frontiers of their field. Because science exposure in the pre-college years is critical to the development of both scientists and informed citizens, we also offer special outreach programs for secondary school science teachers, students and citizens in Missouri.

The Division of Biological Sciences actively recruits outstanding graduate students from both national and international pools. Selected candidates are interviewed. The best are admitted to the division for graduate study. Even more important than the quantitative Grade Point Average, we are interested in evidence of critical qualitative characteristics including: undergraduate research experiences and presentation of research results; ability to face and overcome obstacles; exceptional motivation, work ethic, intellectual vitality, initiative, creativity, critical thinking ability and leadership ability.

## Areas of Study

The division offers primarily PhD degrees. General areas of research emphasis within the division include evolutionary biology, ecology and behavior; genetic, cellular, molecular and developmental biology; neurobiology and behavior; and plant sciences. Within these general areas, students may devise more specific graduate programs in, for example, plant genetics, invertebrate chemical communication or neurophysiology.

## Interdisciplinary Research

Several students are currently involved in interdepartmental programs in neurosciences, genetics, plant biochemistry and physiology, cellular and molecular biology, the Conservation Biology Program, microbiology, and physiology. In addition, the presence on this campus of a School of Medicine, College of Agriculture, Food and Natural Resources and College of Veterinary Medicine provides opportunities for direct interaction with a variety of established research scientists. Faculty in the division also participate in the Genetics Area Program, the Pathobiology Area Program, the Molecular Biology Program, the Interdisciplinary Program in Plant Biochemistry and Physiology, the Interdisciplinary Neuroscience Program and the Conservation Biology Program.

All entering graduate students should have a broad background in biology and should have completed courses in mathematics through integral calculus, chemistry through organic chemistry and a year of physics. Exceptions may be made for individual students. Outstanding students with undergraduate degrees in areas other than biology (such as biochemistry, chemistry, physics, engineering, mathematics or

psychology) are encouraged to apply with the understanding that subject matter in biology will be addressed in the first year of graduate study.

## Research Facilities and Resources

Divisional faculty have ready access to the campus computing network and microcomputers in their laboratories. Beyond the specialized equipment in each faculty research laboratory, departmental and campus equipment and facilities available to graduate students include:

- molecular and cellular biology core facilities, including DNA (with Next Generation Sequencing), Electron Microscopy, Cell and Immunobiology, Informatics, Nuclear Magnetic Resonance, Molecular Cytology, Proteomics, Structural Biology, and Transgenic Animal;
- a 15,000-square-foot greenhouse complex;
- animal-care facilities suitable for mice, bats, rats, rabbits and amphibians;
- a 14-acre botany preserve on the campus and a 146-acre prairie research station;
- 24 walk-in plant growth chambers with regulated light, temperature and humidity controls;
- cell and tissue culture facilities;
- growth chambers;
- scanning spectrophotometers and kinetic fluorimeters;
- ultracentrifuges and scintillation counters;
- HPLC facilities;
- sound isolation acoustic chambers;
- neurophysiological recorders, oscilloscopes and amplifiers; and,
- microneurosurgery facilities and equipment.

## Funding

Financial support is available through research training grants, fellowships, scholarships, graduate research assistantships, and graduate teaching assistantships.

## Department Level Requirements - Biological Sciences

### Requirements - Biological Sciences

Requirements for the BA and BS degrees with a major in Biological Sciences include course work in biology and ancillary science departments (chemistry, physics and math). The BS degree program requires more extensive course work, with additional studies in biology and the ancillary sciences. The BA degree program is more flexible and has fewer required courses to accommodate students with dual degrees or minors in other departments. Both degree programs can be used to prepare for graduate study or professional school. Students must also complete college and university graduation requirements, including university general education requirements.

All courses in the major (including ancillary sciences) must be completed with a grade of C- or higher with a cumulative GPA of 2.0 or higher. (Satisfactory/Unsatisfactory grading is not acceptable for courses in the major.) At least 12 hours of biology coursework must be taken in residence at MU.

### Foreign Language Alternative for students pursuing a BS degree in biological sciences

Students who are pursuing a BS degree with a major in biological sciences may opt to satisfy the foreign language requirement through alternative coursework consisting of at least 12 credits in courses numbered 2000 or above. These courses may not be used to satisfy other degree requirements. Students should confer with the Biology Advising Office to ensure that alternative courses meet departmental requirements. Any alternative courses must be approved by the Director of Undergraduate Studies.

### Major Core Requirements Biology

BIO_SC 1500	Introduction to Biological Systems with Laboratory	
BIO_SC 2200	General Genetics	
BIO_SC 2300	Introduction to Cell Biology	
Evolutionary Biology (select from):		3
BIO_SC 3400	Evolution and Ecology	
BIO_SC 4600	Evolution	
Biological Diversity (select from):		3-5
MICROB 3200	Medical Microbiology and Immunology	
BIO_SC 3210	Plant Systematics	
BIO_SC 3260	Invertebrate Zoology	
BIO_SC 3360	Herpetology	
BIO_SC 3510	Biology of Fungi	
BIO_SC 3710 & BIO_SC 3715	Introductory Entomology and Insect Diversity	
BIO_SC 3750	General Microbiology	
F_W 2600	Ornithology	
F_W 2700	Ichthyology	
F_W 3660	Mammalogy	
Capstone course (select one) (complete in last 45 hours):		3-5
BIO_SC 4950 & BIO_SC 4952	Undergraduate Research in Biology and Undergraduate Research in Biology	
BIO_SC 4950H & BIO_SC 4952H	Honors Research in Biology and Honors Research in Biology	
BIO_SC 4972	Developmental Biology	
BIO_SC 4976	Molecular Biology	
BIO_SC 4978	Cancer Biology	
BIO_SC 4982	Human Inherited Diseases	
BIO_SC 4983	Molecular Ecology	
BIO_SC 4990	Vertebrate Histology and Microscopic Anatomy	
BIO_SC 4994	Senior Seminar	

### Electives

All biology majors must take additional biology courses to total at least 29 credits for the BA degree or 33 credits for the BS degree. No more than 5 credits of introductory biology coursework may be included in the major.

Elective credits must be in formal courses numbered above 2000 and must include at least one 3000- or 4000-level laboratory course, one 4000-level course, and one WI course at the 3000 or 4000 level in a natural science.

BIO\_SC 2001, BIO\_SC 2010, BIO\_SC 2015, BIO\_SC 2030, BIO\_SC 2060, BIO\_SC 2100, BIO\_SC 2150, BIO\_SC 2950, and BIO\_SC 3010 may not be used to satisfy this requirement. MICROB 3200 may not be used to satisfy the laboratory course requirement.

Independent readings, internships, and problems courses (i.e., BIO\_SC 2940, BIO\_SC 2960, BIO\_SC 2965H, BIO\_SC 4085, and BIO\_SC 4960) do not apply to the BA or BS degree.

Students completing research courses BIO\_SC 4950, BIO\_SC 4950H, BIO\_SC 4952, or BIO\_SC 4952H for 6 credits may apply 3 credits toward fulfillment of biology elective hours for the BA or BS degree.

Students may repeat research courses for a total of 12 hours. Any credits remaining after 3 hours are used as a capstone or an elective in biology will be applied toward total hours to graduate. A maximum of 12 credit hours from the following courses (BIO\_SC 2940, BIO\_SC 2960, BIO\_SC 2965H, BIO\_SC 4085, BIO\_SC 4950, BIO\_SC 4950H, BIO\_SC 4952 and BIO\_SC 4952H) can be counted toward graduation.

BIOCHM 4270 and BIOCHM 4272 may apply toward fulfillment of biology elective hours for the BA or BS degree.

## BA in Biological Sciences

### Degree Program Description

Biology is a broad field centered on the study of living organisms and processes. While the degree program requires general education courses in behavioral sciences, social sciences, and the humanities, students can specialize their curriculum through their course selections. The main difference between the BS degree and the BA degree is that the BS degree requires more credit hours in biology, chemistry, physics, and math than the BA degree. Some of the knowledge that students acquire includes basic sciences necessary for upper-level biological science coursework (i.e., mathematics, statistics, physics, general and organic chemistry), how biologists use mathematical modeling and simulation to describe living systems, and arguments employed by scientists and others in key ethical controversies in biological science and research (for example, stem cell research). This degree is designed to prepare students for graduate study, professional schools, or direct entry into the workplace. Undergraduates majoring in biological sciences go on to careers in a wide range of fields, including medicine and other health professions, biotechnology, industry, government service, conservation and ecology, and secondary and higher education.

### Major Program Requirements

Department Level Requirements (p. 162) must be completed in addition to all university requirements (p. 35), including general education (p. 36), and the degree requirements below.

### Requirements - Biological Sciences

Requirements for the BA and BS degrees with a major in Biological Sciences include course work in biology and ancillary science departments (chemistry, physics and math). The BS degree program requires more extensive course work, with additional studies in biology and the ancillary sciences. The BA degree program is more flexible and has fewer required courses to accommodate students with dual degrees or minors in other departments. Both degree programs can be used to prepare for graduate study or professional school. Students must also complete college and university graduation requirements, including university general education requirements.

All courses in the major (including ancillary sciences) must be completed with a grade of C- or higher with a cumulative GPA of 2.0 or higher. (Satisfactory/Unsatisfactory grading is not acceptable for courses in the major.) At least 12 hours of biology coursework must be taken in residence at MU.

### Major Core Requirements in Biology

BIO_SC 1500	Introduction to Biological Systems with Laboratory	5
BIO_SC 2200	General Genetics	4
BIO_SC 2300	Introduction to Cell Biology	4
Evolutionary Biology (select from):		3
BIO_SC 3400	Evolution and Ecology	
BIO_SC 4600	Evolution	
Biological Diversity (select from):		3-5
MICROB 3200	Medical Microbiology and Immunology	
BIO_SC 3210	Plant Systematics	
BIO_SC 3260	Invertebrate Zoology	
BIO_SC 3360	Herpetology	
BIO_SC 3510	Biology of Fungi	
BIO_SC 3710 & BIO_SC 3715	Introductory Entomology and Insect Diversity	
BIO_SC 3750	General Microbiology	
F_W 2600	Ornithology	
F_W 2700	Ichthyology	
F_W 3660	Mammalogy	
Capstone course (select one) (complete in last 45 hours):		3-5
BIO_SC 4950 & BIO_SC 4952	Undergraduate Research in Biology and Undergraduate Research in Biology	
BIO_SC 4950H & BIO_SC 4952H	Honors Research in Biology and Honors Research in Biology	
BIO_SC 4972	Developmental Biology	
BIO_SC 4976	Molecular Biology	
BIO_SC 4978	Cancer Biology	
BIO_SC 4982	Human Inherited Diseases	
BIO_SC 4983	Molecular Ecology	
BIO_SC 4990	Vertebrate Histology and Microscopic Anatomy	
BIO_SC 4994	Senior Seminar	

### Degree Requirements

CHEM 1320	College Chemistry I	4
CHEM 1330	College Chemistry II	4
CHEM 2100 & CHEM 2110 or CHEM 2030	Organic Chemistry I and Organic Chemistry II Survey of Organic Chemistry	3-6
One course in Physics, Geology or Astronomy		4-5
Select one of the following:		3-5
MATH 1400	Calculus for Social and Life Sciences I	
MATH 1500	Analytic Geometry and Calculus I	
STAT 1200 or STAT 1300 or STAT 1400 or STAT 2500	Introductory Statistical Reasoning Elementary Statistics Elementary Statistics for Life Sciences Introduction to Probability and Statistics I	
INFOTC 1040	Introduction to Problem Solving and Programming	

Total Credits 18-24

All courses in the major (including ancillary sciences) must be completed with a grade of C- or higher with a cumulative GPA of 2.0 or higher. No more than 5 credits of introductory biology coursework may be included

in the major. At least 12 hours of biology coursework must be taken in residence at MU.

**Electives**

All biology majors must take additional biology courses to total at least 29 credits for the BA degree, of which at least 16 credits must be at the 3000 level or above.

Elective credits must be in formal courses numbered above 2000 and must include at least one 3000- or 4000-level laboratory course, one 4000-level course, and one WI course at the 3000 or 4000 level in a natural science. BIO\_SC 2001, BIO\_SC 2010, BIO\_SC 2015, BIO\_SC 2060, BIO\_SC 2100, BIO\_SC 2150, BIO\_SC 2950, and BIO\_SC 3010 may not be used to satisfy this requirement. MICROB 3200 may not be used to satisfy the laboratory course requirement.,

Independent readings, internships, and problems courses do not apply (i.e., BIO\_SC 2940, BIO\_SC 2960, BIO\_SC 2965H, BIO\_SC 4085, and BIO\_SC 4960).

Students completing research courses BIO\_SC 4950, BIO\_SC 4950H, BIO\_SC 4952, or BIO\_SC 4952H for 6 credits may apply 3 credits toward fulfillment of capstone or biology elective hours for the BA degree.

Students may repeat research courses for a total of 12 hours. Any credits remaining after 3 hours are used as a capstone or an elective in biology will be applied toward total hours to graduate. A maximum of 12 credit hours from the following courses (BIO\_SC 2940, BIO\_SC 2960, BIO\_SC 2965H, BIO\_SC 4085, BIO\_SC 4950, BIO\_SC 4950H, BIO\_SC 4952 and BIO\_SC 4952H) can be counted toward graduation.

BIOCHM 4270 and BIOCHM 4272 may apply toward fulfillment of biology elective hours for the BA or BS degree.

**Semester Plan**

NOTE: These plans are intended only as general guides. Courses outside Biology, Chemistry, MATH 1100, and ENGLSH 1000 are provided only for illustrative purposes. Advanced credit or exemption from the Foreign Language requirement and/or advanced credit in non-science courses, along with the interests of each individual student will determine a final combination of courses in each semester that is unique for each student. Note also that the sample schedules in Semester 5 and beyond are left incomplete on purpose because each schedule should be highly individualized at that point. Students who are pursuing the BA will not need to complete CHEM 2130.

**Plan 1**

**A student that is exempt from MATH 1100**

First Year			
Fall	CR	Spring	CR
CHEM 1320		4 CHEM 1330	4
ENGLSH 1000		3 BIO_SC 1500	5
Behavioral Science Course		3 Humanities Course (2000 level)**	3
Social Science Course (MO State Law)		3 Social Science Course**	3
Elective	2		
		15	15

Second Year			
Fall	CR	Spring	CR
CHEM 2030		3 BIO_SC 2300	4

BIO_SC 2200	4	Biology Diversity	4
Foreign Language	4-6	Foreign Language	4-6
Elective	3	Elective	3
		14-16	15-17

Third Year			
Fall	CR	Spring	CR
Biology Elective Lab (3000 level)		5 Physical Science	4
Mathematical Science (MATH 1400- free back credit MATH 1100)		3 Biology Elective	3
Foreign Language		4-6 Behavioral Science	3
Elective		3 Humanities (2000 level) Elective	3
		15-17	16

Fourth Year			
Fall	CR	Spring	CR
Biology Capstone		3 Biology Elective- Writing Intensive	3
Social Science (2000 level)		3 Evolutionary Biology	3
Humanities		3 Humanities	3
Writing Intensive Elective		3 Elective	3
Elective		3 Elective	3
		15	15

Total Credits: 120-126

\*\* Could meet A&S Diversity Intensive Requirement (3hrs)

**Plan 2**

**A student that needs MATH 1100**

First Year			
Fall	CR	Spring	CR
BIO_SC 1500		5 CHEM 1320	4
MATH 1100		3 ENGLSH 1000	3
Behavioral Sciences Course		3 Humanities Course**	3
Social Science Course (MO State Law)		3 Social Science Course**	3
Elective	1-2	Elective	1-2
		15-16	14-15

Second Year			
Fall	CR	Spring	CR
CHEM 1330		4 BIO_SC 2300	4
BIO_SC 2200		4 Biology Diversity	4
Elective		3 Foreign Language	4-6
Foreign Language		4-6 Elective	3
		15-17	15-17

Third Year			
Fall	CR	Spring	CR
CHEM 2030		3 Biology Elective Lab (3000 level)	5
Mathematical Science		3 Physical Science	4
Humanities		3 Behavioral Science	3
Foreign Language		4-6 Humanities (2000 level)	3
Elective		3	
		16-18	15

Fourth Year			
Fall	CR	Spring	CR
Biology Capstone		3 Biology Elective- Writing Intensive	3
Elective		3 Evolutionary Biology	3
Social Science (2000 level)		3 Elective	3
Writing Intensive Elective		3 Humanities	3
Elective		3 Elective	3
		15	15

Total Credits: 120-128

\*\* Could meet A&S Diversity Intensive Requirement (3hrs)

## BS in Biological Sciences

### Degree Program Description

Biology is a broad field centered on the study of living organisms and processes. While the degree program requires general education courses in behavioral sciences, social sciences, and the humanities, students can specialize their curriculum through their course selections. The main difference between the BS degree and the BA degree is that the BS degree requires more credit hours in biology, chemistry, physics, and math than the BA degree. The curriculum for the BS degree currently has the option of completing a foreign language sequence or substituting one of two tracks for the foreign language requirement. Some of the knowledge that students acquire includes basic sciences necessary for upper-level biological science coursework (i.e., mathematics, statistics, physics, general and organic chemistry), how biologists use mathematical modeling and simulation to describe living systems, and arguments employed by scientists and others in key ethical controversies in biological science and research (for example, stem cell research). This degree is designed to prepare students for graduate study, professional schools, or direct entry into the workplace. Undergraduates majoring in biological sciences go on to careers in a wide range of fields, including medicine and other health professions, biotechnology, industry, government service, conservation and ecology, and secondary and higher education.

### Major Program Requirements

Department Level Requirements (p. 162) must be completed in addition to all university requirements (p. 35), including general education (p. 36), and the degree requirements below.

### Requirements - Biological Sciences

Requirements for the BA and BS degrees with a major in Biological Sciences include course work in biology and ancillary science departments (chemistry, physics and math). The BS degree program requires more extensive course work, with additional studies in biology and the ancillary sciences. The BA degree program is more flexible and has fewer required courses to accommodate students with dual degrees or minors in other departments. Both degree programs can be used to prepare for graduate study or professional school. Students must also complete college and university graduation requirements, including university general education requirements.

All courses in the major (including ancillary sciences) must be completed with a grade of C- or higher with a cumulative GPA of 2.0 or higher. (Satisfactory/Unsatisfactory grading is not acceptable for courses in

the major.) At least 12 hours of biology coursework must be taken in residence at MU.

### Foreign Language Alternative for students pursuing a BS degree in biological sciences

Students who are pursuing a BS degree with a major in biological sciences may opt to satisfy the foreign language requirement through alternative coursework consisting of at least 12 credits in courses numbered 2000 or above. These courses may not be used to satisfy other degree requirements. Students should confer with the Biology Advising Office to ensure that alternative courses meet departmental requirements. All alternative courses must be approved by the Director of Undergraduate Studies.

### Major Core Requirements Biology

BIO_SC 1500	Introduction to Biological Systems with Laboratory	5
BIO_SC 2200	General Genetics	4
BIO_SC 2300	Introduction to Cell Biology	4
Evolutionary Biology (select from):		3
BIO_SC 3400	Evolution and Ecology	
BIO_SC 4600	Evolution	
Biological Diversity (select from):		3-5
MICROB 3200	Medical Microbiology and Immunology	
BIO_SC 3210	Plant Systematics	
BIO_SC 3260	Invertebrate Zoology	
BIO_SC 3360	Herpetology	
BIO_SC 3510	Biology of Fungi	
BIO_SC 3710 & BIO_SC 3715	Introductory Entomology and Insect Diversity	
BIO_SC 3750	General Microbiology	
F_W 2600	Ornithology	
F_W 2700	Ichthyology	
F_W 3660	Mammalogy	
Capstone course (select one) (complete in last 45 hours):		3-5
BIO_SC 4950 & BIO_SC 4952	Undergraduate Research in Biology and Undergraduate Research in Biology	
BIO_SC 4950H & BIO_SC 4952H	Honors Research in Biology and Honors Research in Biology	
BIO_SC 4972	Developmental Biology	
BIO_SC 4976	Molecular Biology	
BIO_SC 4978	Cancer Biology	
BIO_SC 4982	Human Inherited Diseases	
BIO_SC 4983	Molecular Ecology	
BIO_SC 4990	Vertebrate Histology and Microscopic Anatomy	
BIO_SC 4994	Senior Seminar	

### Degree Requirements

CHEM 1320	College Chemistry I	4
CHEM 1330	College Chemistry II	4
CHEM 2100	Organic Chemistry I	3
CHEM 2110	Organic Chemistry II	3
CHEM 2130	Organic Laboratory I	2
One Year of General Physics with Laboratory		8-10
One semester of calculus and one semester of statistics, selected from the following:		5-6
MATH 1400	Calculus for Social and Life Sciences I	3-5

or MATH 1500	Analytic Geometry and Calculus I	
STAT 1200	Introductory Statistical Reasoning	3
or STAT 1300	Elementary Statistics	
or STAT 1400	Elementary Statistics for Life Sciences	
or STAT 2500	Introduction to Probability and Statistics I	

Total Credits 35-40

All courses in the major (including ancillary sciences) must be completed with a grade of C- or higher with a cumulative GPA of 2.0 or higher. No more than 5 credits of introductory coursework may be included in the major. At least 12 hours of biology coursework must be taken in residence at MU.

**Electives**

All biology majors must take additional biology courses to total at least 33 credits for the BS degree, of which at least 14 credits must be at the 3000 level or higher.

Elective credits must be in formal courses numbered above 2000 and must include at least one 3000- or 4000-level laboratory course, one 4000-level course, and one WI course at the 3000 or 4000 level in a natural science. BIO\_SC 2001, BIO\_SC 2010, BIO\_SC 2015, BIO\_SC 2060, BIO\_SC 2100, BIO\_SC 2150, BIO\_SC 2950, and BIO\_SC 3010 may not be used to satisfy this requirement. MICROB 3200 may not be used to satisfy the laboratory course requirement.,

Independent readings, internships, and problems courses do not apply (i.e., BIO\_SC 2940, BIO\_SC 2960, BIO\_SC 2965H, BIO\_SC 4085, and BIO\_SC 4960).

Students completing research courses BIO\_SC 4950, BIO\_SC 4950H, BIO\_SC 4952, or BIO\_SC 4952H for 6 credits may apply 3 credits toward fulfillment of capstone or biology elective hours for the BS degree.

Students may repeat research courses for a total of 12 hours. Any credits remaining after 3 hours are used as a capstone or an elective in biology will be applied toward total hours to graduate. A maximum of 12 credit hours from the following courses (BIO\_SC 2940, BIO\_SC 2960, BIO\_SC 2965H, BIO\_SC 4085, BIO\_SC 4950, BIO\_SC 4950H, BIO\_SC 4952 and BIO\_SC 4952H) can be counted toward graduation.

BIOCHM 4270 and BIOCHM 4272 may apply toward fulfillment of biology elective hours for the BA or BS degree.

**Semester Plan**

NOTE: These plans are intended only as general guides. Courses outside Biology and Chemistry are provided only for illustrative purposes. Advanced credit or exemption from the Foreign Language requirement and/or advanced credit in non-science courses, along with the interests of each individual student will determine a final combination of courses in each semester that is unique for each student. Note also that the sample schedules in Semester 5 and beyond are left incomplete on purpose because each schedule should be highly individualized at that point.

**Plan 1**

**A student that is exempt from MATH 1100**

First Year			
Fall	CR	Spring	CR
CHEM 1320		4 CHEM 1330	4
ENGLSH 1000		3 BIO_SC 1500	5

Behavioral Sciences Course	3 Humanities Course (2000 level)**	3
Social Sciences Course (MO State Law)	3 Social Science Course**	3
Elective	1-2	
		14-15
		15

Second Year			
Fall	CR	Spring	CR
CHEM 2100		3 CHEM 2110	3
BIO_SC 2200		4 CHEM 2130	2
STAT 1200		3 BIO_SC 2300	4
Foreign Language or Alternative Track		3-4 MATH 1400*See Grad Plan for Mathematical Sciences Option	3
Elective		1-2 Foreign Language or Alternative Track	3-4
		14-16	15-16

Third Year			
Fall	CR	Spring	CR
Biology Elective Lab (3000 level)		5 PHYSCS 1220	4
PHYSCS 1210		4 Biology Elective	3
Foreign Language or Alternative Track		3-4 Behavioral Science	3
Elective		3 Humanities (2000 Level)	3
		15-16	13

Fourth Year			
Fall	CR	Spring	CR
Biology Capstone		3 Biology Elective- Writing Intensive	3
Biology Diversity		4 Evolutionary Biology	3
Social Science (2000 level)		3 Humanities	3
Humanities		3 Elective/FLA	3
Writing Intensive Elective		3 Elective	3
		16	15

Total Credits: 117-122

\*\* Could meet A&S Diversity Intensive Requirement (3 hrs).

**Plan 2**

**A student that needs MATH 1100**

First Year			
Fall	CR	Spring	CR
BIO_SC 1500		5 CHEM 1320	4
MATH 1100		3 ENGLSH 1000	3
Behavioral Sciences Course		3 Humanities Course (2000 level)**	3
Social Sciences Course (MO State Law)		3 Social Sciences Course**	3
Elective		1 Elective	1-2
		15	14-15

Second Year			
Fall	CR	Spring	CR
CHEM 1330		4 CHEM 2100	3
BIO_SC 2200		4 BIO_SC 2300	4
STAT 1200		3 MATH 1400	3
Foreign Language or Alternative Track		3-4 Foreign Language or Alternative Track	3-4

Elective				3
14-15				16-17
<b>Third Year</b>				
Fall	CR	Spring		CR
Biology Elective Lab (3000 level)		5 PHYSCS 1210		4
CHEM 2110		3 Biology Elective		3
CHEM 2130		2 Behavioral Science		3
Foreign Language or Alternative Track		3-4 Humanities (2000 level)		3
Elective		3		
16-17				13
<b>Fourth Year</b>				
Fall	CR	Spring		CR
Biology Capstone		3 Biology Elective- Writing Intensive		3
PHYSICS 1220		4 Evolutionary Biology		3
Social Science (2000 level)		3 Biology Diversity		4
Humanities		3 Elective/FLA		3
Writing Intensive Elective		3 Humanities		3
16				16

Total Credits: 120-124

\*\* Could meet A&S Diversity Intensive Requirement (3 hrs).

## BS in Biological Sciences with emphasis in Medical Science and Human Biology

### Degree Program Description

The emphasis in Medical Science and Human Biology will provide students with the opportunity to expand their knowledge beyond the BS in Biological Science by allowing them to take additional coursework that will help them on post-baccalaureate examinations and entry to a variety of professional programs including pre-med, veterinary medicine and health sciences.

### Major Program Requirements

Department Level Requirements ([http://catalog.missouri.edu/undergraduategraduate/collegeofartsandscience/biologicalsciences/biological\\_science\\_major\\_requirements/](http://catalog.missouri.edu/undergraduategraduate/collegeofartsandscience/biologicalsciences/biological_science_major_requirements/)) must be completed in addition to all university requirements (<http://catalog.missouri.edu/academicdegreerequirements/universityrequirements/>), including general education (<http://catalog.missouri.edu/academicdegreerequirements/generaleducationrequirements/>), and the degree requirements below.

#### Major Core Requirements Biology

BIO_SC 1500	Introduction to Biological Systems with Laboratory	5
BIO_SC 2200	General Genetics	4
BIO_SC 2300	Introduction to Cell Biology	4
BIO_SC 3400	Evolution and Ecology	3
or BIO_SC 4600	Evolution	
BIO_SC 3700	Animal Physiology	5
BIO_SC 3750	General Microbiology	3
or MICROB 3200	Medical Microbiology and Immunology	
BIOCHM 4270	Biochemistry	3

Capstone: Select from the following

BIO_SC 4950 & BIO_SC 4952	Undergraduate Research in Biology and Undergraduate Research in Biology	3-6
BIO_SC 4972	Developmental Biology	3
BIO_SC 4976	Molecular Biology	3
BIO_SC 4978	Cancer Biology	3
BIO_SC 4982	Human Inherited Diseases	3
BIO_SC 4990	Vertebrate Histology and Microscopic Anatomy	5
BIO_SC 4994	Senior Seminar (only specific sections)	3

Electives:

#### Ancillary Sciences

Chemistry (all courses required)		
CHEM 1320	College Chemistry I	4
CHEM 1330	College Chemistry II	4
CHEM 2100	Organic Chemistry I	3
CHEM 2110	Organic Chemistry II	3
CHEM 2130	Organic Laboratory I	2
Physical Sciences (select one set of courses)		
PHYSICS 1210 & 1210	College Physics I and College Physics I	8
PHYSICS 2750 & PHYSICS 2760	University Physics I and University Physics II	10
Mathematical Sciences (select one calculus option and one statistics option)		
MATH 1400 or MATH 1500	Calculus for Social and Life Sciences I or Analytic Geometry and Calculus I	3-5
STAT 1200 or STAT 1400	Introductory Statistical Reasoning or Elementary Statistics for Life Sciences	3

For students who elect the Foreign Language Substitute, the existing track, Medicine, Health, and Society, will be required.

#### Behavioral Sciences Requirements

Choose 6 hours from the following:		
PSYCH 1000	General Psychology	3
PSYCH 2210	Mind, Brain, and Behavior	3
PSYCH 2220	Drugs and Behavior	3
PSYCH 2310	Social Psychology	3
PSYCH 2410	Developmental Psychology	3
PSYCH 2510	Survey of Abnormal Psychology	3
PSYCH 2810	Human Sexuality	3
SOCIOL 2200	Social Inequalities	3

In addition: students will need to choose 9 hours in two subject areas from the standard list available to all A&S students

#### Humanities and Fine Arts Requirements

Students will need to choose 12 hours in three subject areas from the standard list available to all A&S students, including at least one of the following courses:		
PHIL 1150	Introductory Bioethics	3
PHIL 2400	Ethics and the Professions	3
PHIL 2440	Medical Ethics	3

### Semester Plan

NOTE: These plans are intended only as general guides. Courses outside Biology and Chemistry are provided only for illustrative purposes. Advanced credit or exemption from the Foreign Language requirement



and/or advanced credit in non-science courses, along with the interests of each individual student will determine a final combination of courses in each semester that is unique for each student. Note also that the sample schedules in Semester 5 and beyond are left incomplete on purpose because each schedule should be highly individualized at that point.

### Plan 1

#### A student that is exempt from MATH 1100

First Year			
Fall	CR	Spring	CR
CHEM 1320		4 CHEM 1330	4
ENGLISH 1000		3 BIO_SC 1500	5
Behavioral Sciences Course		3 Humanities Course (2000 level)**	3
Social Sciences Course (MO State Law)		3 Social Science Course**	3
Elective		1-2	
			15

Second Year			
Fall	CR	Spring	CR
CHEM 2100		3 CHEM 2110	3
BIO_SC 2200		4 CHEM 2130	2
STAT 1200		3 BIO_SC 2300	4
Foreign Language or Alternative Track		3-4 MATH 1400 *See Grad Plan for Mathematical Sciences Option	3
Elective		1-2 Foreign Language or Alternative Track	3-4
			15-16

Third Year			
Fall	CR	Spring	CR
Biology Elective Lab (3000 level)		5 PHYSCS 1220	4
PHYSCS 1210		4 Biology Elective	3
Foreign Language or Alternative Track		3-4 Behavioral Science	3
Elective		3 Humanities (2000 Level)	3
			15-16

Fourth Year			
Fall	CR	Spring	CR
Biology Capstone		3 Biology Elective- Writing Intensive	3
Biology Diversity		4 Evolutionary Biology	3
Social Science (2000 level)		3 Humanities	3
Humanities		3 Elective/FLA	3
Writing Intensive Elective		3 Elective	3
			16

Total Credits: 117-122

\*\* Could meet A&S Diversity Intensive Requirement (3 hrs).

### Plan 2

#### A student that needs MATH 1100

First Year			
Fall	CR	Spring	CR
BIO_SC 1500		5 CHEM 1320	4
MATH 1100		3 ENGLISH 1000	3

Behavioral Sciences Course		3 Humanities Course (2000 level)**	3
Social Sciences Course (MO State Law)		3 Social Sciences Course**	3
Elective		1 Elective	1-2
			15

Second Year			
Fall	CR	Spring	CR
CHEM 1330		4 CHEM 2100	3
BIO_SC 2200		4 BIO_SC 2300	4
STAT 1200		3 MATH 1400	3
Foreign Language or Alternative Track		3-4 Foreign Language or Alternative Track	3-4
Elective		Elective	3
			14-15

Third Year			
Fall	CR	Spring	CR
Biology Elective Lab (3000 level)		5 PHYSCS 1210	4
CHEM 2110		3 Biology Elective	3
CHEM 2130		2 Behavioral Science	3
Foreign Language or Alternative Track		3-4 Humanities (2000 level)	3
Elective		3	
			16-17

Fourth Year			
Fall	CR	Spring	CR
Biology Capstone		3 Biology Elective- Writing Intensive	3
PHYSCS 1220		4 Evolutionary Biology	3
Social Science (2000 level)		3 Biology Diversity	4
Humanities		3 Elective/FLA	3
Writing Intensive Elective		3 Humanities	3
			16

Total Credits: 120-124

\*\* Could meet A&S Diversity Intensive Requirement (3 hrs).

## Minor in Biological Sciences

### Requirements

Minor Core Requirements		5
BIO_SC 1200	General Botany with Laboratory	
or BIO_SC 1500	Introduction to Biological Systems with Laboratory	

**Additional Biological Sciences**  
 Select 10 credits in courses numbered 2000 or higher (see exclusions below), including at least one course from two of the following areas. Additional coursework may be required to meet the 10 credit requirement.

Genetics	
BIO_SC 2200	General Genetics
Cell Biology	
BIO_SC 2300	Introduction to Cell Biology
Evolutionary Biology	
BIO_SC 3400	Evolution and Ecology
BIO_SC 4600	Evolution
Biological Diversity	

BIO_SC 3210	Plant Systematics
BIO_SC 3260	Invertebrate Zoology
BIO_SC 3360	Herpetology
BIO_SC 3510	Biology of Fungi
BIO_SC 3710 & BIO_SC 3715	Introductory Entomology and Insect Diversity
BIO_SC 3750	General Microbiology
MICROB 3200	Medical Microbiology and Immunology
F_W 2600	Ornithology
F_W 2700	Ichthyology
F_W 3660	Mammalogy

Total Credits 15

- At least one of the additional courses must include a laboratory. MICROB 3200 may not be used to satisfy the laboratory course requirement.
- Courses designed for non-biology majors, problems, internships, readings and research (i.e., BIO\_SC 2010, BIO\_SC 2015, BIO\_SC 2060, BIO\_SC 2100, BIO\_SC 2150, BIO\_SC 2940, BIO\_SC 2960, BIO\_SC 2965H, BIO\_SC 4085, BIO\_SC 4950, BIO\_SC 4950H, BIO\_SC 4952, BIO\_SC 4952H, and BIO\_SC 4960) may not be used to fulfill requirements for the minor.
- All courses in the minor must have a grade of C- or higher with a cumulative GPA of 2.0 or higher in the minor. (Satisfactory/Unsatisfactory grading is not acceptable for courses in the minor.)
- At least nine of the 15 credits in the minor must be taken in residence at MU.
- The program for the Minor must be approved by the Division of Biological Sciences before submitting to the College of Arts and Science.

## MA in Biological Sciences

Biological Sciences offers an M.A. degree. Students can directly apply to a thesis-based M.A. degree. Acceptance to the M.A. degree program requires commitment from a mentor.

The M.A. degree can also be offered to students who are initially accepted with the intent of fulfilling a Ph.D. and due to unforeseen circumstances, such as illness, a change in academic interest, or other personal reasons, request transfer to the M.A. degree. In these cases, and depending on the unique circumstances of each student, the M.A. can be offered with or without a written thesis.

### Degree Requirements

The M.A. degree requires a minimum of 30 credit hours. Fifteen hours must be from courses at the 8000 or 9000 level and no more than 40 percent of the 30-hours credit requirement can be satisfied by a combination of special investigations and research courses. Students are required to enroll in BIO\_SC 8050 ([https://nextcatalog.missouri.edu/search/?P=BIO\\_SC%208050](https://nextcatalog.missouri.edu/search/?P=BIO_SC%208050)) Professional Survival Skills and BIO\_SC 8060 ([https://nextcatalog.missouri.edu/search/?P=BIO\\_SC%208060](https://nextcatalog.missouri.edu/search/?P=BIO_SC%208060)) Ethical Conduct of Research. The remainder of the hours is made up of seminars and 12 hours of thesis research. Students opting for a M.A. degree must complete a research project, and write and defend a Master's thesis in front of their Master's committee. Students design their program of study based on their research interest and in consultation with their faculty advisor and committee.

## Admission Eligibility & Criteria

Our goal is to foster a community in which excellence in research, teaching and community engagement are recognized as synergetic activities of equal importance. Therefore, we have moved away from a metric-based approach and instead use a holistic evaluation of candidates. At the forefront of this process is the recognition that inclusion and equity are the foundations of a community in which diverse ideas and perspectives are likely to flourish. As such, the Division of Biological Sciences prioritizes evidence of attributes such as drive, diligence, passion for sharing scientific knowledge, and a willingness to take scientific risks over metrics such as GPA, standardized test scores, and other similar qualifications.

## Required Application Materials

Applicants are required to submit all the materials through the Graduate School application (<https://applygrad.missouri.edu/apply/>) process.

Please note that your application would not be considered until all the materials are received. We encouraged all applicants to visit the Biological Science Graduate Studies Section to become familiar with the application process.

## Admission Contact Information

Breanne Meyer  
Student Support Specialist I  
MeyerBM@missouri.edu  
Phone: 573-882-1847 or 800-553-5698

## PhD in Biological Sciences

### Degree Requirements

The doctoral degree requires a minimum of 72 credit hours. Fifteen hours are composed of formal coursework at the 8000 or 9000 level, including BIO\_SC 8050 Professional Survival Skills, and a course in ethics. The remainder of the 72 hours is made up of seminars and thesis research. Otherwise, students design their program of study based on their research interest and in consultation with their faculty advisor.

## Admission Eligibility & Criteria

The Division of Biological Sciences actively recruits outstanding graduate students from both national and international pools. Selected candidates are interviewed. The best are admitted to the division for graduate study. Even more important than the quantitative Grade Point Average, we are interested in evidence of critical qualitative characteristics including: undergraduate research experiences and presentation of research results; ability to face and overcome obstacles; exceptional motivation, work ethic, intellectual vitality, initiative, creativity, critical thinking ability and leadership ability.

All entering graduate students should have a broad background in biology and should have completed courses in mathematics through integral calculus, chemistry through organic chemistry and a year of physics. Exceptions may be made for individual students. Outstanding students with undergraduate degrees in areas other than biology (such as biochemistry, chemistry, physics, engineering, mathematics or psychology) are encouraged to apply with the understanding that subject matter in biology will be addressed in the first year of graduate study.

- Fall deadline: December 1
- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
250	608

### Required Application Materials

#### To the Graduate School:

- All required Graduate Admissions documents

#### To the Biological Sciences Program:

- Division of Biological Sciences application form
- Official Transcripts
- 3 Reference letters
- Personal Statement
- Statement of previous research or scholarly experience
- Résumé

## Admission Contact Information

College of Arts and Science  
218 Tucker Hall  
Columbia, MO 65211  
1-800-553-5698  
(573) 882-1847

## Chemistry

T. Glass, Chair  
College of Arts and Science  
125 Chemistry Building  
(573) 882-8374  
chemistry@missouri.edu

The Department of Chemistry offers four undergraduate degree tracks, three leading to a Bachelor of Science and one leading to a Bachelor of Arts. A minor in chemistry and a Bachelor of Science degree with departmental honors also are offered.

At the graduate level, the department offers MS and PhD degrees in Chemistry.

## Faculty

**Curators Professor** J. L. Atwood\*\*

**Rabjohn Professor** M. Harmata\*\*

**Schlundt Professor** K. S. Gates\*\*

**Professor** R. E. Glaser\*\*, T. E. Glass\*\*, S. S. Jurisson\*\*, J. D. Robertson\*\*, T. D. Sewell\*\*, D. L. Thompson\*\*

**Associate Professor** L. J. Beamer\*\*, C. M. Greenlief\*\*, T. J. Hoffman\*\*, R. D. JiJi\*\*, S. W. Keller\*, S. Z. Lever\*\*, J. R. Walensky\*\*

**Assistant Professor** G. A. Baker\*\*, S. N. Baker\*\*, M. Lee\*\*

**Assistant Teaching Professor** B. C. Ganley

**Instructor** L. P. Silverman

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- Department Level Requirements (p. 171)
- BA in Chemistry (p. 171)
- BS in Chemistry (p. 172)
- Minor in Chemistry (p. 174)

## Graduate

- MS in Chemistry (p. 174)
- PhD in Chemistry (p. 175)

College of Arts and Science  
125 Chemistry Building  
(573) 882-8374  
<http://chemistry.missouri.edu/>

**Director of Graduate Studies:** Kent Gates

The Department of Chemistry offers graduate degrees in all areas of modern chemistry, including analytical, biological, computational, inorganic, organic, physical and radiochemistry.

## Resources and Facilities

The department has well-equipped laboratories that contain state-of-the-art instrumentation and computing facilities for research. Major instrumentation includes NMR, X-ray diffraction and mass spectrometry centers, as well as a nuclear/radiochemistry lab. Other campus facilities widely used by the department include a central instrument shop, electronics shop, campus computing center and a 10-megawatt nuclear reactor. The latter provides a high neutron flux for radioisotope production, neutron activation analysis and neutron diffraction studies.

## Internal Funding

Fellowships and teaching and research assistantships are available for highly qualified applicants. Application forms are available on the department's website and should be submitted by February 1.

## Graduate Degree Requirements

Students are strongly encouraged to visit the Department of Chemistry site (<http://chemistry.missouri.edu>) for the most up-to-date information.

## Entrance Criteria

An applicant for graduate work in chemistry should have either a Bachelor of Arts or Bachelor of Science degree in chemistry, essentially equivalent to those awarded at MU, with at least a B average or a score at the 70th percentile on the GRE general test.

## Examinations

All new graduate students in chemistry are required to take Departmental placement/qualifying examinations in all core areas (analytical, inorganic, organic and physical) prior to registration. Students must qualify in two areas. A student who performs well on an exam, as determined by the department's Graduate Program Committee, will be considered to have qualified in that area. Students who do not qualify in particular areas, via the placement examinations, must pass appropriate advanced-level courses in those areas to qualify. An A or B grade is required in these courses for qualification.

## Research, Advising, and the Committee

Affiliation with research advisor must be made by the end of the first semester through a formal process that is part of CHEM 7087. Student progress in the degree program is evaluated annually in May, using the Graduate Student Progress System through the Graduate School. In addition, the student's Graduate Program Committee meets with the student and their research advisor after their first summer of research to review degree progress. At this time the student will have submitted a formal Research Progress Report to their committee for consideration. All students are expected to attend Departmental Colloquium and Organic/DyNAMITE seminars.

## Department Level Requirements - Chemistry

### Requirements - BA or BS students

Students should consult with a chemistry advisor to schedule science and mathematics requirements in the appropriate order. Note that for a number of chemistry courses there is a prerequisite of a grade of C or better in a previous course. Please see the Associate Chair for Undergraduate Studies for assignment of an advisor.

Students also must complete all applicable College of Arts and Sciences and University graduation requirements (p. 138), including University general education (p. 36). Note that students pursuing a BS degree with a major in Chemistry may opt to satisfy the foreign language requirement through alternative course work consisting of no fewer than 12 credits numbered 2000 or above.

#### Major Core Requirements

CHEM 1320	College Chemistry I	4
CHEM 1330	College Chemistry II	4
CHEM 2100	Organic Chemistry I	3
CHEM 2110	Organic Chemistry II	3
CHEM 2130	Organic Laboratory I	2
CHEM 2140	Organic Laboratory II	2
CHEM 2400	Fundamentals of Inorganic Chemistry with Lab	3
CHEM 3200	Quantitative Methods of Analysis with Lab	4
CHEM 3700W	Undergraduate Seminar in Chemistry - Writing Intensive	3
MATH 1500	Analytic Geometry and Calculus I	5
MATH 1700	Calculus II	5
Total Credits		38

### Degree Tracks

Beyond the major core requirements, each student must select a degree track. There is one track for students pursuing a BA degree and three for those pursuing a BS. The BA degree is designed to meet the needs of students who wish to gain a strong chemistry background but who may have goals other than employment as a chemist or graduate work in chemistry. The American Chemical Society certification track is recommended for BS students who desire professional employment as chemists or who plan to pursue graduate education in chemistry. A medicinal chemistry track is available to BS students who plan careers in the health professions or in pharmaceutical, clinical or medicinal chemistry. The third BS track, leading to simultaneous completion of a

BS in Chemistry and a BS in Education, is appropriate for those students who wish to teach chemistry in secondary schools. More information about this third degree track is available from the Chemistry Associate Chair for Undergraduate Studies.

Note: 'Track' designations do not appear on transcripts or diplomas.

### Double Majors

No specific programs (other than the dual degree program with the College of Education noted above) are offered, although it is possible to combine a chemistry major (BS or BA) with a variety of other majors, including biological sciences, mathematics and physics.

### Departmental Honors

A BS with Honors in Chemistry is available to honors-eligible BS students who complete CHEM 4990H and CHEM 4991H as well as all of the requirements for the ACS Certification Track. (These courses replace CHEM 4950) Please see the Chemistry Honors Coordinator, for more specific details about the Honors in Chemistry program.

## BA in Chemistry

### Degree Program Description

Chemistry is the study of matter and substances in order to understand, explain and predict how substances change. The BA degree is designed for those students who desire a more general education than that provided by the BS degree, but nonetheless are seeking a degree in chemistry. Most chemistry majors continue their education in graduate school or professional school. Many of our graduates are now physicians or have teaching and research careers at universities and colleges. Other graduates are managers in industry and specialists in their fields. This degree also may be appropriate for students in pre-professional programs (pre-medicine, pre-dentistry, pre-pharmacy, and pre-law).

### Major Program Requirements

Department Level Requirements (p. 171) must be completed in addition to all university requirements, including general education (p. 36), and the degree requirements below.

Students should consult with a chemistry advisor to schedule science and mathematics requirements in the appropriate order. Note that for a number of chemistry courses there is a prerequisite of a grade of C or better in a previous course. Please see the Associate Chair for Undergraduate Studies for assignment of an advisor.

Students also must complete all applicable College of Arts and Sciences and University graduation requirements (p. 138), including University general education (p. 36). Note that students pursuing a BS degree with a major in Chemistry may opt to satisfy the foreign language requirement through alternative course work consisting of no fewer than 12 credits numbered 2000 or above.

#### Major Core Requirements

CHEM 1320	College Chemistry I	4
CHEM 1330	College Chemistry II	4
CHEM 2100	Organic Chemistry I	3
CHEM 2110	Organic Chemistry II	3
CHEM 2130	Organic Laboratory I	2
CHEM 2140	Organic Laboratory II	2

CHEM 2400	Fundamentals of Inorganic Chemistry with Lab	3
CHEM 3200	Quantitative Methods of Analysis with Lab	4
CHEM 3700W	Undergraduate Seminar in Chemistry - Writing Intensive	3
MATH 1500	Analytic Geometry and Calculus I	5
MATH 1700	Calculus II	5
Total Credits		38

## Degree Requirements

CHEM 4310	Physical Chemistry I	3
PHYSCS 1210	College Physics I	4
or PHYSCS 2750	University Physics I	
PHYSCS 1220	College Physics II	4
or PHYSCS 2760	University Physics II	
Collateral Courses		12
Additional course work at the 2000-level or higher outside of chemistry. For example: biological sciences, mathematics, biochemistry or business		
Total Credits		23

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
CHEM 1320*		4 CHEM 1330*	4
MATH 1500*		5 MATH 1700	5
American History/Government*		3 English Composition*	3
General Education/Elective*		3-5 General Education/Elective*	3-5
		15-17	15-17
Second Year			
Fall	CR	Spring	CR
CHEM 2100		3 CHEM 2110	3
PHYSCS 1210		4 CHEM 2130	2
General Education/Elective*		3 PHYSCS 1220	4
General Education/Elective*		3 General Education/Elective*	3
		13	12
Third Year			
Fall	CR	Spring	CR
CHEM 3200		4 CHEM 2140	2
CHEM 2400		3 CHEM 3700W	3
Collateral Area Course		3 Collateral Area Course	3
Foreign Language		5 Foreign Language	5
General Education/Elective*		3 General Education/Elective*	3
		General Education/Elective*	3
		18	19
Fourth Year			
Fall	CR	Spring	CR
CHEM 4310		3 Collateral Area Course	3
Collateral Area Course		3 General Education/Elective*	3
Foreign Language		3 General Education/Elective*	3
General Education/Elective*		3 General Education/Elective*	3

General Education/Elective*	3 General Education/Elective*	3
		15
		15

Total Credits: 122-126

\* Courses satisfy certain University general education (p. 36) requirements.

## BS in Chemistry

### Degree Program Description

Chemistry is the study of matter and substances in order to understand, explain and predict how substances change. The BS degree is designed for those students who desire a more focused education in Chemistry and related Sciences than that provided by the BA degree, which is more general. There are three degree tracks for those who are pursuing a BS. The American Chemical Society certification track is recommended for BS students who desire professional employment as chemists or who plan to pursue graduate education in chemistry. A medicinal chemistry track is available to BS students who plan careers in the health professions or in pharmaceutical, clinical or medicinal chemistry. The third BS track, leading to simultaneous completion of a BS in Chemistry and a BSEd in Secondary Education with Emphasis in Chemistry, is appropriate for those students who wish to teach chemistry in secondary schools. Most chemistry majors continue their education in the best graduate schools or professional schools in the country. Many of our graduates are now physicians or have teaching and research careers at universities and colleges. Other graduates are managers in industry and specialists in their fields.

### Major Program Requirements

Department Level Requirements (p. 171) must be completed in addition to all university requirements (p. 35), including general education (p. 36), and the degree requirements below.

Students should consult with a chemistry advisor to schedule science and mathematics requirements in the appropriate order. Note that for a number of chemistry courses there is a prerequisite of a grade of C or better in a previous course. Please see the Associate Chair for Undergraduate Studies for assignment of an advisor.

Students also must complete all applicable College of Arts and Sciences and University graduation requirements (p. 138), including University general education (p. 36). Note that students pursuing a BS degree with a major in Chemistry may opt to satisfy the foreign language requirement through alternative course work consisting of no fewer than 12 credits numbered 2000 or above.

#### Major Core Requirements

CHEM 1320	College Chemistry I	4
CHEM 1330	College Chemistry II	4
CHEM 2100	Organic Chemistry I	3
CHEM 2110	Organic Chemistry II	3
CHEM 2130	Organic Laboratory I	2
CHEM 2140	Organic Laboratory II	2
CHEM 2400	Fundamentals of Inorganic Chemistry with Lab	3
CHEM 3200	Quantitative Methods of Analysis with Lab	4
CHEM 3700W	Undergraduate Seminar in Chemistry - Writing Intensive	3

MATH 1500	Analytic Geometry and Calculus I	5
MATH 1700	Calculus II	5
Total Credits		38

### Chemistry Major with BS Degree American Chemical Society Certification Track

CHEM 4310	Physical Chemistry I	3
CHEM 4330	Physical Chemistry II	3
CHEM 4340	Physical Chemistry Laboratory	3
CHEM 3700W	Undergraduate Seminar in Chemistry - Writing Intensive	3
CHEM 4200	Instrumental Methods of Analysis with Lab	3
CHEM 4400	Inorganic Chemistry	3
CHEM 4950	Senior Research	3
or CHEM 4990H	Senior Honors Research I	
BIOCHM 4270	Biochemistry	3
PHYSICS 2750	University Physics I	5
PHYSICS 2760	University Physics II	5
MATH 2300	Calculus III	3
Total Credits		37

### Medicinal Chemistry Track

CHEM 4310	Physical Chemistry I	3
CHEM 3700W	Undergraduate Seminar in Chemistry - Writing Intensive	3
CHEM 4170	Medicinal Chemistry	3
CHEM 4600	Introduction to Radiochemistry with Lab	3
or BIO_SC 4328	Introductory Radiation Biology	
PHYSICS 1210	College Physics I	4
or PHYSICS 2750	University Physics I	
PHYSICS 1220	College Physics II	4
or PHYSICS 2760	University Physics II	
BIO_SC 1500	Introduction to Biological Systems with Laboratory	5
BIO_SC 2200	General Genetics	4
BIO_SC 2300	Introduction to Cell Biology	4
BIOCHM 4270	Biochemistry	3
BIOCHM 4272	Biochemistry	3
Total Credits		39

### Dual Degree in Chemistry and Secondary Education

CHEM 4800	Chemistry Teaching Practicum	3
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### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

### Sample Eight-Semester Program - Bachelor of Science with a Major in Chemistry (ACS Certification Track)

First Year			
Fall	CR	Spring	CR
CHEM 1320*		4 CHEM 1330*	4
MATH 1500*		5 MATH 1700	5
American History/Government*		3 PHYSICS 2750	5
ENGLISH 1000*		3	
			14

Second Year			
Fall	CR	Spring	CR
CHEM 2100		3 CHEM 2110	3
MATH 2300		3 CHEM 2130	2
General Education/Elective		3 General Education/Elective*	3
PHYSICS 2760		5 General Education/Elective	3
			11

Third Year			
Fall	CR	Spring	CR
CHEM 2400		3 CHEM 2140	2
CHEM 3200		4 CHEM 4330	3
CHEM 4310		3 CHEM 4340	3
Foreign Language (or substitute)		4 Foreign Language (or substitute)	5
		General Education/Elective*	3
			16

Fourth Year			
Fall	CR	Spring	CR
CHEM 4200		3 CHEM 3700W	3
BIOCHM 4270		3 CHEM 4400	3
Foreign Language (or substitute)		3 CHEM 4950 or 4990H	3
General Education/Elective*		3 General Education/Elective*	3
General Education/Elective*		3 General Education/Elective*	3
			15

Total Credits: 114

\* Courses satisfy certain University general education requirements.

### Sample Eight-Semester Program - Bachelor of Science with a Major in Chemistry (Medicinal Chemistry Track)

Check the Undergraduate Catalog for Prerequisites.

First Year			
Fall	CR	Spring	CR
CHEM 1320*		4 CHEM 1330*	4
MATH 1500*		5 MATH 1700	5
PSYCH 1000		3 ENGLISH 1000*	3
American History/Government*		3 General Education/Elective	3
			15

Second Year			
Fall	CR	Spring	CR
CHEM 2100		3 CHEM 2110	3
BIO_SC 1500		5 CHEM 2130	2
PHYSICS 1210		4 BIO_SC 2200	4
General Education/Elective		3 PHYSICS 1220	4

General Education/Elective				3
				15
				16
Third Year				
Fall	CR	Spring	CR	
CHEM 2400		3 CHEM 2140		2
CHEM 3200		4 BIOCHM 4270		3
BIO_SC 2300		4 Foreign Language (or substitute)		4
Foreign Language (or substitute)		4 General Education/Elective*		3
				General Education/Elective
				3
				15
				15
Fourth Year				
Fall	CR	Spring	CR	
CHEM 4310		3 CHEM 4170		3
BIOCHM 4272		3 Chemistry Elective (e.g. CHEM 4600)		3-4
Foreign Language (or substitute)		4 General Education/Elective*		3
General Education/Elective*		3 General Education/Elective*		3
General Education/Elective*		3 General Education/Elective		3
				16
				15-16

Total Credits: 122-123

\* Courses satisfy certain University general education requirements.

## Minor in Chemistry

### Requirements

A minor in chemistry is awarded for the completion of:

#### Required Courses

CHEM 1320	College Chemistry I	4
CHEM 1330	College Chemistry II	4
CHEM 2100	Organic Chemistry I	3
CHEM 2110	Organic Chemistry II	3
CHEM 2130	Organic Laboratory I	2
Choose one of the following		
CHEM 2400	Fundamentals of Inorganic Chemistry with Lab	3
CHEM 3200	Quantitative Methods of Analysis with Lab	4
CHEM 4600	Introduction to Radiochemistry with Lab	3

NOTE: At least nine (9) hours must be completed at MU.

All required minor coursework must be completed with a grade of C- or higher.

A minimum GPA of 2.0 is required to earn the minor.

Once an A&S minor is awarded, a student cannot return to MU to complete a major in the same department.

Minor coursework cannot also be used as Foreign Language Alternative.

## MS in Chemistry

Admission to the Chemistry program to pursue an MS degree is not typically an option, as students are accepted with the intent that they will fulfill the PhD requirements. Only under unusual circumstances is a student allowed to transfer to the MS degree. In those cases, qualifications and degree requirements are described below. Please see admission information on our PhD Program (p. 175).

## Degree Requirements

An MS program of study must include a minimum of 30 credit hours beyond the bachelor's degree. Students are required to complete all graduate work attempted with a GPA of 3.0 or higher, and no more than two C grades will be accepted. The program is usually comprised of coursework as follows:

- 15 credit hours of graduate level coursework (including a minimum of one course at the 8000 level).
- Of these 15 hours, 3 courses should be in the student's area of concentration, and 2 courses outside their area of concentration (e.g. organic, inorganic, physical, analytical, biological).
- 1 credit hour of graduate student orientation seminar in the first semester (CHEM 7087 Seminar in Chemistry for Beginning Graduate Students).
- 2 credit hours of seminar (CHEM 8087 Seminar in Chemistry), one hour for a literature presentation in departmental seminar and one hour for the dissertation seminar in the student's final semester.
- up to 12 credit hours in thesis research (CHEM 8090 Thesis/ Dissertation (pre-candidacy) Research in Chemistry).

A maximum of 6 credit hours of graduate work completed elsewhere also may be applied towards the 30-hour requirement (with the approval of the student's advisor and the Director of Graduate Studies).

## Qualifying Exams

The purpose of Qualification is to demonstrate proficiency in core areas of chemistry. Graduate students entering the Chemistry graduate program will be given Qualifying Exams in each of the 4 core areas of Chemistry (Analytical, Inorganic, Organic and Physical) prior to registration. These exams are administered in August and January by the Chemistry Department. A student must pass the exams in two or more areas to be Qualified for the MS graduate program. Entering graduate students who do not pass at least two of the exams when they first enter can qualify by three different methods:

- retake one or two exams prior to registration for the second semester.
- passing approved graduate level course in the area with grade of B or better.
- passing approved undergraduate level course in the area with grade of B or better.

## Advisors and Advisory Committee

Students are strongly encouraged to select a research advisor by the beginning of their second semester (fall entrance) and must select an advisor by the end of the semester preceding their first summer of research. With his/her advisor, the student will recommend faculty for appointment to his/her Masters Program Committee and submit the appropriate Graduate School forms. (The final membership of the committee must be approved by the Associate Chair for Graduate Studies.)

## Thesis

The thesis is the result of the student's own work. It is to be prepared according to Graduate School guidelines and submitted to the three readers on the student's thesis committee. Submission to the readers must be early enough for them to have an opportunity to go over the work. Students should refer to the Graduate School Thesis and Dissertation Guidelines (<https://gradschool.missouri.edu/policycategory/thesis-dissertation/>).

## Seminars and Colloquia

Each student is required to attend regularly scheduled Departmental Colloquia and either one of the DyNAMITE or Organic seminar programs. Seminars are announced weekly in the departmental newsletter.

## Contact Information

Department of Chemistry  
125 Chemistry Building  
Columbia, MO 65211  
573-882-8374  
chemistry@missouri.edu

## PhD in Chemistry

### Degree Requirements

The following is a brief synopsis of the general degree requirements; please see the Department of Chemistry website for complete details:

1. Students must take at least 5 8000-level courses outside their own research concentration.
2. Students must pass 5 written cumulative exams within a specific time frame.
3. Students must present at least one departmental seminar.
4. Students are required to complete a comprehensive exam, which includes written and oral elements, within a specific time frame.
5. Students must submit and defend a dissertation describing the results of successful and original research in one of the branches of chemistry.

### Admission Criteria

Fall deadline: February 1

Spring deadline: October 15

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
100	600

- Minimum GRE scores:

When did you take the GRE?	Verbal	Quantitative	Analytical
Prior to August 1, 2011	450	600	3.0-4.0
On or After August 1, 2011	150	150	3.0-4.0

### Required Application Materials

To the Graduate School:

- All required Graduate School documents

To the Chemistry Program (<https://chemistry.missouri.edu/>):

- Departmental Application (PDF)
- GRE scores
- 3 letters of recommendation
- Transcripts from each college and university you have attended
- Statement of Purpose, which should include a summary of why you are interested in pursuing an advanced chemistry degree, a brief

description of your previous research experiences, the specific area of chemistry you are interested in pursuing, and your future career goals and plans in the chemistry field.

### Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

### Admission Contact Information

Jerry Brightwell (gradchem@missouri.edu)  
125 Chemistry  
Columbia, MO 65211  
(573) 884-6832

## Communication

Brian Houston, Chair  
College of Arts and Science  
108 Switzler Hall  
(573) 882-4431  
<https://communication.missouri.edu/>

The Department of Communication offers courses in creating and critically evaluating messages. These messages persuade, inform and entertain in contexts such as one-to-one interactions, communication in organizations, and media. Students prepare for careers in broadcasting, sales, public relations, law, politics, marketing and new media.

The department offers BA, MA and PhD degrees with majors in Communication.

### Faculty

**Associate Professor** E. Behm-Morawitz, C. Colaner, D. S. Dougherty, B. Houston, M. S. McKinney, R. Meisenbach, B. Warner

**Assistant Professor** A. Figueroa-Caballero, H. Hortsman, J. M. Riles

**Assistant Teaching Professor** M. A. Coleman, C. S. Josey, C. Kearney, S. Klien

**Associate Professor Emeritus** M. J. Porter, M. J. Smythe

**Adjunct Professor** A. Abeyta, K. Edwards,

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

### Undergraduate

- BA in Communication (p. 176)

### Admission

Because of student interest in communication programs, admission is restricted. Students must apply for admission no earlier than the first semester of their sophomore year, or during the semester in which they will complete 45 credits. A copy of the admission procedures and policies is available in the department office or at <http://communication.missouri.edu>.



The student's grade point average from the MU system as adjusted by the MU grade repeat policy and the grade point averages in completed communication courses at MU are the primary criteria used to determine admission to the program.

## Transfer Student Admission

Transfer students are not eligible for admission until they have completed at least one semester in residence (12 credits) and a communication course in residence. Students who are not admitted may reapply for consideration in subsequent terms.

## Departmental Honors

To receive departmental honors, a student must earn a minimum overall MU GPA of 3.3 and a minimum GPA of 3.5 in courses in communication completed at the University of Missouri. Students must a research project for a minimum of 3 credits with a faculty member, or a creative project completed for a minimum of 3 credits with a faculty member.

## Graduate

- MA in Communication (p. 178)
- PhD in Communication (p. 178)

Communication Graduate Programs  
College of Arts and Science  
108 Switzler Hall  
(573) 882-4431  
<http://communication.missouri.edu/>

**Director of Graduate Studies:** Mitchell McKinney

## About the Program

The program takes a theoretical, critical, and experimental approach to the study of communication. The MA program is designed to further enhance the understanding of the communication process by allowing students to study various aspects of communication in greater depth. Graduates are employed in corporate communication, educational and instructional media, sales, research and consulting. The doctoral program is designed for those interested in an academic career of college or university teaching and research. Doctoral students graduate with a strong theoretical background in interpersonal, mass media, organizational, or political communication.

## Funding

Graduate students are eligible to apply for fellowships and graduate teaching assistantships. Funding is normally limited to doctoral students.

## BA in Communication

### Degree Program Description

Communication students navigate rich environments using communication theories and models, critically evaluate messages and arguments, and effectively advocate their values, beliefs, and opinions using communication principles. Graduates are able to create persuasive messages for a variety of contexts using verbal and nonverbal, written, and mediated communication. The curriculum for the degree covers four main areas: interpersonal, mediated, organizational, and political communication. Students are asked to specialize in one area but are required to explore two additional areas. Interpersonal and family communication focuses on communication processes in family and

personal relationships. The mediated area studies theory and research related to media content and use, media effects, and audience reception. Students in this area have the opportunity to gain valuable hands-on experience in digital production. Organizational communication focuses on the various ways in which we produce, enact, and generally conduct our lives in various organizational contexts. Political communication studies the communicative activity of citizens, political figures and campaigns, government institutions, and social movements. Professional internships and two undergraduate organizations are offered and student participation is strongly encouraged. A degree in Communication is not intended to provide specific vocational training, but to prepare students for professional opportunities requiring active communication skills. Recent graduates have found careers in sales, public relations, marketing, advertising, promotions, political consulting, corporate communications, event planning, social media, media production, law, education, and public policy.

## Major Program Requirements

The major in communication includes a minimum of 30 hours and a maximum of 52 hours in communication courses. Each course is 3 credits unless otherwise noted. Students must also complete College of Arts and Sciences (p. 138) and University requirements (p. 35), including University general education requirements (p. 36).

Major core requirements

COMMUN 1200	Public Speaking	3
COMMUN 2500	Introduction to Communication	3
COMMUN 3575W	Business and Professional Communication - Writing Intensive	3
Total Credits		9

## Areas of Focus

In addition to required courses, a student must select one of four areas of focus. Students must complete 12 hours in one area of focus including one of the core courses in that area (\*). The student must take one course in two of the three other areas of focus. One final course is also required, but it can be in any focus area. A course may only count once toward meeting these requirements. Students must have at least one 4000+ level course in the major. (Areas of Focus will not appear on transcripts or diplomas.)

### Interpersonal Focus:

COMMUN 3422	Communication Research Methods	3
COMMUN 3470	Culture as Communication	3
COMMUN 3561	Relational Communication	3
COMMUN 3571	Group Decision Making Processes	3
COMMUN 4412	Gender, Language, and Communication	3
COMMUN 4440	Ethical Issues in Communication	3
COMMUN 4474	Theory and Research in Persuasion	3
COMMUN 4478	Communication Competencies for a Diverse Workplace	3
COMMUN 4510	Children's Communication	3
COMMUN 4520	Family Communication	3
COMMUN 4530	Health Communication	3

### Organizational Communication Focus:

COMMUN 3422	Communication Research Methods	3
COMMUN 3460	Organizational Advocacy	3
COMMUN 3470	Culture as Communication	3
COMMUN 3571	Group Decision Making Processes	3

COMMUN 3580	Crisis Communication	3
COMMUN 4412	Gender, Language, and Communication	3
COMMUN 4440	Ethical Issues in Communication	3
COMMUN 4474	Theory and Research in Persuasion	3
COMMUN 4476	Organizational Communication *	3
COMMUN 4478	Communication Competencies for a Diverse Workplace	3
COMMUN 4530	Health Communication	3

**Mediated Communication Focus:**

COMMUN 2100	Media Communication in Society *	3
COMMUN 3422	Communication Research Methods	3
COMMUN 3470	Culture as Communication	3
COMMUN 3490	Media Effects	3
COMMUN 3580	Crisis Communication	3
COMMUN 4412	Gender, Language, and Communication	3
COMMUN 4440	Ethical Issues in Communication	3
COMMUN 4474	Theory and Research in Persuasion	3
COMMUN 4530	Health Communication	3
COMMUN 4628	Children, Adolescents and the Media	3
COMMUN 4638	New Technologies and Communication	3
COMMUN 1880	Introduction to Digital Media Production	3
COMMUN 2200	Video Workshop: Sports Broadcast Production	3
COMMUN 2530	Screenwriting I	3
COMMUN 2810	Story Development	3
COMMUN 2880	Digital Storytelling Production I	3
COMMUN 4880	Digital Storytelling Production II	3

**Political Communication Focus:**

COMMUN 3422	Communication Research Methods	3
COMMUN 3460	Organizational Advocacy	3
COMMUN 3470	Culture as Communication	3
COMMUN 3572	Argument and Advocacy	3
COMMUN 3580	Crisis Communication	3
COMMUN 4412	Gender, Language, and Communication	3
COMMUN 4440	Ethical Issues in Communication	3
COMMUN 4473	Political Communication *	3
COMMUN 4474	Theory and Research in Persuasion	3
COMMUN 4478	Communication Competencies for a Diverse Workplace	3
COMMUN 4491	Political Public Address	3
COMMUN 4638	New Technologies and Communication	3

**Electives (beyond 30 hours)**

COMMUN 3570	Performance of Literature	3
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**Potential options for each area of focus depending on specific topic:**

COMMUN 2701 & COMMUN 2703 & COMMUN 2705	Topics in Communication - General and Topics in Communication - Behavioral Science and Topics in Communication - Humanities/Fine Arts	9
COMMUN 2703	Topics in Communication - Behavioral Science	3
COMMUN 2703W	Topics in Communication - Behavioral Science - Writing Intensive	3
COMMUN 2705	Topics in Communication - Humanities/ Fine Arts	3

COMMUN 3701 & COMMUN 3703 & COMMUN 3705	Topics in Communication-General and Topics in Communication-Behavioral Sciences and Topics in Communication-Humanities	5-9
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COMMUN 3701W	Topics in Communication - General - Writing Intensive	3
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COMMUN 3703	Topics in Communication-Behavioral Sciences	1-99
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COMMUN 3705	Topics in Communication-Humanities	1-99
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COMMUN 4701 & COMMUN 4705	Topics in Communication-General and Topics in Communication-Humanities	3-9
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COMMUN 4705	Topics in Communication-Humanities	1-99
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COMMUN 4940	Internship	1-99
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COMMUN 4950	Research Project	1-3
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COMMUN 4960	Directed Reading	1-3
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## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

### First Year

Fall	CR	Spring	CR
ENGLISH 1000		3 Biological/Physical/Mathematical Science with Lab*	3-5
Humanities Course *		3 Humanities Course *	3
Behavioral Science Course *		3 Elective or Minor Course	3
American Government Requirement (Social Science Course)		3 COMMUN 1200	3
Elective Course		3 MATH 1050 or 1100	3
	15		15-17

### Second Year

Fall	CR	Spring	CR
Foreign Language or Elective	3-5	COMMUN 2500	3
Communication Course**	3	Foreign Language or Elective	3-5
Behavioral Science Course (1000+)	3	Social Science Course *	3
Biological/Physical/Mathematical Science Course *	3	Humanities Course (1000+)*	3
Humanities Course (Writing Intensive)	3	Biological/Physical/Mathematical Science Course *	3
	15-17		15-17

### Third Year

Fall	CR	Spring	CR
COMMUN 3575W	3	Communication Course**	3
Communication Course**	3	Elective Course	3
Elective or Minor Course	3	Elective Course	3
Foreign Language or Elective	3	Elective or Minor Course	3
Social Science Course (1000+)*	3	Communication Course**	3
	15		15

### Fourth Year

Fall	CR	Spring	CR
Communication Course**	3	Communication Course (4000+)**	3
Elective or Minor Course	3	Elective or Minor Course	3

Communication Course**	3 Elective or Minor Course	3
Elective Course	3 Elective Course	3
Elective Course	3 Additional Elective Hours to Reach 120 credits (If Necessary)	3
		15

Total Credits: 120-126

\* From A&S list available from A&S Advising (<https://coas.missouri.edu/academic-advising/>) or academic Exploration Web (<https://discoverycenter.missouri.edu/>) Page.

\*\* From list of Communication courses within the four emphasis areas.

## MA in Communication

### Degree Requirements

The MA in Communication requires 30 hours of course work with a B average (minimum) GPA. Students who do not have an undergraduate degree in Communication may be required to take course work beyond the minimum required 30 hours to remedy any deficiencies.

All courses must be taken at the 7000 level or higher. At least 15 hours of courses must be taken at the 8000 level. At least 24 hours of graduate classes (7000 and above) must be completed in the department. COMMUN 8110: Introduction to Graduate Studies, must be completed as part of the coursework along with a research methods course. No more than 12 hours combined may be taken in research, problems, or directed readings courses (i.e., 4960, 8085, 9050).

At least 24 hours of course work must be completed at the University of Missouri-Columbia campus. Only six hours of graduate credit may be transferred from another university in the University of Missouri system.

No more than 9 hours of course work or independent study in television production or scriptwriting will be accepted for the MA degree. Students may opt to take more production hours but they may not be included in the candidate's plan of study.

The MA must be completed in 8 years.

### Thesis and Non-Thesis Options

The master of arts degree may be completed under either a thesis option, approved by an advisory committee, or a non-thesis option (with a comprehensive examination and project).

You must write either a master's thesis or complete a substantial research or creative project with exams in lieu of a thesis. The thesis option requires an oral defense of the thesis before a committee of three faculty members. This is in lieu of written comprehensive exams. Students who opt for the project option must submit an approved research project or creative project to their advisor prior to graduation and must successfully pass a six-hour written comprehensive examination written for a three-member faculty advisory committee. A student may earn up to six hours of academic credit for either the thesis or the independent project.

Both plans require a minimum of 30 hours of graduate credit, including at least 15 hours of course work at the 8000/9000 level. MA candidates may take up to 6 hours of credit for their MA project for the non-thesis option. MA candidates take a minimum of 6 hours in 9090 Thesis Research for the thesis option.

## Admission Criteria

Fall deadline: January 15

- Minimum GPA: 3.0
- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
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61 Effective July 1, 2015 must have a score of 80

- Minimum GRE scores:

When did you take the GRE?	Verbal	Quantitative	Analytical
Prior to August 1, 2011	500	500	4.0
On or After August 1, 2011	153	144	4.0

Students who do not have an undergraduate degree in communication may be required to take course work beyond the required 30 hours to provide necessary background.

### Required Application Materials

To the Graduate School:

- All required Graduate Admissions documents

To the Communication Program (<http://communication.missouri.edu/?q=grad/admissions>)

- Departmental application
- 3 letters of recommendation
- Example of scholarly writing (no more than 25 pages)
- Transcripts
- Statement of purpose (no more than 500 words) explaining the student's intended field of study, professional goals and other reasons for wishing to enter the graduate program
- GRE scores
- Résumé

### Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

### Admission Contact Information

Martha Crump ([crumpm@missouri.edu](mailto:crumpm@missouri.edu))  
108 Switzler Hall; Columbia, MO 65211  
(573) 882-4432

## PhD in Communication

### Degree Requirements

Before registering for courses, the student must confer with their temporary advisor until a permanent advisor is assigned.

The PhD candidate must take at least 48 hours of course work beyond the MA. Students with an MA degree in another discipline may be required by their doctoral program committee to complete additional

course work. Course work will include 36 hours within the department. The following courses are required:

COMMUN 8110	Introduction to Graduate Study in Communication	3
COMMUN 8120	Introduction to Communication Research Methods	3
COMMUN 9170	Research Practicum	3
COMMUN 9050	Research	3
One of the following:		3
COMMUN 8130	Topics in Qualitative Research Methods	
COMMUN 8160	Rhetorical Criticism	
COMMUN 8140	Content Analysis	
Including the courses listed above, students must complete a total of 15 hours of research methods classes. Nine of these hours may be taken outside the department.		15
Students must also complete a 6-hour collateral field block outside the department representing a coherent unit of study and relates to an area of major research interest.		6
Total Credits		36

## Committee and Qualifying Requirements

A doctoral program committee approves the student's course of study and determines if the student has passed the qualifying requirements during the spring semester of the first year. Only after passing the qualifying requirements will the student be admitted to candidacy for the PhD degree in communication.

For a student whose MA program was done at MU, the six-hour comprehensive examination or the MA thesis defense constitutes the qualifying process. The student may proceed beyond the MA degree only upon the recommendation of the MA examining committee.

## Comprehensive Examination and Dissertation

### Comprehensive Examination

The comprehensive examination, including a 30-page literature review, a 15-hour written exam and an oral defense, will cover all areas of studies in the field. During the semester students take comprehensive exams they enroll in.

### Dissertation

The doctoral dissertation is written under the direction of the candidate's advisor. The dissertation and the final oral examination on the dissertation complete the requirements for the PhD in communication. Students take a minimum of six hours of.

### Length of Study

Course work and comprehensive exams for the PhD must be completed in five years. The dissertation must be completed within five years of completing comprehensive examinations. Satisfactory rate of progress means making adequate progress to meet these time requirements. Students working at a typical pace should be able to complete the doctorate in 4 years beyond their master's.

### Admission Criteria

Fall deadline: January 15  
Minimum GPA: 3.0 preferred

Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
61	600

Minimum GRE scores:

When did you take the GRE?	Verbal	Quantitative	Analytical
Prior to August 1, 2011	500	500	4.0
On or After August 1, 2011	153	144	4.0

Admission procedures for students who have completed the MA degree elsewhere and wish to become PhD candidates are identical to the departmental requirements outlined for MA candidates. Only those applicants who show evidence of a clear likelihood of successful doctoral work are admitted.

## Required Application Materials

To the Graduate School  
All required Graduate School documents

## To the Communication Program

- GRE scores
- Departmental Application
- 3 letters of recommendation
- Example of scholarly writing (no more than 25 pages)
- Transcripts
- Statement of Interest
- Résumé

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

## Admission Contact Information

Martha Crump (crumpm@missouri.edu)  
108 Switzler Hall; Columbia, MO 65211  
(573) 882-4432

## Constitutional Democracy

Founded in 2014, the Kinder Institute on Constitutional Democracy is an interdisciplinary signature academic center at Mizzou dedicated to engaging students, faculty, and the community at large in study of and spirited dialogue about the philosophical foundations and complex historical development of constitutional democracy both in the United States and around the globe. To advance this mission, the Kinder Institute, in partnership with MU's College of Arts & Science, supports an undergraduate BA in Constitutional Democracy, which will provide students with an opportunity to explore the ideas and events central to understanding the United States' creation and early history and to apply this knowledge to study of political thought and global political history in the 20th and 21st centuries. In addition to the BA, the Kinder Institute and A&S support an undergraduate Minor & Certificate in American Constitutional Democracy, a one-year MA in Atlantic History &

Politics, and the Kinder Institute Residential College, a living and learning community for first-year students that includes 12 hours of coursework with Kinder Institute faculty during students' freshman year.

The Kinder Institute also offers a number of other extracurricular and scholarly programs for MU undergraduates of any major, including our yearlong Society of Fellows, an academic summer internship program in Washington, DC, study abroad programs at Corpus Christi College at University of Oxford (UK) and University of Western Cape (South Africa), and a yearlong exchange program with Corpus.

## Faculty

**Kinder Institute Director, Professor J. Dyer\*\*** (Constitutional Democracy/Political Science)

**Kinder Institute Associate Director, Professor J. Pasley\*\*** (Constitutional Democracy/History)

**Kinder Institute Endowed Chair, Professor J. Sexton\*\*** (Constitutional Democracy/History)

**Professor J. Dow\*\*** (Political Science)

**Associate Professor C. Conklin** (Constitutional Democracy/Law)\*\*

**Assistant Professor S.B. V. Kitch\*** (Constitutional Democracy/Public Affairs), **A. Zuercher Reichardt\*** (Constitutional Democracy/History), **J. Selin\*\*** (Constitutional Democracy/Political Science)

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BA in Constitutional Democracy (p. 180)

## Graduate

Please see MA in Atlantic History and Politics (p. 159) for a graduate level degree related to Constitutional Democracy.

## BA in Constitutional Democracy

### Degree Program Description

The Kinder Institute and MU College of Arts and Science now offer a BA in Constitutional Democracy to University of Missouri undergraduates. Students who pursue a degree in Constitutional Democracy will focus in their common curriculum courses on the ideas and events that shaped the political institutions and culture of the U.S. during the revolutionary era and early republic. From here, students will use upper-level coursework in the major to begin to build expertise in one of four concentration areas: "U.S. & the World," "Politics & Policy," "Law & Institutions," or "Social & Political Thought." The degree will provide a foundation for thoughtful citizenship, leadership, and civic engagement through careful examination of the complicated issues and questions with which the United States has reckoned and struggled, and through which it has endured, from its beginnings to the present day.

### Major Program Requirements

The BA in Constitutional Democracy requires 36 credit hours, 15 of which come through the major's required common curriculum and 15 of which come through coursework in a specific concentration area.

Coursework in at least two departments must be represented in students' 15 concentration area credits, and a minimum of nine (9) credit hours of concentration area coursework must be at the 3000-level or above. The major also requires three (3) credit hours of experiential coursework and three (3) credit hours of thesis or capstone coursework. A minimum of 18 credit hours will be taken at the 3000-level or above, and students must receive a grade of C- or higher in all coursework they are applying to the major. All courses in the major must be taken at or through MU. Total credit hours for the program are 120. In addition to the major requirements, students must complete college and University graduation requirements (p. 35), including University general education requirements (p. 36).

General Education		54
ENGLISH 1000	Exposition and Argumentation	3
MATH 1100	College Algebra	3
or MATH 1050	Quantitative Reasoning	
or STAT 1200	Introductory Statistical Reasoning	
Foreign Language		12-13
Behavioral Sciences		5
Social Sciences		9
Humanities/Fine Arts		12
Biological, Physical, Mathematical Sciences		9

\*Note that this does not include the Math Reasoning Proficiency or Writing Intensive course requirements, since those can be fulfilled in the process of meeting other distribution requirements.

Major Requirements		36
I. Common Curriculum		15
CNST_DEM 2100	The Revolutionary Transformation of Early America	3
or HIST 2100	The Revolutionary Transformation of America	
CNST_DEM 2120	The Young Republic	3
or HIST 2120	The Young Republic	
CNST_DEM 2450H	The Intellectual World of the American Founders - Honors	3
or POL_SC 2450	The Intellectual World of the American Founders	
CNST_DEM 2455H	Constitutional Debates - Honors	3
or POL_SC 2455	Constitutional Debates	
CNST_DEM 4400	History of American Law	3
or HIST 4400	History of American Law	
II. Concentration Area Coursework		15
Concentration Area 1: U.S. & the World		
Concentration Area 1 Electives		
BL_STU 2904	Black Studies in Slavery and Freedom	3
or HIST 2904	Black Studies in Slavery and Freedom	
BL_STU 3804	Resistance in the Black Atlantic	3
BL_STU 4904	Historical and Contemporary Slavery	3
or HIST 4904	Historical and Contemporary Slavery	
HIST 2150	The American Civil War: A Global History	3
or CNST_DEM 2150	The American Civil War: A Global History	
HIST 2520	From Waterloo to Sarajevo: European History, 1815-1914	3
HIST 2820	Taiwan: The First Chinese Democracy	3
HIST 3485	The United States and the Middle East	3
HIST 3870	Social Revolution in Latin America	3
or PEA_ST 3870	Social Revolution in Latin America	

HIST 4070	Indians and Europeans in Early America	3
HIST 4075	Global History in Oxford	4
HIST 4620	Modern England	3
HIST 4650	Revolutionary France, 1789-1815	3
HIST 4660	Gender, War, and Migration: Europe, 1914 to the Present	3
or WGST 4660	Gender, War, and Migration: Europe, 1914 to the Present	
HIST 4680	From the Rise of the Nazis to the Fall of the Wall: German History in the Twentieth Century	3
HIST 4800	Modern China and Japan: War, Imperialism and Memory	3
HIST 4821	Constitutionalism in the Americas	3
HIST 4880	Chinese Migration: From Yellow Peril to Model Minority	3
POL_SC 4400	Theories of International Relations	3
POL_SC 4540	American Foreign Policies	3
POL_SC 4700	America's Wars in Asia/War and Peace in Asia	3
POL_SC 4750	Power and Money	3
POL_SC 4780	Dictatorship and Democracy	3
Concentration Area 2: Politics & Policy		
Concentration Area 2 Electives		
BL_STU 4303	Black Studies in Race, Class, Gender, and U.S. Policy, Black Studies in Race, Class, Gender and U.S. Policy	3
HIST 2210	Twentieth Century America	3
HIST 2440	History of Missouri	3
HIST 3200	Black Freedom Movement, 1955-1973	3
or BL_STU 3200	Black Freedom Movement, 1955-1973	
HIST 3220	U.S. Women's Political History, 1880-Present	3
or WGST 3220	U.S. Women's Political History, 1880-Present	
HIST 4235	The Wire: Race, Urban Inequality, and the 'Crisis' of the American City	3
HIST 4270	African-Americans in the Twentieth Century	3
or BL_STU 4270	African-Americans in the Twentieth Century	
HIST 4280	America in the Reagan Years	3
HIST 4430	The Great West in American History	3
HIST 4445	American Political Economy from the Commerce Clause to the Great Recession	3
POL_SC 2250	Missouri Politics	3
POL_SC 2500	The Science of Politics	3
POL_SC 4140	Congress and Legislative Policy	3
POL_SC 4320	Public Policy	3
POL_SC 4370	Law, Policy, and Regulation	3
POL_SC 4390	United States Health Politics and Policy	3
POL_SC 4550	Environmental Conflict	3
POL_SC 4750	Power and Money	3
Concentration Area 3: Law & Institutions		
Concentration Area 3 Electives		
CNST_DEM 2445	American Constitutional Democracy	3
or HIST 2445	American Constitutional Democracy	
or POL_SC 2445	American Constitutional Democracy	

ECONOM 3367	Law and Economics	3
HIST 4821	Constitutionalism in the Americas	3
PHIL 4610	Philosophy of Law	3
POL_SC 2200	The Judicial Process	3
POL_SC 2410	The Politics of International Law	3
POL_SC 4140	Congress and Legislative Policy	3
POL_SC 4150	The American Presidency	3
POL_SC 4190	Elections and Democracy in the United States	3
POL_SC 4200	The American Constitution	3
POL_SC 4210	Constitutional Rights	3
POL_SC 4220	The United States Supreme Court	3
POL_SC 4370	Law, Policy, and Regulation	3
POL_SC 4380	Politics of Criminal Justice	3
POL_SC 4440	International Organization	3
WGST 3260	Gender, Law and Justice	3
Concentration Area 4: Social & Political Thought		
Concentration Area 4 Electives		
AMS 4800	Political Thought in Classical and Christian Antiquity	3
or POL_SC 4800	Classical Political Theory	
or CNST_DEM 4800	Political Thought in Classical and Christian Antiquity	
CNST_DEM 2425	Race and the American Story	3
or BL_STU 2425	Race and the American Story	
or POL_SC 2425	Race and the American Story	
BL_STU 2804	Black Political Thought	3
ECONOM 4320	History of Economic Thought	3
HIST 3560	The Scientific Revolution	3
HIST 4580	The 'Making' of Modern Europe: Identity, Culture, Empire	3
PHIL 4600	Political and Social Philosophy	3
PHIL 4610	Philosophy of Law	3
PHIL 4620	Marxism	3
POL_SC 2800	Liberty, Justice and the Common Good	3
or CNST_DEM 2800	Liberty, Justice and the Common Good	
POL_SC 2860	American Political Thought	3
POL_SC 4810	Modern Political Theory	3
or CNST_DEM 4810	Modern Political Theory	
POL_SC 4820	Contemporary Political Theory	3
POL_SC 4830	Democracy in America (and Elsewhere)	3
or CNST_DEM 4830	Democracy in America (and Elsewhere)	
*Students can petition the B.A. Director to have up to three-credit hours of coursework not listed as an approved class for their particular concentration area count toward fulfilling that requirement.		
III. Experiential Coursework		
CNST_DEM 4900	Beltway History and Politics: American Constitutional Democracy in Theory and Practice	3
or HIST 4900	Beltway History: American Constitutional Democracy in Theory and Practice	
or POL_SC 4900	Beltway History and Politics: American Constitutional Democracy in Theory and Practice	
CNST_DEM 4975	Journal on Constitutional Democracy	1-3
or HIST 4975	Journal on Constitutional Democracy	
or POL_SC 4975	Journal on Constitutional Democracy	
HIST 4075	Global History in Oxford	4

HIST 4940	Internship in History **	3
POL_SC 4840	Developing Dynamics of Democracy	3
or CNST_DEM 4840	Developing Dynamics of Democracy	
POL_SC 4940	Political Science Internship **	3-6
SRV_LRN 3028	Civic Leaders Internship **	3-6

Note: a Course cannot be used to fulfill both an experiential and a concentration area requirement.

Any Experiential Course marked \*\* must be approved by the Constitutional Democracy degree's academic advisor in order for students' to receive major credit for it.

IV. Thesis/Capstone Requirement		3
CNST_DEM 4996	Thesis in Constitutional Democracy	1-2
Or an additional three-credit hour, 4000-level or higher course in students' concentration area (by approval of BA Director)		

**Electives** 30

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan will vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
ENGLSH 1000		3 MATH 1100	3
Behavioral Science Course		3 Biological/Physical/Math Science Course with Lab	5
Social Science Course		3 CNST_DEM Concentration Elective	3
Humanities Course		3 CNST_DEM Common Curriculum Course	3
CNST_DEM Common Curriculum Course	3		
		15	14

Second Year			
Fall	CR	Spring	CR
Foreign Language		5 Foreign Language	5
Behavioral Science Course		3 Minor	3
Humanities Course		3 Humanities Course	3
CNST_DEM Common Curriculum Course		3 CNST_DEM Common Curriculum Course	3
CNST_DEM Concentration Elective	3		
		17	14

Third Year			
Fall	CR	Spring	CR
Foreign Language		3 Biological/Physical/Math Science Course	4
Social Science Course		3 Social Science Course	3
Humanities Course		3 CNST_DEM Concentration Elective	3
CNST_DEM Common Curriculum Course		3 CNST_DEM Experiential Requirement	3
CNST_DEM Concentration Elective	3	3 Minor	3
		15	16

Fourth Year			
Fall	CR	Spring	CR
CNST_DEM Thesis		2 CNST_DEM Thesis	1
CNST_DEM Concentration Elective	3	3 Minor	3
Minor		3 Minor	3
Elective Course		3 Elective Course	3
Elective Course		3 Elective Course	3
		Elective Course	3
		14	16

Total Credits: 121

## Contacts

For general questions about the BA in Constitutional Democracy, contact:

Prof. Justin Dyer, Kinder Institute Director  
(573) 882-3777  
dyerjb@missouri.edu

Dr. Thomas Kane  
(573) 882-3330  
kanetc@missouri.edu

## Digital Storytelling

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<https://visualstudies.missouri.edu/digital-storytelling> (<https://visualstudies.missouri.edu/digital-storytelling/>)

Lee Ann Garrison, Director  
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muassvs@missouri.edu (muassvs@missouri.edu)

<https://visualstudies.missouri.edu> (<https://visualstudies.missouri.edu/digital-storytelling/>)u (<https://visualstudies.missouri.edu>)

Nadia Irsheidat, Academic Advisor  
irsheidatn@missouri.edu

Digital Storytelling within the School of Visual Studies puts storytelling first, and combines this with new and emerging technologies. The interdisciplinary program emphasizes skills in video production, emerging media, animation, video art, writing and critical theory. Like other forms of storytelling, digital storytelling reaches audiences for artistic, educational, and commercial purposes, translating human knowledge and experience into multimedia spaces. Students use technology and the universal art of storytelling to connect and entertain audiences, innovate, and solve human-scale problems. They work to tell stories that stimulate, provoke, and inspire.

## Faculty

**Assistant Professors** K. Bitsicas\*, J. Erb, S.C. Rozier, J. Shade-Johnson

**Assistant Teaching Professors** D. Moore\*, N. Potter

**Instructors** M. Coleman, M. Lewis

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BA in Digital Storytelling (p. 183)
- Minor in Digital Storytelling (p. 183)

## Graduate

Digital Storytelling faculty work with students admitted to the MFA in Visual Studies offered at the graduate level.

For more information on graduate programs in Visual Studies, visit the Graduate tab of Visual Studies (p. 347).

# BA in Digital Storytelling

## Degree Program Description

The Digital Storytelling Program is an interdisciplinary BA in the School of Visual Studies, that combines narrative and conceptually driven studies with the new and emerging multimedia tools to achieve a balance between aesthetic and imagination. This program puts storytelling first, and combines this with new and emerging technologies. The interdisciplinary program emphasizes skills in video production, emerging media, animation video art, writing and critical theory. Like other forms of storytelling, digital storytelling reaches audiences for artistic, education, and commercial purposes, translating human knowledge and experience into multimedia spaces. Students use technology and the universal art of storytelling to connect and entertain audiences, innovate, and solve human-scale problems. They work to tell stories that stimulate, provoke, and inspire.

## Major Program Requirements

<b>General Education requirements</b>	<b>54</b>
ENGLISH 1000 Exposition and Argumentation (or equivalent)	
MATH 1100 College Algebra (or equivalent)	
Foreign Language (12 credit hours)	
Behavioral & Social Science courses (15 credit hours)	
Humanities & Fine Arts courses (12 credit hours)	
Biological, Physical and Mathematical Sciences courses (9 credit hours)	
<b>Major Requirements</b>	<b>36</b>
<b>Digital Storytelling Foundations (12 credit hours)</b>	<b>12</b>
DST_VS 1880 Introduction to Digital Media Production	3
DST_VS 2810 Story Development	3
Choose two:	
ARTGE_VS 1030 2-D Materials and Methods	
ARTGE_VS 1040 3-D Materials and Methods	
ARTDR_VS 1050 Drawing: Materials and Methods	
<b>Digital Storytelling Core (6 Credits)</b>	
DST_VS 3880W Writing and Theory for Digital Media - Writing Intensive	3
DST_VS 4970 Digital Storytelling Capstone	3
<b>Concentration Courses (Choose one concentration)(12 credit hours)</b>	
<b>Production Concentration</b>	

DST_VS 2880	Digital Storytelling Production I	
DST_VS 4880	Digital Storytelling Production II	
Production Elective 1		
Production Elective 2		
<b>Animation Concentration</b>		
DST_VS 2885	Digital Storytelling Animation Production I	
DST_VS 4885	Digital Storytelling Animation Production II	
Production Elective 1		
Production Elective 2		
<b>Video Art Concentration</b>		
DST_VS 2830	Video Art I	3
DST_VS 4830	Video Art II	3
Productive Elective 1		
Production Elective 2		
<b>Writing and Theory ( 6 credit hours)</b>		
ARH_VS 2850W	Introduction to Visual Culture - Writing Intensive	3
Critical Studies Elective		

## Semester Plan

First Year			
Fall	CR	Spring	CR
ARTGE_VS 1030, 1040, or ARTDR_VS 1050		3 ARTGE_VS 1030, 1040, or ARTDR_VS 1050	3
ARH_VS 2850W		3 DST_VS 1880	3
		6 Total Credits	
		6	6
Second Year			
Fall	CR	Spring	CR
DST_VS 2830, 2880, or 2885		3 Production Elective 1	3
DST_VS 2810		3 Critical Studies Elective	3
		6	6
Third Year			
Fall	CR	Spring	CR
DST_VS 3880W		3 DST_VS 4830, 4880, or 4885	3
Production Elective 2		3	
		6	3
Fourth Year			
		Spring	CR
		DST_VS 4970	3
			3

Total Credits: 36

# Minor in Digital Storytelling

## Requirements

The minor in Digital Storytelling requires a total of 15 credit hours, including 9 credits in Digital Storytelling and 6 elective credits. Electives must be taken at the 2000-level or above. A minimum grade of C- is required for all courses to count towards the minor.

<b>Core Required Courses (9 credit hours)</b>	<b>9</b>
DST_VS 1880 Introduction to Digital Media Production	3
DST_VS 3880W Writing and Theory for Digital Media - Writing Intensive	3



DST_VS 2880	Digital Storytelling Production I	3
or DST_VS 2830	Video Art I	
or DST_VS 2885	Digital Storytelling Animation Production I	

**Electives (6 credit hours) 6**

Can be chosen from Digital Storytelling, Film Studies, Art, Art History, and Theater:

Production Electives:

DST_VS 2830	Video Art I	3
DST_VS 2880	Digital Storytelling Production I	3
DST_VS 2885	Digital Storytelling Animation Production I	3
DST_VS 3885	Audio Storytelling	3
DST_VS 4830	Video Art II	3
DST_VS 4880	Digital Storytelling Production II	3
DST_VS 4885	Digital Storytelling Animation Production II	3
FILMS_VS 3520	Post Production	3
FILMS_VS 3540	Cinematography I	3
FILMS_VS 3550	Field Production I	3
FILMS_VS 3560	Audio Engineering for the Screen	3
FILMS_VS 4540	Cinematography II	4
ARTDR_VS 2210	Beginning Color Drawing	3
ARTDR_VS 3210	Intermediate Color Drawing	3
ARTDR_VS 3220	Anatomical Drawing	3
ARTDR_VS 3230	Beginning Illustration	3
ARTDR_VS 3240	The Graphic Novel	3
ARTDR_VS 4200	Drawing IV	3
ARTDR_VS 4210	Advanced Color Drawing	3
ARTDR_VS 4230	Advanced Illustration	3
ARTGD_VS 2410	Graphic Design I	3
ARTGE_VS 2040	Sophomore Seminar	3
ARTGE_VS 4040	2-D Portfolio Development	3
ARTGE_VS 4050	Performance Art	3
ARTPA_VS 2500	Beginning Painting	3
ARTPA_VS 3500	Intermediate Painting	3
ARTPH_VS 2600	Beginning Photography	3
ARTPH_VS 3600	Intermediate Photography	3
ARTPH_VS 4600	Advanced Photography	3
ARTSC_VS 2800	Beginning Sculpture	3
ARTSC_VS 3800	Intermediate Sculpture	3
ARTSC_VS 4800	Advanced Sculpture	3
THEATR 2200	Introduction to Performance Studies	3
THEATR 2220	Immersive Theatre	3
THEATR 3440	Acting for the Camera	3
THEATR 3450	Acting for Animation and Motion Capture	3
THEATR 3460	Voiceover	3
THEATR 3530	Computer Graphics in Theatre Design	3
THEATR 3550	Sound Design	3
THEATR 3600	Theatrical Directing	3
THEATR 4240	Theory and Practice of Theatre of the Oppressed	3
THEATR 4280	Digital Media and Performance	3
THEATR 4290	Virtual Reality and Performance	3

Theories of Narrative, Visual Culture and New Media (Critical Studies)

Electives:

FILMS_VS 1800	Introduction to Film Studies	3
FILMS_VS 2820	Trends in World Cinema	3

FILMS_VS 2830	American Film History I, 1895-1950	3
FILMS_VS 2840	American Film History II, 1950-Present	3
FILMS_VS 2850	Italian Cinema	3
FILMS_VS 2860	Film Themes and Genres	3
or DST_VS 2860	Film Themes and Genres	
FILMS_VS 3850	Studies in Film History	3
FILMS_VS 3855	Documentary Film	3
or DST_VS 3855	Documentary Film	
FILMS_VS 3861	Film Themes and Genres	3
FILMS_VS 3865	The Holocaust on Screen	3
FILMS_VS 3875	Brazilian Cinema	3
FILMS_VS 4370	Film Studies: The Intersection of Documentary Film and Journalism	3
FILMS_VS 4810	Film Theory	3
or DST_VS 4810	Film Theory	
FILMS_VS 4820	Studies in Film Genre	3
FILMS_VS 4840	Culture and Media	3
or DST_VS 4840	Culture and Media	
FILMS_VS 4860	Film Themes and Genres	3
ARH_VS 2150	The Art of the Book	3
ARH_VS 2720	African-American Visual Culture	3
ARH_VS 3630	Northern Renaissance Art	3
ARH_VS 3730	Eighteenth Century European Art	3
ARH_VS 3740	Nineteenth-Century European Art	3
ARH_VS 3750	Modern Art in Europe and America	3
ARH_VS 3760	Contemporary Art	3
ARH_VS 3780	Architecture in Film	3
ARH_VS 3785	Arts and Artists on Film	3
ARH_VS 3790	Indian Cinema	3
ARH_VS 3830	American Art and Culture, 1500-1820	3
ARH_VS 3840	American Art and Culture, 1820-1913	3
ARH_VS 3850	American Art and Culture, 1913-Present	3
ARH_VS 4120	Gender and the Arts	3
ARH_VS 4630	The Renaissance Artist	3
ARH_VS 4780	Advanced Course in Contemporary Art	3

## Contacts

Students who want to minor in Digital Storytelling should consult with the Digital Storytelling Academic Advisor, Nadia Irsheidat (IrsheidatN@missouri.edu (Irsheidatn@missouri.edu)).

## Economics

### Department Chair

Jeff Milyo  
118 Professional Building  
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### Undergraduate Academic Advisors

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132 Professional Building  
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Rebecca Fallon  
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### Graduate Contact

Lynne Owen  
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owenle@missouri.edu

The Department of Economics takes a global view of economics, with an emphasis on applied problems. An economics major prepares students for careers in business and government and for graduate work in areas such as economics, business and law. A basic understanding of economics develops insight into the many issues facing contemporary society, such as corporate downsizing, environmental pollution, urban decay, poverty, international trade, health care, educational reform, politics and sports deals.

In addition to the BA and the BS degrees in the College of Arts and Science, the Department of Economics offers an emphasis area within the Bachelor of Science in Business Administration (BSBA) degree in the Trulaske College of Business. The department also offers MA and PhD degrees in Economics as well as a minor.

## Faculty

**Cook Chair** C. Otrok\*\*

**Lay Chair** J. H. Haslag\*\*

**Professor** D. M. Mandy\*\*, J. Milyo\*\*, S. Ni\*\*, X. Wang\*\*

**Associate Professor** S. P. Aura\*\*, C. Gu\*\*, C. Koedel\*\*, O. Loginova\*\*, J. I. Miller\*\*

**Assistant Professor** A. Carlson, A. Hedlund\*, D. Kaplan\*\*, B. Street

**Research Professor** W. A. Brock

**Associate Research Professor** M. Ehlert

**Associate Teaching Professor** G. Chikhladze

**Assistant Teaching Professor** E. Parsons\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BA in Economics (p. 186)
- BS in Economics (p. 187)
- Minor in Economics (p. 188)

Before a graduation plan in economics will be approved, students in the College of Arts and Science must have a cumulative GPA of 2.0 or a 2.0 GPA in economics coursework.

## Departmental Honors

Candidates for Economics departmental honors must be Economics majors with at least a cumulative GPA of 3.30 and, in Economics courses taken at the University of Missouri-Columbia, at least a GPA of 3.50 for BA majors or a 3.25 for BS majors. Candidates must complete ECONOM 4371 Introductory Econometrics and ECONOM 4995 Honors Thesis during their junior or senior year and must receive a grade of B or higher in order to be awarded Department Honors.

## Double Majors, Dual Degrees and Five-Year Program

For double majors and dual degrees, students must satisfy all requirements of both degree programs. Some courses may be allowed to count toward both degrees. Carefully chosen elective courses in addition to required courses can facilitate double majors and dual degrees.

Common double majors in the College of Arts and Science are:

- BA with majors in Economics and Political Science, Psychology, History, English or Communication
- BS with majors in Economics and Statistics or Mathematics

Common dual degrees with other schools and colleges are:

- BA with majors in Economics and Journalism or Education
- BS with majors in Economics and Engineering, Accountancy, Finance, or Marketing

By planning their courses carefully, Economics majors can earn a bachelor's and a master's degree in economics in five years. Students who are in the BA or BS programs are good candidates for this program. Students must be accepted to this program by the beginning of their senior year.

Students interested in pursuing any of these options should contact the Undergraduate Academic Advisor in economics for further advising.

## Economics Emphasis Area in Business Administration Major

See the Trulaske College of Business for requirements for the Bachelor of Science with a major in Business Administration (BS BA) with an emphasis in Economics (p. 391).

## Graduate

- MA in Economics (p. 189)
  - with emphasis in Econometrics and Quantitative Economics (p. 189)
- PhD in Economics (p. 190)
  - with emphasis in Econometrics and Quantitative Economics (p. 191)

College of Arts and Science  
118 Professional Building  
(573) 884-7989  
(573) 882-2697 (fax)  
<http://economics.missouri.edu/>

**Director of Graduate Studies:** Xinghe Wang

## About the Program

The Department of Economics offers graduate work leading to the master of arts and the doctor of philosophy degrees. The program prepares students for careers in government and private enterprises, colleges, universities and research institutions through training in the techniques and applications of economic analysis, interpretation of data and the formulation and appraisal of public policy. Admission may be granted at any time to qualified students.

## Degrees Offered

- MA and PhD in Economics
- Cooperative Dual Degrees: MS in Applied Mathematics and MA in Economics, MA in Economics and MA in Statistics, MA in Economics and JD in law

## Specializations

The department offers fields of specialization in monetary economics, international economics, econometrics, public economics, industrial organization, labor economics, and quantitative microeconomic policy analysis.

## Dual Degrees

The Departments of Mathematics and Economics offer selected students the option of obtaining dual degrees: an MS degree in Applied Mathematics and an MA degree in Economics. The Departments of Economics and Statistics offer selected students the option of obtaining dual degrees: an MA degree in Statistics and an MA degree in Economics within an integrated program. Whereas obtaining separate master's degrees would nominally require a minimum of 60 credit hours of course work, students enrolled in the dual master's degree program may obtain degrees based on 48 credit hours of course work. Students may be able to complete degree requirements within 2½ years.

## Financial Support

Student financial support is available to graduate students as teaching and research assistantships, allocated based on promise and performance in the program. In addition, direct fellowship support may also be available to selected candidates. Tuition is waived for students who receive assistantship or fellowship support. February 1 is the deadline for applications for assistantships for the school year beginning in August, but earlier submissions are desirable. Late applications will be accepted subject to the availability of openings and funds.

## BA in Economics

### Degree Program Description

Economics is a broad discipline that explores the factors that determine production, distribution, and consumption of resources. An Economics degree provides a good foundation on how the economy and the world works and an understanding of the effects of policy issues. The BA degree is designed for students who plan to continue their education in non-economics fields and for students who plan to seek employment after graduation. Post-graduate educational alternatives include law school or programs in the business school, political science and journalism. Graduates in Economics enter a diverse field of jobs in government, banking, insurance or other financial sectors, private sector businesses or even open their own businesses. Frequently, students in humanities or fine arts complete a BA in Economics as a second major in order to increase their employment potential.

### Major Program Requirements

Students must earn a grade of C- or higher in all Economics, Mathematics and Statistics courses, and must have at least a 2.0 GPA in Economics courses to earn the degree. At least 21 credit hours in Economics must be completed in residence. In addition to the major core requirements, students must complete college and University graduation

requirements (p. 35) including University general education requirements (p. 36).

## Major Core Requirements for BA Economics

### Required Economics Coursework

ECONOM 1014 & ECONOM 1015 or ECONOM 1000 or ECONOM 1051H	Principles of Microeconomics and Principles of Macroeconomics General Economics for Journalists General Economics - Honors	5-6
ECONOM 4351	Intermediate Microeconomics	3
ECONOM 4353	Intermediate Macroeconomics	3
ECONOM 4371	Introductory Econometrics (or Stat 3500, or Additional Econom 4000- Elective)	3

### Required Mathematics and Statistics Coursework

MATH 1100	College Algebra	3
MATH 1400 or MATH 1500	Calculus for Social and Life Sciences I Analytic Geometry and Calculus I	3-5
STAT 2500	Introduction to Probability and Statistics I (or Stat 1200 or 1300 or 1400 AND Stat 2200)	3

## Electives

Students must complete at least five (for the BA) or four (for the BS) of the following electives, with no more than two at the 3000 level, selected with the advisor and completed with a grade of C- or above. One of the chosen Economics Electives should be taken as Writing Intensive. Students who double or dual major will be eligible to waive one 3000 level Economics Elective course.

ECONOM 3224	Introduction to International Economics	3
ECONOM 3229	Money, Banking and Financial Markets	3
ECONOM 3367	Law and Economics	3
ECONOM 4004	Topics in Economics- Social Science	1-3
ECONOM 4311	Labor Economics	3
ECONOM 4315	Public Economics	3
ECONOM 4317	Urban Economics	3
ECONOM 4320	History of Economic Thought	3
ECONOM 4326	Economics of International Trade	3
ECONOM 4329	The Banking System and the Money Market	3
ECONOM 4340	Introduction to Game Theory	3
ECONOM 4345	Economics of Education	3
ECONOM 4355	Industrial Organization and Competitive Strategy	3
ECONOM 4357	Health Economics	3
ECONOM 4370	Quantitative Economics (Elective for BA, Required for BS)	3
ECONOM 4385	Problems in Economics	1-3
ECONOM 4775	Dynamic Optimization and its Applications to the Natural Sciences and Economics	1-3
ECONOM 4965	Independent Research in Economics	1-3

### NOTE:

Any two of ECONOM 3224 and ECONOM 4326 may be taken for credit. But if all three are taken, ECONOM 3224 will not count towards an economics degree.

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan will vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
ECONOM 1014		3 ECONOM 1015	3
MATH 1100		3 MATH 1400	3
Foreign Language I		5 ENGLSH 1000	3
Humanities		3 Foreign Language II	5
Elective		2 Elective	2
		16	16
Second Year			
Fall	CR	Spring	CR
ECONOM 4351		3 ECONOM 4353	3
Foreign Language III		3 STAT 2500	3
Social Science		3 American Government or History	3
Lab Science		4 Behavioral Science	3
Elective		3 Humanities	3
		16	15
Third Year			
Fall	CR	Spring	CR
ECONOM 4371		3 ECONOM 4000+ level elective	3
Behavioral Science		3 ECONOM 3000+ level elective	3
Social Science		3 Humanities	3
Humanities		3 Elective	3
WI Elective		3 Elective	3
		15	15
Fourth Year			
Fall	CR	Spring	CR
ECONOM WI Elective		3 ECONOM 4000+ level elective	3
ECONOM 3000+ level elective		3 Elective	3
Elective		3 Elective	3
Elective		3 Elective	3
Elective		3	3
		15	12

Total Credits: 120

## BS in Economics

### Degree Program Description

Economics is a broad discipline that explores the factors that determine production, distribution, and consumption of resources. An Economics degree provides a good foundation on how the economy and the world works and an understanding of the effects of policy issues. The BS degree in Economics is a challenging degree program specifically designed for students who plan to attend graduate school in Economics, Finance, or related fields. The curriculum includes more quantitative coursework than the BA degree, but still allows students to take electives that focus on various aspects of economics, such as labor, law, and education. Graduates in Economics enter a diverse field of jobs in government, banking, insurance or other financial sectors, private sector businesses or even open their own businesses. Often students pursuing

a BS degree double major with Mathematics or Statistics and look at employment positions in actuarial science or more analytical fields.

### Major Program Requirements

Students must earn a grade of C- or higher in all Economics, Mathematics and Statistics courses, and must have at least a 2.0 GPA in Economics courses to earn the degree. At least 21 credit hours in Economics must be completed in residence. In addition to the major core requirements, students must complete college and University graduation requirements (p. 35) including University general education requirements (p. 36).

### BS Tracks in Economics

The BS Quantitative Track is a degree program for students who plan to attend graduate school in economics or finance, while the BS Applied Track is a program for students who want more analytical experience for their future career ambitions.

### Major Core Requirements for BS in Economics

#### Required Economics Coursework

ECONOM 1014 & ECONOM 1015 or ECONOM 1000 or ECONOM 1051H	Principles of Microeconomics and Principles of Macroeconomics General Economics for Journalists General Economics - Honors	5-6
ECONOM 4351	Intermediate Microeconomics	3
ECONOM 4353	Intermediate Macroeconomics	3
ECONOM 4370	Quantitative Economics	3
ECONOM 4371 or STAT 3500	Introductory Econometrics (Stat 3500 is only an acceptable alternative for Applied Track students with prior department approval for earning a double or dual degree.) Introduction to Probability and Statistics II	3

#### Quantitative Track

##### Required Mathematics and Statistics - Quantitative Track

MATH 1100 & MATH 1140 or MATH 1160	College Algebra and Trigonometry Precalculus Mathematics	5
MATH 1500	Analytic Geometry and Calculus I	5
MATH 1700	Calculus II	5
MATH 2300	Calculus III	3
MATH 4140	Matrix Theory	3
STAT 4750 & STAT 4760 or STAT 4710 & STAT 4510	Introduction to Probability Theory and Statistical Inference Introduction to Mathematical Statistics and Applied Statistical Models I	6
MATH 3000 or MATH 4100 or STAT 4000+	Introduction to Advanced Mathematics Differential Equations	3

##### Complementary Field Course - Quantitative Track

Any Cmp Sc or Info Tc or Any 2000+ Acctcy, Financ, Math, Stat, or other A&S STEM Course		3
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#### Applied Track

##### Required Mathematics and Statistics - Applied Track

MATH 1100 or MATH 1160	College Algebra Precalculus Mathematics	3
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MATH 1400 & MATH 1300 or MATH 1500	Calculus for Social and Life Sciences I and Finite Mathematics Analytic Geometry and Calculus I	5-6
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STAT 2500	Introduction to Probability and Statistics I (or Stat 1200 or 1300 or 1400 AND Stat 2200)	3
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**Complementary Field Courses - Applied Track**

Any Cmp Sc or Info Tc or Any 2000+ Acctcy, Financ, Math, Stat, or other A&S STEM Course		12
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**Foreign Language Alternative (for BS degree)**

A student may elect to fulfill a special option area instead of taking a foreign language. This area consists of at least 12 credits numbered 2000 or above that are not from the parent department, are not normally required of all departmental majors and do not appear elsewhere in the area of concentration. The foreign language alternative is planned by the student with the Economics Academic Advisor and must be approved by the Director of Undergraduate Studies.

**Electives**

Students must complete at least five (for the BA) or four (for the BS) of the following electives, with no more than two at the 3000 level, selected with the advisor and completed with a grade of C- or above. One of the chosen Economics Electives should be taken as Writing Intensive. Students who double or dual major will be eligible to waive one 3000 level Economics Elective course.

ECONOM 3224	Introduction to International Economics	3
ECONOM 3229	Money, Banking and Financial Markets	3
ECONOM 3367	Law and Economics	3
ECONOM 4004	Topics in Economics- Social Science	1-3
ECONOM 4311	Labor Economics	3
ECONOM 4315	Public Economics	3
ECONOM 4317	Urban Economics	3
ECONOM 4320	History of Economic Thought	3
ECONOM 4326	Economics of International Trade	3
ECONOM 4329	The Banking System and the Money Market	3
ECONOM 4340	Introduction to Game Theory	3
ECONOM 4345	Economics of Education	3
ECONOM 4355	Industrial Organization and Competitive Strategy	3
ECONOM 4357	Health Economics	3
ECONOM 4370	Quantitative Economics (Elective for BA, Required for BS)	3
ECONOM 4385	Problems in Economics	1-3
ECONOM 4775	Dynamic Optimization and its Applications to the Natural Sciences and Economics	1-3
ECONOM 4965	Independent Research in Economics	1-3

**NOTE:**

Any two of ECONOM 3224, ECONOM 4325, and ECONOM 4326 may be taken for credit. But if all three are taken, ECONOM 3224 will not count towards an economics degree.

**Semester Plan**

Below is a sample plan of study, semester by semester. A student's actual plan will vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
ECONOM 1014		3 ECONOM 1015	3
MATH 1160		5 MATH 1500	5
American Government or History		3 ENGLISH 1000	3
Lab Science		4 Behavioral Science	3
		Elective	2
			15

Second Year			
Fall	CR	Spring	CR
ECONOM 4351		3 ECONOM 4353	3
ECONOM 3000+ level elective		3 MATH 2300	3
MATH 1700		5 Foreign Language II (or alternative)	3-6
Foreign Language I (or alternative)		3-6 Behavioral or Social Science	3
		Humanities	3
			14-17

Third Year			
Fall	CR	Spring	CR
ECONOM 4371		3 ECONOM WI Elective	3
MATH 4140		3 STAT 4710 or 4750	3
Foreign Language III (or alternative)		3 Foreign Language Alternative IV or Elective	3
Humanities		3 Humanities	3
Complementary Field Course		3 Elective	3
			15

Fourth Year			
Fall	CR	Spring	CR
ECONOM 4370		3 ECONOM 4000+ level elective	3
ECONOM 4000+ level elective		3 Approved Math/Statistics Elective	3
STAT 4510 or 4760		3 Elective	3
Elective		3 Elective	3
Elective		3 Elective	3
			15

Total Credits: 120-126

**Minor in Economics**

**Requirements**

Students wishing to minor in economics must take a minimum of 18 credits in economics\*. Students are allowed to complete ECONOM 1000, ECONOM 1014 and ECONOM 1015 at other institutions. All other Economics courses not taken in residence must be approved by the Department, but at least nine hours must be completed at MU. All courses must be completed with a grade of C- or higher with an Economics GPA of at least 2.0. Students who take both ECONOM 3251 and ECONOM 4351 will receive credit for only one of these courses. Students pursuing the Bachelor of Science in Business Administration

with an emphasis in Economics are not eligible to earn the Economics minor.

**Minor Requirements**

ECONOM 1014 & ECONOM 1015	Principles of Microeconomics and Principles of Macroeconomics	5-6
or ECONOM 1000	General Economics for Journalists	
or ECONOM 1051H	General Economics - Honors	
ECONOM 4351	Intermediate Microeconomics	3
or ECONOM 3251	Managerial Economics	
Three Economics Electives (at least one must be 4000- level)		9
<b>Total Credits</b>		<b>18</b>

\* A minor may be earned with 17 credits in economics by students who take ECONOM 1000 or ECONOM 1051H rather than ECONOM 1014 and ECONOM 1015.

## MA in Economics

### Degree Requirements

To fulfill requirements for the MA degree, a candidate must complete a 30-hour approved program of study. This includes 18 credit hours of core courses:

ECONOM 7370	Quantitative Economics	3
ECONOM 7371	Introductory Econometrics	3
ECONOM 8451	Microeconomic Theory <sup>1</sup>	3
ECONOM 8453	Macroeconomic Theory <sup>1</sup>	3
ECONOM 8473	Applied Econometrics <sup>1</sup>	3
ECONOM 8413	Research Workshop I	3

<sup>1</sup> ECONOM 9451 may be substituted for ECONOM 8451, ECONOM 9453 may be substituted for ECONOM 8453, ECONOM 9472 may be substituted for ECONOM 8473, and enrollment in 9000-level courses may require consent of the department and/or the instructor.

### PhD Track

Students can also earn an MA while working toward a PhD by passing the comprehensive examination.

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MA in the Economics program (<http://gradstudies.missouri.edu/academics/programs/economics/master-of-arts-in-economics.php>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

### Admission Contact Information

Lynne Owen Owenle@missouri.edu  
 118 Professional Bldg.  
 Columbia, MO 65211  
 (573) 884-7989

### Admission Criteria

Fall deadline: Open  
 Spring deadline: Open  
 Summer deadline: Open

### Bachelor's degree in any field

Minimum GRE scores: Quantitative = 155

Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
80	550

Minimum Academic IELTS scores:

Item	Score
Overall score	6.5

Students with a bachelor's degree in any field may apply for admission into the master's program. Applicants are admitted on the basis of an undergraduate record, with particular emphasis on performance in economics, mathematics, and statistics courses, performance on the GRE, and letters of recommendation. Although the graduate program assumes mathematical background through calculus, as well as undergraduate economics training, applicants with more limited backgrounds may be accepted into the program. Such individuals will be assigned supporting course work, some or all of which may be counted toward fulfilling requirements.

### Required Application Materials

To be uploaded to the MU Online Graduate Application for Admission:

- Your transcript from every college or university you have attended
- Your résumé
- Your personal statement
- Two letters of recommendation
- A copy of your official TOEFL or IELTS score. Your official TOEFL or IELTS scores (sent directly from the Educational Testing Service) must be submitted directly to the Graduate Admission Office (210 Jesse Hall, Columbia, MO 65211) \* International Applicants only.
- Your official GRE scores (sent directly from the Educational Testing Service)

## MA in Economics with Emphasis in Econometrics and Quantitative Economics

### Degree Requirements

All MA students in Economics with good academic standing may apply to add the emphasis in Econometrics and Quantitative Economics to their program. The emphasis area requires 9 credit hours. Students may satisfy the requirements for the MA and the emphasis area at the same time. For major program requirements see the MA in Economics page (p. 189).

**Required Courses: (must have 3.0 GPA average)**

ECONOM 7370	Quantitative Economics	3
ECONOM 7371	Introductory Econometrics	3

ECONOM 8473	Applied Econometrics	3
Total Credits		9

## PhD in Economics

### Degree Requirements

The PhD program is designed to encompass training in economic theory and quantitative methods, as well as flexibility for students in choosing course work to suit their interests and intended careers.

For those entering the program with a bachelor's degree, the following courses are required:

ECONOM 8370	Mathematics for Economics	3
ECONOM 9451 & ECONOM 9452	Advanced Microeconomic Theory I and Advanced Microeconomic Theory II	6
ECONOM 9453 & ECONOM 9454	Advanced Macroeconomic Theory I and Advanced Macroeconomic Theory II	6
ECONOM 9472 & ECONOM 9473	Econometric Theory I and Econometric Theory II	6
ECONOM 9413	Research Workshop II (PhD research workshop, taken for 4 consecutive semesters)	12
Two 9000-level economics courses in one area of specialization		6
Four other 9000-level economics courses (excluding ECONOM 9090)		12
9 credit hours of ECONOM 9085 or other electives		9
Dissertation research		12
Total Credits		72

Courses taken to satisfy these requirements (except dissertation research) may be taken while earning an MA at MU, or, as with students entering the program with prior graduate coursework, at other accredited colleges and universities as recommended by the Graduate Studies Committee.

### Specialization and Field Paper

Students are required to complete one area of specialization consisting of two courses and a field paper. It is expected that this area will be related to the objectives of the student's dissertation. The instructors of the field courses will provide written guidance about field papers and oversee the content of the research paper, and the instructor of the PhD research workshop (ECONOM 9413) oversees the mechanics of the paper. Field requirement is satisfied after both courses have been passed and the instructor(s) of both field courses as well as ECONOM 9413 approve the field paper. The areas of specialization from which the student can choose are listed below. The department commits itself to offering a second course in any field to all students who have completed an initial course in the field, within two semesters of the student completing the initial course (not counting the summer semester). This course may consist of a readings course with one of the faculty members in the field in lieu of a regular course. If a readings course is provided, then the faculty member is required to provide the department with the reading list for the course.

### List of Fields and Courses

<b>Econometrics</b>		
ECONOM 9476	Advanced Topics in Econometrics II	3
ECONOM 9477	Advanced Topics in Econometrics III	3
<b>Industrial Organization</b>		

ECONOM 9455	Monopoly and Competition	3
ECONOM 9471	Advanced Game Theory	3

#### International Economics

#### Labor Economics

#### Monetary Economics

ECONOM 9430	Advanced Money and Banking	3
ECONOM 9431	Central Banking Policies	3

#### Public Economics

#### Public Policy - Public/International

#### Quantitative Microeconomic Policy Analysis

ECONOM 9446	Advanced Empirical Methods	3
ECONOM 9447	Topics in Microeconomic Policy Analysis	3

#### Statement on Satisfactory Progress

1. Taking and completing required course work on schedule and maintaining a GPA of at least 3.0.
2. Enrollment in a full-time program of study, i.e., completion of at least 9 credit hours per semester.
3. Taking and passing qualifying and comprehensive examinations on schedule.
4. Completing the field requirement on schedule.

### Qualifying Process

Students pursuing the PhD degree must pass a qualifying examination. Upon completion of relevant required courses in the first year, students take the qualifying examination, which covers microeconomics, macroeconomics and econometrics. The exam is 6 hours in length; it is administered in parts with two-hours devoted to each of the three core subjects. The first offering of the exam is in late May. Students who fail to pass all three parts of the exam the first time may retake the failed part(s) the following July/August. Students who fail the exam may continue in the MA program.

### Comprehensive Examination Process

Students pursuing the PhD degree must pass a comprehensive examination. The comprehensive exam has a written section and an oral section, both administered by the student's dissertation committee. The oral section of the comprehensive exam is part of the dissertation proposal defense.

### Dissertation Requirements

The dissertation must make a substantial contribution to knowledge. Upon completion of the dissertation, students pursuing the Ph.D. degree must pass a final oral examination. This exam can include an evaluation of the dissertation, the student's defense of the dissertation, and the student's general comprehension of economics, and is open to the academic community.

### Admissions

#### Admission Contact Information

Lynne Owen Owenle@missouri.edu (owenle@missouri.edu)  
 118 Professional Bldg.  
 Columbia, MO 65211  
 (573) 884-7989

#### Admission Criteria

Fall deadline: February 1

The minimum requirements for admission into the PhD program are:  
 Undergraduate GPA 3.0  
 Minimum GRE scores: Quantitative = 155  
 Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
80	550

Minimum Academic IELTS scores:

Item	Score
Overall Score	6.5

Ordinarily, to be accepted for advisement in the PhD program, a student must have a master's degree in economics, or, alternatively, the student must meet the requirements for admission to the MA program, together with the requirement of an adequate background in economics, mathematics and statistics.

## Required Application Materials

The following items are required to be uploaded to the MU online Graduate Application for Admission:

- Your transcript from every college or university you have attended
- Your résumé
- Your personal statement
- Three letters of recommendation
- A copy of your official TOEFL or IELTS score. Your official TOEFL or IELTS scores (sent directly from the Educational Testing Service) must be submitted directly to the Graduate Admission Office (210 Jesse Hall, Columbia, MO 65211) \* International applicants only.
- Your official GRE scores (sent directly from the Educational Testing Service)

# PhD in Economics with Emphasis in Econometrics and Quantitative Economics

## Degree Requirements

All PhD students in Economics with good academic standing may apply to add the emphasis in Econometrics and Quantitative Economics to their program. The emphasis area requires 12 credit hours. Students may satisfy the requirements for the PhD (p. 190) and the emphasis area at the same time.

### Required Courses: (must have 3.0 GPA average)

ECONOM 8370	Mathematics for Economics	3
ECONOM 9472	Econometric Theory I	3
ECONOM 9473	Econometric Theory II	3
ECONOM 9474	Advanced Topics in Econometrics I	3
Total Credits		12

## English

Alexandra Socarides, Chair  
 Johanna Kramer, Associate Chair  
 College of Arts and Science  
 114 Tate Hall  
 (573) 882-6421

The English Department provides a major that not only grants a broad introduction to a range of literary and cultural study and creative activities, but also allows students to work more intensely in particular subfields of the discipline, including literary history, critical theory, film and cultural studies, linguistics, and creative writing. A major in English develops skills in reading, critical thinking, and writing. A degree in English is not intended to provide specific vocational training but rather to give a broad education that can lead to many different careers, especially those requiring excellent communication skills and analytical thinking.

Recent graduates have gone on to careers in teaching, publishing, television, film, advertising, public relations, insurance, and government. In addition, English is excellent preparation for graduate or professional schools such as law and business.

The department offers BA, MA, and PhD degrees with majors in English. Students are able to get the BA online. Three minors are also available, including a minor in Creative Writing. The department offers 18 hours of graduate credits online, including a graduate certificate.

## Faculty

**Professor** A. Barnstone\*\*, E. Chang\*\*, M.J. Gordon\*\*, N. I. Heringman\*\*, A. P. Hoberek\*\*, C. Hudson-Weems\*\*, T. L. Lewis\*\*, R. S. Morgan\*\*, P. Nguyen\*\*, P. Okker\*\*, K. L. Piper\*\*, D. T. Read\*\*, A. Socarides\*\*, C. Strathausen\*\*, N. M. West\*\*

**Associate Professor** S. Cohen\*\*, F. Dickey\*\*, J. O. Evelev\*\*, E. F. Glick\*\*, S. M. Harrison\*\*, J. Hearne\*\*, L. Itagaki\*\*, S. Karian\*\*, W. J. Kerwin\*\*, M. A. Konkle\*, J. Kramer\*\*, A. C. E. Langley\*\*, E. E. Lipton\*\*, L. Manion \*\*, M. Marlo\*\*, A. Myers\*\*, C. Okonkwo\*\*, J. Sukys\*\*

**Assistant Professor** G. Fried\*\*, R. Grollemund\*\*, R. Hayes\*, J. Shade-Johnson\*

**Professor Emeritus** R. M. Bender, S. Cairns\*\*, T. D. Cooke, A. J. Devlin\*, C. H. Hinnant\*, R. A. Hocks\*, W. V. Holtz, T. Materer\*, L. McMahon\*, C. Parke\*, M. G. Porter, T. V. Quirk\*\*, E. Ragland\*\*, S. Santos\*, R. B. Schwartz\*, M. A. Swick\*, M. Townsend\*, C. G. Youmans

**Associate Professor Emeritus** H. Hinkel\*, D. G. Hunt\*, M. Patton\*, D. Strickland\*\*, G. Swan

**Curators' Professor Emeritus** E. Lawless\*

**Teaching Professor** C. Hall, D. Kinnison, C. Wilson

**Associate Teaching Professor** S. Garson, K. McCaffrey, V. Muller, P. Smith-Parris

**Curators' Teaching Professor Emeritus** A. Prahlad\*\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BA in English (p. 192)
- Minor in English (p. 194)
- Minor in English Writing (p. 194)

**Director of Undergraduate Studies:** Lee Manion

## Departmental Honors

To graduate with honors in English, students must have a cumulative GPA of 3.3 and a GPA of 3.5 in English courses and successfully complete ENGLSH 4996 and ENGLSH 4995. Students wishing to enroll



in these courses must complete an application process in January of their junior year. More information is available from the Director of Undergraduate Studies or the department's Academic Advisor.

## Graduate

- MA in English (p. 194)
- PhD in English (p. 196)
- Certificate in English (p. 199)

College of Arts and Science  
114 Tate Hall  
(573) 882-6421  
<http://english.missouri.edu>

**Director of Graduate Studies for Advising and Admissions:** Emma Lipton

## About the Program

With more than 70 M.A. and Ph.D students, we are one of the largest and most diverse departments on the Columbia campus. We offer a wide range of course in Literature, in Creative Writing and in Language and Linguistics.

## Subject Areas

Seminars, workshops and directed research are available in Literature, in Creative Writing and in Language and Linguistics.

## Funding

Students admitted to the graduate program usually receive a fellowship or teaching assistantship. Outstanding applicants will also be eligible to compete for a variety of university fellowships. The deadline for applications to both the MA and PhD programs is January 1. Announcements of awards are made by early April.

## Publications Experience

Students will also have the opportunity to assist faculty in editing *The Missouri Review*, a nationally recognized journal of fiction, poetry and essays; and *Persea Books*, a small, venerable publishing house.

## BA in English

### Degree Program Description

English majors are asked to think in terms of both the breadth and depth of their knowledge, studying a wide variety of topics, periods and methods; developing skills in reading, critical thinking, and writing; and delving deeply into a particular area of interest. Students study literature from around the world and from all historical periods, learn about the theory and practice of writing through the study of rhetoric and composition, and acquire skills as writers of fiction, poetry, and nonfiction. The BA in English requires the following types of courses: period studies and surveys, author studies, genre/thematic studies, and theory/method studies. Students must also take several courses in an area of specialization such as Medieval Literature; Renaissance/Early Modern Literature; 18th and 19th Century Literature; 20th and 21st Century Literature; African Diaspora Studies; Postcolonial & Global Literatures; Literary, Critical or Rhetorical Theory; Creative Writing; Composition & Studies in Writing; English Language and Linguistics; Film and Digital Studies; or Gender and Sexuality Studies. A degree in English is intended to provide a broad, open-ended education that

can lead to many different careers, especially those requiring excellent communication skills and analytical thinking. Recent graduates have gone on to careers in business, teaching, publishing, television, film, advertising, public relations, insurance, government, public service, management, and law.

## Major Program Requirements

English majors must complete a minimum of 30 credit hours in English. At least 24 credit hours in the major must be at the 3000-level or above. At least 9 credit hours must be at the 4000-level. A minor in a different discipline is recommended.

No more than 54 credit hours in English may be counted toward graduation. The required English composition credits are excluded from this maximum and are recommended to be taken before the student enrolls in any English courses numbered above 2009.

In addition, students must complete all College of Arts and Science and University graduation requirements (p. 35), including University general education (p. 36).

**Honors:** Students may take an additional 3 hours (33 total) to complete ENGLISH 4995 Senior Honors Thesis. Note that ENGLISH 4996 Honors Seminar in English, will count towards the 9-hour requirement for 4000-level classes, ENGLISH 4995 Senior Honors Thesis, will not.

**Internships and Independent Research:** Students making satisfactory progress towards completion of degree requirements are encouraged to explore possibilities for gaining professional experience through internal or external internships. They are also encouraged to follow up on opportunities to pursue independent research sponsored by the department, the College of Arts and Science, and other divisions of the University. Note that only 3 credit hours of internship or independent study (ENGLISH 4940, ENGLISH 4950, ENGLISH 4955, or ENGLISH 4960) will count towards the major's 4000-level requirement or towards the 24 hours at the 3000-level or above.

## Major Core Requirements

### Introduction

ENGLISH 2100 Writing About Literature

### Body of Major

- At least 30 credit hours in English (including 3 hours of ENGLISH 2100) satisfying requirements listed below.
- Courses may count for 1, 2, or 3 of the three requirements for Breadth of Study, Historical Coverage and Depth of Study.
- At least one course must meet the Diversity Requirement.
- At least 24 hours must be at the 3000-level or above. At least 9 hours must be at the 4000-level.

### Breadth of Study

Students take at least 1 course from each of the following areas (3000-level and above).

#### a. Period Studies and Surveys

Courses in this area examine texts in their historical context, and consider how historical events and developments shape culture and texts.

#### b. Author Studies

Courses in this area focus on an individual or several authors or artists.

**c. Genre Studies; Thematic Studies**

Genre Studies introduces students to a textual kind (e.g. the novel, poetry, drama, the essay, etc.), its conventions, and its history.

Thematic Studies explores a shared theme among works that may or may not belong to the same period.

**d. Theory and Methods**

Courses in this category give primary attention to the frame of inquiry and/or the method by which knowledge-making takes place.

**Historical Coverage**

Students take 3 courses that focus on literature written prior to 1890. One of these must focus on literature written prior to 1603.

**Depth of Study**

Students must take 3 courses in a single area of specialization listed below.

- a. Medieval Literature
- b. Renaissance/Early Modern Literature
- c. 18th and 19th Century Literature
- d. 20th and 21st Century Literature
- e. African Diaspora Studies
- f. Postcolonial & Global Literatures
- g. Literary, Critical, or Rhetorical Theory
- h. Creative Writing
- i. Composition & Studies in Writing
- j. English Language and Linguistics
- k. Film & Digital Studies
- l. Gender and Sexuality Studies
- m. Other (subject to English Department Advisor approval)

**Diversity Requirement**

English majors must take one 3-hour course that focuses on issues such as race, ethnicity, gender, or sexuality. Each semester a list of approved courses will be made available to students.

**Culmination**

ENGLISH 4970 Capstone Experience (or ENGLISH 4996 Honors Seminar in English if choosing the honors sequence)

**Accelerated BA to MA**

The Accelerated program will provide strong English majors with the opportunity to acquire an MA in English by pursuing one extra year of study. Students in the accelerated program will take 108 undergraduate credits and 31 graduate credits, for a total of 139 credits, (12 of these credit hours are shared undergraduate and graduate credit hours, 7000-level courses.) Students will need to choose whether to pursue the Literature or Creative Writing track. Students who complete the

accelerated program will have earned a BA in English with honors and an MA in English.

In the first year of the accelerated program, students will take 18 hours, (12 of which are at the graduate level), and will complete an honors thesis in English. Once a student receives their BA they will take an additional 19 graduate credit hours, 15 of which will be at the 8000-level.

Three of the 19 hours will be the MA thesis hours. The honors thesis written in the first year can become the basis for the MA thesis.

**First Year (as Provisional Graduate Student)**

ENGLISH 4996W	Honors Seminar in English - Writing Intensive	3
ENGLISH 4995	Senior Honors Thesis	3
Any 7000-Level Course, at least one course must be a workshop if pursuing the creative writing concentration.		12

**Second Year (as Graduate Student)**

ENGLISH 8005	Introduction to Graduate Study *	1
ENGLISH 8050	Contemporary Critical Approaches	3
or ENGLISH 8060	Seminar in Criticism and Theory	
or ENGLISH 8070	History of Criticism and Theory	
ENGLISH 8090	Masters Thesis Research *	3
Any 8000-Level Literature Course		6
8000-Level Elective Course **		6

\* These hours do not count towards the 15 hours at the 8000-level.

\*\* If pursuing the creative writing track, these courses must be a workshop. If pursuing the literature track, these courses must be a literature course.

**Admissions**

Students will apply for the accelerated program in the spring of their junior year and, if accepted, will begin the fall of their senior year.

**Semester Plan**

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available

First Year			
Fall	CR	Spring	CR
ENGLISH 1000 *		3 MATH 1100 *	3
Foreign Language ^A		5 Foreign Language ^A	5
Behavioral Science Course *		3 Social Science Course *	3
American History OR Government Course		3 Humanities/Fine Arts Course *	3
IS_LT 1111		1 Elective Course	1
		15	15
Second Year			
Fall	CR	Spring	CR
ENGLISH 2100 ^A		3 Biological/Physical/Mathematical Science Course w/lab *	3
Biological/Physical Science Course w/lab		4 ENGLISH 3100	3
Foreign Language ^A		3 Behavioral Science Course 2000+ *	3
Humanities/Fine Arts Course *		3 Social Science Course *	3
ENGLISH 1060		3 Elective or Course for Minor	3
		16	15

Third Year			
Fall	CR	Spring	CR
Humanities Course 2000+ <sup>**</sup>		3 ENGLISH 4166 <sup>^</sup>	3
ENGLISH 3210 <sup>^</sup>		3 ENGLISH 4600 <sup>^</sup>	3
ENGLISH 4310 <sup>^</sup>		3 Elective or Course for Minor 3000+	3
Biological/Physical/Mathematical Science Course <sup>*</sup>		3 Elective or Course for Minor	3
Humanities/Fine Arts Course		3 ENGLISH 4950	3
	15		15

Fourth Year			
Fall	CR	Spring	CR
ENGLISH 4240 <sup>^</sup>		3 ENGLISH 4970 <sup>^</sup>	3
ENGLISH 4610		3 Elective or Course for Minor 3000+	3
Elective or Course for minor 2000+		3 Elective or Course for Minor	3
Second Depth Area Course 2000+ <sup>**</sup>		3 ENGLISH 4100	3
Humanities/Depth Area Course 2000+ <sup>**</sup>		3 Second/Third Depth Areas Course 2000+	3
	15		15

Total Credits: 121

\* Course concurrently meets University General Education, Arts and Science Foundation and/or campus graduation requirements.

<sup>^</sup> Course meets degree requirements or major requirements.

Depth Areas are courses that are 2000 level or above chosen from four areas: the sciences, social sciences, behavioral sciences, or humanities and fine arts. Arts and Science students are required to complete 9 hours in at least 2 of the four areas.

## Minor in English

### Requirements

The English minor consists of 15 credit hours of coursework beyond ENGLISH 1000 (or its equivalent).

- It must include at least 6 credit hours in courses numbered 3000 or above and must include at least 3 credit hours at the 4000 level.
- It may include no more than 3 credit hours from amongst ENGLISH 4940, ENGLISH 4950, ENGLISH 4955, and ENGLISH 4960.
- A grade of C- or above must be earned in all minor course work and a minimum GPA of 2.0 achieved in the minor.
- A minimum of 9 credit hours must be completed in MU coursework.

## Minor in English Writing

The English Writing minor is designed to help students in all majors and colleges improve their writing and critical thinking skills.

### Requirements

The minor consists of 15 credit hours of coursework beyond ENGLISH 1000 (or its equivalent). A grade of C- or above must be earned in all minor course work and a minimum GPA of 2.0 achieved in the minor. A minimum of 9 credit hours must be completed in MU coursework.

Composition		3
ENGLISH 2010	Intermediate Composition	
ENGLISH 2030	Professional Writing	
ENGLISH 3010	Advanced Composition	
Non-fiction Creative Writing		6
ENGLISH 1520	Creative Writing: Introduction to Nonfiction Prose	
ENGLISH 2520	Creative Writing: Intermediate Nonfiction Prose	
ENGLISH 4520	Creative Writing: Advanced Nonfiction Prose	
ENGLISH 4040	Studies in Writing	
<b>English Writing Intensive (beyond those required for graduation)</b>		<b>3</b>
<b>Elective (from options listed above, or any creative writing course)</b>		<b>3</b>
Total Credits		15

## MA in English

The MA program is a two-year program. Coursework builds on a student's Bachelor's-level knowledge of their field to provide a broad perspective on literature and culture while allowing for specialization and advanced research work. Funded students receive tuition benefits and stipend each year. In their first year, funded students receive teaching training in their first semester, and teach one section of English 1000 while taking three courses per semester. In their second year they teach two sections of English 1000, complete coursework, and write an MA Thesis.

### Degree Requirements

30 hours total of coursework of which 15 hours must be at the 8000 level; the remaining hours may be either 7000 or 8000 level.

#### Required Courses

ENGLISH 8005	Introduction to Graduate Study (Required Fall semester of first year)	1
ENGLISH 8060	Seminar in Criticism and Theory	3
or ENGLISH 8050	Contemporary Critical Approaches	
or ENGLISH 8070	History of Criticism and Theory	
ENGLISH 8090	Masters Thesis Research	6+
ENGLISH 8010	Theory and Practice of Composition (required for students who will teach ENGLISH 1000)	3

**Three hours are required in two of the three areas of literature at the 8000 level. However, for students concentrating in literature, three hours are required in each of the following three areas**

Pre-1700	
1700-1900	
1900-Present	

**9 hours at the 8000 level are required in one of the following concentrations, (7000 level courses can be substituted with the approval of the DGS):**

Literature	
Creative Writing (6 hours must be in one genre, 3 hours must be in another genre)	
Language and Linguistics	
Folklore Studies	

Students can take up to 9 hours outside the English Department with approval of the Director of Graduate Studies.

ENGLISH 8090 is only available during the semester(s) the student is writing a thesis.

ENGLISH 8010: The Theory and Practice of Composition, is required in the fall of the first year for students who will teach ENGLISH 1000.

Throughout their time in the department, students will be advised on designing programs of study not only to achieve their personal goals but also to enter the job market as successfully as possible. No grades of C will be counted toward the completion of the required number of hours for the MA.

### Timeline to Complete:

First Year: 18 hours of coursework and a ¼-time assistantship in the fall, with training to teach composition through shadowing in the Composition Program and through tutoring in the Writing Center. In spring semester, teach one section of English 1000.

Second Year: Complete coursework and teach two sections of ENGLISH 1000 per semester. Write MA Thesis.

### Thesis

The thesis requires independent research at the graduate level in a sustained consideration of a critical or creative project. The MA thesis may build on work produced in coursework but must also include significant new work.

Students present and defend their theses to a committee (composed of two members in the department and one outside member) in an oral defense.

Required length: 40-60 pages

The successful thesis in Literature will:

- support an argument with insightful textual analysis.
- show a command of clear academic prose.
- demonstrate awareness of current critical, theoretical trends and/or historical contexts relevant to the project.
- use library resources to locate and select critical and/or historical sources, and connect them meaningfully to the central text(s).
- show proficiency in documentation and bibliography.

The successful thesis in Creative Writing will:

- constitute a polished piece or collection of creative work in the candidate's genre of specialization.
- demonstrate a nuanced understanding and practice of the genre and/or form in question.
- by including an annotated bibliography of at least 10 entries or a critical introduction of no more than 15 pages, demonstrate a critical engagement with the practice, history, and/or theorization of creative writing.

The successful thesis in Language and Linguistics will:

- identify and investigate a problem or question that is relevant to current debates in the field.
- situate the investigation within the relevant scholarship with appropriate citation of the literature.

- demonstrate command of methodological and analytical tools suitable for the investigation.
- demonstrate command of effective writing in an appropriate academic register.

In their first year, students should discuss possible thesis topics with the Director of Graduate Studies and faculty members likely to constitute the student's MA Thesis Committee.

The MA Thesis includes up to 6 hours of ENGLISH 8090. Students generally take 6 hours of thesis credit in one semester while doing research and writing. Some will take 3 hours in the fall and then 3 more in the spring semester if they are working closely with an advisor at the outset of the second year. ENGLISH 8090 counts towards the total number of course hours required for the MA, but does not count towards the required number of 8000-level courses.

### MA/PhD Track

The MA/PhD program is intended for especially well-prepared students who have BA degrees and know they wish to pursue the PhD. It offers enhanced financial aid and an accelerated time to degree. In their first year in the program, students take three courses per semester. In their first semester, they receive teaching training through shadowing in the Composition Program and through tutoring in the Writing Center and in their second semester, they teach one section of English 1000, receiving a substantial stipend to ensure that they complete their work in a timely manner. In their second year, while writing the MA thesis, and seventh year, while writing the dissertation, and one additional year of their choice, MA/PhD students teach a reduced schedule of two classes in the fall and one class in the spring without a reduction in pay from our regular PhD package. Students complete MA requirements and begin taking PhD coursework in their second year in the program. Academic requirements for the two degrees are identical with the academic requirements for the separate MA and PhD degrees.

### Self-Funded MA in English

Students can be accepted into our MA program without the aid of a university fellowship or assistantship. If accepted, students must fulfill all degree requirements, but they do not have to take ENGLISH 8010, the Theory and Practice of Composition, and do not teach ENGLISH 1000.

Self-funded students will take seminars, workshops, and other courses with the rest of the graduate student population; permission will be required for participation in the creative writing courses.

Students can pursue the MA either part time or full time, but all students must complete the MA program in the eight-year time limit mandated by the Graduate School.

### Admission Criteria

Fall deadline: January 1

### MA and MA/PhD

To be admitted to the MA program, a candidate should have majored in English as an undergraduate, with at least 18 hours in upper division courses in literature or linguistics. Students with other undergraduate majors may be admitted provided their background in English studies is suitable and provided they complete an appropriate course of preliminary study. The candidate should have an overall undergraduate average of at least a B (3.0), with a higher average in courses in the major.

## Application Process and Materials

Apply online through the Graduate School (<http://gradstudies.missouri.edu/admissions/apply/>)

- The University requires an application fee and one set of transcripts from all colleges or universities you have attended.
- If already enrolled as a PBS student or as an undergraduate student at MU, you must file a transfer of division form with the admissions office.

The following items are needed to complete your application for the MA, MA/PhD, and PhD programs.

- GRE scores. The general test is required.
- Three letters of recommendation (at least two of which must be academic).
- One transcript from all colleges or universities you have attended.
- CV
- List of any previous graduate classes taken (for PhD candidates)
- Statement of purpose (approximately 500 words): The admissions committee is interested in your past academic interests, including specific papers and projects you have worked on, and what you wish to accomplish as a graduate student. Please explain why you wish to pursue a particular emphasis (poetry, Romanticism, etc. . .), in this department. The Statement of Purpose serves as your request to be considered for a Graduate School fellowship.
- Writing Sample: One 15-20 page scholarly paper for students applying for Literature Studies or for English Language and Linguistics. Creative Writing applicants should submit one critical/scholarly paper and one of the following: a sample of your fiction (15-30 pages), creative non-fiction (15-20 pages), or poetry (15-20 pages).

**Your application cannot be read until all of these materials have been received. All materials must be received by the departmental deadline of January 1.**

## Admission Contact Information

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## PhD in English

### Degree Requirements

The PhD in English is designed to be a five-year program requiring 30 hours of coursework. Students select and work closely with a faculty advisory committee to plan a course of professional study and training in their chosen primary and secondary fields. Coursework is meant to provide deep knowledge as well as methodological sophistication.

After students complete coursework in the first two years, they take written and oral comprehensive exams in the third year and write a dissertation in the fourth and fifth years.

### Course Requirements

The PhD candidate will take 30 hours of coursework beyond the MA. Coursework must include:

- At least 18 hours in English at the 8000-level (ENGLSH 8095 and ENGLSH 9090 hours do not count toward the 18-hour requirement).

Candidates' coursework and program of study will be designed to prepare them as competent scholars in the designated fields. All PhD candidates will be required to take:

- ENGLSH 8005, Introduction to Graduate Studies (a one hour course in fall semester of the first year in the program).
- ENGLSH 8010, Theory and Practice of Composition is required in the first semester for students teaching English 1000.
- A course in English linguistics focused on the structure of the language (ENGLSH 7600 or an equivalent graduate course at another institution), on its history (ENGLSH 7610, ENGLSH 7200, or an equivalent graduate course at another institution), or on sociolinguistic aspects of English (ENGLSH 7620 or an equivalent graduate course at another institution).
- A course in literary criticism (ENGLSH 8050, ENGLSH 8060, ENGLSH 8070, or an equivalent graduate course at another institution).
- ENGLSH 8020, The Theory and Practice of Teaching in English (for students who want to teach literature classes).

PhD students in the creative writing program are required to take:

- 9 workshop hours at the 8000 level (6 in their primary genre, and 3 in a second genre of choice)
- 6 hours of 8000-level seminars whose content includes in-depth analysis of literary texts. 7000-level courses, or courses outside of the English department may be substituted with the approval of the DCW and DGS

A student may elect one ENGLSH 8095 problems course (a maximum of 3 hours credit), with the prior consent of the Director of Graduate Studies, but the credits will not count towards the 18-hour 8000-level course requirement. Students may also take up to 9 hours of coursework outside English in fields related to their programs of study upon the advice and consent of the advisory committee. In general, students with limited backgrounds in related areas (such as history, philosophy, art history) are encouraged to take coursework in such areas, while students with extensive background in other areas (e.g., one whose undergraduate major or MA is in a field other than English) should choose to concentrate coursework within the department.

### Foreign Language Requirement

PhD students must fulfill a language requirement to ensure that all students have a familiarity with a language other than English. Students, regardless of specialty, gain substantially by making meaningful connections between their own work and a non-English-speaking culture.

A student may satisfy the language requirement for the PhD in English by one of the following:

1. By taking coursework at MU. The student must pass with a grade of B or better an intensive introduction to a language, the two-semester introductory sequence of courses, or one course at or beyond the second semester level in the language chosen.
2. By demonstrating to the Director of Graduate Studies that the student has taken courses equivalent to those specified in item #1 at another college or university.
3. By demonstrating proficiency through a language test. Language tests will be administered by the department in November and April. Those wishing to take a test must notify the DGS in the semester

prior. Those students who submitted a TOEFL score as part of their application to graduate school will be considered to have passed the language requirement.

Upon entering the program, students should work with the DGS or a faculty advisor to plan how they will fulfill the language requirement. Projects and areas of study will require different levels of language proficiency. Students' committees may recommend that they pursue language study beyond the level required by the department.

## Proficiency in English

International students should consult the International Teaching Assistant Program (<https://gradstudies.missouri.edu/itap-program/>) (ITAP) of the Graduate School for university and state requirements regarding teaching at the university.

## Plan of Study

Below is a sample timeline for completing the PhD within five years of funding. Variations to the timeline can be developed in consultation with a student's advisor and the Director of Graduate Studies.

### Year One:

- Take 8005: Introduction to Graduate Study
- Take three 3-credit courses each semester
- Choose an advisor and consult with that person in forming a doctoral committee
- Draft a plan for fulfilling degree requirements, including the language requirement
- Take the Qualifying Exam (see tab on this page for more information about timing)

### Year Two:

- Complete course requirements
- Read for Comprehensive Exam

Please note that coursework required for the degree must be completed before taking the Comprehensive Exam.

### Year Three:

- Take Comprehensive Exam by the end of the fall semester
- Have dissertation prospectus conference spring semester
- Begin writing the dissertation
- Consult with advisor about professionalization plans

### Year Four:

- Work on dissertation
- Consider taking 1-credit 8001 seminar(s) (Critical Writing Workshop can be taken before Year Four)

### Year Five:

- Apply for jobs
- Consider taking a 8001 seminar
- Defend dissertation by the end of spring semester

Although the Department of English offers only 5 years of guaranteed funding, the Graduate School allows 5 years after entering the program for students to pass their Comprehensive Exams and 5 additional years for students to defend their dissertations after passing their Comprehensive Exams.

## Exams

### Qualifying Exam

The Qualifying Exam satisfies a Graduate School requirement. The student and advisor should decide on a proposed Plan of Study (D-2 form) to be discussed and approved at the meeting by the doctoral committee. The doctoral committee is composed of at least three faculty members from the English department and at least one faculty member from a department other than English. Students may use this meeting to shape their fields of study or their lists for the Comprehensive Exam, but this is not required to pass the exam. Students are encouraged to take the Qualifying Exam by the end of their first year, but may take the exam at the beginning of the second year, if they need more time to compose their doctoral committees. Regardless of the timing of the exam, all students should discuss a plan for fulfilling degree requirements with their advisors and/or with the Director of Graduate Studies by the end of their first year.

The Qualifying Exam must be a formal meeting, scheduled by the committee chair, with at least three of the four members present. The outside faculty member need not be involved in this meeting, but all four members of the committee must sign the D-1 form. The student and committee chair should decide on a proposed Plan of Study to be discussed and approved at the meeting. The student is responsible for preparing the forms and bringing them to the meeting.

### Comprehensive Examination

After all required coursework has been completed, PhD students must take the comprehensive examination. This exam consists of a written section and a two-and-a-half-hour oral exam.

#### 1. Committee

Students will choose a faculty committee consisting of a chair, two additional department members, and an external member from another department.

In consultation with her or his committee, the student will specify reading lists made up of one major field, one minor field, and one field in criticism and theory.

#### Reading Lists

The major field list should reflect the student's area of scholarly specialization and take into account the student's interests and intellectual, pedagogical, and/or professional fields.

The minor field list should be a more narrowly focused secondary specialization (for instance, a student with a major list in African-American literature might have a minor list in twentieth-century American fiction, or one studying Romanticism might have a minor list in transatlantic colonial literature), a genre or sub-genre (creative nonfiction, the sonnet, etc.), or an area of thematic focus (Transcendentalism, nature poetry, etc.).

#### The criticism and theory list

The criticism and theory list should enhance students' understanding of critical conversations surrounding the works on their major and minor lists and can also be used to develop a separate area of specialization in theory that is anticipated to be useful for the dissertation.

All three lists together should comprise approximately 100 -120 book length works or the equivalent in scholarly articles or works in other media (as decided in consultation with the committee), with the major list roughly equivalent in size to the combined minor and criticism/theory lists.

## 2. Written Exam

The written section of the comprehensive exam is comprised of *one* essay, intended to prepare students for the dissertation. The essay would prepare creative writing students for the critical introduction and/or the creative dissertation. Although the written exam is submitted to the committee prior to the oral exam, it is expected that students will complete their reading of works on all three lists *before* turning in the final draft of the written exam. The order of this process is crucial, as this reading may well shape a student's plans for the dissertation and hence inform the topic and substance of the written exam.

The essay will identify and summarize the critical conversation(s) in which a student's individual dissertation work will participate. This essay may have, but does not require, an original argument. In consultation with their committee members, students are encouraged to shape their written exam to best serve their research needs. The essay must be *15-20 pages*, not counting additional materials such as bibliography, illustrations, or charts (which should be placed in an appendix). While the essay should refer to both *primary and secondary sources from students' lists*, students may also use other sources relevant to their projected dissertation.

Students will submit two drafts to their committee members: a first draft and a final written exam. The first draft must be submitted for written or oral feedback on how to proceed with revisions at least *four weeks and no more than sixteen weeks before* turning in the final written exam. The committee will evaluate each version of the essay for range and depth of coverage, specificity of references to the works discussed, theoretical grasp of the material, effective synthesis of important approaches or debates, and clarity of organization and style. Once the final written exam has been submitted, committee members will use these criteria to vote on whether the student has passed the written portion of the exam. To proceed to the oral exam, students must receive no more than one vote of "fail" or "abstain."

At least one month prior to the submission of the final written exam, students should communicate with committee members, alerting committee members to the date the final written exam will be submitted. The advisor should consult with committee members to schedule a tentative date and time for the oral portion of the exam. The oral portion of the exam should take place *at least two weeks and no more than one month* after the final written exam has been submitted. The advisor should inform the Graduate Secretary of the time and place scheduled for the oral examination.

On the agreed upon date, the student should submit the final version of the written exam to the Graduate Secretary, who will distribute the exam to the student's committee. *Exams submitted to the Graduate Secretary that are either under or over the required page length will not be sent to committee members, but will be referred to the Director of Graduate Study.* Within two weeks of receiving a copy of the exam, committee members will submit evaluations discussing strengths and weaknesses of the essay to the Graduate Studies Secretary, who will forward them to the student and also place copies in the student's file. If the student does not pass the written exam, the oral examination date will be cancelled and the committee will offer advice on rewriting and resubmitting the essay.

## 3. Oral Exam

The oral section of the comprehensive exam is designed to test a student's knowledge of the teaching and research fields represented by their reading lists. Students should be prepared both to answer

focused questions about individual works and to speak broadly about the connections among them. Students should send final copies of their lists to their committee members at least two weeks before the oral exams.

The oral exam will be scheduled for two and half hours and will consist of:

- Two hours of questions, with format and time allotted to committee members arranged beforehand by the chair of the student's committee
- Fifteen minutes during which the committee deliberates about the exam
- Fifteen minutes during which the committee informs the student whether he or she has passed or failed, and discusses the exam with the student

Within one week of the oral exam, the chair of the committee is responsible for writing a brief document (up to one page) discussing the exam-- things the student did well on, and things that might be improved upon. The chair should give a copy of this document to the Graduate Secretary, who will forward it to the student and also place a copy in the student's file.

In order to pass the student must receive no more than one dissenting or abstaining vote on the oral exam. Students who fail the oral examination will be allowed to retake it, but cannot do so sooner than 12 weeks after, or later than the end of the semester following, the initial examination. If the student passes the oral examination, all members of the committee must sign the D-3 form. The chair of the committee is responsible for submitting the D-3 form to the Graduate School, and the form must be filed with the Graduate School within two weeks after the final completion of the exams. Per graduate school rules, failure to pass two comprehensive examinations automatically prevents candidacy.

## Dissertation and Defense

### Prospectus

As soon as possible after passing the comprehensive examination, a candidate should explore a dissertation topic under the guidance of the student's adviser. Candidates must formally present and describe the topic in a prospectus of no more than fifteen pages (excluding bibliography); for the student to remain in good standing, the prospectus with committee members' signatures must be submitted to the Graduate School within three months of a successful oral defense of the Comprehensive Examination or first two weeks of the semester following.

The prospectus should contain five elements:

- The state of current scholarship in the relevant fields
- The nature of the dissertation's intervention in current scholarship
- A description of method
- A description of the materials—that is, the objects/archives studied and consulted
- A short bibliography

In the case of students writing creative dissertations, the prospectus should primarily describe the critical introduction (see "Creative Dissertation" below); ten pages is a good goal here.

The prospectus should be drafted in consultation with the adviser. Once drafted, it will be the subject of the Prospectus Conference, a meeting of the dissertation committee (outside member optional) covering the student's ideas and research plans, including schedule. If a majority of the student's committee doesn't approve the prospectus, suggestions for

revision will be made and the student will submit the revised prospectus only to the adviser; for this reason, students should schedule their meeting with enough time to revise and meet the deadline.

The prospectus must be completed for the student to begin writing, but it is also important because it usually forms the basis of grant applications and dissertation descriptions when the student goes on the job market. It is of long-term use to have a prospectus on file early, even though it is understood that the dissertation may change during research and writing.

## Dissertation

Two types of dissertations are written for our program: the scholarly dissertation and the creative dissertation.

The **scholarly PhD Dissertation** is a work of original scholarship in a recognizable field covered by departmental expertise. Most dissertations in English are between 200 and 350 pages and combine an original argument with research into the field you explore. By the end of the process of researching and writing the dissertation, the successful student will be one of a few world experts in the field addressed.

Therefore topics should be specific enough to allow students to stake a claim to expertise, while broad enough to speak to the general field in which the dissertation is placed. The dissertation becomes the central document upon which you build your academic reputation. At best, it will be ready to go as a book project. Chapters of your dissertation will likely serve as writing samples on the academic job market and might be revised into publications either before or after you have defended it and received your PhD. The dissertation itself will be read by the student's adviser and a minimum of three other readers (for students entering in the fall of 2005 or later; earlier students must have committees of at least five faculty members). One member of the committee must be a member of a department other than English. In the process of research and writing, some students work closely with an entire committee; others focus on the responses of their primary adviser to preliminary work.

PhD candidates in Creative Writing generally write a **creative PhD dissertation**, which may take the form of a collection of poetry, a novel, a novella, a book-length collection of short stories, or a book-length work of creative non-fiction. To exercise this option, the candidate must have taken 9-12 hours of creative writing seminars as part of the PhD coursework. In addition to the creative part of the dissertation, the candidate will compose a **Critical Introduction**, which is an article-length and rigorous critical essay that substantively engages the candidate's areas of critical interest.

## Defense

Defense usually occurs within a month of submission to the committee of an acceptable dissertation. Committee members prepare questions in advance and the defense consists of a conversation regarding the scholarship and writing of the dissertation. The defense is customarily a celebratory occasion. But committee members can - and sometimes do - ask challenging questions that undercut specific and general issues in the project. Students have a chance to incorporate suggestions from the defense into the final document submitted to the Graduate School. Therefore it is useful to schedule the defense some weeks before the final deadline for submission to the Graduate School in the term in which the student wishes to graduate. For the dissertation to be successfully defended, the committee must vote to pass it with no more than one abstaining or dissenting vote. If the dissertation is not passed, the student can revise in accordance with suggestions and resubmit.

## Admission Criteria

Fall deadline: January 1

- To be considered for the PhD program, a candidate should hold an MA degree in English or its equivalent.
- International applicants must send a copy of their TOEFL score, per university requirements.

## Application Process and Materials

Apply online through the Graduate School (<http://gradstudies.missouri.edu/admissions/apply/>)

- The University requires an application fee and one set of transcripts from all colleges or universities you have attended.
- If already enrolled as a PBS student or as an undergraduate student at MU, you must file a transfer of division form with the admissions office.

The following items are needed to complete your application for the MA, MA/PhD, and PhD programs.

- GRE scores. The general test is required.
- Three letters of recommendation (at least two of which must be academic).
- One transcript from all colleges or universities you have attended.
- CV
- List of any previous graduate classes taken (for PhD candidates)
- Statement of purpose (approximately 500 words): The admissions committee is interested in your past academic interests, including specific papers and projects you have worked on, and what you wish to accomplish as a graduate student. Please explain why you wish to pursue a particular emphasis (poetry, Romanticism, etc. . .), in this department. The Statement of Purpose serves as your request to be considered for a Graduate School fellowship.
- Writing Sample: One 15-20 page scholarly paper for students applying for Literature Studies or for English Language and Linguistics. Creative Writing applicants should submit one critical/scholarly paper and one of the following: a sample of your fiction (15-30 pages), creative non-fiction (15-20 pages), or poetry (15-20 pages).

**Your application cannot be read until all of these materials have been received. All materials must be received by the departmental deadline of January 1.**

## Admission Contact Information

Victoria Thorp [thorpv@missouri.edu](mailto:thorpv@missouri.edu)  
Department of English  
114A Tate Hall, Columbia, MO 65211  
(573) 882-4676

## Graduate Certificate in English

The 18-hour Graduate Certificate in English trains students in the history and analysis of literature and the English language as well as writing and research skills. Through this certificate, students will:

- Deepen their knowledge of the English language and literature across historical periods and cultures
- Learn and apply a variety of critical methods for interpreting literature
- Practice creative and expository writing at the graduate level



- Acquire advanced research skills through structured assignments and feedback from experienced doctoral faculty
- Research and design educational content appropriate for college-level English courses

Students may pursue the certificate by itself or they may achieve it on the way to an MA in English. Master's students in Education, pursuing the M. ED in Learning, Teaching, and Curriculum with a specialization in English Education, may also apply up to 12 credits from certificate-earning courses to their M. ED. degree.

## Requirements

Minimum credit hours needed: 18

Student can take any English courses at the 7000 level, or 8000 level with instructor approval, up to 18 credits; offerings may vary from year to year.

Example of courses offered:

ENGLISH 7140	Modern Literature	3
ENGLISH 7179	Comparative Approaches to Literature, 1890-Present	3
ENGLISH 7220	Renaissance and 17th-Century English Literature	3
ENGLISH 7310	19th-Century American Literature	3
ENGLISH 7510	Creative Writing: Advanced Fiction	3
ENGLISH 7611	The Story of English: Medieval to Modern	3

## Film Studies

Lee Ann Garrison, Director

School of Visual Studies, College of Arts & Science  
102 Swallow Hall  
(573) 882-7547

muassvs@missouri.edu (muassvs@missouri.edu)

<https://visualstudies.missouri.edu> (<https://visualstudies.missouri.edu>)

Academic Advisor - Nadia Irsheidat (irsheidatn@missouri.edu)

The Film Studies Program within the School of Visual Studies provides guidance to our students from accomplished researchers and from film production faculty, real world experience through hands-on internship practicums, and opportunities for professional success beyond the program. The BA offers courses in film analysis and covers the history of cinema, national and global cinemas, film theory and genres, documentary film, and contemporary visual culture. It combines an emphasis on critical thinking, research, problem-solving, written expression, and cultural literacy with the discipline's unique attention to visual analysis. For those who choose the Emphasis in Production, this degree provides hands-on instruction in all areas of filmmaking, including screenwriting, production management, directing, cinematography, audio, and editing. A degree in Film Studies provides a broad, comprehensive education that can lead to many different careers, especially those requiring excellent communication skills and analytical thinking. Recent graduates have gone on to careers in teaching, publishing, public relations, management, law, the TV/motion picture industry, independent film-making, advertising and other areas of digital media production.

The program offers a BA degree in film studies, a BA with an emphasis in film production, and an undergraduate minor.

## Faculty

**Professor** B. Prager\*

**Assistant Professor** J. Floyd\*, R. Greene\*, S.C. Rozier

**Assistant Teaching Professor** K. Bilal, E. Hornbeck, D. Moore\*

**Instructor** M. Coleman, M. Lewis, R. Wise

**Affiliated Instructor** M.H. Carver\*, N.M. West\*, J. Hearne\*, V.M. Kaussen\*, R. Tabanelli\*

**Professor Emeritus** R.F. Cook\*

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BA in Film Studies (p. 200)
  - with emphasis in Film Production (p. 201)
- Minor in Film Studies (p. 202)

## Double and Dual Majors

A film studies major can be paired with a major in another department. Students must meet the requirements of both departments. The program for each major must be approved by the advisor in the degree-granting department.

## Departmental Honors

To receive departmental honors, a student must earn a minimum overall MU GPA of 3.3 and a minimum GPA of 3.5 in courses in film studies completed at the University of Missouri. In addition, with the assistance of an honors thesis advisor, the student must develop, plan and conduct research on an independent project, normally while enrolled in FILMS\_VS 4995 .

## Graduate

While MU does not offer graduate degrees specifically in film studies, the University does offer post-baccalaureate opportunities in a number of related areas, both within the College of Arts and Science, and in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 20).

## BA in Film Studies

### Degree Program Description

The Film Studies Program provides guidance to our students from accomplished research faculty, real world experience through hands-on internship practicums, and opportunities for success beyond the program for our graduates. The BA focuses on film analysis and covers the history of cinema, national and global cinemas, film theory and genres, documentary film, and contemporary visual culture. It combines an emphasis on critical thinking, research, problem-solving, written expression, and cultural literacy with the discipline's unique attention to the analysis of moving-image media. Students emerge with a greater degree of visual literacy at a time when our culture is becoming increasingly dependent upon visual communication. Graduates have

pursued careers in film and related areas of the entertainment industry, journalism, art education, and writing.

## Major Program Requirements

Film Studies majors must complete 30 credits in film studies, with a grade of C- or above in every course. A minor is recommended. At least 15 hours in the major must be in courses at the 3000 level or above. Students must also complete College of Arts and Sciences and University requirements (p. 35), including University general education (p. 36) requirements. No more than 40 credits in Film Studies may be counted toward graduation.

The 30 hours of Film Studies courses for the major must meet the following requirements:

### Major core requirements

<b>UNIT I:</b>		
FILMS_VS 1800	Introduction to Film Studies	3

<b>UNIT II:</b>		
FILMS_VS 2820	Trends in World Cinema	3

Select one of the following:		3
FILMS_VS 2830	American Film History I, 1895-1950	
FILMS_VS 2840	American Film History II, 1950-Present	

<b>UNIT III:</b>		
Electives		18

At least six of the elective hours must come from one of the following national cinema courses:

FILMS_VS 2850	Italian Cinema	
FILMS_VS 2865	The Art of Soviet and Russian Cinema	
FILMS_VS 3490	Indian Cinema	
FILMS_VS 3830	History of German Film	
FILMS_VS 3845	Modern Israeli Film	
FILMS_VS 3875	Brazilian Cinema	
FILMS_VS 3880	Contemporary Chinese Film	
FILMS_VS 3885	Twenty-First Century South American Cinema	
FILMS_VS 4963	Latin American Cinema (in Spanish)	

At least six of the elective hours must come from one of the following courses on theory and method:

FILMS_VS 2010	The Philosophy of Film	
FILMS_VS 2860	Film Themes and Genres	
FILMS_VS 3775	The Ancient World on Film	
FILMS_VS 3780	Architecture in Film	
FILMS_VS 3785	Art and Artists on Film	
FILMS_VS 3820	Major Directors	
FILMS_VS 3850	Studies in Film History	
FILMS_VS 3855	Documentary Film	
FILMS_VS 3861	Film Themes and Genres	
FILMS_VS 3865	The Holocaust on Screen	
FILMS_VS 4370	Film Studies: The Intersection of Documentary Film and Journalism	
FILMS_VS 4810	Film Theory	
FILMS_VS 4840	Culture and Media	
FILMS_VS 4860	Film Themes and Genres	
FILMS_VS 4935	Adaptation of Literature for Film	

<b>UNIT IV:</b>		
Select one of the following:		3
FILMS_VS 4880	Capstone Experience	

One 4000-level FILM S course of at least 3 credits

Total Credits 30

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available

First Year			
Fall	CR	Spring	CR
FILMS_VS 1800		3 FILMS_VS 2840	3
ENGLSH 1000		3 Foreign Language	5
Social Science (MO State Law)		3 MATH 1100	3
Foreign Language		5 General Elective	3
		14	14

Second Year			
Fall	CR	Spring	CR
FILMS_VS 2820		3 FILM_S 2000+ (National Cinema Course)	3
Science with a Lab		5 Minor Course	3
Foreign Language		3 Humanities/Fine Arts (Writing Intensive)	3
Behavioral Science		3 Behavioral Science	3
Social Science		3 Science Course	3
		17	15

Third Year			
Fall	CR	Spring	CR
FILM_S 2000+ (Theory and Methods Course)		3 FILM_S 3000+ (Elective)	3
FILM_S 3000+ (National Cinema Course)		3 Minor Course	3
Minor Course		3 Humanities/Fine Arts	3
Humanities/Fine Arts		3 Social Science Course	3
Science Course (Math Reasoning Proficiency)		3 General Elective Course	3
		15	15

Fourth Year			
Fall	CR	Spring	CR
FILM_S 3000+ (Theory and Methods Course)		3 FILM_S 4000 Level (Capstone)	3
FILM_S 3000+ (Elective)		3 Minor Course	3
Minor Course		3 Humanities/Fine Arts	3
Writing Intensive Course 3000+		3 General Elective Course	3
General Elective Course		3 General Elective Course	3
		15	15

Total Credits: 120

## BA in Film Studies with Emphasis in Film Production

### Degree Program Description

The Film Studies program provides guidance to our students from accomplished research and film production faculty, real world experience through hands-on internship practicums, and opportunities for success beyond the program for our graduates.

The BA in Film Studies with Emphasis in Production offers an immersive curriculum in film production, spanning from screenwriting and cinematography to audio engineering and field production. The program combines rigorous technical instruction with aesthetic, historical, and theoretical topics that inspire students to find innovative ways to express themselves through film. Working with established filmmakers, media artists and scholars, our film production students develop their own personal craft and vision as a filmmaker. At each stage of the curriculum students exercise and demonstrate their skills and creativity through class projects. This learning process culminates in the senior film project that serves as the central piece of the graduate's professional portfolio.

Film Studies graduates have the ability to pursue careers in a wide range of professions. Common areas of employment are in arts and entertainment, broadcasting, and media and film production. For those who seek a career in the TV/motion picture and digital media industries, the BA in Film Studies qualifies them for many and various jobs, including producer, cinematographer, director, editor, actor/actress, writer, or technician for visual effects, lighting, sound or special effects.

## Major Program Requirements

In addition to the program degree requirements, students must complete all College of Arts and Science and University graduation requirements (p. 35), including University general education (p. 36).

### Film Studies Core I

Students must take 6 credit hours		
FILMS_VS 1800	Introduction to Film Studies	3
FILMS_VS 1880	Introduction to Digital Media Production	3

### Film Studies Core II

Student must take 6 credit hours		
Students must take one of the following courses		
FILMS_VS 2820	Trends in World Cinema	3
FILMS_VS 2830	American Film History I, 1895-1950	3
FILMS_VS 2840	American Film History II, 1950-Present	3

Students must take one National Cinema or Theory course

### Production Core I

Students must take 9 credit hours		
FILMS_VS 3520	Post Production	3
FILMS_VS 3540	Cinematography I	3
FILMS_VS 3550	Field Production I	3

### Production Core II

Students must take 6 credit hours		
FILMS_VS 4540	Cinematography II	4
FILMS_VS 4560	Field Production II	3

or

FILMS_VS 4880	Capstone Experience	3
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### Production Electives

Students must take 6 credit hours		
FILMS_VS 2530	Screenwriting I	3
FILMS_VS 3555	Directing for the Screen	3
FILMS_VS 3560	Audio Engineering for the Screen	3
FILMS_VS 3930	Screenwriting for Television and Film	3
FILMS_VS 4580	Production Practicum	3
FILMS_VS 4940	Internship	1-3
DST_VS 2880	Digital Storytelling Production I	3
DST_VS 2885	Digital Storytelling Animation Production I	3

## Semester Plan

First Year			
Fall	CR	Spring	CR
FILMS_VS 1800		3 FILMS_VS 1880	3
ENGLSH 1000		3 MATH 1100	3
Social Science (MO State Law)		3 Foreign Language	5
Foreign Language		5 DST_VS 2005	3
		Humanities/Fine Arts	3
			17
			14

Second Year			
Fall	CR	Spring	CR
FILMS_VS 3540		3 FILMS_VS 3520	3
Science with Lab		5 FILMS_VS 2820	3
Foreign Language		3 Humanities/Fine Arts (Writing Intensive)	3
Behavioral Science Course		3 Behavioral Science course	3
Social Science Course		3 Science course	3
			15
			17

Third Year			
Fall	CR	Spring	CR
FILMS_VS 3550		3 FILMS_VS 4540	4
FILMS_VS 2530		3 FILMS_VS 3861	3
Minor course		3 Minor course	3
Humanities/Fine Arts course		3 Humanities/Fine Arts course	3
Science course (Math Reasoning Proficiency)		3 General Elective course	3
			15
			16

Fourth Year			
Fall	CR	Spring	CR
FILMS_VS 3560		3 FILMS_VS 4560	3
Minor course		3 Minor course	3
Minor course		3 General Elective course	3
Social Science course		3 General Elective courseae	3
Writing Intensive course 3000+		3 General Elective course	3
			15
			15

Total Credits: 124

## Minor in Film Studies

### Requirements

To earn a minor in Film Studies, students must earn 15 credits in film studies. Required courses include FILMS\_VS 1800, and either FILMS\_VS 2830 or FILMS\_VS 2840. At least two courses must be at the 3000 level or above. The minor is a flexible and varied program that can be tailored to individual students needs.

### Contact

Students wishing to minor in film studies should consult with Film Studies Academic Advisor Nadia Irsheidat (IrsheidatN@missouri.edu).

## General Studies

Office of Multidisciplinary Degrees  
College of Arts and Science  
326H Strickland Hall

omd.missouri.edu (<https://omd.missouri.edu/>)

## Faculty

**Faculty members are housed in departments and schools throughout the University of Missouri.**

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BGS in General Studies (p. 203)

The Bachelor of General Studies (BGS) is designed for students who want a multidisciplinary major to meet educational and career objectives. Students who pursue the BGS need a high degree of motivation and independence. The BGS degree is intended for students pursuing a first bachelor's degree and will not be approved as a second bachelor's degree.

The BGS degree requires a minimum of 120 credit hours with a minimum of 30 credit hours numbered 3000 or above. Students meet with the academic advisor to create a graduation plan after completing 60 credit hours, MATH 1100 or an equivalent with a C- grade or higher, ENGLISH 1000 with a C- grade or higher and maintaining a 2.0 cumulative GPA.

BGS students are required to complete 12 credit hours as declared BGS majors and this may include credit for the semester in which the student declares the BGS major. In exceptional circumstances (and in most cases, only following an absence from MU of 4 or more years), students who need fewer than 12 credit hours to complete all their BGS, A&S and MU requirements must take a minimum of 6 credit hours with at least 3 credit hours at the 3000-level or higher after declaring the BGS major.

## Graduate

While the College of Arts & Science does not offer a graduate degree in general studies, the College does offer graduate degrees, certificates and minors in a number of multidisciplinary areas. The catalog provides a complete list of these degree options (p. 20) for all Schools and Colleges at the University of Missouri.

## BGS in General Studies

### Degree Program Description

The Bachelor of General Studies (BGS) is designed for students who want a multidisciplinary major to meet educational and career objectives. Students who pursue the BGS need a high degree of motivation and independence. Students design their curriculum across three main components. Components may be made up of courses from a single department or from a single theme. These degree requirements allow students to build an individualized major that reflects their personal academic interests. Careers options are as varied as the combination of curricula.

## Major Program Requirements

Students must complete the Department Requirements (p. 203) as well as those required for the degree listed below:

The BGS major requires 45 credit hours, including a capstone. These 45 credit hours are evenly distributed among three areas of study called components. A component may be made up of courses from a single department or may be made up of courses from multiple departments that relate thematically. Component courses may be selected from any department or program at MU (if the department permits), but at least 18 credit hours must be made of courses from an A&S department. Of the 15 credit hours required for each component, 6 credit hours in each of the components must be numbered 3000 or higher. Students must maintain a GPA of 2.0 in each component area and grades of D are not acceptable. A student may include one component made entirely of transfer coursework if the other two components each contain 9 credit hours of coursework numbered 3000 or above. BGS students are required to include a minimum of 12 credit hours of MU coursework numbered 2000 level or above in their three components. A student who has earned a degree in General Studies may not pursue a second degree in a field that was used as a component of the first degree.

- 30 of the last 36 hours a student completes must be taken at MU.
- In order to graduate, students must have the following GPAs:
  - 2.0 cumulative GPA (the GPA for all coursework taken at MU)
  - 2.0 major GPA (the GPA for all courses taken to fulfill requirements in the major)
  - 2.0 minor GPA (the GPA for all courses taken to fulfill requirements for a minor)
- A maximum of 6 hours of Internship may apply to graduation.
- A maximum of 12 hours of Internship, Readings and/or Special Problems may apply to graduation.
- A minimum of 12 hours of coursework must be satisfactorily completed after declaring the General Studies major. For **currently enrolled** students, this may include credit earned during the semester in which the student declares the BGS major. For students who have been **absent from MU for four or more consecutive years**, and who need fewer than 12 credit hours to complete the BGS, A&S and MU degree requirements, a minimum of 6 hours of coursework, including 3 hours at the 3000 or higher level, must be satisfactorily completed after declaring the General Studies major. The minimum must allow the student to meet any System or Campus residency requirements.

In addition, students must complete all College of Arts and Science and University graduation requirements (p. 35), including University general education (p. 36).

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
ENGLISH 1000		3 MATH 1050, 1100, or STAT 1200	3
Behavioral Science 1000+		3 Science 1000+	3
Social Science (MO STATE LAW) 1000+		3 Behavioral & Social Sciences 1000+	3

Humanities or Fine Arts 1000+	3 Humanities & Fine Arts 1000+	3
BGS Component #1 1000+	3 BGS Component #2 1000+	3
		15

Second Year			
Fall	CR	Spring	CR
Science with a lab 1000+		3-5 A&S Diversity Requirement	3
Writing Intensive I 1000+		3 Behavioral & Social Sciences 2000+	3
Humanities & Fine Arts 2000+		3 BGS Component #1 2000+	3
BGS Component #3 1000+		3 BGS Component #2 2000+	3
		BGS Component #3 2000+	3
		12-14	15

Third Year			
Fall	CR	Spring	CR
Any Arts & Science 2000+		3 BGS Component #1 3000+	3
BGS Component #1 3000+		3 BGS Component #2 3000+	3
BGS Component #2 3000+		3 BGS Component #3 3000+	3
BGS Component #3 3000+		3 Writing Intensive II 3000+	3
General Elective or Minor 1000+		3 General Elective or Minor 2000+	3
		15	15

Fourth Year			
Fall	CR	Spring	CR
BGS Component #1 4000+ CAPSTONE		3 General Elective or Minor 1000+	3
BGS Component #2 3000+		3 General Elective or Minor 1000+	3
BGS Component #3 3000+		3 General Elective or Minor 1000+	3
General Elective or Minor 1000+		3 General Elective or Minor 1000+	3
General Elective or Minor 1000+		3 General Elective or Minor 1000+	3
General Elective or Minor 1000+	2-3		
		17-18	15

Total Credits: 119-122

## Geography

Soren Larsen, Chair  
 College of Arts and Science  
 202 Stewart Hall  
 (573) 882-9613  
 geog@missouri.edu

### Faculty

- Professor** S. C. Larsen\*
- Associate Professor** M. W. Foulkes\*, T. Matisziw\*, M. Palmer,\* M. A. Urban\*, G. Elliott\*
- Assistant Professor**
- Assistant Teaching Professor** C. Blodgett\*, D. Hurt\*
- Instructor** T. Vought
- Professor Emeritus** J. J. Hobbs\*, C. L. Salter\*
- Associate Professor Emeritus** G. S. Ludwig\*, W. A. Noble, W. A. Schroeder\*
- Adjunct Professor** C. H. Davis\*, R. Scott\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BA in Geography (p. 205)
  - with emphasis in General Geography (p. 206)
  - with emphasis in Geographic Information Sciences (p. 207)
  - with emphasis in Physical/Environmental (p. 208)
  - with emphasis in Regional/Cultural (p. 209)
- Minor in Geography (p. 210)
- Certificate in Geographical Information Science - Interdisciplinary (p. 210)

The Department of Geography has established the following goals for the Bachelor of Arts with a major in Geography:

- Teach students to think spatially and develop problem solving skills
- Provide an intellectual focus for students seeking a broadly based liberal arts education
- Acquaint students with past and present patterns of landscape development and instill concern for intelligent management of earth's biophysical resources
- Expose students to contemporary issues of geopolitical and international significance and their role in such problems
- Provide the skills and expertise necessary to master the application of geographic information technologies and analysis of spatial data
- Prepare motivated students for career development and graduate study

Four different emphasis areas allow students to further focus the undergraduate degree program on their own personal interests in geography.

1. Human-Regional-cultural geography helps students develop a fuller sense of geographic analysis and better understanding of the human and physical characteristics of major regions and settlement patterns of the world.
2. Physical-environmental systems emphasize the complex interactions between biophysical systems and human behavior in the areas of geomorphology and biogeography, as well as our role in managing applied environmental problems.
3. Geographic information sciences addresses the variety of technologies revolutionizing geographic analysis such as GIS, GPS, remote sensing, computer assisted cartography and spatial statistics.
4. General geography is designed for the student with broad interests in geography that overlap with other emphasis areas.

For students planning to end their formal education with the bachelor's degree, a geography major provides marketable skills and the broad perspectives on environment, society and international affairs that enable graduates to move beyond entry-level positions. Geography also provides a sound foundation for students who plan to enter graduate work in a variety of fields, from geography to business, land use planning, law and medicine. Although positions are not often designated with the title of geographer, geography graduates' employment has grown substantially in private enterprise and in all levels of government in recent years.

The Department offers BA and MA degrees with majors in geography as well as undergraduate and graduate certificates in Geographic Information Science and Geospatial Intelligence. Two minors are also available.

## Departmental Honors

The geography honors program requires independent research during the senior year, usually under GEOG 4996H or GEOG 4997H . Consult the geography honors director for further information.

## Graduate

- MA in Geography (p. 210)
- Graduate Certificate in Geographical Information Science - Interdisciplinary (p. 211)

College of Arts and Sciences  
202 Stewart Hall  
(573) 882-8370  
<https://geography.missouri.edu/>

**Director of Graduate Studies:** Matthew Foulkes

## About Geography

The Department of Geography offers a Master of Arts degree that prepares students for a variety of professions, including careers in academics, research, public service, and the private sector. The MA program has a high success rate of preparing students for doctoral study in top-tier geography departments across the United States.

A primary strength of the department is the blending of major research facilities and opportunities with individual student-faculty interaction to build a strong sense of community. Students interested in questions of human geography, the physical environment, or geographic information sciences will find that the department has facilities and faculty expertise to build a successful plan of study.

Core areas of study in the department include human geography, nature/society relationships, physical-environmental systems, and application of geographic information sciences. The faculty has an active program of research and field work in North America, Middle America, the Middle East and Southeast Asia. They pride themselves on a creative instructional and interdisciplinary pattern of activity. The department emphasizes close contact between faculty and graduate students.

Individualized graduate programs allow latitude in areas of specialization such as regional, cultural, and physical geography, as well as geographic information sciences, remote sensing, environmental studies and geographic education. Strong collateral course work in such fields as anthropology, soil and atmospheric science, economics, geology, political science, forestry, computer science and history meets the special interests of many graduate students.

## Facilities and Resources

An exceptional departmental collection of reference materials, including maps, journals and books, is available to graduate students in the department's Wheeler Library and Seminar Room. The holdings of Ellis Library in geography and related fields are extensive and MU's computer facilities are readily available. In addition, the department is home to the Geographic Resources Center (GRC), the Missouri Spatial Data Information Service and the Spatial Analysis and Modeling teaching laboratory. These facilities serve as an interdisciplinary center for GIS,

remote sensing, cartography, computer graphics and digital spatial databases of enormous variety.

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details. In Geography, a total of approximately 6 graduate teaching and research assistantships are awarded on a competitive basis annually. Applicants desiring consideration for one of these positions should indicate this in their application to the department.

## BA in Geography

### Degree Program Description

Geographers are interested in a wide range of topics and often work in interdisciplinary teams that analyze challenges like environmental change, resource use, and economic issues in an increasingly interdependent world. Geography majors receive marketable skills during their undergraduate experience. All majors must select one of the four emphasis areas: General Geography, Geographic Information Sciences, Physical/Environmental, Regional/Cultural, or Urban/Population. Geography prepares students for a variety of professions including careers in environmental impact assessment, mapping, remote sensing, geographic information analysis, government service, military intelligence, as well as education.

### Major Program Requirements

Students majoring in geography are required to take a total of 33 credits in geography and 3 in statistics. The geography major consists of 21 core credits and at least 15 credits in one of the four geography emphasis areas. In addition, students must complete all degree, College of Arts and Sciences and University requirements (p. 35) including University general education (p. 36).

### Major core requirements

GEOG 1100	Regions and Nations of the World I	3
or GEOG 1200	Regions and Nations of the World II	
GEOG 1550	Introduction to the Humanized Earth	3
GEOG 1800	Digital Earth: Introduction to the Geospatial Technologies	3
GEOG 2610	Climate, Landforms and Vegetation: Introduction to Physical Geography	3
GEOG 3840	Cartography	3
or GEOG 3040	Introduction to Geographic Information Systems GIS	
GEOG 4990	Senior Seminar in Geography	3
Statistics: Select one of the following		3
STAT 1200	Introductory Statistical Reasoning	
STAT 1300	Elementary Statistics	
Or Higher		
Total Credits		21

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
ENGLISH 1000*		3 MATH 1100*	3
GEOG 1100*		4 GEOG 2610^	3
GEOG 1100^		3 Foreign Language*	5-6
Foreign Language*		5-6 Elective/minor course	3
		15-16	14-15

Second Year			
Fall	CR	Spring	CR
Foreign Language*		3 Behavioral Science Course*	3
Social Science Course (MO State Law)		3 Behavioral Science Course*	3
Elective/Minor Course		3 Writing Intensive Course*	3
GEOG 1800		3 GEOG 1550	3
3000+ level Geog emphasis course		3 GEOG 3840 or 3040^	3
		15	15

Third Year			
Fall	CR	Spring	CR
Biological/Physical Science Course*		3 Humanities/Fine Arts Course*	3
Social Science Course (2000+)		3 3000+ level Geog emphasis course	3
3000+ level Geog emphasis course		3 Social Science Course (2000+)*	3
3000+ level Geog emphasis course		3 Humanities/Fine Arts Course (2000+)*	3
Social Science Course*		3 Biological/Physical Science Course with Lab	3-5
		Elective/Minor Course (3000+)	
		15	15-17

Fourth Year			
Fall	CR	Spring	CR
Humanities/Fine Arts Course*		3 GEOG 4990^	3
STAT 1200 or 1300		3 3000+ level Geog emphasis course	3
3000+ level Geog emphasis course		3 Elective/Minor Course	3
Elective/Minor Course (3000+)		3 Humanities/Fine Arts Course (2000+)*	3
Elective/Minor Course		3 Elective/Minor Course (3000+)	3
		15	15

Total Credits: 119-123

**Requires 120 credits for graduation.**

- \* Denotes General Education and A&S Foundation Requirements
- ^ Denotes Degree Program Requirements
- ~ Denotes Emphasis Area Requirements

## BA in Geography with Emphasis in General Geography

### Degree Program Description

Geographers are interested in a wide range of topics and often work in interdisciplinary teams that analyze challenges like environmental change, resource use, and economic issues in an increasingly

interdependent world. Students who select the general geography track plan their own upper-division coursework in order to receive a very broadly-structured education, typically selecting courses from all three of the GIS, physical geography, and human geography emphasis areas. Geography prepares students for a variety of professions including careers in environmental impact assessment, mapping, remote sensing, geographic information analysis, government service, military intelligence, as well as education. Geographers are interested in a wide range of topics and often work in interdisciplinary teams that analyze challenges like environmental change, resource use, and economic issues in an increasingly interdependent world. Geography majors receive marketable skills during their undergraduate experience. Recent graduates work for companies such as ESRI and Garmin. MU geography graduates have also found employment with government agencies, including the National Park Service, National Geospatial-Intelligence Agency, U.S. Geological Survey, Missouri Department of Natural Resources, and Missouri Department of Transportation.

### Major Program Requirements

This area is designed for students with a broad interest in geographical studies. Due to the general nature of this emphasis area, students must develop in consultation with their advisor a personal plan of study outlining specific goals and course requirements. Five geography courses are required, four of those at the 3000-level or higher.

In addition, students must complete all College of Arts and Science and University graduation requirements (p. 35), including University general education (p. 36).

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
ENGLISH 1000*		3 MATH 1100*	3
GEOG 1100*		4 GEOG 2610	3
GEOG 1100		3 (Foreign Language)^*	5-6
(Foreign Language)^*		5-6 Elective/minor course	3
		15-16	14-15

Second Year			
Fall	CR	Spring	CR
Foreign Language*		3 Behavioral Science Course*	3
Social Science Course (MO State Law)*		3 Behavioral Science Course*	3
Elective/Minor Course		3 Writing Intensive Course*	3
GEOG 1800		3 GEOG 1550	3
3000+ level Geog emphasis course		3 GEOG 3840 or 3040	3
		15	15

Third Year			
Fall	CR	Spring	CR
(Biological/Physical Science Course)^*		3 Humanities/Fine Arts Course*	3
Social Science Course (2000+)		3 3000+ level Geog emphasis course	3
3000+ level Geog emphasis course		3 Social Science Course (2000+)*	3

3000+ level Geog emphasis course	3 Humanities/Fine Arts Course (2000+)*	3
Social Science Course*	3 Biological/Physical Science Course with Lab	3-5
	Elective/Minor Course (3000+)	
15		15-17

Fourth Year			
Fall	CR	Spring	CR
Humanities/Fine Arts Course*		3 GEOG 4990	3
STAT 1200 or 1300		3 (3000+ level Geog emphasis course)^	3
3000+ level Geog emphasis course		3 Elective/Minor Course	3
Elective/Minor Course (3000+)		3 Humanities/Fine Arts Course (2000+)*	3
Elective/Minor Course		3 Elective/Minor Course (3000+)	3
15		15	

Total Credits: 119-123

**Requires 120 credits for graduation.**

- \* Denotes General Education and A&S Foundation Requirements
- ^ Denotes Degree Program Requirements
- ~ Denotes Emphasis Area Requirements

# BA in Geography with Emphasis in Geographic Information Sciences

## Degree Program Description

Geographers are interested in a wide range of topics and often work in interdisciplinary teams that analyze challenges like environmental change, resource use, and economic issues in an increasingly interdependent world. The study of Geographic Information Systems trains students to address the variety of technologies revolutionizing geographic analysis such as GIS, Global Positioning Systems, remote sensing, computer assisted cartography and spatial statistics. Geography prepares students for a variety of professions including careers in environmental impact assessment, mapping, remote sensing, geographic information analysis, government service, military intelligence, as well as education. Geographers are interested in a wide range of topics and often work in interdisciplinary teams that analyze challenges like environmental change, resource use, and economic issues in an increasingly interdependent world. Geography majors receive marketable skills during their undergraduate experience. Recent graduates work for companies such as ESRI and Garmin. MU geography graduates have also found employment with government agencies, including the National Park Service, National Geospatial-Intelligence Agency, U.S. Geological Survey, Missouri Department of Natural Resources, and Missouri Department of Transportation.

## Major Program Requirements

The study of GIS prepares students to address the variety of technologies revolutionizing geographic analysis such as GIS, Global Positioning Systems, remote sensing, computer assisted cartography and spatial statistics. Students are required to take three courses (normally

nine hours) in the emphasis. Two additional courses (six additional hours) are selected from a secondary emphasis area.

In addition, students must complete all College of Arts and Science and University graduation requirements (p. 35), including University general education (p. 36).

GEOG 3040	Introduction to Geographic Information Systems GIS	3
GEOG 3830	Remote Sensing	3
GEOG 4130	The Geospatial Sciences in National Security	3
GEOG 4710	Spatial Analysis in Geography	3
GEOG 4740	Location Analysis and Site Selection	3
GEOG 4790	Geographic Information Systems for the Social Sciences	3
GEOG 4810	Landscape Ecology and GIS Analysis I	3
GEOG 4860	Advanced Remote Sensing	3
GEOG 4940	Advanced Geographic Information Systems (GIS II)	3

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
ENGLISH 1000*		3 MATH 1100*	3
GEOG 1100*		4 GEOG 2610	3
GEOG 1100		3 (Foreign Language)* ^	5-6
(Foreign Language)* ^		5-6 Elective/minor course	3
15-16		14-15	

Second Year			
Fall	CR	Spring	CR
Foreign Language*		3 Behavioral Science Course*	3
Social Science Course (MO State Law)^		3 Behavioral Science Course*	3
Elective/Minor Course		3 Writing Intensive Course*	3
GEOG 1800		3 GEOG 1550	3
3000+ level Geog emphasis course		3 GEOG 3840 or 3040	3
15		15	

Third Year			
Fall	CR	Spring	CR
(Biological/Physical Science Course)* ^		3 Humanities/Fine Arts Course*	3
Social Science Course (2000+)		3 3000+ level Geog emphasis course	3
3000+ level Geog emphasis course		3 Social Science Course (2000+)*	3
3000+ level Geog emphasis course		3 Humanities/Fine Arts Course (2000+)*	3
Social Science Course*		3 Biological/Physical Science Course with Lab	3-5
		Elective/Minor Course (3000+)	
15		15-17	



Fourth Year			
Fall	CR	Spring	CR
Humanities/Fine Arts Course*		3 GEOG 4990	3
STAT 1200 or 1300		3 3000+ level Geog emphasis course <sup>^</sup>	3
3000+ level Geog emphasis course		3 Elective/Minor Course	3
Elective/Minor Course (3000+)		3 Humanities/Fine Arts Course (2000+) <sup>^</sup>	3
Elective/Minor Course		3 Elective/Minor Course (3000+)	3
		15	15

Total Credits: 119-123

**Requires 120 credits for graduation.**

- \* Denotes General Education and A&S Foundation Requirements
- <sup>^</sup> Denotes Degree Program Requirements
- ~ Denotes Emphasis Area Requirements

## BA in Geography with Emphasis in Physical/ Environmental

### Degree Program Description

Geographers are interested in a wide range of topics and often work in interdisciplinary teams that analyze challenges like environmental change, resource use, and economic issues in an increasingly interdependent world. Physical and environmental geography emphasizes the complex interactions between the natural world and human behavior. Students learn to identify, delineate and manage a range of environmental problems facing society from climate and vegetation change to river management. Geography prepares students for a variety of professions including careers in environmental impact assessment, mapping, remote sensing, geographic information analysis, government service, military intelligence, as well as education. Geographers are interested in a wide range of topics and often work in interdisciplinary teams that analyze challenges like environmental change, resource use, and economic issues in an increasingly interdependent world. Geography majors receive marketable skills during their undergraduate experience. Recent graduates work for companies such as ESRI and Garmin. MU geography graduates have also found employment with government agencies, including the National Park Service, National Geospatial-Intelligence Agency, U.S. Geological Survey, Missouri Department of Natural Resources, and Missouri Department of Transportation.

### Major Program Requirements

Physical and environmental geography emphasizes the complex interactions between the natural world and human behavior. Students learn to identify, delineate, and manage a range of environmental problems facing society from climate and vegetation change to river management. Students are required to take three courses (normally nine hours) in the emphasis. Two additional courses (six additional hours) are selected from a secondary emphasis area.

In addition, students must complete all College of Arts and Science and University graduation requirements (p. 35), including University general education (p. 36).

GEOG 3600	Climates of the World	3
GEOG 3610	Physical Geography of the United States	3
GEOG 3630	Earth Surface Systems	3
GEOG 4620	Biogeography: Global Patterns of Life	3
GEOG 4810	Landscape Ecology and GIS Analysis I	3

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
ENGLISH 1000*		3 MATH 1100*	3
GEOG 1100		4 GEOG 2610	3
(Foreign Language) <sup>^</sup>		3 (Foreign Language) <sup>^</sup>	5-6
		5-6 Elective/minor course	3
		15-16	14-15

Second Year			
Fall	CR	Spring	CR
Foreign Language*		3 Behavioral Science Course*	3
Social Science Course (MO State Law)*		3 Behavioral Science Course*	3
Elective/Minor Course		3 Writing Intensive Course*	3
GEOG 1800		3 GEOG 1550	3
3000+ level Geog emphasis course		3 GEOG 3840 or 3040	3
		15	15

Third Year			
Fall	CR	Spring	CR
(Biological/Physical Science Course) <sup>^</sup>		3 Humanities/Fine Arts Course*	3
Social Science Course (2000+)		3 3000+ level Geog emphasis course	3
3000+ level Geog emphasis course		3 Social Science Course (2000+) <sup>^</sup>	3
3000+ level Geog emphasis course		3 Humanities/Fine Arts Course (2000+)	3
Social Science Course*		3 Biological/Physical Science Course with Lab	3-5
		Elective/Minor Course (3000+)	
		15	15-17

Fourth Year			
Fall	CR	Spring	CR
Humanities/Fine Arts Course*		3 GEOG 4990	3
STAT 1200 or 1300		3 (3000+ level Geog emphasis course) <sup>^</sup>	3
3000+ level Geog emphasis course		3 Elective/Minor Course	3
Elective/Minor Course (3000+)		3 Humanities/Fine Arts Course (2000+) <sup>^</sup>	3
Elective/Minor Course		3 Elective/Minor Course (3000+)	3
		15	15

Total Credits: 119-123

**Requires 120 credits for graduation.**

- \* Denotes General Education and A&S Foundation Requirements
- ^ Denotes Degree Program Requirements
- ~ Denotes Emphasis Area Requirements

## BA in Geography with Emphasis in Regional/ Cultural

### Degree Program Descriptions

Geographers are interested in a wide range of topics and often work in interdisciplinary teams that analyze challenges like environmental change, resource use, and economic issues in an increasingly interdependent world. Students studying human geography are trained to understand and analyze the social and cultural elements which generate regional differences. Assessing population patterns, political activity, urban planning, and linguistic distributions are included in this area. Geography prepares students for a variety of professions including careers in environmental impact assessment, mapping, remote sensing, geographic information analysis, government service, military intelligence, as well as education. Geographers are interested in a wide range of topics and often work in interdisciplinary teams that analyze challenges like environmental change, resource use, and economic issues in an increasingly interdependent world. Geography majors receive marketable skills during their undergraduate experience. Recent graduates work for companies such as ESRI and Garmin. MU geography graduates have also found employment with government agencies, including the National Park Service, National Geospatial-Intelligence Agency, U.S. Geological Survey, Missouri Department of Natural Resources, and Missouri Department of Transportation.

### Major Program Requirements

Students studying human geography are trained to understand and analyze the social and cultural elements which generate regional differences. Assessing population patterns, political activity, urban planning, and linguistic distributions are included in this area. Students are required to take three courses (normally nine hours) in the emphasis.

Two additional courses (six additional hours) are selected from a secondary emphasis area.

In addition, students must complete all College of Arts and Science and University graduation requirements (p. 35), including University general education (p. 36).

GEOG 3140	Mexico, Central America, and the Caribbean	3
GEOG 3270	Geography of the Middle East	3
GEOG 3510	Historical Geography of North America	3
GEOG 3560	Native American Geographies	3
GEOG 3760	Geography of the World's Religions	3
GEOG 3780	World Political Geography: Patterns and Processes	3
GEOG 3800	Geography of Travel and Tourism	3
GEOG 4560	Resources and Indigenous Peoples	3
GEOG 4770	Migration and Immigration	3
GEOG 4850	Transportation Geography	3

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
ENGLISH 1000*		3 MATH 1100*	3
GEOG 1100*		4 GEOG 2610	3
GEOG 1100		3 (Foreign Language)* ^	5-6
(Foreign Language)* ^		5-6 Elective/minor course	3
			14-15
			15-16

Second Year			
Fall	CR	Spring	CR
Foreign Language*		3 Behavioral Science Course*	3
Social Science Course (MO State Law)*		3 Behavioral Science Course*	3
Elective/Minor Course		3 Writing Intensive Course*	3
GEOG 1800		3 GEOG 1550	3
3000+ level Geog emphasis course		3 GEOG 3840 or 3040	3
			15
			15

Third Year			
Fall	CR	Spring	CR
(Biological/Physical Science Course)* ^		3 Humanities/Fine Arts Course*	3
Social Science Course (2000+)		3 3000+ level Geog emphasis course	3
3000+ level Geog emphasis course		3 Social Science Course (2000+)*	3
3000+ level Geog emphasis course		3 Humanities/Fine Arts Course (2000+)*	3
Social Science Course*		3 Biological/Physical Science Course with Lab	3-5
			Elective/Minor Course (3000+)
			15
			15-17

Fourth Year			
Fall	CR	Spring	CR
Humanities/Fine Arts Course*		3 GEOG 4990	3
STAT 1200 or 1300		3 (3000+ level Geog emphasis course)* ^	3
3000+ level Geog emphasis course		3 Elective/Minor Course	3
Elective/Minor Course (3000+)		3 Humanities/Fine Arts Course (2000+)*	3
Elective/Minor Course		3 Elective/Minor Course (3000+)	3
			15
			15

Total Credits: 119-123

**Requires 120 credits for graduation.**

- \* Denotes General Education and A&S Foundation Requirements
- ^ Denotes Degree Program Requirements
- ~ Denotes Emphasis Area Requirements

## Minor in Geography

### Requirements

Fifteen credits are required for a minor in geography, nine of them numbered 2000 and above.

## Certificate in Geographical Information Science - Interdisciplinary

This certificate is designed to provide students with the theoretical, practical and technical skills that are essential for the analysis of spatial data. Students from a wide range of disciplines will benefit by becoming proficient in the use and application of GIS technologies through a flexible set of courses and hands-on experiences. The program offers the training and experience necessary to prepare for the rapidly expanding professional opportunities available in the diverse set of fields that depend on geographic information.

### Requirements

A student must complete a minimum of 15 hours of approved coursework, and must earn a grade average of at least B (3.0) in these courses.

#### Group A (Foundation courses, one from this group)

GEOG 3040	Introduction to Geographic Information Systems GIS
NAT_R 2325	Introduction to Geographic Information Systems

#### Group B (Theoretical Breadth courses, at least one from this group)

GEOG 4710	Spatial Analysis in Geography
FOREST 4360	Photogrammetry, Inventory and Models
GEOG 4810/ NAT_R 4385	Landscape Ecology and GIS Analysis I
GEOG 3840	Cartography
GEOG 3830	Remote Sensing
GEOG 4740	Location Analysis and Site Selection
GEOG 4790	Geographic Information Systems for the Social Sciences

#### Group C (Technical Breadth and Application courses, at least one from this group)

GEOG 4940	Advanced Geographic Information Systems (GIS II)
BIOL_EN 4350/ CV_ENG 4720	Watershed Modeling Using GIS
NAT_R 4365	GIS Applications
GEOG 4130	The Geospatial Sciences in National Security
GEOG 4850	Transportation Geography
GEOG 4860	Advanced Remote Sensing
ATM_SC 4510	Remote Sensing for Meteorology and Natural Resources

Capstone experience (or substitute 1 additional course from above)

GEOG 3385	Special Problems in Geography
NAT_R 4001	Topics in Natural Resources

## MA in Geography

### Degree Requirements

The Master of Arts degree requires completion of 32 semester hours of course work. Two research options are available: a thesis and a non-thesis option. The non-thesis option requires the completion of a research paper. 15 or more of the 32 hours must be in courses at the 8000 level.

Candidates must complete a minimum of 22 hours of graduate credit in courses offered by the Department of Geography numbered 7000 or higher. Non-thesis candidates may apply a maximum of six (6) credit hours in GEOG 8080 to their degree requirements; thesis students must take a minimum of six (6) GEOG 8090 research hours, with not more than nine (9) hours applied to degree requirements.

Every student must take GEOG 8750 and GEOG 8760, 6 additional hours of seminar-structured course work and 6 hours of course work in geographic methods.

A student's specific program of courses is selected jointly by the student and the graduate advisor, designated during the first semester in residence. All students of either option must pass a comprehensive oral examination at the end of their graduate work.

### Admission Criteria

Fall deadline: January 15 (for students who wish to be considered for funding)

- Minimum GPA: 3.0
- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
61 Effective July 1, 2015 must have score of 80	500 Effective July 1, 2015 must have score of 550

Preparation for graduate work in geography should include undergraduate courses in geography. Upon consultation with their advisor, students with insufficient background work in geography may be required to take additional undergraduate courses.

### Required Application Materials

All elements of the application including those required by the department are submitted through the Graduate School online application. For complete instructions, see <https://geography.missouri.edu/prospective-students/apply-ma-program> (<https://geography.missouri.edu/prospective-students/apply-ma-program/>).

To the Graduate School:

- All required Graduate Admissions documents
- 3 letters of recommendation (submitted through the online application)
- Supplemental department application (with Statement of Purpose)

### Application and Admission Information

Admission Contact Information  
Dr. Matt Foulkes

Geography admission page: <https://geography.missouri.edu/prospective-students/apply-ma-program> (<https://geography.missouri.edu/prospective-students/apply-ma-program/>)

## Graduate Certificate in Geographical Information Science - Interdisciplinary

This certificate is designed to provide students with the theoretical, practical and technical skills that are essential for the analysis of spatial data. Students from a wide range of disciplines will benefit by becoming proficient in the use and application of GIS technologies through a flexible set of courses and hands-on experiences. The program offers the training and experience necessary to prepare for the rapidly expanding professional opportunities available in the diverse set of fields that depend on geographic information.

### Requirements

A student must complete a minimum of 12 hours of approved coursework, and must earn a grade of at least B (3.0) in each course.

#### Group A (Foundation courses, one from this group)

GEOG 7840	Geographic Information Systems I
NAT_R 8325	Introduction to Geographic Information Systems

#### Group B (Theoretical Breadth courses, at least one from this group)

GEOG 7710	Spatial Analysis in Geography
GEOG 7740	Location Analysis and Site Selection
FOREST 7360	Photogrammetry, Inventory and Models
GEOG 7810	Landscape Ecology and GIS Analysis I
GEOG 7790	Geographic Information Systems for the Social Sciences

#### Group C (Technical Breadth and Application courses, at least one from this group)

GEOG 7940	Advanced Geographic Information Systems (GIS II)
GEOG 7860	Advanced Remote Sensing
GEOG 7850	Transportation Geography
GEOG 7130	The Geospatial Sciences in National Security
NAT_R 7365	GIS Applications
NAT_R 8395	Landscape Ecology and GIS Analysis II
PUB_AF 8320	Spatial Analysis for Public Affairs

#### Capstone experience (or substitute 1 additional course from above)

GEOG 8085	Special Investigations in Geography
FOREST 8050	Research in Forestry

## Geological Sciences

Mian Liu  
101 Geological Sciences  
573-882-3784  
lium@missouri.edu

### Faculty

**Professor** M. Appold\*\*, M. Liu\*\*, K. G. MacLeod\*\*, E. A. Sandvol\*\*

**Associate Professor** F. G. Gomez\*\*, J. W. Huntley\*\*, J. Schiffbauer\*\*  
**Assistant Professor** M. Barquero-Molina\*, T. Bidgoli\*\*, S. Jacquet\*\*, H. Lamadrid, T. Selly\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

### Undergraduate

- BA in Geological Sciences (p. 212)
- BS in Geological Sciences (p. 213)
- Minor in Geological Sciences (p. 214)

The Department of Geological Sciences offers two undergraduate degree programs, a Bachelor of Arts and a Bachelor of Science, both with major in Geological Sciences. The BA is geared to those students interested in using geological knowledge in an allied career such as environmental law or science journalism, while the BS is geared toward students interested in careers as environmental geoscientists and hydrogeologists, the mining and fossil fuel industries, or an advanced degrees geology or geophysics. The BS capstone is a 6 week field camp at our permanent field station, Camp Branson, in Wyoming. This camp is sought after by students from around the country and its graduates are well regarded by employers. In addition, students majoring in other departments can minor in geological sciences.

### Departmental Honors

Departmental honors can be achieved by students who maintain a cumulative GPA of 3.0, departmental GPA of 3.3, and who complete a senior thesis.

### Dual Degrees

The Department of Geological Sciences offers dual degree programs with the Department of Soil, Environmental and Atmospheric Science in their emphasis area of Environmental Soil Science and with the Department of Civil and Environmental Engineering and with the College of Education in the Bachelor of Science in Education, emphasis in Earth Science Education. For more information, contact an advisor in the department.

### Graduate

- MS in Geology (p. 214)
- PhD in Geology (p. 215)

Department of Geological Sciences  
101 Geological Sciences Building  
(573) 882-6785

<https://geology.missouri.edu/graduate-program> (<https://geology.missouri.edu/graduate-program/>)

**Director of Graduate Studies:** Francisco Gomez

### About the Geological Sciences Program

The areas of research covered by faculty are broad and diverse, with strong research expertise in the general areas of geochemistry, petrology, paleontology, and geophysics-tectonics. These strengths allow us to focus on problems identified by the National Research Council to be socially relevant and to be fundamental to an understanding

of earth processes. Dynamic faculty, along with their students, are making significant contributions to numerous areas of basic and applied research. This research is supported by excellent, state-of-the-art analytical facilities in the department and on campus. Our graduate program prepares students for a wide range of professions within the geological sciences; students have been placed in private, federal, state, and academic institutions. Prospective students are encouraged to contact any faculty member directly for additional information.

## Areas of Specialization

The areas of specialization are aqueous geochemistry, biogeochemistry, invertebrate paleontology, isotope geochemistry, geophysics, hydrogeology, igneous petrology, metamorphic petrology, paleontology, ore deposits, paleoclimatology, paleoecology, sedimentation, stratigraphy, structural geology, tectonics, and volcanology.

## Facilities and Resources

The Geological Sciences Building houses many different research laboratories, as well as classrooms and an excellent geology library. Equipment is available for supervised student use in many fields. The Geology Field Camp is in the Wind River Mountains near Lander, Wyoming. See the Department website at <https://geology.missouri.edu/> graduate-program (<https://geology.missouri.edu/graduate-program/>).

## About the Degrees

The master's degree program includes a thesis and a non-thesis option, both of which require 30 credit hours beyond the bachelor's degree. The thesis option is accomplished by taking 18 to 21 graduate course credits and preparing a written thesis involving 9-12 credits of research or problems credits. Students have until the middle of their second semester in residence at the university to choose a supervisor and a thesis topic. The non-thesis track requires 27 hours of graduate course credits plus 3 hours of research credit leading to completion of a smaller-scope research project.

The doctoral degree requires 72 hours beyond a bachelor's degree, and may include as many as 24 hours credit from a prior master's degree. Doctoral candidates must pass a qualifying exam during their first year in residence to assess their general background so that a meaningful program of study can be constructed. The usual doctoral program involves courses within and outside the department, and researching the dissertation topic prior to taking the comprehensive examination by the end of the second year. The results of the dissertation research are presented to the faculty and graduate students when the student has completed the project.

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

## BA in Geological Sciences

### Degree Program Description

The Bachelor of Arts in Geological Sciences is a liberal arts degree for students interested in earth science. The curriculum provides an overview of several subdisciplines within Geology, including paleontology and hydrogeology. The degree is designed for students interested in

careers in science journalism, environmental law, and urban design and planning. The degree can easily be combined with other BA degrees in the College of Arts and Science.

## Major Program Requirements

The B.A. Curriculum is designed as a degree through which the student wishes to eventually pursue a career in teaching, journalism, law, etc. In addition to the major core requirements, students must complete all university graduation requirements (p. 35) including university general education (p. 36), as well as all degree and college or school requirements.

### Geology core requirements

GEOL 1100 or GEOL 1200 or GEOL 1050	Principles of Geology with Laboratory Environmental Geology with Laboratory Planet Earth	4
GEOL 1250 or GEOL 2300 or GEOL 2500	The World's Oceans Earth Systems and Global Change Regional Geology Field Trip	3
GEOL 2150 or GEOL 2350	The Age of the Dinosaurs Historical Geology	3
GEOL 2400 or GEOL 2450	Surficial Earth Processes and Products with Laboratory Global Water Cycle	4
GEOL 3250	Mineralogy	5
Geology course at 3000 level or above		3
Geology course at 4000 level or above (including GEOL 4950 Senior Thesis)		3

### Total Credit Hours in Geology (23-25)

### Collateral Math/Science requirements

MATH 1140 or MATH 1160	Trigonometry Precalculus Mathematics	2
INFOTC 1040 or MATH 1400 or STAT 1200	Introduction to Problem Solving and Programming Calculus for Social and Life Sciences I Introductory Statistical Reasoning	3
CHEM 1000	Introductory Chemistry	2
ASTRON 1010 or ATM_SC 1050 or CHEM 1320 or PHYSCS 1050 or PHYSCS 1210	Introduction to Astronomy Introductory Meteorology College Chemistry I Concepts in Cosmology College Physics I	4
BIO_SC 1010 or BIO_SC 1060 or BIO_SC 1500 or NAT_R 1060	General Principles and Concepts of Biology Basic Environmental Studies Introduction to Biological Systems with Laboratory Ecology and Conservation of Natural Resources	3

### Total Credit Hours in Collateral Math and Science (13-19)

Total Credits	39
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## Semester Plan

First Year			
Fall	CR	Spring	CR
GEOL 1100		4 GEOL 2500	3
MATH 1100		3 CHEM 1320	4
CHEM 1000		2 Foreign Language	5

ENGLISH 1000	3 American History or Political Science	3
Foreign Language	5	
	17	15

Second Year			
Fall	CR	Spring	CR
GEOL 2400		4 GEOL 2150	3
MATH 1400		3 Humanities or Fine Arts	3
BIO_SC 1010		3 Social Science	3
Foreign Language		3 Behavioral Science	3
General Elective		3 General Elective	3
	16		15

Third Year			
Fall	CR	Spring	CR
GEOL 3250		5 GEOL 3800	4
Humanities or Fine Arts		3 General Elective	3-5
Behavioral Sciences		3 Humanities or Fine Arts	3
Social Sciences		3 2000 Level Behavioral Sciences	3
General Elective		3 General Elective	3
	17		16-18

Fourth Year			
Fall	CR	Spring	CR
GEOL 4650		3 General Elective	3
General Elective		3 General Elective	3
2000 Level Humanities or Fine Arts		3 General Elective	3
2000 Level Social Sciences		3 General Elective	3
General Elective		3 General Elective	3
	15		15

Total Credits: 126-128

## BS in Geological Sciences

### Degree Program Description

A Bachelor of Science degree in Geological Sciences provides students with the quantitative and conceptual skills they need to succeed in graduate work and a career as a professional geologist in industry, government or academia. The curriculum provides flexibility for students who seek to focus on a specific subdiscipline in the geosciences. Students interested in geophysics, for example, should use their electives to expand their background in math and to develop a broad knowledge of geology and geophysics. Other subdisciplines include geochemistry, paleobiology and hydrogeology. The capstone class is an award-winning 6-week summer Field Camp based in Lander, Wyoming. Many students participate in research projects with faculty members, usually involving fieldwork, and leading to a senior thesis. Their results are typically presented at a national meeting and in an oral defense in the department. Study abroad classes are typically offered every two to three years - recently to China, Chile, and Spain. Some BS graduates pursue careers in environmental consulting. Many others go into the oil and gas industry, which typically requires an MS degree.

### Major Program Requirements

Majoring in geological sciences and earning a Bachelor of Science degree prepares the student for graduate work and a career as a professional geologist in industry, research or academia. The curriculum

provides flexibility for students who seek to focus on a specific subdiscipline in the geosciences. Students interested in geophysics, for example, should use their electives to expand their background in math and to develop a broad knowledge of geology and geophysics. In addition, students must meet all degree, college, and university graduation requirements (p. 35) including university general education (p. 36).

#### Major core requirements 53

GEOL 1100	Principles of Geology with Laboratory	4
or GEOL 1200	Environmental Geology with Laboratory	
or GEOL 2130	Physical Geology for Scientists and Engineers	
GEOL 2350	Historical Geology	3
GEOL 2360	Historical Geology Laboratory	1
GEOL 2400	Surficial Earth Processes and Products with Laboratory	4
GEOL 3250	Mineralogy	5
GEOL 3650	Structural Geology	4
GEOL 3800	Sedimentology and Stratigraphy with Lab	4
GEOL 4650	Plate Tectonics	3
GEOL 4900	Igneous and Metamorphic Petrology with Laboratory	4
GEOL 4992	Geology Field Camp	6
One additional geological sciences course at or above 2000 level (except GEOL 2130)		3
Four additional geological sciences courses at or above 3000 level (except GEOL 3085, can include 3 hr of GEOL 4950)		12

#### Related courses 26-31

Track I		
CHEM 1320	College Chemistry I	4
CHEM 1330	College Chemistry II	4
PHYSICS 2750	University Physics I	5
PHYSICS 2760	University Physics II	5
MATH 1500	Analytic Geometry and Calculus I	5
MATH 1700	Calculus II	5
MATH 2300	Calculus III	3

Track II		
CHEM 1320	College Chemistry I	4
CHEM 1330	College Chemistry II	4
PHYSICS 1210	College Physics I	4
PHYSICS 1220	College Physics II	4
MATH 1500	Analytic Geometry and Calculus I	5
MATH 1700	Calculus II	5

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
GEOL 1100 or 1200	4	GEOL 2350	3
CHEM 1320	4	GEOL 2360	1
MATH 1160	5	CHEM 1330	4
ENGLISH 1000	3	MATH 1500	5

American History OR Political Science Course	3	
	16	16

Second Year			
Fall	CR	Spring	CR
GEOL 2110 or 2400	4-5	GEOL 3800	4
GEOL 3250	5	PHYSICS 2750	5
MATH 1700	5	Social/Behavioral Science Course	3
Humanities/Fine Arts Course	3	Humanities/Fine Arts Course	3
	17-18		15

Third Year					
Fall	CR	Spring	CR	Summer	CR
GEOL 3300	3	GEOL 2000+ Elective	3	GEOL 4992 (Or Year 4 - Summer)	6
GEOL 3650	4	GEOL 3000+ Elective	3		
PHYSICS 2760	5	Foreign Language OR Alternative	3-5		
Foreign Language OR Alternative	3	Humanities/Fine Arts Course	3		
	15		12-14		6

Fourth Year			
Fall	CR	Spring	CR
GEOL 4650	3	GEOL 4900	4
GEOL 3000+ Elective Course	3	GEOL 3000+ Elective Course	3
2000-Level Humanities/Fine Arts Course	3	Elective Course	3
Social/Behavioral Science Course	3	2000-level Social/ Behavioral Course	3
Foreign Language OR Alternative	3-5		
	15-17		13

Total Credits: 125-130

## Minor in Geological Sciences

### Requirements

A minor in geological sciences consists of 15 credits in the geological sciences with 9 or more at the 2000-level or above. All courses must be taken for a letter grade, and a grade of C- or better must be earned in each course. The courses must be selected in consultation with an advisor in the department.

## MS in Geology

### Degree Requirements

- A minimum of 30 hours beyond the bachelor's degree.
- At least 15 hours of 8000- or 9000-level work.
  - For the Thesis Option, no more than 40% of those hours can be thesis research, problems in geological sciences, or similar courses.

- For the Non-thesis Option, no more than 10% (3 credit hours) can be research, problems in geological sciences, or similar courses.
- Students must maintain a GPA of 3.00 for all competitive classroom work at MU. If GPA falls below 3.00, student must raise GPA to 3.00 or higher by end of next semester or be dropped from Master's program.
- The student must choose a supervisor by the middle of their second semester in residence, and make a brief written report to the faculty outlining the proposed thesis research.
- The Master's Final Exam is a defense of the thesis. The student should invite all faculty members to attend their defense. An oral presentation of the thesis results must be given at a departmental seminar (either fall or winter semester) as a part of the defense. After an open question-answer session, the student and the exam committee may conclude the defense in a closed question-answer session.
- The Non-thesis option also includes a public presentation of the project.

## Sample Plan of Study

An individual student's plan of study will be developed in coordination with their graduate supervisor and reflect the emphasis of their study. The student may also enroll in additional courses that do not appear on the Plan of Study submitted to the Graduate School.

**Plan of Study for Thesis Option:** No more than 12 hours (of the 30) can be Geology 7085, 7990, 8085, & 8090 (problems, readings, thesis research, etc.).

First Year			
Fall	CR	Spring	CR
GEOL 7650		3 GEOL 8750	3
GEOL 7100		3 GEOL 8200	3
GEOL 7180		3 GEOL 8090	3
		9	9

Second Year			
Fall	CR	Spring	CR
GEOL 8100		3 GEOL 8090	6
GEOL 8090		3	
		6	6

Total Credits: 30

**Plan of Study for Non-Thesis Option:** No more than 3 hours (of the 30) can be Geology 7085, 7990, 8085, & 8090 (problems, readings, thesis research, etc.).

First Year			
Fall	CR	Spring	CR
GEOL 7100		3 GEOL 7120	3
GEOL 7180		3 GEOL 8240	3
GEOL 7650		3 GEOL 8450	3
		9	9

Second Year			
Fall	CR	Spring	CR
GEOL 7200		4 GEOL 8050	3
GEOL 8100		3	

GEOL 8240	3	
	10	3
Total Credits: 31		

## Thesis/Non-Thesis Requirements

The thesis option is accomplished by taking 18 to 21 graduate course credits and preparing a written thesis involving 9-12 credits of research or problems credits. Students have until the middle of their second semester in residence at the university to choose a supervisor and a thesis topic. The non-thesis track requires 27 hours of graduate course credits plus 3 hours of research credit leading to completion of a smaller-scope research project.

**Note on scheduling defenses:** Faculty members are not required to read theses or conduct final examinations during the summer field season.

## Admissions

Fall deadline: none set, but January 31st for guaranteed consideration for departmental financial aid for the following Fall-Spring academic year. Additional admission requirements and criteria:

- Equivalent of MU Bachelor of Science degree in geology or another science field is normally required prior to receiving an advanced degree. Science-course deficiencies must be made up before beginning thesis work.
- International students for whom English is a foreign language must submit a minimum TOEFL score 550 (paper-based) or 80 (Internet-based) or minimum IELTS of 6.5 (average) to be considered for admission.
- Admission is based upon examination of transcripts, required GRE scores (Verbal and Quantitative), and letters of recommendation. Serious consideration for admission requires a 3.00 GPA on the last 60 hours of undergraduate work, GRE scores above the 50<sup>th</sup> percentile on the Verbal and Quantitative Tests, and strong letters of recommendation.
- GRE scores (required by the department).
- 3 letters of recommendation.
- Personal statement describing the applicants interests, background, motivation, and goals for graduate study at MU.

**Note on GRE Scores and GPA:** Our quantitative assessment of applicants uses a combination of GPA for the last 60 hours and the student's GRE verbal, quantitative and analytical writing scores. We have a formula that weights the GPA and total GRE scores equally. Applicants with a GPA less than 3.0 may be considered, but their acceptance would require very strong GRE scores or exceptional circumstances.

All materials are submitted online through the Graduate School.

## Financial Aid from the Program

Although some graduate students in Geological Sciences are externally supported by fellowships or sponsors, many are generally supported by Graduate Teaching Assistantships and Graduate Research Assistantships. If you are interested in assistantship support, please be sure to indicate so on your application form.

**Contact:** Dr. Francisco Gomez  
101 Geological Sciences Building  
(573) 882-9744

<https://geology.missouri.edu/graduate-program> (<https://geology.missouri.edu/graduate-program/>)

## PhD in Geology

The doctoral degree requires 72 hours beyond a bachelor's degree, and may include as many as 24 hours credit from a prior master's degree. Doctoral candidates must pass a qualifying exam during their first year in residence to assess their general background so that a meaningful program of study can be constructed. The usual doctoral program involves courses within and outside the department, and researching the dissertation topic prior to taking the comprehensive examination by the end of the second year. The results of the dissertation research are presented to the faculty and graduate students when the student has completed the project.

## Degree Requirements

- Residence: The equivalent of 3 full years of graduate work (72 hours) is required. One year's credit (up to 24 credit hours for graduate-level, lecture-based courses) is normally granted for the Master's degree.
- All PhD students must take at least three classes (9-12 hours) outside of the Department, at the 7000 level or higher, as approved by their PhD Advisory Committee. This requirement can be satisfied by non-Geology graduate credits taken elsewhere and accepted by the Graduate School.
- Each year Ph.D. students will submit a report outlining their progress toward degree.
- The student must maintain a minimum 3.0 GPA in order to remain in good standing.
- Qualifying Exam (see below) and Comprehensive Exam (see below).
- Completion and defense of a Dissertation.

## Sample Plan of Study

The following plan of study is meant to serve as an example, only. An individual student's plan of study will be developed in coordination with their graduate supervisor and reflect the emphasis of their study. The study may also enroll in additional courses that do not appear on the Plan of Study submitted to the Graduate School.

- Transfer from Masters Degree: 15 hours (graduate courses, only)
- Fall semester (year 1)
  - GEOL 7180 Solar System Science (3 hours)
  - GEOL 7650 Plate Tectonics (3 hours)
  - GEOL 8300 Precambrian History (3 hours)
- Spring semester (year 1)
  - GEOL 8450 Tectonics and Sedimentation (3 hours)
  - GEOL 8320 Introduction to Seismology (3 hours)
  - STAT 7070 Statistical Methods for Research (3 hours)
- Fall semester (year 2)
  - GEOL 8800 Applied Numerical Analysis (3 hours)
  - ASTRON 7180 Solar System Science (3 hours)
  - GEOL 9090 Research in Geological Sciences-Doctoral Dissertation (3 hours)
- Spring semester (year 2)
  - GEOL 8140 Metamorphic Petrology (3 hours)
  - LTC 8724 College Science Teaching (3 hours)



- GEOL 9090 Research in Geological Sciences-Doctoral Dissertation (3 hours)
- [Comprehensive Exam passed]
- Summer term (year 2)
  - GEOL 9090 Research in Geological Sciences-Doctoral Dissertation (1 hour)
- Fall semester (year 3)
  - GEOL 9090 Research in Geological Sciences-Doctoral Dissertation (3 hours)
  - ED\_LPA 9456 The Professoriate (3 hours)
- Spring semester (year 3)
  - GEOL 9090 Research in Geological Sciences-Doctoral Dissertation (3 hours)
- Summer term (year 3)
  - GEOL 9090 Research in Geological Sciences-Doctoral Dissertation (1 hour)
- Fall semester (year 4)
  - GEOL 9090 Research in Geological Sciences-Doctoral Dissertation (3 hours)
- Spring semester (year 4)
  - GEOL 9090 Research in Geological Sciences-Doctoral Dissertation (3 hours)
- Summer term (year 4)
  - GEOL 9090 Research in Geological Sciences-Doctoral Dissertation (1 hour)
- Fall semester (year 5)
  - GEOL 9090 Research in Geological Sciences-Doctoral Dissertation (3 hours)

Total: 72 hours

## Exams

### Qualifying Exam Process

After filing a formal application for the Ph.D., the student must take the departmental Ph.D. Qualifying Exam following the first semester in residence. This is a written and oral exam administered by an exam committee. Passing this exam enables the student to form a Ph.D. Advisory committee and plan the Ph.D. Program of Study.

### Comprehensive Exam Process

After the Program of Study is completed the student must take the Comprehensive Exam—typically in their 4<sup>th</sup> or 5<sup>th</sup> semester. The written portion of the exam is a dissertation research proposal, followed by an oral defense of the proposal. The presentation of the dissertation proposal is open to the public. Following successful completion of the Comprehensive Exam, the Ph.D. student is now a Ph.D. candidate and can devote full attention to the required dissertation.

### Dissertation Requirements

The dissertation is expected to be an original piece of research that is a genuine contribution to geology. Continuous registration (fall, winter and summer) is required until the degree is received. The student is required to make an oral presentation of the results of his dissertation research before faculty and students as the project nears completion. A separate defense of the dissertation occurs during the Final Examination after the dissertation has been read by the supervisor and committee members.

## Admissions

Fall deadline: none set, but January 31st for guaranteed consideration for departmental financial aid for the following Fall-Spring academic year. Additional admission requirements and criteria:

- The equivalent of the MU Master of Science degree in geology or in another related science is normally required of each student prior to admission to the Ph.D. program. Students with outstanding first year graduate records, however, may bypass the Master's degree upon petition to the faculty.
- Minimum G.P.A. of 3.00 (on a 4.0 scale) for last 2 years undergraduate work and at least a 3.20 G.P.A. in Master's-level classroom work in geology (this includes 7000-level courses) taken as a graduate student.
- International students for whom English is a foreign language must submit a minimum TOEFL score 550 (paper-based) or 80 (Internet-based) or minimum IELTS of 6.5 (average) to be considered for admission.
- GRE scores must be submitted prior to admission – this is a departmental requirement.
- 3 letters of recommendation.
- Personal statement describing the applicants interests, background, motivation, and goals for graduate study at MU.

**Note on GRE Scores and GPA:** Our quantitative assessment of applicants uses a combination of GPA for the last 60 hours and the student's GRE verbal, quantitative and analytical writing scores. We have a formula that weights the GPA and total GRE scores equally.

All materials are submitted online through the Graduate School.

## Financial Aid from the Program

Although some graduate students in Geological Sciences are externally supported by fellowships or sponsors, many are generally supported by Graduate Teaching Assistantships and Graduate Research Assistantships. If you are interested in assistantship support, please be sure to indicate so on your application form.

Contact: Dr. Francisco Gomez  
101 Geological Sciences Building  
(573) 882-9744  
<https://geology.missouri.edu/>

## German

Sean Ireton, Chair  
College of Arts and Science  
451 Strickland Hall  
(573) 882-4672  
grs@missouri.edu

The Department of German and Russian Studies offers courses in German and Russian language, literature, film, and civilization. It also offers instruction in Arabic, Chinese, Japanese, and Korean. Many courses, such as civilization, culture, literature in translation and film courses, do not require knowledge of a foreign language.

The department offers the Bachelor of Arts with majors in German and in Russian, and the Master of Arts in German, and in Russian and Slavonic Studies. The department also offers minors in German, Russian, Chinese Studies, Japanese Studies, and Korean Studies. Many courses in the

minor in East Asian Studies are taught in the Department of German and Russian Studies. The Film Studies program is also housed in the department.

## Faculty

**Professor** R. F. Cook\*, B. Prager\*, C. Strathausen\*  
**Associate Professor** S. Franzel\*, S. Ireton\*, K. Kopp\*  
**Assistant Professor** S. Howes\*  
**Associate Teaching Professor** M. McKinstry  
**Teaching Professor:** M. Fischer  
**Assistant Teaching Professor** O. Schmidt

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BA in German (p. 217)
- Minor in German (p. 218)

## Dual Degrees and Double Majors

As a double major or a dual degree has become an ever more popular choice, an increasing number of students choose German or Russian as one of their majors. Students looking forward to a career in medicine or in the sciences use a double major to ensure a thorough background in the humanities to balance their scientific studies. Double majors within the College of Arts and Science can be arranged and, if the second degree program is identified early, dual degree programs outside the college are also possible. Combined programs with journalism, international studies, education and business are frequent choices. Within the college, combinations with political science, history, philosophy, art history, and the sciences are popular double major programs.

## Departmental Honors - German

Departmental honors are available for students majoring in German with a minimum 3.3 GPA. At least two literature courses must be taken at the 4000-level, with no grades below B. The equivalent of one of the courses may be completed in study abroad. Alternately, at the discretion of the department, a paper written within the capstone course may be substituted.

## Graduate

- MA in German (p. 218)

College of Arts and Science  
 451 Strickland Hall  
 (573) 882-4328

<https://grs.missouri.edu/german/german-studies-graduate-program>  
 (<https://grs.missouri.edu/german/german-studies-graduate-program/>)

**Director of Graduate Studies:** Seth Howes

The German and Russian Studies Department offers BA and MA degrees in two cultures and languages of critical significance in the world today - German and Russian. The German program prepares students for admission to PhD programs and for professional language careers in a number of fields. Courses in language, literature, teaching techniques

and skills, seminars in various specialized aspects of German studies, and directed study and research provide candidates with opportunities to acquire a comprehensive background in German studies. Teaching assistants receive training in pedagogy.

## Resources and Facilities

Resources include extensive library holdings in German literature, cultural studies, and teaching methodology, and an electronically equipped audiovisual laboratory for language training.

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

## BA in German

### Degree Program Description

The German degree is the exploration of the language, literature and culture of German-speaking countries (Germany, Austria, and Switzerland). Many of the greatest thinkers and artists of the modern era - e.g. Einstein, Freud, Nietzsche, Kant, Beethoven, Marx, Kafka, Goethe - came from these regions, while almost every discipline in the humanities, sciences, and social sciences has a strong German tradition. In addition, Germany plays a crucial role in the European Union, on the world political stage, and in economic dealings with the United States and around the world. The BA in German offers you the possibility of participating in this vibrant cultural tradition first hand. MU German majors have successfully pursued careers in business, engineering, finance, law, journalism, government service, teaching, medicine, and the sciences, as well as in art, literature, philosophy, music, and film.

### Major Program Requirements

The major in German consists of 27 credits in German beyond GERMAN 2100. The German faculty strongly encourages all majors to spend at least one semester studying abroad at a German university. Equivalents to all the required courses for the major are available through study abroad. In addition, students must meet all degree, college and university graduation requirements (p. 35) including university general education (p. 36).

#### Major core requirements (beyond the A&S language requirement)

The following courses or their equivalents must be included:		
GERMAN 2260	Intermediate German II: Language and Culture	3
GERMAN 3160 or GERMAN 3190	German Conversation and Composition Contemporary German Culture	3
GERMAN 3230	Introduction to German Literature	3
GERMAN 4160	Advanced Language Proficiency	3
GERMAN 4980	German Capstone Seminar	3
One GERMAN 4200-level literature course		3
GERMAN 2310 or GERMAN 2320	German Civilization: Beginning to 1850 German Civilization: 1850 to Present	3

#### Electives

Elective courses and equivalents to replace the required courses above should be selected in consultation with the advisor.

Total Credits 21

\* GERMAN 2310 and GERMAN 2320 are Writing Intensive German civilization courses. Versions of both GERMAN 2310 and GERMAN 2320 taken online do NOT count towards the major or minor requirements.

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
GERMAN 2260		3 GERMAN 3160	3
HIST 1100		3 Course for Second Major	3
ENGLSH 1000		3 MATH 1100	3
Course for Second Major		3 Foundation Requirements (Sciences with Lab)	5
Foundation Requirements (Humanities)		3 Foundation Requirements (Social Sciences)	3
		15	17

Second Year			
Fall	CR	Spring	CR
GERMAN 3230		3 GERMAN 3190	3
Course for Second Major		3 GERMAN 2320	3
Course for Second Major		3 Course for Second Major	3
Foundation Requirements (Sciences-Math Reasoning Proficiency)		3 Course for Second Major (WI)	3
Foundation Requirements (Behavioral Sciences)		3 Foundation Requirements (Science)	3
		15	15

Third Year			
Fall	CR	Spring	CR
GERMAN 3005		3 GERMAN 4230	3
GERMAN 4160		3 Course for Second Major	3
Elective in German		3 Foundation Requirements (Behavioral Sciences)	3
Elective in German		3 Elective Course	3
Foundation Requirements (Social Sciences)		3 Elective Course	3
		15	15

Fourth Year			
Fall	CR	Spring	CR
GERMAN 4240		3 GERMAN 4980	3
Course for Second Major		3 Capstone Course for Second Major	3
Course for Second Major		3 Foundation Requirements (Humanities)	3
Foundation Requirements (Social Sciences)		3 Elective	3
Elective Course		3 Elective	3
		15	15

Total Credits: 122

**NOTE:** Third Year - Study Abroad at German University

## Minor in German

### Requirements

The department offers a minor in German consisting of 15 credits beyond GERMAN 2100. A minimum of 6 of these 15 credits must be in German courses numbered 3000 or above. In addition, a minimum of 9 of the 15 credits must be completed in residence. For the German minor, 12 of the 15 credits must be in courses where the language of instruction is German.

### Contact Information

Megan McKinstry  
 573-884-4906  
[mckinstry@missouri.edu](mailto:mckinstry@missouri.edu) (<http://catalog.missouri.edu/undergraduategraduate/collegeofartsandscience/german/minor-german/>  
[mailtomckinstry@missouri.edu](mailto:mailtomckinstry@missouri.edu))

## MA in German

### Degree Requirements

Students must complete a minimum of 30 hours of graduate-level courses with a GPA of B or higher. No fewer than 24 hours are to be earned in German courses at the 7000 or 8000 level and at least 15 hours must be taken in German courses at the 8000 level. A thesis, with a maximum of 6 hours of credit, or a critical essay, with a maximum of 3 hours credit, are optional. Courses taken outside the department must complement the student's plan of study and require the approval of the departmental advisor. No languages other than German and English are required. Information regarding specific course requirements can be obtained by writing to the director of graduate studies.

### Comprehensive Examinations

Candidates for the MA degree must pass comprehensive written and oral final examinations based on coursework and a cumulatively prepared reading list.

### Admission Criteria

Fall deadline: First preference given to applications received by January 15, subsequent applications welcomed

Note: Applications received by January 15 receive first consideration

Spring deadline: August 1

Note: Applications to begin Spring semester are not encouraged.

Assistantships are typically not available for graduate students beginning Spring semester.

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
61 Effective July 1, 2015 must have score of 80	500 Effective July 1, 2015 must have score of 550

- Minimum GPA: 3.0
- Undergraduate major in German or equivalent

Note: The department reserves the right to evaluate the work presented for admission and to determine how the student may make up for background deficiencies.

## Required Application Materials

### To the Graduate School:

- All required documents

### To the Program:

- Departmental application
- 3 letters of recommendation

## Admission Contact Information

Dr. Kristin Kopp  
koppkr@missouri.edu  
411 Strickland  
Columbia, MO 65211  
(573) 882-3367

## History

C. Rymph, Chair  
College of Arts and Science  
101 Read Hall  
(573) 882-0250  
Fax: (573) 884-5151

The Department of History offers undergraduate work in the history of ancient, medieval and modern Europe, the United States, Latin America, Asia and Africa.

The department offers BA, MA and PhD degrees with majors in History. The department offers an emphasis in Public History for undergraduate history majors. A minor is also available.

## Faculty

**Arvarh E. Strickland Distinguished Professor of African American History and Culture** D. Ferguson\*\*

**Kinder Endowed Chair in Constitutional Democracy** J. Sexton\*\*

**Professor** J. Pasley\*\*, C. Rymph\*\*, J. Wigger\*\*

**Associate Professor** K. Ervin\*\*, J. Frank\*\*, J. Frymire\*\*, L.

Huneycutt\*\*, I. Karthas\*\*, M. Morris\*\*, L. Reeder\*\*, R. Smale\*\*

**Assistant Professor** K. Bowers, V. McFarland\*\*, A. Mseba, B. Nichols, A. Reichardt, D. Yang

**Assistant Teaching Professor** J. Stevens

**Curators Professor Emeritus** A.M. Smith\*\*, J. Sperber\*\*

**Professor Emeritus** R. Bienvendu\*, J. Bullion\*\*, W. Burggraaff\*, R.

Collins\*\*, S. Flader\*\*, A. Ibrahim\*, W. King\*\*, T. Koditschek\*\*, J.

Lankford, K. Miller\*\*, S. Watts\*\*, L. Whites\*\*, R. Zguta\*\*

**Associate Professor Emeritus** M. Carroll\*\*, L. Okamura\*\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BA in History (p. 220)
  - with emphasis in Public History (p. 220)
- Minor in History (p. 221)

## Graduate

- MA in History (p. 221)
- PhD in History (p. 223)

College of Arts and Science  
101 Read Hall  
(573) 882-2481  
<http://history.missouri.edu/>

**Director of Graduate Studies:** John Frymire

By any measure one might choose, the History Department at the University of Missouri is an outstanding one. Our faculty has compiled a distinguished record of scholarship, receiving major awards to support their research from the National Endowment for the Humanities, the National Science Foundation, the John Simon Guggenheim Foundation and many other sponsors of cutting edge scholarship. Their books have won prizes from the American Historical Association, the Organization of American Historians and other national and regional scholarly organizations.

The department's teaching record is every bit as distinguished as its record of scholarly accomplishment. Graduate students work closely with professors in advanced seminars and write theses and dissertations on a wide variety of topics. The teaching opportunities the department offers graduate students prepare them well for dealing with the difficult job market for new history PhDs. Over the last ten years, University of Missouri history PhDs have found positions at more than forty different colleges and universities across the United States.

## Areas of Study

Lecture courses, seminars and directed research projects are available on the histories of Western Europe, East Asia, Latin America, and the United States. While students are expected to get specialized training in the fields of their choice, they are also urged to develop a broad historical background.

## Facilities and Resources

Ellis Library has substantial research materials in all fields of graduate study, including an unusual collection of more than 5,000 pamphlets on 17th- and 18th-century British history and 18th- and 19th-century British and continental journals, including publications of all the major academies. The Health Sciences Library has excellent publications on the history of medicine. An additional resource is the Western Historical Manuscript Collection, a unique repository of material for regional studies in political, social and economic history. The State Historical Society of Missouri has an outstanding library of finding aids and primary and secondary works dealing with Missouri history. The graduate program also has available the resources of the Truman Library at Independence, Missouri.

## Internal Funding

Applicants may compete for Graduate School fellowships for entering students. Graduate School fellowships require departmental nomination. Interested students should consult with the director of graduate studies for further details. The department provides qualified students the opportunity to gain college-level teaching experience as teaching assistants who conduct discussion sections in American and European history. Pending administrative approval and availability of funding, they earn at least \$18,000 an academic year at the PhD level and carry nine

semester hours. Each appointment is subject to annual review and may be renewed up to a maximum of six years.

## BA in History

### Degree Program Description

History is the chronicle of humanity's activities throughout the ages. The study of history offers a means of understanding the present by investigating and analyzing the past. Students can choose from a wide selection of course work including courses in the history of the United States, Latin America, Europe (from ancient Greece to the present), Africa and East Asia. The curriculum provides course work in political, cultural, social, intellectual, environmental and diplomatic history. Beyond the classroom students gain hands-on experience by working as interns at sites such as the University of Missouri Archives the Boone County History & Culture Center and The Museum of Missouri Military History. Students skilled in research, analysis and writing are attractive to graduate schools in history, museum studies, and public affairs as well as law schools, and business schools. Many history majors obtain their teaching certificate to allow them to teach in public schools. History majors are highly recruited in many fields of business, including management, marketing and finance. Libraries, museums, archives, publishing companies, and local history and preservation projects all offer careers with the possibility of continued specialization in history. A number of our majors have also found rewarding work in city, state and federal government, including city planning, historic preservation, and working on political campaigns locally and in Washington DC.

### Major Program Requirements

A student majoring in history must complete a total of 33 history credits. A grade of C- or better is required for all courses taken for the major. In addition, students must complete all university graduation requirements (p. 35), general education (p. 36) and Arts and Science Foundation Requirements.

<b>Major core requirements</b>	<b>33</b>
I. Introductory Courses. Choose 1 course in at least 3 of the following 5 areas. At least one course must be a 'Pre-modern/Early Modern' course and one course must be a 'Modern' course. (Please contact the department for a list of approved courses)	9
Areas: U. S. History, Africa/Middle East, Latin America, Europe, Asia	
II. Research Skills: HIST 2950 Sophomore Seminar	3
III. Area Specific Courses	9
Choose 3 courses, 1000 level or above, from 3 of the 6 areas listed (not to include HIST 1100, HIST 1200, HIST 1500, HIST 1510)	
Areas: United States, Europe, Africa/Middle East, Asia, Latin America, Transnational	
One course must be a 3000 level or above	
IV. History Electives	6
Choose any 2 history courses, 3000 level or above	
V. Capstone (Required Prerequisite: HIST 2950) Choose one option	6
A. One seminar (HIST 4970, HIST 4971, HIST 4972) and one 4000 level history course	
B. Undergraduate Thesis: HIST 4980 & HIST 4981	
C. Honors Thesis: HIST 4995 & HIST 4996	
VI. U.S. History Requirement	

All students are required to take at least one 3 credit course in U.S. history (excluding HIST 1100 & HIST 1200). This course can be used to fulfill one of the requirements above.

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan will vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
ENGLSH 1000		3 MATH 1100 or 1050	3
Behavioral Science Course		3 Biological/Physical/Math Science Course with lab	5
Social Science Course		3 Minor	3
Humanities Course		3 History Course	3
History Course		3	
			14
Second Year			
Fall	CR	Spring	CR
Foreign Language		5 Foreign Language	5
Behavioral Science Course		3 Minor	3
Humanities Course		3 Humanities Course	3
Social Science Course		3 History Course	3
History Course		3	
			14
Third Year			
Fall	CR	Spring	CR
Foreign Language		3 Humanities Course	3
Biological/Physical/Math Science Course		4 Minor	3
History Course		3 History Course	3
History Course		3 History Course	3
Elective Course		3 Elective Course	3
			15
Fourth Year			
Fall	CR	Spring	CR
Minor		3 Social Science Course	3
Minor		3 History Course	3
History Course		3 History Course	3
Elective Course		3 Elective Course	3
Elective Course		3 Elective Course	3
			15

Total Credits: 121

## BA in History with Emphasis in Public History

### Degree Program Description

The Public History emphasis is intended for history majors interested in the application of historical studies in public settings. The course of study encompasses historical work outside of the university setting, including, museums, heritage sites, national parks, archives, public agencies, private corporations and non-profit organizations. The emphasis is

designed to prepare students for graduate programs in public history, museum studies, or careers in public service.

## Major Program Requirements

I. Introductory Courses (same as BA degree)	9
II. Research Skills (same as BA degree)	3
III. Area Specific Courses (same as BA degree)	9
IV. History Electives	6
HIST 4910: History in the Public + 1 history course at the 3000 level or above	
V. Capstone (Two Internships, HIST 4940)	6
At least one internship must involve some sort of public presentation (poster session, conference presentation, museum display or digital exhibit) based on original research	
VI. Public History Component	
Two courses from above, (not to include HIST 4910 or HIST 4940) must include a digital or public history component.	
VI. U.S. History Requirement (same as BA degree)	

In addition, students must complete all College of Arts and Science and University graduation requirements (p. 35), including University general education (p. 36).

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan will vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
ENGLSH 1000		3 MATH 1100 or 1050	3
Behavioral Science Course		3 Biological/Physical/Math Science Course with lab	5
Social Science Course		3 Minor	3
Humanities Course		3 History Course	3
History Course		3	
			14
<hr/>			
Second Year			
Fall	CR	Spring	CR
Foreign Language		5 Foreign Language	5
Behavioral Science Course		3 Minor	3
Humanities Course		3 Humanities Course	3
Social Science Course		3 History Course	3
History Course		3	
			14
<hr/>			
Third Year			
Fall	CR	Spring	CR
Foreign Language		3 Humanities Course	3
Biological/Physical/Math Science Course		4 Minor	3
History Course		3 History Course	3
History Course		3 History Course	3
Elective Course		3 Elective Course	3
			15
<hr/>			
Fourth Year			
Fall	CR	Spring	CR
Minor		3 Social Science Course	3
Minor		3 History Course	3

History Course	3 History Course	3
Elective Course	3 Elective Course	3
Elective Course	3 Elective Course	3
		15
		15

Total Credits: 121

## Minor in History

### Requirements

A minimum of 15 credits is required for a minor in history. At least 9 of the 15 must be in courses numbered 2000 or above. A minimum of 9 credits must be taken in residence, 6 of which must be in courses numbered 2000 or above. A grade of C- or better is required for all history courses taken for the minor, however, a cumulative GPA in your minor must be at least a 2.0. The selection and mix of courses is left to the discretion of the student.

Once an A&S minor is awarded a student cannot return to MU to complete a major in the same department. A minor must be posted at the same time as the major degree is posted, you cannot return after you have graduated to obtain a minor.

## MA in History

### Degree Requirements

A minimum of two semesters of full-time enrollment (9 hours each semester) or three semesters of part-time enrollment (6 hours each semester). Enrollment in all graduate courses requires the consent of the student's advisor and the instructor(s) of the class.

### Hours

Thirty semester hours of graduate credit are required by the Graduate School for the MA degree. The Graduate School also mandates that at least fifteen of these hours be in courses numbered 8000 or above, and will not count more than twelve hours of individually directed studies toward the thirty hours necessary to earn the degree. The department requires that at least twenty of these hours be in history. For students of United States history, at least fifteen hours must be in formally constituted US history courses. For students in the non-United States history program, at least twelve hours must be in formally constituted non-US history courses. Independently directed work does not count toward fulfilling this requirement in either category.

### Required Courses

A studies course in every semester in which as many as nine credit hours are carried, unless the student is granted an exemption by the director of graduate studies. Every master's student must take HIST 8480 Historiography unless excused by the director of graduate studies. HIST 8480 is offered regularly.

Every student who is a non-thesis candidate must complete at least two research seminars before receiving the MA degree. No master's candidates in US or non-US history are required by the department to demonstrate reading proficiency in any foreign languages or to develop research skills before receiving the MA degree. Individual advisors, however, can require MA candidates to become proficient in reading foreign languages and/or develop specific research skills if they determine such knowledge is essential for the successful completion of a student's master's program. As soon as any such determination is made,

students will be informed by their advisors. The advisors will also discuss with them processes for achieving and demonstrating those proficiencies.

Master's candidates in Ancient History must demonstrate proficiency in at least one ancient language (Greek or Latin) and at least one modern language (generally, either French or German) before they begin work on their theses, if they choose that alternative, or before they take the non-thesis MA examination, if they are seeking a terminal master's degree. These students should also be aware that ancient history graduate courses can include readings in Greek and Latin. For directions on how to demonstrate proficiency in these ancient and modern languages, students should talk with their advisors and obtain a written description of this process from them.

Special Note: No student will receive graduate credit for any course in which s/he earns a grade below B. The grade of C in a graduate class is the equivalent of an F in an undergraduate course.

## Satisfactory Progress and Annual Review

At the beginning of every Spring semester, students must complete a "Progress Report" on the Graduate Schools' Graduate Student Progress System (sometimes referred to as "online assessment"). This report will be read by the student's faculty advisor, who will then submit an "Advisor Response." In addition, the student and advisor should meet to discuss the student's progress, confirm expectations for the coming year, and address any concerns either may have regarding the report.

This is an extremely important process for two reasons. First, the advisor determines whether the student is making satisfactory progress toward a degree. If s/he is not, the advisor informs the student what needs to be done to rectify the situation. The student then usually has a year to return to making satisfactory progress. Failure to do so may result in loss of financial aid or dismissal from the program. Second, if the student is making satisfactory progress, the advisor and s/he decide together on what reasonable goals are for the next twelve months. These goals will define "satisfactory progress" at the next assessment meeting.

## Appeals

The student may appeal any assessment to the director of graduate studies. If not satisfied, s/he may seek the remedies described in the Graduate School catalog.

## Effect of Progress Report Completion on Funding

Completion of the Graduate Student Progress System forms by both student (Progress Report) and faculty (Advisor Response) is mandatory to maintain eligibility for any form of financial aid from the department. Receipt of financial aid requires confirmation by a student's advisor that s/he is making satisfactory progress. No student in the program who applies for or who is seeking renewal of financial aid will be eligible for aid without a complete and up-to-date Graduate Student Progress System Report on file.

## Thesis/Non-Thesis Requirements

### Plans for MA Degrees: Thesis plan

All students who wish to apply for admission to doctoral programs in history either at the University of Missouri or at other institutions must write a thesis. A thesis involves an original and extended analysis of an historical issue that requires substantial research. The topic of the thesis must be approved in advance by the student's faculty director and the

thesis committee, which is composed of the director, at least one other member of the history faculty, and one faculty member from outside the department.

The Graduate School regulations require that there be an outside faculty person on each thesis committee. At the discretion of the director, additional faculty members may be added to the committee. The appropriate forms, signed by the advisor and the director of graduate studies, will be submitted to the Graduate School.

Students will take HIST 8090, Thesis Research, during those semesters they are actually engaged in writing their thesis. N.B.: The Graduate School only permits six hours of HIST 8090 to count toward the 30 hours necessary to earn a master's degree. Students should also note that hours earned in HIST 8090 do count toward the maximum of 12 hours of independent study, i.e., HIST 8085 (Problems), HIST 8089 (Research), and HIST 8090 (Thesis Research), the Graduate School will accept as credit for this degree.

### Plans for MA Degrees: Non-Thesis Plan

Students may earn a master's degree without writing a thesis. A non-thesis MA is a terminal degree. Those who receive it will not be considered for admission to the doctoral program. These students must successfully complete two research seminars in history. These seminars will count toward the thirty hours required for an MA degree. One of the seminar papers must be submitted to the department to fulfill the Graduate School requirement for a substantial effort reflecting creativity or originality.

### Examination for the MA degree: For Thesis Plan

The student must defend her/his thesis before a committee of at least three faculty members, one of whom must be the thesis director. Another must be from a department other than History. The committee is appointed by the Graduate School upon recommendation from the Department of History. The examining committee decides:

1. whether to recommend the awarding of the MA degree to the student
2. for prospective doctoral candidates, whether the student shall be permitted to enter the doctoral program.

This latter action constitutes a decision on the qualifying examination required in the doctoral program. Afterwards, the appropriate form(s) will be signed by the advisor, committee members, and the director of graduate studies, then sent to the Graduate School.

### Examination for the MA degree: For Non-Thesis Plan

A comprehensive oral examination covering all work for the degree will be conducted by a committee of the advisor and at least two other faculty members, one of whom may be from a department other than history. The examining committee decides whether to recommend the awarding of the MA degree. Afterwards, the appropriate form(s) will be signed by the advisor, committee members, and the director of graduate studies, then sent to the Graduate School.

## Graduate School Deadlines for receipt of the MA degree

Students must meet the Graduate Schools' deadlines for the awarding of degrees and the submission of theses. The final form of the thesis must be in conformity with the Graduate School requirements.

### Admission Criteria

Fall deadline: Mid-January (see departmental website for specific date)

- Minimum GPA: 3.0 in last 60 hours
- BA or BS degree
- GPA of 3.3 in undergraduate history courses, and at least 18 hours in history
- Official GRE score report, recommended but not required
- Minimum TOEFL scores (international applicants only):

Internet-based test (iBT)	Paper-based test (PBT)
61	500
Effective July 1, 2015 must have score of 80	Effective July 1, 2015 must have score of 550

Candidates who lack the necessary undergraduate hours in history must take graduate-level classes in history to remedy that deficiency before they can be considered for admission. They should consult with the director of graduate studies about appropriate classes. Graduate School regulations prohibit a non-degree student from taking more than twelve hours of course work.

Candidates must achieve a grade point average in these classes of at least 3.3 on a 4.0 scale to be considered for admission. A 3.3 GPA or higher does not guarantee admission. Course work taken as a non-degree student to remedy a deficiency in prerequisites ordinarily will not count toward the MA degree.

### Required Application Materials

#### To the Graduate School:

- All required documents, including online application
- One uploaded copy of each college transcript where a degree was earned or is pending (official transcripts will be required upon admission)
- Short essay explaining goals and expectations in graduate study, including the fields in which the student plans to specialize (upload to the online application)
- Substantial writing sample, such as a final research paper from a course (upload to the online application)
- 3 letters of recommendation (submission through the online application system strongly preferred, but postal mail submission directly to the department allowed)
- Official GRE score report, recommended but not required
- Official TOEFL score for international students

**Note:** Incomplete applications will not be considered. It is the applicant's responsibility to ensure that all required documents have been received by the January deadline.

### Admission Contact Information

Nancy Taube (tauben@missouri.edu)  
101 Read Hall; Columbia, MO 65211

(573) 882-0250

### Financial Aid from the Program

In this department, all applicants are considered for financial aid unless they indicate otherwise. Announcements of awards are made no later than April 1. Applicants may compete for fellowships for entering students. Fellowships require departmental nomination. Interested students should consult with the director of graduate studies for further details.

The department provides qualified students the opportunity to gain college-level teaching experience as graders who grade exams and papers in American and European history. Pending administrative approval and availability of funding, they earn at least \$8,694 an academic year and carry nine semester hours.

Each appointment is subject to annual review and may be renewed up to a maximum of two years.

### PhD in History

The PhD program in history at the University of Missouri is governed by a number of rules, regulations, and expectations. What follows is an explanation of these elements of the program.

### Degree Requirements

To obtain a PhD in history at the University of Missouri, a student must fulfill the following requirements:

1. residency
2. course work
3. foreign language and/or historical/research technique
4. comprehensive examination
5. dissertation and oral defense

### Residency

A minimum of two semesters of full-time enrollment (9 hours each semester) or three semesters of part-time enrollment (6 hours each semester). Enrollment in all graduate courses requires the consent of the student's advisor and the instructor(s) of the class.

### Course Work

The minimum requirement for the PhD degree at the University of Missouri is 72 hours of graduate credit beyond the baccalaureate degree. A student's advisor and committee may require more. Customarily, students in history have more than 72 hours when they defend their dissertations. If a student has earned an MA degree at another institution, with the approval of her/his advisor and committee, s/he may receive up to 30 hours of credit toward the 72 necessary for the PhD. If a student took additional courses beyond his/her MA degree at another institution, with the approval of her/his advisor and committee, s/he may receive up to a maximum of six hours of credit toward the PhD.

Graduate School regulations forbid the awarding of more than six hours. Two-thirds of the courses taken by a PhD candidate within the department prior to the comprehensive examination must be at the 8000 or 9000 level. These may, and probably will, include History 8085 (Problems), HIST 8410 (Independent Readings PhD Exam), but not HIST 9090 (Dissertation Research).



Every doctoral student who earned his /her master's degree at another institution must take HIST 8480, Historiography, unless excused by the director of graduate studies. History 8480 is offered regularly.

Foreign Languages and Historical Research Techniques

PhD candidates must demonstrate abilities in foreign languages and/or historical research skills appropriate to the completion of a doctoral dissertation in their proposed field of research. There are four different ways a student may fulfill this requirement. Which one is chosen depends on the area of his/her research interest. The advisor and committee must approve the method for fulfilling this requirement.

## Focus Areas

### Ancient History Focus

Candidates planning to write a doctoral dissertation in ancient history must demonstrate their competence in Greek and Latin, together with at least two modern languages (usually French and German).

For the ancient language, competence will be shown either by the successful completion of a translation examination designed by a history department faculty member with knowledge of the relevant language, or by the completion of upper-level courses in the department of classical studies, or by other such proof as the advisor and other members of the advisory committee deem appropriate.

Competence in the modern languages will be shown either by the successful completion of a translation examination designed by a history department faculty member with knowledge of the relevant language, or by passing the ETS language examination with a minimum score of 500, or by the successful completion of an upper level language course in any modern language department of the university.

### European History Focus

Candidates planning to write a dissertation in European history must be competent in two foreign languages.

Competence may be demonstrated either by successful completion of a research paper, the sources for which are predominantly in the foreign language under consideration, or by successful completion of a translation examination designed by a history department faculty member with knowledge of the relevant language, or by passing an ETS language examination with a minimum score of 500. A candidate's advisory committee may also require him/her to show competence in historical research technique. An historical research technique is a specialized field of study which provides a student with additional skills for research. Quantitative methods/statistics or techniques of historical exhibition, museum work, and the analysis of material culture are some examples. Competence will be demonstrated by satisfactory completion of a substantial research paper or other historical project for which the technique is necessary.

Students who take foreign language courses should keep in mind that all classes below 7000 may not be taken for graduate credit and do not count toward the 9 hours per semester required for those receiving financial aid.

### American History Focus

Candidates planning to write a dissertation in American history shall have a competent reading knowledge of one foreign language.

Competence in a foreign language shall be demonstrated in the ways described above for candidates in European history.

## Asian or Latin American History Focus

Candidates planning to write a dissertation in Asian or Latin American history shall demonstrate a competence in such languages as their advisory committee requires for their research. In addition, a candidate's advisory committee may require the candidate to demonstrate competence in an historical/research technique, as defined above in the American History section (3).

## Developing a PhD Plan of Study

The committee will meet formally with the student to help the student to develop a major field, two broad historical fields, a historical field outside his/her area of major emphasis, and one field in a discipline other than history for the comprehensive examination. How s/he will meet the foreign language and/or historical research technique requirement (see below) will be defined and approved by the advisor and the committee. Members of the advisory committee shall meet regularly with the student to ensure he/she is making satisfactory progress.

## Comprehensive Examination and Disseration

### Preparation for the Comprehensive Examination

In the department of history, each doctoral student must prepare five fields for the comprehensive examinations. The selection of those fields and the faculty who will be the examiners in each should be begun by the doctoral candidate and her/his advisor during her/his first semester at MU. The advisor will help the student prepare for examination in her/his major field. This will cover significant historical themes and historiographical trends in the specific period and area of the student's prospective dissertation topic.

Two other members of the history faculty will help the student prepare for examinations in two chronological and/or geographical areas of historical study that are appropriate for his/her dissertation topic. A fourth member of the history faculty will prepare the student for an examination in a chronological, geographical, and/or thematic area of historical study that is not directly related to his/her dissertation topic. A fifth faculty member from a department other than history will prepare the student for examination in an outside field. This will cover the methodologies and research findings of another academic discipline.

### Areas of Study and Dissertation Topics

What the student learns in this discipline should assist his/her understanding of and research on her/his dissertation topic. The student's choice of a discipline to work in for his/her outside field is potentially as wide as the number of programs and departments in the university. That choice is not confined merely to departments in the College of Arts and Science. The student must have his/her advisor's approval of the discipline and the outside faculty member. The Graduate School must approve these selections as well.

Within the department of history there are seven broad areas of historical study.

- US history to 1865 (including the colonial period)
- US history since 1865
- Ancient history
- European history from the fall of Rome through the Reformation
- European history since the Reformation
- Latin American history

- Asian history

The three history faculty who, together with the advisor, will help the student prepare for the comprehensive examinations, must each test him/her on material in a different broad area. Thus the student will be working on three different broad areas, plus the dissertation field. The three faculty members may, in consultation with the student, define the broad area as narrowly or as widely as they choose.

## Documenting Exam Preparation

The advisor and the four other faculty members must explain how they want the student to prepare, what they want the student to master, and which criteria they will use to assess the examinations in their particular field. These explanations must be in writing, and copies of each placed in the student's permanent file.

## Comprehensive Examination Requirement

Students may take a comprehensive examination only after fulfilling their residency, course work and foreign language and/or historical research technique requirements. It will be administered by a committee consisting of his/her advisor and four other faculty members, one from a discipline other than history. These should be the faculty members who helped the student prepare for the examinations. Sometimes it may be necessary to find substitutes. The director of graduate studies and the Graduate School must approve any substitutions, and new committee members must describe their expectations in writing for the student and for his/her permanent file.

## Comprehensive Exams Processes

The comprehensive exams are given in two stages. The first is a series of at least three written exams. The second is an oral examination, which is conducted if the student passes the written portion. A report of the decision, signed by all members of the committee, must be sent to the Graduate School and the student no later than two weeks after the comprehensive exam is completed. One of the written exams must be in the major field; the committee will determine the subjects of the other exams, and their number.

Special Note: All members can require the student to write on their areas of expertise. Therefore the written examinations could cover all five areas.

All members of the committee will read the written exams and discuss them within two weeks after their completion. If they determine the student has not successfully completed the exam, they will inform him/her immediately and discuss the results. Failure ends the comprehensive exam at this point. The committee must provide the student with an outline in writing of the weaknesses and deficiencies of his/her work.

A copy of this must be placed in the student's permanent file. If at any time the student believes that parts of the exam are unclear, or the decision of the committee is incorrect, or the advice given by the committee is inadequate, s/he may send a written request for clarification and rectification to the committee. A copy of this request should be sent to the Graduate School as well. The committee must respond to this request in writing within two weeks and a copy must be filed with the department and the Graduate School.

At least 12 weeks must pass before a student who failed can take the comprehensive exams again.

If the committee determines that the student did satisfactory work on the written examinations, they will schedule an oral examination. This second

stage of the comprehensive exams will cover all five fields. Each member of the committee will test the student. At the end of the oral examinations, the committee discusses the student's performance on each field and on the entire examination. This discussion includes both the written and the oral parts of the whole process. Then they vote pass, fail, or abstain on the student's total performance on the exam.

## Criteria for Successful Completion of the Comprehensive Exam

To complete the comprehensive exams successfully, the student must receive a vote of pass from at least four of the five examiners. Should two or more votes be negative or abstentions, the committee follows the same procedure outlined above for failure to pass the written part. These students must repeat the entire examination, not just the fields failed, and not just the oral portion. If the candidate fails the second examination, the examining committee must enter on its report to the dean of the Graduate School a recommendation to prevent the student's further candidacy.

## Dissertation and Oral Defense

Soon after successful completion of the comprehensive examination, the student and advisor will form a dissertation committee of five faculty members. One member of the committee must be from outside the department. The student shall develop with her/his advisor and committee a dissertation topic and a plan of research. S/he should keep in regular contact with the advisor. Together they shall decide when written work will be read by other members of the committee.

## Travel Funding

When students begin work on their doctoral dissertations, they may apply for departmental fellowships and travel grants to assist their research and writing.

## Satisfactory Progress

The department requires PhD candidates to make satisfactory progress towards completion of their degree.

## Annual Review

At the beginning of every Spring Semester, students must complete a "Progress Report" on the Graduate School's Graduate Student Progress System. This report will be read by the student's faculty advisor, who will then submit an "advisor Response." In addition, the student and advisor should meet to discuss the student's progress, confirm expectations for the coming year, and address any concerns either may have regarding the report.

This is an extremely important process for two reasons. First, the advisor determines whether the student is making satisfactory progress toward a degree. If s/he is not, the advisor informs the student what needs to be done to rectify the situation. The student then usually has a year to return to making satisfactory progress.

Failure to do so may result in loss of financial aid or dismissal from the program. Second, if the student is making satisfactory progress, the advisor and s/he decide together on what reasonable goals are for the next twelve months. These goals will define "satisfactory progress" at the next assessment meeting.

## Appeals

The student may appeal any assessment to the director of graduate studies. If not satisfied, s/he may seek the remedies described in the Graduate School catalog.

## Funding Impact of Incomplete Reports

Completion of the Graduate Student Progress System forms by both student (Progress Report) and faculty (Advisor Response) is mandatory to maintain eligibility for any form of financial aid from the department. Receipt of financial aid requires confirmation by a student's advisor that s/he is making satisfactory progress. No student in the program who applies for or who is seeking renewal of financial aid will be eligible for aid without a complete and up-to-date Graduate Student Progress System Report on file.

## Rate of Completion

A PhD student must successfully complete the comprehensive examination within a period of five years beginning with the first semester of enrollment as a PhD student. For an extension of this the student must petition the Graduate School by submitting a request to the advisor who, in turn, submits a written recommendation to the Graduate School. The director of graduate studies will also make a written recommendation. In addition, the dissertation must be successfully defended within five years of passing the comprehensive examination. On petition of the candidate and the candidate's department, an extension of time may be granted by the Graduate School.

## Admission Criteria

- MA in history strongly preferred
- Quality of master's thesis or research seminar paper submission
- Official GRE score report, recommended but not required
- Minimum TOEFL scores (international applicants only):

Internet-based test (iBT)	Paper-based test (PBT)
61	500

Students who do not meet one or more of these criteria may enroll as non-degree graduate students. Contact the director of graduate studies for further details. All admissions of doctoral candidates who did not receive the MA degree from the department are provisional. These students must pass a qualifying examination. See below for information about the qualifying examination.

## Application Deadline

Fall deadline: Mid-January (see departmental website for specific date)

## Required Application Materials

### To the Graduate School:

- All required Graduate School documents, including Graduate School online application
- One uploaded copy of each college transcript where a degree was earned or is pending (official transcripts required upon admission)
- Short essay explaining goals and expectations in graduate study, including the fields in which the student plans to specialize (upload to the online application)
- Substantial writing sample, such as a final research paper from a course (upload to the online application)

- 3 letters of recommendation (submission through the online application system strongly preferred, but postal mail submission directly to the department allowed)
- Official GRE score report, recommended but not required
- Official TOEFL score for international students

**Note:** Incomplete applications will not be considered. It is the applicant's responsibility to ensure that all required documents have been received by the January deadline.

### Admission Contact Information

Nancy Taube (tauben@missouri.edu)  
101 Read Hall; Columbia, MO 65211  
(573) 882-0250

## Qualifying Examination

To be admitted to candidacy for a PhD in history, a student must have earned an MA in history or a related discipline and have passed a qualifying examination.

Students with an MA from the University of Missouri

Students earning their MA in history at this university may, with the approval of their advisory committee, combine their qualifying examination with their MA thesis defense. Other students must take their qualifying examination no later than the beginning of their third semester in the graduate program at the University of Missouri.

Students Who Earned Degrees at Other Institution

All admissions of doctoral candidates who did not receive the MA degree from the department are provisional. These students must pass a qualifying examination no later than the beginning of their third semester of residence at MU. The exam will focus on a research paper the student wrote at MU.

## About the Exam

The examining committee will be composed of the student's advisor and at least two other history faculty members. During the consideration of prospective students, the committee on graduate admissions will consult closely with faculty best suited to advise them.

The basis for the examination will be a substantial research-based seminar paper written here. The exam will be oral, approximately one hour in length; the examiners will include the student's advisor and at least two other members of the department. It is designed to ascertain the candidate's intellectual capacity, aptitude, and preparation for PhD level work in history.

The committee reserves the right to reject otherwise qualified students if:

1. this department cannot provide the applicant with an adequate program in his/her area of interest
2. no faculty member is willing to supervise his/her work.

## Advisor and Advisory Committee

A student will meet with his/her advisor no later than the semester following passage of the qualifying examination for students who earn their MA in history at the University of Missouri and prior to the qualifying examination for other students. The advisor and student together will plan the student's class work up to the comprehensive exams. They will also choose other members of the student's doctoral committee. That committee will ordinarily consist of the advisor, three members of the history department who are on the graduate faculty, and one graduate

faculty member from outside the department. The advisory committee must be approved by the dean of the Graduate School.

## Financial Aid from the Program

In this department, all applicants are considered for financial aid unless they indicate otherwise. Announcements of awards are made no later than April 1. Applicants may compete for Graduate School fellowships for entering students. Graduate School fellowships require departmental nomination. Interested students should consult with the director of graduate studies for further details.

The department provides qualified students the opportunity to gain college-level teaching experience as teaching assistants who conduct discussion sections in American and European history. Pending administrative approval and availability of funding, they earn at least \$19,026 an academic year and carry nine semester hours. Each appointment is subject to annual review and may be renewed up to a maximum of six years.

## Interdisciplinary

Office of Multidisciplinary Degrees  
College of Arts and Science  
326H Strickland Hall

omd.missouri.edu (<https://omd.missouri.edu/>)

## Faculty

**Faculty members are housed in departments and schools throughout the University of Missouri.**

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BA in Interdisciplinary (p. 227)
  - with emphasis in Black Studies (p. 228)
  - with emphasis in Environmental Studies (p. 229)
  - with emphasis in Peace Studies (p. 231)
  - with emphasis in Women's and Gender Studies (p. 232)

Interdisciplinary Studies provides for the needs and interests of individual students who are not being served by one of the existing majors.

The Office of Multidisciplinary Degrees is responsible for a variety of multidisciplinary majors, including Interdisciplinary Studies, International Studies, and General Studies. The website is [omd.missouri.edu](https://omd.missouri.edu/) (<https://omd.missouri.edu/>).

## Graduate

While MU does not offer graduate degrees specifically in interdisciplinary, the University does offer post-baccalaureate opportunities in a number of related areas, both within the College of Arts and Science, and in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 20).

## BA in Interdisciplinary

### Degree Program Description

The Bachelor of Arts in Interdisciplinary Studies (IDS) degree in the College of Arts and Science is available to students who have explored various departments at MU and discovered that their academic interests and goals are not easily accommodated in any one major. IDS degree requirements allow students to build an individualized major that is integrative, multidisciplinary, and reflects their personal academic interests and career goals. Students are attracted to IDS for various reasons: a desire to create a unique degree, broad interests, a need for flexibility, timely degree completion, or preparation for further study at the graduate level. Career options are as varied as the combination of curricula. There is an option available for students who wish to obtain Chinese teaching certification.

### Major Program Requirements

Students majoring in Interdisciplinary Studies may design an individual course of study. Students with very specific career plans and goals not easily accommodated in any one department may find this program suited for their needs. Others may find that this option permits a broader approach than the major found in a single department.

The Interdisciplinary Studies major is comprised of two or three components to total 36 credits. A component consists of course work from a single department or area, which may include programs outside the College of Arts and Science (e.g., Journalism, Business or Social Work). At least 18 hours must come from the College of Arts and Science. In addition to the 36 hours required in the major components, Interdisciplinary Studies students must also complete a 3-credit capstone.

Interdisciplinary Studies candidates must earn no less than a 2.0 GPA in each component. They are bound by rules and practices of the College of Arts and Science that pertain to admission to degree programs, the awarding of credit, and the awarding of degrees. Students must complete college as well as University requirements (p. 35), including University general education (p. 36). A student who has earned a degree in Interdisciplinary Studies, (excluding majors with emphases in Black Studies, Peace Studies or Women's and Gender Studies), may not pursue a second degree in a field that was used as a component of the first degree.

### Major Core Requirements

Area of concentration (select one option) 36

- Three components of 12 credits each
- Three components, one of 15, one of 12 and one of 9 credits
- Two components of 18 credits each
- Two components, one of 21 and one of 15 credits

All courses in the major must be at the 2000 level, and at least 15 credits must be 3000 level or above.

A minimum of 12 credit hours within all components must be MU courses. A maximum of 6 hours of Internship may apply to graduation.

A maximum of 12 hours of Internship, Readings and/or Special Problems may apply to graduation.

**Capstone requirement** (to be completed during final 45 hours of course work)

There are several ways a student can complete the capstone experience in Interdisciplinary Studies.

1. **Special Readings project:** With this option, the student completes an independent research project under the supervision of a faculty member. The project allows the student to explore an area of interest and is designed to be an academic challenge. The department is open to creative, innovative approaches to learning. The supervising faculty member is responsible for grading the project. The student is responsible for locating a supervising faculty member.
2. **Service Learning project:** Students will engage in service activities, directly relevant to their areas of academic emphasis, in community not-for-profit agencies. At the same time as participants work in the community, they will research their agency and organization, undergo mock employment interviews, create a cover letter and résumé based on the professional skills they have gained through their service, and reflect on careers and leadership in public service. Course will be submitted for Writing Intensive credit each semester. Restricted to Interdisciplinary, General and International Studies students.
3. **Internship:** Students work approximately 50 clock hours per credit at an agency, company or corporation of their choice. Grades are on a pass-fail basis. For an internship to be approved as a capstone experience, it must help the student solidify and explore the areas of concentration. Internships must have prior approval from the Office of Multidisciplinary Degrees (<https://omd.missouri.edu/>).
4. **Capstone course:** Students may have a specific course designated as a capstone course for the individual degree program. The course must be upper level, and the course must be taken in the last 45 hours of course work as a major. A course taken previously cannot retroactively be counted as a capstone course. Approval for the course must be provided in advance of registration from the Interdisciplinary Studies advisor.

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
ENGLSH 1000		3 MATH 1050, 1100, or STAT 1200	3
Second Language Level I	5-6	Second Language Level II	5-6
Social Science (MO State Law) 1000+	3	Behavioral Science 1000+	3
Humanities and Fine Arts 1000+	3	Humanities and Fine Arts 1000+	3
General Elective 1000+	1	General Elective 1000+	1
		15-16	15-16
Second Year			
Fall	CR	Spring	CR
Second Language Level III	3	A&S Diversity Requirement	3
Science with a Lab 1000+	3-5	Behavioral Science 2000+	3
Writing Intensive I 1000+	3	Social Science 2000+	3
Social Science 1000+	3	Humanities and Fine Arts 2000+	3
Humanities and Fine Arts 1000+	3	IDS Component #1 2000+	3
		15-17	15
Third Year			
Fall	CR	Spring	CR
Science 1000+	3	IDS Component #1 3000+	3

IDS Component #1 2000+	3	IDS Component #2 2000+	3
IDS Component #2 2000+	3	IDS Component #3 2000+	3
IDS Component #3 2000+	3	Writing Intensive II 3000+	3
General Elective or Minor 1000+	3	General Elective or Minor 1000+	3
		15	15

Fourth Year			
Fall	CR	Spring	CR
IDS Component #1 3000+	3	IDS 4000+ Capstone	3
IDS Component #1 3000+	3	IDS Component #2 3000+	3
IDS Component #2 3000+	3	General Elective or Minor 1000+	3
IDS Component #3 3000+	3	General Elective or Minor 1000+	3
General Elective or Minor 1000+	3	General Elective or Minor 1000+	3
		15	15

Total Credits: 120-124

## BA in Interdisciplinary with Emphasis in Black Studies

### Degree Program Description

Students in Black Studies learn about the varied experiences of people of African descent from various fields including arts and the humanities, the social sciences, the hard sciences, public policy, education, and law, to name a few. This interdisciplinary field of study focuses on African Americans, Africans, and other people in the African Diaspora. A BA in Interdisciplinary Studies with an emphasis in Black Studies challenges students to learn about and critically analyze the global experiences of people of African descent, including conditions that have shaped their past, as well as their present lives. The degree provides knowledge in the following: critical thinking skills to understand and effectively articulate experiences and contributions of the people who share a common heritage; ability to critically think, research, write, and analyze the black experience; communication (both oral and written), problem solving, strategic planning and a range of research skills. Students acquire such skills while they develop in-depth knowledge that is beneficial to careers in multicultural, cross-cultural, and diversity consulting, all of which are critical in 21st century employment. In addition, graduates of the degree often pursue employment or graduate studies in academic fields such as Social and Intellectual Movements, Politics, Sociology, Literature, Psychology, Music, Art, History, and many others.

### Major Program Requirements

Students may earn a Bachelor of Arts in the College of Arts and Science with an Interdisciplinary Studies major and an emphasis in Black Studies.

A student majoring in Interdisciplinary Studies with a Black Studies emphasis must complete a total of 30 Black Studies credits. In addition, students must complete all university graduation requirements and Arts and Science Foundation Requirements. A minimum grade of C- is required for each course taken in the major. A minimum cumulative GPA in all major coursework is 2.0.

### Emphasis core requirements

- Completion of an interdisciplinary area of concentration of at least 30 credits in Black Studies and related courses

In selecting a language to meet general education requirements in the College of Arts and Science, students are encouraged to consider Spanish, Portuguese or French.

In addition, students must complete all College of Arts and Science and University graduation requirements (p. 35), including University general education (p. 36).

**Required Coursework:**

BL_STU 1000	Introduction to Black Studies	3
BL_STU 2975	Traditions and Concepts in Black Studies	3
BL_STU 3977	Black Studies Methodologies	3
BL_STU 4977	Black Studies Capstone	3

Students must complete at least one course (3 hours) from each of the following areas of concentration:

- Black Politics
- Arts, Literature, and Culture
- Diaspora Studies
- Gender, Race, Sexuality, Class

(consult Black Studies department for course options)

Students must take a minimum of two additional courses (6 hours) in one of the above areas of concentration to total 9 hours in one concentration area.

- A minimum of 15 hours numbered 2000 or above, 12 of which must be completed at MU, are required in the major.
- A minimum grade of C- or above is required in each major course.
- A minimum GPA of 2.0 in all combined major coursework is required to earn the major.
- One writing-intensive (WI) course numbered 3000 or above must be included in the major.

## Semester Plan

First Year			
Fall	CR	Spring	CR
ENGLISH 1000		3 Math and Quantitative Reasoning course	
Social Science (MO STATE LAW)		3 Foreign Language	4
BL_STU 1000		3 Humanities and Fine Arts	3
Foreign Language		4 Behavioral Science	3
		Writing Intensive 1000+	3
		<b>13</b>	<b>13</b>

Second Year			
Fall	CR	Spring	CR
Bio/Phys/Math Science course		3 Bio/Phys/Math Science Course	3
Social Science		3 Social Science	3
Black Studies Major		3 Humanities and Fine Arts	3
Foreign Language		4 Black Studies Major	3
Elective		3 A&S Diversity	3
		<b>16</b>	<b>15</b>

Third Year			
Fall	CR	Spring	CR
Biology or Physical Science Lab		3 Humanities and Fine Arts	3
Black Studies Major		3 Black Studies Major	3
Black Studies Major		3 Black Studies Major	3
Elective		3 Elective	3

Elective	3 Elective	3
	<b>15</b>	<b>15</b>

Fourth Year			
Fall	CR	Spring	CR
Black Studies Major/WI 3000+		3 Black Studies Major	3
Black Studies Major		3 Elective	3
Behavioral Science		3 Humanities and Fine Arts	3
Elective		3 Elective	3
Elective		3 Elective	3
		<b>15</b>	<b>15</b>

Total Credits: 117

## Contact Information

Emphasis in Black Studies - Coordinated with the Department of Black Studies, an academic department in the College of Arts and Science  
 April Langley, Chair  
 311 Gentry Hall  
 (573) 882-4326

# BA in Interdisciplinary with Emphasis in Environmental Studies

## Degree Program Description

The Bachelor of Arts in Interdisciplinary with an emphasis in Environmental Studies is an individually-designed major for students interested in acquiring a broad understanding of environmental issues and the complex causes underlying them. Students design their major to reflect their own interests and goals in the field. Individualized majors of this kind require a higher level of commitment than is typical of traditional majors because students must do the work of building their own degree. The program prepares students for graduate study and careers in education, law, business, public policy, humanitarian aid, non-profit organizations, and government. The majority of students with the degree work in areas such as advocacy and outreach as well as policy and regulation.

## Major Program Requirements

The Bachelor of Arts in Interdisciplinary with an emphasis in Environmental Studies is an individually-designed major for students interested in acquiring a broad understanding of environmental issues and the complex causes underlying them. Students design their major to reflect their own interests and goals in the field. Individualized majors of this kind require a higher level of commitment than is typical of traditional majors because students MUST do the work of building their own degree. The program prepares students for graduate study and careers in education, law, business, public policy, humanitarian aid, non-profit organizations, and government. The majority of students with the degree work in areas such as advocacy and outreach as well as policy and regulation. Find additional information and course options at <https://omd.missouri.edu/?q=env-st/index>.

Students in this major must complete 5 specified Core courses to fulfill College of Arts and Science Foundation Requirements and an additional 39 hours minimum for the major. In addition, students must complete all university graduation requirements and Arts and Science Foundation

Requirements. A minimum grade of C- is required for courses taken for the major. A minimum cumulative GPA in all major coursework is 2.0.

In addition, students must complete all College of Arts and Science and University graduation requirements (p. 35), including University general education (p. 36).

## Required Core Coursework

### Biological, Physical, and Mathematical Sciences

- Complete a general education approved Biological Sciences course. BIO\_SC 1010, BIO\_SC 1060, BIO\_SC 1200, or BIO\_SC 1500 are recommended course options.
- Complete a general education approved Geology course. GEOL 1100 or GEOL 1200 are the recommended course options.
- Complete a general education approved Chemistry course. CHEM 1100, CHEM 1320 and CHEM 1330 are recommended course options.
- One lecture with a corresponding laboratory must be completed.
- Laboratories should be taken with the corresponding lecture or after the lecture course is completed, but not before completing the corresponding lecture course.

### Social Sciences

- Complete a general education approved Economics or Agricultural Economics course. ECONOM 1014, ECONOM 1015, ABM 1041, or ABM 1042 are recommended.

## Major Requirements

### Policies

- A total of 39 hours is required for the major.
- Students must complete 30 hours numbered 2000 or higher in the major.
- 18 hours numbered 3000 level or higher are required in the major.
- D-range grades are not allowed in the major.
- A minimum grade of C- is required for courses taken for the major.
- A minimum cumulative GPA in all major coursework is 2.0.

### Natural Dimensions

- Complete 15 hours of coursework in this section.
- The course levels will be determined by the academic advisor.
- Refer to the list of Natural Dimensions (<https://omd.missouri.edu/?q=env-st/courses/natural-dimensions>) courses to find options.

### Social Dimensions

- Complete 15 hours of coursework in this section.
- The course levels will be determined by the academic advisor.
- Refer to the list of Social Dimensions (<https://omd.missouri.edu/?q=env-st/courses/social-dimensions>) courses to find options.

### Practicum Core

- Complete ABM 2070W or NAT\_R 2160.
- Complete 3 hours of Service Learning, Internships, or Readings.
- Complete an additional 3 hours of Service Learning, Internships, or Readings.
- Service Learning, Internship, or Readings can be taken as a single course for 6 hours.

## Service Learning, Internships, & Readings

### Policies

- The Capstone must be completed in the final 45 hours of coursework.
- Students must earn a C- or higher to fulfill the Capstone requirement.
- Students must have a Capstone approved by their academic advisor.
- Students may complete an Internship or Readings that is not used as a Capstone.
- Students may not earn retroactive credit for internships.

### Internships 4940

- Students must have a 2.0 cumulative GPA to apply for approval of an internship project.
- Students must not have any active Student Conduct holds.
- Students may not complete an internship at an existing position.
- Students must work 50 hours for each credit hour earned.
- During the Internship period, students must submit the following assignments:
  - a. a well-written proposal outlining the details of the internship must accompany the application
  - b. a carefully-prepared factual report about the internship which addresses the questions outlined in the student's internship proposal
  - c. a résumé which includes the student's internship experience and documents the tangible skills they attained while working
  - d. an interpretative essay in which students connect what they have learned from their internship experience with their academic work in their individualized major
- Internship supervisors must submit a performance evaluation.
- Internships receive a grade of S or U (pass/fail).
- The Office of Multidisciplinary Degrees reserves the right to deny internship project approval to any student it believes will not be a good representative of the University.

### Readings 4960

Students work independently with MU faculty on research and/or professional projects. A student finds a campus professor with whom to work. Together, they create concrete objectives for a meaningful project. The professor guides and supervises the student towards completion of the project and is responsible for awarding a letter grade for the course.

### Service-Learning 4970

Service-Learning provides hands-on experience in service experiences that are coordinated in collaboration with MU and the community. Service-Learning experiences create valuable learning environments for students as they connect with the community in partnerships that provide effective and far-reaching assistance to those in need. To apply, students must have a 2.5 GPA or higher.

## Semester Plan

First Year			
Fall	CR	Spring	CR
MATH 1100		3 General Education Biological Science Course	5
POL_SC 1100		3 General Education Chemistry Course	4

GEOL 1200		4 ENGLISH 1000	3
General Education Humanities Course		3 General Education Behavioral Science Course	3
		13	15
<b>Second Year</b>			
<b>Fall</b>	<b>CR</b>	<b>Spring</b>	<b>CR</b>
General Education Social Science Course 2000+		3 ABM 2070W	3
General Education Humanities Course		3 Foreign Language	5
General Education Behavioral Science Course		3 General Education Economics Course	3
Foreign Language		5 General Education Humanities Courses 2000+	6
General Elective Course 1000+		3	
		17	17
<b>Third Year</b>			
<b>Fall</b>	<b>CR</b>	<b>Spring</b>	<b>CR</b>
Natural Dimensions Course 2000+		3 Natural Dimensions Course 2000+	3
A&S Diversity		3 Natural Dimensions Course 3000+	3
Foreign Language		3 Social Dimensions Courses 3000+	6
Writing Intensive 1000+		6 Writing-Intensive/Social Dimensions Course 3000+	3
		15	15
<b>Fourth Year</b>			
<b>Fall</b>	<b>CR</b>	<b>Spring</b>	<b>CR</b>
Natural Dimensions Course 3000+		3 Natural Dimensions Course 3000+	3
Social Dimensions Course 3000+		3 Internship, Readings or Service Learning Project	3
Internship, Readings or Service Learning Project		3 General Elective Courses 1000+	7
General Elective Courses 1000+		6	
		15	13

Total Credits: 120

## BA in Interdisciplinary with Emphasis in Peace Studies

### Degree Program Description

Peace Studies is offered as an emphasis area in the BA in Interdisciplinary Studies. Students with this emphasis examine issues related to global peace and social justice. The emphasis in Peace Studies helps prepare students for employment, volunteer assignments, and graduate study in such areas as conflict resolution, human rights, humanitarian assistance, sustainable development, social justice, nonviolent social change, and the understanding of global cultural diversity.

### Major Program Requirements

The peace studies emphasis area addresses a wide range of issues concerning peace and justice, including international and civil war and peace; global social and environmental justice; nonviolent social movements, process, and change; cultures, intellectuals, and war and

peace; and indigenous peoples and the imperial state. Our courses provide a liberal arts foundation: students explore values to set goals; they evaluate evidence to assess alternate means to achieve goals. Some courses focus on practical issues of community organization, sustainable development (PEA\_ST 1120) and construction, and public health (PEA\_ST 3401), that students are likely to encounter in work, internship, or volunteer positions. Study abroad courses taught by MU faculty are regularly offered. Since issues of peace and conflict cut across disciplines, the curriculum includes courses offered by both the program itself and cross listed between Peace Studies and other programs and departments of the University.

In addition, students must complete all College of Arts and Science and University graduation requirements (p. 35), including University general education (p. 36).

#### Emphasis requirements 30

##### Core requirements 12

PEA\_ST 1050 Introduction to Peace Studies  
 Select 12 credits from the following. It is recommended that students pick four courses distributed in at least four of the following areas

##### Area 1: International and Civil War and Peace

PEA_ST 1051	International Conflict Resolution and Group Reconciliation (Section 2 is writing intensive, section 1 not)
PEA_ST 2200	Nuclear Weapons: Environmental, Health and Social Effects (Section 2 is writing intensive, section 1 not)
PEA_ST 2410	Philosophies of War and Peace
PEA_ST 2550	Human Rights, Law, War and Peace
PEA_ST 3230H	Terrorism and Conflict Resolution - Honors
PEA_ST 3610	Ireland, 1100s to 1850
PEA_ST 3611	Ireland, 1850-1923
PEA_ST 3612	Ireland, 1920-Present
PEA_ST 4331	Nonproliferation Issues for Weapons of Mass Destruction

##### Area 2: Global Social and Environmental Justice

PEA_ST 1052	Global Warming, Climate Change, Catastrophic Climate Destabilization (Section 2 is writing intensive, section 1 not)
PEA_ST 1120	Population and Ecology
PEA_ST 2000	Exploration in Social and Economic Justice
PEA_ST 2600	CAFO: Concentrated Animals, Deep Ecology (Section 2 is writing intensive, section 1 not)
PEA_ST 3600	Criminology
PEA_ST 3401	Global Public Health and Health Care Systems
PEA_ST 3870	Social Revolution in Latin America

##### Area 3: Nonviolent Social Movements, Process, and Change

PEA_ST 2182	Critical Dialogues: Nonviolence in Peace/ Democracy Movements (Section 2 is writing intensive, section 1 not)
PEA_ST 2285	Large Corporations, Economic Crisis, Social Responsibility
PEA_ST 3510	Think Global: Fundamentals of Globalization and Digital Technologies



PEA_ST 3520	Collective Behavior
PEA_ST 3521	Group Decision Making Processes
PEA_ST 3522	New Media, Conflict and Control
<b>Area 4: Cultures, Intellectuals, And War and Peace</b>	
PEA_ST 2280	Race, Democracy, and Violence in Cuba and Haiti (Section 2 is writing intensive, section 1 not)
PEA_ST 2320	Literature of Spanish Civil War
PEA_ST 3140	Art of War and Peace
PEA_ST 3400	Fake News and Media Politics
PEA_ST 3780	World Political Geography
PEA_ST 4600	Political and Social Philosophy
<b>Area 5: Indigenous Peoples, Human Rights, and The Imperial State</b>	
REL_ST 2100	Indigenous Religions
ENGLSH 2490	Introduction to Indigenous Literatures
ENGLSH 3490	Special Themes in Native American and Indigenous Studies
PEA_ST 3496	Digital Indigenous Studies
PEA_ST 3496H	Digital Indigenous Studies - Honors
GEOG 3560	Native American Geographies
PEA_ST 4550	Gender and Human Rights in Cross Cultural Perspective
<b>Other Peace Studies courses counted toward the emphasis requirements</b>	
	<b>15</b>

## Semester Plan

First Year			
Fall	CR	Spring	CR
ENGLSH 1000		3 MATH 1100 or 1050	3
Social Science (MO STATE LAW)		3 Foreign Language	4
Humanities and Fine Arts		3 PEA_ST 1050W	3
Foreign Language		4 Behavioral Science	3
		Elective	3
		13	16
Second Year			
Fall	CR	Spring	CR
Math Science/MRP		3 Bio/Phys/Math Science Course	3
Social Sceince		3 Social Science	3
Peace Studies Major		3 Humanities and Fine Arts	3
Foreign Language		4 Peace Studies Major	3
A&S Diversity		3 Elective	3
		16	15
Third Year			
Fall	CR	Spring	CR
Biology or Physical Science Lab		3 Humanities and Fine Arts	3
Peace Studies Major		3 Peace Studies Major	3
Peace Studies Major		3 Peace Studies Major	3
Elective		3 Elective	3
Elective		3 Elective	3
		15	15
Fourth Year			
Fall	CR	Spring	CR
Peace Studies Major/WI 3000+		3 Peace Studies Major	3
Peace Studies Major		3 Elective	3

Behavioral Science	3	Humanities and Fine Arts	3
Elective	3	Elective	3
Elective	3	Elective	3
		15	15

Total Credits: 120

# BA in Interdisciplinary with Emphasis in Women's and Gender Studies

## Degree Program Description

Women's and Gender Studies is an interdisciplinary field that establishes gender, sexuality, race, class, and dis/ability as fundamental categories for understanding social structures, cultural norms, and power dynamics. Combining research methods from the humanities and social sciences, the WGST major strengthens critical thinking, writing and research skills; highlights multiple forms of knowledge; and encourages students to think of themselves and others as citizens of a diverse world. WGST scholars produce a wide-variety of analytical, creative, and activist works, investigating intersecting forms of inequalities and oppressions in local and global contexts.

When students graduate with a emphasis in Women's and Gender Studies, they should be able to:

- Apply cross-cultural and global awareness to 'big questions' about women and gender
- Have a comprehensive grasp of intersectionality and matrices of power
- Think critically: i.e. consider an issue from multiple perspectives; locate, evaluate and interpret diverse sources; engage in critical self-reflection
- Construct arguments with evidence obtained from research
- Work collaboratively
- Recognize sexist/racist writing and thinking
- Connect knowledge and experience, theory and activism, Women's and Gender Studies materials with other courses
- Communicate effectively in writing and speech
- Apply knowledge for social transformation, citizenship
- Use gender (and other identity categories) as a category/ies for analysis

This major can be combined with other programs to create a double major or a dual degree. The flexibility and expansiveness of the degree enables our graduates to work in a wide variety of fields, including education, law, public policy, health sciences, human resources, business management, social work, arts, non-profit organizations, NGO's, advertising and market research, communication, and journalism.

## Major Program Requirements

This major can be combined with other programs to create a double major or a dual degree. Within the College of Arts and Science, students can pair it with a major like BA in English, Sociology, Psychology or History, for example, without taking courses beyond the required 120 credits. Students seeking a Bachelor Degree in Journalism or a Public Health degree can earn a second degree, a BA in Interdisciplinary with Emphasis in Women's and Gender Studies. Required WGST courses for

many dual degrees also fit within the 120 credit graduation plan, although 132 total credits are generally required for a dual degree.

The curriculum includes Women's and Gender Studies core courses as well as cross-listed courses from several departments throughout the University.

Thirty hours are required in Women's and Gender Studies. In addition to degree requirements, college and university requirements (p. 35), including university general education requirements (p. 36), must be met.

Required Core Courses		9
WGST 2020	Feminist Theory	3
WGST 4990	Research Seminar in Women's and Gender Studies	3
WGST 3450W	Feminist Methodologies - Writing Intensive	3

4940 Internship can be substituted for 4990 Seminar

**Additional courses 21**

An additional 21 credits (WGST or cross-listed courses) are required. A minimum of 12 credits must come from WGST core courses (courses taught by WGST faculty and instructors), in addition, 9 credits must be 3000 level or higher. See the WGST website for current course offerings.

### Semester Plan

First Year			
Fall	CR	Spring	CR
ENGLISH 1000		3 Foreign Language	5
Social Science (MO State Law)		3 WGST 2020	3
Foreign Language		5 MATH 1100	3
WGST Major Course		3 General Elective	3
		14	14

Second Year			
Fall	CR	Spring	CR
Science with a Lab		5 Minor	3
Foreign Language		3 WGST Major Course	3
Behavioral Science		3 Humanities/Fine Arts (Writing Intensive)	3
Social Science		3 Behavioral Science	3
WGST 3450W		3 Science	3
		17	15

Third Year			
Fall	CR	Spring	CR
WGST Major Course		3 WGST Major Course	3
Minor		3 Minor	3
Science (Math Reasoning Proficiency)		3 Humanities/Fine Arts	3
General Elective		3 Social Science	3
WGST Major Course		3 General Elective	3
		15	15

Fourth Year			
Fall	CR	Spring	CR
WGST Major Course		3 WGST 4990 (or 4940 Internship)	3
WGST Major Course		3 Minor	3
Minor		3 Humanities/Fine Arts	3
Humanities/Fine Arts		3 General Elective	3

General Elective	3 General Elective	3
	15	15

Total Credits: 120

### Contact

Women's and Gender Studies, Department in the College of Arts and Science  
 Linda Reeder, Chair  
 Julie Elman, Director of Undergraduate Studies  
 325 Strickland Hall  
 (573) 882-2703

### International Studies

Office of Multidisciplinary Degrees  
 College of Arts and Science  
 326H Strickland Hall

International Studies (<https://omd.missouri.edu/?q=intl-st/index>)

The Bachelor of Arts in International Studies is an individually designed major with a strong multicultural and global focus. Students in the major have the opportunity to design a major that reflects their own interests and goals. The increased level of flexibility requires a higher level of commitment than is typical of traditional majors because students MUST do the work of building their own degree.

International Studies majors acquire analytical skills and knowledge that will enable them to understand and contribute to shaping the quickly evolving global community. The program prepares students for graduate study and careers in academia, teaching, law, business, public policy, humanitarian aid, non-profit organizations, government, and diplomacy. Students in the program will study advanced foreign language and participate in a study abroad experience to fulfill degree requirements.

International Business (<https://omd.missouri.edu/?q=intl-bus/index>)

The dual degree program in International Business leads to the BS in Business Administration from the Trulaske College of Business and the BA in International Studies from the College of Arts & Science. This degree typically takes 4 1/2 to 5 years to complete. Students in the program will study advanced foreign language and participate in a study abroad experience to fulfill degree requirements.

International Studies majors acquire analytical skills and knowledge that will enable them to understand and contribute to shaping the quickly evolving global community. The program prepares students for graduate study and careers in academia, teaching, law, business, public policy, humanitarian aid, non-profit organizations, government, and diplomacy.

### Faculty

Faculty for International Studies are housed within various departments.

### Undergraduate

- BA in International Studies (p. 234)
  - with emphasis in East Asian Studies (p. 236)
  - with emphasis in Environmental Studies (p. 237)
  - with emphasis in European Studies (p. 237)
  - with emphasis in International Business (p. 238)
  - with emphasis in Latin American Studies (p. 239)

- with emphasis in Peace Studies (p. 240)
- with emphasis in South Asian Studies (p. 241)

## Graduate

While the College does not offer a graduate degree specific to international studies, the Graduate School does offer a graduate academic Minor in International Development (p. 816).

This catalog provides a complete list of graduate degree options (p. 20) for all Schools and Colleges at the University of Missouri.

## BA in International Studies

### Degree Program Description

The Bachelor of Arts in International Studies is an individually designed major with a strong multicultural and global focus. Students in the major have the opportunity to design a major that reflects their own interests and goals. The increased level of flexibility requires a higher level of commitment than is typical of traditional majors because students MUST do the work of building their own degree. International Studies majors acquire analytical skills and knowledge that will enable them to understand and contribute to shaping the quickly evolving global community. The program prepares students for graduate study and careers in academia, teaching, law, business, public policy, humanitarian aid, non-profit organizations, government, and diplomacy. Students in the program will study advanced foreign language and participate in a study abroad experience to fulfill degree requirements.

### Major Program Requirements

A student majoring in the BA in International Studies must complete 18 hours of specified Core coursework to fulfill Arts and Science Foundation Requirements, an additional 42 hours minimum for the major, and a study abroad experience. A minimum grade of C- is required for courses taken for the major. A minimum cumulative GPA in all major coursework is 2.0. In addition, students must complete all College of Arts and Science and University graduation requirements (p. 35), including University general education (p. 36).

The information below pertains to the BA in International Studies and most of its emphasis areas. Additional information can be found at <https://internationalstudies.missouri.edu/node/3> (<https://internationalstudies.missouri.edu/node/3/>). Students interested in the emphasis area of International Business and a dual degree option with the BSBA in Business Administration, can find additional information at <https://internationalstudies.missouri.edu/node/9> (<https://internationalstudies.missouri.edu/node/9/>).

### Required Core Coursework

Complete the following courses:

ANTHRO 2030	Cultural Anthropology	3
GEOG 1100	Regions and Nations of the World I	3
or GEOG 1200	Regions and Nations of the World II	
POL_SC 1400	International Relations	3
or POL_SC 2700	Comparative Political Systems	

In addition, complete 3 of the following courses and at least one of the courses completed must come from the Humanities section:

#### Biological and Physical Sciences Core Courses

ATM_SC 1050	Introductory Meteorology	3
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ATM_SC 2150	Natural Hazards	3
ATM_SC 3600	Climates of the World	3
BIO_SC 1060	Basic Environmental Studies	3
BIO_SC 1400	Evolution for Everyone	3
GEOL 1050	Planet Earth	3
GEOL 1100	Principles of Geology with Laboratory	4
GEOL 1200	Environmental Geology with Laboratory	4
GEOL 1250	The World's Oceans	3

#### Behavioral Sciences Core Courses

ANTHRO 1000	Introduction to Anthropology: Human Biology, Prehistory, and Culture	3
ANTHRO 1300	Multiculturalism: An Introduction	3
PEA_ST 2000	Exploration in Social and Economic Justice	3
SOCIOL 1000	Introduction to Sociology	3
or RU_SOC 1000	Rural Sociology	
SOCIOL 2200	Social Inequalities	3
WGST 2040	Perspectives on Empowerment	3
WGST 2250	Gender, Race, Class and Sexuality in the Americas	3

#### Social Sciences Core Courses

ECONOM 1014	Principles of Microeconomics	3
or ABM 1041	Applied Microeconomics	
ECONOM 1015	Principles of Macroeconomics	3
or ABM 1042	Applied Macroeconomics	
PEA_ST 1050	Introduction to Peace Studies	3
WGST 1120	Introduction to Women's and Gender Studies	3

#### Humanities Core Courses (at least one course from the list below is required)

ARCHST 1600	Fundamentals of Environmental Design	3
ARH_VS 1110	Ancient and Medieval Art	3
ARH_VS 1120	Renaissance through Modern Art	3
ENGLISH 2155	Introduction to World Literatures	3
ENGLISH 2159	Introduction to World Literatures, 1890 to Present	3
FILMS_VS 2020	World Cinema for Non-Majors	3
FILMS_VS 2820	Trends in World Cinema	3
FRENCH 4820	Blogging the World: The Web in Cultural Context	3
or FRENCH 4820W	Blogging the World: The Web in Cultural Context - Writing Intensive	
GERMAN 3510	Think Global: Fundamentals of Globalization and Digital Technologies	3
or GERMAN 3510H	Think Global: Fundamentals of Globalization and Digital Technologies - Honors	
or GERMAN 3510W	Think Global: Fundamentals of Globalization and Digital Technologies - Writing Intensive	
or GERMAN 3510HW	Think Global: Fundamentals of Globalization and Digital Technologies - Honors/Writing Intensive	
GERMAN 4820	Blogging the World: The Web in Cultural Context	3
or GERMAN 4820W	Blogging the World: The Web in Cultural Context - Writing Intensive	
GN_HON 2112H	The Middle Ages and the Renaissance	3
GN_HON 2113H	The Early Modern World: The 17th-19th Centuries Enlightenment	3
GN_HON 2114H	The Modern Era	3

JOURN 1000	The News Media: Journalism and Advertising in a Democratic Society	3
MUSIC_NM 1310	Masterpieces of Western Music	3
MUSIC_NM 1313	Introduction to World Music	3
PEA_ST 2410	Philosophies of War and Peace	3
PEA_ST 3510	Think Global: Fundamentals of Globalization and Digital Technologies	3
PHIL 2100	Philosophy: East and West	3
PHIL 2430	Contemporary Moral Issues	3
REL_ST 1100	Introduction to Religion	3
REL_ST 2100	Indigenous Religions	3
REL_ST 2110	Global Religions	3
REL_ST 2310	Religions of China and Japan	3
RUSS 4820	Blogging the World: The Web in Cultural Context	3
or RUSS 4820W	Blogging the World: The Web in Cultural Context - Writing Intensive	
WGST 2080	Perspectives on Sexual and Gender Diversity	3

## Major Requirements (42 hours minimum)

### Language Requirements (6 hours minimum)

For the major, students must complete 6 hours minimum of conversation and/or composition courses in a single foreign language, beyond the elementary level.

### Regional/Cultural Area (12 hours minimum)

Could include additional language and literature courses from the language of major study, as well as coursework with an international focus from Philosophy, Religious Studies, Art History, Film Studies, and Civilization courses.

### Social/Behavioral Sciences Area (12 hours minimum)

Could include coursework with an international focus from Geography, History, Political Science, Economics, Anthropology, Sociology, Rural Sociology, Women's and Gender Studies and Peace Studies.

### Emphasis Areas (12 hours minimum)

The emphasis area options are: East Asian Studies (p. 236), Environmental Studies (p. 237), European Studies (p. 237), International Business (p. 238), Latin American Studies (p. 239), Peace Studies (p. 240), or South Asian Studies (p. 241). Course work with an international focus of the student's choice allowing the study of one area in depth. For all emphasis except International Business, the area is typically related to the foreign language the student is studying. Students are encouraged to take 9 credits from a single department or area. The 3-credit capstone experience will complete the 12 hours of credit in the emphasis area. The International Business emphasis has a different set of requirements. For details on requirements in an emphasis area, refer to each degree page.

### Capstone Options

#### Policies

- The Capstone must be completed in the final 45 hours of coursework.
- Students must earn a C- or higher to fulfill the Capstone requirement.
- Students must have a Capstone approved by their academic advisor.
- Students may complete an Internship or Readings that is not used as a Capstone.
- Students may not earn retroactive credit for internships.

### Internships 4940

- Students must have a 2.0 cumulative GPA to apply for approval of an internship project.
- Students must not have any active Student Conduct holds.
- Students may not complete an internship at an existing position.
- Students must work 50 hours for each credit hour earned.
- Only internships in the United States can be approved.
- During the Internship period, students must submit the following assignments:
  - a well-written proposal outlining the details of the internship must accompany the application
  - a carefully-prepared factual report about the internship which addresses the questions outlined in the student's internship proposal
  - a résumé which includes the student's internship experience and documents the tangible skills they attained while working
  - an interpretative essay in which students connect what they have learned from their internship experience with their academic work in their individualized major
  - Internship supervisors must submit a performance evaluation.
- Internships receive a grade of S or U (pass/fail).
- The Office of Multidisciplinary Degrees reserves the right to deny internship project approval to any student it believes will not be a good representation of the University.

### Readings 4960

Students work independently with MU faculty on research and/or professional projects. A student finds a campus professor with whom to work. Together, they create concrete objectives for a meaningful project. The professor guides and supervises the student towards completion of the project and is responsible for awarding a letter grade for the course.

### Service-Learning 4970

Service-Learning provides hands-on experience in service experiences that are coordinated in collaboration with MU and the community. Service-Learning experiences create valuable learning environments for students as they connect with the community in partnerships that provide effective and far-reaching assistance to those in need. To apply, students must have a 2.5 GPA or higher.

### 4000-level Capstone course

Students can select a 4000-level course in the Focus Area to fulfill the Capstone requirement. This course does not need to be a departmental Capstone in order to fulfill the requirement.

### Study Abroad Experience Requirement

- Students should study abroad for a minimum of 4 weeks.
- If a program is less than 4 weeks, it must be approved by the academic advisor.
- Credit earned during a study abroad experience may be used to fulfill major requirements.
- Students should complete their study abroad experience prior to their last year.
- Preparation for a study abroad experience should begin a year in advance.
- Information on study abroad is available at the International Center website (<https://international.missouri.edu/studyabroad/>).

## Semester Plan

First Year			
Fall	CR	Spring	CR
ENGLSH 1000		3 Foreign Language	5
Core Humanities		3 POL_SC 1400 or 2700	3
Foreign Language		5 Biological/Physical Science Course w/Lab	5
American History or Government course		3 Math and Quantitative Reasoning course	3
		14	16

Second Year			
Fall	CR	Spring	CR
GEOG 1100 or 1200		3 Foreign Language	3
Foreign Language		3 ANTHRO 2030	3
Core Humanities		3 Writing Intensive 1000+	2
General Elective 1000+		3 Biological/Physical Science Course	4
General Education Behavioral Science		3 Core Humanities 2000 level	3
		15	15

Third Year			
Fall	CR	Spring	CR
Social/Behavioral 2000+ Major		3 Regional/Cultural 3000+ Major	3
Social/Behavioral Science 1000+ Major		3 Regional/Cultural 2000+ Major	3
General Education Humanities 2000+		3 Regional/Cultural 3000+ Major	3
Regional/Cultural 1000+ Major		3 Social Behavioral 3000+ Major	3
Foreign Language		3 Social Behavioral 3000+ Major	3
		15	15

Fourth Year			
Fall	CR	Spring	CR
General Elective 3000+		3 Focus Area 3000+ Major	3
General Elective 1000+		3 Focus Area Capstone 4000 Level	3
Focus Area 3000+ Major		3 General Elective 1000+	3
Writing-Intensive/Focus Area 3000+ Major		3 General Elective 1000+	3
General Elective 1000+		3 General Elective 3000+	3
		15	15

Total Credits: 120

## BA in International Studies with Emphasis in East Asian Studies

### Degree Program Description

The Bachelor of Arts in International Studies is an individually designed major with a strong multicultural and global focus. The emphasis in East Asian Studies focuses on creating an understanding and awareness of the culture, history, politics, geography and languages of the East Asian countries, with an emphasis in China, Japan or Korea. The program is multidisciplinary, encompassing course work from the departments of Geography, History, Anthropology, Religious Studies, Political Science and Philosophy, as well as in Chinese, Japanese and Korean. The program prepares students for graduate study and careers in academia,

teaching, law, business, public policy, humanitarian aid, non-profit organizations, government, and diplomacy. There is an option available for students who wish to obtain Chinese teaching certification.

### Major Program Requirements

Refer to the program requirements for the BA in International Studies (p. 234). In addition, for the emphasis in East Asian Studies, students must complete 12 hours of credit:

- 9 credits from a single department or area
- 3 credits in a capstone experience.

Students are encouraged to begin study of their foreign language no later than the sophomore year. Students should consult with the International Center about appropriate locations for their study abroad experience. In addition, students must complete all College of Arts and Science, and University graduation requirements (p. 35), including University general education (p. 36).

### Semester Plan

First Year			
Fall	CR	Spring	CR
ENGLSH 1000		3 Foreign Language	5
Core Humanities		3 POL_SC 1400 or 2700	3
Foreign Language		5 Biological/Physical Science Course w/Lab	5
American History or Government course		3 Math and Quantitative Reasoning course	3
		14	16

Second Year			
Fall	CR	Spring	CR
GEOG 1100 or 1200		3 Foreign Language	3
Foreign Language		3 ANTHRO 2030	3
Core Humanities		3 General Elective 1000+	2
General Elective 1000+		3 Biological/Physical Science Course	4
General Education Behavioral Science		3 Core Humanities 2000 level	3
		15	15

Third Year			
Fall	CR	Spring	CR
Social/Behavioral 2000+ Major		3 Regional/Cultural 3000+ Major	3
Social/Behavioral Science 1000+ Major		3 Regional/Cultural 2000+ Major	3
General Education Humanities 2000+		3 Regional/Cultural 3000+ Major	3
Regional/Cultural 1000+ Major		3 Social Behavioral 3000+ Major	3
Foreign Language		3 Social Behavioral 3000+ Major	3
		15	15

Fourth Year			
Fall	CR	Spring	CR
General Elective 3000+		3 Emphasis Area 3000+ Major	3
General Elective 1000+		3 Emphasis Area Capstone 4000 Level	3
Emphasis Area 3000+ Major		3 General Elective 1000+	3
Emphasis Area 3000+ Major		3 General Elective 1000+	3

General Elective 1000+	3 General Elective 3000+	3
	15	15

Total Credits: 120

## BA in International Studies with Emphasis in Environmental Studies

### Degree Program Description

The Bachelor of Arts in International Studies is an individually designed major with a strong multicultural and global focus. The Environmental Studies emphasis is for students interested in developing a broad understanding of environmental problems and their underlying causes so they can work effectively in the areas of environmental advocacy, outreach, policy, and regulation. The program prepares students for graduate study and careers in academia, teaching, law, business, public policy, humanitarian aid, non-profit organizations, government, and diplomacy.

### Major Program Requirements

Refer to the program requirements for the BA in International Studies (p. 234). In addition, for the emphasis in Environmental Studies, students must complete 12 hours of credit:

- 9 credits from a single department or area
- 3 credits in a capstone experience.

Students are encouraged to begin study of their foreign language no later than the sophomore year. Students should consult with the International Center about appropriate locations for their study abroad experience. In addition, students must complete all College of Arts and Science, and University graduation requirements (p. 35), including University general education (p. 36).

### Semester Plan

First Year			
Fall	CR	Spring	CR
ENGLSH 1000		3 Foreign Language	5
Core Humanities		3 POL_SC 1400 or 2700	3
Foreign Language		5 Biological/Physical Science Course w/Lab	5
American History or Government course		3 Math and Quantitative Reasoning course	3
	14		16

Second Year			
Fall	CR	Spring	CR
GEOG 1100 or 1200		3 Foreign Language	3
Foreign Language		3 ANTHRO 2030	3
Core Humanities		3 General Elective 1000+	2
General Elective 1000+		3 Biological/Physical Science Course	4
General Education Behavioral Science		3 Core Humanities 2000 level	3
	15		15

Third Year			
Fall	CR	Spring	CR
Social/Behavioral 2000+ Major		3 Regional/Cultural 3000+ Major	3
Social/Behavioral Science 1000+ Major		3 Regional/Cultural 2000+ Major	3
General Education Humanities 2000+		3 Regional/Cultural 3000+ Major	3
Regional/Cultural 1000+ Major		3 Social Behavioral 3000+ Major	3
Foreign Language		3 Social Behavioral 3000+ Major	3
	15		15

Fourth Year			
Fall	CR	Spring	CR
General Elective 3000+		3 Focus Area 3000+ Major	3
General Elective 1000+		3 focus Area Capstone 4000 Level	3
Focus Area 3000+ Major		3 General Elective 1000+	3
Focus Area 3000+ Major		3 General Elective 1000+	3
General Elective 1000+		3 General Elective 3000+	3
	15		15

Total Credits: 120

## BA in International Studies with Emphasis in European Studies

### Degree Program Description

European studies is an emphasis area in the International Studies major. Students who are studying French, Spanish, German, Italian or Russian may wish to select European studies as their emphasis area. The student examines the politics, culture, history and geography of the European continent, with a focus on the country whose native language is being studied by the student. Given the multidisciplinary approach to this degree, students take courses that are specifically geared to a better understanding of the culture, history, and language of a given country, as well as a better understanding of the entire continent of Europe. The program prepares students for graduate study and careers in academia, teaching, law, business, public policy, humanitarian aid, non-profit organizations, government, and diplomacy.

### Major Program Requirements

Refer to the program requirements for the BA in International Studies (p. 234). In addition, for the emphasis in European Studies, students must complete 12 hours of credit:

- 9 credits from a single department or area
- 3 credits in a capstone experience.

Students are encouraged to begin study of their foreign language no later than the sophomore year. Students should consult with the International Center about appropriate locations for their study abroad experience. In addition, students must complete all College of Arts and Science, and University graduation requirements (p. 35), including University general education (p. 36).

### Semester Plan

First Year			
Fall	CR	Spring	CR
ENGLSH 1000		3 Foreign Language	5
Core Humanities		3 POL_SC 1400 or 2700	3

Foreign Language	5 Biological/Physical Science Course w/Lab	5
American History or Government course	3 Math and Quantitative Reasoning course	3
		14

Second Year			
Fall	CR	Spring	CR
GEOG 1100 or 1200		3 Foreign Language	3
Foreign Language		3 ANTHRO 2030	3
Core Humanities		3 General Elective 1000+	2
General Elective 1000+		3 Biological/Physical Science Course	4
General Education Behavioral Science		3 Core Humanities 2000 level	3
		15	15

Third Year			
Fall	CR	Spring	CR
Social/Behavioral 2000+ Major		3 Regional/Cultural 3000+ Major	3
Social/Behavioral Science 1000+ Major		3 Regional/Cultural 2000+ Major	3
General Education Humanities 2000+		3 Regional/Cultural 3000+ Major	3
Regional/Cultural 1000+ Major		3 Social Behavioral 3000+ Major	3
Foreign Language		3 Social Behavioral 3000+ Major	3
		15	15

Fourth Year			
Fall	CR	Spring	CR
General Elective 3000+		3 Focus Area 3000+ Major	3
General Elective 1000+		3 focus Area Capstone 4000 Level	3
Focus Area 3000+ Major		3 General Elective 1000+	3
Focus Area 3000+ Major		3 General Elective 1000+	3
General Elective 1000+		3 General Elective 3000+	3
		15	15

Total Credits: 120

# BA in International Studies with Emphasis in International Business

## Degree Program Description

The dual degree program leads to the BSBA in Business Administration with emphasis in one of the four International Business areas and the BA in International Studies with emphasis in International Business. This dual degree typically takes 4 1/2 to 5 years to complete. Students in the program will study advanced foreign language and participate in a study abroad experience to fulfill degree requirements. International Studies majors acquire analytical skills and knowledge that will enable them to understand and contribute to shaping the quickly evolving global community. The program prepares students for graduate study and careers in academia, teaching, law, business, public policy, humanitarian aid, non-profit organizations, government, and diplomacy. Additional information on the degree can be found at the International Business website (<https://omd.missouri.edu/?q=intl-bus/index>).

## Major Program Requirements

Students are required to complete a minimum of 144-149 credit hours which is determined by the specific BSBA international business emphasis area (Economics, Finance, Management, Marketing) chosen when they are accepted into the upper level in the Trulaske College of Business. Only one D-range grade is allowed in the major. Students should not pursue a language minor in the language they are studying for the dual degree. The final 30-36 hours taken for the degree must be completed as MU courses unless the hours are earned through a study abroad program. Students must have a 2.0 GPA (cumulative, major, final 30 hours, and final 60 hours) to graduate.

### Foreign Language Requirements:

- Complete the elementary levels of a single foreign language.
- Complete 6 additional hours of foreign language (conversation and/or composition) beyond the elementary level.
- Language courses must be taken in order.
- For examples, refer to the list under Language, Civilization and Literature Requirements (<https://omd.missouri.edu/?q=intl-bus/courses>).

### Area of Support Requirements:

- Complete 3 credit hours 2000-level or above, and 6 credits 3000-level or above.
- Courses used to fulfill this section must be from a College of Arts and Science department that has an international focus.
- Courses used to count toward the BSBA cannot fulfill this section.
- For examples, refer to the list under International Studies Area of Support (<https://omd.missouri.edu/?q=intl-bus/courses>).

### Study Abroad Requirements:

- Students should study abroad for a minimum of 4 weeks, and complete it prior to their last year.
- Credits earned during a study abroad experience may be used to fulfill major requirements.
- Preparation should begin a year in advance. Information is available at the International Center (<https://international.missouri.edu/>) website.

### Business Requirements:

- Refer to the Upper Level Admission Requirements (<https://business.missouri.edu/programs-admissions/undergraduate/admissions/upper-level-admissions/>) in the Trulaske College of Business for additional requirements to begin your Business emphasis.
- Complete the requirements for the BSBA with emphasis in one of the International Business areas (Economics (p. 393), Finance (p. 394), Management (p. 396), Marketing (p. 397)).

In addition, students must complete all College of Arts and Science, and University graduation requirements (p. 35), including University general education (p. 36).

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available or the individual semester plan based on emphasis areas.

Please visit the following for specific semester plans: Economics (p. 393), Finance (p. 394), Management (p. 396), or Marketing (p. 397).

First Year			
Fall	CR	Spring	CR
MATH 1100		3 MATH 1400	3
BUS_AD 1500		2 ENGLISH 1000	3

State Requirement	3	ECONOM 1014	3
Foreign Language	4	Foreign Language	4
Humanities	3	Behavioral Science	3
		15	16

Second Year			
Fall	CR	Spring	CR
ACCTCY 2036	3	ACCTCY 2037	3
BUS_AD 2500	2	ACCTCY 2258	3
MATH 1300	3	STAT 2500	3
ECONOM 1015	3	Foreign Language	3
Foreign Language	4	ANTHRO 2030	3
		Biological Science	3
		15	18

Third Year			
Fall	CR	Spring	CR
BUS_AD 3500	2	FINANC 3000	3
MANGMT 3300	3	MANGMT 3000	3
Writing Intensive Business	3	MANGMT 3540	3
STAT 3500	3	ECONOM 3229 or 3251	3
MRKTNG 3000	3	Foreign Civilization/Writing Intensive Non-Business	3
Foreign Language	3		
		17	15

Fourth Year			
Fall	CR	Spring	CR
BUS_AD 4500	3	Business Area	3
Foreign Literature	3	Business Area	3
POL_SC 1400 or 2700	3	Business Area	3
Physical Science	3	Business Area	3
Humanity-Global Core	3	A&S Area Support	3
		GEOG 1100 or 1200	3
		15	18

Fifth Year			
Fall	CR		
MANGMT 4970	3		
Business Area	3		
Business Area	3		
A&S Area Support	3		
A&S Area Support	3		
		15	

Total Credits: 144

## BA in International Studies with Emphasis in Latin American Studies

### Degree Program Description

Latin American Studies is offered as an emphasis area for the BA in International Studies. The Latin American Studies emphasis is designed to offer, in addition to linguistic competency in Spanish or Portuguese, a broad base of knowledge about Latin American politics, literature, economics and culture. This field of inquiry, alone or in combination with another discipline, is in high demand throughout the world and can provide students with an indisputable competitive edge in the

contemporary professional arena. Students who graduate with an emphasis in Latin American Studies will be fully prepared to pursue graduate study in Latin American Studies programs offered around the country. Students are encouraged to study abroad in one of many program opportunities in Spain, Mexico, Central and South America, Brazil or the Caribbean.

### Major Program Requirements

Refer to the program requirements for the BA in International Studies (p. 234). In addition, for the emphasis in Latin American Studies, students must complete 12 hours of credit:

- 9 credits from a single department or area
- 3 credits in a capstone experience.

Students are encouraged to being study of their foreign language no later than the sophomore year. Students should consult with the International Center about appropriate locations for their study abroad experience, but are encouraged to study abroad in one of many program opportunities in Spain, Mexico, Central and South America, Brazil or the Caribbean. In addition, students must complete all College of Arts and Science and University graduation requirements (p. 35), including University general education (p. 36).

### Semester Plan

First Year			
Fall	CR	Spring	CR
ENGLSH 1000	3	Foreign Language	5
Core Humanities	3	POL_SC 1400 or 2700	3
Foreign Language	5	Biological/Physical Science Course w/Lab	5
American History or Government course	3	Math and Quantitative Reasoning course	3
		14	16

Second Year			
Fall	CR	Spring	CR
GEOG 1100 or 1200	3	Foreign Language	3
Foreign Language	3	ANTHRO 2030	3
Core Humanities	3	General Elective 1000+	2
General Elective 1000+	3	Biological/Physical Science Course	4
General Education Behavioral Science	3	Core Humanities 2000 level	3
		15	15

Third Year			
Fall	CR	Spring	CR
Social/Behavioral 2000+ Major	3	Regional/Cultural 3000+ Major	3
Social/Behavioral Science 1000+ Major	3	Regional/Cultural 2000+ Major	3
General Education Humanities 2000+	3	Regional/Cultural 3000+ Major	3
Regional/Cultural 1000+ Major	3	Social Behavioral 3000+ Major	3
Foreign Language	3	Social Behavioral 3000+ Major	3
		15	15

Fourth Year			
Fall	CR	Spring	CR
General Elective 3000+	3	Focus Area 3000+ Major	3
General Elective 1000+	3	focus Area Capstone 4000 Level	3



Focus Area 3000+ Major	3 General Elective 1000+	3
Focus Area 3000+ Major	3 General Elective 1000+	3
General Elective 1000+	3 General Elective 3000+	3
		15

Total Credits: 120

## BA in International Studies with Emphasis in Peace Studies

### Degree Program Description

Peace Studies is offered as an emphasis area for the BA in International Studies. Students with this emphasis examine issues related to global peace and social justice in the international arena. The emphasis in Peace Studies helps prepare students for employment, volunteer assignments, and graduate study in such areas as conflict resolution, human rights, humanitarian assistance, sustainable development, social justice, nonviolent social change, indigenous peoples, and the understanding of global cultural diversity

### Major Program Requirements

Refer to the program requirements for the BA in International Studies (p. 234). In addition, for the emphasis in Peace Studies, students must complete 12 hours of credit:

- 9 credits from a single department or area
- 3 credits in a capstone experience.

The courses for the emphasis in Peace Studies center on those offered through the Peace Studies program, many of which are cross-listed with other departments. In addition, students can count towards the Peace Studies emphasis other courses from departments such as Black Studies, English, Geography, History, Political Science, Religious Studies, Romance Languages, and Women's and Gender Studies. Peace Studies courses counting for the emphasis can be drawn from the list below.

PEA_ST 1050	Introduction to Peace Studies	3
PEA_ST 1120	Population and Ecology	3
PEA_ST 2000	Exploration in Social and Economic Justice	3
PEA_ST 2182	Critical Dialogues: Nonviolence in Peace/Democracy Movements	3
PEA_ST 2200	Nuclear Weapons: Environmental, Health and Social Effects	3
PEA_ST 2255	Youth, Islam, and Global Cultures	3
PEA_ST 2280	Race, Democracy, and Violence in Cuba and Haiti	3
PEA_ST 2285	Large Corporations, Economic Crisis, Social Responsibility	3
PEA_ST 2286	Technological Futures, National Security, and Civil Liberties	3
PEA_ST 2320	Literature of Spanish Civil War	3
PEA_ST 2410	Philosophies of War and Peace	3
PEA_ST 2550	Human Rights, Law, War and Peace	3
PEA_ST 3140	Art of War and Peace	2-3
PEA_ST 3230H	Terrorism and Conflict Resolution - Honors	3
PEA_ST 3400	Fake News and Media Politics	3

PEA_ST 3401	Global Public Health and Health Care Systems	3
PEA_ST 3496	Digital Indigenous Studies	3
PEA_ST 3510	Think Global: Fundamentals of Globalization and Digital Technologies	3
PEA_ST 3520	Collective Behavior	3
PEA_ST 3521	Group Decision Making Processes	3
PEA_ST 3522	New Media, Conflict and Control	3
PEA_ST 3600	Criminology	3
PEA_ST 3610	Ireland, 1100s to 1850	3
PEA_ST 3611	Ireland, 1850-1923	3
PEA_ST 3612	Ireland, 1920-Present	3
PEA_ST 3780	World Political Geography	3
PEA_ST 3870	Social Revolution in Latin America	3
PEA_ST 4230	Women, Development and Globalization	3
PEA_ST 4331	Nonproliferation Issues for Weapons of Mass Destruction	3
PEA_ST 4520	Political Sociology	3
PEA_ST 4550	Gender and Human Rights in Cross Cultural Perspective	3
PEA_ST 4600	Political and Social Philosophy	3

Students are encouraged to begin study of their foreign language no later than the sophomore year. Students should consult with the International Center about appropriate locations for their student abroad experience. In addition, students must complete all College of Arts and Science, and University graduation requirements (p. 35), including University general education (p. 36).

### Semester Plan

First Year			
Fall	CR	Spring	CR
ENGLISH 1000		3 Foreign Language	5
Core Humanities		3 POL_SC 1400 or 2700	3
Foreign Language		5 Biological/Physical Science Course w/Lab	5
American History or Government course		3 Math and Quantitative Reasoning course	3
		14	16

Second Year			
Fall	CR	Spring	CR
GEOG 1100 or 1200		3 Foreign Language	3
Foreign Language		3 ANTHRO 2030	3
Core Humanities		3 General Elective 1000+	2
General Elective 1000+		3 Biological/Physical Science Course	4
General Education Behavioral Science		3 Core Humanities 2000 level	3
		15	15

Third Year			
Fall	CR	Spring	CR
Social/Behavioral 2000+ Major		3 Regional/Cultural 3000+ Major	3
Social/Behavioral Science 1000+ Major		3 Regional/Cultural 2000+ Major	3
General Education Humanities 2000+		3 Regional/Cultural 3000+ Major	3
Regional/Cultural 1000+ Major		3 Social Behavioral 3000+ Major	3

Foreign Language	3 Social Behavioral 3000+ Major	3
		15

Fourth Year			
Fall	CR	Spring	CR
General Elective 3000+	3	Focus Area 3000+ Major	3
General Elective 1000+	3	focus Area Capstone 4000 Level	3
Focus Area 3000+ Major	3	General Elective 1000+	3
Focus Area 3000+ Major	3	General Elective 1000+	3
General Elective 1000+	3	General Elective 3000+	3
		15	15

Total Credits: 120

## BA in International Studies with Emphasis in South Asian Studies

### Degree Program Description

The South Asian Studies emphasis offers courses in history, politics, philosophy, religion, culture, social life and languages of India. It thus provides the opportunity for study of an ancient and extensive civilization with a significant role in human history. An emphasis in South Asian Studies prepares students to enter MA and PhD programs in this area of specialization, which often provide intensive summer language programs. An advanced degree opens a variety of professional and job opportunities for those planning to work in such fields as international business, trade and diplomacy, international law or agricultural development, among others.

### Major Program Requirements

Refer to the program requirements for the BA in International Studies (p. 234). In addition, for the emphasis in South Asian Studies, students must complete 12 hours of credit:

- 9 credits from a single department or area
- 3 credits in a capstone experience.

Students are encouraged to begin study of their foreign language no later than the sophomore year. Students should consult with the International Center about appropriate locations for their study abroad experience. In addition, students must complete all College of Arts and Science, and University graduation requirements (p. 35), including University general education (p. 36).

### Semester Plan

First Year			
Fall	CR	Spring	CR
ENGLSH 1000	3	Foreign Language	5
Core Humanities	3	POL_SC 1400 or 2700	3
Foreign Language	5	Biological/Physical Science Course w/Lab	5
American History or Government course	3	Math and Quantitative Reasoning course	3
		14	16

Second Year			
Fall	CR	Spring	CR
GEOG 1100 or 1200	3	Foreign Language	3
Foreign Language	3	ANTHRO 2030	3
Core Humanities	3	General Elective 1000+	2

General Elective 1000+	3	Biological/Physical Science Course	4
General Education Behavioral Science	3	Core Humanities 2000 level	3
		15	15

Third Year			
Fall	CR	Spring	CR
Social/Behavioral 2000+ Major	3	Regional/Cultural 3000+ Major	3
Social/Behavioral Science 1000+ Major	3	Regional/Cultural 2000+ Major	3
General Education Humanities 2000+	3	Regional/Cultural 3000+ Major	3
Regional/Cultural 1000+ Major	3	Social Behavioral 3000+ Major	3
Foreign Language	3	Social Behavioral 3000+ Major	3
		15	15

Fourth Year			
Fall	CR	Spring	CR
General Elective 3000+	3	Focus Area 3000+ Major	3
General Elective 1000+	3	focus Area Capstone 4000 Level	3
Focus Area 3000+ Major	3	General Elective 1000+	3
Focus Area 3000+ Major	3	General Elective 1000+	3
General Elective 1000+	3	General Elective 3000+	3
		15	15

Total Credits: 120

## Linguistics

Matthew Gordon, Director  
 335 Tate Hall  
 (573) 882-6421  
 gordonmj@missouri.edu

Mary Moore, Advisor  
 114N Tate Hall  
 (573) 884-6421  
 mooremc@missouri.edu

Linguistics is the scientific study of human language. It seeks to understand and explain the properties of language in a clear and formal manner. Linguists document understudied and endangered languages, explore the consequences of language contact, measure language variation and change, investigate the structure of language, and analyze the construction of meaning.

Some of the main subfields of linguistics are phonetics (the physical properties of sounds), phonology (the grammar of sounds), morphology (the structure of words), syntax (the organization of phrases and sentences), semantics (meaning), and sociolinguistics (the interaction of language and society).

A Bachelor of Arts with a major in linguistics is available (with an honors option) as is a linguistics minor, both involving coursework in the various subfields.

The study of linguistics prepares students for careers which utilize insight into the workings of language including language instruction, translation and interpreting, speech pathology, anthropology, the reconstruction of prehistory, and computational fields related to the interaction of language and technology. Academic careers of linguistic research and teaching are also possible after further training at the graduate level.

In addition, a major in linguistics offers students a liberal education and develops verbal and analytical skills that are valuable in a variety of less directly related careers such as journalism, literary study, and the law.

The linguistics program is staffed by faculty from a number of MU departments. Supporting course work is offered in Communication, Speech, Language and Hearing Sciences, the College of Education, English, German and Russian Studies, Psychology, Philosophy, and Romance Languages and Literatures.

Although specialists in the field commonly know two or more languages, such knowledge is complementary rather than essential.

## Faculty

**Professors:** M. Gordon\*, P. Weirich\*

**Associate Professors:** A. Alcazar\*, D. Fritz\*, J. Goodman\*, C. Horisk\*, T. Kazic\*, J. Kramer\*, M. Marlo\*, R. Pinnow\*

**Assistant Professors:** R. Botezatu\*, R. Grollemund\*, A. Radulescu\*

**Emeritus Faculty:** N. L. Furbee\*, G. Youmans\*, J. Zemke\*

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BA in Linguistics (p. 242)
- Minor in Linguistics (p. 243)

## Departmental Honors

A student wishing to graduate with honors in Linguistics must earn a 3.3 GPA in all courses and complete all the requirements for the BA in Linguistics. In addition, with the assistance of their honors thesis advisor, the student must develop, plan and conduct research on an independent project, normally while enrolled in LINGST 4991. A committee consisting of the thesis advisor and a second reader, to be selected by the advisor and the program director, will examine the student on the resulting thesis of 25-40 pages in an oral exam held no later than the thirteenth week of the term during which the student expects to graduate. The second reader will be provided with a copy of the thesis at least two weeks before the examination. After completing any revisions that the exam committee recommends, the student will submit a final version of the thesis for linguistics program records and will then be recommended to the college of Arts and Science for a BA with Honors in Linguistics.

## Graduate

- Graduate Minor in Linguistics (p. 243)

Interdepartmental Program in the College of Arts and Science  
335 Tate Hall  
(573) 882-6421

**Director of Linguistics:** Matthew Gordon

A graduate minor in linguistics consists of at least 12 hours including two electives and two required courses: LINGST 7630 Phonology and LINGST 7640 Syntax. Electives are to be drawn from our list of upper level linguistics classes (see <http://linguistics.missouri.edu/courses.html>).

Graduate degrees in linguistics are not offered but MA and PhD programs that emphasize language and linguistics are available in some cooperating departments such as Anthropology, Communication, English, Romance Languages and Literatures, and Philosophy.

The linguistics area program is staffed by faculty from various departments (see below). Supporting course work may be drawn from a range of units including Anthropology, Black Studies, Classical Studies, Communication, the College of Education, English, German and Russian Studies, Psychology, Philosophy, Romance Languages and Literatures, and Speech, Language and Hearing Sciences.

Financial aid, when available, is arranged through the participating departments.

## Cooperating Graduate Degree Programs

Anthropology (p. 147)

Interested Anthropology and other graduate students may minor in Linguistics. Linguistics is an integral component of ethnographic research.

Communication (p. 176)

In the Department of Communication, students learn to apply the study of communication to their professional and personal lives. Students may receive a MA, or PhD through this department.

Speech, Language and Hearing Sciences (p. 634)

The discipline of Speech, Language and Hearing Sciences encompasses the distinct but related fields of Speech-Language Pathology and Audiology. Students may receive a MA, or PhD through this department.

English (p. 192)

The English department offers MA and PhD degrees with opportunities to study in the area of English Language and Linguistics.

Philosophy (p. 278)

The Philosophy Department offers MA and PhD degrees with opportunities to study in the field of the philosophy of language.

Romance Languages and Literatures (p. 315)

The Department of Romance Languages and Literatures offers the MA with an emphasis on Language Teaching (MALT).

## BA in Linguistics

### Degree Program Description

The study of linguistics offers students a liberal education and a window into the fascinating human linguistic capacity. Students can obtain a BA in linguistics, and many students double-major in linguistics and another field. The BA prepares students for graduate study in linguistics and related fields. It also develops analytical and verbal skills that are valuable in a wide variety of professional careers.

### Major Program Requirements

Major core requirements (minimum)	22
<b>I. Required areas/courses</b>	
Introduction to Linguistics	3
Select one of the following:	
LINGST 1060	Human Language
LINGST 2601	Languages of Africa
Language Structure - At least one in-depth structure course such as:	3
LINGST 4600	Structure of American English
LINGST 4720	Structure of Modern French

LINGST 4721	Structure of Modern Spanish	
Phonology		3
LINGST 4630	Phonology (typically offered Spring semesters)	
Syntax		3
LINGST 4640	Syntax (typically offered Fall semesters; a structure course prerequisite)	
Semantics		3
Select one of the following:		
LINGST 2700	Elementary Logic	
LINGST 4100	Philosophy of Language	
LINGST 4110	Advanced Logic	
<b>II. Electives</b>		
At least one additional course from any part of the linguistics curriculum, including but not limited to those listed above and below		3
Language variation		
LINGST 3620	Languages of the World	
LINGST 4620	Regional and Social Dialects of American English	
LINGST 4722	Spanish Across the Continents	
LINGST 4723	Language and Society: Spanish in the U.S.	
Language and Culture		
LINGST 3470	Culture as Communication	
LINGST 4412	Gender, Language and Communication	
Historical Linguistics and Language Change		
LINGST 4200	Introduction to Old English	
LINGST 4420	Historical Linguistics	
LINGST 4610	History of the English Language	
LINGST 4710	History of the French Language	
LINGST 4711	History of the Spanish Language	
Phonetics		
LINGST 3010	American Phonetics	
LINGST 3210	Anatomy and Physiology of the Speech Mechanism	
LINGST 3220	Speech Acoustics	
LINGST 3721	Spanish Phonetics	
<b>III. Capstone Course</b>		4
LINGST 4870	Field Methods in Linguistics	

### Options

Topics courses such as LINGST 2001, LINGST 3001 and LINGST 4001 may also satisfy core requirements. Substitutions may be approved for courses in one of the required areas if no courses are available in that area during a student's senior year.

In addition, students must complete all College of Arts and Science and University graduation requirements (p. 35), including University general education (p. 36).

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
LINGST 1060		3 Foreign Language	5
ENGLISH 1000		3 MATH 1100	3
Social Science (MO State Law)		3 Behavioral Science	3
Foreign Language		5 A&S Diversity	3
		14	14

Second Year			
Fall	CR	Spring	CR
LINGST 2700 or PHIL 2700		3 Linguistics Elective	3
Behavioral Science		3 Minor	3
Foreign Language		3 Humanities/Fine Arts (Writing Intensive)	3
Social Science		3 Science with a Lab	5
Writing Intensive 1000+		3 General Elective	3
		15	17

Third Year			
Fall	CR	Spring	CR
LINGST 4600, 4720, or 4721		3 LINGST 4630	3
Minor		3 Minor	3
Humanities/Fine Arts		3 Humanities/Fine Arts	3
Science		3 Science	3
General Elective		3 General Elective	3
		15	15

Fourth Year			
Fall	CR	Spring	CR
LINGST 4640		3 LINGST 4870	4
Minor		3 Minor	3
Social Science		3 Humanities/Fine Arts	3
General Elective		3 General Elective	3
General Elective		3 General Elective	3
		15	16

Total Credits: 121

## Minor in Linguistics

### Requirements

The minor in linguistics requires at least 15 credits of linguistics courses. They may be drawn from any part of the linguistics curriculum.

## Graduate Minor in Linguistics

### Requirements

A graduate minor field in linguistics is available to graduate students. It is comprised of 12 hours, two courses of which are required and two are to be selected from a list of upper level linguistics classes:

#### Required:

LINGST 7630	Phonology	3
LINGST 7640	Syntax	3

**Sample list from which two additional courses will be selected (appropriate substitutes may be accepted at the discretion of the chair):** 6-7

LINGST 7420	Historical Linguistics	
LINGST 7600	Structure of American English	
LINGST 7610	History of the English Language	

LINGST 7620	Regional and Social Dialects of American English
LINGST 7870	Field Methods in Linguistics
Total Credits 12-13	

## Mathematics

Nakhle Asmar, Chair  
 College of Arts and Science  
 224 Math Sciences Building  
 (573) 882-6221  
 asmarn@missouri.edu

### Faculty

**Professor** I. M. Aberbach\*\*, N. Asmar\*\*, W. D. Banks\*\*, P. Casazza\*\*, T. Christiansen\*\*, S. D. Cutkosky\*\*, S. Dostoglou\*\*, D. S. Edidin\*\*, F. Gesztesy\*\*, L. Grafakos\*\*, A. D. Helfer\*\*, S. Hofmann\*\*, A. Koldobsky\*\*, Y. Latushkin\*\*, Y. Li\*\*, K. A. Makarov\*\*, D. I. Mitrea\*\*, M. Mitrea\*\*, S. Montgomery-Smith\*\*, M. M. H. Pang\*\*, Z. Qin\*\*, H. Srinivasan\*\*, A. Tsoi\*\*, I. Verbitsky\*\*, S. Wang\*\*, Q. Zhang\*\*

**Associate Professor** C. Chindris\*\*, A. Harcharras\*\*, C. Morpurgo\*\*, J. Segert\*, D. T. Weston\*\*

**Assistant Professor** P. Pivovarov\*\*, S. Walsh\*\*, S. Takeda\*\*, J. Tu\*\*

**Business Mathematics Coordinator** S. Goldschmidt

**Calculus Coordinator** A. Clayton

**College Algebra Coordinator** T. E. Christiansen

**Professor Emeritus** M. S. Ashbaugh\*\*, J. Beem\*, C. C. Chicone\*\*, R. Crownover, J. Lange\*, I. J. Papick\*, C. Petty\*, D. H. Pettey\*, J. Reeder, E. Saab\*, P. Saab\*, D. Sentilles\*, Z. Zhao\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

### Undergraduate

- Department Level Requirements (p. 245)
- BA in Mathematics (p. 245)
- BS in Mathematics (p. 246)
  - with emphasis in Actuarial Science and Mathematical Finance (p. 247)
- Minor in Mathematics (p. 248)

The Department of Mathematics offers a major with either a Bachelor of Arts or a Bachelor of Science degree. Within the BS degree, an emphasis in Actuarial Science and Financial Mathematics is available. Both the BA and BS degrees will prepare a student for a graduate program in Mathematics.

### Preparation for Graduate Study in Mathematics

Students satisfying the requirements for either the BA or the "traditional" BS will have the basic preparation for a graduate program in Mathematics. A student considering graduate work, however, should take additional coursework. Because of this, a BS degree would be considered preferable. Those students in the Actuarial Science area considering graduate work should take MATH 4720 as part of their

program. Those students getting a dual degree in Mathematics and Mathematics Education considering graduate work in mathematics should choose to take both MATH 4700 and MATH 4720 as part of their program.

Courses recommended for students planning to pursue graduate studies in pure mathematics: MATH 4400, MATH 4500, MATH 4900, MATH 4920, and MATH 4940.

Courses recommended for students planning to pursue graduate studies in applied mathematics: MATH 4300, MATH 4310, MATH 4315, MATH 4320, MATH 4500, MATH 4540, MATH 4940.

### Departmental Honors

#### Eligibility

To become a candidate for the BA or BS degree with a major in Mathematics with departmental honors, a student must have a cumulative grade point average that meets the Honors College standards. At present, students with a GPA of 3.30 or higher are automatically eligible to enter the departmental honors programs.

#### Requirements

To graduate with departmental honors in mathematics, a student must satisfy the regular BA or BS degree requirements and must have a GPA of 3.5 or higher in all Mathematics Department courses. In addition, the student must have at least 26 credits in mathematics courses numbered 4000 or above. Furthermore, the student must complete one of the two options listed below.

#### Option 1: Honors Thesis

The student must write an honors thesis in conjunction with a mentorship or in conjunction with MATH 4996. This option requires that the student enroll in MATH 4996.

#### Option 2:

The student's program of study must include MATH 4700, MATH 4900, MATH 4720 and MATH 4920.

### Graduate

- MA in Mathematics (p. 248)
- MS in Applied Mathematics (p. 250)
- MST in Mathematics (p. 251)
- PhD in Mathematics (p. 252)

College of Arts and Science  
 202 Mathematical Sciences Building  
 (573) 882-6221

<https://www.math.missouri.edu/grad/index> (<https://www.math.missouri.edu/grad/index/>)

**Director of Graduate Studies:** Stephen Montgomery-Smith

### About Mathematics

The Graduate Program in Mathematics is large enough to encompass research and courses in many areas, yet small enough to remain responsive to the needs of individual students. There are approximately 80 graduate students, 40 professors, and 15 postdoctoral and visiting researchers. The active areas of research include: algebraic geometry, analysis (real, complex, functional and harmonic), analytic functions,

applied mathematics, financial mathematics and mathematics of insurance, commutative rings, scattering theory, differential equations (ordinary and partial), differential geometry, dynamical systems, general relativity, mathematical physics, number theory, probabilistic analysis and topology.

The Mathematical Sciences Building houses a library with more than 34,000 volumes and 430 journal titles. MU students have access to an extensive array of computing resources.

## Admission Notice

Applicants for any graduate degree in mathematics should submit an application for graduate study. Admission to the graduate program does NOT guarantee admission to the Ph.D. program. International Applicants applying from outside North America who seek financial support from the Department will only be considered for the PhD program.

## Financial Aid from the Program

All domestic applications for admission are automatically considered for financial support, in most cases by Teaching Assistantships. Virtually all current students are supported financially. Scholarships, assistantships, fellowships and other sources of aid are available.

The Department Research Fellowship, the Blumenthal Scholarship and the McFarlan Fellowship are administered by the department, while the Huggins Scholarship, Gregory Fellowship and Ridgel Fellowship are administered by the university.

International applications with TOEFL of 85 or higher (or equivalent) will also be automatically considered for departmental financial support.

## Department Level Requirements- Mathematics

Students may apply to be Math majors upon meeting the following criteria:

- Completion of ENGLISH 1000 and MATH 2300
- Both cumulative GPA and GPA in Math courses numbered 1500 and above (except for 2100) of 2.5 or above.

All math courses required for the degree must be passed with a grade of C- or above.

### Core Math Requirements for all Math degrees (24 credits)

MATH 1500	Analytic Geometry and Calculus I	5
MATH 1700	Calculus II	5
MATH 2300	Calculus III	3
MATH 3000	Introduction to Advanced Mathematics	3
MATH 4100	Differential Equations	3
MATH 4140	Matrix Theory	3
INFOTC 1040	Introduction to Problem Solving and Programming	3
or CMP_SC 1050	Algorithm Design and Programming I	

Total Credits 25

## BA in Mathematics

### Degree Program Description

Mathematics is part of the foundation of all the sciences, engineering, statistics, and many social sciences. A degree in mathematics provides one with both the applied mathematics knowledge necessary to engage in these disciplines, and formal reasoning skills that can be applied in any area. The major is well suited for those interested in mathematics alone, or for those looking to supplement another major. Our students go on to jobs or further study in all the above disciplines, as well as many others (medical school or law school, for instance).

### Major Program Requirements

All MU General Education (p. 36), University graduation requirements (p. 35) and Arts and Science Breadth and Depth requirements (for the BA) must be satisfied, in addition to the Department Level Requirements (p. 245). The foreign language requirement must be satisfied either by taking a foreign language for 4 years in high school or by completing a language sequence at MU.

Students may apply to be Math majors upon meeting the following criteria:

- Completion of ENGLISH 1000 and MATH 2300
- Both cumulative GPA and GPA in Math courses numbered 1500 and above (except for 2100) of 2.5 or above.

All math courses required for the degree must be passed with a grade of C- or above.

### Core Math Requirements for all Math degrees (24 credits)

MATH 1500	Analytic Geometry and Calculus I	5
MATH 1700	Calculus II	5
MATH 2300	Calculus III	3
MATH 3000	Introduction to Advanced Mathematics	3
MATH 4100	Differential Equations	3
MATH 4140	Matrix Theory	3
INFOTC 1040	Introduction to Problem Solving and Programming	3
or CMP_SC 1050	Algorithm Design and Programming I	

Total Credits 25

### Additional requirements for the BA degree

- MATH 4700 Advanced Calculus of One Real Variable I
- MATH 4720 Introduction to Abstract Algebra I
- Four approved 4000 level Math electives

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
MATH 1500		5 MATH 1700	5
Humanities/Fine Arts Course		3 Foreign Language (Level I)	5
ENGLISH 1000		3 Humanities/Fine Arts Course	3

HIST 1100, 1200, or POL_SC 1100	3 Biological/Physical/Mathematical Science Course (Not taught by the Math Department)	4
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Elective Course		17
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Second Year			
Fall	CR	Spring	CR
MATH 2300		3 MATH 4100	3
INFOTC 1040		3 MATH 4140	3
Foreign Language (Level II)		5 Foreign Language (Level III)	3
Humanities/Fine Arts Course		3 Biological/Physical/Mathematical Science Course (Not taught by the Math Department)	3
Elective Course		3 BIO SC course	3
		17	15

Third Year			
Fall	CR	Spring	CR
MATH 3000		3 MATH 4700	3
4000-level MATH elective		3 4000-level MATH elective	3
4000-level MATH elective		3 Social Science Course (in a field different from the History or Political Science Course taken in Fall I)	3
Biological/Physical/Mathematical Science Course (Not taught by the Math Department)		3 Elective Course	3
Elective Course		3 Elective Course	3
		15	15

Fourth Year			
Fall	CR	Spring	CR
MATH 4720		3 4000-level Math Elective	3
Behavioral Science Course 2000-level		3 Humanities/Fine Arts Course 2000-level	3
Humanities/Fine Arts Course		3 Social Science Course	3
Social Science Course		3 Elective Course	3
Elective Course		3	
		15	12

Total Credits: 120

## BS in Mathematics

### Degree Program Description

Mathematics is part of the foundation of all the sciences, engineering, statistics, and many social sciences. A degree in mathematics provides one with both the applied mathematics knowledge necessary to engage in these disciplines, and formal reasoning skills that can be applied in any area. The major is well suited for those interested in mathematics alone, or for those looking to supplement another major. Our students go on to jobs or further study in all the above disciplines, as well as many others (medical school or law school, for instance).

### Major Program Requirements

The Mathematics Department offers a "Standard" BS, a BS with emphasis in Actuarial Science and Mathematical Finance, and a Dual Degree in Mathematics and Secondary Education with an Emphasis in Mathematics Education. In each case all MU General Education (p. 36), University graduation requirements (p. 35) and Arts and Science Breadth

and Depth requirements (for the BS) must be satisfied, in addition to the Department Level Requirements (p. 245). Note that the courses accepted for the science requirement by the Mathematics department are more restrictive than the Arts and Science requirement.

All BS degrees require completion of the Foreign Language requirement by one of: four years of a language in high school, completion of a foreign language sequence at MU, or a Foreign Language Alternative (12 credits at the 2000 level or above in an area, or related areas, approved by the Director of Undergraduate Studies).

Students may apply to be Math majors upon meeting the following criteria:

- Completion of ENGLSH 1000 and MATH 2300
- Both cumulative GPA and GPA in Math courses numbered 1500 and above (expect for 2100) of 2.5 or above.

All math courses required for the degree must be passed with a grade of C- or above.

#### Core Math Requirements for all Math degrees (24 credits)

MATH 1500	Analytic Geometry and Calculus I	5
MATH 1700	Calculus II	5
MATH 2300	Calculus III	3
MATH 3000	Introduction to Advanced Mathematics	3
MATH 4100	Differential Equations	3
MATH 4140	Matrix Theory	3
INFOTC 1040	Introduction to Problem Solving and Programming	3
or CMP_SC 1050	Algorithm Design and Programming I	

Total Credits 25

### Additional requirements for the BS degree

- MATH 4700
- MATH 4720
- Four approved 4000 level Math electives
- Science Requirement: 12 or more credits from the two groups below. Both groups must be represented.

Group I:

PHYSICS 2750	University Physics I	5
PHYSICS 2760	University Physics II	5
CHEM 1320	College Chemistry I	4
CHEM 1330	College Chemistry II	4
BIO_SC 1500	Introduction to Biological Systems with Laboratory	5

Group II: Any 4000 level courses in Statistics or Computer Science.

### Additional requirements for the BS Degree (Dual degree for Math and Secondary Education majors)

- One of: MATH 4300, MATH 4500, or MATH 4700
- One of MATH 4510 or MATH 4720
- Four approved 4000 level Math electives
- Science Requirement: 10 or more credits from the two groups from the Course List above. Both groups must be represented.

## Additional requirements for the BS degree (Double major in Math and Economics)

- MATH 4700
- One of MATH 4310, MATH 4720, or MATH 4900
- Four approved 4000 level Math electives
- Science Requirement: 10 or more credits from the two groups from the Course List above. Both groups must be represented.

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
MATH 1500		5 MATH 1700	5
HIST 1100 or POL_SC 1100*		3 Behavioral Science Elective Course*	3
Humanities/Fine Arts Elective Course*		3 Humanities/Fine Arts Elective Course*	3
ENGLISH 1000*		3 INFOTC 1040	3
	14		14
Second Year			
Fall	CR	Spring	CR
MATH 2300		3 MATH 4100	3
2000-level General Education Elective		3 MATH 3000	3
PHYSICS 2750		5 PHYSICS 2760	5
GERMAN 1100		5 GERMAN 1200	5
	16		16
Third Year			
Fall	CR	Spring	CR
MATH 4700		3 MATH 4720	3
MATH 4140		3 4000-level MATH Course	3
Writing Intensive Elective Course*		3 2000-level General Education Elective*	3
GERMAN 2100		3 Humanities/Fine Arts Course	3
Elective Course		3 Elective Course	3
	15		15
Fourth Year			
Fall	CR	Spring	CR
4000-level MATH course		3 4000-level MATH course	3
4000-level Course in STAT or CMP SC		3 4000-level MATH course	3
4000-level MATH course		3 Elective Course	3
Elective Course		3 Elective Course	3
Elective Course		3 Elective Course	3
	15		15

Total Credits: 120

## BS in Mathematics with Emphasis in Actuarial Science and Mathematical Finance

### Degree Program Description

Actuarial science applies mathematical and statistical methods to finance and insurance, particularly to the assessment of risk. Actuarial science includes a number of interrelating disciplines, in particular the mathematics of probability and statistics. In the life insurance industry, traditional actuarial science focuses on the analysis of mortality and the production of life tables, and the application of compound interest. More recently, actuarial science has come to embrace more sophisticated mathematical modeling of finance. Ideas from financial economics are also becoming increasingly influential in actuarial thinking.

### Major Program Requirements

Students must complete the MU general education requirements (p. 36), University graduation requirements (p. 35) and the Department Level Requirements (p. 245) in addition to the degree requirements listed below.

This emphasis area will serve those who want to pursue a career in the financial and insurance industries. It will also help BS students to prepare for their first actuarial exams. In addition to course requirements, students completing this program are also required to attempt two actuarial exams (Probability and Financial Mathematics or equivalent).

Students may apply to be Math majors upon meeting the following criteria:

- Completion of ENGLISH 1000 and MATH 2300
- Both cumulative GPA and GPA in Math courses numbered 1500 and above (expect for 2100) of 2.5 or above.

All math courses required for the degree must be passed with a grade of C- or above.

#### Core Math Requirements for all Math degrees (24 credits)

MATH 1500	Analytic Geometry and Calculus I	5
MATH 1700	Calculus II	5
MATH 2300	Calculus III	3
MATH 3000	Introduction to Advanced Mathematics	3
MATH 4100	Differential Equations	3
MATH 4140	Matrix Theory	3
INFOTC 1040	Introduction to Problem Solving and Programming	3
or CMP_SC 1050	Algorithm Design and Programming I	
Total Credits		25

### Degree Requirements

MATH 4700	Advanced Calculus of One Real Variable I	3
MATH 4355	Mathematics of Financial Derivatives I	3
MATH 4370	Interest Theory	3
MATH 4371	Models for Life Contingencies I	3
MATH 4372	Models for Life Contingencies II	3
MATH 4320/STAT 4750	Introduction to Probability Theory	3
MATH 4520/STAT 4760	Statistical Inference I	3



**Additional course requirements:**

STAT 4870	Time Series Analysis	3
STAT 4510	Applied Statistical Models I	3
ECONOM 1014	Principles of Microeconomics	3
ECONOM 1015	Principles of Macroeconomics	3

**Science requirement: 4 or more credits from the following:**

PHYSICS 2750	University Physics I	5
PHYSICS 2760	University Physics II	5
CHEM 1320	College Chemistry I	4
CHEM 1330	College Chemistry II	4
BIO_SC 1500	Introduction to Biological Systems with Laboratory	5

**The following courses are recommended in order to prepare for additional actuarial exam or satisfy additional VEE requirements:**

ACCTCY 2036	Accounting I	3
FINANC 3000	Corporate Finance	3
MATH 4590	Mathematics of Financial Derivatives II	3
		10
Total Credits		75

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

**First Year**

Fall	CR	Spring	CR
MATH 1500		5 MATH 1700	5
ECONOM 1014		3 ECONOM 1015	3
ENGLISH 1000		3 INFOTC 1040	3
General Education Elective		3 General Education Elective	3
STAT 4750		3	
		17	14

**Second Year**

Fall	CR	Spring	CR
MATH 2300		3 MATH 4100	3
PHYSICS 2750		5 MATH 4140	3
SPAN 1100		4 SPAN 1200	4
General Elective		3 STAT 4750	3
		General Education Elective	3
		15	16

**Third Year**

Fall	CR	Spring	CR
MATH 4355		3 MATH 3000	3
MATH 4370		3 STAT 4510	3
STAT 4760		3 Elective (MATH 4590)	3
SPAN 2100		4 Elective (ACCTCY 2037 OR ACCTCY 2027)	3
Elective (ACCTCY 2036 OR 2026)		3 General Education Elective	3
		16	15

**Fourth Year**

Fall	CR	Spring	CR
MATH 4700		3 MATH 4372	3
MATH 4371		3 Elective	3
STAT 4870		3 Elective	3
General Education Elective		3 Elective	3

Elective (FINANC 3000)	3 Elective	3
		15
		15

Total Credits: 123

## Minor in Mathematics

### Requirements

To minor in mathematics, a student must satisfactorily complete the following requirements.

- The equivalents of MATH 1500, MATH 1700 and MATH 2300
- 9 additional credits in approved math courses (students not taking MATH 2320 or MATH 3000, must take all 9 credits at the 4000 level; students taking MATH 2320 or MATH 3000, need an additional 6 credits at the 4000 level)
- All courses completed with grades in C range or higher
- At least 9 credits used to satisfy the minor requirements taken in residence (College of Arts and Science requirement)

## MA in Mathematics

### Degree Requirements

The degree requirements include the satisfactory completion of 30 hours of approved course work, of which at least 18 hours must be at the 8000 level.

**Required**

MATH 8420	Theory of Functions of Real Variables I	3
MATH 8410	Algebra I	3
MATH 8190	Masters Project in Mathematics	3
or		
MATH 8090	Master's Thesis Research in Mathematics	

**Students are expected to make up any required deficiencies in their undergraduate training in advanced calculus and abstract algebra. Students may not list the courses:**

MATH 7140	Matrix Theory	3
MATH 7110	Advanced Calculus with Applications	3
MATH 7510	Higher Algebra	3

\* The successful completion of a Master's Project (MATH 8190) or Master's Thesis (MATH 8090) must be certified by a Master's Committee consisting of three members of the Mathematics regular faculty.

### Plan of Study

**First Year**

Fall	CR	Spring	CR
MATH 7700		3 MATH 7900	3
7000 Class		MATH 7720	3
MATH 7920		3 7000 Class	
		6	6

**Second Year**

Fall	CR	Spring	CR
MATH 8420		3 8000 Class	
MATH 8410		3 8000 Class	

8000 Class	Masters Project	
	6	0

Total Credits: 18

## Admission Criteria

**Notes:** Applicants for any graduate degree in mathematics should submit an application for graduate study. Admission to the graduate program does NOT guarantee admission to the Ph.D. program. International Applicants applying from outside North America who seek financial support from the Department will only be considered for the PhD program.

Fall deadline: January 15

- While a bachelor's degree from an accredited institution is required, the undergraduate major need not be mathematics as long as applicants have had sufficient mathematics training to qualify for 8000-level courses during the first three semesters of graduate work.
- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
61	500
Effective July 1, 2015 must have score of 80	Effective July 1, 2015 must have score of 550

**Important Notes:** International applicants seeking departmental support are required to have a minimum TOEFL score of 85 (Internet-based test) or equivalent. An ibtTOEFL Speaking subscore of 22 or higher is preferred.

- Minimum total academic IELTS score is 5.5

## Required Application Materials

- 3 or more letters of recommendation from your professors or persons who assess in detail your academic performance and potential.
- Transcripts
- Personal Statement
- GRE scores (required for PhD application, strongly recommended for Masters application)
- TOEFL or IELTS (International students only)

Note: The application is submitted through the Graduate School ApplyYourself (<https://applygrad.missouri.edu/apply/>) system.

## Completing the ApplyYourself Application:

This section consists of four subsections.

- Personal Information: Complete all information as requested.
- Application Information: Applications are considered only starting Fall Semester, and only for Full-time study. Select a degree from the Graduate Degrees offered by the MU Mathematics Department.
- Indicate your selection for the **Mathematics Master of Arts (MA)**
  - Admissions Category: Graduate Degree Sought at MU: Master's
  - Graduate Program to which you are seeking admissions: Mathematics Master of Arts (MA)
- Educational History: Complete all information as requested.
- Test Information:
  - The GRE General Test is required for application to the PhD program in Mathematics, and are strongly recommended for Masters applicants. GRE General Test scores sent directly from the ETS will be considered as part of an application if available.

The GRE Subject Test is not required, will be considered if submitted.

- MU's Institutional Code for the GRE is: 6875.
- MU's Institutional Code for the TOEFL is: 6875.

## Supplemental Information:

- (required) Upload your Personal Statement, Statement of Goals or Statement of Purpose.
- Please indicate the specific degree for which you are applying, any additional degrees for which you may later apply, and explain your reasons for choosing to pursue these degrees at the University of Missouri. Note that admissions criteria for the PhD are more stringent than for the Master's. MU PhD students can later add a Master's degree to their program of study without requiring departmental approval. MU Master's students who wish to later add the PhD to their program of study require departmental evaluation and approval.
- (optional) Upload your résumé or curriculum vita.
- (optional) Upload your writing sample.
- You may submit samples of your mathematical writings, publications, or pre-prints. Please limit to 10 pages.
- (optional) Upload any other supporting documents.
- Unofficial copies of transcripts uploaded by applicant can be used for initial evaluation- official transcripts sent directly to the Graduate Admissions Office will still be required to finalize admission.
- Unofficial copies of GRE reports uploaded by applicant can be used for initial evaluation.

**RECOMMENDATIONS:** The ApplyYourself (<https://applygrad.missouri.edu/apply/>) system will let you request confidential online recommendation letters from your recommendation providers. You need to provide the names and email addresses of recommendation providers who have agreed in advance to write letters for you. The Mathematics Department application requires at least three recommendation letters from your professors (or persons who assess in detail your academic performance and potential).

## International Applicants Only

- Unofficial copies of TOEFL/IELTS reports uploaded by applicant can be used for initial evaluation - official reports sent directly to the Graduate Admissions Office will still be required to finalize admission.
- Affidavit of Support for International Applicants: It is not necessary to complete this form. International applicants are required to complete the Affidavit of Support OR provide a letter of support from a University of Missouri graduate degree program before immigration documents can be issued. All international admissions to the Mathematics graduate program come with financial support which suffices to meet this requirement.

*The following (paper) application materials must be on file at the Graduate Admissions office before an admission offer can be finalized:*

- Official transcripts/mark sheets from each college or university you have attended (sent directly from the college or university). Applicants with degrees from outside the United States must provide academic credentials in both the native language and in English.
- Official TOEFL or IELTS scores (sent directly from the testing service). Please review the Graduate School's policy regarding proof of English Language proficiency.

Please arrange to have these materials mailed to the following address:

University of Missouri-Columbia  
 Graduate Admissions  
 210 Jesse Hall  
 Columbia, MO 65211  
 800-877-6312  
 573-884-8488

### Admission Contact Information

Stephen Montgomery-Smith, Director of Graduate Studies  
 222 Mathematical Sciences Building  
 Columbia, MO 65211  
 (573) 882-6221  
 email: muasmathdgs@missouri.edu

## MS in Applied Mathematics

### Degree Requirements

Designed to give students training in those areas of mathematics used frequently in applications.

A candidate must satisfactorily complete 30 hours of approved course work, at least 15 hours of which must be in 8000-level courses.

Required		
MATH 8420	Theory of Functions of Real Variables I	3
MATH 8440	Advanced Ordinary Differential Equations I	3
MATH 8190	Masters Project in Mathematics	3
or		
MATH 8090	Master's Thesis Research in Mathematics	

Suggested		
MATH 8445	Partial Differential Equations I	3
MATH 8480	Advanced Probability	3

At least three hours of the 30 hours must be taken outside the department. Additional requirements, (some of which may be satisfied by work done as an undergraduate), include the completion of one year of advanced calculus and at least one approved course in each of the areas of linear algebra, numerical analysis and mathematical statistics or probability.

Students may not list the courses:		
MATH 7100	Differential Equations	3
MATH 7110	Advanced Calculus with Applications	3
MATH 7140	Matrix Theory	3
MATH 7150	History of Mathematics	3

\* The successful completion of a Master's Project (MATH 8190) or Master's Thesis (MATH 8090) must be certified by a Master's Committee consisting of three members of the Mathematics regular faculty.

### Plan of Study

First Year			
Fall	CR	Spring	CR
MATH 7700		3 MATH 7900	3
7000 Class		MATH 7940	3
MATH 7920		3 7000 Class	
		6	6

Second Year			
Fall	CR	Spring	CR
MATH 8420		3 8000 Class	
MATH 8440		3 8000 Class	
8000 Class		Masters Project	
		6	0

Total Credits: 18

### Admission Criteria

**Notes:** Applicants for any graduate degree in mathematics should submit an application for graduate study. Admission to the graduate program does NOT guarantee admission to the Ph.D. program. International Applicants applying from outside North America who seek financial support from the Department will only be considered for the PhD program.

Fall deadline: January 15

- While a bachelor's degree from an accredited institution is required, the undergraduate major need not be mathematics as long as applicants have had sufficient mathematics training to qualify for 8000-level courses during the first three semesters of graduate work.
- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
61 Effective July 1, 2015 must have score of 80	500 Effective July 1, 2015 must have score of 550

**Important Notes:** International applicants seeking departmental support are required to have a minimum TOEFL score of 85 (Internet-based test) or equivalent. An ibtTOEFL Speaking subscore of 22 or higher is preferred.

- Minimum total academic IELTS score is 5.5

### Required Application Materials

- 3 or more letters of recommendation from your professors or persons who assess in detail your academic performance and potential.
- Transcripts
- Personal Statement
- GRE scores (required for PhD application, strongly recommended for Masters application)
- TOEFL or IELTS (International students only)

Note: The application is submitted through the Graduate School ApplyYourself (<https://applygrad.missouri.edu/apply/>) system.

### Completing the ApplyYourself Application:

This section consists of four subsections.

- Personal Information: Complete all information as requested.
- Application Information: Applications are considered only starting Fall Semester, and only for Full-time study. Select a degree from the Graduate Degrees offered by the MU Mathematics Department.
- Indicate your selection for the **Applied master of Mathematics Master of Arts (MS)**
  - Admissions Category: Graduate Degree Sought at MU: Master's
  - Graduate Program to which you are seeking admissions: Applied Mathematics Master of Science (MS)

- Educational History: Complete all information as requested.
- Test Information:
  - The GRE General Test is required for application to the PhD program in Mathematics, and are strongly recommended for Masters applicants. GRE General Test scores sent directly from the ETS will be considered as part of an application if available. The GRE Subject Test is not required, will be considered if submitted.
  - MU's Institutional Code for the GRE is: 6875.
  - MU's Institutional Code for the TOEFL is: 6875.

### Supplemental Information:

- (required) Upload your Personal Statement, Statement of Goals or Statement of Purpose.
- Please indicate the specific degree for which you are applying, any additional degrees for which you may later apply, and explain your reasons for choosing to pursue these degrees at the University of Missouri. Note that admissions criteria for the PhD are more stringent than for the Master's. MU PhD students can later add a Master's degree to their program of study without requiring departmental approval. MU Master's students who wish to later add the PhD to their program of study require departmental evaluation and approval.
- (optional) Upload your résumé or curriculum vita.
- (optional) Upload your writing sample.
- You may submit samples of your mathematical writings, publications, or pre-prints. Please limit to 10 pages.
- (optional) Upload any other supporting documents
- Unofficial copies of transcripts uploaded by applicant can be used for initial evaluation- official transcripts sent directly to the Graduate Admissions Office will still be required to finalize admission
- Unofficial copies of GRE reports uploaded by applicant can be used for initial evaluation

**RECOMMENDATIONS:** The ApplyYourself (<https://applygrad.missouri.edu/apply/>) system will let you request confidential online recommendation letters from your recommendation providers. You need to provide the names and email addresses of recommendation providers who have agreed in advance to write letters for you. The Mathematics Department application requires at least three recommendation letters from your professors (or persons who assess in detail your academic performance and potential).

### Admission Contact Information

Stephen Montgomery-Smith, Director of Graduate Studies  
 222 Mathematical Sciences Building  
 Columbia, MO 65211  
 (573) 882-6221  
 email: [muasmathdgs@missouri.edu](mailto:muasmathdgs@missouri.edu)

## MST in Mathematics

### Degree Requirements

This degree is designed primarily for those who want to teach mathematics at the secondary school level. A candidate for the degree must have a valid teaching certificate before entering the program and must satisfactorily complete 30 hours of approved course work. MATH 8190 or MATH 8090 is required. At least 15 hours must be in 8000-level courses, of which at least 9 hours must be courses from the

Mathematics Department. At least two courses are required in the fields of algebra, analysis and geometry/topology. The successful completion of a Master's Project (MATH 8190) or Master's Thesis (MATH 8090) must be certified by a Master's Committee consisting of three members of the Mathematics regular faculty.

### Admission Criteria

**Notes:** Applicants for any graduate degree in mathematics should submit an application for graduate study. Admission to the graduate program does NOT guarantee admission to the Ph.D. program. International Applicants applying from outside North America who seek financial support from the Department will only be considered for the PhD program.

Fall deadline: January 15

- While a bachelor's degree from an accredited institution is required, the undergraduate major need not be mathematics as long as applicants have had sufficient mathematics training to qualify for 8000-level courses during the first three semesters of graduate work.
- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
61	500

**Important Notes:** International applicants seeking departmental support are required to have a minimum TOEFL score of 85 (Internet-based test) or equivalent. An ibtTOEFL Speaking subscore of 22 or higher is preferred.

- Minimum total academic IELTS score is 5.5

### Required Application Materials

- 3 or more letters of recommendation from your professors or persons who assess in detail your academic performance and potential.
- Transcripts
- Personal Statement
- GRE scores (required for PhD application, strongly recommended for Masters application)
- TOEFL or IELTS (International students only)
- Note: The application is submitted through the Graduate School's ApplyYourself system. This includes the online credit card payment \$55.00 US for U.S. Citizens and Permanent Residents, \$75.00 US for Non-Resident International applicants.
- Note: The MU College of Education at the University of Missouri is a separate academic unit offering graduate degrees in Mathematics Education, with an emphasis on learning, teaching, and curriculum development.

### Completing the ApplyYourself Application

The application consists of four subsections.

- Personal Information: Complete all information as requested.
- Application Information: Applications are considered only starting Fall Semester, and only for Full-time study. Select a degree from the Graduate Degrees offered by the MU Mathematics Department.
- Indicate your selection for the Mathematics Master of Science for Teachers (MST).
- Admissions Category: Graduate Degree Sought at MU: Master's.

- Graduate Program to which you are seeking admissions: Mathematics Master of Science for Teachers (MST).
- Educational History: Complete all information as requested.
- Test Information:
  - The GRE General Test is required for application to the PhD program in Mathematics, and are strongly recommended for Masters applicants. GRE General Test scores sent directly from the ETS will be considered as part of an application if available. The GRE Subject Test is not required, will be considered if submitted.
  - MU's Institutional Code for the GRE is: 6875.
  - MU's Institutional Code for the TOEFL is: 6875.

### Supplemental Information:

- (required) Upload your Personal Statement, Statement of Goals or Statement of Purpose.
- Please indicate the specific degree for which you are applying, any additional degrees for which you may later apply, and explain your reasons for choosing to pursue these degrees at the University of Missouri. Note that admissions criteria for the PhD are more stringent than for the Master's. MU PhD students can later add a Master's degree to their program of study without requiring departmental approval. MU Master's students who wish to later add the PhD to their program of study require departmental evaluation and approval.
- (optional) Upload your résumé or curriculum vita.
- (optional) Upload your writing sample.
- You may submit samples of your mathematical writings, publications, or pre-prints. Please limit to 10 pages.
- (optional) Upload any other supporting documents.
- Unofficial copies of transcripts uploaded by applicant can be used for initial evaluation- official transcripts sent directly to the Graduate Admissions Office will still be required to finalize admission.
- Unofficial copies of GRE reports uploaded by applicant can be used for initial evaluation.

**RECOMMENDATIONS:** The ApplyYourself (<https://applygrad.missouri.edu/apply/>) system will let you request confidential online recommendation letters from your recommendation providers. You need to provide the names and email addresses of recommendation providers who have agreed in advance to write letters for you. The Mathematics Department application requires at least three recommendation letters from your professors (or persons who assess in detail your academic performance and potential).

### Admission Contact Information

Stephen Montgomery-Smith, Director of Graduate Studies  
 222 Mathematical Sciences Building  
 Columbia, MO 65211  
 (573) 882-6221  
 email: [muasmathdgs@missouri.edu](mailto:muasmathdgs@missouri.edu)

## PhD in Mathematics

### Degree Requirements

This is a professional research degree designed to prepare students for various advanced professional careers, including college teaching and

research. Before formally becoming a candidate, a student must have training equivalent to that required for a master's degree.

#### Core Courses

MATH 8410	Algebra I	3
MATH 8411	Algebra II	3
MATH 8420	Theory of Functions of Real Variables I	3
MATH 8421	Theory of Functions of Real Variables II	3
MATH 8425	Complex Analysis I	3
MATH 8502	Topics of Geometry (section 1 - Differentiable Manifolds)	3
MATH 8630	Harmonic Analysis I	3
MATH 8445	Partial Differential Equations I	3
MATH 8440	Advanced Ordinary Differential Equations I	3
MATH 8102	Topics in Algebra (section 2 - Algebraic Number Theory)	3
MATH 8102	Topics in Algebra (section 1 - Commutative Algebra I)	3
MATH 8628	Functional Analysis I	3
MATH 8631	Harmonic Analysis II	3
MATH 8302	Topics in Harmonic Analysis (section 1 - Theory of Distributions)	3
MATH 8480	Advanced Probability	3
MATH 8650	Differentiable Manifolds and Riemannian Geometry	3
MATH 8402	Topics in Mathematical Physics (section 1 - Mathematical Physics)	3
MATH 8202	Topics in Functional Analysis (section 1 - Analytic Number Theory)	3
MATH 8615	Algebraic Geometry I	3
MATH 8446	Partial Differential Equations II	3
MATH 8618	Introduction to Algebraic Topology	3
MATH 8616	Algebraic Geometry II	3

### Plan of Study

Year 0 courses include basic advanced undergraduate material, which incoming Ph.D. students are required to master before engaging in graduate coursework. Well prepared incoming students can petition to skip some or all of the Year 0 courses. The Director of Graduate Studies will administer an informal exam to see if the students are sufficiently ready to skip Year 0 courses.

Fall	CR	Spring	CR
MATH 7700		3 MATH 7900	3
MATH 8655		3 MATH 7940	3
MATH 7920		3 MATH 7720	3
		9	9

Total Credits: 18

Year 1 courses will train students to develop a common solid foundation on basic graduate mathematics. The Ph.D. student is required to pass all 6 courses, and to pass qualifying exams in Algebra and Real Analysis. The qualifying exams will be given in May of each year, shortly after finals week. There will be an opportunity to retake a qualifying exam in August just before the beginning of the Fall semester. The Analysis qualifying exams will be from topics from Real Analysis I and Real Analysis II. The Algebra qualifying exams will be from topics from Algebra I and Algebra II.

Extremely well prepared students, with the permission of their initial advisor and the Director of Graduate studies, may take one or both qualifying exams in August before they start their first semester. If they pass, then with the permission of their initial advisor and the Director of Graduate studies they may skip the corresponding courses in Year 1.

## Year 1: Take All 6

First Year			
Fall	CR	Spring	CR
MATH 8420		3 MATH 8421	3
MATH 8410		3 MATH 8411	3
MATH 8425		3 MATH 8502 (.1†)	3
		9	9

Total Credits: 18

† Here, and elsewhere in this document, the number after the period refers to the section number.

Year 2 and above are the post-qual core courses. Every Ph.D. student must complete at least six of the post-qual core courses. (Note that the parity of the year is determined by the beginning of the AY. For example, Spring 2016 occurs in the beginning of AY 2015, and so would be considered to be in an odd year.)

## Year 2 and above: Minimum 6 classes

### Even Years

Fall		Spring	
MATH 8630	Harmonic Analysis I	MATH 8402	Topics in Mathematical Physics (Mathematical Physics)
MATH 8440	Advanced Ordinary Differential Equations I	MATH 8302	Topics in Harmonic Analysis (Theory of Distributions)
MATH 8102	Topics in Algebra (Algebraic Number Theory)	MATH 8480	Advanced Probability
MATH 8102	Topics in Algebra (Commutative Algebra I)	MATH 8650	Differentiable Manifolds and Riemannian Geometry
MATH 8628	Functional Analysis I	MATH 8102	Topics in Algebra (Commutative Algebra II)
MATH 8445	Partial Differential Equations I	MATH 8631	Harmonic Analysis II

### Odd Years

Fall		Spring	
MATH 8630	Harmonic Analysis I	MATH 8631	Harmonic Analysis II
MATH 8445	Partial Differential Equations I	MATH 8446	Partial Differential Equations II
MATH 8440	Advanced Ordinary Differential Equations I	MATH 8480	Advanced Probability
MATH 8202	Topics in Functional Analysis (.1)	MATH 8618	Introduction to Algebraic Topology

MATH 8615	Algebraic Geometry I	MATH 8616	Algebraic Geometry II
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Some of the above courses are listed in the catalog under different names. Others are new courses, and are currently listed as topics courses until we are able to add them to the catalog.

The candidate must further complete a course of study approved by the doctoral program committee and pass a comprehensive examination. The active areas of research interest of the current members of the staff are: algebraic geometry, analysis (real, complex, functional and harmonic), analytic functions, applied mathematics, financial mathematics and mathematics of insurance, commutative rings, scattering theory, differential equations (ordinary and partial), differential geometry, dynamical systems, general relativity, mathematical physics, number theory, probabilistic analysis and topology.

*Note: Effective at the start of Winter Semester 2007, there is NO foreign language proficiency requirement for the Mathematics PhD. However, a student's Doctoral Committee still retains the discretion to impose a foreign language proficiency requirement.*

## Admission Criteria

**Note:** Applicants for any graduate degree in mathematics should submit an application for graduate study. International Applicants applying from outside North America who seek financial support from the Department will only be considered for the PhD program.

Fall deadline: January 15

- While a bachelor's degree from an accredited institution is required, the undergraduate major need not be mathematics as long as applicants have had sufficient mathematics training to qualify for 8000-level courses during the first three semesters of graduate work.
- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
61 Effective July 1, 2015 must have score of 80.	500 Effective July 1, 2015 must have score of 550.

**Important Notes:** International applicants seeking departmental support are required to have a minimum TOEFL score of 85 (Internet-based test) or equivalent. An iBT TOEFL Speaking subscore of 22 or higher is preferred.

- Minimum IELTS score:

Item	Score
OVERALL	5.5

## Required Application Materials

- 3 or more letters of recommendation from your professors or persons who assess in detail your academic performance and potential.
- Transcripts
- Personal Statement
- GRE scores (required for PhD application, strongly recommended for Masters application)
- TOEFL or IELTS (International students only)

Note: The application is submitted through the Graduate School's ApplyYourself (<http://gradschool.missouri.edu/admissions/>) system.

## Completing the ApplyYourself Application:

The application consists of four subsections.

- Personal Information: Complete all information as requested.
- Application Information: Applications are considered only starting Fall Semester, and only for Full-time study. Select a degree from the Graduate Degrees offered by the MU Mathematics Department.
- Indicate your selection for the Mathematics Doctor of Philosophy (PhD)
- Admissions Category: Graduate Degree Sought at MU: Doctorate
- Graduate Program to which you are seeking admissions: Mathematics Doctor of Philosophy (PhD)
- Educational History: Complete all information as requested.
- Test Information:
  - The GRE General Test is required for application to the PhD program in Mathematics, and are strongly recommended for Masters applicants. GRE General Test scores sent directly from the ETS will be considered as part of an application if available. The GRE Subject Test is not required, will be considered if submitted.
  - MU's Institutional Code for the GRE is: 6875.
  - MU's Institutional Code for the TOEFL is: 6875.

## Supplemental Information:

- (required) Upload your Personal Statement, Statement of Goals or Statement of Purpose.
- Please indicate the specific degree for which you are applying, any additional degrees for which you may later apply, and explain your reasons for choosing to pursue these degrees at the University of Missouri. Note that admissions criteria for the PhD are more stringent than for the Master's. MU PhD students can later add a Master's degree to their program of study without requiring departmental approval. MU Master's students who wish to later add the PhD to their program of study require departmental evaluation and approval.
- (optional) Upload your résumé or curriculum vita.
- (optional) Upload your writing sample.
- You may submit samples of your mathematical writings, publications, or pre-prints. Please limit to 10 pages.
- (optional) Upload any other supporting documents
- Unofficial copies of transcripts uploaded by applicant can be used for initial evaluation- official transcripts sent directly to the Graduate Admissions Office will still be required to finalize admission
- Unofficial copies of GRE reports uploaded by applicant can be used for initial evaluation

**RECOMMENDATIONS:** The ApplyYourself system will let you request confidential online recommendation letters from your recommendation providers. You need to provide the names and email addresses of recommendation providers who have agreed in advance to write letters for you. The Mathematics Department application requires at least three recommendation letters from your professors (or persons who assess in detail your academic performance and potential).

## International Applicants Only

- Unofficial copies of TOEFL/IELTS reports uploaded by applicant can be used for initial evaluation - official reports sent directly to the Graduate Admissions Office will still be required to finalize admission

- Affidavit of Support for International Applicants: It is not necessary to complete this form. International applicants are required to complete the Affidavit of Support OR provide a letter of support from a University of Missouri graduate degree program before immigration documents can be issued. All international admissions to the Mathematics graduate program come with financial support which suffices to meet this requirement.

*The following (paper) application materials must be on file at the Graduate Admissions office before an admission offer can be finalized:*

- Official transcripts/mark sheets from each college or university you have attended (sent directly from the college or university). Applicants with degrees from outside the United States must provide academic credentials in both the native language and in English.
- Official TOEFL or IELTS scores (sent directly from the testing service). Please review the Graduate School's policy regarding proof of English Language proficiency.

Please arrange to have these materials mailed to the following address:

University of Missouri-Columbia  
Graduate Admissions  
210 Jesse Hall  
Columbia, MO 65211  
1-800-877-6312  
(573) 884-8488

## Admission Contact Information

Stephen Montgomery-Smith, Director of Graduate Studies  
222 Mathematical Sciences Building  
Columbia, MO 65211  
(573) 882-6221  
email: muasmathdgs@missouri.edu

## Music

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Julia Gaines, Director  
204 Sinquefield Music Center  
(573) 882-2606

The School of Music is a department in the College of Arts and Sciences that offers instruction to those who want professional training in music as well as those who wish to pursue music as a vocation. Applied music instruction in piano, voice, string, woodwind, brass and percussion instruments is offered for beginning and advanced students. Elementary and advanced courses are given in music theory and composition. The appreciation, literature and history of music are covered by survey and specialized courses. Undergraduate and graduate courses are offered in music education. The school has been an accredited member of the National Association of Schools of Music since 1933.

The School of Music also offers opportunities for all students of the university to participate in various performing ensembles. Regular programs are presented on campus and throughout the state by groups such as The University Philharmonic Orchestra, Wind Ensemble, Marching Mizzou, Symphonic Band, University Band, Jazz Ensembles, Choral Union, University Singers, Concert Chorale, Hitt Street Harmony, Opera Workshop and many vocal, string, percussion and wind chamber ensembles. Membership in these groups is open to interested students by audition, except University Choral Union and University Band, which do not require an audition.

The department offers the BA degree in Music, MA in Musicology, and BM and MM degrees with majors in Music Composition, History, Theory, Performance and Music Education, as well as a PhD in Music Education. Undergraduate minors in Music are offered, as are a minor and certificate in Jazz Studies and a certificate in Music Entrepreneurship. At the graduate level, a minor is offered in Musicology, as are certificates in Jazz Studies and Music Entrepreneurship.

## Faculty

**Curators' Distinguished Teaching Professor Emeritus:** M. Budds\*

**Curators' Distinguished Teaching Professor:** W. Sims\*\*

**Professor:** Iskander Akhmadullin\*, R. P. Crabb\*, S. Freund\*, J. Gaines\*, P. Miyamoto\*, L. Perna\*, E. Szekely\*, J. Wenger\*, D. Willett\*

**Associate Professor:** A. K. Dade\*, T. Howe\*, J. Mabary\*, A. Manzo\*, N. Minturn\*, L. Saguiguit\*, B. Silvey\*\*, S. Tharp\*

**Teaching Professor:** C. Seitz\*

**Associate Teaching Professor:** A. M. Knopps\*

**Assistant Professor:** M. Arns\*, B. Boyd\*, B. Ford\*, A. C. Heredia\*, E. Lara\*, J. Rosenfeld\*

**Visiting Assistant Professor:** K. Stegall\*

**Assistant Teaching Professor:** A. Collins\*, S. Griffith\*, S. Jepsen\*, P. Lea\*, W. Warnhoff\*, P. Zambito\*

**Post Doc:** Y. Onishi

**Adjunct Instructor:** B. Bohman, N. Bolshakova, J. Gotlib, T. Hall, W. J. James, E. Manzo, N. Hara Oba, P. Seitz\*, S. Stubbs, B. Tate, M. Duhova Trevor, C. Walker

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BA in Music (p. 256)
- BM in Music (p. 256)
  - with emphasis in Composition (p. 257)
  - with emphasis in Music Education (p. 258)
  - with emphasis in Music History (p. 261)
  - with emphasis in Music Theory (p. 262)
  - with emphasis in Performance (p. 263)
- Minor in Music (p. 266)

## Departmental Honors

Departmental Honors for the School of Music are designed to reward truly superlative achievement by an undergraduate music student, focusing on the student's area of performance, theory and composition, or history and literature. A minimum GPA of 3.3 at the onset of the senior year is required, not including grades for large ensembles. The student must initiate the process by submitting a formal application to the Director of the School of Music at the beginning of the semester prior to the semester of graduation, and must receive approval from his or her area coordinator and faculty advisor. Further information and an application form may be obtained by contacting the Director of Undergraduate Studies in Music.

## Graduate

- MA in Music (p. 266)
  - with emphasis in Musicology (p. 267)
- MM in Music (p. 268)
  - with emphasis in Collaborative Piano (p. 269)
  - with emphasis in Composition (p. 270)
  - with emphasis in Conducting (p. 270)
  - with emphasis in Jazz Performance and Pedagogy (p. 272) (not accepting applications)
  - with emphasis in Music Education (p. 272)
  - with emphasis in Music Theory (p. 273)
  - with emphasis in Performance (p. 273)
  - with emphasis in Piano Pedagogy (p. 275) (not accepting applications)
- PhD in Music Education (p. 276)

School of Music  
208 Sinquefield Music Center  
(573) 882-2604  
<http://music.missouri.edu/>

## About the School of Music

Founded in 1907, the School of Music is one of the larger academic units in the College of Arts and Science. Comprised of 35+ full-time faculty members and approximately 260 music majors, it is small enough to permit close, personal interaction between students and faculty, but large enough to provide many wonderful opportunities for talented students to excel. Our primary mission is to prepare students to become professional musicians and music educators. The School of Music is widely known for its scholarship in the field, and it is an important cultural resource for the profession, the campus community, and the people of Missouri.

## Performance

At MU a student of music has the opportunity to hear many concerts or to participate in a variety of performing organizations. Many recitals are given by students, faculty and visiting artists. Among the student ensembles that give several concerts during the year are the University Philharmonic, University Wind Ensemble and other concert bands, jazz ensembles, University Singers and other choral ensembles, Show-Me Opera, and chamber music groups. Faculty ensembles that present recitals regularly include the Esterhazy String Quartet, the Missouri Woodwind Quintet and the MU Faculty Brass Quintet.

## Resources and Facilities

Open in January 2020, the Sinquefield Music Center houses the School of Music administrative offices, some faculty offices, classrooms, a small performance venue, a large rehearsal room, practice rooms, and a brand new recording studio. Many faculty offices as well as a recital hall, classrooms, studios and practice rooms are also housed in the music section of the Fine Arts Building. The music holdings in Ellis Library constitute a substantial research and reference collection. The Sinquefield New Music Center is under construction with classes projected to begin with the Spring 2020 semester.

## Additional Degree Options

Graduate Minor in Musicology (p. 374)  
Graduate Certificate in Jazz Studies (p. 369)



## BA in Music

### Degree Program Description

The Bachelor of Arts (BA) in Music is a 120-hour degree in which the number of courses in music is less than in the professionally-oriented BM degree, thereby making more hours available for non-music courses. The degree does, however, require a well-rounded set of courses that will leave the student with excellent musical understanding and performance skills. In addition, the student has the freedom to pursue a secondary area of interest, which might form the basis of a specific kind of professional training. Most students pursuing a double major (music and another field) choose the BA degree.

### Major Program Requirements

Students who elect to earn a Bachelor of Arts with a major in Music will complete a general, liberal arts degree with a strong music emphasis. Students must also complete all degree, college and university graduation requirements, including Arts & Science Foundation Requirements.

Courses completed in the D range may not fulfill music course requirements without the approval of the advisor and the dean, and the student must achieve an overall average of at least C (2.0) in all of the courses attempted in the School of Music.

In addition, students must complete all College of Arts and Science and University graduation requirements (p. 35), including University general education (p. 36).

### Major Core Requirements

MUS_THRY 1230	Aural Training and Sight Singing I	2
MUS_THRY 1231	Aural Training and Sight Singing II	2
MUS_THRY 2230	Aural Training and Sight Singing III	2
MUS_THRY 2231	Aural Training and Sight Singing IV	2
MUS_THRY 1220	Tonal Music Theory I	2
MUS_THRY 1221	Tonal Music Theory II	2
MUS_THRY 2220	Tonal Music Theory III	2
MUS_THRY 2221	Tonal Music Theory IV	2
MUS_H_LI 1322	Introduction to Music in the United States	2
MUS_H_LI 2307	History of Western Music I	2
MUS_H_LI 2308	History of Western Music II	2
MUSIC 4300 level	History Elective (Writing Intensive)	3
MUS_GENL 3085	Problems in Music (Capstone Experience)	1
MUS_GENL 1091	Recital Attendance for Undergraduate Music Majors (5 semesters)	0
MUS_APMS 2455	Studio Instruction (Total of 8 credit hours)	8
MUS_APMS 3455	Studio Instruction	2
MUS_ENS 1841	Instrumental Ensemble (Total of 4 credit hours)	4
or MUS_ENS 1842	Choral Ensemble	
Total Credits		40

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
MUS_GENL 1091		0 MUS_GENL 1091	0
MUS_THRY 1220		2 MUS_THRY 1221	2
MUS_THRY 1230		2 MUS_THRY 1231	2
MUS_ENS 1841 or 1842		1 MUS_H_LI 1322	2
MUS_APMS 2455		2 MUS_ENS 1841 or 1842	1
Non-Music Courses		8 MUS_APMS 2455	2
		Non-Music Courses	6
		15	15

Second Year			
Fall	CR	Spring	CR
MUS_GENL 1091		0 MUS_GENL 1091	0
MUS_ENS 1841 or 1842		1 MUS_ENS 1841 or 1842	1
MUS_THRY 2220		2 MUS_THRY 2221	2
MUS_THRY 2230		2 MUS_THRY 2231	2
MUS_H_LI 2307		2 MUS_H_LI 2308	2
MUS_APMS 2455		2 MUS_APMS 2455	2
Non-Music Courses		6 Non-Music Courses	6
		15	15

Third Year			
Fall	CR	Spring	CR
MUS_GENL 1091		0 Non-Music Courses	15
MUS_APMS 3455		2	
Music History Elective		3	
Non-Music Course		10	
		15	15

Fourth Year			
Fall	CR	Spring	CR
Non-Music Courses		15 MUS_GENL 3085	1
		Non-Music Courses	14
		15	15

Total Credits: 120

## BM in Music

### Degree Program Description

The Bachelor of Music (BM) degree is a program of 120-145 hours that may be earned with an emphasis in Performance (brass, percussion, piano, strings, voice, or woodwinds), Music History, Music Theory, Composition, or Music Education. It is designed for the student who intends to pursue a career as a composer, performer, K-12 or college teacher, as well as the student who plans to enter graduate school to pursue further study in one of these areas. Students must audition to be admitted into the program.

### Major Program Requirements

The Bachelor of Music (BM) is a professional degree that offers the maximum concentration in music. The student may focus on instrumental, keyboard or vocal performance; music theory; composition; music history or music education based on the choice of emphasis area. In addition, students must complete degree, college and university requirements, including Arts & Science Foundation Requirements.

In addition, students must complete all College of Arts and Science and University graduation requirements (p. 35), including University general education (p. 36).

**Foreign Language Requirement:**

- Composition, Woodwind or Percussion Performance: 12-13 hours of any foreign language that satisfies the Arts & Science Foundation Requirement
- Theory, Piano or Brass Performance: 12-13 hours of French, Italian, or German
- Music History: 10 hours of German + 5-6 hours of second language, approved by advisor (15-16 total)
- String Performance: 12-13 hours of French, Italian, German or Spanish
- Vocal Performance: GERMAN 1100 Elementary German I (5 hours), FRENCH 1100 Elementary French I (5 hours), and ITAL 1100 Elementary Italian I (6 hours); and one additional course in German (5 hours), French (5 hours), or Italian (6 hours) (21-22 hours total). In addition, one hour each in Italian, French, and German diction (music courses; 3 hours total)
- Music Education: Foreign language is not required

Candidates must pass an examination administered by the applied faculty in the area of performance at the completion of their sophomore year before entrance is approved to studio instruction at the 4455-level (for performance tracks) or 3455-level (for all other tracks). Degree recitals must be approved two weeks in advance by a faculty hearing committee.

Courses completed in the “D” range may not fulfill music course requirements without the approval of the advisor and the dean, and the student must achieve an overall average of at least C (2.0) in all of the courses attempted in the School of Music at MU. Music education students must have an overall grade point average (GPA) of 2.75, a music content GPA of 3.00, and an education course GPA of 3.00 to qualify for teacher certification.

**Requirements for ALL emphasis areas and tracks, except music education.**

MUS_THRY 1210	Introduction to Computer Technology and Music	2
MUS_THRY 1220	Tonal Music Theory I	2
MUS_THRY 1221	Tonal Music Theory II	2
MUS_THRY 1230	Aural Training and Sight Singing I	2
MUS_THRY 1231	Aural Training and Sight Singing II	2
MUS_THRY 2220	Tonal Music Theory III	2
MUS_THRY 2221	Tonal Music Theory IV	2
MUS_THRY 2230	Aural Training and Sight Singing III	2
MUS_THRY 2231	Aural Training and Sight Singing IV	2
MUS_THRY 4220	Post-Tonal Music Theory	2
MUS_THRY 4223	Eighteenth-Century Counterpoint	3
MUS_THRY 42xx	Theory Elective	2
MUS_H_LI 1322	Introduction to Music in the United States	2
MUS_H_LI 2307	History of Western Music I	2
MUS_H_LI 2308	History of Western Music II	2
MUS_H_LI 43xx	History Elective	3
MUS_I_VT 2631	Basic Conducting and Score Reading	2

MUS_GENL 1091	Recital Attendance for Undergraduate Music Majors (7 semesters)	0
Total Credits		36

**Semester Plan**

The BM in Music has emphasis areas in Composition (p. 257), Music Education (p. 258), Music History (p. 261), Music Theory (p. 262), and Performance (p. 263). Please see the individual emphasis area pages for semester plans specific to the emphasis area.

**BM in Music with Emphasis in Composition**

**Degree Program Description**

The Bachelor of Music (BM) degree with an emphasis in Composition focuses on music theory, methodology, composition of music, and music history. The program is designed for the student who intends to pursue a career as a composer, performer, or college teacher, as well as the student who plans to enter graduate school to pursue further study in one of these areas. Admission to the composition emphasis area requires an application, examination, and/or samples of work. Incoming freshmen accepted to the University of Missouri may be admitted to the BM composition major after a review of sample compositions and an interview with the composition faculty (normally on one of the Mizzou Music Days). Students already pursuing a music degree may be admitted to the emphasis area, typically toward the end of the sophomore year of study, through an application and examination process.

**Major Program Requirements**

The program requires 130-145 hours, including courses in music theory, music history, studio instruction, and ensembles.

In addition to the list of required courses below for the emphasis in Composition, students must complete the bachelor of music (p. 256), college and university requirements (p. 35), including Arts & Science Foundation Requirements (p. 138).

MUS_GENL 1091	Recital Attendance for Undergraduate Music Majors	0
MUS_APMS 1435	Studio Instruction for Majors (1 credit per semester for 3 semesters)	3
MUS_APMS 2455	Studio Instruction (2 credits per semester for 4 semesters)	8
MUS_APMS 3455	Studio Instruction (2 credits per semester for 2 semesters)	4
MUS_ENS 1841	Instrumental Ensemble (total of 8 credit hours)	0-1
or MUS_ENS 1842	Choral Ensemble	
MUS_THRY 1210	Introduction to Computer Technology and Music	2
MUS_THRY 1220	Tonal Music Theory I	2
MUS_THRY 1221	Tonal Music Theory II	2
MUS_THRY 1230	Aural Training and Sight Singing I	2
MUS_THRY 1231	Aural Training and Sight Singing II	2
MUS_THRY 2215	Composition I	2
MUS_THRY 2216	Composition II	2
MUS_THRY 2220	Tonal Music Theory III	2
MUS_THRY 2221	Tonal Music Theory IV	2

MUS_THRY 2230	Aural Training and Sight Singing III	2
MUS_THRY 2231	Aural Training and Sight Singing IV	2
MUS_THRY 3215	Composition III	2
MUS_THRY 3216	Composition IV	2
MUS_THRY 4215	Composition V	2
MUS_THRY 4216	Composition VI	2
MUS_THRY 4220	Post-Tonal Music Theory	2
MUS_THRY 4223	Eighteenth-Century Counterpoint	3
MUS_THRY 4225	Sixteenth-Century Counterpoint	3
MUS_THRY 4227	Orchestration	2
MUS_THRY 4245	Introduction to Electronic Music	2
MUS_THRY 4247	Introduction to Digital Synthesis	2
MUS_THRY 4226	Instrumentation	2
MUS_THRY 4290	Music Composition Seminar (1 credit per semester for 6 semesters)	6
MUS_THRY 42xx Theory Elective 2		2
MUS_H_LI 1322	Introduction to Music in the United States	2
MUS_H_LI 2307	History of Western Music I	2
MUS_H_LI 2308	History of Western Music II	2
MUS_H_LI 43xx History Elective 3		3
MUS_I_VT 1610	Group Piano for Music Majors I	1
MUS_I_VT 1611	Group Piano for Music Majors II	1
MUS_I_VT 2610	Group Piano for Music Majors III	1
MUS_I_VT 2611	Group Piano for Music Majors IV	1
MUS_I_VT 2631	Basic Conducting and Score Reading	2
Total Credits		84-85

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
MUS_GENL 1091		0 MUS_GENL 1091	0
MUS_THRY 1210	2	MUS_THRY 1221	2
MUS_THRY 1220	2	MUS_THRY 1231	2
MUS_THRY 1230	2	MUS_THRY 2216	2
MUS_THRY 2215	2	MUS_H_LI 1322	2
MUS_I_VT 1610	1	MUS_I_VT 1611	1
MUS_ENS 1841 or 1842	1	MUS_ENS 1841 or 1842	1
MUS_APMS 2455	2	MUS_APMS 2455	2
Non-Music Courses		3-6 Non-Music Courses	6-8
		15-18	18-20
Second Year			
Fall	CR	Spring	CR
MUS_GENL 1091		0 MUS_GENL 1091	0
MUS_APMS 1435	1	MUS_APMS 1435	1
MUS_ENS 1841 or 1842	1	MUS_ENS 1841 or 1842	1
MUS_THRY 2220	2	MUS_THRY 2221	2
MUS_THRY 2230	2	MUS_THRY 3216	2
MUS_THRY 3215	2	MUS_THRY 2231	2
MUS_H_LI 2307	2	MUS_H_LI 2308	2
MUS_APMS 2455	2	MUS_APMS 2455	2
MUS_I_VT 2610	1	MUS_I_VT 2611	1
MUS_THRY 4290	1	MUS_THRY 4290	1

Non-Music Courses	3-5 Non-Music Courses	3-5	
	17-19	17-19	
Third Year			
Fall	CR	Spring	CR
MUS_GENL 1091		0 MUS_GENL 1091	0
MUS_APMS 1435	1	MUS_ENS 1841 or 1842	1
MUS_ENS 1841 or 1842	1	MUS_I_VT 2631	2
MUS_APMS 3455	2	MUS_APMS 3455	2
MUS_THRY 4215	2	MUS_THRY 4216	2
MUS_THRY 4226	2	MUS_THRY 4220	2
MUS_THRY 4290	1	MUS_THRY 4227	2
MUS_THRY 4223	3	MUS_THRY 4290	1
MUS_THRY 4245	2	Non-Music Courses	4-6
Non-Music Courses	3		
		17	16-18
Fourth Year			
Fall	CR	Spring	CR
MUS_GENL 1091		0 MUS_ENS 1841 or 1842	1
MUS_ENS 1841 or 1842	1	MUS_THRY 4216	2
MUS_THRY 4216	2	MUS_THRY 4290	1
MUS_THRY 4225	3	MUS_HIST 4xxx Elective	3
MUS_THRY 4290	1	Non-Music Courses	4-7
MUS_THRY 4xxx Elective	2		
Non-Music Courses	3-5		
		12-14	11-14
Total Credits: 123-139			

## BM in Music with Emphasis in Music Education

### Degree Program Description

The music education degree program is designed for students who wish to become school music teachers. Graduates will be certified to teach music to children in kindergarten through twelfth grade, including elementary general music and either secondary instrumental or vocal music. MU music education students become successful teachers and performers who are sought after by schools in Missouri and beyond, as well as by prestigious graduate programs. Students enhance their musicianship by taking private lessons and participating in ensembles, and acquire a breadth of knowledge through coursework in general education, professional education and core music areas. They develop skills related to music teaching and rehearsing in their music education classes, which are accompanied by observing, interacting with, and instructing students in the public schools. This allows for important hands-on experience prior to the full semester of student teaching. The faculty members who teach music education courses are active professionals who publish research in prestigious journals, and play leadership roles in international and national organizations devoted to improving prekindergarten through college-level music instruction.

### Major Program Requirements

Students must complete all university (p. 35), general education (p. 36), and content requirements, in addition to degree requirements. Please meet with a music education faculty member to discuss degree requirements and to create a semester plan.

Curriculum changes mandated by the Department of Elementary and Secondary Education (DESE) that must be met in order to complete your degree and earn teacher certification may become effective at any point during your academic program. Therefore, it is extremely important that you DO NOT SELF ADVISE.

The lists below are provided as an overview of the degree requirements. Because this degree program is highly sequenced, and includes requirements leading to state certification including specified content, education, and overall grade point averages, students should not use this list to self advise but must work closely with their music education advisors to plan their coursework.

**MU General Education Requirements** - Students will plan for this coursework with their Music Education Advisors

*Note: Options do not appear on transcripts or diplomas. Emphasis areas appear on transcripts.*

**Music and Education Requirements for All Music Education Students**

MUS_THRY 1220	Tonal Music Theory I	2
MUS_THRY 1221	Tonal Music Theory II	2
MUS_THRY 1230	Aural Training and Sight Singing I	2
MUS_THRY 1231	Aural Training and Sight Singing II	2
MUS_THRY 2220	Tonal Music Theory III	2
MUS_THRY 2221	Tonal Music Theory IV	2
MUS_THRY 2230	Aural Training and Sight Singing III	2
MUS_THRY 2231	Aural Training and Sight Singing IV	2
MUS_THRY 4220	Post-Tonal Music Theory	2
MUS_H_LI 1322	Introduction to Music in the United States	2
MUS_H_LI 2307	History of Western Music I	2
MUS_H_LI 2308	History of Western Music II	2
MUS_I_VT 2631	Basic Conducting and Score Reading	2
MUS_GENL 1091	Recital Attendance for Undergraduate Music Majors (6 semesters)	0
MUS_I_VT 1610	Group Piano for Music Majors I	1
MUS_I_VT 1611	Group Piano for Music Majors II	1
MUS_I_VT 2610	Group Piano for Music Majors III	1
MUS_I_VT 2611	Group Piano for Music Majors IV	1
MUS_APMS 2455	Studio Instruction (Major instr. total of 4 semesters, 8 credit hours)	2
MUS_APMS 3455	Studio Instruction (total of 4 credit hours)	2
MUS_ENS 1841	Instrumental Ensemble (total of 7 credit hours; 1 semester of lab ensemble required; 1 semester of marching band for band instrument majors required)	1
or MUS_ENS 1842	Choral Ensemble	
MUS_EDUC 1100	Orientation: Music Education	1
MUS_EDUC 4140	Teaching Music I	3
MUS_EDUC 4141	Teaching Music I Field Experience	1
MUS_EDUC 4142	Teaching Music II	2
MUS_EDUC 4143	Teaching Music II Field Experience	1
MUS_EDUC 4144	Teaching Music III	3
MUS_EDUC 4145	Teaching Music III Field Experience	1
ESC_PS 2010	Inquiry Into Learning I	3
ESC_PS 2014	Inquiry into Learning I - Field Experience	1
LTC 2040	Inquiring into Schools, Community and Society I	3

LTC 2044	Inquiry into Schools, Community and Society: Field	1
SPC_ED 4020	Teaching the Exceptional Learner	3
ED_LPA 4060	Inquiring into Schools, Community and Society II	3
LTC 4460	Teaching English to Speakers of Other Languages	3
LTC 4560	Reading and Writing in the Content Areas	3
LTC 4971	Internship and Capstone Seminar	12

**Additional Music Requirements - Vocal Majors**

MUS_I_VT 2631	Basic Conducting and Score Reading	2
MUS_I_VT 2633	Rehearsal Clinic: Choral Conducting I	2
MUS_I_VT 2635	Rehearsal Clinic: Choral Conducting II	2
MUSIC_NM 1612	Elementary Folk Guitar Class	1
MUS_I_VT 3643	Symposium in Instrumental Music (rec) OR Inst Music: 2hrs of Ens/Lesson Tech)	2
MUS_I_VT 3670	Diction in Singing: Italian	1
MUS_I_VT 3671	Diction in Singing: German	1
MUS_I_VT 3672	Diction in Singing: French	1
MUS_THRY 4230	Choral Arranging	2

**Additional Music Requirements - Instrumental Majors**

MUS_I_VT 2634	Rehearsal Clinic: Band Conducting I	1
MUS_I_VT 2636	Rehearsal Clinic: Band Conducting II	1
MUS_I_VT 2648	Percussion	1
MUS_I_VT 2640	Strings I	1
MUS_I_VT 2641	Strings II	1
MUS_I_VT 2637	Woodwinds I	1
MUS_I_VT 2638	Woodwinds II	1
MUS_I_VT 2645	Brass I	1
MUS_I_VT 2646	Brass II	1
MUS_THRY 4226	Instrumentation	2
MUS_I_VT 3642	Seminar in String Techniques	1
or MUS_I_VT 3646	Marching Band Techniques	
MUS_I_VT 3644	Jazz Methods and Materials	1
MUS_ENS 1841	Instrumental Ensemble (marching band, band instrument majors only)	1

Vocal Music: 1 hour (voice lessons or choir)

**Semester Plan**

**Option, Vocal Music K-12**

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
MUS_EDUC 1100		1 MUS_THRY 1221	2
MUS_THRY 1220		2 MUS_THRY 1231	2
MUS_THRY 1230		2 MUS_H_LI 1322	2
MUS_I_VT 1610		1 MUS_I_VT 1611	1
MUS_APMS 2455		2 MUS_APMS 2455	2
MUS_ENS 1842		1 MUS_ENS 1842	1
MUS_GENL 1091		0 MUS_GENL 1091	0
ENGLISH 1000		3 MUSIC_NM 1612	1

SOCIOL 1000 (or Behavioral Science/Diversity Elective)	3 MATH 1100	3
	Humanities Elective	3
<hr/>		15
		17

Second Year			
Fall	CR	Spring	CR
ESC_PS 2010 or LTC 2040		3 LTC 2040 or ESC_PS 2010	3
ESC_PS 2014 or LTC 2044		1 LTC 2044 or ESC_PS 2014	1
MUS_THRY 2220		2 MUS_THRY 2221	2
MUS_THRY 2230		2 MUS_THRY 2231	2
MUS_H_LI 2307		2 MUS_H_LI 2308	2
MUS_I_VT 2610		1 MUS_I_VT 2611	1
MUS_APMS 2455		2 MUS_APMS 2455	2
MUS_ENS 1842		1 MUS_ENS 1841	1
MUS_I_VT 3670		1 MUS_ENS 1842 (lab ensemble)	1
MUS_I_VT 3672		1 MUS_I_VT 3671	1
MUS_I_VT 3643		2 MUS_I_VT 2631	2
MUS_GENL 1091		0 MUS_GENL 1091	0
<hr/>		18	18

Third Year			
Fall	CR	Spring	CR
MUS_EDUC 4140		3 MUS_EDUC 4142W	2
MUS_EDUC 4141		1 MUS_EDUC 4143W	1
MUS_THRY 4230		2 SPC_ED 4020	3
MUS_I_VT 2633		2 LTC 4560	3
MUS_APMS 3455		2 MUS_I_VT 2635	2
MUS_ENS 1842		1 MUS_APMS 3455	2
MUS_THRY 4220		2 MUS_ENS 1842	1
American History or Political Science (State Law)		3 Biological Science	3
MUS_APMS 1435 (piano or voice)		1 MUS_APMS 1435	1
MUS_GENL 1091		0 MUS_GENL 1091	0
<hr/>		17	18

Fourth Year			
Fall	CR	Spring	CR
MUS_EDUC 4144W		3 LTC 4971 (Elementary) Internship and Capstone 3-9	
MUS_EDUC 4145W		1 LTC 4971 (Secondary) Internship and Capstone 3-9	
ED_LPA 4060		3 (Total of 12 Hours for LTC 4971)	12
STAT 1200 or ESC_PS 4170		3	
Physical Science w/lab		3	
MUS_ENS 1842		1	
LTC 4460		3	
<hr/>		17	12

Total Credits: 132

### Option, Instrumental Music K-12

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
MUS_EDUC 1100		1 MUS_THRY 1221	2
MUS_THRY 1220		2 MUS_THRY 1231	2
MUS_THRY 1230		2 MUS_H_LI 1322	2
MUS_I_VT 1610		1 MUS_I_VT 1611	1
MUS_APMS 2455		2 MUS_APMS 2455	2
MUS_ENS 1841 (Marching Mizzou)		1 MUS_ENS 1841	1
MUS_ENS 1841		1 MUS_I_VT 2641 (or MUS_I_VT 2638 or MUS_I_VT 2646 )	1
MUS_GENL 1091		0 MATH 1100	3
ENGLSH 1000		3 Humanities Elective	3
SOCIOL 1000 (or Behavioral Science/Diversity Elective)		3 MUS_GENL 1091	0
<hr/>		16	17

Second Year			
Fall	CR	Spring	CR
ESC_PS 2010 or LTC 2040		3 LTC 2040 or ESC_PS 2010	3
ESC_PS 2014 or LTC 2044		1 LTC 2044 or ESC_PS 2014	1
MUS_THRY 2220		2 MUS_THRY 2221	2
MUS_THRY 2230		2 MUS_THRY 2231	2
MUS_H_LI 2307		2 MUS_H_LI 2308	2
MUS_I_VT 2610		1 MUS_I_VT 2611	1
MUS_APMS 2455		2 MUS_APMS 2455	2
MUS_I_VT 2645 or 2637		1 MUS_ENS 1841 (Lab Ensemble)	1
STAT 1200 or ESC_PS 4170		3 MUS_I_VT 2641 (or MUS_I_VT 2638 or MUS_I_VT 2646 )	1
MUS_GENL 1091		0 MUS_I_VT 2631	2
<hr/>		MUS_GENL 1091	0
<hr/>		17	17

Third Year					
Fall	CR	Spring	CR	Fall Semester	CR
MUS_EDUC 4140		3 MUS_EDUC 4142W		2 MUS_GENL 1091	0
MUS_EDUC 4141		1 MUS_EDUC 4143W			
MUS_ENS 1842		1 MUS_I_VT 2636			
MUS_I_VT 2634		1 MUS_THRY 4220			
MUS_APMS 3455		2 SPC_ED 4020			
MUS_ENS 1841		1 MUS_APMS 3455			
MUS_THRY 4226		2 MUS_ENS 1841			
MUS_I_VT 2641		1 MUS_I_VT 3642 or 3646		1-2	
MUS_I_VT 2648		1 Biological Science			3
MUS_I_VT 2637 or 2645		1 MUS_GENL 1091			0
MUS_I_VT 3644		1			
MUS_GENL 1091		0			
American History or Political Science (state law)		3			
<hr/>		18		16-17	0

Fourth Year			
Fall	CR	Spring	CR
MUS_EDUC 4144W	3	LTC 4971 (Elementary) Internship and Capstone 3-9	
MUS_EDUC 4145W	1	LTC 4971 (Secondary) Internship and Capstone 3-9	
ED_LPA 4060	3	(Total of 12 Hours for LTC 4971)	12
LTC 4560	3		
MUS_ENS 1841	1		
Physical Science w/ lab	3		
LTC 4460	3		
	17		12

Total Credits: 130-131

## BM in Music with Emphasis in Music History

### Degree Program Description

The Bachelor of Music (BM) degree with an emphasis in Music History focuses on the history and significance of musical traditions. It is designed for the student who intends to pursue a career as a composer, performer, or college teacher, as well as the student who plans to enter graduate school to pursue further study in one of these areas. In addition to an audition on the major instrument or voice, students must be approved for admission by the music history faculty.

### Major Program Requirements

The program requires 128-144 hours, including courses in music theory, music history, studio instruction, and ensembles.

In addition to the list of required courses below for the emphasis in History, students must complete the bachelor of music (p. 256), college and university requirements (p. 35), including Arts & Science Foundation Requirements (p. 138).

MUS_GENL 1091	Recital Attendance for Undergraduate Music Majors	0
MUS_APMS 1435	Studio Instruction for Majors (Piano; total of 4 credit hours)	1-5
or MUS_APMS 2455	Studio Instruction	
MUS_APMS 2455	Studio Instruction (total of 8 credit hours)	1-5
MUS_APMS 3455	Studio Instruction (total of 4 credit hours)	1-3
MUS_ENS 1841	Instrumental Ensemble (total of 8 credit hours)	0-1
or MUS_ENS 1842	Choral Ensemble	
MUS_THRY 1210	Introduction to Computer Technology and Music	2
MUS_THRY 1220	Tonal Music Theory I	2
MUS_THRY 1221	Tonal Music Theory II	2
MUS_THRY 1230	Aural Training and Sight Singing I	2
MUS_THRY 1231	Aural Training and Sight Singing II	2
MUS_THRY 2220	Tonal Music Theory III	2

MUS_THRY 2221	Tonal Music Theory IV	2
MUS_THRY 2230	Aural Training and Sight Singing III	2
MUS_THRY 2231	Aural Training and Sight Singing IV	2
MUS_THRY 4220	Post-Tonal Music Theory	2
MUS_THRY 4225	Sixteenth-Century Counterpoint	3
or MUS_THRY 4223	Eighteenth-Century Counterpoint	
MUS_THRY 4227	Orchestration	2
MUS_H_LI 1322	Introduction to Music in the United States	2
MUS_H_LI 2307	History of Western Music I	2
MUS_H_LI 2308	History of Western Music II	2
MUS_I_VT 1610	Group Piano for Music Majors I	1
MUS_I_VT 1611	Group Piano for Music Majors II	1
MUS_I_VT 2610	Group Piano for Music Majors III	1
MUS_I_VT 2611	Group Piano for Music Majors IV	1
MUS_I_VT 2631	Basic Conducting and Score Reading	2
MUS_H_LI 43xx History Elective 3+3+6+6		18
MUS_GENL 3085	Problems in Music	1

Total Credits

59-70

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
MUS_GENL 1091 (Section 3)	0	MUS_GENL 1091	0
MUS_THRY 1210	2	MUS_THRY 1221	2
MUS_THRY 1220	2	MUS_THRY 1231	2
MUS_THRY 1230	2	MUS_H_LI 1322	2
MUS_I_VT 1610	1	MUS_I_VT 1611	1
MUS_ENS 1841 or 1842	1	MUS_ENS 1841 or 1842	1
MUS_APMS 2455	2	MUS_APMS 2455	2
Non-Music Courses	6-8	Non-Music Courses	6-8
	16-18		16-18

Second Year			
Fall	CR	Spring	CR
MUS_GENL 1091	0	MUS_GENL 1091	0
MUS_ENS 1841 or 1842	1	MUS_ENS 1841 or 1842	1
MUS_THRY 2220	2	MUS_THRY 2221	2
MUS_THRY 2230	2	MUS_THRY 2231	2
MUS_H_LI 2307	2	MUS_H_LI 2308	2
MUS_APMS 2455	2	MUS_APMS 2455	2
MUS_I_VT 2610	1	MUS_I_VT 2611	1
Non-Music Courses	6-8	Non-Music Courses	6-8
	16-18		16-18

Third Year			
Fall	CR	Spring	CR
MUS_GENL 1091	0	MUS_GENL 1091	0
MUS_APMS 1435 or 2455 (piano)	1	MUS_APMS 1435 or 2455 (piano)	1
MUS_ENS 1841 or 1842	1	MUS_ENS 1841 or 1842	1
MUS_APMS 3455	2	MUS_I_VT 2631	2
MUS_THRY 4220	2	MUS_APMS 3455	2
MUS_THRY 4223 or 4225	3	MUS_THRY 4227	2
Music History Course	3	Music History Course	3

Non-Music Courses	4-6 Non-Music Courses	5-7
	16-18	16-18
<b>Fourth Year</b>		
<b>Fall</b>	<b>CR</b>	<b>Spring</b>
		<b>CR</b>
MUS_GENL 1091	0	MUS_APMS 1435 or 2455 (piano)
		1
MUS_ENS 1841 or 1842	1	MUS_ENS 1841 or 1842
		1
MUS_APMS 1435 or 2455 (piano)	1	MUS_GENL 3085 (Capstone)
		1
Music History Courses	6	Music History Courses
		6
Non-Music Courses	8-10	Non-Music Courses
		7-9
	16-18	16-18

Total Credits: 128-144

## BM in Music with Emphasis in Music Theory

### Degree Program Description

The Bachelor of Music (BM) degree with an emphasis in Music Theory teaches students how music works, critical listening, technical performance, and composition. It is designed for the student who intends to pursue a career as a composer, performer, or college teacher, as well as the student who plans to enter graduate school to pursue further study in one of these areas. In addition to an audition on the major instrument or voice, admission into the emphasis area requires an application and examination.

### Major Program Requirements

The program requires 125-142 hours, including courses in music theory, music history, studio instruction, and ensembles.

In addition to the list of required courses below for the emphasis in Music Theory, students must complete the bachelor of music (p. 256), college and university requirements (p. 35), including Arts & Science Foundation Requirements (p. 138).

MUS_GENL 1091	Recital Attendance for Undergraduate Music Majors (7 satisfactory semesters)	0
MUS_APMS 1435	Studio Instruction for Majors (secondary instr. total of 4 credit hours)	1
MUS_APMS 2455	Studio Instruction (Major instr. total of 8 credit hours)	1-5
MUS_APMS 3455	Studio Instruction (total of 8 credit hours)	1-3
MUS_ENS 1841	Instrumental Ensemble (total of 8 credit hours)	0-1
or MUS_ENS 1842	Choral Ensemble	
MUS_THRY 1210	Introduction to Computer Technology and Music	2
MUS_THRY 1220	Tonal Music Theory I	2
MUS_THRY 1221	Tonal Music Theory II	2
MUS_THRY 1230	Aural Training and Sight Singing I	2
MUS_THRY 1231	Aural Training and Sight Singing II	2
MUS_THRY 2215	Composition I	2
MUS_THRY 2216	Composition II	2
MUS_THRY 2220	Tonal Music Theory III	2
MUS_THRY 2221	Tonal Music Theory IV	2
MUS_THRY 2230	Aural Training and Sight Singing III	2

MUS_THRY 2231	Aural Training and Sight Singing IV	2
MUS_THRY 4220	Post-Tonal Music Theory	2
MUS_THRY 4223	Eighteenth-Century Counterpoint	3
MUS_THRY 4225	Sixteenth-Century Counterpoint	3
MUS_THRY 4227	Orchestration	2
MUS_THRY 42xx	Theory Elective 2+2+2 or 3	6-7
MUS_H_LI 1322	Introduction to Music in the United States	2
MUS_H_LI 2307	History of Western Music I	2
MUS_H_LI 2308	History of Western Music II	2
MUS_H_LI 43xx	History Elective 3+3	6
MUS_I_VT 1610	Group Piano for Music Majors I	1
MUS_I_VT 1611	Group Piano for Music Majors II	1
MUS_I_VT 2610	Group Piano for Music Majors III	1
MUS_I_VT 2611	Group Piano for Music Majors IV	1
MUS_I_VT 2631	Basic Conducting and Score Reading	2
MUS_GENL 3085	Problems in Music (Capstone Theory)	2

Total Credits 61-69

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
MUS_GENL 1091 (Section 3)		0 MUS_GENL 1091	0
MUS_THRY 1210	2	MUS_THRY 1221	2
MUS_THRY 1220	2	MUS_THRY 1231	2
MUS_THRY 1230	2	MUS_H_LI 1322	2
MUS_I_VT 1610	1	MUS_I_VT 1611	1
MUS_ENS 1841 or 1842	1	MUS_ENS 1841 or 1842	1
MUS_APMS 2455	2	MUS_APMS 2455	2
Non-Music Courses		6-8 Non-Music Courses	6-8
	16-18		16-18

Second Year			
Fall	CR	Spring	CR
MUS_GENL 1091		0 MUS_GENL 1091	0
MUS_APMS 1435 (Secondary Instrument)	1	MUS_APMS 1435 (Secondary Instrument)	1
MUS_ENS 1841 or 1842	1	MUS_ENS 1841 or 1842	1
MUS_THRY 2215	2	MUS_THRY 2216	2
MUS_THRY 2220	2	MUS_THRY 2221	2
MUS_THRY 2230	2	MUS_THRY 2231	2
MUS_H_LI 2307	2	MUS_H_LI 2308	2
MUS_APMS 2455	2	MUS_APMS 2455	2
MUS_I_VT 2610	1	MUS_I_VT 2611	1
Non-Music Courses		3-5 Non-Music Courses	3-5
	16-18		16-18

Third Year			
Fall	CR	Spring	CR
MUS_GENL 1091		0 MUS_GENL 1091	0
MUS_APMS 1435 (Secondary Instrument)	1	MUS_APMS 1435 (Secondary Instrument)	1
MUS_ENS 1841 or 1842	1	MUS_ENS 1841 or 1842	1
MUS_APMS 3455	2	MUS_I_VT 2631	2
MUS_THRY 4220	2	MUS_APMS 3455	2

MUS_THRY 4223	3 Music Theory Elective Course	2
MUS_THRY 4227	2 Non-Music Courses	6-8
Non-Music Courses	5-7	
		14-16

Fourth Year			
Fall	CR	Spring	CR
MUS_GENL 1091	0	MUS_ENS 1841 or 1842	1
MUS_ENS 1841 or 1842	1	MUS_GENL 3085 (Theory)	2
MUS_APMS 3455	2	MUS_APMS 3455	2
MUS_THRY 4225	3	Music History Elective Course	3
Music History Elective Course	3	Music Theory Elective Course	2-3
Music Theory Elective Course	2	Non-Music Courses	5-7
Non-Music Courses	5-7		
		16-18	15-18

Total Credits: 125-142

## BM in Music with Emphasis in Performance

### Degree Program Description

The Bachelor of Music (BM) degree with an emphasis in Performance focuses on studio instruction, pedagogy, and literature for instrumental or vocal performance. Students select brass, percussion, piano, strings, voice, or woodwinds as a primary instrument. It is designed for the student who intends to pursue a career as a composer, performer, or college teacher, as well as the student who plans to enter graduate school to pursue further study in one of these areas. Students must audition to be admitted into the emphasis area.

### Major Program Requirements

The program requires 123-143 hours, including courses in music theory, music history, studio instruction, and ensembles.

In addition to the list of required courses below for the emphasis in Performance for each track (piano, string performance, vocal performance, wind or percussion performance), students must complete the bachelor of music (p. 256), college and university requirements (p. 35), including Arts & Science Foundation Requirements (p. 138).

#### Piano Track

MUS_GENL 1091	Recital Attendance for Undergraduate Music Majors (7 satisfactory semesters)	0
MUS_APMS 2455	Studio Instruction (total of 16 credit hours)	1-5
MUS_APMS 4455	Studio Instruction (total of 14 credit hours)	1-5
MUS_APMS 3970	Junior Recital	1
MUS_APMS 4970	Senior Recital	1
MUS_ENS 1841	Instrumental Ensemble (total of 2 credit hours)	0-1
or MUS_ENS 1842	Choral Ensemble	
MUS_ENS 1846	Chamber Music (total of 4 credit hours)	1
MUS_THRY 1210	Introduction to Computer Technology and Music	2
MUS_THRY 1220	Tonal Music Theory I	2
MUS_THRY 1221	Tonal Music Theory II	2
MUS_THRY 1230	Aural Training and Sight Singing I	2

MUS_THRY 1231	Aural Training and Sight Singing II	2
MUS_THRY 2220	Tonal Music Theory III	2
MUS_THRY 2221	Tonal Music Theory IV	2
MUS_THRY 2230	Aural Training and Sight Singing III	2
MUS_THRY 2231	Aural Training and Sight Singing IV	2
MUS_THRY 4220	Post-Tonal Music Theory	2
MUS_THRY 4223	Eighteenth-Century Counterpoint	3
MUS_THRY 42xx	Theory Elective	2
MUS_H_LI 1322	Introduction to Music in the United States	2
MUS_H_LI 2307	History of Western Music I	2
MUS_H_LI 2308	History of Western Music II	2
MUS_H_LI 43xx	History Elective	3
MUS_I_VT 2631	Basic Conducting and Score Reading	2
MUS_I_VT 2661	Keyboard Skills for Piano Majors I	2
MUS_I_VT 2662	Keyboard Skills for Piano Majors II	2
MUS_I_VR 3753	Piano Literature I	2
MUS_I_VR 3754	Piano Literature II	2
MUS_I_VT 4661	Piano Pedagogy Survey I	2
MUS_I_VT 4662	Piano Pedagogy Survey II	2

Total Credits 53-62

#### String Performance Track

MUS_GENL 1091	Recital Attendance for Undergraduate Music Majors (7 satisfactory semesters)	0
MUS_APMS 2455	Studio Instruction (total of 16 credit hours)	1-5
MUS_APMS 4455	Studio Instruction (total of 14 credit hours)	1-5
MUS_APMS 3970	Junior Recital	1
MUS_APMS 4970	Senior Recital	1
MUS_ENS 1841	Instrumental Ensemble (University Philharmonic)	1
MUS_ENS 1846	Chamber Music (total of 2 credit hours, take class twice)	1
MUS_THRY 1210	Introduction to Computer Technology and Music	2
MUS_THRY 1220	Tonal Music Theory I	2
MUS_THRY 1221	Tonal Music Theory II	2
MUS_THRY 1230	Aural Training and Sight Singing I	2
MUS_THRY 1231	Aural Training and Sight Singing II	2
MUS_THRY 2220	Tonal Music Theory III	2
MUS_THRY 2221	Tonal Music Theory IV	2
MUS_THRY 2230	Aural Training and Sight Singing III	2
MUS_THRY 2231	Aural Training and Sight Singing IV	2
MUS_THRY 4220	Post-Tonal Music Theory	2
MUS_THRY 4223	Eighteenth-Century Counterpoint	3
MUS_THRY 42xx	Theory Elective	2
MUS_H_LI 1322	Introduction to Music in the United States	2
MUS_H_LI 2307	History of Western Music I	2
MUS_H_LI 2308	History of Western Music II	2
MUS_H_LI 43xx	History Elective	3
MUS_I_VT 1610	Group Piano for Music Majors I	1
MUS_I_VT 1611	Group Piano for Music Majors II	1
MUS_I_VT 2610	Group Piano for Music Majors III	1
MUS_I_VT 2611	Group Piano for Music Majors IV	1



MUS_I_VT 2631	Basic Conducting and Score Reading	2
Total Credits		46-54

**Vocal Performance Track**

MUS_GENL 1091	Recital Attendance for Undergraduate Music Majors (7 satisfactory semesters)	0
MUS_APMS 2455	Studio Instruction (total of 12 credit hours)	1-5
MUS_APMS 3970	Junior Recital	1
MUS_APMS 4455	Studio Instruction (total of 10 credit hours)	1-5
MUS_APMS 4970	Senior Recital	1
MUS_ENS 1842	Choral Ensemble (total of 8 credit hours, take class eight times)	1
MUS_ENS 1865	Opera Workshop (total of 2 credit hours, take class twice)	1
MUS_THRY 1210	Introduction to Computer Technology and Music	2
MUS_THRY 1220	Tonal Music Theory I	2
MUS_THRY 1221	Tonal Music Theory II	2
MUS_THRY 1230	Aural Training and Sight Singing I	2
MUS_THRY 1231	Aural Training and Sight Singing II	2
MUS_THRY 2220	Tonal Music Theory III	2
MUS_THRY 2221	Tonal Music Theory IV	2
MUS_THRY 2230	Aural Training and Sight Singing III	2
MUS_THRY 2231	Aural Training and Sight Singing IV	2
MUS_THRY 4220	Post-Tonal Music Theory	2
MUS_THRY 4223	Eighteenth-Century Counterpoint	3
MUS_THRY 42xx	Theory Elective	2
MUS_H_LI 1322	Introduction to Music in the United States	2
MUS_H_LI 2307	History of Western Music I	2
MUS_H_LI 2308	History of Western Music II	2
MUS_H_LI 43xx	History Elective	3
MUS_I_VT 1610	Group Piano for Music Majors I	1
MUS_I_VT 1611	Group Piano for Music Majors II	1
MUS_I_VT 2610	Group Piano for Music Majors III	1
MUS_I_VT 2611	Group Piano for Music Majors IV	1
MUS_I_VT 2631	Basic Conducting and Score Reading	2
MUS_I_VT 3670	Diction in Singing: Italian	1
MUS_I_VT 3671	Diction in Singing: German	1
MUS_I_VT 3672	Diction in Singing: French	1
MUS_I_VR 4767	Vocal Literature I	2
MUS_I_VR 4768	Vocal Literature II	2
Total Credits		53-61

**Wind or Percussion Performance Track**

MUS_GENL 1091	Recital Attendance for Undergraduate Music Majors (7 satisfactory semesters)	0
MUS_APMS 2455	Studio Instruction (total of 16 credit hours)	1-5
MUS_APMS 3970	Junior Recital	1
MUS_APMS 4455	Studio Instruction (total of 14 credit hours)	1-5
MUS_APMS 4970	Senior Recital	1
MUS_ENS 1841	Instrumental Ensemble (total of 8 credit hours)	0-1
MUS_ENS 1846	Chamber Music (1+1)	1

MUS_THRY 1210	Introduction to Computer Technology and Music	2
MUS_THRY 1220	Tonal Music Theory I	2
MUS_THRY 1221	Tonal Music Theory II	2
MUS_THRY 1230	Aural Training and Sight Singing I	2
MUS_THRY 1231	Aural Training and Sight Singing II	2
MUS_THRY 2220	Tonal Music Theory III	2
MUS_THRY 2221	Tonal Music Theory IV	2
MUS_THRY 2230	Aural Training and Sight Singing III	2
MUS_THRY 2231	Aural Training and Sight Singing IV	2
MUS_THRY 4220	Post-Tonal Music Theory	2
MUS_THRY 4223	Eighteenth-Century Counterpoint	3
MUS_THRY 42xx	Theory Elective	2
MUS_H_LI 1322	Introduction to Music in the United States	2
MUS_H_LI 2307	History of Western Music I	2
MUS_H_LI 2308	History of Western Music II	2
MUS_H_LI 43xx	History Elective	3
MUS_I_VT 1610	Group Piano for Music Majors I	1
MUS_I_VT 1611	Group Piano for Music Majors II	1
MUS_I_VT 2610	Group Piano for Music Majors III	1
MUS_I_VT 2611	Group Piano for Music Majors IV	1
MUS_I_VT 2631	Basic Conducting and Score Reading	2
MUS_I_VT 2634	Rehearsal Clinic: Band Conducting I	1
Total Credits		46-55

**Semester Plan**

Below is a sample plan of study, semester by semester, for each track. A student's actual plan may vary based on course choices where options are available. **NOTE: All degree programs require a minimum of 120 credits for graduation.**

**Piano Performance Track**

First Year			
Fall	CR	Spring	CR
MUS_GENL 1091 (Section 3)		0 MUS_GENL 1091	0
MUS_THRY 1210	2	MUS_THRY 1221	2
MUS_THRY 1220	2	MUS_THRY 1231	2
MUS_THRY 1230	2	MUS_H_LI 1322	2
MUS_ENS 1841 or 1842	1	MUS_ENS 1841 or 1842	1
MUS_APMS 2455	4	MUS_APMS 2455	4
Non-Music Courses		4-6 Non-Music Courses	4-6
			15-17

Second Year			
Fall	CR	Spring	CR
MUS_GENL 1091		0 MUS_GENL 1091	0
MUS_THRY 2220	2	MUS_THRY 2221	2
MUS_THRY 2230	2	MUS_THRY 2231	2
MUS_I_VT 2661	2	MUS_H_LI 2308	2
MUS_I_VT 4661	2	MUS_APMS 2455	4
MUS_H_LI 2307	2	MUS_I_VT 2662	2
MUS_APMS 2455	4	MUS_I_VT 4662	2
Non-Music Courses		2-4 Non-Music Courses	2-4
			16-18

Third Year			
Fall	CR	Spring	CR
MUS_GENL 1091		0 MUS_GENL 1091	0
MUS_ENS 1846		1 MUS_ENS 1846	1
MUS_THRY 4220		2 MUS_I_VT 2631	2
MUS_APMS 4455		4 MUS_APMS 3970	1
Music History Elective		3 MUS_APMS 4455	3
Non-Music Courses		5-7 Music Theory Elective Course	2
		Non-Music Courses	3-5
		15-17	12-14

Fourth Year			
Fall	CR	Spring	CR
MUS_GENL 1091		0 MUS_ENS 1846	1
MUS_ENS 1846		1 MUS_I_VR 3754	2
MUS_I_VR 3753		2 MUS_APMS 4970	1
MUS_THRY 4223		3 MUS_APMS 4455	3
MUS_APMS 4455		4 Non-Music Courses	6-8
Non-Music Courses		5-7	
		15-17	13-15

Total Credits: 117-133

### String Instrument Performance Track

First Year			
Fall	CR	Spring	CR
MUS_GENL 1091 (Section 3)		0 MUS_GENL 1091	0
MUS_THRY 1210		2 MUS_THRY 1221	2
MUS_THRY 1220		2 MUS_THRY 1231	2
MUS_THRY 1230		2 MUS_H_LI 1322	2
MUS_I_VT 1610		1 MUS_I_VT 1611	1
MUS_ENS 1841		1 MUS_ENS 1841	1
MUS_APMS 2455		4 MUS_APMS 2455	4
undefined		3-6 Non-Music Courses	3-6
		15-18	15-18

Second Year			
Fall	CR	Spring	CR
MUS_GENL 1091		0 MUS_GENL 1091	0
MUS_ENS 1841		1 MUS_ENS 1841	1
MUS_THRY 2220		2 MUS_THRY 2221	2
MUS_THRY 2230		2 MUS_THRY 2231	2
MUS_H_LI 2307		2 MUS_H_LI 2308	2
MUS_APMS 2455		4 MUS_APMS 2455	4
MUS_I_VT 2610		1 MUS_I_VT 2611	1
Non-Music Courses		3-6 Non-Music Courses	3-6
		15-18	15-18

Third Year			
Fall	CR	Spring	CR
MUS_GENL 1091		0 MUS_GENL 1091	0
MUS_ENS 1841		1 MUS_ENS 1841	1
MUS_THRY 4220		2 MUS_I_VT 2631	2
MUS_APMS 4455		4 MUS_APMS 3970	1
Music History Elective		3 MUS_APMS 4455	3
Non-Music Courses		5-8 Music Theory Elective	2
		Non-Music Courses	3-5
		15-18	12-14

Fourth Year			
Fall	CR	Spring	CR
MUS_GENL 1091		0 MUS_ENS 1841	1
MUS_ENS 1841		1 MUS_APMS 4455	3
MUS_APMS 4455		4 MUS_ENS 1846	1
MUS_THRY 4223		3 MUS_APMS 4970	1
MUS_ENS 1846		1 Non-Music Courses	8-10
Non-Music Courses		7-9	
		16-18	14-16

Total Credits: 117-138

### Vocal Performance Track

First Year			
Fall	CR	Spring	CR
MUS_GENL 1091		0 MUS_GENL 1091	0
MUS_THRY 1210		2 MUS_THRY 1221	2
MUS_THRY 1220		2 MUS_THRY 1231	2
MUS_THRY 1230		2 MUS_H_LI 1322	2
MUS_I_VT 1610		1 MUS_I_VT 1611	1
MUS_ENS 1842		1 MUS_ENS 1842	1
MUS_APMS 2455		3 MUS_APMS 2455	3
Non-Music Courses		5-7 Non-Music Courses	5-7
		16-18	16-18

Second Year			
Fall	CR	Spring	CR
MUS_GENL 1091		0 MUS_GENL 1091	0
MUS_ENS 1842		1 MUS_ENS 1842	1
MUS_THRY 2220		2 MUS_THRY 2221	2
MUS_THRY 2230		2 MUS_THRY 2231	2
MUS_H_LI 2307		2 MUS_H_LI 2308	2
MUS_APMS 2455		3 MUS_APMS 2455	3
MUS_I_VT 2610		1 MUS_I_VT 2611	1
MUS_I_VT 3670		1 MUS_I_VT 3671	1
MUS_I_VT 3672		1 Non-Music Courses	5-7
Non-Music Courses		5-7	
		18-20	17-19

Third Year			
Fall	CR	Spring	CR
MUS_GENL 1091		0 MUS_GENL 1091	0
MUS_ENS 1842		1 MUS_ENS 1842	1
MUS_I_VT 3670		1 MUS_I_VT 2631	2
MUS_THRY 4220		2 MUS_APMS 3970	1
MUS_APMS 4455		3 MUS_APMS 4455	2
Music History Elective		3 MUS_I_VR 4767	2
Non-Music Courses		6-8 Music Theory Elective	2
		Non-Music Courses	3-5
		16-18	13-15

Fourth Year			
Fall	CR	Spring	CR
MUS_GENL 1091		0 MUS_ENS 1842	1
MUS_ENS 1842		1 MUS_I_VR 4768	2
MUS_THRY 4223		3 MUS_APMS 4455	2
MUS_APMS 4455		3 MUS_APMS 4970	1
MUS_ENS 1865		1 MUS_ENS 1865	1

Non-Music Courses	6-8 Non-Music Courses	7-9
	14-16	14-16

Total Credits: 124-140

## Wind or Percussion Performance Track

First Year			
Fall	CR	Spring	CR
MUS_GENL 1091		0 MUS_GENL 1091	0
MUS_THRY 1210	2	MUS_THRY 1221	2
MUS_THRY 1220	2	MUS_THRY 1231	2
MUS_THRY 1230	2	MUS_H_LI 1322	2
MUS_I_VT 1610	1	MUS_I_VT 1611	1
MUS_ENS 1841	1	MUS_ENS 1841	1
MUS_APMS 2455	4	MUS_APMS 2455	4
Non-Music Courses	4-6	Non-Music Courses	4-6
		16-18	16-18

Second Year			
Fall	CR	Spring	CR
MUS_GENL 1091		0 MUS_GENL 1091	0
MUS_ENS 1841	1	MUS_ENS 1841	1
MUS_THRY 2220	2	MUS_THRY 2221	2
MUS_THRY 2230	2	MUS_THRY 2231	2
MUS_H_LI 2307	2	MUS_H_LI 2308	2
MUS_APMS 2455	4	MUS_APMS 2455	4
MUS_I_VT 2610	1	MUS_I_VT 2611	1
Non-Music Courses	4-6	Non-Music Courses	4-6
		16-18	16-18

Third Year			
Fall	CR	Spring	CR
MUS_GENL 1091		0 MUS_GENL 1091	0
MUS_ENS 1841	1	MUS_ENS 1841	1
MUS_THRY 4220	2	MUS_I_VT 2631	2
MUS_APMS 4455	4	MUS_APMS 4455	3
Music History Elective Course	3	MUS_APMS 3970	1
Non-Music Courses	6-8	Music Theory Elective Course	2
		Non-Music Courses	3-5
		16-18	12-14

Fourth Year			
Fall	CR	Spring	CR
MUS_GENL 1091		0 MUS_ENS 1841	1
MUS_ENS 1841	1	MUS_I_VT 2634	1
MUS_APMS 4455	4	MUS_APMS 4455	3
MUS_THRY 4223	3	MUS_APMS 4970	1
MUS_ENS 1846	1	MUS_ENS 1846	1
Non-Music Courses	9-11	Non-Music Courses	6-8
		18-20	13-15

Total Credits: 123-139

## Minor in Music

Students who have chosen a major in another field but who wish to continue their musical growth may wish to pursue a music minor. Approval for declaration of the Minor in Music must be received from the Director of Undergraduate Studies in Music.

## Requirements

A minimum of 18 credits is required, including at least 6 at the 2000-level or higher:

<b>Music Theory</b>		
MUS_THRY 1220	Tonal Music Theory I	2
MUS_THRY 1221	Tonal Music Theory II	2
<b>Music History</b>		
MUS_H_LI 1322	Introduction to Music in the United States	2
MUS_H_LI 2307	History of Western Music I	2
MUS_H_LI 2308	History of Western Music II	2
<b>Ensembles/Applied Music</b>		
Any combination of MUSIC 1841, 1842, 2445 (must all be in one area)		4
<b>Additional Credits in either Theory, History, or Performance (must all be in one area)</b>		<b>4</b>
Total Credits		18

## MA in Music

The Master of Arts in Music provides opportunities for continued development of musical insights, scholarly competencies, and the enhancement of interests in musical and related non-musical areas. This liberal graduate education is designed to prepare a student to pursue a career in college teaching, especially as preparation for doctoral studies in music history or musicology.

## Degree Requirements

MUS_H_LI 8313	Introduction to Graduate Study	2
MUS_H_LI 8314	Introduction to Graduate Studies in Music II	1
7xxx-8xxx	Music History courses	8-10
MUS_GENL 8090	Research in Music	4-8
7xxx-8xxx	Advanced Theory courses	4-8
MUS_APMS 7455	Studio Instruction (May be repeated for up to 8 credit hours)	2
7xxx Non-music electives		2-4
MUS_ENS 8841 or MUS_ENS 8842	Instrumental Ensemble Choral Ensemble	1

At least 15 credits must be at 8000 level

**Total credits: 33**

### Additional Requirements:

- Comprehensive Exam.
- MA degree candidates must satisfactorily complete a Thesis on an approved topic and must pass a final oral examination, administered by a faculty committee, about their projects.

## Admission Criteria

### Prerequisites

Completion of a bachelor's degree in music (or demonstrated equivalent), with a **GPA of 3.0 in the last 60 credit-hours**, is required. Additional prerequisites listed below. In the event that a candidate does not meet the required prerequisites, appropriate additional course(s) will be added as requirements to the degree program.

- Keyboard competency as is typically developed in an undergraduate music degree program

- 4 semesters of languages: 2 semesters each of French, Italian, or German
- 3 courses beyond the core music history courses (MUS\_H\_LI 2307, MUS\_H\_LI 2308 at MU)
- Freshman/sophomore music theory courses
- 1 semester of orchestration
- 1 course in counterpoint (3 credits or equivalent)
- 1 course in Western civilization
- 1 course in European history prior to 1800

### Priority Application Deadline

All graduate applicants are expected to submit required application materials (for both the School of Music and the Office of Graduate School) by January 15 for fall semester matriculation, in order to receive full consideration for admission and assistantship or scholarship support. Applications submitted after January 15 will be considered as space permits on a rolling basis. Applicants interested in spring semester matriculation should contact the Associate Director of the School of Music (see below).

### Application Process

Apply online via Graduate Admission's Slate (<https://applygrad.missouri.edu/apply/>) system, which will prompt you to complete the following:

- Register for an interview during a Graduate Audition/Interview day.
- Submit samples of written scholarly work.
- Submit your unofficial transcript.
- Submit an essay explaining professional goals.
- Request three references to submit letters of recommendation.

**Note:** The School of Music does **not** require GRE scores.

### International Student Information

Strong English reading, writing, and speaking abilities are necessary for success in the graduate programs in the School of Music. The following scores are required for admission to a graduate degree program in the School of Music:

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
80	550

**Note:** No TOEFL subscores below 52 (paper) or 17 (internet), or IELTS 6

- Minimum Academic IELTS scores:

Item	Score
OVERALL	6.5

**Note:** No IELTS subscores below 5

**Note:** the University of Missouri's institutional code for the TOEFL is 6875.

### Contact Information:

Ben Harting, Admissions Coordinator  
 School of Music  
 150 Fine Arts Building  
 Columbia, MO 65211-6120

HartingB@missouri.edu  
 573-882-4471

## MA in Music with Emphasis in Musicology

This degree is designed to prepare a student to pursue a career in college teaching, or doctoral studies in music history or musicology. Opportunities are provided for continued development of musical insights, scholarly competencies, and the enhancement of interests in music and related non-music areas.

### Degree Requirements

#### Required Courses

MUS_H_LI 8313	Introduction to Graduate Study	2
MUS_H_LI 8314	Introduction to Graduate Studies in Music II	1
MUS_APMS 7455	Studio Instruction (Taken for a total of 2 credits, either 2 semesters for 1 credit each or 1 semester for 2 credits)	2

Additional coursework required as determined by student and advisor, to include: Music History (9 credits), Research in Musicology Thesis (4 credits), Music Theory (6 credits), Music Theory or History Electives (6 credits), Non-Music Electives at 7000-level (may include Entrepreneurship; 3 credits)

### Additional Requirements

- Comprehensive Examination (see School of Music website for additional information)
- The student must assemble a faculty thesis committee and pass an oral examination regarding the thesis (a final, substantial original work)
- All courses must be at the 7000 or 8000 level, and at least 15 must be at the 8000 level
- No more than one course with a grade lower than B- may count toward completion of the degree

### Admission Criteria

#### Prerequisites

- Bachelor's degree in music (or demonstrated equivalent)
- GPA of 3.0 in the last 60 hours
- Keyboard competency as is typically developed in an undergraduate music degree program
- 4 semesters of languages: 2 semesters each of French, Italian, or German
- 3 courses beyond the core music history courses (MUS\_H\_LI 2307, MUS\_H\_LI 2308 at MU)
- Freshman/sophomore music theory courses
- 1 semester of orchestration
- 1 course in counterpoint (3 credits or equivalent)
- 1 course in Western civilization
- 1 course in European history prior to 1800

*If an applicant does not meet the required prerequisites, then appropriate course(s) may be added to the degree requirements.*

## Admissions

For admission requirements, refer to the Graduate School's website for the minimum qualifications for the MA in Music (<https://gradstudies.missouri.edu/degreecategory/music/>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility, and the application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

## MM in Music

The principal function of the MM program is to provide students with opportunities for continued development of their musical talents--in a specific area--and overall musicianship. This degree is designed to prepare the graduate for a career in performance or composition, teaching, or continued graduate studies toward a doctoral degree. Students can choose from the following emphasis areas: Performance (p. 273), Collaborative Piano (p. 269), Piano Pedagogy (p. 275), Music Theory (p. 273), Composition (p. 270), Conducting (p. 270), or Music Education (p. 272). Specific requirements for each area are listed on the emphasis page.

## Degree Requirements

Specific requirements are listed on each emphasis area page. In addition, students must complete the following:

- Comprehensive Exam (see School of Music website for additional information)
- Music Theory and Music History majors must satisfactorily complete a Thesis on an approved topic, and Composition majors must complete a substantial compositional project. Both Music Theory and Composition majors must pass a final oral examination, administered by a faculty committee, about their projects.
- Conducting majors must present two conducting recitals, each 45 minutes in length, or the equivalent, in large ensemble conducting appearances.

Additional information is available on the School of Music website (<https://music.missouri.edu/grad/master-music/>).

## Admission Criteria

### Prerequisites

Completion of a Bachelor of Music degree (or demonstrated equivalent) is required, normally with the same major as that to be pursued at the graduate level, **and a GPA of 3.0 in the last 60 credit-hours**. In the event that a candidate does not meet the required prerequisites for a specific curriculum (listed below), then appropriate course(s) may be added to the degree program as additional requirements.

## WOODWIND, BRASS, PERCUSSION, OR STRING PERFORMANCE

- Senior recital

## VOCAL PERFORMANCE

- Senior recital
- Proficiency in French, Italian, and German languages and diction.

## PIANO PERFORMANCE

- Senior Recital
- 1 upper-level music history course
- 3 credits of 18th-century counterpoint

## COLLABORATIVE PIANO

- Senior Recital
- 2 courses in either French or German
- 2 courses in French, German, or Italian diction
- 1 upper-level music history course
- 3 credits in 18th-century counterpoint

## MUSIC THEORY

- 3 credits of 18th- or 16th-century counterpoint
- 2 credits of orchestration
- 2 credits of a theory elective
- 4 credits of music history (equivalent study to MUS\_H\_LI 2307-MUS\_H\_LI 2308)
- 16 credits of applied instruction (or equivalent)

## COMPOSITION

- 3 credits of 18th- or 16th-century counterpoint
- 2 credits of orchestration
- 8 credits of composition
- 4 credits of music history (equivalent study to MUS\_H\_LI 2307-MUS\_H\_LI 2308)
- 16 credits of applied instruction (or equivalent)

## CONDUCTING (Choral, Orchestral, or Wind Ensemble)

- 2 undergraduate conducting courses
- Previous conducting experience
- Proficiency in French, Italian, and German diction (Choral Conducting only)
- Proficiency in vocal pedagogy (Choral Conducting only)

## Music Education

- Bachelor's degree in music education or music teacher certification (or up to 9 credits of pre-/co-requisite coursework in education and/or music education will be required)

## Priority Application Deadline

All graduate applicants are expected to submit required application materials (for both the School of Music and the Graduate School) by December 1 for fall semester matriculation, in order to receive full consideration for admission and assistantship or scholarship support. Applications submitted after December 1 will be considered as space permits on a rolling basis. Applicants interested in spring semester matriculation should contact the Admissions Coordinator of the School of Music (see below).

## Application Process

Apply online through Graduate Admission's (<http://gradstudies.missouri.edu/admissions/apply/>) Slate system, which will prompt you to complete the following:

- Register for an audition or interview during a Graduate Audition/ Interview day.
- Submit an essay explaining professional goals.
- Submit an unofficial transcript.
- Request three references to submit letters of recommendation.
- For performance areas, a recording will be required.

**Notes:** The School of Music does **not** require GRE scores.

## International Student Information

Strong English reading, writing, and speaking abilities are necessary for success in the graduate programs in the School of Music. The following scores are required for admission to a graduate degree program in the School of Music:

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
80	550

**Note:** No TOEFL subscores below 52 (paper) or 17 (internet)

- Minimum Academic IELTS scores:

Item	Score
OVERALL	6.5

**Note:** No IELTS subscores below 6

**Note:** the University of Missouri's institutional code for the TOEFL is 6875.

Information about international admissions may be found by clicking here (<https://gradstudies.missouri.edu/admissions/eligibility-process/international-applicants/#language>)

## Audition Information

A visit to the School of Music and in-person audition are strongly encouraged for applicants planning to major in an applied area (brass, percussion, piano, strings, voice, woodwinds), either on one of the graduation audition days or at another arranged time. In-person auditions are required for all conducting applicants. Applicants who audition initially by recording may be required to participate in a video conference interview (Skype, iChat, etc.) or to audition on campus at a later time.

Please visit the School of Music website, [music.missouri.edu](https://music.missouri.edu) (<https://music.missouri.edu/>), for more information regarding graduate audition days.

## Contact Information:

Ben Harting, Admissions Coordinator  
 School of Music  
 150 Fine Arts Building  
 Columbia, MO 65211-6120  
[HartingB@missouri.edu](mailto:HartingB@missouri.edu)  
 (573) 882-4471

*For Detailed Information About Audition/Interview Expectations and Deadlines by Area, Please Click Here* (<https://music.missouri.edu/prospective-students/?q=grad/audition>)

## MM in Music with Emphasis in Collaborative Piano

Through continued development of performance skills and overall musicianship, this degree is designed to prepare the graduate for a career in performance or teaching, or for doctoral study.

Repertoire and performance are emphasized, with three required degree recitals. Extensive experiences in chamber music are provided with both vocal and instrumental students, and potentially in opera, choral, orchestra, and wind ensembles. All master's students meet weekly in piano performance classes with faculty. MU enjoys a wealth of carefully maintained grand pianos as well as a digital piano lab, two harpsichords and a fortepiano. Annually, distinguished pianists provide masterclasses to MU piano students, including recent guests Boris Berman, Malcolm Bilson, Anne Epperson, Claude Frank, Peter Frankl, Ian Hobson, and Ralph Votapek.

## Degree Requirements

The program requires successful completion of 30 credit hours.

## Required Courses

MUS_H_LI 8313	Introduction to Graduate Study	2
MUS_H_LI 8314	Introduction to Graduate Studies in Music II	1
MUS_I_VR 8753	Piano Repertory I	2
MUS_APMS 8455	Studio Instruction (Taken four semesters for a total of 8 credits)	8
MUS_ENS 8846	Advanced Chamber Ensemble (To include two ensembles for a total of 2 credits)	2
MUS_APMS 8970	Graduate Recital (One recital providing vocal accompaniment, one providing instrumental accompaniment, and one providing solo & chamber accompaniment for a total of 3 credits)	3

Additional coursework required as determined by student and advisor, to include: Music Theory (3 credits), Music History (3 credits), Music Theory or History elective (3 credits), Non-Music Electives at 7000-level (3 credits)

## Additional Requirements

- Comprehensive Examination (see School of Music website for additional information)
- The student must assemble a faculty thesis committee and pass an oral examination regarding the thesis (a final, substantial original work)
- All courses must be at the 7000 or 8000 level, and at least 15 credits must be at the 8000 level.
- No more than one course with a grade lower than B- may count toward completion of the degree

## Admission Criteria

### Prerequisites

- Bachelor's degree in Piano (or demonstrated equivalent)
- GPA of 3.0 in the last 60 hours
- Senior recital

- 2 courses in either French or German
- 2 courses in French, German, or Italian diction
- 1 upper-level music history course
- 3 credits of 18th-century counterpoint

If an applicant does not meet the required prerequisites, then appropriate course(s) may be added to the degree requirements.

## Admissions

For admission requirements, refer to the Graduate School's website for the minimum qualifications for the MM in Music. Because requirements vary, you must refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility, auditions, and the application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

## MM in Music with Emphasis in Composition

This degree is designed to prepare the graduate for a career in composition, college teaching, or for doctoral study.

MU offers numerous opportunities for collaboration with artists various mediums, community engagement in the creative process, and performance of works on and off campus. The graduate New Music Ensemble is dedicated to performing works of student composers studying at MU. Our annual Sinquefeld Composition Prize gives one of our students the opportunity to have a work for large ensemble performed at the annual Chancellor's Concert. In addition we host a Student Composers Concert each spring, a Composers Forum, and a student chapter of Society of Composers, Inc. Our graduates have been admitted to some of the most prestigious doctoral programs in the country, and our students have won many competitions of the Music Teachers National Association, the Music Educators National Conference, and the prestigious Broadcast Music Incorporated (BMI) Student Composers.

## Degree Requirements

### Required Courses

MUS_H_LI 8313	Introduction to Graduate Study	2
MUS_THRY 7290	Music Composition Seminar (1 credit per semester for 4 semesters)	4
MUS_H_LI 8314	Introduction to Graduate Studies in Music II	1
MUS_THRY 8215	Composition VII (Taken twice for a total of 4 credit hours)	4
MUS_GENL 8090	Research in Music (Thesis)	4

Additional coursework required as determined by student and advisor, to include: Music Theory (6 credits), Music History (6 credits), Studio Instruction (5 credits)

### Additional Requirements

- Comprehensive Examination (see School of Music website for additional information)
- The student must assemble a faculty thesis committee and pass an oral examination regarding the thesis (a final, substantial original work)

- All courses must be at the 7000 or 8000 level, and at least 15 credits must be at the 8000 level.
- No more than one course with a grade lower than B- may count toward completion of the degree

## Admission Criteria

### Prerequisites

- Bachelor's degree in music (or demonstrated equivalent)
- GPA of 3.0 in the last 60 hours
- 3 credits of 18th- or 16th-century counterpoint
- 2 credits of orchestration
- 8 credits of composition
- 4 credits of music history (equivalent study to MUS\_H\_LI 2307, MUS\_H\_LI 2308)
- 16 credits of applied instruction (or equivalent)

If an applicant does not meet the required prerequisites, then appropriate course(s) may be added to the degree requirements.

## Admissions

For admission requirements, refer to the Graduate School's website for the minimum qualifications for the MM in Music (<https://gradstudies.missouri.edu/degrecategory/music/>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility, and the application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

## MM in Music with Emphasis in Conducting

### Choral Conducting

Through focus on practical conducting skills while integrating the academic areas of theory, history and pedagogy, this degree is designed to prepare the graduate for a career in conducting or teaching, or for doctoral study. Conducting opportunities include conducting labs, ad hoc ensembles, and five regular ensembles. We also regularly offer opportunities to study with national and international figures. Former guests include Peter Phillips, Joseph Flummerfelt, Erwin Ortner, Amy Kaiser, Simon Carrington and Charles Bruffy.

### Orchestral Conducting

Through continued development of performance skills and overall musicianship, this degree is designed to prepare the graduate for a career in conducting or teaching, or for doctoral study. Students receive individual conducting lessons and regular podium time with the orchestra.

### Wind Conducting

Through focus on practical conducting skills while integrating the academic areas of theory, history and pedagogy, this degree is designed to prepare the graduate for a career in conducting or teaching, or for doctoral study. Conducting and teaching opportunities include three concert ensembles, assisting with courses in basic conducting, score

reading, and rehearsal techniques, and working and traveling with athletic bands, including Marching Mizzou.

## Degree Requirements

### Choral Conducting Required Courses

The masters focusing on choral conducting requires successful completion of 31 credit hours.

#### Required Courses

MUS_H_LI 8313	Introduction to Graduate Study	2
MUS_H_LI 8314	Introduction to Graduate Studies in Music II	1
MUS_I_VT 8673	Advanced Choral Conducting (Taken two semesters for a total of 4 credits)	2
MUS_I_VT 8674	Advanced Instrumental Conducting (Band or Orchestra)	2
MUS_I_VR 8765	Choral Repertory (Taken two semesters for a total of 4 credits)	2
MUS_APMS 7455	Studio Instruction	2
MUS_APMS 8970	Graduate Recital (Taken twice for a total of 2 credits)	1

Additional coursework required as determined by student and advisor, to include: Music Theory (3 credits), Music History (3 credits), Music Theory or History elective (3 credits), Choral Ensemble or Opera Workshop (1 per semester for 4 semesters, for a total of 4 credits), Music or Non-Music Elective (1 credit)

### Orchestral Conducting

The masters focusing on orchestral conducting requires successful completion of 30 credit hours.

#### Required Courses

MUS_H_LI 8313	Introduction to Graduate Study	2
MUS_H_LI 8314	Introduction to Graduate Studies in Music II	1
MUS_I_VT 8674	Advanced Instrumental Conducting (One orchestral, one band, for a total of 4 credits)	2
MUS_I_VT 8673	Advanced Choral Conducting	2
MUS_I_VR 8775	Orchestral Repertory (Taken two semesters for a total of 4 credits)	2
MUS_ENS 8841	Instrumental Ensemble (Taken four semesters for a total of 4 credits)	1
MUS_APMS 8970	Graduate Recital (Taken twice for a total of 2 credits)	1

Additional coursework required as determined by student and advisor, to include: Music Theory (3 credits), Music History (3 credits), Music Theory or History elective (3 credits), Music or Non-Music Electives (2 credits)

### Wind Conducting

The masters focusing on wind conducting requires successful completion of 30 credit hours.

#### Required Courses

MUS_H_LI 8313	Introduction to Graduate Study	2
MUS_H_LI 8314	Introduction to Graduate Studies in Music II	1
MUS_I_VT 8674	Advanced Instrumental Conducting	2
MUS_I_VT 8689	Band Techniques	3

MUS_I_VR 8770	Band Repertory	3
MUS_APMS 8970	Graduate Recital (Taken twice for a total of 2 credits)	1
MUS_ENS 8841	Instrumental Ensemble (Taken four semesters for a total of 4 credits)	1

Additional coursework required as determined by student and advisor, to include: Either a semester of MUS\_I\_VT 8673 (Advanced Choral Conducting) or an additional semester of MUS\_I\_VT 8674 (2 credits), Music Theory (3 credits), Music History (3 credits), Music Theory or History elective (3 credits), Music or Non-Music Electives (2 credits)

### Additional Requirements for all focus areas

- Conducting majors must present two conducting recitals, each 45 minutes in length, or the equivalent, in large ensemble conducting appearances.
- Comprehensive Examination (see School of Music website for additional information)
- All courses must be at the 7000 or 8000 level, and at least 15 credits must be at the 8000 level
- No more than one course with a grade lower than B- may count toward completion of the degree

## Admission Criteria

### Prerequisites for Choral Conducting

- Bachelor's degree in music (or demonstrated equivalent)
- GPA of 3.0 in the last 60 hours
- Basic keyboard skills
- Two undergraduate conducting courses
- Previous conducting experience
- Proficiency in French, Italian, and German diction
- Proficiency in vocal pedagogy

*If an applicant does not meet the required prerequisites, then appropriate course(s) may be added to the degree requirements.*

### Prerequisites Orchestral Conducting

- Bachelor's degree in music (or demonstrated equivalent)
- GPA of 3.0 in the last 60 hours
- 2 undergraduate conducting courses
- Previous conducting experience

*If an applicant does not meet the required prerequisites, then appropriate course(s) may be added to the degree requirements.*

### Prerequisites for Wind Conducting

- Bachelor's degree in music (or demonstrated equivalent)
- GPA of 3.0 in the last 60 hours
- Two undergraduate conducting courses
- Previous conducting experience

*If an applicant does not meet the required prerequisites, then appropriate course(s) may be added to the degree requirements.*

## Admissions

For admission requirements, refer to the Graduate School's website for the minimum qualifications for the MM in Music (<https://gradstudies.missouri.edu/degrecategory/music/>). Because



requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility, auditions, and the application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

## MM in Music with Emphasis in Jazz Performance and Pedagogy

The School of Music is currently not accepting applications for this degree program.

### Degree Requirements

Through continued development of performance skills and overall musicianship, this degree is designed to prepare the graduate for a career in jazz performance, conducting, teaching, or doctoral study. Students regularly conduct and coach MU jazz ensembles.

### Admissions

For admission requirements, refer to the Graduate School's website for the minimum qualifications for the MM in Music (<http://gradstudies.missouri.edu/academics/programs/music/>) and the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility, and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

#### Prerequisites

- Bachelors degree in music (or demonstrated equivalent)
- GPA of 3.0 in the last 60 hours
- Previous jazz teaching and conducting experience

If an applicant does not meet the required prerequisites, then appropriate course(s) may be added to the degree requirements.

## MM in Music with Emphasis in Music Education

Professionals interested in improving their teaching and advancing their careers in music education at the early childhood, elementary school, middle school, or high school level can earn a master's degree in music education.

Students encounter a simulating curriculum that is relevant to their career aspirations, taught by faculty who are on the cutting edge of best-practice pedagogy, research, scholarship, and creative activity. Music education faculty members play active leadership roles in international, national and state organizations devoted to improving preK-12<sup>th</sup> grade music instruction. They also regularly publish their work in premier research and practitioner journals, and remain actively engaged with music teachers through presentations, clinics, and guest teaching and conducting.

The master's degree can be completed either full-time on campus, or part-time while teaching school with evening, summer, and one or two

online courses. Graduate assistantships for full time study may be available, awarded competitively.

### Degree Requirements

This degree requires 32 credit hours. At least 15 hours must be taken in music education, and 16 must be numbered 8000 or above (a course may be counted in both categories: i.e., MUS\_EDUC 8150 can count toward both).

Music Education Coursework (15 - 18 credit hours)

Required Courses (3 credit hours each):

<b>Music Education Coursework</b>	<b>15-18 credit hours</b>
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MUS_EDUC 8150	Foundations of Music Education
MUS_EDUC 8151	Measurement and Research in Music Education
MUS_EDUC 8152	Psychology of Music Instruction and Performance
MUS_EDUC 8141	Advanced Techniques in Music Education-Early Childhood
	or MUS_EDUC 8142 Curriculum Materials in Music Education-General

<b>Additional music education course(s) as determined by student and advisor, from among those listed below, and depending on course availability</b>	<b>3 credits each, unless noted otherwise</b>
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MUS_EDUC 8160	Current Issues in Music Education Problems, Research, or Independent Study (Variable credit, maximum 6 credits)
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<b>Music Coursework</b>	<b>10-15 credit hours</b>
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Music Theory and History: 3 courses, at least one course from each area
Applied Music, Music Techniques, or Conducting: 2 credits from at least one of these areas

<b>Electives</b>	<b>2-6 credits hours</b>
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May be in Music, and/or Education (e.g., Educational Psychology or Sociology, TESOL, Reading, Early Childhood), and/or in a related area with advisor approval.

### Comprehensive Examinations

Written comprehensive examinations are administered by the music education faculty, comprising take-home projects and essays based on the synthesis the coursework completed, and application of the coursework to their current or future classrooms.

### Research Option

Students who aspire to pursue a doctorate in music education in the future may wish to complete a formal research project as part of the degree program, in lieu of the comprehensive examinations. If so, the degree program should include one course in statistics and completion of a publishable research project (4 credit hours total) including an oral examination/defense.

## Admissions

The Master of Music in Music Education is a practice-oriented degree. Students who hold a BA or BM in music may pursue teacher certification simultaneously while working on the degree. Students without music teacher certification may be admitted with pre-/co-requisite requirements designated of up to 9 hours in education and/or music education coursework.

For admission requirements, refer to the Graduate School's website for the minimum qualifications for the MM in Music (<https://gradstudies.missouri.edu/degreecategory/music/>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility, and the application process. Note that the GRE exam is *not* required.

Before official admission to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

A fully-online Master of Music degree with an emphasis in Music Education is also available. For more information, please see <https://gradschool.missouri.edu/degreecategory/music/>.

## MM in Music with Emphasis in Music Theory

This degree is designed to prepare the graduate for college-level teaching or for doctoral study.

The program includes in-class teaching experience, study and survey of a wide variety of theory texts, and collaboration with a faculty advisor/mentor. Applicants are encouraged to consider studying music theory pedagogy paired with another area (i.e. performance, musicology, conducting, composition, or piano pedagogy).

Active listening, a skill necessary for understanding music and cultivating musical thought, requires musical proficiency: playing an instrument at a moderately accomplished level, score reading, and fluency in keyboard harmony. A theorist must hear what one sees in a score and see in a score what one hears.

## Degree Requirements

The degree requires successful completion of 34 credit hours.

### Required Courses

MUS_H_LI 8313	Introduction to Graduate Study	2
MUS_H_LI 8314	Introduction to Graduate Studies in Music II	1
MUS_GENL 8085	Problems in Music (Music Theory section)	3
MUS_APMS 7455	Studio Instruction (Credits can vary 1-2 per semester for a total of 4)	4
MUS_GENL 8090	Research in Music (Thesis)	6

Additional coursework required as determined by student and advisor, to include: Music History (6 credits), Advanced Courses in Theory/Composition (9 credits), Music or Non-music electives (3 credits)

### Additional Requirements

- Comprehensive Examination (see School of Music website for additional information)

- The student must assemble a faculty thesis committee and pass an oral examination regarding the thesis
- All courses must be at the 7000 or 8000 level, and at least 15 credits must be at the 8000 level
- No more than one course with a grade lower than B- may count toward completion of the degree

## Admission Criteria

### Prerequisites

- Bachelor's degree in music (or demonstrated equivalent)
- GPA of 3.0 in the last 60 hours
- 3 credits of 18th- or 16th-century counterpoint
- 2 credits of orchestration
- 2 credits of a theory elective
- 4 credits of music history (equivalent study to MUS\_H\_LI 2307, MUS\_H\_LI 2308)
- 16 credits of applied instruction (or equivalent)

*If an applicant does not meet the required prerequisites, then appropriate course(s) may be added to the degree requirements.*

## Admissions

For admission requirements, refer to the Graduate School's website for the minimum qualifications for the MM in Music. Because requirements vary, you must refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility, and the application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

## MM in Music with Emphasis in Performance

### Program Description

#### Brass

Through continued development of performance skills and overall musicianship, this degree is designed to prepare the graduate for a career in performance or teaching, or for doctoral study.

Performance opportunities include large ensembles, mixed chamber ensembles, and faculty-directed chamber ensembles (brass quintets, brass choirs, the MU Trumpet Ensemble, the Mizzou Horn Choir, the MU Trombone Choir, and the MU Tuba/Euphonium Ensemble).

#### Percussion

Through continued development of performance skills and overall musicianship, this degree is designed to prepare the graduate for a career in performance or teaching, or for doctoral study.

Performing opportunities include large ensembles, Marching Mizzou Drumline, jazz ensembles and three different percussion ensembles (University Percussion Ensemble, World Percussion Ensemble, and the Graduate Percussion Ensemble). MU has a large inventory of world percussion instruments including a full traditional steel pan band.

## Piano

Through continued development of performance skills and overall musicianship, this degree is designed to prepare the graduate for a career in performance or teaching, or for doctoral study.

Performance opportunities include recitals, weekly studio class, and chamber music. Most student elect to take courses in pedagogy and qualify to teach in the Community Music Program. The program is supported by a wealth of carefully maintained grand pianos as well as a digital piano lab, two harpsichords and a fortepiano. Annually, distinguished pianists provide masterclasses to MU piano students, including recent guests Boris Berman, Malcolm Bilson, Anne Epperson, Claude Frank, Peter Frankl, Ian Hobson, and Ralph Votapek.

## Strings

Through continued development of performance skills and overall musicianship, this degree is designed to prepare the graduate for a career in performance or teaching, or for doctoral study. Performance opportunities include the University Philharmonic, Chamber Soloists chamber orchestra, studio ensembles such as the MU Cello Choir, and chamber groups coached by members of the Esterhazy Quartet.

## Voice

Through continued development of performance skills and overall musicianship, this degree is designed to prepare the graduate for a career in performance or teaching, or for doctoral study.

Performance opportunities include choral ensembles, opera workshop, and chamber ensembles with instrumentalists. The Opera Workshop presents scenes every fall semester and a fully staged production each spring semester. In Spring 2015, the Show-Me Opera is presented a production of Puccini's Suor Angelica and Gianni Schicchi. Other recent opera productions include Robert Ward's The Crucible, Mozart's Cosi fan tutte and The Magic Flute, Rossini's La Cenerentola, Lehar's The Merry Widow, and Puccini's Gianni Schicchi paired with Act II of La bohème.

## Woodwinds

Through continued development of performance skills and overall musicianship, this degree is designed to prepare the graduate for a career in performance or teaching, or for doctoral study.

Performance opportunities include large ensembles, mixed chamber ensembles, and faculty-directed chamber ensembles (flute choir, clarinet choir, bassoon ensemble, saxophones quartets and choir).

## Degree Requirements

### Brass or Percussion Performance

Program requires successful completion of 32 credit hours. Additional coursework required as determined by student and advisor, to include:

Music Theory (3 credits), Music History (3 credits), Music Theory or History elective (3 credits), Music or Non-Music Electives (3-4 credits).

#### Required Courses

MUS_H_LI 8313	Introduction to Graduate Study	2
MUS_H_LI 8314	Introduction to Graduate Studies in Music II	1
MUS_APMS 8455	Studio Instruction (Taken four semesters for a total of 8 credits)	8
MUS_ENS 8841	Instrumental Ensemble (Taken four semesters for a total of 4 credits)	4

MUS_ENS 8846	Advanced Chamber Ensemble (To include two ensembles for a total of 2 credits)	2
MUS_GENL 8085	Problems in Music (Pedagogy section)	1
MUS_GENL 8085	Problems in Music (Brass players only - Brass Literature)	0-1
MUS_APMS 8970	Graduate Recital	1

### Piano Performance

Program requires successful completion of 32 credit hours. Additional coursework required as determined by student and advisor, to include:

Music Theory (3 credits), Music History (3 credits), Music Theory or History elective (3 credits), Music or Non-Music Electives (2 credits).

#### Required Courses

MUS_H_LI 8313	Introduction to Graduate Study	2
MUS_H_LI 8314	Introduction to Graduate Studies in Music II	1
MUS_APMS 8455	Studio Instruction (Taken four semesters for a total of 8 credits)	8
MUS_I_VR 8753	Piano Repertory I	2
MUS_I_VR 8754	Piano Repertory II	2
MUS_I_VT 8681	Advanced Piano Pedagogy I	2
MUS_ENS 8846	Advanced Chamber Ensemble (To include two ensembles for a total of 2 credits)	2
MUS_APMS 8970	Graduate Recital (Taken twice for a total of 2 credits. One recital includes a concerto)	2

### String Performance

Program requires successful completion of 32 credit hours. Additional coursework required as determined by student and advisor, to include:

Music Theory (3 credits), Music History (3 credits), Music Theory or History elective (3 credits), Music or Non-Music Electives (3 credits).

#### Required Courses

MUS_H_LI 8313	Introduction to Graduate Study	2
MUS_H_LI 8314	Introduction to Graduate Studies in Music II	1
MUS_APMS 8455	Studio Instruction (Taken four semesters for a total of 8 credits)	2
MUS_I_VR 8773	String Instrument Repertory I	1
MUS_I_VR 8774	String Instrument Repertory II	1
MUS_ENS 8841	Instrumental Ensemble (University Philharmonic Orchestra taken four semesters for a total of 4 credits)	1
MUS_ENS 8846	Advanced Chamber Ensemble (To include two ensembles for a total of 2 credits)	1
MUS_APMS 8970	Graduate Recital	1

### Voice

Program requires successful completion of 34 credit hours. Additional coursework required as determined by student and advisor, to include:

Music Theory (3 credits), Music History (3 credits), Music Theory or History elective (3 credits), Additional 1 credit of Choral Ensemble or Advanced Opera Workshop, Music or Non-Music Elective (1 credit).

**Required Courses**

MUS_H_LI 8314	Introduction to Graduate Studies in Music II	1
MUS_H_LI 8313	Introduction to Graduate Study	2
MUS_APMS 8455	Studio Instruction (Taken four semesters for a total of 8 credits)	2
MUS_I_VR 7767	Advanced Vocal Literature I	3
MUS_I_VR 7768	Advanced Vocal Literature II	3
MUS_I_VT 8671	Principles of Singing I	2
MUS_ENS 8842	Choral Ensemble	1
MUS_ENS 8865	Advanced Opera Workshop (Taken four semesters for a total of 2 credits)	1
MUS_APMS 8970	Graduate Recital	1

**Woodwind Performance**

Program requires successful completion of 32 credit hours. Additional coursework required as determined by student and advisor, to include:

Music Theory (3 credits), Music History (3 credits), Music Theory or History elective (3 credits), Music or Non-Music Electives (3 credits).

**Required Courses**

MUS_H_LI 8313	Introduction to Graduate Study	2
MUS_H_LI 8314	Introduction to Graduate Studies in Music II	1
MUS_APMS 8455	Studio Instruction (Taken four semesters for a total of 8 credits)	8
MUS_ENS 8841	Instrumental Ensemble (Taken four semesters for a total of 4 credits)	4
MUS_ENS 8846	Advanced Chamber Ensemble (To include two ensembles for a total of 2 credits)	2
MUS_APMS 8970	Graduate Recital	1
MUS_GENL 8085	Problems in Music (Woodwind Pedagogy and Literature)	2

**Admission Criteria**

**Prerequisites for Brass**

- Bachelor's degree in music (or demonstrated equivalent)
- GPA of 3.0 in the last 60 hours
- Senior recital

*If an applicant does not meet the required prerequisites, then appropriate course(s) may be added to the degree requirements.*

**Prerequisites for Percussion**

- Bachelor's degree in music (or demonstrated equivalent)
- GPA of 3.0 in the last 60 hours
- Senior recital

*If an applicant does not meet the required prerequisites, then appropriate course(s) may be added to the degree requirements.*

**Prerequisites for Piano**

- Bachelor's degree in Piano (or demonstrated equivalent)
- GPA of 3.0 in the last 60 hours
- Senior recital
- 1 upper-level music history course
- 3 credits of 18th-century counterpoint

*If an applicant does not meet the required prerequisites, then appropriate course(s) may be added to the degree requirements.*

**Prerequisites for Strings**

- Bachelor's degree in music (or demonstrated equivalent)
- GPA of 3.0 in the last 60 hours
- Senior recital

*If an applicant does not meet the required prerequisites, then appropriate course(s) may be added to the degree requirements.*

**Prerequisites for Voice**

- Bachelor's degree in music (or demonstrated equivalent)
- GPA of 3.0 in the last 60 hours
- Senior recital
- Proficiency in French, Italian, and German languages and diction.

*If an applicant does not meet the required prerequisites, then appropriate course(s) may be added to the degree requirements.*

**Prerequisites for Woodwinds**

- Bachelor's degree in music (or demonstrated equivalent)
- GPA of 3.0 in the last 60 hours
- Senior recital

*If an applicant does not meet the required prerequisites, then appropriate course(s) may be added to the degree requirements.*

**Admissions**

For admission requirements, refer to the Graduate School's website for the minimum qualifications for the MM in Music (<https://gradstudies.missouri.edu/degrecategory/music/>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility, auditions, and the application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

**Additional Requirements**

- Comprehensive Examination (see School of Music website for additional information)
- All courses must be at the 7000 or 8000 level, and at least 15 credits must be at the 8000 level
- No more than one course with a grade lower than B- may count toward completion of the degree

**MM in Music with Emphasis in Piano Pedagogy**

\*The School of Music is currently not accepting applications for this degree program.\*

**Degree Requirements**

The degree requires successful completion of 30 credit hours. Additional coursework required as determined by student and advisor, to include: Music History (3 credits), Music Theory (3 credits), Music History or Theory Electives (3 credits), Music or Non-Music Electives (2 credits).

**Required Courses**

MUS_H_LI 8313	Introduction to Graduate Study	2
MUS_H_LI 8314	Introduction to Graduate Studies in Music II	1
MUS_APMS 8455	Studio Instruction (Taken three semesters for a total of 6 credits)	2
MUS_I_VT 8681	Advanced Piano Pedagogy I	2
MUS_I_VT 8682	Advanced Piano Pedagogy II	2
MUS_I_VT 8683	Piano Pedagogy Internship	1
MUS_I_VT 8684	Group Piano Pedagogy	2
MUS_ENS 8846	Advanced Chamber Ensemble (To include two ensembles for a total of 2 credits)	1
MUS_GENL 8090	Research in Music (If the student elects to do a recital, a recital hearing must be passed before presentation)	1
or MUS_APMS 8970	Graduate Recital	

**Additional Requirements**

- Comprehensive Examination (see School of Music website for additional information)
- All courses must be at the 7000 or 8000 level, and at least 15 credits must be at the 8000 level
- No more than one course with a grade lower than B- may count toward completion of the degree

**Admission Criteria**

**Prerequisites**

- Bachelor's degree in Piano (or demonstrated equivalent)
- GPA of 3.0 in the last 60 hours
- 1 upper-level music history course
- 3 credits of 18th-century counterpoint

*If an applicant does not meet the required prerequisites, then appropriate course(s) may be added to the degree requirements.*

Note: a senior recital and undergraduate courses in piano pedagogy or teaching experience are desirable, but not required for admission.

**Admissions**

For admission requirements, refer to the Graduate School's website for the minimum qualifications for the MM in Music. Because requirements vary, you must refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility, auditions, and the application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

**PhD in Music Education**

The PhD in Music Education is designed to prepare students for careers in higher education as music education teacher/researchers, as ensemble conductors with a strong commitment to music education teaching and research, or as master teachers or music supervisors in the K-12 system. Applicants must be certified music teachers, with a bachelor's or master's degree in music education, or present evidence of equivalent experience. Individuals with music teaching experience in higher education but without music teaching experience in elementary or secondary schools are eligible for admission, but are required

to complete prerequisites and field experiences in elementary and secondary schools prior to taking comprehensive examinations.

This program is "research-intensive," and students are expected to complete four to five research courses, read past and current research, assist and eventually collaborate with faculty and peers on research projects, develop the ability to translate research findings to classroom applications, and ultimately achieve independence as a researcher.

Students encounter a simulating curriculum that is relevant to their career aspirations, taught by faculty who are on the cutting edge of best-practice pedagogy, research, scholarship, and creative activity. Music education faculty members play active leadership roles in international and national organizations devoted to improving preK-12th grade music instruction. They also regularly publish their work in premier research and practitioner journals, and remain actively engaged with music teachers through presentations and clinics.

The degree program is fully accredited by the National Association of Schools of Music. Please see <https://music.missouri.edu> for information about the School of Music.

**Degree Requirements**

Within the general framework, the PhD program is relatively flexible and individualized for each student. The degree requires 72 hours beyond the bachelor's degree. Specific coursework is planned by the doctoral student and the four- to five-member doctoral committee to meet the student's individual needs and future goals. The committee is chaired by a music education faculty member who is a member of the Doctoral Faculty. Students choose one to two support areas, one in music and an optional second area in a related field. The support-area courses are not prescribed, but are selected in consultation with a faculty member in that area, who often serves as a doctoral committee member. In addition to the coursework requirements, students must complete one "research internship" and one "teaching internship," which may or may not be attached to credit hours. These are faculty-supervised experiences designed to help prepare the students with skills they will need to enter the professoriate.

Residency is essential to the acquisition of experiences necessary for success in the program and the profession. Students' commitment to spending at least one academic year (fall and winter semester) as a full-time student on the MU campus is required (enrollment in a minimum of 9 credit hours per semester; may be a Teaching Assistant or Research Assistant, but not hold more than a part-time position elsewhere, to be negotiated with the doctoral committee). Students are expected to complete the degree in a timely manner, meeting all Graduate School deadlines. This means a maximum of 5 years for completing coursework from first enrollment as a PhD student (coursework is generally completed in 2-3 years of full-time study including summers) and 5 years for completing the dissertation after passing comprehensive exams (this is a maximum—most students finish in less time).

**Sample Plan of Study**

Total credits specific to degree: 72 beyond bachelor's degree.

Course Area		
Music Education		18
MUS_EDUC 8150	Foundations of Music Education	
MUS_EDUC 8152	Psychology of Music Instruction and Performance	
MUS_EDUC 8160	Current Issues in Music Education	

MUS_EDUC 8170	Doctoral Seminar in Music Education	
MUS_EDUC 8142	Curriculum Materials in Music Education-General	
or MUS_EDUC 8143	Curriculum Materials in Music Education-Vocal	
or MUS_EDUC 8140	Advanced Techniques in Music Education-General	
or MUS_EDUC 8141	Advanced Techniques in Music Education-Early Childhood	
Independent Study, Internship, Research		
Research/Statistics		12
MUS_EDUC 8151	Measurement and Research in Music Education	
Quantitative Research Methods		
Qualitative Research Methods		
Research/Statistics Elective (Quantitative or Qualitative)		
Music Support Area		9
For example, Choral or Instrumental Repertoire and Conducting, Music Performance and Pedagogy, Music Theory, Musicology		
Doctoral Research		9
Coursework from Master's		18-24
MUS_EDUC 9090	Research in Music Education	6-12
and/or Second Support Area and/or Electives		
Total Credits		72-84

## Comprehensive Examination Process

Students complete comprehensive examinations upon the completion of their formal coursework. These include projects and essays assigned by the music education and support-area faculty, designed to demonstrate that the students have synthesized course materials at a high level, and achieved appropriate research expertise. In lieu of a written examination in a performance-based support area, students may prepare and present a public lecture-recital as a performer or conductor, according to program criteria and under the supervision of the faculty. The comprehensive examination experience concludes with an oral examination. Upon successful completion of the exam, the student is considered a candidate for the degree.

## Dissertation Requirements

The final stage of the doctoral degree is completion of a doctoral dissertation that demonstrates the candidate's potential to become an independent scholar, and which makes a contribution to knowledge related to some aspect of music teaching and/or learning. The topic and methodology are selected by the student, in consultation with the doctoral committee. The written proposal is subject to the approval of the committee. The dissertation research is completed independently, but in close consultation with the advisor and others, as necessary. Several weeks after the complete dissertation is drafted and distributed to the committee, there is a final oral exam, composed of a public presentation and a closed question and answer "defense" with the committee. After passing the examination the student works with the advisor and sometimes members of the committee to make any final revisions required, and deposits the completed document electronically with the Graduate School

## Admissions

Admissions are selective. Applicants must meet the minimum requirements of the PhD in Music Education degree program (see <https://music.missouri.edu/grad/phd-music-education> (<https://music.missouri.edu/grad/phd-music-education/>)) and the minimum

requirements of the Graduate School (see <http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Note that the GRE exam is *not* required. Prospective students must meet with music education faculty in person, if possible, or, if not, via video conferencing. Depending on their interest and specialty areas, applicants may be required to audition for conducting or applied music faculty. Admissions decisions made by a committee of faculty, and are based on multiple criteria, including faculty time commitments, judgment of the student's potential for success in the program and profession, program needs, and the fit between the student and the program. Thus, not everyone who meets minimum qualifications is admitted.

## Philosophy

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The Department of Philosophy offers a wide variety of undergraduate and graduate courses, including courses on applied ethics, ethical theory, epistemology, logic, metaphysics, philosophy of mind, philosophy of language, philosophy of religion, philosophy of science, philosophy of biology, decision theory, political philosophy, non-Western philosophy, and the history of Western philosophy. The study of philosophy is not only fascinating in its own right but practical too, since it encourages the development of marketable intellectual abilities. These include the abilities to read, think, and write about conceptually complex and abstract material, and to construct and analyze elaborate chains of reasoning. Philosophy majors go on to pursue careers in such fields as law, medicine, business, the non-profit sector, the church, and academia.

The department offers BA, BS, MA, and PhD degrees in philosophy, as well as an undergraduate minor.

## Faculty

**Professor** R. N. Johnson\*\*, A. Melnyk\*\*, P. L. Vallentyne\*\*, P. Weirich\*\*  
**Associate Professor** A. Ariew\*\*, K. Boyce\*, M. Folescu\*, C. S. Horisk\*\*, A. Radulescu\*, P. Robbins\*\*  
**Assistant Professor** M. Heckel\*  
**Professor Emeritus/a** W. B. Bondeson\*, B. Gupta\*\*, J. H. Kultgen\*, P. J. Markie\*\*, D. E. Sievert\*  
**Associate Professor Emeritus** A. von Schönborn\*

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BA in Philosophy (p. 278)
- BS in Philosophy (p. 279)
- Minor in Philosophy (p. 280)

## Double and Dual Majors

A philosophy major can be paired with a major in another department in the College of Arts and Science (double major) or in some other College (dual major). Students must meet the major requirements of both departments. The program for each department must be approved by the advisor for that department.

## Departmental Honors

To earn a BA (or BS) with Departmental Honors in philosophy, a student must achieve at least a 3.3 GPA in all courses, and a 3.7 GPA in all philosophy courses; meet all the standard requirements for the regular philosophy BA (or BS); take PHIL 4998 Honors I in Philosophy, and PHIL 4999 Honors II in Philosophy, writing a satisfactory senior thesis normally of 3,000 to 9,000 words under the guidance of a faculty member who has consented to work with the student; and pass an oral examination on the thesis before a committee of three members of the philosophy faculty.

## Graduate

- MA in Philosophy (p. 280)
- PhD in Philosophy (p. 280)

### About the Program

The Department of Philosophy provides excellent training in both research and teaching. The nationally and internationally renowned faculty have expertise in the core areas of philosophy, with particular strengths in epistemology, ethics, philosophy of mind, and political philosophy, and also in various specialties, including philosophy of biology, experimental philosophy, and the foundations of decision and game theory. With 11 full time faculty and around 25 graduate students, we offer a supportive community for pursuit of the MA and the PhD, with a broad range of courses, rigorous training, attentive, high-quality advising, the opportunity to develop a professional network through our series of colloquia and conferences, and help in every aspect of job seeking. We give students the advice and support they need to present their work at regional and national conferences, and to publish in professional journals, before they begin to look for jobs. We also give our students extensive training and experience in teaching, including assistantships with award-winning teachers.

Although we award an MA degree, we only admit students to our PhD program (with the MA obtained in the process).

We receive about 50 applications per year and offer funding to about 10-15% of these. The normal ranges of scores for students we admit are: GRE Verbal 158-170, GRE Quantitative 147-166, and GPA in the major (normally philosophy) 3.9. Our decisions are also based on the quality of the writing sample, letters of reference, and other factors, such as degree of fit with the Department.

## Professional Development

Presentation of research at professional meetings and publication by graduate students is strongly encouraged. Prominent philosophers from other institutions visit the Department yearly for talks and symposia. Twice yearly, the Florence G. Kline endowment sponsors an intensive workshop at which papers on a special topic are presented by leading figures in philosophy.

## Financial Aid

Fellowships and teaching assistantships are available to qualified students. Applications for fellowships must meet the Graduate School deadlines, usually in January. Applications for teaching assistantships must meet the Department deadline of January 15.

College of Arts and Science  
438 Strickland Hall  
(573) 882-2871  
<http://philosophy.missouri.edu/>

**Director of Graduate Studies:** Kenneth Boyce

## BA in Philosophy

### Degree Program Description

Philosophy is the search for reasoned answers to certain fundamental questions about the nature of the universe and the place of humans in it, questions that science seems unable to answer. To do philosophy is to construct and evaluate the best arguments for and against the various answers to the questions that philosophy seeks to answer. The Bachelor of Arts is broader in scope than the Bachelor of Science, and is the better choice for most students. The practical value of studying philosophy lies in the intellectual training that it provides. Successful study of philosophy requires, and helps develop, several intellectual abilities: the ability to grasp the big picture as well as fine details; the ability to think, speak, and write about highly abstract and conceptually demanding questions; the ability to identify key assumptions made in arguments; the ability to make relevant conceptual distinctions; and the ability to assess the pros and cons of proposed solutions. These abilities are highly prized in a wide variety of careers, and philosophy majors go on to successful careers in a wide range of fields, including law, medicine, and business.

### Major Program Requirements

Undergraduates pursuing a BA degree in philosophy must meet all the non-philosophy requirements for a BA degree in the College of Arts and Science, including university general education requirements (p. 36) and graduation requirements (p. 35). In addition, they are recommended, but not required, to pursue a minor in another field. Finally, they must earn 30 credits in philosophy, with a grade of 'C-' or above in every course, distributed as follows:

<b>Logic Requirement</b>	<b>3</b>
One of the following three courses:	
PHIL 1200	How to Think: Logic and Reasoning for Everyday Life
PHIL 1200H	How to Think: Logic and Reasoning for Everyday Life - Honors
PHIL 2700	Elementary Logic (recommended option)
<b>Required Courses</b>	<b>9</b>
All of the following three courses:	
PHIL 3000	Ancient Western Philosophy
PHIL 3200	Modern Philosophy
PHIL 4950	Senior Seminar in Philosophy
<b>3000-Level/4000-Level Requirement</b>	<b>9</b>
Any three semester-based courses at the 3000-level or 4000-level not already taken to meet other major requirements, except for 4998 and 4999.	
<b>Philosophy Electives</b>	<b>9</b>

Nine philosophy credits in any classes (excluding 4998 and 4999) not taken to meet other major requirements; but no more than three 1000-level philosophy courses may be used as philosophy electives.

Total Credits 30

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan is likely to vary, depending on his or her course choices and whether options are available.

First Year			
Fall	CR	Spring	CR
ENGLISH 1000		3 Social Science	3
Humanities/Fine Arts course		3 Foreign Language	5
Foreign Language		5 MATH 1100	3
PHIL 1000 or 1100		3 General elective	3
		14	14

Second Year			
Fall	CR	Spring	CR
Philosophy elective		3 PHIL 2700, 1200, or 1200H	3
Foreign Language		3 Humanities/Fine Arts (Writing Intensive)	3
Behavioral Science		3 Behavioral Science	3
Social Science		3 Social Science	3
Natural Science		3 Natural Science	3
		15	15

Third Year			
Fall	CR	Spring	CR
PHIL 3000		3 PHIL 3200	3
Course in minor		3 Philosophy elective	3
Diversity Intensive Course		3 Course in the minor	3
Natural Science course with lab		4 Humanities/Fine Arts course	3
Writing Intensive 1000+		3 Writing Intensive 1000+	3
		16	15

Fourth Year			
Fall	CR	Spring	CR
Philosophy course, 3000 or 4000-level		3 PHIL 4950	3
Philosophy course, 3000 or 4000-level		3 Philosophy course, 3000 or 4000-level	3
Course in minor		3 Course in minor	3
Humanities/Fine Arts course		3 Course in minor	3
General Elective		4 General elective	3
		16	15

Total Credits: 120

## BS in Philosophy

### Degree Program Description

Philosophy is the search for reasoned answers to certain fundamental questions about the nature of the universe and the place of humans in it, questions that science seems unable to answer. To do philosophy is to construct and evaluate the best arguments for and against the various answers to the questions that philosophy seeks to answer. The Bachelor of Science emphasizes the formal aspects of philosophy and its

many connections with the sciences. It may be a better choice for those wishing to double major in philosophy and a science. The practical value of studying philosophy lies in the intellectual training that it provides.

Successful study of philosophy requires, and helps develop, several intellectual abilities: the ability to grasp the big picture as well as fine details; the ability to think, speak, and write about highly abstract and conceptually demanding questions; the ability to identify key assumptions made in arguments; the ability to make relevant conceptual distinctions; and the ability to assess the pros and cons of proposed solutions. These abilities are highly prized in a wide variety of careers, and philosophy majors go on to successful careers in a wide range of fields, including law, medicine, and business.

### Major Program Requirements

Undergraduates pursuing a BS degree in philosophy must meet all the non-philosophy requirements for a BS degree in the College of Arts and Science, including university general education (p. 36) requirements and graduation requirements (p. 35). In place of the foreign language requirement, they may take 12 hours of coursework at the 2000-level or higher in Mathematics, Statistics, Physical or Biological Sciences, Psychology, or Economics. In addition, they are recommended, but not required, to pursue a minor in another field. Finally, they must earn 42 credits in philosophy, with a grade of 'C-' or above in every course, distributed as follows:

#### Required Courses 12

All of the following four courses:

PHIL 2700	Elementary Logic
PHIL 3000	Ancient Western Philosophy
PHIL 3200	Modern Philosophy
PHIL 4950	Senior Seminar in Philosophy

#### 3000-Level/4000-Level Requirement 9

Any three semester-based courses at the 3000-level or 4000-level not taken to meet other major requirements, except for 4998 and 4999.

#### Further BS Requirement 12

Any four semester-based courses from the following list:

PHIL 2600	Rational Decisions
PHIL 2820	Minds, Brains, and Machines
PHIL 2850	Minds and Morals: An Introduction to Moral Psychology
PHIL 4100	Philosophy of Language
PHIL 4110	Advanced Logic
PHIL 4120	Selected Topics in Logic
PHIL 4130	Probability and Induction
PHIL 4150	Formal Semantics
PHIL 4200	Metaphysics
PHIL 4210	Philosophy of Mind
PHIL 4400	Philosophy of Science
PHIL 4420	Philosophy of Biology

#### Philosophy Electives 9

Nine philosophy credits in any classes (excluding 4998 and 4999) not taken to meet other major requirements; but no more than three 1000-level courses may be used as philosophy electives.

Total Credits 42



## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary, depending on his or her course choices and whether options are available.

First Year			
Fall	CR	Spring	CR
PHIL 1000, PHIL 1100, or PHIL 1200)		3 Natural science	3
ENGLSH 1000		3 Foreign language or general elective	5-6
Behavioral or Social Science		3 MATH 1100	3
Foreign Language or general elective		5-6 Philosophy elective	3
		14-15	14-15

Second Year			
Fall	CR	Spring	CR
Behavioral or Social Science		3 Philosophy elective	3
Natural Science		3 Humanities/Fine Arts course (writing intensive)	3
PHIL 2700		3 Behavioral or social Science	3
Foreign Language or general elective		3 Natural science	3
Writing Intensive 1000+		3 Diversity Intensive Course	3
		15	15

Third Year			
Fall	CR	Spring	CR
PHIL 3000		3 PHIL 3200	3
Philosophy course at 3000- or 4000-level		3 Humanities/Fine Arts course	3
Natural science with lab		4-5 Foreign language or general elective	3
General electives		6 Philosophy course at 3000- or 4000-level	3
		Philosophy course at 3000- or 4000-level	3
		16-17	15

Fourth Year			
Fall	CR	Spring	CR
Philosophy course for BS		3 PHIL 4950	3
Philosophy course for BS		3 Philosophy course for BS	3
Philosophy course for BS		3 Humanities/Fine Arts course	3
General elective		3 General elective	3
General elective		3 General elective	3
		15	15

Total Credits: 119-122

## Minor in Philosophy

### Requirements

A minor in philosophy requires 15 credits in philosophy, including at least 3 credits at the 4000-level and a further 3 credits at the 3000-level or 4000-level.

The remaining credits may be earned in any philosophy courses, except for PHIL 4998 and PHIL 4999.

Of the 15 credits required, 9 must be taken in MU course work.

A grade of C- or above in each minor course is required.

Students considering a minor might want to consult the requirements for the philosophy major before selecting their courses, so as to leave open the option of upgrading to a major at some later date.

Prospective philosophy minors must get the permission of their academic unit.

## MA in Philosophy

At this time, our Department is not admitting students who are seeking a terminal master's degree. However, our doctoral students earn an MA degree en route to the PhD.

### Degree Requirements

- 30 credit hours of graduate work, 15 of which must be at the 8000 level.
- At least 80 percent of the hours submitted for the master's program must be completed with a grade of A or B.
- A distribution of graduate courses including a proseminar for all first year students, one course in the history of philosophy and one course in either ethics, political philosophy, metaphysics, or epistemology.
- A thesis or two papers of format and topic appropriate for a refereed paper in a major journal, displaying sustained research and philosophical analysis, and an oral defense of the thesis or papers.

### Admissions

Please see the admission criteria for our doctoral degree program (p. 280).

Admission Contact Information:

Kenneth Boyce  
 College of Arts and Science  
 Department of Philosophy  
 430 Strickland Hall  
 (573) 882-2871

## PhD in Philosophy

### Degree Requirements

72 hours of course work in philosophy, with at least 42 hours of regular course work.

A distribution of graduate courses including an introductory seminar for all first year students, two advanced courses in logic, two courses in the history of philosophy, and one course in each of ethics, epistemology, and metaphysics.

A written and oral dissertation proposal requirement designed to ensure the student's familiarity with the relevant philosophical literature and ability to analyze philosophical issues. A dissertation and a final oral examination on the dissertation.

### Qualifying Exam

Qualification for the PhD program is established by a qualifying examination (typically by superior performance on the MA research requirement).

**Note:** Although we award the MA degree, we only admit students to our PhD program (with the MA obtained in the process). Any unusual circumstances regarding failure to meet the minimum requirements should be called to the attention of the Director of Graduate Admissions.

## Admissions

### Admission Process

In order to be considered for our graduate program, the following steps need to be completed (including receipt of transcripts and test scores) by January 15th:

1. Arrange for all relevant official transcripts to be sent directly to the Graduate School by your college or university (student copies are not acceptable).
2. For applicants submitting GRE scores (this is not required), arrange with Educational Testing Services for your GRE scores to be sent directly to the Graduate School (MU's school code is 6875; philosophy's department code is 2801). Only electronic scores are acceptable.
3. International students also should arrange for their TOEFL scores to be sent directly to the Graduate School (MU's school code is 6875; philosophy's department code is 2801). The minimum required scores are 100 (internet) total with a speaking score of at least 23 (internet). (For more information about scores, see the Graduate School's TOEFL policy.)
4. Complete the basic information in online Graduate School application.
5. Upload a 750-word Statement of Interest to the Supplemental Information section of the on-line Graduate School application form. It should explain why are you are interested in graduate study in philosophy at the University of Missouri. We encourage you to address, if you wish, how you can advance the department's commitment to diversity.
6. Upload a sample of your 15-25 page philosophical writing (e.g., a paper or thesis chapter) to the Supplemental Information section of the on-line Graduate School application form. For the sake of blind evaluation, do not include your name on the sample you upload.
7. In the Recommendation section of the on-line Graduate School application form, enter the information for three letters of recommendation regarding your academic potential. You should first obtain agreement from the professors writing these letters. They will be contacted by e-mail to submit their letters electronically. If a professor is unable to send his/her letters electronically, you should still enter all his/her information in the Recommendation section, but you should write "(off-line)" immediately after her name. In that case, a hardcopy of the recommendation should then be sent to the Director of Graduate Studies, Department of Philosophy, University of Missouri, Columbia, MO 65211-4160. Because all other materials are electronic, hardcopies often do not receive the same attention. It is thus in your strong interest to have your letters submitted electronically.
8. Complete the Department of Philosophy application form (<https://philosophy.missouri.edu/graduate-program/>).

### Admission Criteria

Fall deadline: January 15

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
100*	600

\* Speaking score of at least 23

- Average GRE scores:

When did you take the GRE?	Verbal	Quantitative
Prior to August 1, 2011	650	700
On or After August 1, 2011	163	155

- Eligibility for any graduate work in philosophy requires the equivalent of the following six undergraduate courses in philosophy: formal logic, ethics, ancient philosophy, modern philosophy, epistemology, and metaphysics.
- Deficiencies may be made up after the student is enrolled at MU.
- Average GPA in the major: 3.9

### Required Application Materials

#### To the Graduate School

- All required Graduate School documents
- 3 letters of recommendation (submission through the online application system strongly preferred, but postal mail submission directly to the department allowed)
- Statement of interest (upload to the online application)
- Writing sample (upload to the online application)
- Departmental application (download this from <https://applygrad.missouri.edu/apply/> and then upload to the online application).

#### To the Philosophy Program

- GRE score report (electronic only), if applicable

### Admission Contact Information:

Kenneth Boyce  
 College of Arts and Science  
 Department of Philosophy  
 430 Strickland Hall  
 (573) 882-2871

### Physics

Sashi Satpathy, Chair  
 College of Arts and Science  
 223 Physics Building  
 (573) 882-3335  
 Fax: (573) 882-4195  
<https://physics.missouri.edu/>

Physics is the science that studies the structure and properties of matter and transformations of energy. With math as the language and experimental verification as a guide, physical study has established the fundamental laws of nature that are the foundation of all natural science and technology. The study of physics includes learning the general principles and the phenomena that have been discovered and developing the skills that enable such knowledge to be advanced through research.

The Department of Physics and Astronomy offers a major in physics with either a Bachelor of Arts or a Bachelor of Science Degree. The BA degree provides a broad coverage of classical and modern physics while permitting a broader liberal arts education. It is normally selected by

students who do not envision a professional career in physics, but plan to enter a professional school later in their academic career, e.g. medicine, dentistry or law, or who desire to pursue a teaching certificate. The BS degree in Physics is designed to prepare students for scientific careers immediately upon graduation, for further training in graduate school, or for teaching high school physics. A minor in physics or astronomy is also available.

Physics education plays a pivotal role in such areas of burgeoning and societal importance as biomedical optical imaging/biomedicine, materials science, and homeland security. Therefore, the Department of Physics has introduced several new courses and electives to train undergraduate students in optical sciences, biological physics, materials sciences and nanotechnology.

## Faculty

**Professor** S. J. Chen\*\*, S. Gangopadhyay\*\*, S. Guha\*\*, K. Katti\*\*, S. M. Kopekin\*\*, I. Kosztin\*\*, A. Li\*\*, P. Miceli\*\*, S. Satpathy\*\*, D. Singh\*\*, C. Ullrich\*\*, G. Vignale\*\*, C. Wexler\*\*, P. Yu\*\*, X. Zou\*\*

**Associate Professor** G. King\*\*, W. T. Montfrooij\*\*, D. Singh\*\*, H. Yan\*\*

**Assistant Professor** G. Bian\*\*, Y. Guo\*\*, M. Mills\*\*

**Teaching Professor** D. Kosztin\*

**Associate Teaching Professor** Y. Zhang\*

**Assistant Teaching Professor** S. Bompadre\*

**Adjunct Professor** Z. Afraslabi, C. Arendse, S. Balasubramanian, J. Belk, J. Burrell, R. V. Duncan, L. F. Gomez, A. Helfer, H. Kaiser, B. Kuchta, L. Ma, Z. S. Popovic

**Adjunct Associate Professor** X. Fan, J. Farmer\*\*

**Professor Emeritus** H. R. Chandrasekhar, M. Chandrasekhar, D. L. Cowan, G. Forgacs, Linda Godwin, B. Loftin, B. Mashhoon, P. Plummer, P. Pfeifer, J. J. Rhyne, A. Speck, H. Taub, C. W. Tompson, S. A. Werner, H. W. White, J. E. Willett

**Associate Professor Emeritus** C. J. Peterson

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BA in Physics (p. 283)
- BS in Physics (p. 284)
  - with emphasis in Astronomy (p. 285)
  - with emphasis in Biological Physics (p. 285)
  - with emphasis in Materials Science (p. 286)
- Minor in Physics (p. 287)

The Department of Physics & Astronomy also offer a Minor in Astronomy (p. 358).

Candidates for both degrees must complete 120 credits with an average grade of C or better. For the BA in physics degree, students must complete 30 credits in physics and 19 credits in math and chemistry. For the BS in physics degree, students must complete 45 credits in physics and 25 credits in math and chemistry. Students pursuing a Bachelor of Science in Secondary Education, emphasis in Physics, have the option of receiving a BS in physics degree by completing 33 credits in physics and 19 hours in math and chemistry. In addition, students must meet all degree, college, and university requirements including University

general education. All students who complete the BS degree in Physics automatically also complete a minor in Mathematics.

## Departmental Honors

The departmental honors program in physics provides exceptional students with an opportunity to develop skills beyond the normal course work. It also acknowledges those students who have attained a level of achievement beyond what is normally expected of an undergraduate physics major.

To receive an honors degree with a major in physics, a student must meet the following criteria:

- Satisfy the BA or BS degree requirements
- Cumulative GPA of at least 3.30 and minimum GPA of 3.50 in Physics Department courses
- Complete a six credit hours research sequence, by signing up for PHYSCS 4950/ASTRON 4950 Undergraduate Research in Physics/Astronomy in the first (second) semester junior year and for PHYSCS 4950/ASTRON 4960 Senior Thesis (or PHYSCS 4950/ASTRON 4950 again) in the first (second) semester senior year. In PHYSCS 4950 /ASTRON 4950 students will work on a research project, either by doing research in a lab or by doing reading research and completing specific readings under the supervision of a faculty advisor.
- Present the results of the research project in a poster or in a paper prepared in the form of a scientific journal article at a regional or national meeting, to a faculty panel that will consist of no fewer than three Physics Department faculty members, or in a physics seminar.

In order to receive departmental honors recognition, the student must be recommended by the director of undergraduate studies. Upon recommendation, the Office of the University Registrar will be notified that the candidate has earned departmental honors recognition. This acknowledgement will appear on the student's diploma as well as on the transcript.

## Elective Tracks

Students have available a variety of courses from which they may select the required credits of physics electives for the BS or BA degree. The department offers tracks that allow students to specialize in astronomy, biological physics, condensed matter physics, energy storage, materials science, nanomaterials, or optoelectronics. Students may wish to pursue one of these tracks, or follow a general track in which they can choose any of the courses that are listed and are not required courses.

Note: Tracks are not indicated on the diploma.

## Foreign Language Alternative (BS)

Students who elect an undergraduate program leading to the BS degree with a major in Physics have an option regarding the College of Arts and Science foreign language requirement. This requirement of 12 or 13 credits (depending on the language studied) may be satisfied alternatively by the substitution of an approved specialization. This consists of a minimum of 12 credits at the 2000/3000 level or above and may not include courses normally required of all physics majors. It is to be selected from an area with special relevance to physics and to the student's own interests and future plans.

Students have selected options in aerospace engineering, atmospheric science/geophysical fluid dynamics, radiation biology, chemistry,

computer science, electrical engineering (circuits or computer hardware option), geology, nuclear engineering, material science, math and other areas. The choice and planning of an option must be done under the direction of the departmental undergraduate advisor.

## Dual Degrees and Double Majors

Students may wish to pursue two baccalaureate dual degrees simultaneously. For example, this might include a BS in Physics and a BS in Engineering, which is the most common choice. In order to receive two baccalaureate degrees, a student must complete a minimum of 132 credits and complete all the specified requirements for both degrees.

Another degree option is a single baccalaureate degree with two majors (double majors), which may be developed with the concurrence of appropriate advisors in the two departments. A notation of the successful completion of the two areas appears on the student's transcript. Both departments must be in the College of Arts and Sciences. Double major options often chosen by a physics major are chemistry, mathematics or geology. Mathematics is a particularly viable double major because the extensive mathematics component normally required in the BS degree with a major in physics, if coupled with a specialization area chosen from mathematics, nearly completes the BS degree with a major in mathematics.

Careful planning, started early in the academic career, is required to meet the conditions of dual majors or dual degrees. Students who complete such programs obtain the maximum from their undergraduate experience.

## Graduate

- MS in Physics (p. 287)
- PhD in Physics (p. 288)
- Graduate Certificate in Teaching High School Physics (p. 290)

Department of Physics & Astronomy

223 Physics Building

(573) 882-3335

<https://physics.missouri.edu/grad/graduate-program> (<https://physics.missouri.edu/grad/graduate-program/>)

**Director of Graduate Studies:** Paul Miceli

326 Physics Building

(573) 882-3335

## About Physics

At the University of Missouri, the physics degrees are offered by the Department of Physics and Astronomy. Because the Department has a moderate size, graduate students are better able to maintain a close relationship with the faculty. Our facilities include various laboratories within the Physics Building as well as the Research Reactor. In certain cases, a student's work may be carried out at National Laboratories or in collaboration with other science and engineering departments.

The largest research area is in experimental and theoretical condensed-matter physics. Other research programs in which thesis work may be accomplished are biological physics and astronomy/astrophysics. Graduates have been very successful in continuing their careers in industry, national laboratories and academics.

## Research Resources

The Department of Physics and Astronomy offers many opportunities for scientific research in internationally recognized programs. The main focus

of research is in the areas of theoretical and experimental condensed matter physics, biological physics, astrophysics, and alternative energy. These research efforts are fostered by the existence of the University of Missouri Research Reactor (MURR), a 10 MW light-water moderated reactor that is the highest-power university research reactor in the country. Furthermore, many research activities involve facilities at National Laboratories such as Argonne, Oak Ridge, and NIST.

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

## More Details

For more details on the Physics graduate program please consult the departmental web site: <https://physics.missouri.edu/grad/graduate-program> (<https://physics.missouri.edu/grad/graduate-program/>).

In particular, details about degree requirements, rules and regulations can be found in the Physics graduate handbook (<https://physics.missouri.edu/sites/default/files/grad-files/graduatehandbook10-02-14.pdf>).

## BA in Physics

### Degree Program Description

Physics is the science that studies the structure and properties of matter and transformations of energy. With math as the language and experimental verification as a guide, physical study has established the fundamental laws of nature that are the foundation of all natural science and technology. The study of physics includes learning the general principles and the phenomena that have been discovered and developing the skills that enable such knowledge to be advanced through research. The BA degree provides a broad coverage of classical and modern physics while permitting a broader liberal arts education. It is normally selected by students who plan to enter a professional school later in their academic career, e.g. medicine, dentistry or law, or who desire to pursue a teaching certificate. Physics plays a pivotal role in such areas of expanding and societal importance as biomedical optical imaging/biomedicine, materials science, and homeland security, and as such, courses are offered in optical sciences, biological physics, materials sciences and nanotechnology.

### Major Program Requirements

Students must complete the University of Missouri's general education requirements and graduation requirements (p. 35), in addition to the Major Program Requirements below.

PHYSCS 2010	Undergraduate Seminar in Physics	2
PHYSCS 2750 & PHYSCS 2760	University Physics I and University Physics II	10
PHYSCS 3150	Introduction to Modern Physics	3
MATH 1500 & MATH 1700 & MATH 2300	Analytic Geometry and Calculus I and Calculus II and Calculus III	13
MATH 4100	Differential Equations	3
CHEM 1320 or CMP_SC 1050	College Chemistry I Algorithm Design and Programming I	4

**Electives:**

Additional physics/astronomy	15
Total Credits	50

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
PHYSCS 2010		2 MATH 1700 <sup>^</sup>	5
MATH 1500 <sup>^</sup>		5 PHYSCS 2750 <sup>^</sup>	5
ENGLSH 1000 <sup>*</sup>		3 Humanities/Fine Arts Course <sup>*</sup>	3
HIST 1100, 1200, or POL_SC 1100 <sup>*</sup>		3	
		13	13

Second Year			
Fall	CR	Spring	CR
MATH 2300 <sup>^</sup>		3 PHYSCS 3150W	3
PHYSCS 2760 <sup>^</sup>		5 MATH 4100 <sup>^</sup>	3
Foreign language (level 1) <sup>*</sup>		5 Foreign language (level 2) <sup>*</sup>	5
Behavioral Science Course <sup>*</sup>		3 Behavioral Science Course <sup>*</sup>	3
		Social Science Course	3
		16	17

Third Year			
Fall	CR	Spring	CR
PHYSCS electives <sup>^</sup>		6 PHYSCS electives <sup>^</sup>	6
Foreign language (level 3) <sup>*</sup>		3 CHEM 1320 or CMP_SC 1050 <sup>^</sup>	4
2000-level Social Science Course <sup>*</sup>		3 2000-level Humanities/Fine Arts Course (Writing Intensive) <sup>*</sup>	3
2000-level Behavioral Science Course <sup>*</sup>		3 Elective Course	3
		15	16

Fourth Year			
Fall	CR	Spring	CR
PHYSCS Elective/Research <sup>^</sup>		3 PHYSCS Elective/Research <sup>^</sup>	3
Humanities/Fine Arts Course <sup>*</sup>		6 Humanities/Fine Arts course <sup>*</sup>	3
Elective Course		3 Elective Course	3
Elective Course		3 Elective Course	3
		Elective Course	3
		15	15

Total Credits: 120

<sup>^</sup> Course meets degree program requirements

<sup>\*</sup> Course meets University general education and/or campus graduation requirements

## BS in Physics

### Degree Program Description

Physics is the science that studies the structure and properties of matter and transformations of energy. With math as the language and experimental verification as a guide, physical study has established the fundamental laws of nature that are the foundation of all natural science and technology. The study of physics includes learning the general

principles and the phenomena that have been discovered and developing the skills that enable such knowledge to be advanced through research. The BS degree in Physics is designed to prepare students for scientific careers immediately upon graduation, for further training in graduate school, or for teaching high school physics. Physics plays a pivotal role in such areas of expanding and societal importance as biomedical optical imaging/biomedicine, materials science, and homeland security, and as such, courses are offered in optical sciences, biological physics, materials sciences and nanotechnology. Students can specialize by pursuing a BS in physics with an emphasis in astronomy, biophysics, or materials science.

### Major Program Requirements

Students must complete the University general education (p. 36) requirements and graduation requirements (p. 35) in addition to the Major Program Requirements below.

PHYSCS 2010	Undergraduate Seminar in Physics	2
PHYSCS 2750 & PHYSCS 2760	University Physics I and University Physics II	10
PHYSCS 3150W	Introduction to Modern Physics - Writing Intensive	3
PHYSCS 4060	Advanced Physics Laboratory I	3
PHYSCS 4100	Electricity and Magnetism I	3
PHYSCS 4120	Introduction to Thermodynamics	3
PHYSCS 4140	Mechanics	3
PHYSCS 4800	Introduction to Quantum Mechanics I	3
MATH 1500 & MATH 1700 & MATH 2300	Analytic Geometry and Calculus I and Calculus II and Calculus III	13
MATH 4100	Differential Equations	3
CHEM 1320 or CMP_SC 1050	College Chemistry I Algorithm Design and Programming I	4

Electives		
Additional physics/astronomy		15
Additional math		6
Total Credits		71

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
PHYSCS 2010		2 PHYSCS 2750 <sup>^</sup>	5
MATH 1500 <sup>^</sup>		5 MATH 1700 <sup>^</sup>	5
CHEM 1320 or CMP_SC 1050 <sup>^</sup>		4 General Education <sup>*</sup>	3
ENGLSH 1000 <sup>*</sup>		3	
		14	13

Second Year			
Fall	CR	Spring	CR
PHYSCS 2760 <sup>^</sup>		5 PHYSCS 3150W	3
MATH 2300 <sup>^</sup>		3 PHYSCS 4100	3
General Education <sup>*</sup>		3 MATH 4100 <sup>^</sup>	3
Foreign Language/Alternative <sup>*</sup>		5 General Education <sup>*</sup>	3
		Foreign Language/Alternative	5
		16	17

Third Year			
Fall	CR	Spring	CR
PHYSCS 4140		3 PHYSCS 4120 <sup>^</sup>	3
PHYSCS 4060 <sup>^</sup>		3 Physics Elective <sup>^</sup>	6
Math Elective <sup>^</sup>		3 Math Elective <sup>^</sup>	3
Foreign Language/Alternative <sup>*</sup>		3 General Education <sup>*</sup>	3
General Education		3	
			15

Fourth Year			
Fall	CR	Spring	CR
PHYSCS 4800 <sup>^</sup>		3 PHYSCS Electives/Research <sup>^</sup>	6
PHYSCS Elective/Research <sup>^</sup>		6 Elective courses	9
General Education <sup>*</sup>		3	
Elective courses		3	
			15

Total Credits: 120

<sup>^</sup> Course meets degree program requirements

<sup>\*</sup> Course meets University general education and/or campus graduation requirements

## BS in Physics with Emphasis in Astronomy

### Degree Program Description

Physics is the science that studies the structure and properties of matter and transformations of energy. With math as the language and experimental verification as a guide, physical study has established the fundamental laws of nature that are the foundation of all natural science and technology. The study of physics includes learning the general principles and the phenomena that have been discovered and developing the skills that enable such knowledge to be advanced through research. An emphasis area in astronomy is excellent preparation also for science teachers, laboratory technicians, computer programmers, and science journalists. It can also serve as the basis for graduate degrees in other fields, such as law or medical school. People with a degree (or background) in Physics with and emphasis in astronomy find jobs in planetariums, science museums, national observatories, national laboratories, federal agencies, universities, business or private industry.

### Major Program Requirements

Students interested in astronomy may choose to pursue a BS in Physics with an Emphasis in Astronomy (the emphasis will show up on the transcript). For this option, students must take the required physics courses (p. 284) for the regular BS degree, ASTRON 3010 Introduction to Modern Astrophysics and four additional astronomy/physics elective courses. Three of the astronomy/physics electives must be chosen from the list below:

ASTRON 4020	Astrophysical Techniques	3
ASTRON 4180	Solar System Science	3
ASTRON 4250	Stellar Astrophysics	3
ASTRON 4350	Galactic Astronomy	3
ASTRON 4360	Extragalactic Astronomy	3
ASTRON 4550	Cosmochemistry	3

ASTRON 4950	Undergraduate Research in Astronomy	1-3
ASTRON 4960	Senior Thesis in Astronomy	3

Only courses with a grade of C- or above will be counted toward the emphasis area. In addition, students must complete all College of Arts and Science and University graduation requirements (p. 35), including University general education (p. 36).

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
PHYSCS 2010		2 PHYSCS 2750 <sup>^</sup>	5
MATH 1500 <sup>^</sup>		5 MATH 1700 <sup>^</sup>	5
CHEM 1320 or CMP_SC 1050 <sup>^</sup>		4 General Education <sup>*</sup>	3
ENGLISH 1000 <sup>*</sup>		3	
			14
			13

Second Year			
Fall	CR	Spring	CR
PHYSCS 2760 <sup>^</sup>		5 PHYSCS 3150W	3
MATH 2300 <sup>^</sup>		3 PHYSCS 4100	3
General Education <sup>*</sup>		3 MATH 4100	3
Foreign Language/Alternative <sup>*</sup>		5 Foreign Language/Alternative	5
		General Education <sup>*</sup>	3
			16
			17

Third Year			
Fall	CR	Spring	CR
PHYSCS 4140		3 PHYSCS 4120 <sup>^</sup>	3
PHYSCS 4060 <sup>^</sup>		3 Physics Elective <sup>^</sup>	6
Math Elective <sup>^</sup>		3 Math Elective <sup>^</sup>	3
Foreign Language/Alternative <sup>*</sup>		3 General Education <sup>*</sup>	3
General Education		3	
			15
			15

Fourth Year			
Fall	CR	Spring	CR
PHYSCS 4800 <sup>^</sup>		3 PHYSCS Electives/Research <sup>^</sup>	6
PHYSCS Elective/Research <sup>^</sup>		6 Elective Courses	9
General Education <sup>*</sup>		3	
Elective courses		3	
			15
			15

Total Credits: 120

<sup>^</sup> Course meets degree program requirements

<sup>\*</sup> Course meets University general education and/or campus graduation requirements

## BS in Physics with Emphasis in Biological Physics

### Degree Program Description

Physics is the science that studies the structure and properties of matter and transformations of energy. With math as the language and experimental verification as a guide, physical study has established the

fundamental laws of nature that are the foundation of all natural science and technology. The study of physics includes learning the general principles and the phenomena that have been discovered and developing the skills that enable such knowledge to be advanced through research. Biological physics is an interdisciplinary area that employs and develops theories and methods of the physical sciences for the investigation of biological systems. There is a long history of the quantitative tools and techniques originally developed within the physics community finding critical applications in biology. Examples range from the first visualization of the DNA double helix via X-ray diffraction to the widespread use of magnetic resonance imaging in hospitals throughout the world. Currently, biological physics is one of the fastest growing physics research areas that is vital for many other fields, including medicine, bioengineering, and biology. Students specializing in this area have career opportunities in medical centers, research institutes and biotechnology industries, as well as the more traditional academic venues.

## Major Program Requirements

Students interested in biological physics may choose to pursue a BS in Physics with an Emphasis in Biological Physics (the emphasis will show up on the transcript). For this option, students must take the required physics courses (p. 284) for the regular BS degree, PHYSCS 4520 Introduction to Biophysics, and four additional physics elective courses. Three of the physics electives must be chosen from the list below:

PHYSCS 4190	Physics and Chemistry of Materials	3
PHYSCS 4410	Analysis of Biological Macromolecules and Biomaterials	3
PHYSCS 4420	Introduction to Biomedical Imaging	3
PHYSCS 4500	Computational Biological Physics	3
PHYSCS 4510	Single Molecule Biophysics	3
PHYSCS 4950	Undergraduate Research in Physics	1-3
PHYSCS 4960	Senior Thesis in Physics	3

Only courses with a grade of C- or above will be counted toward the emphasis area. In addition, students must complete all College of Arts and Science and University graduation requirements (p. 35), including University general education (p. 36).

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
PHYSCS 2010		2 PHYSCS 2750 <sup>^</sup>	5
MATH 1500 <sup>^</sup>		5 MATH 1700 <sup>^</sup>	5
CHEM 1320 or CMP_SC 1050 <sup>^</sup>		4 General Education <sup>*</sup>	3
ENGLSH 1000 <sup>*</sup>		3	
	14		13
Second Year			
Fall	CR	Spring	CR
PHYSCS 2760 <sup>^</sup>		5 PHYSCS 3150W	3
MATH 2300 <sup>^</sup>		3 PHYSCS 4100	3
General Education <sup>*</sup>		3 MATH 4100 <sup>^</sup>	3
Foreign Language/Alternative <sup>*</sup>		5 Foreign Language/Alternative	5
		General Education <sup>*</sup>	3
	16		17

Third Year			
Fall	CR	Spring	CR
PHYSCS 4140		3 PHYSCS 4120 <sup>^</sup>	3
PHYSCS 4060 <sup>^</sup>		3 Physics Elective <sup>^</sup>	6
Math Elective <sup>^</sup>		3 Math Elective <sup>^</sup>	3
Foreign Language/Alternative <sup>*</sup>		3 General Education <sup>*</sup>	3
General Education	3		
	15		15

Fourth Year			
Fall	CR	Spring	CR
PHYSCS 4800 <sup>^</sup>		3 PHYSCS Electives/Research <sup>^</sup>	6
PHYSCS Elective/Research <sup>^</sup>		6 Elective Courses	9
General Education <sup>*</sup>	3		
Elective courses	3		
	15		15

Total Credits: 120

<sup>^</sup> Course meets degree program requirements

<sup>\*</sup> Course meets University general education and/or campus graduation requirements

## BS in Physics with Emphasis in Materials Science

### Degree Program Description

Physics is the science that studies the structure and properties of matter and transformations of energy. With math as the language and experimental verification as a guide, physical study has established the fundamental laws of nature that are the foundation of all natural science and technology. The study of physics includes learning the general principles and the phenomena that have been discovered and developing the skills that enable such knowledge to be advanced through research. Materials Science is an interdisciplinary field encompassing several disciplines of science and technology. Physics lies at the heart of materials science since it provides a rationale for understanding the mechanical, thermal, optical, and magnetic properties of matter. The emphasis area in materials science prepares students in areas of high demand for the 21st century workforce in the US. Materials scientists are employed by companies who make products ranging from metals, ceramics, and biomedical implants to integrated-circuit chips and superconducting materials. A major concentration of the program is on nanomaterials, which prepares students in areas of nanotechnology and energy-related issues.

### Major Program Requirements

Students interested in materials science may choose to pursue a BS in Physics with an Emphasis in Materials Science (the emphasis will show up on the transcript). For this option, students must take the required physics courses (p. 284) for the regular BS degree, physics 4620 Introduction to Materials Science, and four additional physics elective courses. Three of the physics electives must be chosen from the list below:

PHYSCS 4190	Physics and Chemistry of Materials	3
PHYSCS 4410	Analysis of Biological Macromolecules and Biomaterials	3
PHYSCS 4600	Semiconductor Optics	3

PHYSICS 4650	Modern Condensed Matter Physics	3
PHYSICS 4110	Light and Modern Optics	4
PHYSICS 4950	Undergraduate Research in Physics	1-3
PHYSICS 4960	Senior Thesis in Physics	3

With approval, one materials science related course may be taken from outside the physics program. Only courses in which a grade of C- or above will be counted toward the emphasis area.

Only courses with a grade of C- or above will be counted toward the emphasis area. In addition, students must complete all College of Arts and Science and University graduation requirements (p. 35), including University general education (p. 36).

## Semester Plan

First Year			
Fall	CR	Spring	CR
PHYSICS 2010		2 PHYSICS 2750 <sup>^</sup>	5
MATH 1500 <sup>^</sup>		5 MATH 1700 <sup>^</sup>	5
CHEM 1320 or CMP_SC 1050 <sup>^</sup>		4 General Education <sup>*</sup>	3
ENGLISH 1000 <sup>*</sup>		3	
			13
			14

Second Year			
Fall	CR	Spring	CR
PHYSICS 2760 <sup>^</sup>		5 PHYSICS 3150W	3
MATH 2300 <sup>^</sup>		3 PHYSICS 4100	3
General Education <sup>*</sup>		3 MATH 4100 <sup>^</sup>	3
Foreign Language/Alternative <sup>*</sup>		5 General Education <sup>*</sup>	3
			5
			16
			17

Third Year			
Fall	CR	Spring	CR
PHYSICS 4140		3 PHYSICS 4120 <sup>^</sup>	3
PHYSICS 4060 <sup>^</sup>		3 Physics Elective <sup>^</sup>	6
Math Elective <sup>^</sup>		3 Math Elective <sup>^</sup>	3
Foreign Language/Alternative <sup>*</sup>		3 General Education <sup>*</sup>	3
General Education		3	
			15
			15

Fourth Year			
Fall	CR	Spring	CR
PHYSICS 4800 <sup>^</sup>		3 PHYSICS Electives/Research <sup>^</sup>	6
PHYSICS Elective/Research <sup>^</sup>		6 Elective courses	9
General Education <sup>*</sup>		3	
Elective courses		3	
			15
			15

Total Credits: 120

## Minor in Physics

### Requirements

A student whose major is in an area other than physics may receive a minor in physics with the completion of the following courses with grades of C or better:

PHYSICS 2750	University Physics I	5
PHYSICS 2760	University Physics II	5
PHYSICS 3150	Introduction to Modern Physics	3

Two additional PHYSICS courses at the 4000 level or above

\* Student must complete mathematics through MATH 4100 in order to complete the required physics courses

## MS in Physics

### About the Master of Science

The master of science degree in physics prepares students for a variety of scientific careers. Since physics is the most fundamental of the physical sciences, graduate-level studies in the field provide essential knowledge for application in many areas. Students with strong backgrounds in physics, as well as in areas ranging from biology to engineering, are encouraged to consider a personalized MS program in physics. Graduates have many job opportunities in a variety of areas.

### Degree Requirements

In general, students must present at least 30 credit hours for the MS degree, including at least 15 hours in courses at the 8000 level. The program must include at least 15 hours of physics courses. There is no foreign language requirement.

Physical Science Option - The master of science (physical science) degree is designed for those preparing to teach more than one science or for those broadening their foundation in science before proceeding to the doctoral degree. It emphasizes broad training in physics, chemistry and mathematics. No thesis is required.

The MS Degree requires completion of a minimum of 30 course hours beyond the Bachelor's Degree (at least 15 hours of those in 8000 level courses) with a grade of 3.0 (B) or better, and completion of the Departmental Qualifying Examination at least at the MS pass level. The basic residency requirement stipulates that 24 hours of this work be courses taken at MU (i.e., no more than 6 hours may be transfer credits). In a normal program, this requirement is met by the end of the second year at MU. The required courses for a Master's Degree are:

PHYSICS 8610	Classical Mechanics	3
PHYSICS 8620	Electrodynamics I	3
PHYSICS 8660	Methods in Mathematical Physics	3
PHYSICS 8680	Thermodynamics and Statistical Mechanics	3
PHYSICS 8710	Quantum Mechanics I	3

Other additional courses may be taken from 7000 and 8000 level courses in astronomy, mathematics, chemistry, biology, engineering, and physics to make a total of 30 hours of course work. In some cases, a student who is a transfer graduate student or who has a particularly strong undergraduate background may have had course work which satisfies the requirement of one or more of these core courses. Exemption from taking these courses at MU may be granted upon written application to the Departmental Graduate Studies Committee.

### Research

It is essential for the MS degree that the students carries out some research. Three hours of research, PHYSICS 8090, should be taken, but not more than nine hours of reading and research courses may be included in the 30 hour requirement. (Note: This 9 hour limitation is a departmental requirement and is more restrictive than the Graduate School requirement.) A formal MS thesis is not required in Physics. The student, in consultation with his/her advisor, can choose to write an MS thesis as an option



(MU Graduate School thesis guidelines (<http://gradschool.missouri.edu/academics/thesis-dissertation/diss-thesis-guideline/>)).

## Qualifying Examination

The student must pass the Departmental Qualifying Examination at least at the MS pass level. Upon completion of the qualifying examination, the student fills out the form M3, "Report of the Master's Examining Committee" and gathers the signatures of the Qualifying Examination Committee members. This form is then signed by the Director of Graduate Studies and forwarded to the Office of Graduate Studies Dean. Graduation Requirements

After performing satisfactory work for the first year, the student with the advisor's assistance completes the form M1, "Plan of Study for the Master's Degree," an outline of the course of study for the student's graduate program, and forwards the application through the Departmental Graduate Studies Committee to the Dean of the Graduate School. The plan of study form must be filed no later than the session preceding the session in which the student expects to receive the degree. Upon approval of the M1 form by the Dean of the Graduate School, the student is a candidate for the degree.

The program for the Master's Degree must be completed within a period of eight years beginning with the first semester of enrollment, not including time spent in the armed services. For any extension of this time limitation, the student must petition the Graduate School Dean. Such petitions must be received in the Graduate School Office prior to the expiration of the normal period and must be approved by the advisor, the Departmental Director of Graduate Studies, and the Graduate School Dean. The Graduate School will notify the advisor in writing of the final decision.

The candidate must be enrolled at the MU campus during the semester in which the program of study, outlined in the "Plan of Study for the Master's Degree", is expected to be completed. During the first six weeks of this semester, the candidate must personally confirm with the Graduate School for all graduation arrangements.

## Application Process

We welcome applications from students who have successfully completed a 4-year undergraduate degree in physics or closely related fields. International students who have gone through a 3-year undergraduate degree program need to have an MS degree to become eligible for admission.

Applications for admission for graduate study in physics have to be completed online. Your online application should include the following material (to be uploaded in electronic format):

- University of Missouri Graduate School Application. Use the online application system to fill out the application form and upload the required documents.
- The results of the general GRE Test (required).
- The results of the GRE Advanced Physics Test, if available (not mandatory, but strongly recommended).
- For international applicants, the results of the TOEFL Test. The minimum total TOEFL scores for graduate admission into the MU Physics program are 550 (paper-based), 213 (computer-based) or 80 (internet-based). The IELTS test with a minimum score of 6.5 is an acceptable alternative to the TOEFL.
- A statement of purpose, in which you tell us a bit about yourself (e.g. your motivations, career goals, and research interests, and why you chose to apply at the University of Missouri).

- Three letters of recommendation from three of your professors who are familiar with you and your work.
- Official transcripts from all undergraduate and graduate institutions applicant has attended.

## Admission Criteria

Fall deadline: March 1

Spring deadline: Rolling (target date: October 1)

Minimum GRE score: none set

International applicants must submit results of the TOEFL test.

Internet-based test (iBT)	Paper-based test (PBT)
80	550

- MU institutional code for GRE and TOEFL: 6875
- GRE department code: 0808
- TOEFL department code: 76

## PhD in Physics

The doctor of philosophy degree is designed to educate scientists to be capable of independently formulating and solving problems of fundamental scientific importance. Detailed policies for the PhD degree are listed at the MU Graduate School. Here we give details specific to the Physics program.

## Degree Requirements

A Ph.D. Degree requires completion of a minimum of 18 hours beyond the Master's Degree, with a grade of 3.0 (B) or better, and completion of the Department Qualifying Examination at the PhD pass level. The degree candidate must also meet the residency requirements. There is no foreign language requirement.

The required courses for a PhD Degree (in addition to those for the MS Degree in physics) are as follows:

Required Courses		
PHYSICS 8640	Electrodynamics II	3
PHYSICS 8720	Quantum Mechanics II	3
Two courses 8000+ level in the student's area of specialization		6
One course 8000+ level in an area other than the student's area of specialization		3
Elective - graduate course in Physics and Astronomy, or in Mathematics, Chemistry, Biology or Engineering		3

Additional graduate-level courses to make a total of 18 hours beyond the Master's Degree are required. See the graduate courses in Physics and Astronomy for electives. In addition, students can choose selected 7000 and 8000 level courses in Mathematics, Chemistry, Biology and Engineering.

A student is required to have taken a minimum of three full years of graduate work beyond the Bachelor's Degree. All acceptable graduate work, including one year's residence for a Master's Degree, is used to compute the three-year requirement for the PhD Degree. It is important to note that this is not a requirement for three calendar years of work, but rather a three-year's equivalent of full time study. When this three-year residency requirement is satisfied, a student should have finished a minimum of 72 credit hours of graduate work.

Within the three-year residence, each doctoral student must successfully complete at least two 12-hour semesters or three 8-hour semesters of graduate level program within a period of 18 calendar months. During this period, the student must be fully involved in academic pursuit, be it study, teaching, or research. This period of full-time reading, reflection, study, teaching, and research is considered necessary to give the student's program continuity and to fulfill the spirit and special demands of the doctoral program.

A student who is a graduate assistant, or who is engaged in other activities that reduce the time available for graduate study, may need more than the anticipated time to meet course and dissertation requirements. Nonetheless, a reasonable rate of progress is required. A PhD student must successfully complete the comprehensive examination within a period of five years beginning with the first semester of enrollment as a PhD student. In addition, the program for the doctoral degree must be completed within five years of passing the comprehensive examination.

For an extension of this time, the student must, before the expiration of the normal period, petition the Graduate School by submitting a request to the advisor who, in turn, submits a written recommendation to the Graduate School which has been endorsed by the departmental Director of Graduate Studies. An extension, if granted, may entail a revision of the candidate's program to update course work and research.

For more details, please consult the department's website or ask the director of graduate studies.

## Transfer of Credit

A student who has completed a master's degree at the University of Missouri-Columbia or elsewhere may, upon recommendation of the advisor and approval by the departmental Director of Graduate Studies and the Graduate School, transfer a maximum of 36 credit hours toward the total hours required for the doctoral degree. Transfer credit for doctoral students who do not have an earned master's degree is limited to a maximum of 12 hours of graduate credit.

## Plan of Study

The doctoral program committee guides the student in planning a program of study. The Chair of the Doctoral Program Committee, after conferring with the student and the Doctoral Program Committee, submits to the Graduate School a report, including a copy of the proposed course of study and any request for transfer of graduate credit. This plan of study will, when completed,

- prepare the student for research in the chosen field of Physics or Astronomy,
- satisfy the credit-hour and residency requirements.

The student must substantially complete the course work outlined in the "Plan of Study for the Doctoral Degree" form (Form D2), to the satisfaction of the Doctoral Program Committee and the Dean before being considered for the Comprehensive Examination.

## Comprehensive Examination

To be an official candidate, the student must pass the Doctoral Comprehensive Examination, which is based upon graduate coursework in the Department (PHYSICS 8610, PHYSICS 8620, PHYSICS 8660, PHYSICS 8710, PHYSICS 8720, and other optional courses). The student must be enrolled to take this examination. It is to be administered only when MU is officially in session. The major advisor applies to the Dean

for the Doctoral Program Committee to administer the Comprehensive Examination when the doctoral student has

- passed the Qualifying Examination,
- substantially completed the planned course work, and
- completed two years of the residence requirement.

The Comprehensive Examination is the most advanced general exam posed by MU. It may consist of both written and oral sections. It must be completed at least seven months before the final Dissertation Defense. The two sections of the examination must be completed within one month.

The written segment of the Comprehensive Examination is arranged and supervised by the major advisor. It consists of either (1) written questions prepared and graded by members of the Doctoral Program Committee, or (2) a research proposal on the work to be done for the PhD. Normally, the student will have two weeks to answer eight questions. Upon satisfactory completion of the written examination (or research proposal), the student is then given an oral examination by the committee.

For the Comprehensive Examination to be successfully completed, all or all but one of the committee, must vote to pass the student on the entire examination, both written and oral. A report of this examination, as in the "Doctoral Comprehensive Examination Results Form" (Form D3), carrying the signatures of all members of the committee, must be sent to the Graduate School and the student no later than two weeks after the completion of the examination.

A failure of either the written or oral section of the examination constitutes failure of the comprehensive examination. If a failure is reported, the committee will include in the report an outline of the general weaknesses of deficiencies of the student's work. The student and the committee will work together to identify steps the student might take to become fully prepared for the next examination. If at any time the student believes that the advice given by the committee is inadequate, the student may send a written request for clarification to the committee. A copy of this request should be sent to the Graduate School as well. The committee must respond to this request in writing within two weeks and a copy must be filed with the Graduate School. A student who fails may not take a second examination for 12 weeks. Failure to pass two Comprehensive Examinations automatically prevents candidacy.

## Doctoral Candidacy and Continuous Enrollment

Candidacy for a doctoral degree is established by passing the comprehensive examination. Status as a continuous enrollment doctoral student begins the term after the term in which the comprehensive exam was successfully completed. Candidacy is maintained by enrolling in PHYSICS 9090 research for two semester hours each fall and winter semester and for one semester hour each summer session up to and including the term in which the dissertation is defended. Continuous enrollment provides access to an advisor's support, doctoral program committee guidance and University research facilities for completion of the dissertation. Failure to continuously enroll in PHYSICS 9090 research until the doctoral degree is awarded terminates candidacy.

Candidacy may be reestablished by paying the registration and late fees owed and completing the requirements specified by the student's doctoral program committee. Registration fees owed may not exceed the amount owed for seven terms, regardless of the number of terms beyond seven for which the student failed to continuously enroll. The committee's

requirements may include a second comprehensive examination of evidence of currency in the research field as suggested by publications in refereed journals. Candidacy is reestablished when the student's advisor and the departmental Director of Graduate Studies submit a written request to the Graduate School explaining the basis of the decision. Once approved, a Request to Re-enroll form must be completed by the student and sent to the department for processing.

## Dissertation and Defense

The dissertation must be written on a subject approved by the candidate's Doctoral Program Committee, must embody the results of original and significant investigation, and must be the candidate's own work. Candidates should consult the Graduate School's Theses and Dissertations Guidelines.

All dissertation defenses shall be open to all Physics and Astronomy faculty and graduate students. Dissertation defense dates should be publicly announced in advance. The candidate must be enrolled to defend the dissertation, which is administered when MU is officially in session. A report of the dissertation defense form (Form D4), carrying the signatures of all members of the committee, is sent to the Graduate School before the deadline preceding the anticipated date of graduation. For the dissertation to be successfully defended, the student's doctoral committee must vote to pass the student on the defense with no more than one dissenting or abstaining vote.

## Admissions

### Application Process

Applications for admission for graduate study in physics have to be completed online. Your online application should include the following material (to be uploaded in electronic format):

- University of Missouri Graduate School Application. Use the online application system (<https://applygrad.missouri.edu/apply/>) to fill out the application form and upload the required documents.
- The results of the general GRE Test (required). MU institutional code for GRE: 6875 GRE department code: 0808
- The results of the GRE Advanced Physics Test, if available (not mandatory, but strongly recommended).
- For international applicants, the results of the TOEFL Test. A minimum test score of 80 is required. The IELTS test with a minimum score of 6.5 is an acceptable alternative to the TOEFL.
- A statement of purpose, in which you tell us a bit about yourself (e.g. your motivations, career goals, and research interests, and why you chose to apply at the University of Missouri).
- Three letters of recommendation.
- Your official transcripts from all undergraduate and graduate institutions attended.

### Admission Criteria

- Fall deadline: March 1
- Spring deadline: Rolling (target date: October 1)
- Minimum GRE score: none set
- Minimum TOEFL scores (international applicants only):

Internet-based test (iBT)	Paper-based test (PBT)
80	550

Note: MU institutional code for TOEFL: 6875. TOEFL department code: 76

## Graduate Certificate in Teaching High School Physics

Through this project, participants gain an expanded range of leadership expertise, content knowledge and pedagogical proficiency to share with others, as they become resources and catalysts for reform in science education at the secondary and post-secondary institutional levels. Ultimately, the overall goal is a significant increase in student achievement in science and science coursework.

### Requirements

A minimum of 13 credit hours is required for completion of the certificate.

PHYSICS 8110	Physics for High School Teachers I	4
PHYSICS 8120	Physics for High School Teachers 2	4
PHYSICS 8130	Physics for High School Teachers 3	2
LTC 8900	Seminar in Curriculum and Instruction	1-3

### Contact

For more information please visit the A TIME for Physics First website: <http://www.physicsfirstmo.org/#> (<http://www.physicsfirstmo.org/>) or contact the Department of Physics by calling 573-882-3335 or emailing [umcasphysics@missouri.edu](mailto:umcasphysics@missouri.edu)

## Political Science

Lael Keiser, Interim Chair  
College of Arts and Science  
113 Professional Building  
(573) 882-2843  
[keiserl@missouri.edu](mailto:keiserl@missouri.edu)

Political science is concerned with government, politics and public policies. In political science courses, students learn how government operates and how to analyze and evaluate public policies and political ideas. This training can help students be more effective as active citizens, as political leaders and as government administrators.

Many political science graduates attend law school or graduate school in political science, public administration, business administration, the social sciences, and other subjects. Others are employed in governmental or political jobs as legislative assistants, military officers or lobbyists, and more go into business or private employment. Many public officials and government administrators have political science degrees.

Courses in political science help students learn to think critically, analyze complex material and communicate effectively. Political science classes require extensive writing assignments, and majors are given many opportunities to hone their writing skills.

The department offers BA, MA and PhD degrees with majors in Political Science.

### Faculty

**Professors** J. K. Dow\*\*, A. C. Drury\*\*, J. B. Dyer\*\*, J. W. Endersby\*\*, W. T. Horner, J. T. Kriekhaus\*\*, P. Squire\*\*

**Associate Professors** S. L. Quackenbush\*\*, L. K. Williams\*\*

**Assistant Professors** H. K. Ba\*\*, S. E. Greitens\*\*, J. B. Haselswerdt\*\*, A. Hur, B. W. Reeder\*\*, J. L. Selin\*\*

**Affiliate Professors** C. N. Conklin\*, L. R. Keiser\*, J. D. Milyo\*, M. A. Stegmaier\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BA in Political Science (p. 291)
  - with emphasis in Pre-Law (p. 294)
- Minor in Political Science (p. 295)

## Departmental Requirements

Students complete a graduation plan upon completion of 60 credit hours. They should prepare for political science courses by completing university (p. 35) and College of Arts and Science foundation requirements, including university general education (p. 36).

Students must complete the following classes with letter grades in the C range or better to file a graduation plan:

- ENGLISH 1000 or an equivalent course
- MATH 1050, MATH 1100, or STAT 1200

Students are required to complete 30 credits in political science, including POL\_SC 1100 and a research methods course (POL\_SC 2500 or POL\_SC 3000W). Fifteen of the 30 hours must be numbered 4000 or above. Note: Pol Sc 4940, Pol Sc 4985, and Pol Sc 4986 will NOT count as 4000-level for the major requirements. A Writing Intensive Pol Sc course taken at the 3000-level or higher is also required.

## Internships

The Political Science Department offers internship course credit for work in a variety of governmental settings, including work with state legislators, administrative agencies, lobbyists, members of Congress, statewide elected officials, and state political parties. Seniors in good standing with a GPA of 2.67 and juniors in good standing with a GPA of 3.0 who have completed appropriate coursework are eligible to apply. No more than 3 internship credit hours may be included in the 30 hours required for the major.

## Departmental Honors

Students who have honors eligibility and a 3.5 GPA may enter the departmental honors program. Students who successfully complete a senior honors paper with a letter grade in the "B" range or better will have the phrase "with Honors in Political Science" added to their diplomas. Each year many political science honors students are selected for Phi Beta Kappa, Mortar Board, Golden Key and other scholastic honoraries.

Students who plan to enter graduate school are encouraged to enter the departmental honors program and to speak with a faculty member early in their academic career. Some areas of graduate study require significant preparation in language, statistics and methodology.

## Graduate

- MA in Political Science (p. 296)
  - with emphasis in Public Policy (p. 296)
- PhD in Political Science (p. 296)

College of Arts and Science  
113 Professional Building  
(573) 882-2062  
gradpolsci@missouri.edu  
<http://politicalscience.missouri.edu/>

**Director of Graduate Studies:** Laron Williams

The department emphasizes both quality teaching and research. Several faculty members have received awards and prizes for teaching excellence and innovative research. The department aims to train people as experts in the study of politics and government, while encouraging students to acquire a sufficient background in other disciplines to enable them to correlate their specialized knowledge with all aspects of modern life.

## Careers

The MA can serve multiple career goals: community-college teaching, continuation of studies to the PhD, entrance into and advancement in public service, or acquisition of skills for a position in the private sector.

Alumni with PhDs have received teaching appointments at public and private colleges as well as positions of responsibility in state and national government in the United States and in many foreign countries. In recent years, an average of five students a year entered the PhD job market. Approximately eighty percent of the PhD graduates became college teachers. Most of the remainder went into public service and a few into the private sector. Six departmental alumni have become college presidents.

## Financial Aid from the Program

Applications for admission and financial aid are considered on the basis of the entire packet submitted. Students may apply for departmental teaching and research assistantships and fellowships, as well as university scholarships and fellowships. Many of our students are supported by departmental assistantships providing a stipend and course tuition waivers. Consult the program website or ask the program contact for details.

## Satisfactory Progress

A graduate student must maintain a minimum 3.0 GPA after the first semester of graduate study and a 3.4 cumulative GPA in all subsequent semesters. A student should complete and pass required courses, activities, and examinations on schedule. The student's advisor and the director of graduate studies will monitor and provide an annual assessment of a student's progress. Failure to maintain satisfactory progress can have serious consequences, including dismissal from the program.

## BA in Political Science

### Degree Program Description

Political science is concerned with government, politics and public policies. In political science students learn how government operates and how to analyze and evaluate public policies and political ideas.

This training can help students be more effective as active citizens, as political leaders and as government administrators. The curriculum offers opportunities to link academic study with internships and study abroad. Political Science graduates pursue many careers, some related to politics, but many others pursue other paths in a wide variety of areas such as: law, business and finance, consulting, government, public relations, media, advertising, lobbying, and international relations.

## Major Program Requirements

Students must complete the University of Missouri's general education requirements, University graduation requirements (p. 35) and the Departmental Requirements (p. 291), in addition to the degree requirements below.

### All majors must take:

POL_SC 1100	American Government
POL_SC 2500	The Science of Politics
POL_SC 3000W	Introduction to Political Research - Writing Intensive

\*Beginning in Spring 2020, students may take either POL\_SC 2500 or POL\_SC 3000W to meet the departmental research methods requirement

### Comparative government (at least one course required)

POL_SC 2600	Canadian Politics and Government
POL_SC 2700	Comparative Political Systems
POL_SC 2710	Politics and the Military
POL_SC 2720	European Democracies
POL_SC 4600	Latin American Politics
POL_SC 4610	European Political Systems
POL_SC 4630	The Politics of Modern Europe
POL_SC 4640	African Politics
POL_SC 4660	Canada in North America
POL_SC 4670	The Political System of the European Union
POL_SC 4680	Chinese Politics and Foreign Policy
POL_SC 4690	Korean Politics: North and South Korea
POL_SC 4695	Understanding Korea Through Film
POL_SC 4700	America's Wars in Asia/War and Peace in Asia
POL_SC 4710	Terrorism: Religious, Ethnic and Ideological Politics
POL_SC 4720	Politics of Development
POL_SC 4730	Women and Politics
POL_SC 4750	Power and Money
POL_SC 4770	Comparative Political Behavior
POL_SC 4780	Dictatorship and Democracy
POL_SC 4790	The Age of Democratization?

### International affairs (at least one course required)

POL_SC 1400	International Relations
POL_SC 2293	Globalization, Identity and Citizenship
POL_SC 2293W	Globalization, Identity and Citizenship - Writing Intensive
POL_SC 2410	The Politics of International Law
POL_SC 4410	Politics and War
POL_SC 4411	Genocide, Terrorism and Civil War
POL_SC 4412	Strategy and Warfare
POL_SC 4413	Politics of Cyber-Security
POL_SC 4415	Peacekeeping and Intervention

POL_SC 4420	Politics of International Economic Relations
POL_SC 4430	Global Human Rights
POL_SC 4440	International Organization
POL_SC 4540	American Foreign Policies
POL_SC 4540W	American Foreign Policies - Writing Intensive
POL_SC 4550	Environmental Conflict

### Political theory/methodology (one course highly recommended, but not required)

POL_SC 2800	Liberty, Justice and the Common Good
POL_SC 4000	Introductory Statistics for Political Science
POL_SC 4010	Computing Methods
POL_SC 4800	Classical Political Theory
POL_SC 4810	Modern Political Theory
POL_SC 4820	Contemporary Political Theory
POL_SC 4840	Developing Dynamics of Democracy
POL_SC 4900	Beltway History and Politics: American Constitutional Democracy in Theory and Practice

### American politics/public policy (at least two courses required)

POL_SC 2100	State Government
POL_SC 2250	Missouri Politics
POL_SC 2200	The Judicial Process
POL_SC 2425	Race and the American Story
POL_SC 2445	American Constitutional Democracy
POL_SC 2450	The Intellectual World of the American Founders
POL_SC 2450H	The Intellectual World of the American Founders - Honors
POL_SC 2455	Constitutional Debates
POL_SC 2455H	Constitutional Debates - Honors
POL_SC 2860	American Political Thought
POL_SC 4100	Political Parties and Election Campaigns
POL_SC 4110	Political Behavior
POL_SC 4120	Politics and the Media
POL_SC 4120W	Politics and the Media - Writing Intensive
POL_SC 4130	African-American Politics
POL_SC 4131	Race and Politics
POL_SC 4132	Race, Immigration, and Urban Politics
POL_SC 4140	Congress and Legislative Policy
POL_SC 4150	The American Presidency
POL_SC 4150W	The American Presidency - Writing Intensive
POL_SC 4160	Interest Groups
POL_SC 4160W	Interest Groups - Writing Intensive
POL_SC 4170	Politics of the American South
POL_SC 4180	Politics and Hollywood
POL_SC 4180W	Politics and Hollywood - Writing Intensive
POL_SC 4190	Elections and Democracy in the United States
POL_SC 4200	The American Constitution
POL_SC 4200W	The American Constitution - Writing Intensive
POL_SC 4210	Constitutional Rights
POL_SC 4210W	Constitutional Rights - Writing Intensive

POL_SC 4220	The United States Supreme Court
POL_SC 4230	Constitution and Civil Liberties
POL_SC 4320W	Public Policy - Writing Intensive
POL_SC 4310	Comparative State Politics
POL_SC 4320	Public Policy
POL_SC 4370	Law, Policy, and Regulation
POL_SC 4380	Politics of Criminal Justice
POL_SC 4390	United States Health Politics and Policy
POL_SC 4830	Democracy in America (and Elsewhere)

## Options

For students who want to concentrate on a specific area, suggestions for a course of study are available from the academic advisor. These include:

- Government service for students who want to become government administrators
- Public information and reporting for students who plan to be governmental press secretaries, public information specialists, interest group lobbyists or government reporters
- International relations for students who want to work for multinational corporations or international agencies
- Graduate school preparation
- Law school preparation

## Accelerated BA to MPA Option

### Degree Program Description

Political science is concerned with government, politics and public policies. In the **BA program in Political Science** students learn how government operates and how to analyze and evaluate public policies and political ideas. This training can help students be more effective as active citizens, as political leaders and as government administrators. The curriculum offers opportunities to link academic study with internships and study abroad. Political Science graduates pursue many careers, some related to politics, but many others pursue other paths in a wide variety of areas such as: law, business and finance, consulting, government, public relations, media, advertising, lobbying, and international relations.

Students completing the **MPA program at the Truman School** are prepared for leadership in the public, nonprofit, and private sectors. Students gain competencies through the core and specialization courses that build a strong theoretical foundation in public affairs, policy, and management. Students develop rigorous analytic skills and have opportunities to apply knowledge, skills, and competencies to public policy and management issues. Through their coursework, students build knowledge of policy processes and management principles and develop critical thinking and analytic skills that enable them to advance in careers in a rapidly changing public service.

### Major Program Requirements

Students must complete the University of Missouri's general education requirements (<http://catalog.missouri.edu/academicdegreerequirements/generaleducationrequirements/>), University graduation requirements (<http://catalog.missouri.edu/academicdegreerequirements/universityrequirements/>) and the Departmental Requirements (<http://catalog.missouri.edu/undergraduategraduate/collegeofartsandscience/politicalscience/#undergraduatetext>), in addition to the degree requirements below. **(Note:** eligible for the accelerated program after

completing 90 credit hours at the undergraduate level, with at least a 3.5 GPA.)

During years 1 through 3 students complete undergraduate general education and program requirements of at least 90 hours with a 3.5 GPA.

Students may then be admitted as provisional graduate students and may take up to 15 hours of shared credit. The BA is conferred at the end of year 4. In year 5, the student completes 21 hours of MPA coursework and the MPA is conferred.

Total Credits for graduation: 156

Undergraduate credits: 120

Dual credits: 15

Graduate credits: 21

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
POL_SC 1100 <sup>^</sup>		3 Political Science <sup>^</sup>	3
ENGLISH 1000 <sup>*</sup>		3 MATH 1050, 1100, or STAT 1200 <sup>*</sup>	3
		3 Behavioral Science <sup>*</sup>	3
		3 Foreign Language 1100 <sup>*</sup>	5
		3 Elective	1
			15

Second Year			
Fall	CR	Spring	CR
Political Science <sup>^</sup>		3 POL_SC 2500 or 3000W <sup>^</sup>	3
Foreign Language 1200 <sup>*</sup>		3 Biological/Physical/Math Science	3
		3 Foreign Language 2100 <sup>*</sup>	3
		3 Humanities <sup>*</sup>	3
		3 Elective- Diversity Intensive Course <sup>*</sup>	3
			15

Third Year			
Fall	CR	Spring	CR
Political Science 4000+ (WI if needed) <sup>^</sup>		3 Political Science 4000+ <sup>^</sup>	3
Biological or Physical Science with lab <sup>*</sup>		5 Biological/Physical/Math Science	3
		3 Humanities <sup>*</sup>	3
		3 Elective (WI) <sup>*</sup>	3
		3 Elective 3000+	3
			17

Fourth Year			
Fall	CR	Spring	CR
Political Science 4000+ <sup>^</sup>		3 Political Science 4000+ <sup>^</sup>	3
Political Science 4000+ <sup>^</sup>		3 Political Science <sup>^</sup>	3
		3 Elective 3000+	3
		3 Elective	3
		3 Elective	3
			15

Total Credits: 122

- ^ Course meets degree program requirements
- \* Course meets University general education and/or campus graduation requirements

## BA in Political Science with Emphasis in Pre-Law

### Degree Program Description

Political science is concerned with government, politics and public policies. In political science students learn how government operates and how to analyze and evaluate public policies and political ideas. This training can help students be more effective as active citizens, as political leaders and as government administrators. The curriculum offers opportunities to link academic study with internships and study abroad. Political Science graduates pursue many careers, some related to politics, but many others pursue other paths in a wide variety of areas such as: law, business and finance, consulting, government, public relations, media, advertising, lobbying, and international relations.

The political science emphasis in pre-law is recommended for those who may want to enter law school or to prepare for paralegal careers. It is designed to introduce students to the study of law and judicial process and also provides a general orientation for law school. This program is ideal for those seeking careers in intelligence or law enforcement.

### Major Program Requirements

Students must complete the University of Missouri's general education requirements (p. 36), University graduation requirements (p. 35) and the Departmental Requirements (p. 291), in addition to the degree requirements below.

**All majors must take:**

POL_SC 1100	American Government
POL_SC 2500	The Science of Politics
POL_SC 3000W	Introduction to Political Research - Writing Intensive

\*Beginning in Spring 2020, students may take either POL\_SC 2500 or POL\_SC 3000W to meet the departmental research methods requirement

**Comparative government (at least one course required)**

POL_SC 2600	Canadian Politics and Government
POL_SC 2700	Comparative Political Systems
POL_SC 2710	Politics and the Military
POL_SC 2720	European Democracies
POL_SC 4600	Latin American Politics
POL_SC 4610	European Political Systems
POL_SC 4630	The Politics of Modern Europe
POL_SC 4640	African Politics
POL_SC 4660	Canada in North America
POL_SC 4670	The Political System of the European Union
POL_SC 4680	Chinese Politics and Foreign Policy
POL_SC 4690	Korean Politics: North and South Korea
POL_SC 4695	Understanding Korea Through Film
POL_SC 4700	America's Wars in Asia/War and Peace in Asia
POL_SC 4710	Terrorism: Religious, Ethnic and Ideological Politics

POL_SC 4720	Politics of Development
POL_SC 4730	Women and Politics
POL_SC 4750	Power and Money
POL_SC 4770	Comparative Political Behavior
POL_SC 4780	Dictatorship and Democracy
POL_SC 4790	The Age of Democratization?

**International affairs (at least one course required)**

POL_SC 1400	International Relations
POL_SC 2293	Globalization, Identity and Citizenship
POL_SC 2293W	Globalization, Identity and Citizenship - Writing Intensive
POL_SC 2410	The Politics of International Law
POL_SC 4410	Politics and War
POL_SC 4411	Genocide, Terrorism and Civil War
POL_SC 4412	Strategy and Warfare
POL_SC 4413	Politics of Cyber-Security
POL_SC 4415	Peacekeeping and Intervention
POL_SC 4420	Politics of International Economic Relations
POL_SC 4430	Global Human Rights
POL_SC 4440	International Organization
POL_SC 4540	American Foreign Policies
POL_SC 4540W	American Foreign Policies - Writing Intensive
POL_SC 4550	Environmental Conflict

**Political theory/methodology (one course highly recommended, but not required)**

POL_SC 2800	Liberty, Justice and the Common Good
POL_SC 4000	Introductory Statistics for Political Science
POL_SC 4010	Computing Methods
POL_SC 4800	Classical Political Theory
POL_SC 4810	Modern Political Theory
POL_SC 4820	Contemporary Political Theory
POL_SC 4840	Developing Dynamics of Democracy
POL_SC 4850	Scots and the Making of America
POL_SC 4850H	Scots and the Making of America - Honors
POL_SC 4900	Beltway History and Politics: American Constitutional Democracy in Theory and Practice

**American politics/public policy (at least two courses required)**

POL_SC 2100	State Government
POL_SC 2250	Missouri Politics
POL_SC 2200	The Judicial Process
POL_SC 2425	Race and the American Story
POL_SC 2450	The Intellectual World of the American Founders
POL_SC 2450H	The Intellectual World of the American Founders - Honors
POL_SC 2455	Constitutional Debates
POL_SC 2455H	Constitutional Debates - Honors
POL_SC 2860	American Political Thought
POL_SC 4100	Political Parties and Election Campaigns
POL_SC 4110	Political Behavior
POL_SC 4120	Politics and the Media
POL_SC 4120W	Politics and the Media - Writing Intensive

POL_SC 4130	African-American Politics
POL_SC 4131	Race and Politics
POL_SC 4132	Race, Immigration, and Urban Politics
POL_SC 4140	Congress and Legislative Policy
POL_SC 4150	The American Presidency
POL_SC 4150W	The American Presidency - Writing Intensive
POL_SC 4160	Interest Groups
POL_SC 4160W	Interest Groups - Writing Intensive
POL_SC 4170	Politics of the American South
POL_SC 4180	Politics and Hollywood
POL_SC 4180W	Politics and Hollywood - Writing Intensive
POL_SC 4190	Elections and Democracy in the United States
POL_SC 4200	The American Constitution
POL_SC 4200W	The American Constitution - Writing Intensive
POL_SC 4210	Constitutional Rights
POL_SC 4210W	Constitutional Rights - Writing Intensive
POL_SC 4220	The United States Supreme Court
POL_SC 4230	Constitution and Civil Liberties
POL_SC 4320W	Public Policy - Writing Intensive
POL_SC 4310	Comparative State Politics
POL_SC 4320	Public Policy
POL_SC 4370	Law, Policy, and Regulation
POL_SC 4380	Politics of Criminal Justice
POL_SC 4390	United States Health Politics and Policy
POL_SC 4830	Democracy in America (and Elsewhere)

**Minimum of 12 credit hours must be from the following list of courses**

POL_SC 2200	The Judicial Process
POL_SC 2445	American Constitutional Democracy
POL_SC 2455	Constitutional Debates
POL_SC 4200	The American Constitution
POL_SC 4210	Constitutional Rights
POL_SC 4220	The United States Supreme Court
POL_SC 4230	Constitution and Civil Liberties
POL_SC 4380	Politics of Criminal Justice
POL_SC 4940	Political Science Internship <sup>With a requirement that it be at the Prosecutor's office, the public defender, or a law firm</sup>

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
POL_SC 1100 <sup>**</sup>		3 Political Science <sup>^</sup>	3
ENGLSH 1000 <sup>*</sup>		3 MATH 1050, 1100, or STAT 1200	3
Behavioral Science <sup>*</sup>		3 Foreign Language 1100 <sup>*</sup>	5
Humanities <sup>*</sup>		5 Behavioral Science <sup>*</sup>	3
Elective		1 Elective	1
		15	15

Second Year			
Fall	CR	Spring	CR
Political Science <sup>^</sup>		3 POL_SC 2500 or 3000W <sup>^</sup>	3
Foreign Language 1200 <sup>*</sup>		3 Biological/Physical/Math Science <sup>e</sup>	3
Social Science outside of major <sup>*</sup>		3 Humanities <sup>*</sup>	3
Social Science outside of major <sup>*</sup>		3 Social Science outside of major <sup>*</sup>	3
Biological/Physical/Math Science		3 Elective- Diversity Intensive Course	3
		15	15

Third Year			
Fall	CR	Spring	CR
Political Science 4000+ (WI if needed) <sup>^</sup>		3 Political Science 4000+ <sup>^</sup>	3
Foreign Language 2100		3 Humanities <sup>*</sup>	3
Biological/Physical Science (lab) <sup>^</sup>		3 Humanities <sup>*</sup>	3
Elective 3000+		3 Elective (WI)	3
Elective <sup>*</sup>		3 Elective 3000+	3
		15	15

Fourth Year			
Fall	CR	Spring	CR
Political Science 4000+ <sup>^</sup>		3 Political Science 4000+ <sup>^</sup>	3
Political Science 4000+ <sup>^</sup>		3 Political Science <sup>^</sup>	3
Elective 3000+		3 Elective 3000+	3
Elective		3 Elective 3000+	3
Elective		3 Elective	3
		15	15

Total Credits: 120

- <sup>^</sup> Course meets degree program requirements
- <sup>\*</sup> Course meets University general education and/or campus graduation requirements

## Minor in Political Science

### Requirements

To earn a minor in political science, students must complete 15 credits, including the following:

- POL\_SC 1100, American Government (3) or an equivalent course
- Additional political science courses totaling 12 credits with at least 6 at the 4000 level
- No more than 3 internship credits may be included and will not count as a 4000 level
- Nine credits must be in residence including 6 at the 4000 level
- A grade of C- or better is required of all political science classes in either a minor or a major with an overall GPA of 2.0 or greater
- A minor must be completed and awarded at the same time as the MU undergraduate degree
- Once an A&S minor is awarded, a student cannot return to MU to complete a major in the same department



## MA in Political Science

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### Degree Requirements

All MA students must complete POL\_SC 7000, POL\_SC 7010, and POL\_SC 9030. Each candidate must take one graduate seminar (8000 level or above) in each of two fields. Fields include: American political institutions and behavior, comparative politics and government, international relations, and public policy and administration.

The master's degree program culminates in a comprehensive oral examination and defense of the research project. The Master of Arts degree may be earned by completing either the thesis or the non-thesis program.

### Thesis/Non-Thesis Requirements

#### Thesis Option

Students wishing to advance from the master's program to the PhD program at MU must take the thesis option. The thesis program requires 30 hours of academic credit (at least 18 in 8000-level or above Political Science seminars) and an acceptable thesis for which up to six semester hours of credit must be earned (POL\_SC 8090).

#### Non-Thesis Option

The non-thesis program is a 30-hour generalist master of arts. It requires a student to take at least 30 hours of academic credit (at least 18 in 8000-level or above Political Science seminars) and to write a master's paper for which up to three hours of credit must be earned (POL\_SC 8085).

### Satisfactory Progress

A master's student should maintain a minimum 3.0 GPA after the first semester and a 3.4 cumulative GPA in subsequent semesters. The MA program must be completed within five years of the first semester of enrollment. Most students complete the master's program within two years.

### Admissions

#### Admission Contact Information

Graduate Studies Office  
113 Professional Bldg.  
Columbia, MO 65211  
(573) 882-2062  
gradpolsci@missouri.edu

#### Admission Criteria

Admission into the MA program is determined by the graduate committee's consideration of the applicant's academic record, personal statement, letters of recommendation, and the GRE general test.

Fall deadline: December 15

- Minimum TOEFL scores for international applicants: 89
- Minimum GPA: 3.0 overall, in last 60 hours, and in political science courses.
- 12 hours of upper-division course work in political science is recommended.
- An undergraduate major in an area other than political science may be acceptable.

### Required Application Materials

- Office of Graduate School online application
- One to two page statement of purpose, describing interests and goals in graduate study in Political Science
- Three letters of recommendation
- Unofficial transcripts from all universities from which degrees were earned (official transcripts required upon admission)
- Official results from the Graduate Record Examination (GRE)
- Academic writing sample
- Test of English as a Foreign Language (TOEFL) scores (for international students)

## MA in Political Science with Emphasis in Public Policy

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The Department of Political Science is no longer accepting applications to the MA with emphasis in Public Policy degree program. We are accepting applications to the MA in Political Science program (p. 296).

## PhD in Political Science

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### Degree Requirements

A student's doctoral program must include at least 45 hours of graduate seminars, exclusive of comprehensive exams and dissertation research. At the discretion of the student's doctoral program committee, up to 30 hours of an MA program may be included in the PhD program.

Students choose a primary and secondary field from the four doctoral fields: American political institutions and behavior, comparative politics and government, international relations, and public policy and administration.

Graduate courses must include:

- A minimum of 12 seminar hours in the primary (research) field
- A minimum of nine seminar hours in a secondary field supporting the primary field
- A minimum of 13 hours in a methodology or research tool field. Required courses include POL\_SC 7000, POL\_SC 7010, and POL\_SC 9030.
- The remaining six hours in the methodology field may be in advanced formal or quantitative methods, advanced foreign language, or a combination of the two.

Besides completing the necessary course work, the candidate must demonstrate the capacity to use a research tool (such as a foreign language or statistics), should obtain some teaching experience in political science (for academic careers), must pass written and oral comprehensive examinations, must submit and defend a dissertation proposal, and must submit and defend a dissertation.

All required courses and the comprehensive examination must be completed within five years of the first semester in the graduate program. The dissertation must be completed and defended within five years of passing the comprehensive examination.

The PhD usually requires five years full time or the equivalent in part-time work beyond the bachelor's degree and four years beyond the master's degree. Full-time students (including teaching and research assistants)

must carry a minimum of nine credit hours of courses per semester (except for students conducting dissertation research).

The first five semesters of doctoral study typically include course work and preparation for the comprehensive examinations. Comprehensive exams (POL\_SC 9970) are typically taken in the spring of the third year. A proposal for dissertation research is defended within a few months of the comprehensive exams. The remaining time is devoted to dissertation research (POL\_SC 9090).

A doctoral student must maintain a minimum 3.0 GPA after the first semester and a 3.4 cumulative GPA in subsequent semesters. Comprehensive exams and dissertation proposal must be completed within a timely fashion. Most students complete the doctoral program within five years.

## Admissions

### Admission Contact Information

Graduate Studies Office  
113 Professional Bldg.  
Columbia, MO 65211  
(573) 882-2062  
gradpolsci@missouri.edu

### Admission

Admission into the PhD program is determined by the graduate studies committee's consideration of the applicant's academic record, personal statement, letters of recommendation, and the GRE.

### Admission Criteria

Fall deadline: December 15

- Minimum TOEFL score for international students: 89
- Minimum GPA: 3.0 overall, in last 60 hours, and in political science courses
- 12 hours of upper-division course work in political science is recommended.

### Required Application Materials

- Office of Graduate School online application
- One to two page statement of purpose, describing interests and goals in graduate study in Political Science
- Three letters of recommendation
- Unofficial transcripts from all universities from which degrees were earned (official transcripts required upon admission)
- Official results from the Graduate Record Examination (GRE)
- Academic writing sample
- Test of English as a Foreign Language (TOEFL) scores (for international students)

## Psychology

Dr. Jamie Arndt  
College of Arts and Science  
210 McAlester Hall  
(573) 882-6860  
<http://psychology.missouri.edu>

The faculty and staff of the Department of Psychological Sciences are committed to providing students with a high quality, broadly-based undergraduate education. Understanding that undergraduate students use the psychology major as preparation for a variety of postbaccalaureate experiences, the department is dedicated to offering a wide range of courses and services to students. While some students are interested in pursuing psychology-related interests in graduate school after graduating with a Bachelor of Science (BS), most are interested in pursuing careers after graduating with a Bachelor of Arts (BA).

Regardless of a student's ultimate goals, faculty members believe that students will be best served by completing a rigorous research-oriented program of study. Therefore, students should expect instructors to take a scientific approach to the psychological content of each course.

The department offers the BA and BS degrees with a major in Psychology, and the MA and PhD degrees with an emphasis in Clinical Psychology, Cognition & Neuroscience, Developmental Psychology, Quantitative Psychology, and Social & Personality Psychology. A minor in Quantitative Methods is also available.

## Faculty

**Professor** J. Arndt\*\*, B. Bartholow\*\*, D. Bell\*\*, A. Bettencourt\*\*, D. Beversdorf\*\*, N. Cowan\*\*, B. Froeliger, D. Geary\*\*, J. Kerns\*\*, L. King\*\*, D. McCarthy\*\*, E. Merkle\*\*, M. Naveh-Benjamin\*\*, T. Piasecki\*\*, A. Rose\*\*, T. Schachtman\*\*, K. Sheldon\*\*, K. Sher\*\*, W. Slutske\*\*, D. Steinley\*\*, C. Davis-Stober\*\*, T. Trull\*\*, P. Wood\*\*

**Associate Professor** N. Campione-Barr\*\*, S. Christ\*\*, I. Gizer\*\*, S. Hackley\*\*, K. Hawley\*\*, J. Johnson\*\*, Y. Luo\*\*, D. Miller\*\*, V. Shaffer\*\*, K. vanMarle\*\*, M. Will\*\*

**Assistant Professor**, J. Booker\*\*, A. Curtis\*\*, J. Craggs\*\*, A. Groh\*\*

**Assistant Research Professor** J. Bohanek

**Clinical Professor** N. Presser\*

**Associate Clinical Professor** M. Klein-Trull\*, S. O'Neill\*, J. Skinner\*, E. Waller\*

**Assistant Clinical Professor** E. Bullett\*, J. Stawhun\*

**Associate Teaching Professor** L. Bauer\*, I. Segert\*

**Assistant Teaching Professor** E. Naveh-Benjamin, M. Skaggs Sheldon,  
**Professor Emeritus** W. Anderson, C. Borduin, L. Cooper, R. Geen, D. Wright

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BA in Psychology (p. 298)
- BS in Psychology (p. 300)
- Minor in Psychology (p. 303)

## Graduate

- MA in Psychology (p. 304)
  - emphasis in Child Development and Developmental Psychology (p. 304) \*
  - emphasis in Clinical Psychology (p. 305) \*
  - emphasis in Cognition and Neuroscience (p. 305) \*

- emphasis in Developmental Psychology (p. 305) \*
- emphasis in Quantitative Psychometrics (p. 306)
- emphasis in Social/Personality Psychology (p. 306) \*
- PhD in Psychology (p. 306)
  - emphasis in Child Clinical and Developmental Psychology (p. 307)
  - emphasis in Clinical and Quantitative Psychology (p. 308)
  - emphasis in Clinical Psychology (p. 308)
  - emphasis in Cognition and Neuroscience (p. 309)
  - emphasis in Developmental Psychology (p. 309)
  - emphasis in Quantitative Psychology (p. 309)
  - emphasis in Social/Personality Psychology (p. 310)

\* **Please refer to the corresponding PhD programs for the MA emphasis areas indicated above. Students are only accepted for the PhD in Psychology and the MA is earned as a secondary degree en route to the PhD.**

College of Arts and Science  
 210 McAlester Hall  
 (573) 882-0838  
 FAX (573) -882-7710

<https://psychology.missouri.edu/grad/graduate-program> (<https://psychology.missouri.edu/grad/graduate-program/>)

**Director of Graduate Studies:** Dennis K. Miller

## About Psychological Sciences' Degrees

Most students accepted have an undergraduate major in psychology or its equivalent. Acceptance is based on training, quality of work, recommendations, GRE scores and other information. For additional information on admission requirements, consult Graduate Study in Psychology and Associated Fields, published annually by the American Psychological Association and available in most libraries.

## More Information about Emphasis Areas

These programs and others are more fully described at the departmental website at <http://psychology.missouri.edu>.

## Dual Emphases: Child Clinical and Developmental Psychology

Students in the Dual Emphasis Program pursue a graduate degree with training in both clinical (child track) and developmental psychology. Students in this program are involved in training that bridges the two areas of developmental psychology and child-clinical psychology.

## Dual Emphases: Clinical and Quantitative Psychology

Students in the Dual Emphasis Program pursue a graduate degree with training in both clinical and quantitative psychology. Students in this program are involved in training that bridges the two training areas. This program provides intensive training in the area of quantitative psychology with the added benefit of training in the research and practice of clinical psychology.

For more information on dual emphases degrees: <https://psychology.missouri.edu/area/dual-degree-clinical-and-developmental-psychology> (<https://psychology.missouri.edu/area/dual-degree-clinical-and-developmental-psychology/>)

# BA in Psychology

## Degree Program Description

The study of Psychology aims to understand the mind, behavior, and mental health. The Bachelor of Arts in Psychology (BA) degree is for students interested in studying human behavior in preparation for either employment after completion of the undergraduate psychology degree, or in preparation for applied psychology and other related graduate programs (e.g., counseling, social work, management). Regardless of a student's ultimate goals, our faculty members believe that students will be best served by completing a rigorous research-oriented program of study. Therefore, students should expect their instructors to take a scientific approach to the particular psychological content of each course. Psychology majors work in diverse fields such as community and social services, human resources, management and business, health care, student affairs and services, law enforcement, education, and scientific research.

## Major Program Requirements

To graduate with a Bachelor of Arts in Psychology in the College of Arts and Science, a student must complete all degree, college, and university graduation requirements (p. 35), including university general education (p. 36) as well as all degree and college or school requirements. Students are reminded to check the Undergraduate Catalog for course descriptions and prerequisite information.

## Major Core Requirements

- The psychology major requires 30 credit hours in psychology coursework.
- All courses that count toward the psychology major requirements must be completed with a grade of C or better. Grades of C- or below and grades of S/U will not be accepted. This includes STAT 1200 or its equivalent (a required course for all psychology majors).
- Students must complete MATH 1050 or MATH 1100 and STAT 1200 and PSYCH 3010, before PSYCH 3020, before the capstone lab. We make no exceptions to the research methods sequence requirements.
- Students must complete at least two psychology courses numbered 4000 or above. The Psychology capstone lab will meet one of these 4000-level courses.
- Students must complete at least one psychology course numbered 3000 or above that is designated Writing Intensive. The psychology capstone lab will meet the WI requirement if completed during the fall or spring semesters. Capstones are not WI in the summer sessions.
- Students may use no more than 12 hours of Special Problems Courses, Special Readings Courses, or Internship Courses (PSYCH 2950, PSYCH 4940, PSYCH 4950 & PSYCH 4960 toward graduation. Within the 12 hours, no more than 9 hours may be Special Problems Courses. (i.e., psychology research credit hours). A student may complete either 6 hours of PSYCH 2950 and 3 hours of PSYCH 4950, or they may complete 3 hours of PSYCH 2950 and 6 hours of PSYCH 4950.
- Psych majors may have up to a total of 6 hours of PSYCH 4940. Internships are not required for the psychology major.

### Required courses

PSYCH 1000                      General Psychology

OR		
PSYCH 1000H	General Psychology - Honors	3
&		
STAT 1200	Introductory Statistical Reasoning	3
OR		
STAT 1300	Elementary Statistics	3
OR		
STAT 1300H	Elementary Statistics - Honors	3
OR		
STAT 1400	Elementary Statistics for Life Sciences	3
OR		
STAT 2500	Introduction to Probability and Statistics I	3
<b>Research Methods sequence</b>		
PSYCH 3010	Research Methods in Psychology I	3
PSYCH 3020	Research Methods in Psychology II	3
Capstone course (psychology lab course)		3-6

## Distribution Areas

Psychology majors are required to complete four distribution courses -- two courses in each of two distribution areas. This ensures that students will have exposure to a wide range of psychological theory and research. In addition, students choose two additional Psychology courses to receive further education according to their interests. Although the distribution areas are presented below as distinct areas of study, a great deal of overlap exists among them. Students should understand the ways in which the various areas complement one another and gain the ability to integrate information learned in the different areas.

### Clinical/Social/Developmental Distribution

This distribution area studies the nature and causes of individuals' thoughts, feelings and behavior in social situations. It analyzes the cultural and biological influences on age-related changes in cognition, emotion, and social behavior that take place throughout an individual's lifespan. It focuses on scientific study of the causes of mental disorders as well as methods for assessing and alleviating mental health problems. It also is concerned with the study of mental health and wellness, including strategies for preventing the development of mental disorders. Courses in this distribution area include:

PSYCH 2310	Social Psychology	3
PSYCH 2320	Introduction to Personality	3
PSYCH 2410	Developmental Psychology	3
PSYCH 2410H	Developmental Psychology - Honors	3
PSYCH 2510	Survey of Abnormal Psychology	3
PSYCH 2830	Human-Companion Animal Interaction	3
PSYCH 3310	Intergroup Relations	3
PSYCH 3350	Positive Psychology	3
PSYCH 3370	The Science of Mindfulness	3
PSYCH 3370W	The Science of Mindfulness - Writing Intensive	3
PSYCH 3420	Cognitive Development in Childhood	3
PSYCH 3430	Social Development in Childhood	3
PSYCH 3430W	Social Development in Childhood - Writing Intensive	3
PSYCH 3440	Women's Professional Development	3
PSYCH 3440H	Women's Professional Development - Honors	3
PSYCH 3510	Introduction to Clinical Psychology	3

PSYCH 3510W	Introduction to Clinical Psychology - Writing Intensive	3
PSYCH 3815	Cross-Cultural Psychology	3
PSYCH 3815H	Cross-Cultural Psychology - Honors	3
PSYCH 3830	Health Psychology	3
PSYCH 3840	Individual Differences	3
PSYCH 4440	Sex Differences	3
PSYCH 4520	Behavior Genetics	3
PSYCH 4530	Research in Psychopathology	3
PSYCH 4540	Emotional Disorders in Childhood and Adolescence	3
PSYCH 4560	Schizophrenia	3
PSYCH 4561	Psychosis and the Brain	3
PSYCH 4570	Pediatric Neuropsychology	3
PSYCH 4580	Externalizing Spectrum Disorders	3

Note: Due to the overlap in course content, a student may receive credit for only one of the following three courses: PSYCH 2410 or PSYCH 2410H, H\_D\_FS 3420 or ESC\_PS 2500.

Note: Due to overlap in content, a student may not receive credit for both PSYCH 3350ANDESC\_PS 4200.

### Cognitive/Neuroscience Distribution

This distribution area studies the mechanisms of the mind and how they are altered by experience. It also examines the biological basis of the behavior of humans and animals. Courses in this distribution area include:

PSYCH 2110	Learning, Memory, and Cognition	3
PSYCH 2210	Mind, Brain, and Behavior	3
PSYCH 2220	Drugs and Behavior	3
PSYCH 2810	Human Sexuality	3
PSYCH 2820	Minds, Brains, and Machines	3
PSYCH 3110	Theories of Learning	3
PSYCH 3140	Cognitive Psychology	3
PSYCH 3150	Human Memory	3
PSYCH 3160	Perception and Thought	3
PSYCH 3420	Cognitive Development in Childhood	3
PSYCH 3830	Health Psychology	3
PSYCH 3870	Sleep and Sleep Disorders	3
PSYCH 4110	Perception	3
PSYCH 4210	Physiological Psychology	3
PSYCH 4240	Cognitive Neuroscience	3
PSYCH 4440	Sex Differences	3
PSYCH 4520	Behavior Genetics	3
PSYCH 4570	Pediatric Neuropsychology	3

Note: A student may not receive credit for PSYCH 2210 if it is completed after PSYCH 4210.

### Psychology Electives (2000-level) 6 credit hours

Students must complete two psychology elective courses numbered 2000 or above, excluding Special Problems/Readings (i.e., PSYCH 2950, PSYCH 4950, PSYCH 4960), Internship PSYCH 4940, and Capstone Labs.

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available. Psychology majors are required to earn a C or higher (no C- or below) in all Psychology courses and STAT 1200.

First Year			
Fall	CR	Spring	CR
AGH: Social Science Course <sup>++</sup>		3 A&S Diversity Requirement <sup>+</sup>	3
Behavioral Science Course <sup>+</sup>		3 Humanities (2000+ Arts and Science approved) <sup>+</sup>	3
ENGLSH 1000 <sup>++</sup>		3 Psych Cognitive/Neuroscience Distribution Course <sup>^</sup>	3
Humanities Course <sup>+</sup>		3 Social Science Course <sup>+</sup>	3
PSYCH 1000 <sup>^</sup>		3 STAT 1200	3
		15	15
Second Year			
Fall	CR	Spring	CR
Biological/Physical/Mathematics Science Course <sup>+</sup>		3 Foreign Language 2 <sup>++</sup>	4
Foreign Language 1 <sup>++</sup>		4 Psych 2000+ elective	3
Psych Clinical/Social/Developmental Distribution Course <sup>^</sup>		3 PSYCH 3010 <sup>^</sup>	3
1000+ elective		3 1000+ elective	1
1000+ elective		1 1000+ elective	3
		14	14
Third Year			
Fall	CR	Spring	CR
Biological/Physical/Mathematics Science Course		3 Biological/Physical Science Course (with LAB) <sup>+</sup>	3
Foreign Language 3 <sup>++</sup>		4 PSYCH 3020 <sup>^</sup>	3
Psych Clinical/Social/Developmental Distribution Course <sup>^</sup>		3 Social Science (2000+ Arts and Science approved) <sup>+</sup>	3
Psych Cognitive/Neuroscience Distribution Course <sup>^</sup>		3 1000+ elective	3
1000+ elective (Writing Intensive) <sup>++</sup>		3 3000+ elective	3
		1000+ elective	1
		16	16
Fourth Year			
Fall	CR	Spring	CR
Behavioral Science Course (2000+ Arts and Science approved) <sup>+</sup>		3 Humanities Course <sup>+</sup>	3
Humanities Course <sup>+</sup>		3 Psych 4000+ elective <sup>^</sup>	3
Psych Capstone (Writing Intensive) <sup>^++</sup>		3 3000+ elective	3
3000+ elective		3 3000+ elective	3
3000+ elective		3 3000+ elective	3
		15	15

Total Credits: 120

- <sup>^</sup> Course meets degree program requirements
- <sup>\*</sup> Course meets University general education and/or campus graduation requirements
- <sup>+</sup> Course meets College of Arts and Science foundation (Basic Skills)

## BS in Psychology

### Degree Program Description

The study of Psychology aims to understand the mind, behavior, and mental health. The Bachelor of Science in Psychology (BS) degree is for students interested in a more science-oriented curriculum to better prepare them for further study in science-oriented psychology graduate programs (e.g., neuroscience, quantitative psychology), or medical school (e.g., Doctor of Medicine/MD, psychiatry), or other health-related graduate programs (e.g., pharmacy, physical therapy). The required science track is not noted on the BS diploma or transcripts, but students can indicate the science track on resumes and/or graduate school application forms. Regardless of a student's ultimate goals, our faculty members believe that students will be best served by completing a rigorous research-oriented program of study. Therefore, students should expect their instructors to take a scientific approach to the particular psychological content of each course. While most psychology majors plan to find employment upon graduation with the undergraduate psychology degree, some psychology majors plan to pursue further study in psychology-related graduate or professional programs. Psychology majors work in diverse fields such as community and social services, human resources, management and business, health care, student affairs and services, law enforcement, education, and scientific research.

### Major Program Requirements

To graduate with a Bachelor of Science in Psychology from the College of Arts and Science, a student must complete all degree, college and university graduation requirements (p. 35), including university general education (p. 36) as well as all degree and college or school requirements. Students are reminded to check the Undergraduate Catalog for course descriptions and prerequisite information.

### Major Core Requirements

- The psychology major requires 30 credit hours in psychology coursework.
- All courses that count toward the psychology major requirements must be completed with a grade of C or better. Grades of C- or below and grades of S/U will not be accepted. This includes STAT 2500 and the required science track. The statistics requirement is fulfilled by taking either (a) STAT 1200 and STAT 2200 or (b) STAT 2500, or (c) STAT 1400 and STAT 2200.
- Students must complete MATH 1100 and the equivalent of STAT 2500 -- either by completing STAT 1200 and STAT 2200, or by completing STAT 2500 . To enroll in STAT 2500 students must complete an additional pre-requisite math course of MATH 1300, MATH 1400 or MATH 1500.
- Students must complete STAT 1200 or STAT 2500 before or during the same semester as PSYCH 3010.
- Students must complete PSYCH 3010 before PSYCH 3020 which must be completed before the Psych Capstone Lab course. We do not make exceptions to the research methods sequence requirements.

- Students must complete at least two psychology courses numbered 4000 or above. The Psychology Capstone Lab will meet one of these 4000-level courses.
- Students must complete at least one psychology course numbered 3000 or above that is designated Writing Intensive (WI). The Psychology Capstone Lab will meet the WI requirement if completed during the fall or spring semesters. Capstones are not WI in the summer sessions.
- Students may use no more than 12 hours of Special Problems Courses, Special Readings Courses, or Internship Courses (PSYCH 2950, PSYCH 4940, PSYCH 4950, & PSYCH 4960) toward graduation. Within the 12 hours, no more than 9 hours may be
- Special Problems Courses (i.e., psychology research credit hours). A student may complete either 6 hours of PSYCH 2950 and 3 hours of PSYCH 4950, or they may complete 3 hours of PSYCH 2950 and 6 hours of PSYCH 4950.
- Psych majors may have up to a total of 6 hours of PSYCH 4940.
- Other than the 12 hour limit of Special Problems Courses, Special Readings Courses, and Internship hours described above, there is no limit to the number of psychology credits that may count toward the required 120 credits to graduate with the Bachelor of Science.

**Required Courses**

PSYCH 1000	General Psychology	3
MATH 1100	College Algebra	3
STAT 2500	Introduction to Probability and Statistics I	3
OR		
STAT 1200 & STAT 2200	Introductory Statistical Reasoning and Introductory Statistical Methods	4
OR		
STAT 1400 & STAT 2200	Elementary Statistics for Life Sciences and Introductory Statistical Methods	4

**Research Methods Sequence**

PSYCH 3010	Research Methods in Psychology I	3
PSYCH 3020	Research Methods in Psychology II	3
Capstone course (psychology lab course)		3-6

**Distribution Areas**

Psychology majors are required to complete four distribution courses -- two courses in each of two distribution areas. This ensures that students will have exposure to a wide range of psychological theory and research. In addition, students choose two additional Psychology courses to receive further education according to their interests. Although the distribution areas are presented below as distinct areas of study, a great deal of overlap exists among them. Students should understand the ways in which the various areas complement one another and gain the ability to integrate information learned in the different areas.

**Clinical/Social/Developmental Distribution**

This distribution area studies the nature and causes of individuals' thoughts, feelings and behavior in social situations. It analyzes the cultural and biological influences on age-related changes in cognition, emotion, and social behavior that take place throughout an individual's lifespan. It focuses on scientific study of the causes of mental disorders as well as methods for assessing and alleviating mental health problems. It also is concerned with the study of mental health and wellness, including strategies for preventing the development of mental disorders. Courses in this distribution area include:

PSYCH 2310	Social Psychology	3
PSYCH 2320	Introduction to Personality	3
PSYCH 2410	Developmental Psychology	3
PSYCH 2410H	Developmental Psychology - Honors	3
PSYCH 2510	Survey of Abnormal Psychology	3
PSYCH 2830	Human-Companion Animal Interaction	3
PSYCH 3310	Intergroup Relations	3
PSYCH 3350	Positive Psychology	3
PSYCH 3370	The Science of Mindfulness	3
PSYCH 3370W	The Science of Mindfulness - Writing Intensive	3
PSYCH 3420	Cognitive Development in Childhood	3
PSYCH 3430	Social Development in Childhood	3
PSYCH 3430W	Social Development in Childhood - Writing Intensive	3
PSYCH 3440	Women's Professional Development	3
PSYCH 3440H	Women's Professional Development - Honors	3
PSYCH 3510	Introduction to Clinical Psychology	3
PSYCH 3510W	Introduction to Clinical Psychology - Writing Intensive	3
PSYCH 3815	Cross-Cultural Psychology	3
PSYCH 3815H	Cross-Cultural Psychology - Honors	3
PSYCH 3830	Health Psychology	3
PSYCH 3840	Individual Differences	3
PSYCH 4440	Sex Differences	3
PSYCH 4520	Behavior Genetics	3
PSYCH 4530	Research in Psychopathology	3
PSYCH 4540	Emotional Disorders in Childhood and Adolescence	3
PSYCH 4560	Schizophrenia	3
PSYCH 4561	Psychosis and the Brain	3
PSYCH 4570	Pediatric Neuropsychology	3
PSYCH 4580	Externalizing Spectrum Disorders	3

Note: Due to overlap in course content, a student may not receive credit for both PSYCH 3350 and ESC\_PS 4200.

Note: Due to the overlap in course content, a student may receive credit for only one of the following three courses: PSYCH 2410, H\_D\_FS 3420 or ESC\_PS 2500.

**Cognitive/Neuroscience Distribution**

This distribution area studies the mechanisms of the mind and how they are altered by experience. It also examines the biological basis of the behavior of humans and animals. Courses in this distribution area include:

PSYCH 2110	Learning, Memory, and Cognition	3
PSYCH 2210	Mind, Brain, and Behavior	3
PSYCH 2220	Drugs and Behavior	3
PSYCH 2810	Human Sexuality	3
PSYCH 3110	Theories of Learning	3
PSYCH 3140	Cognitive Psychology	3
PSYCH 3150	Human Memory	3
PSYCH 3160	Perception and Thought	3
PSYCH 3420	Cognitive Development in Childhood	3
PSYCH 3830	Health Psychology	3

PSYCH 3870	Sleep and Sleep Disorders	3
PSYCH 4110	Perception	3
PSYCH 4210	Physiological Psychology	3
PSYCH 4240	Cognitive Neuroscience	3
PSYCH 4440	Sex Differences	3
PSYCH 4520	Behavior Genetics	3
PSYCH 4570	Pediatric Neuropsychology	3
PSYCH 2820	Minds, Brains, and Machines	3

Note: A student may not receive credit for PSYCH 2210 if it is taken after PSYCH 4210.

## Psychology Electives (2000-level) 6 credit hours

Students must complete two psychology elective courses numbered 2000 or above, excluding Special Problems/Readings (i.,e., PSYCH 2950, PSYCH 4950, PSYCH 4960), Internship PSYCH 4940, and Capstone Labs.

## Foreign Language Alternative for students pursuing a Bachelor of Science in Psychology

Students pursuing the Bachelor of Science in Psychology may opt to satisfy the foreign language requirement through approved alternative coursework consisting of at least 12 credits in courses numbered 2000 or above from any combination of the following subjects: Arabic, Chinese, French, German, Hebrew, Italian, Japanese, Korean, Portuguese, Russian, South Asian Studies, and/or Spanish. These courses may not be used to satisfy other degree requirements with the exception of the Writing Intensive requirement. Students should note that the option of a Foreign Language Alternative is applicable specifically to the Bachelor of Science in Psychology. The foreign language requirement for the Bachelor of Arts in Psychology is 12 to 13 hours of a single foreign language sequence.

## Approved Science Course Tracks

Psychology Bachelor of Science students must complete 12 credit hours of approved science coursework in one of the following five approved areas: Biological Sciences, Chemistry, Computer Science, Mathematics, or Statistics. Course grades must be a C or higher. No C- or lower will be accepted.

## Biological Sciences Track

### Required Core: (5 hours)

BIO_SC 1500	Introduction to Biological Systems with Laboratory	5
OR		
BIO_SC 1500H	Introduction to Biological Systems with Laboratory Honors	5
OR		
BIO_SC 1010 & BIO_SC 1020	General Principles and Concepts of Biology and General Biology Laboratory (with grades of A- or better)	5

### Additional Approved Coursework (at least 7 credit hours from the list below)

BIO_SC 2200	General Genetics	4
BIO_SC 2200H	General Genetics - Honors	4

BIO_SC 2300	Introduction to Cell Biology	4
BIO_SC 2300H	Introduction to Cell Biology- Honors	4
BIO_SC 2300HW	Introduction to Cell Biology - Honors/ Writing Intensive	4
BIO_SC 3400	Evolution and Ecology	3
BIO_SC 3700	Animal Physiology	5
BIO_SC 4500	Neurobiology	3
BIO_SC 4600	Evolution	3
BIO_SC 4640	Behavioral Biology	3-4
BIO_SC 4986	Neurology of Motor Systems	3
BIO_SC 4988	Nerve Cells and Behavior	3
MPP 3202	Elements of Physiology	5

## Chemistry Track

### Required Core: (6 to 8 hours)

#### Prior to Fall Semester 2013: CHEM 1310 (2 hours) and CHEM 1320 or CHEM 1320H (3 hours) and CHEM 1330 or CHEM 1330H (3 hours)

CHEM 1320 & CHEM 1330	College Chemistry I and College Chemistry II	8
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#### OR

CHEM 1320H & CHEM 1330H	College Chemistry I - Honors and College Chemistry II- Honors	8
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#### Beginning in Fall Semester 2013: CHEM 1320 or CHEM 1320H (4 hours) and CHEM 1330 or CHEM 1330H (4 hours)

CHEM 1320 & CHEM 1330	College Chemistry I and College Chemistry II	8
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#### OR

CHEM 1320H & CHEM 1330H	College Chemistry I - Honors and College Chemistry II- Honors	8
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#### Additional Approved Coursework (at least 4 to 6 credit hours from list below)

CHEM 2100	Organic Chemistry I	3
CHEM 2110	Organic Chemistry II	3
CHEM 2130	Organic Laboratory I	2
CHEM 2140	Organic Laboratory II	2
CHEM 2170H	Honors Organic Chemistry II with Lab - Honors	5
CHEM 2400	Fundamentals of Inorganic Chemistry with Lab	3
CHEM 3200	Quantitative Methods of Analysis with Lab	4
CHEM 3300	Fundamentals of Physical Chemistry (OR CHEM 3310 Physical Chemistry)	3
CHEM 4170	Medicinal Chemistry	3
CHEM 4400	Inorganic Chemistry	3

## Computer Science Track

### Required Core: (8 hours):

CMP_SC 1050	Algorithm Design and Programming I	4
CMP_SC 2050	Algorithm Design and Programming II	4

### Additional Approved Coursework (at least 6 credit hours from list below)

CMP_SC 2270	Introduction to Logic Systems (Prior to SP14 course was numbered 3270)	3
CMP_SC 2830	Web Application Development I	3

CMP_SC 3380	Database Applications and Information Systems	3
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### Mathematical Sciences Track

**Required Courses: (The Math Track requires 13 credit hours):**

MATH 1500	Analytic Geometry and Calculus I	5
OR		
MATH 1500H	Analytic Geometry and Calculus I - Honors	5
MATH 1700	Calculus II	5
OR		
MATH 1700H	Calculus II - Honors	5
MATH 2300	Calculus III	3
OR		
MATH 2300H	Calculus III - Honors	3

### Statistics Track

**Required Core: (6 hours)**

STAT 3500	Introduction to Probability and Statistics II	3
STAT 4710	Introduction to Mathematical Statistics	3

**Additional Approved Coursework (at least 6 credit hours from list below)**

STAT 4110	Statistical Software and Data Analysis	3
STAT 4150	Applied Categorical Data Analysis	3
STAT 4210	Applied Nonparametric Methods	3
STAT 4310	Sampling Techniques	3
STAT 4410	Biostatistics and Clinical Trials	3
STAT 4510	Applied Statistical Models I	3
STAT 4560	Applied Multivariate Data Analysis	3
STAT 4830	Categorical Data Analysis	3

Note: Students completing this track must complete additional math courses to meet the pre-req's for STAT 4710. Students will complete MATH 1160 OR MATH 1100 and MATH 1140 and MATH 1500, MATH 1700 and MATH 2300 in sequence as prerequisites to STAT 4710.

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available. Psychology majors are required to earn a C or higher (no C- or below) in all Psychology courses, including STAT 2500 or STAT 1200 and STAT 2200 or STAT 1400 and STAT 2200 and all Science Track courses.

First Year			
Fall	CR	Spring	CR
ENGLISH 1000 <sup>+</sup>		3 AGH: Social Science Course <sup>+</sup>	3
MATH 1100 <sup>+</sup>		3 Behavioral Science <sup>+</sup>	3
PSYCH 1000 <sup>^</sup>		3 B.S. Science Track Course <sup>^+</sup>	3-5
Social Science Course <sup>+</sup>		3 Humanities Course <sup>+</sup>	3
Humanities Course <sup>+</sup>		3 Psych Cognitive/Neuroscience Distribution Course <sup>^</sup>	3
		15	15-17

Second Year			
Fall	CR	Spring	CR
Behavioral Science (2000+ A&S approved) <sup>+</sup>		3 B.S. Science Track Course	3-5

Biological/Physical/Mathematics Science Course (with LAB) <sup>^+</sup>	5 Biological/Physical/Mathematics Science Course	1
B.S. Science Track Course <sup>^</sup>	3-5 Humanities (2000+ A&S approved) <sup>+</sup>	3
STAT 1200	3 Psych Cognitive/Neuroscience Distribution Course <sup>^</sup>	3
1000+ elective	1 Psych Clinical/Social/Developmental Distribution Course <sup>^</sup>	3
	PSYCH 3010 <sup>^</sup>	3
		15-17
		16-18

Third Year			
Fall	CR	Spring	CR
A&S Diversity Requirement <sup>+</sup>		3 Foreign Language + 1 <sup>^+</sup>	4
B.S. Science Track Course (if necessary) <sup>^</sup>		3 PSYCH 3020 <sup>^</sup>	3
Humanities Course (Writing Intensive) <sup>+</sup>		3 Social Science (2000+) <sup>+</sup>	3
Psy 3000+ elective <sup>^</sup>		3 1000+ elective	1
STAT 2200		1 1000+ elective	3
3000+ elective		3	
		16	14

Fourth Year			
Fall	CR	Spring	CR
Biological/Physical/Mathematics Science Course		3 Foreign Language + 3 <sup>^+</sup>	4
Foreign Language + 2 <sup>^+</sup>		4 Psych 4000+ elective <sup>^</sup>	3
Psy Capstone (Writing Intensive) <sup>^+</sup>		3 3000+ elective	3
Psych Clinical/Social/Developmental Distribution Course (3000+) <sup>^</sup>		3 3000+ elective	3
3000+ elective		3	
		16	13

Total Credits: 120-126

- <sup>^</sup> Course meets degree program requirement.
- <sup>+</sup> Course meets University General Education and/or campus graduation requirement.
- <sup>+</sup> Course meets College of Arts & Science foundation (Basic Skills)

## Minor in Psychology

### Requirements

The psychology minor requires at least 15 credits in PSYCH courses, distributed as shown below. Students must receive a grade of 'C' or better in all courses required for the minor. Grades of 'C-' will not be accepted. S/U graded courses will not be accepted except for approved study abroad coursework. A total of 9 hours of transfer credit will be accepted toward the minor. Note: Psych 1000 AP credit is not considered to be transfer credit. Students can count applicable psychology minor coursework to meet general education foundation requirements. Waiting lists for all closed undergraduate psychology courses begin on the Monday before classes begin. Priority is given to graduating students, including psychology minors.



PSYCH 1000	General Psychology	3
Two PSYCH courses (3 hours each) numbered at least 2000 level or above. Courses may be online or on-campus or non-regularly scheduled. Non-regularly scheduled courses include Internships (PSYCH 4940), Special Problems (PSYCH 2950 and PSYCH 4950), and Special Readings (PSYCH 4960).		6
Two PSYCH courses (3 hours each) numbered 3000 or 4000 level, excluding Internships (PSYCH 4940), Special Problems (PSYCH 4950), and Special Readings (PSYCH 4960).		6
<b>Total Credits</b>		<b>15</b>

A minor must be completed and awarded at the same time as the MU undergraduate degree – minors cannot be claimed after graduation. Once a psychology minor is awarded, a student cannot return to MU to complete a second undergraduate major in psychology. Students cannot earn a major and a minor in psychology.

### Contact Information

Contact the Psychology Advising Office for more information (573-884-3811.)

## MA in Psychology

### Degree Requirements

The MA in Psychology is typically completed as part of a student's normal progress through the doctoral program. Students are accepted into the MA program under the expectation that they will continue to doctoral study in our department. We do not admit students seeking a terminal master's degree, except for the MA with an emphasis in Quantitative Psychometrics (p. 306).

The MA in Psychology requirements are (1) 30 credit hours, including research credit and the student's distribution courses, (2) a thesis, and (3) a final oral examination on the thesis research. Although only 30 hours are required to earn the master's degree, MA students are expected to successfully complete a subset of courses that will meet the PhD requirements of 9 hours of distribution courses, 11 hours in statistics and 24 hours in the area of concentration.

More detailed information about the rules and regulations for degree completion can be found in the Department of Psychological Sciences Graduate Student Handbook (<https://psychology.missouri.edu/grad/handbooks-and-forms/>).

### Financial Aid from the Program

Financial aid is available through departmental research and teaching assistantships and from university fellowships.

### Admission Criteria

Fall deadline: December 1

- Minimum GPA: 3.0
- Minimum GRE score: no minimum, subject test is strongly recommended
- Minimum TOEFL scores:
  - Internet-based (iBT): 80
  - Paper-based (PBT): 550

An interview is required for admission.

Most students accepted have an undergraduate major in psychology or its equivalent. Acceptance is based on training, quality of work,

recommendations, GRE scores and other information. For additional information on admission requirements, consult *Graduate Study in Psychology and Associated Fields*, published annually by the American Psychological Association and available in most libraries.

### Required Application Materials

Note: Submit all application materials directly to the Graduate School

- Graduate School online application (<https://applygrad.missouri.edu/apply/>) including:
- Faculty interest document (available at department website)
- Statement of purpose
- Writing sample
- Three letters or recommendation
- One unofficial copy of each college transcript where a degree was earned or is pending
- Official GRE score report (subject test report recommended)
- Official TOEFL score (if applicable)

#### Admission Contact Information

Graduate Student Services  
 gradpsych@missouri.edu  
 210 McAlester Hall  
 Columbia, MO 65211  
 (573) 884-8141  
 (573) 882-7710 (fax)

## MA in Psychology with Emphasis in Child Development and Developmental Psychology

Students in the dual emphasis program pursue a graduate degree with training in both clinical (child track) and developmental psychology. This program provides training in the area of developmental psychopathology, which bridges the two areas of developmental psychology and child-clinical psychology.

The MA degree is typically completed as part of a student's normal progress through the doctoral program. Students are accepted into the MA program under the expectation that they will continue to doctoral study in our department. We do not admit students seeking a terminal master's degree in this emphasis area.

### Degree Requirements

The requirements are (1) 30 credit hours, including research credit and the student's distribution courses, (2) a thesis, and (3) a final oral examination on the thesis research. Although only 30 hours are required to earn the master's degree, MA students are expected to successfully complete a subset of courses that will meet the PhD requirements of 9 hours of distribution courses, 11 hours in statistics, and 24 hours in the area of concentration.

More detailed information about the rules and regulations for degree completion can be found in the Department of Psychological Sciences Graduate Student Handbook (<https://psychology.missouri.edu/grad/handbooks-and-forms/>).

## Admissions

Please refer to the admission requirements for the MA in Psychology (p. 304). Students are only accepted for the PhD in Psychology and the MA is earned as a secondary degree en route to the PhD.

## MA in Psychology with Emphasis in Clinical Psychology

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The Clinical Psychology program is accredited by the American Psychological Association and by the Psychological Clinical Science Accreditation System and is a member of the Academy of Psychological Clinical Science. The Clinical program follows a clinical science model of training. Central to this model is a commitment:

1. to using an empirical approach to understand, ameliorate, and prevent human problems in behavior, affect, cognition, and health;
2. to promoting adaptive human functioning; and
3. to disseminating and applying knowledge in ways consistent with scientific evidence.

The Clinical program prepares students for careers involving production, dissemination and support of clinical science research. Clinical faculty and students are active in research and scholarship that advances understanding of the symptoms, causes, course, treatment, and prevention of many of our nation's most distressing and impairing mental/behavioral health issues (e.g. addictions, anxiety, developmental disorders, juvenile delinquency, mood instability and disorders, schizophrenia) in youth and adults.

The MA degree is typically completed as part of a student's normal progress through the doctoral program. Students are accepted into the MA program under the expectation that they will continue to doctoral study in our department. We do not admit students seeking a terminal master's degree in this emphasis area.

## Degree Requirements

The requirements are (1) 30 credit hours, including research credit and the student's distribution courses, (2) a thesis, and (3) a final oral examination on the thesis research. Although only 30 hours are required to earn the master's degree, MA students are expected to successfully complete a subset of courses that will meet the PhD requirements of 9 hours of distribution courses, 11 hours in statistics and 24 hours in the area of concentration.

More detailed information about the rules and regulations for degree completion can be found in the Department of Psychological Sciences Graduate Student Handbook (<https://psychology.missouri.edu/grad/handbooks-and-forms/>).

## Admissions

Please refer to the admission requirements for the MA in Psychology (p. 304). Students are accepted for the PhD in Psychology and the MA is earned as a secondary degree en route to the PhD.

## MA in Psychology with Emphasis in Cognition and Neuroscience

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The faculty and students in the Cognition and Neuroscience Training Area explore the interactions among mind, brain and behavior from individual and biological levels of analysis. Graduate training provides

students with a thorough background in psychology, statistics and scientific methodology, through course work and participation in ongoing research. Students are expected to be actively engaged in faculty-mentored and independent research projects throughout their training.

Faculty and students in cognition and neuroscience investigate a variety of topics in human cognition, cognitive neuroscience, learning and memory, and behavioral neuroscience and use human and animal models. Our researchers investigate the structure and function of the nervous systems and its impact on behavior in brain imaging, psychophysiology and neuropharmacology experiments. Studies survey human memory, intelligence and sensorimotor function across the lifespan and the impact of physical and psychological disorders on these processes. Animal research examines motivation, learning and the biological basis of human psychopathologies.

The MA degree is typically completed as part of a student's normal progress through the doctoral program. Students are accepted into the MA program under the expectation that they will continue to doctoral study in our department. We do not admit students seeking a terminal master's degree in this emphasis area.

## Degree Requirements

The requirements are (1) 30 credit hours, including research credit and the student's distribution courses, (2) a thesis, and (3) a final oral examination on the thesis research. Although only 30 hours are required to earn the master's degree, MA students are expected to successfully complete a subset of courses that will meet the PhD requirements of 9 hours of distribution courses, 11 hours in statistics and 24 hours in the area of concentration.

More detailed information about the rules and regulations for degree completion can be found in the Department of Psychological Sciences Graduate Student Handbook (<https://psychology.missouri.edu/grad/handbooks-and-forms/>).

## Admissions

Please refer to the admission requirements for the MA in Psychology (p. 304). Students are only accepted for the PhD in Psychology and the MA is earned as a secondary degree en route to the PhD.

## MA in Psychology with Emphasis in Developmental Psychology

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Developmental psychology is the scientific study of social, cognitive and physical development over time. The Developmental Psychology doctoral program offers a strong background in statistics and research methodology and intensive research mentoring. Graduate students engage in research with their primary advisor beginning in their first semester in the program and take supporting coursework.

The MA degree is typically completed as part of a student's normal progress through the doctoral program. Students are accepted into the MA program under the expectation that they will continue to doctoral study in our department. We do not admit students seeking a terminal master's degree in this emphasis area.

## Degree Requirements

The requirements are (1) 30 credit hours, including research credit and the student's distribution courses, (2) a thesis, and (3) a final oral examination on the thesis research. Although only 30 hours are required

to earn the master's degree, MA students are expected to successfully complete a subset of courses that will meet the PhD requirements of 9 hours of distribution courses, 11 hours of statistics and 24 hours in the area of concentration.

More detailed information about the rules and regulations for degree completion can be found in the Department of Psychological Sciences Graduate Student Handbook (<https://psychology.missouri.edu/grad/handbooks-and-forms/>).

## Admissions

Please refer to the admission requirements for the MA in Psychology (p. 304). Students are only accepted for the PhD in Psychology and the MA is earned as a secondary degree en route to the PhD.

# MA in Psychology with Emphasis in Quantitative Psychometrics

## Degree Requirements

A minimum of 35 hours of graduate-level courses in psychometrics, applied statistics, and computing is required for the M.A. in Psychology with an emphasis in Quantitative Psychometrics. Twenty-three credit hours are required courses, and 12 are electives. Students must complete 30 hours of advanced study at the University of Missouri to receive the degree. This means that a maximum of six hours of graduate coursework taken elsewhere can count toward the master's degree. Such transfer of credit must be recommended by the student's advisor and approved by the director of graduate studies.

### Required Courses

PSYCH 8710	General Linear Models in Psychology I	4
PSYCH 8720	General Linear Models in Psychology II	4
PSYCH 9720	Latent Variable Models in Statistical Analysis	3
PSYCH 9780	Item Response Theory I	3
	Item Response Theory II	3
	Advanced Topics in Psychometrics	3
	Computing in SAS and R	3

### Elective Courses (12 credits)

PSYCH 9710	Multivariate Statistics in Psychology	3
PSYCH 9715	Multilevel Modeling	3
PSYCH 9735	Psychological Process Models	3
PSYCH 9750	Advanced Structural Equation Modeling	3
PSYCH 9760	Categorical Data Analysis	3
PSYCH 9765	Cluster Analysis and Network Analysis	3

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MA in Psychology program with an emphasis in Quantitative Psychometrics (<https://gradstudies.missouri.edu/degreecategory/psychology/>) and the minimum requirements of the Graduate School (<https://gradstudies.missouri.edu/admissions/eligibility-process/>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

# MA in Psychology with Emphasis in Social/Personality Psychology

Social/Personality psychology offers training in the traditional areas of social and personality psychology, as well as their relevance for several applied areas including health psychology. This Social/Personality area integrates the psychology of the person and the situation, with the goal of understanding the psychological processes that underlie people's emotions, motivations, beliefs, actions and decisions.

Training focuses on the multi-faceted view of social behavior from three levels:

1. the individual level;
2. the contextual level (or social level); and
3. the interaction of the individual and the contextual levels.

All three levels are vital to fully understanding human psychology. Particular research foci in the area include the sources of motivation, both individual and social; the nature of meaning-making, both existential and interpersonal; the determinants of optimal and destructive functioning, both within and between groups and in relationships; and the causes and consequences of psychological well-being, growth, and defense.

The MA degree is typically completed as part of student's normal progress through the doctoral program. Students are accepted in the MA program under the expectation that they will continue to doctoral study in our department. We do not admit students seeking a terminal master's degree in this emphasis area.

## Degree Requirements

The requirements are (1) 30 credit hours, including research credit and the student's distribution courses, (2) a thesis, and (3) a final oral examination on the thesis research. Although only 30 hours are required to earn the master's degree, MA students are expected to successfully complete a subset of courses that will meet the PhD requirements of 9 hours of distribution courses, 11 hours in statistics and 24 hours in the area of concentration.

More detailed information about the rules and regulations for degree completion can be found in the Department of Psychological Sciences Graduate Student Handbook (<https://psychology.missouri.edu/grad/handbooks-and-forms/>).

## Admissions

Please refer to the admission requirements for the MA in Psychology (p. 304). Students are only accepted for the PhD in Psychology and the MA is earned as a secondary degree en route to the PhD.

# PhD in Psychology

## Degree Requirements

The PhD qualifying examination requirement is satisfied by successful completion of the MA degree. A master's degree with an empirical thesis is required for doctoral study. The master's with thesis is typically completed as part of a student's normal progress through the doctoral program.

General requirements for the PhD include nine hours of distribution courses, 11 hours in statistics, 24 hours in the area of concentration, other elective courses, and research. Students must earn 83 hours

to graduate with the PhD. Practica, internship and additional course work are required for the clinical program. Other requirements include a dissertation and comprehensive and final oral examinations. More detailed information about the rules and regulations for degree completion can be found in the Department of Psychological Sciences Graduate Student Handbook.

## Students with Degrees from Other Universities

Students who enter the doctoral program with a master's (thesis) degree from another university can satisfy the MA requirement at this university by having their thesis and course work approved by a three-member thesis committee. The committee must be composed of one faculty member from the student's training area, one faculty member from another training area, and one MU faculty member from outside the department. Those entering the department with a master's degree obtained without an empirical thesis may meet this requirement by conducting an investigation under the supervision of their advisor and having the resulting thesis approved by a three-member committee with the composition identified above.

## Financial Aid from the Program

Financial aid is available through departmental research and teaching assistantships and from university fellowships.

## Admission Criteria

Fall deadline: December 1

- Minimum GPA: 3.0
- Minimum GRE score: no minimum, subject test is strongly recommended
- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
61 Effective July 1, 2015 must have score of 80	500 Effective July 1, 2015 must have score of 550

An interview is required for admission. Students earn an MA en route to the PhD, but we do not admit students seeking a terminal master's degree.

Most students accepted have an undergraduate major in psychology or its equivalent. Acceptance is based on training, quality of work, recommendations, GRE scores and other information. For additional information on admission requirements, consult Graduate Study in Psychology and Associated Fields, published annually by the American Psychological Association and available in most libraries.

## Required Application Materials

Note: *Submit all application materials directly to the Graduate School*

- Graduate School online application including:
- Faculty interest document (available at department website)
- Statement of purpose
- Writing sample
- Three letters of recommendation
- One unofficial copy of each college transcript where a degree was earned or is pending

- Official GRE score report (subject test report recommended)
- Official TOEFL score (if applicable)

### Admission Contact Information

Graduate Student Services  
gradpsych@missouri.edu  
210 McAlester Hall  
Columbia, MO 65211  
(573) 884-8141  
(573) 882-7710 (fax)

## PhD in Psychology with Emphasis in Child Clinical and Developmental Psychology

Students in the Dual Emphasis Program pursue a graduate degree with training in both clinical (child track) and developmental psychology. This program provides training in the area of developmental psychopathology, which bridges the two areas of developmental psychology and child-clinical psychology.

## Degree Requirements

- 83 total hours of coursework
- Distribution courses from four different content area, including abnormal psychology, biological foundations, cognition and learning, developmental psychology, motivation and personality, and social psychology (12 hours)
- Training area courses (24 hours)
- Statistics (9 hours)
- Ethics and Professional Issues (1 hour)
- Completion of Masters
- Completion of comprehensive examination
- A written doctoral dissertation
- Oral examination on thesis research

## Admissions

To pursue the joint program, students must be officially admitted into both the clinical and developmental training areas within the Department of Psychological Sciences and complete requirements for both areas. Students should initially apply and be admitted to just one training area, either the clinical or developmental area. Once they have successfully completed the first year in that training area, they may apply to the second area.

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Psychology program (<https://gradstudies.missouri.edu/degreecategory/psychology/>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

## PhD in Psychology with Emphasis in Clinical and Quantitative Psychology

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Students in the Dual Emphasis Program pursue a graduate degree with training in both clinical and quantitative psychology. This program bridges the two training areas, combining intensive training in the area of quantitative psychology with the added benefit of intensive training in the research and practice of clinical psychology.

### Degree Requirements

- 83 total hours of coursework
- Distribution courses from four different content area, including abnormal psychology, biological foundations, cognition and learning, developmental psychology, motivation and personality, and social psychology (12 hours)
- Training area courses (24 hours)
- Statistics (9 hours)
- Ethics and Professional Issues (1 hour)
- Completion of Masters
- Completion of comprehensive examination
- A written doctoral dissertation
- Oral examination on thesis research

### Admissions

To pursue the joint program, students must be officially admitted into both the clinical and quantitative training areas within the Department of Psychological Sciences and complete the requirements for both areas.

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Psychology program (<https://gradstudies.missouri.edu/degrecategory/psychology/>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

## PhD in Psychology with Emphasis in Clinical Psychology

---

The Clinical Psychology program is accredited by the American Psychological Association and by the Psychological Clinical Science Accreditation System, and is a member of the Academy of Psychological Clinical Science. The Clinical program follows a clinical science model of training. Central to this model is a commitment:

1. to using an empirical approach to understand, ameliorate, and prevent human problems in behavior, affect, cognition, and health;
2. to promoting adaptive human functioning; and
3. to disseminating and applying knowledge in ways consistent with scientific evidence.

The Clinical program prepares students for careers involving production, dissemination and support of clinical science research. Clinical faculty and students are active in research and scholarship that advances understanding of the symptoms, causes, course, treatment, and prevention of many of our nation's most distressing and impairing mental/behavioral health issues (e.g., addictions, anxiety, developmental disorders, juvenile delinquency, mood instability and disorders, schizophrenia) in youth and adults. Students work primarily with core clinical faculty, but may also collaborate with researchers throughout the department and in other campus and community units (e.g., health psychology, Psychiatry, engineering, Thompson Center for Autism and Developmental Disabilities, Fulton State Hospital, Psychological Services Clinic).

Students also develop clinical skills in empirically supported approaches to assessment, prevention and intervention. The Clinical program maintains its own community-based outpatient clinic (the Psychological Services Clinic or PSC) as the primary practicum training site for students in the clinical program. The PSC is staffed by doctoral-level clinical psychologists and clinical graduate students, and it serves a broad range of clients through individual, couple, family, and group assessment and therapy services. The PSC also offers training in specialty services through its Dialectical Behavior Therapy program, Strategies Targeting Alcohol Responsibility program, and MU Center for Evidence-Based Youth Mental Health and Multisystemic Therapy program. Additional clinical experiences are available through paid or volunteer positions at institutions such as Fulton State Hospital, University Hospitals and Clinics, and the Thompson Center.

After completing high quality internships, typically at medical centers, VAs, or university research centers, graduates are employed in positions that involve research, teaching and service in universities, medical centers, clinics, hospitals and similar agencies.

### Degree Requirements

- 83 total hours of coursework
- Distribution courses from four different content area, including abnormal psychology, biological foundations, cognition and learning, developmental psychology, motivation and personality, and social psychology (12 hours)
- Training area courses (24 hours)
- Statistics (9 hours)
- Ethics and Professional Issues (1 hour)
- Completion of Masters
- Completion of comprehensive examination
- A written doctoral dissertation
- Oral examination on thesis research

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Psychology program (<https://gradstudies.missouri.edu/degrecategory/psychology/>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed

by both the Graduate School and the degree program to which you've applied.

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## PhD in Psychology with Emphasis in Cognition and Neuroscience

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The faculty and students in the Cognition and Neuroscience Training Area explore the interactions among mind, brain and behavior from individual and biological levels of analysis. Graduate training provides students with a thorough background in psychology, statistics and scientific methodology, through course work and participation in ongoing research. Students are expected to be actively engaged in faculty-mentored and independent research projects throughout their training.

Faculty and students in cognition and neuroscience investigate a variety of topics in human cognition, cognitive neuroscience, learning and memory, and behavioral neuroscience and use human and animal models. Our researchers investigate the structure and function of the nervous system and its impact on behavior in brain imaging, psychophysiology and neuropharmacology experiments. Studies survey human memory, intelligence and sensorimotor function across the lifespan and the impact of physical and psychological disorders on these processes. Animal research examines motivation, learning and the biological basis of human psychopathologies.

### Degree Requirements

- 83 total hours of coursework
- Distribution courses from four different content area, including abnormal psychology, biological foundations, cognition and learning, developmental psychology, motivation and personality, and social psychology (12 hours)
- Training area courses (24 hours)
- Statistics (9 hours)
- Ethics and Professional Issues (1 hour)
- Completion of Masters
- Completion of comprehensive examination
- A written doctoral dissertation
- Oral examination on thesis research

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Psychology program (<https://gradstudies.missouri.edu/degreecategory/psychology/>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

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## PhD in Psychology with Emphasis in Developmental Psychology

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Developmental psychology is the scientific study of social, cognitive, and physical development over time. The Developmental Psychology doctoral program offers a strong background in statistics and research methodology and intensive research mentoring. Graduate students engage in research with their primary advisor beginning in their first semester in the program and take supporting coursework.

### Degree Requirements

- 83 total hours of coursework
- Distribution courses from four different content area, including abnormal psychology, biological foundations, cognition and learning, developmental psychology, motivation and personality, and social psychology (12 hours)
- Training area courses (24 hours)
- Statistics (9 hours)
- Ethics and Professional Issues (1 hour)
- Completion of Masters
- Completion of comprehensive examination
- A written doctoral dissertation
- Oral examination on thesis research

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Psychology program (<https://gradstudies.missouri.edu/degreecategory/psychology/>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

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## PhD in Psychology with Emphasis in Quantitative Psychology

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The goal of the PhD program with emphasis in quantitative psychology is to produce researchers who are able to develop, evaluate, and apply advanced methodological techniques to psychological research questions. The program offers considerable diversity in faculty research and coursework offerings; our substantive interests span clinical, social, health, developmental, and cognitive psychology. Quantitative areas of expertise cover a range of linear and non-linear approaches to modeling, as well as meta-analysis, time series, state-space models, and issues in large-scale data management.

Students in quantitative psychology complete course work in mathematical statistics, experimental design, and measurement, as well as courses in quantitative methods. Students can acquire extensive

experience as statistical consultants through specific coursework in statistical consultation. Program requirements are fairly flexible, and students with particular interests in a substantive area of psychology are encouraged to take advanced courses in that area. Quantitative course offerings focus both on classic analytic methods as well as advanced techniques such as structural equation modeling, multilevel modeling, and meta-analysis.

Strong ties exist between the Department of Psychological Sciences and the Department of Statistics, and students may opt to complete a master's degree in statistics as they progress through the PhD program. In addition, students have the opportunity to gain experience as statistical consultants through specific coursework in this area.

On-going projects conducted by the faculty include research in meta-analytic and secondary analysis techniques, structural equation modeling, particularly as applied to longitudinal models of change and growth, multilevel modeling, and mathematical and statistical models of cognition and perception.

## Degree Requirements

- 83 total hours of coursework
- Distribution courses from four different content area, including abnormal psychology, biological foundations, cognition and learning, developmental psychology, motivation and personality, and social psychology (12 hours)
- Training area courses (24 hours)
- Statistics (9 hours)
- Ethics and Professional Issues (1 hour)
- Completion of Masters
- Completion of comprehensive examination
- A written doctoral dissertation
- Oral examination on thesis research

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Psychology program (<https://gradstudies.missouri.edu/degreecategory/psychology/>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

## PhD in Psychology with Emphasis in Social/Personality Psychology

Social/Personality psychology offers training in the traditional areas of social and personality psychology, as well as their relevance for several applied areas including health psychology. This Social/Personality area integrates the psychology of the person and the situation, with the goal of understanding the psychological processes that underlie people's emotions, motivations, beliefs, actions, and decisions.

Training focuses on the multi-faceted view of social behavior from three levels:

1. the individual level;
2. the contextual level (or social level); and
3. the interaction of the individual and the contextual levels.

All three levels are vital to fully understanding human psychology. Particular research foci in the area include the sources of motivation, both individual and social; the nature of meaning-making, both existential and interpersonal; the determinants of optimal and destructive functioning, both within and between groups and in relationships; and the causes and consequences of psychological well-being, growth, and defense.

## Degree Requirements

- 83 total hours of coursework
- Distribution courses from four different content area, including abnormal psychology, biological foundations, cognition and learning, developmental psychology, motivation and personality, and social psychology (12 hours)
- Training area courses (24 hours)
- Statistics (9 hours)
- Ethics and Professional Issues (1 hour)
- Completion of Masters
- Completion of comprehensive examination
- A written doctoral dissertation
- Oral examination on thesis research

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Psychology program (<https://gradstudies.missouri.edu/degreecategory/psychology/>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

## Public Affairs

Public Affairs Graduate Programs  
Harry S Truman School of Public Affairs  
101 Middlebush Hall, Columbia, Missouri 65211  
573-884-1656

Email: [truman@missouri.edu](mailto:truman@missouri.edu)  
Website: [truman.missouri.edu \(https://truman.missouri.edu/\)](https://truman.missouri.edu/)

Established by the University of Missouri Board of Curators in May 2001, the Harry S Truman School of Public Affairs is dedicated to the advancement of study and practice of governance in the state, nation and world. The School offers graduate degrees and certificates in the theory and practice of public and nonprofit management, and public policy.

In keeping with Harry S Truman's legacy, TSPA has numerous international linkages. Truman School students and alumni have served as Peace Corps volunteers, United Nations interns, in the US State

Department, other national consulates or embassies in Washington, and international non-government organizations (NGOs) such as the Red Cross/Red Crescent. Truman School faculty members participate in international projects in Europe, Asia, Africa, and South America. Scholars from Europe, Asia, and other parts of the world regularly visit the Truman School, helping to inform curriculum and classroom discussions.

**About the Study of Public Affairs**

The Harry S Truman School of Public Affairs offers certificates, master's and doctoral degrees in public and nonprofit management and public policy. MPA students are prepared for careers in public service that span government, nonprofit, and private sectors. PhD students are trained for careers in academic and research institutions.

**Faculty**

- Professor:** L. Keiser\*\*, P. Mueser\*\*
- Professor Emeritus:** G. Adams, M. Diamond, T. Johnson, J. Stallmann, B. Wechsler
- Associate Professor:** I. Arteaga\*\*, C. Koedel\*\*, R. McGarvey\*\*, M. Stegmaier\*\*
- Associate Professor Emeritus:** C. Sampson
- Assistant Professor:** C. Altman\*\*, O. Gurantz\*\*, J. Haselswerdt\*, A. Hur\*, B. Kisida\*\*, S. Kitch\*, D. Switzer\*, W. Wang\*
- Assistant Teaching Professor:** A. Hull\*, K. Miller\*
- Associate Extension Professor:** M. White
- Assistant Extension Professor:** R. Russell

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.  
 \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

**Undergraduate**

While MU does not offer undergraduate degrees specifically in public affairs, the University does offer baccalaureate opportunities in a number of related areas in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 20).

**Graduate**

- MPA in Public Affairs (p. 311)
- PhD in Public Affairs (p. 312)

Harry S Truman School of Public Affairs  
 Email: truman@missouri.edu  
 101 Middlebush Hall  
 Columbia, Missouri 65211  
 573-884-1656  
 truman.missouri.edu (<http://truman.missouri.edu/>)

The Harry S Truman School of Public Affairs offers master's and doctoral degrees in public and nonprofit management and public policy. MPA students are prepared for careers in public service that span government, nonprofit, and private sectors. PhD students are trained for careers in academic and research institutions.

**Cooperative Dual Degrees:**  
 Master of Public Affairs and Juris Doctorate

Master of Public Affairs and Master of Public Health  
 Master of Public Affairs and Master of Health Administration

Graduate Certificates (<https://truman.missouri.edu/future-students/graduate-certificate-description/>):

- Community Processes
- Global Public Affairs\*
- Grantsmanship\*
- Nonprofit Management
- Organizational Change and Conflict Management
- Public Management
- Public Policy

\* Note: The Truman School is temporarily not accepting applications for certificate programs in Global Public Affairs and Grantsmanship.

**MPA in Public Affairs**

MU Truman School of Public Affairs students study with outstanding faculty, who are talented teachers as well as active, nationally recognized scholars. Policy forums, round-tables with policy makers, lectures by distinguished visiting scholars, and research symposia also enrich student learning. Small classes taught both on campus and in Jefferson City, the state's capital, make for a lively learning environment. The Truman School MPA program provides a balance of public service values, interpersonal and analytic skills, and a thorough knowledge of administrative and policy processes.

**Degree Requirements**

Consisting of 36 hours of graduate work, the MPA program includes a core (18 hours), an area of specialization (15 hours) and an internship (3 hours). The areas of specialization are Nonprofit and Public Management, and Public Policy. Students with significant public service experience may have some courses waived, making the MPA program 30 hours for them. The MPA's Mid-Career option is available to students with 3-5 years of public service experience.

Core Courses		18
PUB_AF 8110	Introduction to Public and Nonprofit Management	
PUB_AF 8170	Public Policy Processes and Strategies	
PUB_AF 8180	Research Methods and Inquiry in Public Affairs I	
PUB_AF 8181	Research Methods and Inquiry in Public Affairs II	
PUB_AF 8210	Public Service and Democracy	
PUB_AF 8211	MPA Capstone (Applied Project)	
Area of Specialization		15
Internship		3

**Sample Plan of Study**

First Semester		
PUB_AF 8110	Introduction to Public and Nonprofit Management	3
PUB_AF 8170	Public Policy Processes and Strategies	3
PUB_AF 8180	Research Methods and Inquiry in Public Affairs I	3
Second Semester		
PUB_AF 8181	Research Methods and Inquiry in Public Affairs II	3



Specialization		3
Specialization		3
<b>Third Semester</b>		
Internship		3
PUB_AF 8210	Public Service and Democracy	3
Specialization		3
<b>Fourth Semester</b>		
PUB_AF 8211	MPA Capstone (Applied Project)	3
Specialization		3
Specialization		3

## Internship

Students without significant public sector work experience are required to complete a public service internship. Interns apply what they have learned during the first year in the program, plus they gain practical experience that enables deeper learning during second-year classes.

## Application and Admission Information

Admission to the Master of Public Affairs Program:

If you are not an active MU non-degree-seeking or graduate student, you will need to apply through the Graduate School online portal (<https://gradschool.missouri.edu/admissions/apply/>). You must be admitted to the Graduate School before you can enroll as a Truman School certificate student. There is a non-refundable application fee.

If you are an active MU student, please contact [truman@missouri.edu](mailto:truman@missouri.edu) for instructions.

## Admission Criteria

**Fall deadline:** Applications are reviewed on a rolling basis, with priority funding consideration given to those applications received by January 15. Applications received after this date will continue to be evaluated on a rolling basis.

- Minimum GPA: 3.0 in last 60 hours
- Competitive GRE scores
- Non-native English speakers must score at least a **550 on the paper-based TOEFL, 80 on the Internet-based TOEFL or 6.5 on the Academic IELTS**. In addition, it is expected that applicants will achieve **subsection minimums of no less than 17 on IBT, 52 on PBT or 6.0 on IELTS** (subsections: Reading, Listening, Speaking and Writing). Native English speakers are not required to submit TOEFL or IELTS scores. TOEFL and IELTS scores are considered valid for two years beyond the test date.

Admission to the MPA program is competitive and open to students holding baccalaureate degrees from accredited institutions and meeting admissions standards of the Truman School of Public Affairs and the Graduate School.

## Required Application Materials

All admission materials can be submitted through the Graduate School online portal. (<https://gradschool.missouri.edu/admissions/apply/>)

- 3 letters of recommendation (at least two academic-focused)
- TOEFL/IELTS score for non-native English speakers
- Résumé
- Statement of Interest

- Statement of Career Eligibility (required for Mid-Career and Mid-Career Online applicants only)
- Transcripts
- GRE optional

## Financial Aid From the Program

To be considered for funding from the Truman School (including a Graduate Research Assistantship and scholarships), please arrange to have all of your application materials submitted by the January 15 deadline. Contact the Truman School at (573) 884-1656 or [truman@missouri.edu](mailto:truman@missouri.edu) for more details.

## PhD in Public Affairs

### About the PhD Program in Public Affairs

The Harry S Truman School of Public Affairs at the University of Missouri offers an interdisciplinary PhD in Public Affairs that prepares graduates for careers in universities, colleges and applied research settings in the public, private and nonprofit sectors. Students complete core sequences in public policy and management as well as research methods, and specializations tailored to students' research interests.

### Degree Requirements

Below are the courses that would be in a typical doctoral program in Public Affairs. Courses chosen by an individual student can vary.

PUB_AF 8001	Topics in Public Affairs	3
PUB_AF 8180	Research Methods and Inquiry in Public Affairs I	3
PUB_AF 8190	Economic Analysis for Public Affairs	3
PUB_AF 9150	Governance and Public Affairs	3
PUB_AF 9160	Organization Studies in Public Affairs	3
PUB_AF 9170	Policy Theory	3
PUB_AF 9180	Advanced Research Methods for Public Affairs I	3
PUB_AF 9181	Advanced Research Methods for Public Affairs II	3
PUB_AF 9183	Public Affairs Research and Professional Development Seminar (x2)	1
Specialization Course		3
Methods electives		6
PUB_AF 9090	Dissertation	1-33

### Acceptance Criteria

In making its decision, the PhD committee considers:

- The applicant's record of academic achievement (Applicants typically have undergraduate GPAs higher than 3.0, and graduate GPAs higher than 3.5.)
- The quality of the written statement explaining why the applicant wants to pursue the degree
- The quality of the applicant's writing sample
- Evaluations contained in letters of recommendation
- Acceptable performance on the Graduate Record Examination (GRE). Applicants typically have combined scores of 310 or higher

- Results of a personal interview with the applicant in person or by telephone
- Other factors bearing upon the candidate's potential for success

## Application Procedure

1. Applications for the PhD program are accepted for fall entrance only. For a prospective student's application to be complete, the Truman School **must receive all required materials by January 4.**
2. Applicants are required to upload application materials to the MU Graduate School Application for Admission (<https://applygrad.missouri.edu/apply/>).
3. Official GRE/TOEFL/IELTS scores can be directed to institution code 6875, department code 2204.

## Required Application Materials

A student's application is complete when all of the following materials have been received.

- University of Missouri Graduate School online application (<https://applygrad.missouri.edu/apply/>) (application fee required)
- Statement of interest (500 words)
- Curriculum vitae/Résumé
- Writing sample
- Personal data sheet
- Three letters of recommendation
- Unofficial undergraduate and graduate transcripts (official will be required after admitted)
- Official Graduate Record Examination (GRE) score report (must be sent by ETS)
- Official TOEFL score report (must be sent by ETS; required of applicants whose native language is not English)

## Entrance Exams

- The Graduate Record Examination (GRE) is required of all applicants.
- Applicants whose native language is not English must achieve a score of 625 (107 iBT) in the Test of English as a Foreign Language (TOEFL).
- Use the following codes to submit test scores to the Truman School:
  - University of Missouri-Columbia Institution Code: 6875
  - Truman School Department Code: 2204

## Cost of Attendance and Financial Aid

Prospective students should visit the Graduate School's financial information (<https://gradschool.missouri.edu/funding/pay-your-bill/>) and support web page for current information about tuition and fees. The University's Office of Student Financial Aid (<https://financialaid.missouri.edu/>) provides information about other types of aid students can obtain, including federally financed student loans.

PhD Contact: Dr. Ron McGarvey  
(573) 882-9564  
[mccgarveyr@missouri.edu](mailto:mccgarveyr@missouri.edu)

## Religious Studies

Signe Cohen, Chair

College of Arts and Science  
221 A&S Building  
(573) 882-4769  
[rsinfo@missouri.edu](mailto:rsinfo@missouri.edu)  
<http://ReligiousStudies.missouri.edu>

## Faculty

**Associate Professors** S. M. Cohen\*, R. Gregory\*, N. Hofer\*, D. Kelley\*  
**Assistant Professors** D. Cohen\*

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BA in Religious Studies (p. 313)
- Minor in Religious Studies (p. 314)

The department's field of study includes religious expressions from many cultures and in every period of history. Systematic study of this rich world of expression employs the widest range of academic tools and competencies, from the skills of the literary critic and historian to the analytic abilities of the social scientist and anthropologist. Because of this broad base, study in the department promotes fundamental academic skills and critical judgment and provides deeper understanding of national and international cultures. Thus, the religious studies major provides students with a foundation to pursue careers in business, government, counseling, law, medicine and journalism, as well as advanced professional study in religion. The department offers BA and MA degrees with majors in Religious Studies. A minor is also available.

## Double Majors

Students are encouraged to pursue dual majors that combine religion with other interests.

## Graduate

While MU does not offer graduate degrees specifically in religious studies, the University does offer graduate degree opportunities in a number of related areas, both within the College of Arts and Science, and in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 20).

## BA in Religious Studies

### Degree Program Description

What do shamans, politicians, nurses, prophets, intellectuals, nuns, and soldiers have in common? They are all part of the Religious Studies curriculum at MU, which studies religion as a powerful influence in human life and history, shaping global cultures, national identities, and the values of individuals. Religious Studies majors explore the roles religion plays in societies, the ways that religious institutions grow and change, the meanings of scriptures from around the world, the extraordinary experiences of religious specialists, and much more. Graduates of the major pursue a variety of employment and graduate school opportunities.

## Major Program Requirements

A student must take a total of 30 credit hours in Religious Studies, of which at least 21 hours must be at the 2000-level or above. Students must earn a minimum GPA of 2.0 or higher in order to have the credit applied. In addition, students must complete all degree, college and university graduation requirements (p. 35), including university general education (p. 36).

### Major core requirements

REL_ST 1100 or REL_ST 2110	Introduction to Religion Global Religions	3
REL_ST 4100	Advanced Theories and Methods	3

## Semester Plan

Below is a **sample** plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
REL_ST 1100*		3 REL_ST 2310*	3
HIST 1100 or 1200		3 ENGLISH 1000	3
SPAN 1100		4 ECONOM 1000	5
PSYCH 1000		3 AMS 1060	3
MATH 1100		3 SPAN 1200	4
		16	18
Second Year			
Fall	CR	Spring	CR
REL_ST Course		3 REL_ST 2100	3
SPAN 2100		4 Elective	6
BIO_SC 1010		3 GEOG 1100	3
English Literature		3 HIST 3820	3
PSYCH 2310		3	
		16	15
Third Year			
Fall	CR	Spring	CR
REL_ST 2610*		3 REL_ST 3200*	3
REL_ST 3710*		3 REL_ST 3990*	3
GEOL 1100		4 ANTHRO 1000	3
POL_SC 1100		3 ARH_VS 3760	3
		13	12
Fourth Year			
Fall	CR	Spring	CR
REL_ST 4100		3 Senior Seminar	3
PHYSICS 1050		3 Electives	12
Electives		9	
		15	15

Total Credits: 120

\* Degree requirements that also meet University general education requirements

## Minor in Religious Studies

### Requirements

A minor in religious studies is available with the following requirements: a minimum of 15 credits, including 6 in courses numbered 2000 or above. A minimum 2.0 MU GPA is required in all courses toward the minor.

## Romance Languages

Department of Romance Languages and Literature  
 143 Arts and Science Building  
 (573) 882-4874  
 Fax: (573) 884-8171

The study of a foreign language allows for the development and refinement of communication, listening and speaking skills. Such study also endows students with a concern for world affairs and an appreciation of and respect for individual differences.

The Department of Romance Languages and Literatures offers language and literature courses in French, Italian, Portuguese and Spanish. Students may elect a major in Romance Languages with an emphasis in French or Spanish. Minors are also available in Afro-Romance literatures in Translation, French, Italian Area Studies, Luso-Brazilian Area Studies, Romance Literatures in Translation, and Spanish. The department also participates in the interdepartmental minor in film studies.

Double majors within the College of Arts and Science, as well as dual degree programs outside of the College of Arts and Science, can be arranged if the second degree is identified early. Combined programs with journalism, political science, agriculture, education and business are among the possibilities.

The department offers BA and MA degrees in Romance Languages with major emphasis in French and Spanish; an MA with a major in French Language Teaching or Spanish Language Teaching, and a PhD in Romance Languages. Minors are also available.

## Faculty

**Professor** R. Cavigoli\*\*, J. Cordones-Cook\*\*, A. Mendez Rodenas\*\*, M. J. Muratore\*\*, J. M. Zemke\*\*

**Associate Professor** A. Alacazar\*\*, M. Badiane\*\*, E. Blandón\*\*, J. Draper\*\*, V. M. Kaussen\*\*, M. Moore\*\*, G. Pérez-Anzaldo\*\*, C. D. Presberg\*, I. Reyna\*\*, D. Sipe\*\*, R. Tabanelli\*\*

**Assistant Professor** M. Soria\*

**Teaching Associate Professor** A. Aviles-Quinones\*, M. Marcos-Llinas\*, J. Otabela-Mewolo\*

**Teaching Assistant Professor** D. M. Heston, J. Kay

**Instructor** A. Wetzel

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BA in Romance Languages (p. 315)
  - with emphasis in French (p. 315)
  - with emphasis in Spanish (p. 316)

## Graduate

- MA in Romance Languages (p. 317)
  - with emphasis in French (p. 317)
  - with emphasis in Language Teaching (p. 319)
  - with emphasis in Spanish (p. 320)
- PhD in Romance Languages (p. 322)

Department of Romance Languages and Literature  
143 Arts and Science Building  
(573) 882-4874

<https://romancelanguages.missouri.edu/graduate-program> (<https://romancelanguages.missouri.edu/graduate-program/>)

**Director of Graduate Studies:** Mamadou Badiane

## About the Department of Romance Languages and Literatures

The Department of Romance Languages and Literatures offers graduate degree programs with an emphasis in Spanish (p. 320), and French (p. 317), both with the option of an emphasis in foreign language teaching. The department's faculty and graduate student seminars are an interdisciplinary, interdepartmental series seeking to provide a collegial atmosphere in which scholars can present their recent work. The department strongly encourages study abroad as a way to reinforce language skills, broaden one's horizons, and add an unforgettable experience to a meaningful university education.

The Department of Romance Languages and Literatures at the University of Missouri has the country's only focus area in the field of Afro-Romance Studies. In order to facilitate research collaboration between our faculty members working in this field and scholars outside our institution, we have established the Institute for Languages and Literatures of the African Diaspora. The Institute serves first and foremost to expose black writers of French, Portuguese and Spanish expression to a wider audience.

## Specialization

The Department of Romance Languages and Literatures offers four fields of specialization at the doctoral level: French Literature, Francophone Literature, Spanish Literature or Spanish American Literature.

## Financial Aid from the Program

Contact the Director of Graduate Studies for details.

## BA in Romance Languages

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### Degree Program Description

Romance Languages is the study of language and literature in French, Italian, Portuguese, and Spanish. The study of a foreign language allows for the development and refinement of communication, listening and speaking skills. Such study also endows students with a concern for world affairs and an appreciation of and respect for individual differences. The Bachelor of Arts degree in Romance Languages is offered in two

emphasis areas: French and Spanish. Students must choose one of the emphasis areas to earn the BA in Romance Languages. Given the liberal arts foundation of a degree in Romance Languages students pursue careers in a variety of fields or continue their studies. Graduates have pursued careers in journalism, tourism, diplomacy, and education.

Students must choose a BA in Romance Languages with an emphasis in French (p. 315), or a BA in Romance Languages with an emphasis in Spanish (p. 316). There is no offering for a BA in Romance Languages without an emphasis.

In addition, students must complete all College of Arts and Science and University graduation requirements (p. 35), including University general education (p. 36).

## Major Program Requirements

The bachelor of arts degree in Romance Languages is offered in two emphasis areas: French (p. 315) and Spanish (p. 316). Students must choose one of the emphasis areas to earn the BA in Romance Languages. Details on the requirements for the programs are listed under each emphasis.

## Semester Plan

A sample plan of study has not been designed for this major, as students are required to select an emphasis. Refer to the semester plans designed for the emphasis in French (p. 315) or Spanish (p. 316).

## BA in Romance Languages with Emphasis in French

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### Degree Program Description

The BA in Romance Languages with an emphasis in French is the exploration of the language, literature, and culture of French-speaking countries. The degree requires a minimum of 30 hours of French beyond FRENCH 2100. Faculty strongly encourages all majors to spend at least one semester (or summer) studying abroad, preferably after their second year of the language. Given the liberal arts foundation of a degree in French students pursue careers in a variety of fields or continue their studies. Graduates have pursued careers in journalism, tourism, diplomacy, and education.

## Major Program Requirements

Students who have not satisfied the requirement of the elementary sequence (four years of foreign language in high school) may take the Foreign Language Placement exam, <https://romancelanguages.missouri.edu/undergraduate-program> (<https://romancelanguages.missouri.edu/undergraduate-program/>), to place them in an upper level language course. Once the upper level course is completed on campus, with a grade in the C range or better the student can apply for Advanced Standing.

For the major, course work must be completed with a grade in the C range or higher in each of the required courses and students must maintain a 2.0 GPA in the major. Students must meet all major requirements listed below, as well as all College of Arts and Science and University graduation requirements (p. 35), including University general education (p. 36).

Students who work toward a double major (two BA degrees within the College of Arts and Science) may be able to complete the majors with

a minimum of 120 credits. Students who are considering a dual degree program (in Arts and Science or in another school or college) are advised that a minimum of 132 credits are necessary.

To obtain the BA degree in Romance Languages with an emphasis in French, the following courses, or their equivalents, must be included in the graduation plan (numbers in parentheses indicate prerequisite courses).

**Major core requirements**

FRENCH 2160	Intermediate French Composition and Conversation	3
FRENCH 3160	Advanced French Composition and Conversation I	3
or FRENCH 3280	Commercial French	
FRENCH 3410	Introduction to Literary Analysis	3
FRENCH 3420	Introduction to French Literature I	3
FRENCH 3430	French Masterworks: Texts and Contexts	3

**Additional Requirements**

- Students must complete five additional 4000-level courses. We encourage students to take Stylistics as one of these. French 4960: Special Readings cannot be used to fulfil this requirement except by permission of the department chair.
- Students beginning at a level higher than FRENCH 2160 due to placement testing must still complete 30 credits in order to receive the major.
- In addition, the student is required to take a Writing Intensive course in the major, normally designated sections of FRENCH 3420 or FRENCH 3430.
- It is highly recommended (not required) that students take FRENCH 2310 (<http://catalog.missouri.edu/search/?P=FRENCH%202310>): French Civilization as an elective and, if at all possible, study for a summer, a semester or a full year in a French-speaking country. This course will not count towards the minor or major.

**Semester Plan**

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available

First Year			
Fall	CR	Spring	CR
FRENCH 2160 <sup>^</sup>		3 FRENCH 3160 <sup>^</sup>	3
ENGLISH 1000 <sup>*</sup>		3 Science with Lab <sup>*</sup>	5
MATH 1100 <sup>*</sup>		3 Behavioral Science Course <sup>*</sup>	3
Social Science Course <sup>*</sup>		3 Social Science Course <sup>*</sup>	3
		12	14
Second Year			
Fall	CR	Spring	CR
Science Course <sup>*</sup>		3 FRENCH 3430 <sup>^</sup>	3
FRENCH 3410 <sup>^</sup>		3 Science Course <sup>*</sup>	3
Humanities Course <sup>*</sup>		3 Humanities Course <sup>*</sup>	3
Behavioral Science Course <sup>*</sup>		3 Humanities Course <sup>*</sup>	3
		12	12
Third Year			
Fall	CR	Spring	CR
FRENCH 3420 <sup>^</sup>		3 FRENCH 4000-level <sup>^</sup>	3
Social Science Course <sup>*</sup>		3 FRENCH 4130 <sup>^</sup>	3

Elective Course	3 Elective Course	3
Elective Course	3 Elective Course	3
Elective Course	3 Elective Course	3
		15
		15

Fourth Year			
Fall	CR	Spring	CR
FRENCH 4000-level <sup>^</sup>		3 Elective Course	3
FRENCH 4000-level <sup>^</sup>		3 Elective Course	3
Elective Course		3 Elective Course	3
Elective Course		3 Elective Course	3
Elective Course		3 Humanities Course <sup>*</sup>	3
		15	15

Total Credits: 110

<sup>^</sup> Course meets degree program requirements

<sup>\*</sup> Course meets University general education and/or campus requirements

Electives may be replaced by courses that fulfill requirements for a double/dual major or a minor. For information on the Minor in French (p. 361).

## BA in Romance Languages with Emphasis in Spanish

### Degree Program Requirements

The BA in Romance Languages with an emphasis in Spanish is the exploration of the language, literature, and culture of Spanish-speaking countries. The degree requires a minimum of 30 hours of Spanish beyond SPAN 2100. Faculty strongly encourages all majors to spend at least one semester (or summer) studying abroad, preferably after their second year of the language. Given the liberal arts foundation of a degree in Spanish students pursue careers in a variety of fields or continue their studies. Graduates have pursued careers in journalism, tourism, diplomacy, and education.

### Major Program Requirements

Course work must be completed with a grade in the C range or higher in each of the required courses and students must maintain a 2.0 GPA in the major. Students must meet all major requirements listed below, as well as all College of Arts and Science and University graduation requirements (p. 35), including University general education (p. 36).

Students who work toward a double major (two BA degrees within the College of Arts and Science) may be able to complete the majors with a minimum of 120 credits. Students who are considering a dual degree program (in Arts and Science or in another school or college) are advised that a minimum of 132 credits are necessary.

To obtain the BA degree in Romance Languages with an emphasis in Spanish, the following courses, or their equivalents, must be included in the graduation plan (numbers in parentheses indicate prerequisite courses):

**Major core requirements**

SPAN 2160	Intermediate Spanish Composition and Conversation (SPAN 2100)	3
SPAN 3150	Advanced Spanish Conversation (SPAN 2160)	3

OR SPAN 3721: Spanish Phonetics (SPAN 2160)		
SPAN 3160	Advanced Spanish Composition (SPAN 2160)	3
OR SPAN 3280: Commercial Spanish (SPAN 2160)		
SPAN 3420	Introduction to Hispanic Literature I (SPAN 3160)	3
SPAN 3430	Introduction to Hispanic Literature II (SPAN 3160)	3

### Additional Requirements

Students must complete five 4000-level courses selected with the advisor's approval.

- Required courses: one peninsular lit., one Spanish-American lit., three courses of choice.

It should be noted that SPAN 4960 Special Readings in Spanish cannot be used to fulfill this requirement except by permission of the department chair. Students who plan to teach at any level should include courses SPAN 3160 and SPAN 3721, rather than their alternates.

- Students beginning at a level higher than SPAN 2160 due to placement testing must still complete 30 credits in order to receive the major.
- In addition, the student is required to take a Writing Intensive course in the major, normally designated sections of SPAN 3420 or SPAN 3430.
- It is highly recommended (not required) that students study for a summer, a semester or a full year in a Spanish-speaking country.

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
SPAN 2160 <sup>^</sup>		3 SPAN 3150 or 3721 <sup>^</sup>	3
ENGLSH 1000 <sup>*</sup>		3 Science/Science Lab <sup>*</sup>	5
MATH 1100 <sup>*</sup>		3 Behavioral Science <sup>*</sup>	3
Social Science <sup>*</sup>		3 Social Science <sup>*</sup>	3
		12	14
Second Year			
Fall	CR	Spring	CR
Science <sup>*</sup>		3 SPAN 3420 or 3430 <sup>^</sup>	3
SPAN 3160 or 3280 <sup>^</sup>		3 Science <sup>*</sup>	3
Humanities <sup>*</sup>		3 Humanities <sup>*</sup>	3
Behavioral Science <sup>*</sup>		3 Humanities <sup>*</sup>	3
		12	12
Third Year			
Fall	CR	Spring	CR
SPAN 3420 or 3430 <sup>^</sup>		3 SPAN 4000-level <sup>^</sup>	3
Social Science <sup>*</sup>		3 SPAN 4130 <sup>^</sup>	3
Elective		3 Elective	3
Elective		3 Elective	3
Elective		3 Elective	3
		15	15

Fourth Year			
Fall	CR	Spring	CR
SPAN 4000-level <sup>^</sup>		3 SPAN 4993 <sup>^</sup>	3
SPAN 4000-level <sup>^</sup>		3 Elective	3
Elective		3 Elective	3
Elective		3 Elective	3
Elective		3 Humanities	3
		15	15

Total Credits: 110

- <sup>^</sup> Course meets degree program requirements
- <sup>\*</sup> Course meets University general education and/or campus requirements

Electives may be replaced by courses that fulfill requirements for a double/dual major or a minor. Please see Minor in Spanish (p. 367).

## MA in Romance Languages

The master of arts degree in Romance Languages is offered in three emphasis areas. Students must choose one of the emphasis areas listed below:

- French (p. 317)
- Spanish (p. 320)
- Language Teaching (p. 319)

Details on the requirements for the programs are listed under each emphasis. General information on requirements is below.

### Degree Requirements

Students must complete a total of 30 credit hours at the graduate-level to earn their MA degree. At least 15 hours must be in courses at the 8000 level or above. The total number of credit hours in special readings (7960), problems (8085) or any combination of both may not exceed 12. The number of credit hours in special readings (7960) within the student's major field may not exceed three per semester. Graduate Instructors with no pedagogical experience, or those who have not completed a graduate course in foreign language teaching methodology, will be required to take FRENCH 7120 Foreign Language Teaching Methodology or SPAN 7120 Foreign Language Teaching Methodology

Non-native speakers will be required to complete an online proficiency assessment with the appropriate course coordinator before a decision on their admission status is finalized by the department.

## MA in Romance Languages with Emphasis in French

### Degree Requirements

Students must complete a total of 30 credit hours at the graduate-level to earn their MA degree. At least 15 hours must be in courses at the 8000 level or above. The total number of credit hours in special readings (7960), problems (8085) or any combination of both may not exceed 12. The number of credit hours in special readings (7960) within the student's major field may not exceed three per semester. Graduate Instructors with no pedagogical experience, or those who have not completed a graduate course in foreign language teaching methodology, will be required to take FRENCH 7120, Foreign Language Teaching Methodology.

Non-native speakers will be required to complete an online proficiency assessment with the appropriate course coordinator before a decision on their admission status is finalized by the department.

## Plan of Study

MA candidates must submit a completed M-1 Plan of Study form to the Graduate School at least one semester before taking their MA examinations.

## Minors

Students may also elect a minor field of study, which requires a minimum of 9 hours of course work completed in another department or other departments. Students interested in such minors should consult the section titled Plan of Study in the Graduate Catalog. These minor fields appear on students' plan of study, but not on their transcript. Students electing minors must complete the standard MA examination in their major field of emphasis (French or Spanish).

## Funding Through Graduate Instructorships

MA candidates normally receive 4 semesters of financial support from the University while completing their degree. This support will customarily take the form of a graduate instructorship, though it may take the form of either a research or teaching assistantship.

## Possible Fifth Semester of Support

In exceptional cases, students in good standing — with no grades of Incomplete and unproblematic teaching — may receive a fifth semester of support, at the discretion of the faculty. Faculty will award a fifth semester of support according to the department's need for instructors. Students must submit all requests for a fifth semester of support in writing to the director of graduate studies. No student will receive more than five semesters of support.

## Normal Teaching Load vs. Course Load

The minimum teaching assignment for MA candidates holding instructorships is 1 course per semester, although there may be an opportunity for two. International students may never teach more than 2 courses per semester owing to visa restrictions. All MA candidates must be registered in a minimum of 6 hours of course work for each semester in which they hold an instructorship. Students may enroll in up to 6 hours per semester of 8080 (Readings) if they have completed all their course work and are preparing for their MA exams.

## Annual Review

The faculty and course directors in both major languages meet during the fall and spring semesters to evaluate the teaching and academic performance of all graduate students. The director of graduate studies informs all students in writing of their status at the end of each semester. Students who fail to remove a grade of Incomplete will be limited to teaching one course per semester for as long that grade of Incomplete remains on their academic record.

## Thesis

The writing of a thesis is optional. A minimum of 4 hours and a maximum of 6 hours of 8090 Research will be allowed for the thesis. Students are urged to obtain the Graduate School guidelines for thesis/dissertation writing as the thesis must conform to the Graduate School formatting and style specifications.

## Thesis Committee

Students choosing to write a thesis must name a thesis committee consisting of no fewer than three members of the doctoral faculty at the University of Missouri, one of whom should be from a department other than the Department of Romance Languages and Literatures.

## Comprehensive Examination

### Comprehensive Examination for the MA degree

All candidates for the Master of Arts degree must pass a 6-hour written examination based on the MA reading list. The examination is given twice a year, generally in late October and late March.

The French Master's examination consists of six 1-hour parts covering literature of the Middle Ages/Renaissance, 17th, 18th, and 19th centuries, and two of the following three periods in the contemporary period: twentieth century French Literature, twentieth century Francophone Literature, contemporary literary theory.

The Spanish examination consists of two 3-hour examinations. The first component covers Peninsular Spanish literature from the Middle Ages to the present and the second component covers Spanish American literature from the Colonial period to the present.

At least half the examination must be written in the candidate's language of specialization.

### Grading of the Comprehensive Exam

The MA examination is graded as follows: High Pass, Pass, and Fail. In order to receive a passing grade on any section of the examination, a student must receive passing grades from two thirds of the examining committee. To pass the entire examination, students must receive passing grades on all sections. With permission from the examining committee, students who fail part of the examination may retake only the failed section or sections of the examination. Two failures of the examination, in whole or in part, will terminate candidacy for the degree and result in dismissal from the program.

## Admission Criteria

Fall deadline: February 15

Spring deadline: October 15

- Minimum GPA: 3.0 in field of major
- Masters applicants must have a bachelor's degree
- Minimum TOEFL scores (international applicants):

Internet-based test (iBT)	Paper-based test (PBT)
61	500
Effective July 1, 2015 must have score of 80	Effective July 1, 2015 must have score of 550

**Note:** Applicants must also demonstrate adequate preparation in advanced language and literature courses. This will require their having completed at least four courses equivalent to a 4000-level course for masters applicants or a 7000 level course for doctoral applicants at the University of Missouri. At a minimum, three of these courses must be in literature. If the faculty determines a deficiency, they will require that the student complete remedial course work in literature during the first year of enrollment. The director of graduate studies will inform students of these additional requirements at the time of their admission.

## Required Application Materials

To the Graduate School

- All required Graduate School documents
- Official Transcript
- 10-15 page writing sample in language of desired degree program, must be uploaded to the online application
- 500-word Personal Statement, uploaded to the online application
- 3 letters of recommendation (submitted through Apply Yourself or mailed to the Romance Languages Department, 143 Arts & Science, University of Missouri, Columbia, MO 65211)
- Résumé or CV

## Choosing an Advisor

All graduate students in the department may choose, or the director of graduate studies will assign them, an academic advisor at the start of their first semester of graduate study. Students must choose an academic advisor by the end of their first semester of graduate study.

## Admission Contact Information

143 Arts and Science  
Columbia, MO 65211  
(573) 882-5039

<https://romancelanguages.missouri.edu/graduate-program> (<https://romancelanguages.missouri.edu/graduate-program/>)

# MA in Romance Languages with Emphasis in Language Teaching

## Degree Requirements

A total of 30 hours selected from courses receiving graduate credit must be completed for the MALT (Master of Arts in Language Teaching). A minimum of 21 of the 30 hours must be taken in either French or Spanish. At least 15 hours must be in courses at the 8000 level or above. Of these 8000-level courses, six hours must be in the Department of Romance Languages. The remaining 9 hours may be taken from course work outside the department with the approval of the student's academic advisor.

The number of hours of credit allowed for Special Readings (7960) and Problems (8085) may not exceed twelve. MA candidates may not take more than one of these two independent readings course per semester.

Students wishing to transfer MA credits from another university may transfer up to six hours, provided these courses were taken within the last eight years.

MALT candidates must submit a completed M-1 Program of Study to the Graduate School at least one semester before completing their comprehensive examinations.

Note: The College of Education does not offer a certification program in the field of foreign language education. However, students who do not have a teaching certificate and who are interested in completing relevant courses in the field of education while working on their MALT will need to contact the professional advisors in the School of Education. These students, with advisor's consent, could use their 9 hours allowed outside the department-provided that they are graduate-level courses-toward courses in education. At the completion of their MA, students can work

directly with the Missouri Department of Elementary and Secondary Education to see how they can be certified in the State of Missouri.

### WITHIN THE DEPARTMENT

#### \* Language/Linguistics 6

Course may be take from:

FRENCH 7710	History of the French Language	3
FRENCH 7130	Stylistics	3
FRENCH 7720	Structure of Modern French	3

or any French language/linguistic course approved by the student's advisor

#### \* Civilization/Culture 3-6

FRENCH 7980	Special Themes in French	3
FRENCH 8087	Seminar in French	3

#### \* Literature 3-6

French: any one or two courses in French or Francophone literature at the 7000 level or above (see Graduate Courses for wide range of offering)

#### \* Methodology/Second Language Acquisition 9

FRENCH 7120	Foreign Language Teaching Methodology	3
or SPAN 7120	Foreign Language Teaching Methodology	
FRENCH 8087	Seminar in French	3
or SPAN 8087	Seminar in Spanish	
FRENCH 8120	Bilingualism and Language Contact	3
or SPAN 8120	Bilingualism and Language Contact	

### OUTSIDE THE DEPARTMENT (up to 9 hrs)

For students interested in education, suggested courses can include:

ESC_PS 7000	Foundation of Teacher Prep I	3
SPC_ED 7020	Teaching the Exceptional Learner	3

### Preparation II (4)

\*\* For students interested in ESL, courses can include:

- Structure of American English (3)
- History of the English Language (3)
- Regional and Social Dialects of English (3)

**Please Note:** Courses taken outside the department must be approved by the student's academic advisor.

## Teaching Assistants

MALT students normally have 4 semesters of support in which to complete their degree. This support will customarily take the form of a Graduate Instructorship. MA students may not teach more than ten hours per semester. A fifth and final semester may be granted in exceptional circumstances to students in good standing (i.e., no incompletes, history of good teaching, etc.). This extra semester will be awarded on the basis of departmental need and will be granted only if a request is made formally and in writing to the Graduate Studies Committee, which will make its recommendation to the entire faculty. No student will receive support beyond the fifth semester.

The normal course load for MALT candidates holding teaching assistantships is 9 hours. All MALT candidates must register for a minimum of 6 hours of graded courses included in the Master's program in every semester in which they hold a teaching assistantship. Exceptions to this regulation must have the approval of the Graduate Studies Committee prior to registration. International students must not fall below six hours or they will lose their student status. Students who have



completed all coursework may enroll in up to 6 hours per semester of 8080 (Readings) in order to prepare for the MALT exam.

The faculty and the course directors in each of the major languages will meet during the fall and winter semesters to evaluate the performance of all graduate students as students and as teaching assistants. The Director of Graduate Studies will inform all students in writing of their status following this formal performance review.

Any student who fails to have an incomplete removed within one year of its issuance will be limited to teaching one class per semester until the incomplete grade is removed. This excludes Dissertation/Thesis (9090) courses.

## Comprehensive Examination

All graduate students in Language Teaching are required to pass a series of examinations in order to fulfill degree requirements.

## Written Examination

All students take a six-hour written examination, which consists of three two-hour components. Two of the components include: a) Foreign Language Methodology and Second Language Acquisition; b) Applied Linguistics. In addition, each candidate will be examined in a third field of their choice, either civilization/culture or literature. The two-hour written questions will reflect the coursework completed by each candidate and appropriate texts suggested by faculty represented on the examination committee. These examinations are generally given in November and March.

The MALT examination is graded as follows: High Pass, Pass, and Fail. In order to receive a passing grade, the candidate must attain a Pass in all fields of the written examination. Should a candidate fail any part of the exam and wish second consideration for the degree (s)he must retake the failed section(s). Two failures eliminate the candidate from consideration for the MA in language teaching.

## Admissions

Students desiring to work for the degree of Master of Arts, Emphasis on Language Teaching (MALT) should apply directly online to the Graduate School. Applicants can find links for information, instructions for applying, and the online application form on the Graduate School site (<http://gradschool.missouri.edu/admissions/>). This online form is submitted electronically to the Graduate School, along with the application fee.

Additionally, the following materials submitted via the Graduate School's Apply Yourself (<https://applygrad.missouri.edu/apply/>) system:

- Official transcripts from the institution(s) previously attended
- TOEFL scores (international applicants only)
- Photocopies of diplomas earned at colleges/universities outside the US (international applicants only)

In addition, our department requires the following materials from all applicants:

- Departmental Graduate Studies Application
- Three Letters of Reference
- A 10-15 page-writing sample
- 500-word personal statement detailing the applicant's reasons for selecting the University of Missouri for graduate studies and academic/career goals. Applicants may also send other supporting materials, such as a résumé, if desired.

The application form and the form for reference letters are available on the Department's page (<http://romancelanguages.missouri.edu/>).

## Eligibility

Candidates for the MA must hold a Bachelor's degree (or equivalent) with a grade point average of 3.0 or better in their major field of study. They must also demonstrate adequate preparation in advanced language and literature courses for admission. This will normally be four courses equivalent to a 4000-level course at the University of Missouri. At least three of these courses must be in literature or linguistics. If the Admissions Committee believes that a deficiency exists, it will prescribe additional course work (during the first year of enrollment) beyond the 30 credit hours necessary for the MALT degree. The Director of Graduate Studies will inform students of these additional requirements at the time of admission.

All non-native speakers of French/Spanish will be required to complete an online proficiency assessment prior to admission. Applicants will be contacted by the appropriate course coordinators to schedule this assessment. Students who are judged deficient in any of these areas are required to do remedial work. New graduate students who are required to do remedial work because of the departmental language proficiency examination will be retested within one year. Students must receive a passing score, or their candidacy will be terminated.

All graduate students will be assigned an advisor by the Director of Graduate Studies at the start of their first semester of graduate study.

## MA in Romance Languages with Emphasis in Spanish

### Degree Requirements

Students must complete a total of 30 credit hours at the graduate-level to earn their MA degree. At least 15 hours must be in courses at the 8000 level or above. The plan of study for the MA with an emphasis in Spanish must include a minimum of nine hours of course work in Spanish peninsular literature and a minimum of nine hours of course work in Spanish-American literature. The plan of study for an MA with an emphasis in Spanish must also include three credit hours in the history of the Spanish language (completion of or the equivalent). The total number of credit hours in special readings (7960), problems (8085) or any combination of both may not exceed 12. The number of credit hours in special readings (7960) within the student's major field may not exceed three per semester. Graduate Instructors with no pedagogical experience or those who have completed no graduate course in foreign language teaching methodology will be required to take SPAN 7120 Foreign Language Teaching Methodology.

Non-native speakers will be required to complete an online proficiency assessment with the appropriate course coordinator before a decision on their admission status is finalized by the department.

### Plan of Study

MA candidates must submit a completed M-1 Plan of Study form to the Graduate School at least one semester before taking their MA examinations.

### Funding Through Graduate Instructorships

MA candidates normally receive 4 semesters of financial support from the University while completing their degree. This support will customarily

take the form of a graduate instructorship, though it may take the form of either a research or teaching assistantship.

## Possible Fifth Semester of Support

In exceptional cases, students in good standing — with no grades of Incomplete and unproblematic teaching — may receive a fifth semester of support, at the discretion of the faculty. Faculty will award a fifth semester of support according to the department's need for instructors. Students must submit all requests for a fifth semester of support in writing to the director of graduate studies. No student will receive more than five semesters of support.

## Normal Teaching Load vs. Course Load

The minimum teaching assignment for MA candidates holding instructorships is 1 course per semester, although there may be an opportunity for two. International students may never teach more than 2 courses per semester owing to visa restrictions. All MA candidates must be registered in a minimum of 6 hours of course work for each semester in which they hold an instructorship. Students may enroll in up to 6 hours per semester of 8080 (Readings) if they have completed all their course work and are preparing for their MA exams.

## Annual Review

The faculty and course directors in both major languages meet during the fall and spring semesters to evaluate the teaching and academic performance of all graduate students. The director of graduate studies informs all students in writing of their status at the end of each semester. Students who fail to remove a grade of Incomplete will be limited to teaching one course per semester for as long that grade of Incomplete remains on their academic record.

## Minors

Students may also elect a minor field of study, which requires a minimum of 9 hours of course work completed in another department or other departments. Students interested in such minors should consult the section titled Plan of Study in the Graduate Catalog. These minor fields appear on students' plan of study, but not on their transcript. Students electing minors must complete the standard MA examination in their major field of emphasis.

## Thesis

The writing of a thesis is optional. A minimum of 4 hours and a maximum of 6 hours of 8090 Research will be allowed for the thesis. Students are urged to obtain the Graduate School guidelines for thesis/dissertation writing as the thesis must conform to the Graduate School formatting and style specifications.

## Thesis Committee

Students choosing to write a thesis must name a thesis committee consisting of no fewer than three members of the doctoral faculty at the University of Missouri, one of whom should be from a department other than the Department of Romance Languages and Literatures.

## Comprehensive Examination

All candidates for the Master of Arts degree must pass a 6-hour written examination based on the MA reading list. The examination is given twice a year, generally in late October and late March.

The Spanish examination consists of two 3-hour examinations. The first component covers Peninsular Spanish literature from the Middle Ages

to the present and the second component covers Spanish American literature from the Colonial period to the present.

At least half the examination must be written in the candidate's language of specialization.

## Grading of the Comprehensive Exam

The MA examination is graded as follows: High Pass, Pass, and Fail. In order to receive a passing grade on any section of the examination, a student must receive passing grades from two thirds of the examining committee. To pass the entire examination, students must receive passing grades on all sections. With permission from the examining committee, students who fail part of the examination may retake only the failed section or sections of the examination. Two failures of the examination, in whole or in part, will terminate candidacy for the degree and result in dismissal from the program.

## Admission Criteria

Fall deadline: February 15

Spring deadline: October 15

- Minimum GPA: 3.0 in field of major
- Masters applicants must have a bachelor's degree
- Minimum TOEFL scores (international applicants):

Internet-based test (iBT)	Paper-based test (PBT)
61 Effective July 1, 2015 must have score of 80	500 Effective July 1, 2015 must have score of 550

Applicants must also demonstrate adequate preparation in advanced language and literature courses. This will require their having completed at least four courses equivalent to a 4000-level course for masters applicants or a 7000 level course for doctoral applicants at the University of Missouri. At a minimum, three of these courses must be in literature. If the faculty determines a deficiency, they will require that the student complete remedial course work in literature during the first year of enrollment. The director of graduate studies will inform students of these additional requirements at the time of their admission.

## Required Application Materials

*To the Graduate School*

- All required Graduate School documents
- Official Transcript
- 10-15 page writing sample in language of desired degree program, must be uploaded to the online application
- 500-word Personal Statement, uploaded to the online application
- 3 letters of recommendation (submitted through Apply Yourself (<https://applygrad.missouri.edu/apply/>) or mailed to the Romance Languages Department, 143 Arts & Science, University of Missouri, Columbia, MO 65211)
- Résumé or CV

## Choosing an Advisor

All graduate students in the department may choose, or the director of graduate studies will assign them, an academic advisor at the start of their first semester of graduate study. Students must choose an academic advisor by the end of their first semester of graduate study.

## Admission Contact Information

143 Arts and Science  
Columbia, MO 65211  
(573) 882-5039  
<https://romancelanguages.missouri.edu/graduate-program> (<https://romancelanguages.missouri.edu/graduate-program/>)

## PhD in Romance Languages

### Degree Requirements

Students in the PhD program must complete a minimum of 72 hours of course work, which includes a maximum of 30 credit hours earned as part of their MA degree. These credit hours must include course work in language teaching methodology (FRENCH 7120/SPAN 7120 or the equivalent) and, if applicable, the candidate's secondary field. Spanish doctoral candidates must also complete course work in Old Spanish.

### Specialization

The Department of Romance Languages and Literatures offers four fields of specialization at the doctoral level: French Literature, Francophone Literature, Spanish Literature or Spanish American Literature.

Candidates may elect a secondary field, which entails a minimum of 9 hours of course work within another department, in consultation with their doctoral program committee. This secondary field appears on students' plan of study, but not on their transcript. Students electing a secondary field must complete a PhD examination that will include at least one question devoted to their secondary field.

### Foreign Language Requirements

PhD candidates must demonstrate reading proficiency in 2 languages other than English and their language of specialization (French or Spanish). They may satisfy this requirement, at a minimum, by completing intensive beginning courses in the required languages (4070 or the equivalent) with a grade of B- or better, or by passing written examinations administered by departments at the University of Missouri offering courses in those languages. Students choosing Latin as one of their foreign languages may satisfy this requirement by completing with a grade of B- or better, a beginning honors class (LATIN 1100H, or the equivalent). Students also fulfill this requirement if they demonstrate proficiency by objective measures (courses, examinations) that exceed this minimum standard, as approved by the Director of Graduate Studies.

Students must satisfy the foreign language requirement before they take their Comprehensive Examination for the PhD. Basic language courses carry no credit toward the PhD and are therefore not included in the Plan of Study.

### Latin Requirements for Students of Medieval and Renaissance Literatures

Students specializing in literature of either the Middle Ages or the Renaissance- literature produced within the period from the rise of the vernacular to the end of the seventeenth century- must demonstrate reading proficiency in Latin. In doing so, they fulfill half their foreign language requirement. They demonstrate proficiency in Latin according to the standard explained in the previous paragraph: by means of a beginning Honors course (LATIN 1100H), a written examination administered by the Classics Department, or equivalents of these.

## Language Requirements for Students With Secondary Field in Non-English Literature

Students pursuing a secondary field in a non-English literature different from that of their major field must complete with a final grade of B- or better at least three 7000-level courses (or the equivalent) in literature of their secondary field. Completing these courses fulfills half the foreign language requirement.

For example, a student specializing in French literature of the Romantic period may choose a secondary field of German literature of the Romantic period. That student must complete 3 courses in German literature at the 7000 level (or the equivalent). Completing these courses satisfies half the foreign language requirement.

### Choosing an Advisor

All graduate students in the department may choose, or the director of graduate studies will assign them, an academic advisor at the start of their first semester of graduate study. Students must choose an academic advisor by the end of their first semester of graduate study.

### Financial Support: Graduate Instructorships

PhD candidates normally receive 6 semesters of financial support from the university while completing their plan of study and 4 additional semesters of support after completing their PhD examination. This support will customarily take the form of a Graduate Instructorship, though it may take the form of either a Research or Teaching Assistantship.

The minimum teaching assignment for PhD candidates holding instructorships is one course during their first semester of study. Depending on staffing needs, there may be an opportunity to teach two courses per semester. Students writing their dissertation may teach an additional course. International students may never teach more than 2 courses per semester owing to visa restrictions. All PhD candidates must be registered in a minimum of 6 hours of course work for each semester in which they hold an instructorship.

Students may enroll in a maximum of 6 hours per semester of 9080 (Readings) if they have completed all their course work and are preparing for their PhD exams. Students may enroll in a maximum of 12 hours of 9080 (Readings) over the course of their doctoral studies, provided this occurs within their first six semesters of financial support. After passing their PhD examination, students may retain their Instructorships if they enroll in Research (9090) for a minimum of 5 credit hours per year (2 in fall; 2 in spring; 1 in summer).

### Annual Review

The faculty and course directors in both major languages meet during the fall and spring semesters to evaluate the teaching and academic performance of all graduate students. The director of graduate studies informs all students in writing of their status at the end of each semester. Students who fail to remove a grade of Incomplete will be limited to teaching one course per semester as long that grade of Incomplete remains on their academic record. This restriction applies to courses other than Research (9090).

### Qualifying Examination

All PhD candidates must complete a qualifying examination during their first year in the program to determine their fitness for doctoral study.

## Exemptions

The faculty may excuse students from this requirement if those students received their MA degree from this department, earned a grade of High Pass on all sections of their MA examination, and enrolled in the PhD program the semester after fulfilling all requirements for the MA degree.

## Purpose and Questions

The qualifying examination provides an opportunity for the faculty to evaluate candidates and advise their future course of study in the program. The examination consists of two questions related to the candidate's course work during the previous and current semester: one question requires analysis of a text; the other, discussion of a general topic (e.g., a literary genre, a particular author, a critical or artistic movement, and so on). The candidate's academic advisor delivers both questions to the candidate three days before a meeting with the examining committee.

## Exam Meeting with the Committee

At this meeting, the candidate offers two oral presentations of 20-25 minutes each, based on the two questions. Following these presentations, the candidate responds to comments and questions from the examining committee. At the close of this meeting, the examining committee determines whether the candidate's performance warrants a grade of Pass or Fail. The examining committee communicates these results to the Graduate School in writing, on a D-1 form bearing the signatures of the candidate and all members of the committee. Students who receive a failing grade must retake this examination before the end of the following semester. A second failure on this examination terminates eligibility for the PhD degree and will result in dismissal from the graduate program.

## Arranging the Committee

All arrangements for the qualifying examination are the joint responsibility of the candidate and the candidate's academic advisor. Any tenured or tenure-track member of the faculty may act as academic advisor to students during their first year of doctoral study. The academic advisor need not act as the director of that student's PhD examination or dissertation committee.

## Submitting Results

Students who earn a passing grade on their qualifying examination submit the D-1 form to the Graduate School, communicating the results of the examination and formally naming their doctoral committee.

## Comprehensive Examination Process

### Reading List, Examining Committee, and Faculty Preparing Questions

Each candidate will name a PhD Examining Committee and, as necessary, other faculty members who will prepare examination questions relating to their respective periods of expertise. The Examining Committee consists of at least 4 members: 3 members of the regular (tenured or tenure-track) faculty from the Department of Romance Languages and Literatures, including the student's academic advisor, 1 outside member from a different department. All of them must belong to the graduate faculty at the University of Missouri. Beyond this minimum, candidates may name other members to the committee - recognized experts in the candidates field - from either the University of Missouri

or another institution, with the approval of both the student's academic advisor and the Director of Graduate Studies.

A member of the regular faculty in the Department of Romance Languages and Literatures who is an expert in literature pertaining to each part of the PhD examination will prepare questions for that part. If there is only one available expert in a specific field (for example, only one regular faculty member who is an expert in Medieval literature of either France or Spain), that faculty member must prepare and grade examination questions relating to that field. If there is more than one expert available in a particular field (for example, more than one member of the regular faculty who is an expert in contemporary French literature, contemporary Spanish literature, or contemporary Spanish-American literature), the student may choose one of those faculty members to prepare and grade questions in that field.

All questions on the PhD Examination derive from a reading list that the candidate compiles with the collaboration and approval of the Doctoral Committee and of all other faculty preparing questions. This list aims at both breadth and depth, but mainly depth. It should include texts of literature, criticism, and history that are indispensable for an expert in the candidate's specialized field. Yet, in the non-specialized fields, this list should include a solid literary history of all genres in the period (drama, fiction, lyric, essay), while also including literary texts that would prove indispensable only for an undergraduate survey course that the candidate might teach on works of all periods and all genres over a span of two semesters. In other words, readings from this list should yield both a generalist and a specialist - an instructor who can both design and teach a survey course, and an expert who can produce original scholarship.

## Timetable of the PhD Comprehensive Examination in French and Spanish

The candidate and the academic advisor set both the dates and the order for all parts of the Comprehensive Examination, in consultation with the Director of Graduate Studies. The Comprehensive Examination in French or Spanish consists of a written and an oral section. The written section comprises 4 parts of 3 hours per part. Candidates complete the written examination on 4 separate days - 1 part per day - within a period of 14 days. They complete the oral examination no later than five weeks after earning a passing grade on all parts of the written examination. This allows candidates to complete the written examination at the end of the fall semester and to complete the oral examination at the start of the spring semester of the same scholastic year.

Either the Director of Graduate Studies or someone delegated by the Director of Graduate Studies will administer the written part of the PhD Examination. Only members of the department faculty of departmental staff may administer the examination.

## Oral Examination

Students complete the oral examination after receiving a passing grade on all sections of the written examination. The oral examination will last 1-2 hours, part of which must be in the language of the candidate's specialized field. The oral exam allows candidates to clarify, strengthen or amplify the answers of the written exam. Only members of the Doctoral Committee must attend the oral examination.

With permission from the Doctoral Committee, students who fail part of the written or oral examination may retake only the failed part of parts. A minimum of 14 days must elapse before a student retakes a failed part or failed parts of the examination. Two failures of the examination, in whole

or in part, will terminate candidacy for the degree and result in dismissal from the program.

## Dissertation Requirements

### Prospectus

After passing both the written and oral parts of the PhD Examination, doctoral students present a prospectus of the dissertation. This presentation occurs immediately after completing and passing the oral part of the Examination. Candidates prepare the prospectus in consultation with the academic advisor and deliver it in writing at least one week before the date of the oral examination to all members of the Doctoral Committee. The Prospectus requires approval by all members of the Doctoral Committee.

The prospectus presents a working outline, with a working bibliography, of the proposed project - its topic, organization, and critical method. Just as important, the prospectus should present a line of inquiry that promises to contribute to human knowledge - a thesis, or a position that warrants defending by means of both critical analysis and empirical evidence.

### Research and Dissertation

Doctoral students register in 9090 (Research) once they have passed their PhD examinations. They will need to enroll for a minimum of 2 credit hours of 9090 during the fall and spring semesters and 1 hour during the summer semester in order to complete the 12 hours of dissertation credits required for graduation. In addition, the program for the doctoral degree must be completed within five years of passing the comprehensive examination. Individual departments or area programs may stipulate a shorter time period. Doctoral students should complete all requirements for the degree, including the dissertation, within five years of passing the comprehensive examination. The Graduate School extends this deadline in extenuating circumstances. Nonetheless, students must request additional time in writing from the director of graduate studies. Failure to show sufficient progress on the dissertation may result in dismissal from the graduate program. Students should obtain the Graduate School's guidelines for thesis/dissertation writing since the dissertation must conform to the formatting and style specifications established by the Graduate School.

### Defense

Candidates and their directors schedule a formal defense of a dissertation after its acceptance by all members of the doctoral committee. This oral defense, conducted by members of the doctoral committee, is open to the public. For additional information, contact the Director of Graduate Studies in the Department of Romance Languages and Literatures.

## Admission Criteria

### Note to Internal Doctoral Applicants

Students who wish to advance to the doctoral program after completing their MA degree in the Department of Romance Languages and Literatures may do so only after receiving written approval from the MA examining committee. Alternatively, candidates may not advance to the doctoral program if the examining committee determines, after the MA examination, that their degree is terminal.

Students advancing directly from the MA to the PhD program need to complete only a Change of Degree Program form, which the department submits to the Graduate School.

Students who apply to the doctoral program one semester or more after completing their MA examinations must complete a Request to Re-enroll form and reapply to the doctoral program. They must submit a new departmental application and reference letters. They need not submit a new application to the Graduate School.

## Application and Admission Information

Fall deadline: February 15

Spring deadline: October 15

- Minimum GPA: 3.0 in field of major
- Doctoral applicants must have a master's degree.
- Minimum TOEFL scores (international applicants):

Internet-based test (iBT)	Paper-based test (PBT)
61 Effective July 1, 2015 must have score of 80	500 Effective July 1, 2015 must have score of 550

Applicants must also demonstrate adequate preparation in advanced language and literature courses. This will require their having completed at least four courses equivalent to a 4000-level course for masters applicants or a 7000 level course for doctoral applicants at the University of Missouri. At a minimum, three of these courses must be in literature. If the faculty determines a deficiency, they will require that the student complete remedial course work in literature during the first year of enrollment. The director of graduate studies will inform students of these additional requirements at the time of their admission.

## Required Application Materials

*Submit to the Graduate School using the online application system:*

- All required Graduate School documents
- Official Transcript (send to Graduate School at 210 Jesse Hall, University of Missouri, Columbia, MO 65211-1160)
- 10-15 page writing sample in language of desired degree program, must be uploaded to the online application
- 500-word Personal Statement, uploaded to the online application
- 3 letters of recommendation (submitted through Apply Yourself or mailed to the Romance Languages Department, 143 Arts & Science, University of Missouri, Columbia, MO 65211)
- Résumé or CV

**Note:** All application forms are on the Graduate School site.

## Admission Contact Information

143 Arts and Science

Columbia, MO 65211

(573) 882-5039

<https://romancelanguages.missouri.edu/graduate-program> (<https://romancelanguages.missouri.edu/graduate-program/>)

## Russian

Sean Ireton, Chair

College of Arts and Science

451 Strickland Hall

(573) 882-4328

grs@missouri.edu

The Department of German and Russian Studies offers courses in German and Russian language, literature, film, and civilization. It also offers instruction in Arabic, Chinese, Japanese, and Korean. Many courses, such as civilization, culture, literature in translation, and film courses, do not require knowledge of a foreign language.

The department offers the Bachelor of Arts with majors in German, and in Russian, and the Master of Arts in German, and in Russian and Slavonic Studies. The department also offers minors in German, Russian, Chinese, Japanese, and Korean. Many courses in the minor in East Asian Studies are taught in the Department of German and Russian Studies.

## Faculty

**Associate Professor** M. Kelly\*

**Associate Professor** T. Langen\*

**Teaching Professor** N. Monnier\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BA in Russian (p. 325)
- Minor in Russian (p. 326)

## Dual Degrees and Double Majors

As a double major or a dual degree has become an ever more popular choice, an increasing number of students choose German or Russian as one of their majors. Students looking forward to a career in medicine or in the sciences use a double major to ensure a thorough background in the humanities to balance their scientific studies. Double majors within the College of Arts and Science can be arranged and, if the second degree program is identified early, dual degree programs outside the college are also possible. Combined programs with journalism, international studies, education and business are frequent choices. Within the college, combinations with political science, history, philosophy, art history, and the sciences are popular double major programs.

## Departmental Honors - Russian

Departmental Honors are available for student majoring in Russian with a minimum 3.5 GPA in the Russian major and 3.3 GPA overall. Students must complete a minimum of three literature courses, two of which must be at the 4000 level, with no grades below a B. At the discretion of the department, students may write a thesis paper in lieu of one of the 4000 level literature courses.

## Graduate

- MA in Russian and Slavonic Studies (p. 326)

College of Arts and Science  
451 Strickland Hall  
(573) 882-4328  
<https://grs.missouri.edu/>

### Director of Graduate Studies: Martha Kelly

The Master of Arts program in Russian [and Slavonic] Studies is a two-year, intensive course of study with emphasis on literature and intellectual history and options for cross-disciplinary coursework. Over two years, students develop a broad knowledge of Russian culture and history, with opportunities for specialized and also comparative research, as well as graduate minors in other fields. They receive careful advising and mentoring to help them develop their study, research, and career goals. Students graduate with strengthened skills in critical thought, research, oral and written communication and intercultural fluency.

## Careers

Students may go on to careers in a number of fields, including policy, government work, teaching and international business; they will also be prepared to continue their studies at the doctoral level.

## Facilities and Resources

The library of the University of Missouri is particularly strong in Russian literature, history and culture. We are also part of a consortium that provides quick access to the holdings of many other major academic and public libraries.

## Financial Support

In this program, qualified graduate students may have the opportunity to work as teaching assistants in language, literature or civilization courses. (Occasionally students may work as Graduate Research Assistants [GRAs].) Incoming graduate students are normally offered paid positions as Graduate Teaching Assistants (GTAs) are normally appointed for one academic year (two semesters/ nine months). The Fall Semester runs from late August to mid-December; the Spring Semester from mid-January to mid-May. GTA appointments are normally renewed for the second year of study when teaching and progress towards the degree are satisfactory. At present the GTA position provides a stipend of approximately \$16,000 per year. In addition, tuition for courses taken toward the MA are waived for GTAs (and also qualified GRAs). Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details. The Graduate School offers several valuable fellowships for which the department may nominate incoming students.

## BA in Russian

### Degree Program Description

The discipline of Russian studies involves the systematic, first-hand exploration of the language, literature, and cultures of Russian-speaking countries. The liberal arts foundation of this discipline prepares students for careers in a wide variety of fields, including journalism, tourism, diplomacy, and education.

### Major Program Requirements

The major in Russian consists of 27 credits in Russian beyond RUSS 1200. Within these 27 hours, students must meet minimum requirements within three categories: language, literature, and culture (see below). The Russian faculty strongly encourages all majors to spend at least one semester (or summer) studying abroad, preferably after their second year of the language. In addition, students must meet all degree,

college and university graduation requirements (p. 35), including those for university general education (p. 36).

Major core requirements (beyond the A&S language requirement)

Four of the following courses in language or their equivalents (minimum of two at the 3000-plus level) must be included: 12

RUSS 2130	Second-Year Russian I
RUSS 2160	Second-Year Russian II
RUSS 3001	Topics in Russian-General
RUSS 3130	Intermediate Russian
or RUSS 3160	Intermediate Conversation and Composition
RUSS 3630	Russian Classics I
RUSS 3640	Russian Classics II
RUSS 4160	Advanced Russian Conversation

Three literature or culture courses, chosen from the following, and to include at least one at the 4000-level: 9

RUSS 2100	Classics and Iconoclasts: An Introduction to Russian Literature
RUSS 3005	Topics in Russian-Humanities
RUSS 3380	Sinners, Saints, and Madmen: 19th Century Russian Literature
RUSS 3390	True Fictions: Russian Prose since 1900
RUSS 4005	Topics in Russian-Humanities
RUSS 4420	Russian Poetry
RUSS 4350	Special Readings in Russian
RUSS 4430	Russian Drama
RUSS 4435	Russian Prose
RUSS 4550	Nabokov's Russian Fiction
RUSS 4820	Blogging the World: The Web in Cultural Context

One of the following two courses in culture: 3

RUSS 2310	Between Heaven and Earth: Russian Civilization
or RUSS 2320	The Arts of Survival: Civilization in Soviet Times

Electives 3

Elective courses and equivalents to replace the required courses above should be selected in consultation with the advisor

Total Credits 27

\* Both RUSS 2310 and RUSS 2320 are Writing Intensive Russian civilization courses.

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
RUSS 1100		6 RUSS 1200	6
HIST 1100		3 Course for second major / minor	3
ENGLISH 1000		3 MATH 1100	3
Foundation Requirements (humanities)		3 Foundation Requirements (behavioral Sciences)	3
		15	15

Second Year			
Fall	CR	Spring	CR
RUSS 2100		3 RUSS 2160	4

RUSS 2130	4 Course for second major / minor	3
Course for second major / minor	3 RUSS 2320	3
Foundation Requirements (sciences, Math Reasoning Proficiency)	3 Foundation Requirements (humanities)	3
Foundation Requirements (social science)	3 Foundation Requirements (sciences)	3
		16
		16

Third Year			
Fall	CR	Spring	CR
RUSS 3130		3 RUSS 3630	3
RUSS 3390		3 Foundation Requirements(science with lab)	5
Foundation Requirements (humanities)		3 Foundation Requirements(behavioral sciences)	4
Course for second major / minor		3 Course for second major /minor / elective	3
Course for second major / minor		3	
		15	15

Fourth Year			
Fall	CR	Spring	CR
RUSS 3890		3 4000-level Russian literature course	3
4000-level Russian literature/ culture course		3 Capstone course for second major /elective	3
Foundation Requirements (humanities)		3 Foundation Requirements (social sciences)	3
Second major/ minor / elective		3 Second major/ minor / elective	3
Second major/ minor / elective		3 Second major/ minor / elective	3
		15	15

Total Credits: 122

## Minor in Russian

### Requirements

The department offers a minor in Russian, consisting of 15 credits beyond RUSS 1200. A minimum of 6 of these 15 credits must be in Russian courses numbered 3000 or above. In addition, a minimum of 9 of the 15 credits must be completed in residence.

## MA in Russian and Slavonic Studies

### Degree Requirements

Students must complete a minimum of 30 hours of graduate-level courses with a GPA of B or higher. In accordance with the Graduate School policy, no fewer than 24 of these must be Russian and Slavonic Studies courses at the 7000 or 8000 level, with at least 12 at the 8000 level. In addition, students must demonstrate adequate language skills in English and Russian.

### Thesis

A master's thesis is optional.

## Admission Criteria

Fall deadline: January 1 (domestic); December 15 (international)

**Note:** to be eligible for a teaching assistantship, application must be received by March 1

Spring deadline: September 1 (domestic); May 1 (international)

Minimum GPA: 3.0 in last 60 hours

Undergraduate major or minor in Russian or equivalent

Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
61 Effective July 1, 2015 must have score of 80	500 Effective July 1, 2015 must have score of 550

Note: No language other than English and Russian is required for admission.

## Required Application Materials

To the Graduate School:

- All required Graduate School documents

To the Program:

- 2 letters of recommendation

## Admission Contact Information

Professor Martha Kelly (kellymartha@missouri.edu)  
451 Strickland Hall  
Columbia, MO 65211  
(573) 882-4328

## Sociology

Edward E. Brent, Chair  
College of Arts and Science  
312 Middlebush Hall  
brente@missouri.edu  
573) 882-9172

Sociology is a discipline founded over 100 years ago to bring the scientific method to the study of human societies. It has pioneered in the development of methods and techniques designed to provide accurate and verifiable information about contemporary societies. It is the inventor of survey research and a host of statistical measures. The techniques created by sociologists are now used in all disciplines concerned with human behavior.

Sociologists today conduct research and reason from research findings to generate deeper understandings of how societies work. The generation of theoretical statements and the testing of those statements in a wide variety of social settings is the core of sociological work. Sociologists are knowledge builders, rather than change agents, although there is an emergent group of scholars who apply sociological knowledge to create changes in organizations, individuals and communities. Sociology contributes to human improvement by seeing that change can be based on credible information and reasoned understanding of how humans work together in groups or larger aggregates.

## Faculty

**Professor** W. Brekhus\*\*, E. E. Brent Jr.\*\*

**Associate Professor** E. Avery\*\*, E. Brown\*\*, J. M. Hermsen\*\*, V. L. Johnson\*\*, C. Y. Lo\*\*, A. Prasad\*\*, S. Prasad\*\*, R. Scott\*\*

**Assistant Professor** T. Ivory\*, N. Jones\*

**Professors Emeritus** J. K. Benson\*\*, D. Granberg, J. Gubrium, J. Hall, R. M. Hessler\*\*, T. Pearce, A. C. Twaddle\*\*, C. E. Vaughan, T. Vaughan

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BA in Sociology (p. 328)
- Minor in Sociology (p. 329)

## Departmental Honors

Students with a cumulative GPA of at least 3.3 are eligible for departmental honors in sociology. Qualified students who seek this option must write an honors thesis under the supervision of a sociology faculty member. Students who take the honors thesis option are not required to take SOCIOL 4970. Students enroll in SOCIOL 4995 for 3 credits *each semester* of the senior year for a total of 6 credits.

## Graduate

- MA in Sociology (p. 329)
- PhD in Sociology (p. 329)

Department of Sociology  
312 Middlebush Hall  
(573) 882-8331

<http://sociology.missouri.edu/grad/graduate-program> (<http://sociology.missouri.edu/grad/graduate-program/>)

**Director of Graduate Studies:** Eileen Bjornstrom

## About the Program

The Department of Sociology engages students in research, utilizing qualitative and quantitative research methodologies, in order to analyze issues and problems affecting societies. The core of doctoral training is in classical and contemporary theory, and research methods including quantitative, historical, and feminist methodologies, and interviews and field work.

## Specializations

Students may focus their studies on any two of the following graduate program areas:

- Culture and Identity
- Health, Aging, and Environment
- Political Economy, Power, and Movements
- Social Inequalities

Within these program areas, students conduct research on such topics as gender, health-care policy, popular culture, hunger, race, criminology, sexualities, and elites and protest movements in the global economy.

## Financial Aid from the Program

Financial support for students includes teaching and research assistantships, both of which include remission of educational fees. International students cannot be awarded teaching assistantships until



they have completed one semester of residence at MU and pass a test of spoken English.

## BA in Sociology

### Degree Program Description

Sociology is a discipline founded about 100 years ago to bring the scientific method to the study of human societies. It has pioneered in the development of methods and techniques designed to provide accurate and verifiable information about contemporary societies. It is the inventor of survey research and a host of statistical measures. The techniques created by sociologists are now used in all disciplines concerned with human behavior. A Bachelor of Arts with a major in Sociology consists of 30 credits organized to provide progressively more sophisticated levels of sociological analysis culminating in a capstone experience. The degree offers five tracks of study for students who want a closer fit between the major and future employment: Law, Justice and Society; Power, Inequalities and Social Change; Sexuality, Health and the Life Course; Culture, Identity and the Media; Organizations, Work, Technology and the Economy. Sociologists today conduct research and reason from research findings to generate deeper understandings of how societies work. The generation of theoretical statements and the testing of those statements in a wide variety of social settings is the core of sociological work. We are knowledge builders, rather than change agents, although there is an emergent group of 'applied sociologists' who use sociological knowledge to create changes in organizations, individuals, and communities. We contribute to human improvement by seeing that change can be based on good information and reasoned understanding of how humans work together in groups or larger aggregates.

### Major Program Requirements

A Bachelor of Arts with a major in Sociology consists of 30 credits organized to provide progressively more sophisticated levels of sociological analysis culminating in a capstone experience or other advanced 4000 level course. It is expected that students start with entry courses, progress to basic courses and then to upper-level electives. In addition, students must complete all degree, College of Arts and Sciences and University graduation requirements (p. 35), including University General Education (p. 36).

#### Major core requirements

Entry courses		
SOCIOL 1000	Introduction to Sociology (Recommended)	3
or RU_SOC 1000	Rural Sociology	
SOCIOL 2200	Social Inequalities	3
Basic courses		
SOCIOL 3100	Recent Theories in Sociology (prerequisite: SOCIOL 2200)	3
SOCIOL 3950	Social Research I	3
Post-basic courses		
Three additional sociology courses numbered 3000 or above; may include no more than 3 credits in SOCIOL 4940 or SOCIOL 4960		9
Additional hours in sociology		6
An additional 6 credits in elective coursework in the major		
Capstone course		

SOCIOL 4970	Senior Seminar (or any 4000 level course with the exception of SOCIOL 4940 or SOCIOL 4960)	3
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Should be taken in the last semester of undergraduate work

#### Departmental honors

SOCIOL 4995	Honors in Sociology (1st semester of senior year)	3
SOCIOL 4995	Honors in Sociology (2nd semester of senior year)	3

Students with a cumulative GPA of at least 3.3 are eligible for departmental honors in sociology. Qualified students who seek this option must write an honors thesis under the supervision of a sociology faculty member. Students who take the honors thesis option are not required to take SOCIOL 4970. Students enroll in SOCIOL 4995 for 3 credits each semester of the senior year.

**Total Credits** **30**

### Optional Tracks

The course work in sociology fits into five recommended tracks of study. Although sociology majors are *not required* to select a track, students who want a closer fit between the major and future employment are encouraged to do so. Each track has recommended courses in the major, complementary internships, and service learning opportunities. (Note: Tracks are not listed on transcripts or diplomas.) These tracks are outlined below.

#### Track: Law, Justice and Society

SOCIOL 1000	Introduction to Sociology	3
SOCIOL 1650	Social Deviance	3
SOCIOL 1010	Social Problems	3
SOCIOL 3600	Criminology	3
SOCIOL 4500	Sociology of Social Policy	3
SOCIOL 4610	Society and Social Control	3
SOCIOL 1010	Social Problems	3

#### Track: Power, Inequalities and Social Change

SOCIOL 1000	Introduction to Sociology	3
SOCIOL 2210	The Black Americans	3
SOCIOL 3200	Class, Status, and Power	3
SOCIOL 3210	Sociology of Globalization	3
SOCIOL 3320	Sociology of Gender	3
SOCIOL 3520	Collective Behavior	3
SOCIOL 4220	Race and Ethnic Relations	3
SOCIOL 4230	Women, Development, and Globalization	3

#### Track: Sexuality, Health and the Life Course

SOCIOL 1000	Introduction to Sociology	3
SOCIOL 1360	The Female Experience: Body, Identity, Culture	3
SOCIOL 1010	Social Problems	3
SOCIOL 3300	Queer Theories/Identities	3
SOCIOL 3320	Sociology of Gender	3
SOCIOL 3420	The Family	3
SOCIOL 3460	Technology and Society	3
SOCIOL 3440	Sociology of Health	3
SOCIOL 4210	Aging and the Life Course	3
WGST 4420	Gender, Culture, and Politics	3

### Track: Culture, Identity and the Media

SOCIOL 1000	Introduction to Sociology	3
SOCIOL 2300	Self and Society	3
SOCIOL 2310	Culture and Mass Media	3
SOCIOL 3300	Queer Theories/Identities	3
SOCIOL 3310	Social Psychology	3
SOCIOL 3400	Fake News and Media Politics	3
SOCIOL 3430	The Sociology of Sport	3
SOCIOL 3450	The Sociology of Religion	3
SOCIOL 4320	Culture, Identity and Interaction	3

### Track: Organizations, Work, Technology and the Economy

SOCIOL 1000	Introduction to Sociology	3
SOCIOL 3200	Class, Status, and Power	3
SOCIOL 3210	Sociology of Globalization	3
SOCIOL 3460	Technology and Society	3
SOCIOL 3520	Collective Behavior	3
SOCIOL 3700	Institutions and Society	3
SOCIOL 3710	The Sociology of Work	3
SOCIOL 4230	Women, Development, and Globalization	3

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
SOCIOL 1000	3	SOCIOL 2200	3
ENGLISH 1000	3	MATH 1100, 1050, or STAT 1200	3
Humanities Elective	3	Humanities Elective	3
Social Science Elective (Missouri State Law Requirement)	3	Social Science Elective	3
Science Elective	3	Science Elective with Lab	4
		15	16

Second Year			
Fall	CR	Spring	CR
SOCIOL 1650	3	SOCIOL 3600	3
Foreign Language level 1	3	SOCIOL 3950	3
Humanities Elective	5	Foreign Language level 2	5
Social Science Elective (upper level)	3	Humanities Elective (upper level)	3
Science Elective	3	Behavioral Science Elective	3
		17	17

Third Year			
Fall	CR	Spring	CR
SOCIOL 3200	3	SOCIOL 3100	3
Foreign Language level 3	3	Elective - upper level	3
Behavioral Science Elective (upper level)	3	Elective - upper level	3
Writing Intensive Elective	3	Elective	3
Elective	3	Elective	3
		15	15

Fourth Year			
Fall	CR	Spring	CR
SOCIOL 3330	3	SOCIOL 4970	3
Elective - upper level	3	SOCIOL 4220	3
Elective - upper level	3	Elective	3
Elective	3	Elective	3
Elective	3	Elective	3
		15	15

Total Credits: 125

## Minor in Sociology

### Requirements

To minor in sociology, a student must complete a total of 15 credits of sociology coursework as outlined below. At least nine credit hours for the minor must be from MU courses.

SOCIOL 1000	Introduction to Sociology	3
SOCIOL 2200	Social Inequalities	3
Two courses at the 3000-level or above		6
One other sociology course at any level		3
Total Credits		15

## MA in Sociology

### About the Master of Arts in Sociology

At this time, our Department is not admitting students who are seeking a terminal master's degree. However, our doctoral students earn an MA degree en route to the PhD.

Please see the admission criteria for our doctoral degree program (p. 329).

## PhD in Sociology

### Degree Requirements

The PhD program requires a minimum of 30 hours of course work including:

SOCIOL 9187	Seminar in Sociological Theory I	3
SOCIOL 9487	Seminar in Sociological Theory II	3
SOCIOL 8120	The Logic of Social Research	3
SOCIOL 7120	Social Statistics (or its equivalent)	3
SOCIOL 8130	Advanced Social Statistics	3

and two seminars in sociological research methods:

SOCIOL 7110	Feminist Research and Criticism	3
SOCIOL 8187	Seminar on Interview Theory and Technique	3

SOCIOL 9287	Seminar in Qualitative Methods in Sociology	3
SOCIOL 9288	Ethnographic Fieldwork	3
SOCIOL 9687	Topical Seminar in Historical Sociology	3

plus six courses targeted to the student's specialty interests.

### Exams and Research

All students are required to submit a research paper no later than their fourth semester of residence. Students with a Master's Thesis in

sociology can fulfill this requirement as early as their first semester. At least eight months before the date on which they expect to complete the degree, candidates must pass a comprehensive examination centered on two of the five graduate program areas. Students must prepare and successfully defend a dissertation that makes an original contribution to the discipline.

## Admission Criteria

Fall deadline: January 25

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
61 Effective July 1, 2015 must have score of 80	500 Effective July 1, 2015 must have score of 550

- Minimum GRE score: case-by-case
- 15 hours of undergraduate sociology with a grade of B or better, including one course in sociological theory and a basic statistics course

## Required Application Materials

To the Graduate School:

- All required Graduate School documents

To the Sociology Program: <http://sociology.missouri.edu/grad/admission-and-application-forms> (<http://sociology.missouri.edu/grad/admission-and-application-forms/>)

- GRE score report
- Departmental application
- 3 letters of recommendation
- Statement of research interests
- Copy of Graduate School application (needs to be printed out when done online)
- Copies of transcripts (it is helpful to have unofficial copies sent to the department)
- One page Application for Financial Support
- Research paper, master's thesis, senior thesis, or term paper

## Admission Contact Information

Graduate Admissions Coordinator  
 Holli Lyndora (lyndora@missouri.edu)  
 312 Middlebush Hall  
 Columbia, MO 65211  
 (573) 882-8331

## Statistics

Christopher Wikle, Chair  
 College of Arts and Science  
 146 Middlebush Hall  
 (573) 882-6376  
[www.stat.missouri.edu](http://www.stat.missouri.edu) (<https://www.stat.missouri.edu/>)  
[umcasstat@missouri.edu](mailto:umcasstat@missouri.edu)

Information is needed to solve the many problems of today's world. How much information? What kind? After it is obtained, what must be done with it? Statisticians are trained to help answer these questions. Early admission into the Statistics Department will allow students to plan their

programs so that the math and statistics prerequisites can be taken in the most efficient sequence.

The department offers BA, BS, MA and PhD degrees with a major in Statistics. A minor is also available.

## Faculty

**Professor** Z. He\*\*, S. Holan\*\*, J. Sun\*\*, C. K. Wikle\*\*  
**Teaching Professor** S. Lee\*, L. D. Ries\*  
**Associate Professor** S. Chakraborty\*\*, A. Micheas\*\*, L. A. Thombs\*\*  
**Assistant Professor** S. Chao, T. Ji\*, E. Schliep\*  
**Adjunct Assistant Professor** M. Hawkey, J. Snyder, I. Zaniletti  
**Instructor** T. Christiansen, D. Perkowski

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BA in Statistics (p. 331)
- BS in Statistics (p. 332)
- Minor in Statistics (p. 334)

## Credit for Beginning Courses

(Applies to all students and all majors)

- A student may not receive credit toward an undergraduate degree for more than one of STAT 1200, STAT 1300 and STAT 1400.
- A student may not receive credit toward an undergraduate degree for more than one of STAT 2500 and STAT 2530.
- Subject to the above restrictions, a student may receive a maximum of 4 credits toward an undergraduate degree for any combination of STAT 1200, STAT 1300, STAT 1400, STAT 2200, STAT 2500 and STAT 2530.
- A student may not receive credit toward an undergraduate degree for any statistics course numbered 2999 or below if a statistics course numbered 4000 or above was successfully completed prior to or concurrent with the course in question. Exceptions may be approved at the discretion of the department.

## Department Degree Requirements - Statistics

The Department of Statistics approves majors in statistics only for students who have met the following criteria:

- Completion of at least one statistics course at the 3000-level or above (or equivalent)
- Cumulative GPA of at least 2.50 overall
- Have earned a grade of C or higher in each statistics course completed

Students are encouraged to supplement their work in statistics with courses from areas such as economics, biology, accounting, finance, marketing, management, psychology, sociology, engineering, agriculture and atmospheric science. In addition, students must complete all

degree, college and university graduation requirements (p. 35), including university general education (p. 36).

## Options

Students may pursue either a BA or a BS degree. For both degrees, students may pursue either a traditional track or an applied track. Students who are interested in graduate study in statistics are strongly encouraged to follow the traditional track.

## Departmental Honors

To be admitted to the undergraduate honors program in the Department of Statistics, a student must have completed at least 12 of the 21 credits of statistics courses required for the major, have a grade-point average of at least 3.25 in all completed statistics courses, and identify a faculty member from the department who agrees to supervise the student's honors research project.

In order to receive the departmental honors designation, students who have been accepted into the program must graduate with a grade-point average of at least 3.25 in statistics courses, prepare a senior thesis based on their honors project, and present the results of the thesis in a departmental colloquium or other public forum approved by their mentor. They also must earn a grade of "B" or better in 3 credits of STAT 4999.

## Graduate

- MA in Statistics (p. 334)
  - with emphasis in Biostatistics (p. 335)
  - with emphasis in Data Analytics (p. 336)
- PhD in Statistics (p. 336)
- Graduate Minor in Statistics (p. 337)

Abbie Van Nice-Booher, Coordinator of Graduate Studies  
146 Middlebush  
Columbia, MO 65211  
(573) 882-6376  
<http://www.stat.missouri.edu/>

**Director of Graduate Studies:** Athanasios Micheas

## About Statistics

The statistics department faculty is known for both cutting edge methodological and collaborative research and for outstanding teaching. Faculty members are currently investigating statistical problems in the fields of ecology, genetics, economics, meteorology, wildlife management, epidemiology, AIDS research, geophysics, and climatology. The program's faculty members have ongoing collaborative programs across disciplines such as biostatistics, bioinformatics, economics, atmospheric science, psychology and with the Missouri Department of Conservation.

The graduate program provides opportunities for graduate study and thesis direction in various areas of probability and statistics, both theoretical and applied. A variety of consulting and collaborative opportunities allow both faculty and graduate students to conduct cooperative and interdisciplinary research. Regular statistics colloquia provide opportunities for faculty and outside speakers to present the results of their research. Faculty and graduate students also participate in weekly seminar series in Bayesian statistics, bioinformatics, and biostatistics.

## Dual Master's Degree in Economics and Statistics

The department offers a cooperative MA degree with the Economics Department. Students may obtain MA degrees in economics and statistics with 48 hours of course work numbered 7000 or higher from the University of Missouri instead of the 52 or more required for separate degrees. (These 48 hours may not include any of the following: ECONOM 7351, ECONOM 7353, or STAT 7510, STAT 7530, STAT 7710.) Eighteen or more hours are required from the Department of Economics. At least 15 hours must be numbered 8000 or higher with no more than four hours of 8090. Students must take the core economics courses ECONOM 8451 and ECONOM 8453 and research workshop ECONOM 8413 (2 credit hours). Eighteen or more hours are required from the Department of Statistics. At least 15 hours must be numbered 8000 or higher with no more than three hours of 8090. STAT 8710 and STAT 8720 and MATH 7140 are required if equivalent courses were not taken as an undergraduate.

All candidates must submit a thesis or written project demonstrating an independent effort towards producing original work satisfactory for each degree. The candidate may complete separate theses/projects for both economics and statistics or a single joint thesis/project satisfying both requirements. Alternatively, the candidate may satisfy the statistics degree requirement by taking the qualifying examination.

## Career Opportunities

Statisticians are in demand in education, medicine, government, business and industry as well as in the biological, social and physical sciences.

## Facilities & Resources

The Department of Statistics maintains a state-of-the-art computer network with Linux workstations and servers for research and personal productivity software on PCs. Students have access to the network through PCs in student offices and through the statistics department computer laboratory. An extensive library of software including R, SAS, and common programming languages is maintained. Students also have access to the campus computing network. The statistics department is located in newly renovated space in Middlebush, with easy access to the main library's outstanding collection of books and journals in statistics.

## Financial Aid from the Program

Fellowships and teaching and research assistantships are available to qualified graduate students. Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

## BA in Statistics

### Degree Program Description

Statistics is a modern science concerned with making decisions and inferences from empirical data subject to random variability and error. It deals with designing experiments, sample surveys, summarizing numerical information, building and analyzing statistical models, prediction and choosing between alternate actions. Statistics can tell us how much safer it is to fly than drive, the odds of winning the lottery, our life expectancy and who is likely to win the next election. The BA in Statistics allows students to pursue either a traditional track or an

applied track. Students who are interested in graduate study are strongly encouraged to follow the traditional track. All students are encouraged to supplement their work in statistics with courses from areas such as economics, biology, accounting, finance, marketing, management, psychology, sociology, engineering, agriculture and atmospheric science. Because of its importance as a scientific method, the demand for trained statisticians has grown in education, medicine, government, business and industry as well as in the biological, social and physical sciences. Students are trained to meet this demand and develop careers in teaching and research.

## Major Program Requirements

Students must complete the university general education requirements (p. 36), university graduation requirements (p. 35), and the Department Degree Requirements (p. 330), in addition to the degree requirements below.

### Mathematics courses

Traditional track			
MATH 1500	Analytic Geometry and Calculus I		5
MATH 1700	Calculus II		5
MATH 2300	Calculus III		3
MATH 4140	Matrix Theory		3
Applied track			
MATH 1500	Analytic Geometry and Calculus I		5-6
or MATH 1300	Finite Mathematics		
& MATH 1400	and Calculus for Social and Life Sciences I		

6 additional credits in statistics (beyond those used to fulfill the statistics requirements of the degree) or approved statistically-oriented courses; must be numbered 4000 or above and may not include STAT 4050 Connecting Statistics to Middle and Secondary Schools

### Statistics Courses

Traditional Track			
STAT 4970W	Junior/Senior Seminar - Writing Intensive		3
STAT 4710	Introduction to Mathematical Statistics		3
or STAT 4750	Introduction to Probability Theory		

15 additional credits offered by the department, at least 12 of which must be numbered 3000 or above and may not include STAT 4050: Connecting Statistics to Middle and Secondary Schools or more than 3 credits of STAT 4999: Departmental Honors in Statistics

Applied Track			
STAT 4970	Junior/Senior Seminar		3
STAT 4710	Introduction to Mathematical Statistics		3
or STAT 4760	Statistical Inference		
or STAT 3500	Introduction to Probability and Statistics II		

21 additional credits offered by the department, at least 18 of which must be numbered 3000 or above and may not include STAT 4050: Connecting Statistics to Middle and Secondary Schools or more than 3 credits of STAT 4999: Departmental Honors in Statistics

### Computing Courses

Both tracks			
INFOTC 1040	Introduction to Problem Solving and Programming		3

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
MATH 1160 <sup>+</sup>		5 MATH 1500	5
ENGLSH 1000 <sup>+</sup>		3 INFOTC 1040	3
Elective		3 Foreign Language II <sup>+</sup>	5
Foreign Language I <sup>+</sup>		5 American History or Government <sup>+</sup>	3
			16
Second Year			
Fall	CR	Spring	CR
MATH 1700		5 MATH 2300	3
STAT 2500		3 STAT 3500	3
Foreign Language III <sup>+</sup>		3 Behav Science Elective <sup>+</sup>	3
WI Elective		3 Hum/Fine Arts Elective <sup>+</sup>	3
			3
			14
Third Year			
Fall	CR	Spring	CR
MATH 4140		3 STAT 4510	3
STAT 4110		3 STAT 4710	3
Hum/Fine Arts Elective <sup>+</sup>		3 Behav Sci Elective <sup>+</sup>	3
Soc Science Elective <sup>+</sup>		3 Hum/Fine Arts Elective <sup>+</sup>	3
Elective		3 Elective	3
			15
Fourth Year			
Fall	CR	Spring	CR
STAT 4520		3 STAT 4760	3
STAT 4750		3 STAT 4970W <sup>+</sup>	3
Hum/Fine Arts elective		3 Electives	8
Electives		6	
			15
			14

Total Credits: 120

\* Courses used as area in lieu of foreign language

+ Course meets University General Education and/or campus requirements

## BS in Statistics

### Degree Program Description

Statistics is a modern science concerned with making decisions and inferences from empirical data subject to random variability and error. It deals with designing experiments, sample surveys, summarizing numerical information, building and analyzing statistical models, prediction and choosing between alternate actions. Statistics can tell us how much safer it is to fly than drive, the odds of winning the lottery, our life expectancy and who is likely to win the next election. The BS in Statistics allows students to pursue either a traditional track or an applied track. Students who are interested in graduate study are strongly encouraged to follow the traditional track. All students are encouraged to supplement their work in statistics with courses from areas such

as economics, biology, accounting, finance, marketing, management, psychology, sociology, engineering, agriculture and atmospheric science. Students pursuing the BS degree may elect to take an alternative to a foreign language. Because of its importance as a scientific method, the demand for trained statisticians has grown in education, medicine, government, business and industry as well as in the biological, social and physical sciences. Students are trained to meet this demand and develop careers in teaching and research.

## Major Program Requirements

Students must complete the university general education requirements (p. 36), university graduation requirements (p. 35), and Department Degree Requirements (p. 330) in addition to the degree requirements below.

### Mathematics courses

Traditional track			
MATH 1500	Analytic Geometry and Calculus I		5
MATH 1700	Calculus II		5
MATH 2300	Calculus III		3
MATH 4140	Matrix Theory		3
Applied track			
MATH 1500	Analytic Geometry and Calculus I		5-6
or MATH 1300 & MATH 1400	Finite Mathematics and Calculus for Social and Life Sciences I		

6 additional credits in statistics courses (beyond those used to fulfill the statistics requirements of the degree) or approved statistically-oriented courses; must be numbered 4000 or above

### Statistics courses

Traditional Track			
STAT 4970W	Junior/Senior Seminar - Writing Intensive		3
STAT 4710	Introduction to Mathematical Statistics		3
or STAT 4750	Introduction to Probability Theory		

15 additional credits offered by the department, at least 12 of which must be numbered 3000 or above and may not include STAT 4050: Connecting Statistics to Middle and Secondary Schools or more than 3 credits of STAT 4999: Departmental Honors in Statistics

### Applied Track

STAT 4970W	Junior/Senior Seminar - Writing Intensive		3
STAT 4710	Introduction to Mathematical Statistics		3
or STAT 4760	Statistical Inference		
or STAT 3500	Introduction to Probability and Statistics II		

21 additional credits offered by the department, at least 18 of which must be numbered 3000 or above and may not include STAT 4050: Connecting Statistics to Middle and Secondary Schools or more than 3 credits of STAT 4999: Departmental Honors in Statistics

### Computing courses

Both tracks			
INFOTC 1040	Introduction to Problem Solving and Programming		3

AND 3 additional credits in computer science or other approved computing courses (STAT 4110: Statistical Software and Data Analysis may be used as part of this requirement if it is not counted in statistics group above.)

### Professional writing courses

ENGLSH 2030	Professional Writing		3-4
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or COMMUN 1200	Public Speaking
or CMP_SC 2050	Algorithm Design and Programming II

## Foreign Language Option for Students Pursuing a BS Degree

Students pursuing the BS degree may elect to take an alternative to a foreign language. Such students must complete no fewer than 12 upper-class credits that are not from the parent department, are not normally required of departmental majors and do not appear elsewhere in the graduation plan. This program must be carefully planned to form a coherent unit and must be approved by the director of undergraduate studies.

The following are examples of foreign language alternatives:

- mathematical sciences
- biological sciences
- behavioral sciences
- physical sciences
- business
- engineering
- economics

## Semester Plan

First Year			
Fall	CR	Spring	CR
MATH 1160 <sup>+</sup>		5 MATH 1500	5
ENGLSH 1000 <sup>+</sup>		3 INFOTC 1040	3
Hum/Fine Arts Elective <sup>+</sup>		3 Soc/Behav Science Elec <sup>+</sup>	3
American History of Government <sup>+</sup>		3 Bio/Phys Science lab <sup>+</sup>	5
Elective		3	
			17
			16

Second Year			
Fall	CR	Spring	CR
MATH 1700		5 MATH 2300	3
STAT 2500		3 STAT 3500	3
ENGLSH 2030		3 Hum/Fine Arts Elective <sup>+</sup>	3
Hum/Fine Arts Elective <sup>+</sup>		3 WI Elective <sup>+</sup>	3
Elective		3 Elective	3
			17
			15

Third Year			
Fall	CR	Spring	CR
MATH 4140		3 STAT 4510	3
STAT 4110		3 STAT 4710	3
Elective		6 Soc/Behav Science Elective <sup>+</sup>	3
Foreign Language Substitute <sup>+</sup>		3 Foreign Language Substitute <sup>+</sup>	3
			3
			15
			15

Fourth Year			
Fall	CR	Spring	CR
STAT 4750		3 STAT 4760	3
STAT 4520		3 STAT 4970W	3
Electives		6 Electives	4

Foreign Language Substitute*	3	
	15	10

Total Credits: 120

- \* Course used as area in lieu of foreign language
- + Course meets University General Education and/or campus requirements

## Minor in Statistics

### Requirements

A minor in statistics requires a minimum of 15 credits in statistics courses numbered 3000 or above. The courses used to complete the minor must be chosen in consultation with the director of undergraduate studies and must include at least one of the following:

STAT 3500	Introduction to Probability and Statistics II	3
STAT 4710	Introduction to Mathematical Statistics	3
STAT 4750	Introduction to Probability Theory	3
A maximum of 3 of the 15 credits may be in:		
STAT 4085	Problems in Statistics for Undergraduates	1-3

## MA in Statistics

### Degree Requirements

The master's degree offers two tracks of study: regular track and applied track. The general requirements for receiving a master's degree are at least 30 semester hours of course work at the 7000 level or higher, of which at least 18 hours must be from the Department of Statistics at MU.

### Regular Track

At least 15 semester hours of course work at the 8000 level or above must be taken from the Department of Statistics at MU. The 15 semester hours cannot include more than a total of three hours of STAT 8090.

#### Courses recommended but not required

STAT 7110	Statistical Software and Data Analysis	3
STAT 7310	Sampling Techniques	3
STAT 7410	Biostatistics and Clinical Trials	3
STAT 7420	Applied Survival Analysis	3
STAT 7610	Applied Spatial Statistics	3
STAT 7830	Categorical Data Analysis	3
STAT 7850	Introduction to Stochastic Processes	3
STAT 7870	Time Series Analysis	3
STAT 8310	Data Analysis I	3
STAT 8320	Data Analysis II	3
STAT 8370	Statistical Consulting	3
STAT 8410	Statistical Theory of Bioinformatics	3
STAT 8640	Bayesian Analysis I	3
STAT 9250	Statistical Computation and Simulation	3
STAT 9310	Theory of Linear Models	3
STAT 9410	Survival Analysis	3
MATH 7700	Advanced Calculus of One Real Variable I	3
CMP_SC 1050 or CMP_SC 2050	Algorithm Design and Programming I Algorithm Design and Programming II	4

### Courses that cannot be used to fulfill the 30 hours for the master's

STAT 7020	Statistical Methods in the Health Sciences	3
STAT 7050	Connecting Statistics to Middle and Secondary Schools	3
STAT 7510	Applied Statistical Models I	3
STAT 7520	Applied Statistical Models II	3
STAT 7530	Analysis of Variance	3
STAT 7710	Introduction to Mathematical Statistics	3
STAT 8090	Master's Thesis Research in Statistics	1-99

### Remedial Courses

The following courses are required if equivalent courses were not taken as an undergraduate: MATH 7140, STAT 8710 and STAT 8720. These courses may not be used for more than six of the required 30 hours.

### Original Written Work

All candidates must submit a written report on an independent effort toward producing original work. This report may, with the advisor's consent, take the form of a thesis, a written review on a set of papers in statistics, or a written report on an independent study project, which may include an original application of statistics. For this work, a student must register for at least three semester hours of STAT 8090.

### Presenting the Work

All candidates are required to present an open seminar on the results of the written report. The report should be made available for public review, through the Department of Statistics office, for at least one week before the examination.

### Examination

The MA examination covers material presented in the written report and the seminar and may also cover course work.

### Applied Track

Students must complete the following six courses or equivalent. In addition, students must take four elective courses, at least three of which must be selected from the Department of Statistics course offerings numbered 8000 or above.

#### Required Core Courses

STAT 7110	Statistical Software and Data Analysis	3
STAT 7540	Experimental Design	3
STAT 7750	Introduction to Probability Theory	3
STAT 7760	Statistical Inference	3
STAT 8310	Data Analysis I	3
STAT 8320	Data Analysis II	3

### Examination

Students in the applied track must pass written and oral master's exams administered by a departmental committee.

## Accelerated Masters of Arts Degree and Admissions

To be considered for admission to the accelerated MA program in statistics, a student must:

- Have completed at least 90 credit hours toward a bachelor's degree with an overall GPA of at least 3.5.

- Have at least one (preferably two) semesters of undergraduate enrollment remaining before completion of a bachelor's degree.
- Have completed the following courses each with grades of 'B' or higher (a 'B minus' is not sufficient):
  - The calculus sequence (MATH 1500, MATH 1700, and MATH 2300 or equivalent).
  - A course in matrix theory (MATH 4140 or equivalent).
  - A calculus-based course covering statistical inference (STAT 4710 or STAT 4760 or equivalent).
  - A course in statistical modeling (STAT 3500 or STAT 4510 or equivalent).
- Have a GPA of at least 3.5 in all math and statistics courses completed and have earned at least a 'B' (not 'B minus') in each statistics course completed. (NOTE: It is expected that the vast majority of an applicant's math and statistics course work will have been completed in residence at MU. Students who have transferred a substantial amount of math and statistics credit from other universities may still apply to the program. These students will be evaluated individually based on both the grades earned in the transferred course and the stature of the university from which the courses were transferred.)
- Have produced an academic record that suggests the student will likely complete an MA degree in statistics.

## Satisfactory Progress

### Length of Study

A master's candidate is expected to complete the master's degree within three calendar years beginning with the first semester of enrollment unless approval is obtained from the graduate faculty of the Department of Statistics.

### Grade Requirements

Any student, while a graduate student in this program, who receives a grade of C or lower in six or more hours of courses offered by the Department of Statistics or a grade of C or lower in nine or more hours of all courses taken will be dismissed from the graduate program unless contrary action is taken by the graduate faculty of the department.

For each credit hour over three hours with a grade of C or lower in courses offered by the Department of Statistics at the 7000 level and above, the student must receive a credit hour with a grade of A in courses offered by the department at the 7000 level and above.

## Admission Criteria

Fall deadline for regular MA track: January 15

Fall deadline for applied MA track: March 30

Spring deadline: October 15

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
80	535

- Minimum GPA: 3.0 in math and statistics courses to enter master's program
- Bachelor's degree from accredited college or university in related area

Undergraduate courses in statistics are recommended but not required. Consideration also is given to rank in graduating class, trends in

grade records, maturity and experience, and other criteria bearing on qualifications.

Before entering the graduate program, a student should have a background that includes three semesters of calculus (or equivalent), one semester of matrix theory, and at least one post-calculus course in probability and statistics. Some required courses at the 7000 level not taken as an undergraduate may be taken for graduate credit as part of the graduate program.

## Required Application Materials

### To the Graduate School:

- All required Graduate School documents

### To the Program:

- Departmental application
- 3 letters of recommendation (use departmental form)
- Letter of intent
- GRE score report

# MA in Statistics with Emphasis in Biostatistics

## Degree Requirements

Students who wish to specialize in Biostatistics may obtain a degree with special emphasis. The general requirements for receiving a master's degree are at least 30 semester hours of course work at the 7000 level or higher, of which at least 18 hours must be from the Department of Statistics at MU. At least 15 semester hours of course work at the 8000 level or above must be taken from the Department of Statistics at MU. The 15 semester hours cannot include more than a total of three hours of STAT 8090.

### Required Courses

STAT 7410	Biostatistics and Clinical Trials	3
STAT 7420	Applied Survival Analysis	3
or STAT 8410	Statistical Theory of Bioinformatics	
or STAT 9410	Survival Analysis	

### Courses recommended but not required

STAT 7110	Statistical Software and Data Analysis	3
STAT 7310	Sampling Techniques	3
STAT 7610	Applied Spatial Statistics	3
STAT 7830	Categorical Data Analysis	3
STAT 7850	Introduction to Stochastic Processes	3
STAT 7870	Time Series Analysis	3
STAT 8310	Data Analysis I	3
STAT 8320	Data Analysis II	3
STAT 8370	Statistical Consulting	3
STAT 8640	Bayesian Analysis I	3
STAT 9250	Statistical Computation and Simulation	3
STAT 9310	Theory of Linear Models	3
MATH 7700	Advanced Calculus of One Real Variable I	3
CMP_SC 1050	Algorithm Design and Programming I	4
or CMP_SC 2050	Algorithm Design and Programming II	

**Courses that cannot be used to fulfill the 30 hours for the master's**



STAT 7020	Statistical Methods in the Health Sciences	3
STAT 7050	Connecting Statistics to Middle and Secondary Schools	3
STAT 7510	Applied Statistical Models I	3
STAT 7520	Applied Statistical Models II	3
STAT 7530	Analysis of Variance	3
STAT 7710	Introduction to Mathematical Statistics	3
STAT 8090	Master's Thesis Research in Statistics	1-99

**Remedial Courses**

The following courses are required if equivalent courses were not taken as an undergraduate: MATH 7140, STAT 8710 and STAT 8720. These courses may not be used for more than six of the required 30 hours.

**Original Written Work**

All candidates must submit a written report on an independent effort toward producing original work related to Biostatistics. This report may, with the advisor's consent, take the form of a thesis, a written review on a set of papers in statistics, or a written report on an independent study project, which may include an original application of statistics. For this work, a student must register for at least three semester hours of STAT 8090.

**Presenting the Work**

All candidates are required to present an open seminar on the results of the written report. The report should be made available for public review, through the Department of Statistics office, for at least one week before the examination.

**Examination**

The MA examination covers material presented in the written report and the seminar and may also cover course work.

## MA in Statistics with Emphasis in Data Analytics

**Prerequisites**

Three semesters of calculus (or equivalent), one semester of linear algebra, and at least one post-calculus course in probability and statistics. At least one course in applied linear models is recommended.

**Degree Requirements**

At least 30 hours of course work in the Department of Statistics; of these, at least 15 hours must be numbered 8000 or above.

**Required Courses**

STAT 7110	Statistical Software and Data Analysis	3
STAT 8310	Data Analysis I	3
STAT 8320	Data Analysis II	3
STAT 8330	Data Analysis III	3
STAT 8640	Bayesian Analysis I	3
STAT 8710	Intermediate Mathematical Statistics I	3
STAT 8720	Intermediate Mathematical Statistics II	3

**Elective Courses**

STAT 7580	Introduction to Statistical Methods for Customized Pricing	3
STAT 7830	Categorical Data Analysis	3

STAT 7870	Time Series Analysis	3
STAT 9250	Statistical Computation and Simulation	3
STAT 9530	Data Mining and Machine Learning Methods	3

**Original Written Work**

All candidates must submit a written report on an independent effort toward producing original work related to data analytics. This report may, with the advisor's consent, take the form of a thesis, a written review on a set of papers in statistics, or a written report on an independent study project, which may include an original application of statistics. For this work, a student must register for at least three semester hours of STAT 8090.

**Presenting the Work**

All candidates are required to present an open seminar on the results of the written report. The report should be made available for public review, through the Department of Statistics office, for at least one week before the examination.

**Examination**

The MA examination covers material presented in the written report and the seminar and may also cover course work.

## PhD in Statistics

### Degree Requirements

A minimum of 72 hours are required. A student's doctoral program committee must approve all course work used to satisfy the credit-hour requirement and may require additional course work beyond these minimums. The doctoral committee may recommend that up to 30 hours of post-baccalaureate graduate credit from an accredited university be transferred toward the total hours required for the doctoral degree, subject to approval by the Graduate School.

The doctoral program has considerable flexibility. Each student's adviser and committee will determine a suitable course of study. However, all students must take the following courses or their equivalents at comparable institutions.

Required courses:

STAT 8710	Intermediate Mathematical Statistics I	3
STAT 8720	Intermediate Mathematical Statistics II	3
STAT 8310	Data Analysis I	3
STAT 8320	Data Analysis II	3
STAT 9310	Theory of Linear Models	3
STAT 9710	Advanced Mathematical Statistics I	3

Before taking the comprehensive examination, students should complete six courses from the list below, taken at MU or at comparable institutions OR five courses from the list below in addition to BOTH Statistics 8330 and 8640. Different 9100s can be counted more than once. Other 9000-level courses may be substituted at the discretion of the student's doctoral program committee.

Select six of the following:

STAT 9100	Recent Developments in Statistics
STAT 9250	Statistical Computation and Simulation
STAT 9370	Multivariate Analysis
STAT 9410	Survival Analysis

STAT 9530	Data Mining and Machine Learning Methods
STAT 9640	Bayesian Analysis II
STAT 9720	Advanced Mathematical Statistics II
STAT 9810	Advanced Probability
STAT 9820	Stochastic Processes

## Qualifying Examination

All doctoral students must pass the qualifying exam, which is offered in August and January of each year. The exam consists of two parts, one covering STAT 8710 and STAT 8720 (Statistical Inference), and a second part covering STAT 8310 and STAT 8320. All doctoral students must take the exams at the first opportunity after taking the required courses, typically in early June after the end of their second semester in the program. Students have two attempts to pass each part.

## Doctoral Committee

Within one semester of passing the qualifying examination, a student must choose a doctoral program committee in consultation with his or her adviser. This committee shall consist of at least four members, at least three from the doctoral faculty in statistics and at least one from another MU doctoral program. The committee members from statistics must include at least two faculty in addition to the student's adviser(s), so students who are co-advised by two statistics faculty must have a total of at least five committee members.

## Comprehensive Examination

Following the graduate school rules, the comprehensive examination is the most advanced posed by MU. It consists of written and oral sections. It must be completed at least seven months before the final defense of the dissertation. The two sections of the examination must be completed within one month. The student must be enrolled to take this examination. It is to be administered only when MU is officially in session.

The written portion of the exam will be arranged and supervised by the student's major advisor(s). The exam will be given up to one year after the student has completed the required Ph.D. courses. Questions are prepared by each of the student's committee members (doctoral advisory committee). The comprehensive exam is NOT to be used as a dissertation proposal.

For the comprehensive examination to be completed successfully, the doctoral advisory committee must vote to pass the student on the entire examination, both written and oral sections, with no more than one dissenting or abstaining vote.

A failure of either the written or oral section of the exam constitutes failure of the comprehensive exam. If a failure is reported, the committee also must include in the report an outline of the general weaknesses or deficiencies of the student's work. The student and the committee members are encouraged to work together to identify steps the student might take to become fully prepared for the next examination.

A student who fails may not take a second comprehensive examination for at least 12 weeks. Failure to pass two comprehensive examinations automatically prevents candidacy.

## Dissertation

A dissertation, prepared under the direction of a dissertation supervisor, is required. The dissertation should be presented in an open seminar as part of the final examination, which is conducted by the final

examination committee. The dissertation should be made available for public review, through the Department of Statistics office, for at least one week before the examination.

## Additional Requirements

Additional requirements for the PhD in statistics are determined by the student's program committee and the director of graduate studies.

## Admission Criteria

Fall deadline: January 15  
Spring deadline: October 15

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
80	535

- Minimum GPA: 3.0 in math and statistics to enter PhD program
- Master's degree from accredited college or university in related area

Before entering the graduate program, a student should have a background that includes three semesters of calculus (or equivalent), one semester of matrix theory, and at least one post-calculus course in probability and statistics. Some required courses at the 7000 level not taken as an undergraduate may be taken for graduate credit as part of the graduate program.

## Required Application Materials

*To the Graduate School:*

- All required Graduate School documents

*To the Program:*

- Departmental application
- 3 letters of recommendation (use departmental form)
- Letter of intent
- GRE score report

## Graduate Minor in Statistics

### Requirements

A Graduate Minor in Statistics is available to students pursuing either a Master's or PhD. Refer to the requirements in the applicable section below.

### Master's Minor

To receive a designated minor in statistics for a master's degree, at least 12 credit hours of course work at the 7000 level or higher must be completed from the Department of Statistics at MU. The courses should be unified in theme and must be approved by the Director of Graduate Studies of the Department of Statistics.

The courses must be completed with an average grade of B (3.0) or higher.

The courses may not include:

STAT 7006	Topics in Statistics-Mathematics
STAT 7070	Statistical Methods for Research
STAT 7085	Problems in Statistics for Non-majors
STAT 8085	Problems in Statistics for Majors - Masters

STAT 9085	Problems in Statistics for Majors - PhD
The courses may not include more than one course from:	
STAT 7710	Introduction to Mathematical Statistics
STAT 7750	Introduction to Probability Theory

## PhD Minor

To receive a designated minor in statistics for a PhD degree, at least 15 credit hours of course work at the 7000 level or higher must be completed from the Department of Statistics at MU.

Courses may not include:

STAT 7006	Topics in Statistics-Mathematics
STAT 7020	Statistical Methods in the Health Sciences
STAT 7050	Connecting Statistics to Middle and Secondary Schools
STAT 7070	Statistical Methods for Research
STAT 7085	Problems in Statistics for Non-majors
STAT 7530	Analysis of Variance
STAT 8085	Problems in Statistics for Majors - Masters
STAT 8090	Master's Thesis Research in Statistics
STAT 9085	Problems in Statistics for Majors - PhD

Students must have at least one course in calculus-based statistics and the equivalent of at least two courses in an applied statistics sequence. The calculus-based statistics requirement can be met by STAT 7710 or STAT 7760 or above, but no more than 6 hours of STAT 7710, STAT 7750, and STAT 7760 can be counted towards the 15 hours. The applied sequence requirement can be satisfied by either STAT 7510/STAT 7520 or STAT 8310/STAT 8320. At most one course from STAT 7510 and STAT 8310 can be counted and at most one course from STAT 7520 and STAT 8320 can be counted towards the 15 hours.

## Plan of Study

The plan of study must be approved by the Director of Graduate Studies of the Statistics Department and be completed with an average grade of B (3.0) or higher. Each student is encouraged to seek approval of his/her plan of study as soon as possible.

## Theatre

Dr. Heather Carver, Chair  
 College of Arts and Science  
 Rhynsburger Theatre  
 129 Fine Arts Center  
 (573) 882-2021  
<http://theatre.missouri.edu>

The Department of Theatre offers students an appreciation of theatre as a fine art, sharpens the talents of those who seek careers in theatre and provides students with methods of stimulating and using their imagination and intensifying their communication skills.

The department offers BA, MA and PhD degrees with a major in Theatre. A minor is also available.

## Faculty

**Professor C. Black\*\***, **S. Burgoyne\***, **H. Carver\***, **D. A. Crespy\*\***,  
**Associate Professor K. Brown\*\***

**Assistant Professor C. Syler\*\***, **M. Vital \***  
**Assistant Teaching Professor M. Hedges\***, **J. Powell\***  
**Postdoctorate Fellow L. Gray\*\***

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BA in Theatre (p. 339)
  - with emphasis in Design/Technical (p. 340)
  - with emphasis in Performance (p. 341)
  - with emphasis in Writing for Performance (p. 341)
- Minor in Theatre (p. 342)

The Theatre Department also offers a Minor in Musical Theatre (p. 365) in collaboration with the School of Music.

## Departmental Honors

To graduate with honors in theatre, a student must earn a minimum overall MU GPA of 3.3 and earn a minimum GPA of 3.5 in courses in theatre completed at the University of Missouri.

## Double Majors

Many students in theatre choose either a double major or a minor in another area. In either case, the student must see a theatre advisor for approval.

## Graduate

- MA in Theatre (p. 342)
- PhD in Theatre (p. 344)

Theatre Graduate Programs  
 College of Arts and Science  
 129 Fine Arts Center  
 (573) 882-2021  
<http://theatre.missouri.edu/>

**Director of Graduate Studies:** Cheryl Black

## About the Department of Theatre

The MU Department of Theatre has a distinguished history that began shortly after 1900 when a small group of aspiring thespians resolved to enhance the cultural life of the campus by producing plays in an abandoned dining room in Lathrop Hall. In 1925, Professor Donovan Rhynsburger joined the MU faculty and established the Missouri Workshop Theatre. For over 85 years, the department has sustained a national and international reputation as a major center for theatre and performance scholarship and dramatic art production. In 2007 "Academic Analytics" ranked MU Department of Theatre #4 nationally for scholarly productivity in Theatre Literature, History, and Criticism (reported in Chronicle of Higher Education, November 11, 2007). MU Theatre offers graduate and undergraduate programs.

A professional faculty comprises internationally recognized scholars and artists who develop the talents, skills and knowledge of students by teaching them to combine scholarship with artistry. MU has consistently

produced fine theatre and notable alumni, including Tennessee Williams, George C. Scott, Tom Berenger, Chris Cooper, Jon Hamm, Ethel Pitts Walker, and Barbara Molette. MU students have won the prestigious David Library Award seven times, several nationally coveted awards like the Mark Twain Comedy Prize, and departmental productions have been cited for national awards by the Kennedy Center American College Theater Festival, the National Communication Association, and the Association of Theatre in Higher Education. Graduate students in the department have won numerous campus, professional and national awards, fellowships and research grants for their scholarship and artistry. The department is proud of its legacy of artistic excellence and the enrichment it brings to the cultural life of the campus and community.

## Facilities

Rhynsburger Theatre. Named after Donovan Rhynsburger, MU's principal theatre for dramatic productions is in the Fine Arts Building, which also houses the music and art departments. The 278-seat proscenium theatre has a large stage and fly system with well-equipped costume and scenic shops located adjacent to the stage. The theatre houses faculty offices, classrooms, shops, dressing rooms and other production support spaces. Students interested in lighting and sound production will find a variety of equipment and modern control systems on which to learn their craft. We're also thrilled to announce the addition of a new, state-of-the-art professional computer graphics lab in 2012.

Corner Playhouse. The Corner Playhouse provides an opportunity for students and faculty to present smaller, often more experimental productions in a flexible space. Seating up to 125, the theatre is designed to accommodate any stage configuration. Across the street from the Rhynsburger Theatre, the Corner Playhouse also houses dressing rooms, graduate student offices and classrooms.

## Satisfactory Progress: General Guidelines for MA and PhD in Theatre

### Probationary Status

The following constitute grounds for placing a student on departmental probation:

Earning a grade of C or below in any departmental course taken for graduate credit will result in probationary status. A grade of incomplete in any course will result in probationary status for the subsequent semester. Incomplete grades must be changed to a grade of A or B by the end of the probationary semester (dissertation research incompletes are evaluated as S/U until the dissertation is defended). Failure to comply in a satisfactory manner with all responsibilities related to graduate assistantships. Graduate students in our department are expected to conduct themselves in a manner reflecting the university's commitment to professional integrity, collegiality, and good citizenship. Students who consistently fail to conduct themselves in this manner may be subject to probation or dismissal. In the case of each student on departmental probation, the director of graduate studies will confer with the advisor (in the case of an MA student), or the members of the program committee (in the case of a PhD student) to determine the grounds for removal of probation, and will communicate this decision to the student.

## Annual Review

Each Fall semester the director of graduate studies convenes the Graduate Studies Committee to review the progress and performance of all graduate students.

Each graduate student in residence should meet with his or her advisor within the first two weeks of each semester to determine whether satisfactory progress has been maintained, and the advisor shall report the results of this meeting to the director of graduate studies.

## Losing & Regaining Financial Support

Termination of departmental financial support will result if the student is considered to be making unsatisfactory progress and the student's program may be terminated. Departmental financial support may be restored when the student has made satisfactory progress toward a graduate degree for one semester, has made an A or a B in all incomplete courses, and is judged to be off probation by the director of graduate studies.

## BA in Theatre

### Degree Program Description

The study of Theatre focuses upon the produced play, past, present, and future. The BA in Theatre offers students an appreciation of theatre as a fine art, sharpens the talents of those who seek careers in theatre and provides students with methods of stimulating and using their imagination and intensifying their communication skills. Students must choose from one of three emphasis areas: Design/Technical, Performance, and Writing for Performance. The curriculum includes: examining the heritage of theatre through dramatic literature and theatre history, exercises in theatrical skills, artistic training in design and performance, and theory and criticism of theatre. The Rhynsburger Theatre, the Corner Playhouse, and outreach programs serve as laboratories for ongoing examination of theatre in society, responsive to social issues. Working with faculty and staff of professionally trained actors, directors, and designers, students focus on performance, writing for performance, and theatre design and technology. MU undergraduate theatre students have taken their work to the Kennedy Center American College Theatre Festival, winning awards in acting, playwriting, design, and dramaturgy. After graduation, many of our students find work in film, television, and the professional theatre as actors, directors, designers, stage managers, artists, and technicians, or go on to graduate school to further their theatre education.

### Major Program Requirements

The major in Theatre consists of core courses and an emphasis area. In addition, all students must complete all College of Arts and Sciences and University graduation requirements (p. 35), including University General Education (p. 36). All courses used to satisfy requirements for the major must be completed with a grade of C or higher.

Major core requirements		15
THEATR 1320	Beginning Scenic Construction	3
or THEATR 1340	Beginning Costume Construction	
THEATR 1420	Stage Movement for the Actor	3
THEATR 2200	Introduction to Performance Studies	3
or THEATR 2920	Beginning Playwriting	
THEATR 2300	Production Workshop I	1
THEATR 2330	Stage Management	3
THEATR 2510	Introduction to Theatre Design	3
THEATR 2710	Introduction to Theatre History	3
THEATR 2800W	Principles of Script Analysis - Writing Intensive	3

or THEATR 2810	Script Analysis for Theatre Majors	
THEATR 3300	Production Workshop II	1
THEATR 4990	Capstone in Theatre	1
<b>Performance</b>		
Select 3 of the 4 courses from:		
THEATR 3420	Acting I	3
THEATR 3430	Acting II	3
THEATR 3600	Theatrical Directing	3
THEATR 4220	Acting III	3
<b>Design/Technical</b>		
THEATR 2360	Stagecraft	3
or THEATR 3310	Costume Crafts	
Selection 2 Courses from:		
THEATR 3550	Sound Design	3
THEATR 3560	Scene Design	3
THEATR 4530	Stage Lighting Design	3
THEATR 4570	Theatrical Costume Design	3
<b>Writing for Performance</b>		
THEATR 2920/2200	Beginning Playwriting <small>(Select the course not taken as core requirement)</small>	3
THEATR 3200	Performance of Literature	3
THEATR 3920	Intermediate Playwriting	3

## Emphasis Areas

Theatre students must also complete an emphasis area in Performance (p. 341), Design/Technical (p. 340) or Writing for Performance (p. 341).

## Semester Plan

Refer to the semester plan for the Performance (p. 341), Design/Technical (p. 340), and/or Writing for Performance (p. 341). Otherwise contact the academic departments for assistance with academic planning.

# BA in Theatre with Emphasis in Design/Technical

## Degree Program Description

Students in the BA in Theatre with emphasis in Design/Technical study scene design, lighting design, costume design, sound design, theatre technology, and stage management. They further their studies with additional classes in beginning and advanced scenic and costume construction, makeup, stagecraft, costume crafts, pattern making, scene painting, and theatre architecture. Theatre design students sketch design ideas with pencil and paper, and render those design ideas in 3-D in our computer labs, combine traditional stagecraft techniques with state of the art computer technology, digital image projection, and digital sound mixing. Students participate behind the scenes in a variety of productions -- from main stage faculty-directed musicals and plays, to student-directed shows, ensembles and workshops, take on major roles in our production program as scenic designers, lighting designers, costume designers, sound designers, projection designers, and makeup designers, work as stage managers, carpenters, electricians, riggers, stitchers, cutters, drapers, wardrobe supervisors, props supervisors, lighting and sound board operators, followspot operators, stagehands, and crew members. Graduates work in all areas of the entertainment

industry as designers, technicians, directors, teachers, Broadway producers and stage managers, theatre managers, casting agents, box office managers, and scenic artists. We have a strong network of alumni who support one another as they design and build scenery, props, and costumes, mix sound, renovate historic theatres, and work professionally backstage, behind the scenes, and behind the camera in theatre, film, and television in New York, Chicago, Los Angeles, and across the country.

## Major Program Requirements

THEATR 2360	Stagecraft	3
THEATR 3310	Costume Crafts	3
THEATR 3550	Sound Design	3
THEATR 3560	Scene Design	3
THEATR 4530	Stage Lighting Design	3
THEATR 4570	Theatrical Costume Design	3
Performance classes		3

In addition, students must complete all College of Arts and Science and University graduation requirements (p. 35), including University general education (p. 36).

## Semester Plan

See the emphasis for a sample semester plan.

First Year			
Fall	CR	Spring	CR
ENGLISH 1000		3 MATH 1100	3
Humanities		3 Am. Government or History	3
Foreign Language		4 Foreign Language II	4
THEATR 1320 or 1340		3 THEATR 1420 (Spring 2019 will be a 3 credit hour course)	3
		Behavioral Science	3
			16
		13	

Second Year			
Fall	CR	Spring	CR
Foreign Language III		4 Humanities	3
Biological/Physical/Math Science w/ Lab		4-5 Biological/Physical/Math Science +	3
THEATR 2710		3 Social Science	3
THEATR 2200 or 2920		3 THEATR 2800 or 2800W	3
		THEATR 2330	3
			15
		14-15	

Third Year			
Fall	CR	Spring	CR
Humanities <sup>++</sup>		3 Social Science <sup>+</sup>	3
Behavioral Science		3 3000+ level Electives	6
THEATR 2360 or 3310		3 THEATR 2300	1
THEATR 2510		3 THEATR 3550, 3560, 4530, or 4570	3
Biological/Physical/Math Science		3 Elective	3
			16
		15	

Fourth Year			
Fall	CR	Spring	CR
3000+ Level Writing Intensive		3 Humanities <sup>++</sup>	3
THEATR 3550, 3560, 4530, or 4570		3 THEATR 4990	1
THEATR 3300		1 3000+ level Electives	9

3000+ level Electives	6 Electives	2
Elective	3	
	16	15

Total Credits: 120-121

## BA in Theatre with Emphasis in Performance

### Degree Program Description

Students in the BA in Theatre with emphasis in Performance are offered a curriculum that includes a sequence of acting and performance classes, emphasizing scene study in comedy and drama, contemporary and period styles, stage movement, vocal performance, and musical theatre performance. But it's more than just acting, singing, and dancing – our performance students take introductory and advanced classes in theatre history, script analysis, directing, stage combat, improvisation, American musicals, stage makeup, storytelling, folklore, performance art, performance of literature, and theatre of the oppressed. Students have the opportunity to put into practice what they learn in the classroom by performing in a variety of productions -- from main stage faculty-directed musicals and plays, to student-directed shows, ensembles and workshops. College credit can be earned during the academic year for performing in MU Theatre productions, as well as those of the World Theatre Workshop, the MU Center for Applied Theatre and Drama Research, the Missouri Playwrights Workshop, the Larry Clark Actor's Workshop, and the Troubling Violence Performance Project, and during the summer as a member of our our professional Summer Repertory Theatre company. MU Theatre alumni are involved in theatre, film, and television in New York, Chicago, Los Angeles, and across the country. They are actors, singers, dancers, directors, stage managers, musicians, storytellers, and teachers, who share their love of theatre and the performing arts by entertaining and enlightening audiences everywhere.

Students must complete all College of Arts and Science and University graduation requirements (p. 35), including University general education (p. 36).

### Major Program Requirements

Performance classes chosen from		12
THEATR 3420	Acting I	3
THEATR 3430	Acting II	3
THEATR 3600	Theatrical Directing	3
THEATR 4220	Acting III	3

### Semester Plan

See also Technical Theatre and Writing for Performance emphasis areas.

First Year			
Fall	CR	Spring	CR
ENGLISH 1000		3 MATH 1100	3
Humanities		3 Am. Government or History	3
Foreign Language I		4 Foreign Language II	4
THEATR 1320 or 1340		3 THEATR 1420	3
		Behavioral Science	3
	13		16

Second Year			
Fall	CR	Spring	CR
Foreign Language III		4 Humanities	3
Biological/Physical/Math Science w/ lab		4-5 Biological/Physical/Math Science*	3
THEATR 2710		3 Social Science	3
THEATR 2200 or 2920		3 THEATR 2330	3
		THEATR 2800 or 2800W	3
	14-15		15

Third Year			
Fall	CR	Spring	CR
Humanities**		3 Social Science**	3
Behavioral Science		3 3000+level Electives	6
THEATR 3420 or 2920		3 THEATR 2300	1
THEATR 2510		3 THEATR 3430 or 2920	3
Biological/Physical/Mathematical Science		3 Elective	3
	15		16

Fourth Year			
Fall	CR	Spring	CR
3000+ level Writing Intensive		3 Humanities**	3
THEATR 4220 or 2920		3 THEATR 4990	1
THEATR 3300		1 3000+ level Elective	6
3000+ level Electives		6 Electives	5
Elective		3	
	16		15

Total Credits: 120-121

- \* Writing Intensive
- + Math Reasoning Proficiency
- \*\* Course numbered 2000 or above

## BA in Theatre with Emphasis in Writing for Performance

### Degree Program Description

Student in the BA in Theatre with emphasis in Writing for Performance are offered a curriculum that includes a sequence of creative writing and literature classes, emphasizing the art and craft of writing as it applies to theatre and performance. MU student playwrights tell their stories through the words and actions of the characters they create. Students take a series of introductory and advanced classes in playwriting, acting, directing, dramaturgy, theatre history, script analysis, performance studies, world dramatic literature, adaptation of literature for stage and film, and screenwriting for film and television. They study dramatic structure, plot and story structure, complex character development, and special playwriting problems and techniques. Students participate in our annual Life and Literature Performance Series which is a celebration of original student plays, stories, poetry, and adaptations of literature, devised theatre, ethnography, performance art, music, and dance. Student playwrights have their new plays performed every week at our Missouri Playwrights Workshop, presented as concert readings during our annual Mizzou New Play Series and summer Comedies-in-Concert Series, and fully produced during our Academic Season as MU Theatre mainstage productions. Students are regularly invited to share their ten-minute plays, one-act plays, and full-length plays at local, regional, and

national theatre events, including the annual Kennedy Center American College Theatre Festival. Graduates are involved in theatre, film, and television productions in New York, Chicago, Los Angeles, and across the country. They are playwrights, screenwriters, dramaturgs, editors, storytellers, and teachers, who share their imagery, creativity, and theatrical imagination with audiences everywhere.

Students must complete all College of Arts and Science and University graduation requirements (p. 35), including University general education (p. 36).

## Major Program Requirements

THEATR 2200	Introduction to Performance Studies	3
THEATR 2920	Beginning Playwriting	3
THEATR 3200	Performance of Literature	3
THEATR 3920	Intermediate Playwriting	3

## Semester Plan

First Year			
Fall	CR	Spring	CR
ENGLISH 1000		3 MATH 1100	3
Humanities		3 Am. Government or History	3
Foreign Language I		4 Foreign Language II	4
THEATR 1320 or 1340		3 THEATR 1420	3
		Behavioral Science	3
			16

Second Year			
Fall	CR	Spring	CR
Foreign Language III		4 Humanities	3
Biological/Physical/Math Science w/ Lab		4-5 Biological/Physical/Math Science +	3
THEATR 2710		3 Social Science	3
THEATR 2200		3 THEATR 2800 or 2800W	3
		THEATR 2330	3
			15

Third Year			
Fall	CR	Spring	CR
Humanities <sup>++</sup>		3 Social Science <sup>++</sup>	3
Behavioral Science		3 3000+ Level Electives	6
THEATR 2920		3 THEATR 2300	1
THEATR 2510		3 THEATR 3200	3
Biological/Physical/Mathematical Science		3 Elective	3
			16

Fourth Year			
Fall	CR	Spring	CR
3000+ level Writing Intensive		3 Humanities <sup>++</sup>	3
THEATR 3920		3 THEATR 4990	1
THEATR 3300		1 3000+ level Electives	9
3000+ level Electives		6 Electives	2
Elective		3	
			15

Total Credits: 120-121

## Minor in Theatre

### Requirements

A minor in theatre consists of two core courses and 9 additional credits in theatre.

<b>Two Core Courses</b>		<b>6</b>
THEATR 1320	Beginning Scenic Construction	3
or THEATR 1340	Beginning Costume Construction	
THEATR 2800	Principles of Script Analysis	3
<b>Additional Theatre credits (at least 6 must be 2000 or above)</b>		<b>9</b>

## MA in Theatre

### Degree Requirements

The degree of Master of Arts in Theatre will be awarded upon completion of the curriculum outlined below with a GPA of 3.0 or better.

### Completed Undergraduate Curriculum

Most students have completed this course of study before seeking admission to MU. However, applicants holding undergraduate degrees in disciplines other than theatre will be asked to complete those courses, which were not part of their undergraduate curriculum. In some cases, professional theatre experience may substitute for certain courses.

### Graduate Curriculum

The student must complete at least 24 graduate hours while in residence as a graduate student at MU. A significant portion of credits must be within the Department of Theatre. THEATR 8100 is a required course. At least 12 hours must be at the 8000 level or above. A maximum of 6 hours directed readings/problems allowed toward total credit hours. The academic program should be established in consultation with an advisor no later than the end of the second semester of residence. No more than six semester hours of graduate work may be transferred from another university. The student submits Form M-1: Program of Study for the Master's Degree to Graduate Studies listing the courses to be taken to complete the graduate curriculum.

### Independent Project

Each candidate for the MA must complete an independent project, which should be specified on the M-1 form as part of the plan of study.

There are two options:

1. This may be a written thesis of original research, for which up to six semester hours of credit in Theatre Research may be earned.
2. Another option is to write an original play, translate a play, or complete a project in acting, design, dramaturgy, or directing. Credit of up to three semester hours may be earned in a graduate Problems course.

## Satisfactory Progress: General Guidelines

### Probationary Status

The following constitute grounds for placing a student on departmental probation:

- Earning a grade of C or below in any departmental course taken for graduate credit will result in probationary status.

- A grade of incomplete in any course will result in probationary status for the subsequent semester. Incomplete grades must be changed to a grade of A or B by the end of the probationary semester (dissertation research incompletes are evaluated as S/U until the dissertation is defended).
- Failure to comply in a satisfactory manner with all responsibilities related to graduate assistantships.
- Graduate students in our department are expected to conduct themselves in a manner reflecting the university's commitment to professional integrity, collegiality, and good citizenship. Students who consistently fail to conduct themselves in this manner may be subject to probation or dismissal.

In the case of each student on departmental probation, the director of graduate studies will confer with the advisor (in the case of an MA student), or the members of the program committee (in the case of a PhD student) to determine the grounds for removal of probation, and will communicate this decision to the student.

## Annual Review

Each Fall semester the director of graduate studies convenes the Graduate Studies Committee to review the progress and performance of all graduate students. Each graduate student in residence should meet with his or her advisor within the first two weeks of each semester to determine whether satisfactory progress has been maintained, and the advisor shall report the results of this meeting to the director of graduate studies.

## Losing & Regaining Financial Support

Termination of departmental financial support will result if the student is considered to be making unsatisfactory progress and the student's program may be terminated. Departmental financial support may be restored when the student has made satisfactory progress toward a graduate degree for one semester, has made an A or a B in all incomplete courses, and is judged to be off probation by the director of graduate studies.

## Master's Final Examination

Each candidate for the MA is required to pass a final examination to demonstrate mastery of the fundamental principles of the work included in the course of study. A Master's Examining Committee consisting of at least three members of the faculty shall administer a written examination over the history of theatre, dramatic theory, criticism, writing for performance, performance studies, and theatre pedagogy.

## Length of Exam

Two hours are allotted for answering each question, making a total of eight hours for the examination, typically administered over a two-day period. If the Master's Examining Committee determines it is needed based on their assessment of the examination, an oral examination may be administered by the committee. This examination provides an opportunity for the student to correct, amend, or defend assertions made in the written examination, although the oral examination is not bound by any limits established by the written examination. Ordinarily of two hours duration, the oral is an additional opportunity for the student to demonstrate skill in oral explanation and argument.

## Notifying the Graduate School of Results

As soon as the performance on the Master's Final Examination has been evaluated, the student's advisor informs the Graduate School, using the appropriate M-form. MA students completing a thesis will complete Form M-2: Report of the Master's Examining Committee. After completion of the MA Final Examination the advisor will prepare Form M-3: Report of the Master's Examining Committee. If any area examination is unsatisfactory, the examining board will give the student an oral examination on that area, with special emphasis on the questions or questions missed. If examinations are determined unsatisfactory by the exam committee, the student is failed.

## Admission Criteria

<https://theatre.missouri.edu/grad/application-process> (<https://theatre.missouri.edu/grad/application-process/>)

Deadline: January 15. We only admit once a year, barring extraordinary circumstances.

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
112	650

- Minimum GPA: 3.0 in the last 60 hours

Probationary admission is possible. The director of graduate studies will advise the student in writing of what must be done to change the probationary admission to regular admission.

## Required Application Materials

*To the Office of Graduate School:*

- All required Graduate School documents

*To the Program:*

- 3 letters of recommendation
- Statement of purpose
- Scholarly writing sample
- Professional resume# or portfolio
- Creative (dramatic) writing samples

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

## Contact Information

Graduate Contact  
Jabarbara Jennings  
129 Fine Arts Building; Columbia, MO 65211  
(573) 882-2021  
[jenningsjaba@missouri.edu](mailto:jenningsjaba@missouri.edu)

Director of Graduate Studies  
Dr. Kevin Brown  
129 Fine Arts Building; Columbia, MO 65211  
(573) 882-0527  
[brownkevin@missouri.edu](mailto:brownkevin@missouri.edu)

Director of Master's Program



Dr. Claire Syler  
129 Fine Arts Building; Columbia, MO 65211  
(573) 882-0533  
sylerc@missouri.edu

<https://theatre.missouri.edu/grad/welcome-and-overview> (<https://theatre.missouri.edu/grad/welcome-and-overview/>)

## PhD in Theatre

### Careers

The Doctorate in Theatre and Performance Studies at MU aims to provide knowledge and research skills necessary to launch the successful student on a career of scholarly investigation of theatre history, dramatic theory, criticism, performance studies, playwriting and other modes of writing for performance (such as adaptation and translation), dramaturgy, performance ethnography, performance and theatre pedagogy.

### Degree Requirements

Doctoral degree requirements include the successful completion of:

- A course of study designed in consultation with the student's advisory committee.
- Additional course work to satisfy the department's requirements for a doctoral minor.
- Written and oral comprehensive examinations.
- Completion of a dissertation and oral defense of dissertation.

### Theatre Department Course Work

The Department of Theatre typically requires students entering the program with a master's degree to complete 48 semester hours of graduate level course work in the theatre department, including three semester hours of Dissertation Research, devoted to writing a dissertation prospectus. At least 15 hours must be at the 8000 level or above. A maximum of 6 hours directed readings/problems allowed toward total credit hours.

### Transfer Coursework

Students with a Master's Degree may have up to 6 hours of courses considered for transfer to their program of study. Students with an MFA may have up to 9 hours of courses considered for transfer to their program of study. Courses for transfer credit must be approved by the student's doctoral committee and indicated on Form D-2: Plan of Study for the Doctoral Degree.

### Doctoral Minor

The department also requires the student to complete a doctoral minor, a twelve-semester-hour unified area of study outside the Department of Theatre.

### Participation in Productions

The doctoral student is encouraged to participate in University Theatre and studio theatre productions and may, in some cases, be required to do so. Academic credit is available.

### Qualifying Examination

During the first semester of residence, the student completes a qualifying examination. The Graduate Affairs Committee of the Department of

Theatre meets with the student to discuss the student's academic background, career goals and research interests for an oral review and discussion of their proposed course of study. The advisor submits Form D-1: Qualifying Examination Results and Doctoral Committee Approval, reporting on the departmental qualifying process.

### Advisory Committee

Doctoral Program Committee asks the graduate dean to approve a committee of four graduate faculty members to help the student plan and carry out a program. One member of the Doctoral Program Committee must come from outside the Department of Theatre.

### Program Planning

As early as is practical, usually in the student's second semester on campus, the student should meet with the Doctoral Program Committee to plan a doctoral program. The student should prepare a trial plan in consultation with the faculty advisor who serves as chair of the Doctoral Program Committee and reports the approved plan of study to the graduate dean on Form D-2: Plan of Study for the Doctoral Degree.

### Satisfactory Progress Guidelines for the PhD in Theatre

#### Probationary Status

The following constitute grounds for placing a student on departmental probation:

- Earning a grade of C or below in any departmental course taken for graduate credit will result in probationary status.
- A grade of incomplete in any course will result in probationary status for the subsequent semester. Incomplete grades must be changed to a grade of A or B by the end of the probationary semester (dissertation research incompletes are evaluated as S/U until the dissertation is defended).
- Failure to comply in a satisfactory manner with all responsibilities related to graduate assistantships.
- Graduate students in our department are expected to conduct themselves in a manner reflecting the university's commitment to professional integrity, collegiality, and good citizenship. Students who consistently fail to conduct themselves in this manner may be subject to probation or dismissal.

In the case of each student on departmental probation, the director of graduate studies will confer with the advisor (in the case of an MA student), or the members of the program committee (in the case of a PhD student) to determine the grounds for removal of probation, and will communicate this decision to the student.

#### Annual Review

Each Fall semester the director of graduate studies convenes the Graduate Studies Committee to review the progress and performance of all graduate students. Each graduate student in residence should meet with his or her advisor within the first two weeks of each semester to determine whether satisfactory progress has been maintained, and the advisor shall report the results of this meeting to the director of graduate studies.

#### Losing & Regaining Financial Support

Termination of departmental financial support will result if the student is considered to be making unsatisfactory progress and the student's

program may be terminated. Departmental financial support may be restored when the student has made satisfactory progress toward a graduate degree for one semester, has made an A or a B in all incomplete courses, and is judged to be off probation by the director of graduate studies.

## Satisfactory Progress Before the Comprehensive Exam

Each semester prior to the semester in which PhD comprehensive examinations are taken, satisfactory progress is maintained when a student completes nine semester hours of graduate level work with a grade of B or above. Incomplete grades are given only under extraordinary circumstances and with the approval of the graduate faculty. Doctoral students who have been maintaining satisfactory progress toward a degree for a period of 36 months are expected, barring unusual and extenuating circumstances, to be prepared to write comprehensive examinations.

## Satisfactory Progress During and After Comps

For the semester in which PhD comprehensive examinations are taken and in semesters after comprehensive exams and orals are passed, satisfactory progress is maintained when, in the judgment of the student's dissertation advisor, the student is making satisfactory progress toward completion of the dissertation. Doctoral students who leave MU having completed all but the dissertation must maintain continuous enrollment by registering for two semester hours of Dissertation Research each fall and spring term and one hour in the summer term. Failure to register negates a student's candidacy.

## Graduate School Regulations on Satisfactory Progress

The Graduate School's regulations regarding a reasonable rate of progress for doctoral students enrolled during or after Fall 2000: Effective for students beginning their doctoral studies during or after Fall Semester 2000, a PhD student must successfully complete the comprehensive exam within a period of five years beginning with the first semester of enrollment as a PhD student. For an extension of this time limit, the student must petition the Graduate School by submitting a request to the advisor, who, in turns, submits, via the departmental director of graduate studies, a written recommendation to the Graduate School. The Theatre Department recommends taking comprehensive exams no later than the third year of consecutive full enrollment. Only students who have taken and passed their exams by May of their third year of assistantship will be considered for a fourth year of assistantship with the department.

All requests for extensions should be endorsed by the departmental director of graduate studies and should be accompanied by a description of the process whereby currency in the discipline is certified, if required by the department.

## Dissertation Proposal/Prospectus

Before comprehensive exams may be scheduled, students will be required to complete a Dissertation Proposal (Mini-Prospectus), concisely but clearly expressing the Statement of Research Question and Tentative Thesis, a Justification and Rationale, a Statement of Method and Theory, a Chapter Summary, and Annotated Bibliography. The Mini-Prospectus should be at least five pages, not including the bibliography. The theatre department faculty members on student's Doctoral Program

Committee must approve this proposal. After successful completion of comprehensive exams, the student will expand the dissertation proposal into a Dissertation Prospectus - a more detailed and thorough description of the dissertation project. The prospectus should provide a clear statement of the purpose of the dissertation, describe the need for the knowledge the dissertation report will supply, outline the research questions, and demonstrate the methods by which the scholar will answer these questions. The candidate will present the prospectus to the Doctoral Program Committee and will be prepared to defend it. After successful defense of the Full Prospectus the doctoral student is considered "ABD" - "all but dissertation."

## Comprehensive Examination

After completing the doctoral minor, a substantial amount of the course work, and after obtaining the approval of the proposal from the Doctoral Program Committee (Mini-Prospectus), the student takes the comprehensive examination. The comprehensive examination provides an opportunity for the student to demonstrate a thorough grasp of the history and principles of theatre and performance studies. The examination provides the Doctoral Program Committee with a window looking back upon the student's training as well as a chance to estimate the student's potential as a problem-solving scholar and artist.

Readers of the examination look for more than a reiteration of the content of standard sources of information about dramatic art. The examinee should demonstrate an ability to analyze problems and data, to formulate theses or points of view, and to locate, evaluate and organize evidence to support a contention -- the essential skills of scholarship. The comprehensive examination in theatre and performance studies allows candidates not only to tell what they know but also to demonstrate what they can do with information. Comprehensive exams are scheduled once each semester, during the first third of the current semester.

## Stages of the Comprehensive Exam

The examination is given in two stages.

Stage One consists of a written examination, over the history of theatre, dramatic theory, criticism, writing for performance, performance studies, and theatre pedagogy; and Option 1: a third day of comps in which the student answers two question provided by their outside member of the Doctoral Program Committee, or Option 2: an analytical paper consisting of one question posed by the outside member of the Doctoral Program Committee. For the written examination, two hours are allotted for answering each question, making a total of twelve hours for the examination, typically administered over a two-day period. For Option 1, the student is allotted four hours on the third day to complete the additional two questions from the outside member. For Option 2, the analytical paper is typically written over a one-week period, to be turned in within three days of finishing the written examination. The examination is evaluated by the student's Doctoral Program Committee, which decides whether or not the student should be advanced to the oral examination.

Stage Two is the oral examination administered by the Doctoral Program Committee. This examination provides an opportunity for the student to correct, amend, or defend assertions made in the written examination, although the oral examination is not bound by any limits established by the written examination. Ordinarily of two hours duration, the oral is also an opportunity for the student to demonstrate skill in oral explanation and argument.

## Criteria for Passage of the Comprehensive Exam

The result of the comprehensive examination shall be marked pass if all or all but one of the Doctoral Program Committee members recommend a pass on the entire examination, both written and oral sections. Should the examination be marked fail, the committee may recommend that the candidate retake the examination after a minimum period of 12 weeks. A report of the committee's decision (Form D-3: Doctoral Comprehensive Examination Results Form), carrying the signatures of all members of the committee, is sent to the Graduate School and to the student no later than two weeks after the comprehensive examination is terminated.

If a failure is reported, the committee also must include in the report an outline of the general weaknesses or deficiencies of the student's work. The student and the committee members are encouraged to work together to identify steps the student might take to become fully prepared for the next examination. If at any time the student believes that the advice given by the committee is inadequate, the student may send a written request for clarification to the committee. A copy of this request should be sent to the Graduate School. The committee must respond to this request in writing within two weeks with a copy to the Graduate School. Failure to pass two comprehensive examinations automatically prevents candidacy for the Doctorate in Theatre and Performance Studies at MU.

## Completing the Dissertation

The final step is completion and approval of the doctoral dissertation. The director of graduate studies can provide the student a copy of Guidelines for Preparing Theses and Dissertations.

## Formatting

Dissertations in the Department of Theatre should be formatted according to the latest edition of A Manual for Writers of Term Papers, Theses, and Dissertations, ed. Kate L. Turabian or the MLA Handbook; the chosen format must meet with the dissertation advisor's approval.

## Graduate School Paperwork

Form D-4: Report of the Dissertation Defense, indicates that the student has defended the dissertation at an oral examination.

## Advisory and Committee Approval of the Dissertation

No draft of the dissertation can be considered a final draft until the advisor (First Reader) has approved it. The final committee meeting cannot be scheduled until all committee members have approved the dissertation; therefore, a candidate should not expect to graduate in any given semester unless all committee members can have at least 14 days to read the dissertation before the last date for oral examination as published by Graduate Education. Unanimous approval of the dissertation by four committee members constitutes satisfactory completion of this examination.

## Admission Criteria

<https://theatre.missouri.edu/grad/application-process> (<https://theatre.missouri.edu/grad/application-process/>)

Deadline: January 15. We only admit once a year, barring extraordinary circumstances.

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
112	650

- Minimum GPA: 3.0 in the last 60 hours
- GPA of 3.5 or better in master's program

## Required Application Materials

*To the Office of Graduate School:*

All required Graduate School documents

*To the Program:*

- 3 letters of recommendation
- 3 letters of recommendation
- Statement of purpose
- Scholarly writing sample
- Professional re#sume# or portfolio
- Creative (dramatic) writing samples

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

## Admission Contact Information

Graduate Contact  
 Jabarbara Jennings  
 129 Fine Arts Building; Columbia, MO 65211  
 (573) 882-2021  
[jenningsjaba@missouri.edu](mailto:jenningsjaba@missouri.edu)

Director of Graduate Studies  
 Dr. Kevin Brown  
 129 Fine Arts Building; Columbia, MO 65211  
 (573) 882-0527  
[brownkevin@missouri.edu](mailto:brownkevin@missouri.edu)

<https://theatre.missouri.edu/grad/welcome-and-overview> (<https://theatre.missouri.edu/grad/welcome-and-overview/>)

## Visual Studies

Lee Ann Garrison, Director  
 School of Visual Studies, College of Arts and Science  
 102 Swallow Hall  
 (573) 882-7547  
<http://visualstudies.missouri.edu> (<https://visualstudies.missouri.edu>)  
[muassvs@missouri.edu](mailto:muassvs@missouri.edu)

Artists today make videos and oil paintings, digital art and intaglio prints. They work in motion graphics and visual effects. They work in advertising and web design. They weave and create ceramic pots. They create animations and narrative films. Artists help tell the world's stories in a variety of ways. That's why Mizzou has assembled visual art, graphic design, digital storytelling, film and art history under the big tent of the School of Visual of Visual Studies that is also embedded in a Research 1, land grant university.

Artists of the future must be agile and open, and prepared to bring artistic insight and sensibilities to a broad spectrum of occupations. Graduates of the University of Missouri School of Visual Studies will be skilled visual artists, designers, filmmakers, animators, and storytellers who are prepared to challenge conventional thinking to make a difference in the world.

Available degrees within the School of Visual Studies:

- Art - BA, BFA, Minor
- Art History - BA, Minor
- Digital Storytelling - BA, Minor
- Film Studies - BA, BA with emphasis in Film Production, Minor
- Visual Studies - MA, PhD, MFA

Art & Art History Academic Advisor - Kay Gregory  
(gregoryk@missouri.edu)

Digital Storytelling & Film Studies Academic Advisor - Nadia Irsheidat  
(irsheidatn@missouri.edu)

## Faculty

**Professor:** J. Brueggenjohann\*, R.B. Clarke\*, J. Johnson\*, B. Prager\*, C. Sampson\*, M.E. Yonan\*\*

**Curators Teaching Professor** D. Huelsbergen\*

**Associate Professors:** N. Boyer\*, J.H. Calvin\*, C. Daniggelis\*, L.A. Garrison\*, J. Pintz\*, K.A. Schwain\*\*, A.R. Stanton\*\*, J. A. van Dyke\*\*, R.A. Wilson

**Assistant Professors:** K. Bitsicas\*, J. Erb, J. Floyd\*, R. Greene\*, C.P. Mannella\*, F. Martinez\*, S.C. Rozier\*, J. Shade-Johnson, T. Shaffer\*, J. Thornton\*

**Assistant Teaching Professor:** K. Bilal, E.J. Hornbeck, M.G. Langeneckert, D. Moore

**Teaching Professor:** M. Ballou

**Visiting Assistant Teaching Professors:** N. Potter, A. Wehrwein

**Professor Emerita:** R.F. Cook, J. Stealey\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

For undergraduate degree programs within the School of Visual Studies please refer to the Art (p. 153), Art History (p. 157), Digital Storytelling (p. 182), Film Studies (p. 200) program pages.

Art & Art History Academic Advisor - Kay Gregory  
(gregoryk@missouri.edu)

Digital Storytelling & Film Studies Academic Advisor - Nadia Irsheidat  
(irsheidatn@missouri.edu)

## Graduate

- MA in Visual Studies (p. 348)
- MFA in Visual Studies (p. 349)
- PhD in Visual Studies (p. 351)

The School of Visual Studies also offers a Graduate minor in Museum Studies (p. 374).

Visual Studies Graduate Programs  
School of Visual Studies  
102 Swallow Hall  
Columbia, MO 65211  
(573) 882-7547  
<https://visualstudies.missouri.edu>

MFA Contact - Chris Daniggelis (daniggelisc@missouri.edu)  
MA, PhD Contact- Kristin Schwain (schwaink@missouri.edu)  
muassvs@missouri.edu

## Degrees Offered

### MFA in Visual Studies

The Master of Fine Arts (MFA) in Visual Studies is a three-year, 60 credit, interdisciplinary, thesis-driven program that focuses on the creative goals of the individual. We guide all MFA students to find and develop a direction and language as they create a coherent and conceptually unified body of artwork.

Through an intense studio-based practice, our MFA program prepares students for advanced professional art careers and provides teaching experience to those interested in teaching at the college level. The structure of our MFA curriculum allows students direct access to faculty whose engagement of traditional studio production blends with contemporary approaches. The program supports student movement between media areas as needed to tailor a student's experience to the goals of their creative research. Additionally, the department supports consistent integration of contemporary and historical theories of art as appropriate to each student's individual studio practice.

### MA & PhD in Visual Studies with a concentration in History, Theory, and Criticism

The MA and PhD programs in Visual Studies blend disciplinary training in the history of art, material culture, and media studies with a commitment to public humanities. The MA and PhD programs combine coursework; outreach, research, and teaching opportunities; and interdisciplinary collaboration with other professional programs, to provide students for careers in educational institutions, cultural organizations, and the broader creative economy.

The graduate program is designed around three distinct but interrelated curricular goals. First, the graduate program provides students with a breadth of knowledge about the history of fine art, material culture, and new media, as well as the opportunity to develop a depth of knowledge in a particular field of study. Second, the graduate program provides a hands-on approach to the study of visual and material culture that emphasizes reflexive scholarships: learning that allows research and practice to inform one another. Students work closely with original objects, historical archives, and collections through our associations with (among others): the MU Museum of Art and Archaeology, MU Museum of Anthropology, Ellis Library Special Collections, Center for Missouri Studies, and local art galleries and arts organizations. Third, the graduate program enhances career readiness through its collaboration with other departments, programs, and schools.

The school participates in interdisciplinary graduate minors in Medieval and Renaissance Studies, Museum Studies, and Women's and Gender Studies.

## Funding: Internal and External

The School of Visual Studies offers teaching assistantships in introductory and upper-level courses; research assistantships; and scholarships and fellowships for research and travel. It also participates in university-wide fellowship programs. Incoming students are considered for funding when they apply, and returning students submit applications for continued funding in the spring semester. The program follows the rules set by the Graduate School regarding tuition waiver limits.

Generally, the School of Visual Studies offers .5 FTE (full time equivalent) assistantships that require approximately 20 hours of work per week. These provide a nine-month stipend; a tuition waiver that covers resident educational and non-resident fees; and a 50% medical insurance subsidy if students enroll in the "Student Accident and Sickness Insurance" program.

The School of Visual Studies awards a number of fellowships to advanced students in the area of history, theory, and criticism, including the Herbert Schooling Fellowship and the John Pickard Fellowship. It also offers a number of travel awards, including the Edzard Baumann Traveling Fellowship in European Art; Irina Hans Fellowship in Art History; and the Osmund Overby Fund for research in American art, architecture, and historic preservation. Students interested in these awards should contact the director of graduate studies and their advisors for application instructions.

In the MFA program, the School of Visual Studies awards several scholarships and fellowships, including the Donald L. Bartlett Scholarship Fellowship, the Ann Stevens Hoffman Memorial, the Dorothy L. Rollins Memorial Scholarship, and the Verna Wulfekammer Art Fellowship.

The School of Visual Studies participates in the major fellowship programs sponsored by the University of Missouri Graduate School. Nominations for these campus-wide competitions are completed by the director of graduate studies in consultation with the entire faculty after students are admitted to the programs. Students in the School of Visual Studies have held a number of these awards, including the G. Ellsworth Huggins Scholarship, the Gus T. Ridgel Fellowship, and the Robert E. Waterston Award. Graduate students are also eligible for awards from The Graduate Professional Council (GPC) and the Graduate Student Association (GSA).

The School of Visual Studies encourages graduate students to apply for internships, study abroad programs, grants, residencies, and fellowships that support their programs of study.

## MA in Visual Studies

The MA program in Visual Studies blends disciplinary training in the history of art, material culture, and media studies with a commitment to public humanities. Graduate training in Visual Studies offers a combination of coursework; outreach, research, and teaching opportunities; and interdisciplinary collaboration with other professional programs, to prepare students for careers in educational institutions, cultural organizations, and the broader creative economy.

## Degree Requirements

### Coursework

The successful completion of the MA requires at least thirty hours of coursework that must include:

- ARH\_VS 8110
- One course in three out of four distribution areas: Ancient, Medieval-Renaissance, Early Modern, and Modern & Contemporary
- ARH\_VS 8070
- If students pursue the thesis option, they must enroll in ARH\_VS 8080 and ARH\_VS 8090 in place of ARH\_VS 8070.
- 15 credit hours at the 8000-level
- No more than 12 of the 30 hours (40%) can be Problems, Special Readings, or Research Hours (7960/8070/8080/8090)

Courses for an interdisciplinary minor field will be in addition to these minimums.

### Language Requirements

All students are required to demonstrate a reading knowledge of one foreign language consistent with their program of study, either through an SVS language exam or a grade of B or better in a course approved by the Director of Graduate Studies. The school expects that the modern language requirement be met by the end of the third semester for use in advanced coursework as well as thesis research and writing.

## Essay & Oral Examination

To complete the degree, students must complete a scholarly essay under the guidance of a faculty advisor. It will most likely be a revision of a research paper from a graduate course taken in the Department of Visual Studies. In consultation with the faculty advisor, students will select two additional members of the department faculty to read the essay. Students will discuss their essays in a meeting chaired by their advisor.

## Thesis/Non-Thesis Requirements Option

### MA Essay & Oral Defense

To complete the MA degree, students must complete a scholarly essay under the guidance of a faculty advisor—most likely a revision of a research paper from a graduate course taken at MU. In consultation with the faculty advisor, students will select two additional members of the School to read the essay and discuss it in a meeting chaired by the advisor.

### MA Thesis Option & Oral Defense

Graduate students who intend to pursue doctoral work are encouraged to complete the thesis option. The MA thesis enables students to engage in independent and thorough research in a specific area of study and to demonstrate the ability to engage bibliography in the field of study; utilize research tools and techniques; synthesize a variety of source materials; and sustain an argument.

The MA thesis committee consists of at least three people: the student's thesis advisor, a member from within the School, and a member from outside the School. The student should invite the latter two in consultation with his or her thesis advisor.

The defense of the master's thesis is an oral examination, chaired by the student's advisor, which focuses specifically on the MA thesis. The student submits a complete draft of the thesis, approved by the advisor, to the entire committee 30 days before the defense. Any changes recommended by the committee during the defense must be made before the finished thesis can be submitted to the Graduate School.

## Funding

Incoming students are considered for funding when they apply to the program. Returning students submit applications for continued funding in the spring semester.

## Admissions

### Admission Criteria

Admission to the MA program in history, theory, and criticism in the School of Visual Studies is granted yearly to a small number of candidates who hold a recognized BA degree in art history, media studies, or a related field in the humanities and social sciences. Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MA in Visual Studies (<https://gradschool.missouri.edu/degrecategory/visual-studies/>) and the minimum requirements of the graduate faculty, enforced by the Graduate School. (<https://gradstudies.missouri.edu/admissions/eligibility-process/>). Before official admission to the University of Missouri, application materials will be reviewed by both the Graduate School and the degree program to which the applicant has applied.

## Required Application Materials

The following items are needed to complete the application for the MA degree:

- Three letters of recommendation concerning academic qualifications to undertake graduate work
- Official transcript from all colleges or universities attended.
- CV
- Statement of purpose (approximately 500 words): A personal statement (or intellectual biography) addresses an applicant's academic interests, including specific papers and projects they have worked on, as well as what they hope to accomplish as a graduate student. It explains, too, why the applicant wishes to pursue a graduate degree in History, Theory, and Criticism in the School of Visual Studies.
- Writing Sample: One 15-20- page scholarly paper that demonstrates the applicant's scholarship and writing.

GRE scores are not required for admission to the program, but are necessary for consideration for some SVS fellowships.

### Contact Information

School of Visual Studies. College of Arts and Science  
102 Swallow Hall  
(573) 882-7547

[muassvs@missouri.edu](mailto:muassvs@missouri.edu)

<http://visualstudies.missouri.edu> (<http://aha.missouri.edu/>)

## More Information

Further guidelines are included on the School of Visual Studies website.

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## MFA in Visual Studies

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The School of Visual Studies Master of Fine Arts (MFA) program focuses on the creative goals of the individual. Faculty guide all MFA students to find and develop a direction and language as they create a coherent and conceptually unified body of artwork.

Through an intense studio-based practice, our MFA program prepares students for advanced professional art careers and provides teaching experience to those interested in teaching at the college level. Our graduates successfully contribute to the culture on a local, national and global scale through many different fields in the visual arts. The structure of our MFA curriculum allows students direct access to faculty whose engagement of traditional studio production blends with contemporary approaches. The program supports student movement between media areas as needed to tailor a student's experience to the goals of their creative research. Additionally, the department supports consistent integration of contemporary and historical theories of art as appropriate to each student's individual studio practice.

The University of Missouri has been a leader in the visual arts since 1877 when the renowned painter George Caleb Bingham began teaching the first studio courses at Mizzou. Current faculty members follow in that tradition as leaders in the visual arts through their creative work that is nationally and internationally recognized. Their artwork encompasses: abstract and figurative painting and drawing, illustration, ceramics, sculpture, traditional and digital photography, all media of printmaking, fibers and surface design, papermaking and book arts, mixed-media, video, installation and performance art plus intermedia and intradmedia approaches. Faculty are all are eager to mentor young artists who share the passion for creativity, critical thinking and the arts.

Laboratory facilities are available in all media areas and are continually updated to coincide with technological advancements. The Art program is home to the George Caleb Bingham Gallery with monthly exhibitions highlight artwork by students, local, regional and national artists. We offer opportunities for students to visit museums and galleries in both St. Louis and Kansas City. Our yearly Florence Summer Study Abroad Program places students in Italy where students have a month to study firsthand many of the most important masterpieces in Western art history. More about the MFA program. (<https://visualstudies.missouri.edu/digital-storytelling/>)

## Study Areas

Applicants typically study within a particular art medium. Applicants declare a media of their choice at the time of application to the program. Media areas for selection include: ceramics, drawing, fibers, graphic design, painting, photography, printmaking, and sculpture. Aspects of new media, (2D and 3D computer imaging and animation, video production, web publishing and other digital media), are also integrated into the curriculum of many of the listed traditional media.

## Degree Requirements

The MFA program is a full-time, three-year program consisting of 60-70 credit hours.

### The degree includes:

- Studio Art Courses in Major Area: 18 hours
- Studio Practice and Critique Courses: 15 hours
- Studio Art Elective Courses: 18 hours (up to 9 of which may be taken in the major area)
- Art History Courses: 6 hours
- First Year Graduate Studio Seminar Course: 2 hours
- MFA Thesis Exhibition Documentation: 1 hour

## Graduate-Level Course work

Graduate level courses are at the 7000/8000/9000 level. A minimum of 15 of the 30 hours must be selected from courses numbered at 8000 and/or 9000 levels; no more than 40 percent of the 30 hours credit requirement can be satisfied by Research, Readings and Problems courses. No credit is given for courses at the 4000 level or below.

## Additional Requirements and Progress

### Residency Requirement

A minimum residency of two years is required for the degree. However, mere completion of the prescribed number of credit hours and the residency requirement is insufficient, rather the degree will be granted upon the student's high level of creative achievement as determined by the student's graduate thesis committee.

### Regular Student Evaluation

The full graduate faculty of the fine art program reviews every MFA candidates progress during the 1st, 3rd and 5th semester. If the candidate fails to receive a passing evaluation during review, the student is placed on probation for one semester and is required to be reviewed the following semester. If two consecutive unsatisfactory reviews occur, the student may lose funding or be dismissed from the program.

### Clearance

During the semester prior to graduation, the graduate thesis committee will approve the student to proceed with the final steps toward graduation, composing the written thesis and mounting the thesis exhibition.

### Time Limit and Extensions

The time limit for completion of the MFA degree is 5 years. Time spent in military service is excluded. For an extension for other reasons the student must petition the Graduate School through his/her chair/major advisor. The five-year period will extend from the beginning of the first semester of enrollment in which the student is accepted to the MFA degree program to the date of his/her clearance to graduate.

## Thesis

### Thesis Acceptance

The graduate thesis committee approves the thesis exhibition and written thesis. During the final semester, the MFA candidate installs a thesis exhibition. The candidate thereafter presents a final draft of the written thesis that defends the conceptual and philosophical ideas of the final body of artwork. Thesis exhibition pieces discussed must be included as images in the written thesis. Each degree candidate must pass a final two-hour oral examination conducted by the graduate thesis committee. The presentation must focus on aspects of academic study related to visual and written aspects of the thesis work. Following final approval of the thesis exhibition and the written thesis, the MFA candidate will officially submit documentation of the theses to the graduate school before the end of the semester in which the exhibition is presented.

### Admission Criteria

Fall semester deadline (priority for campus scholarships): February 1st.  
Please note those wanting to compete for A&S Graduate Fellowship Awards need to apply by January 1st.

Minimum TOEFL scores: Internet-based test (iBT): 80, Paper-based test (PBT): 550.

- Minimum GPA: 3.0

The preferred undergraduate degree for admission to the graduate program in visual art is a Bachelor of Fine Arts (BFA). However, applicants holding a BA, BS or other bachelor's degree are eligible to apply if they have a minimum of 40 hours of undergraduate studio credits or an equivalent professional experience. Applicants for the Graphic Design Area are required to have a minimum of 2 years professional experience before applying.

Application materials are evaluated to determine if the applicant has the preparation and ability to pursue an advanced degree. Admission is based on the recommendations from the art department graduate faculty members representing each of the media areas. Some applicants, may be placed on a waiting list as alternates, then accepted if others decline their admission offers.

## Required Application Materials

Submit Required Application Materials to the Graduate School via the University of Missouri Graduate Application: <https://applygrad.missouri.edu/apply/>  
*Required Application Materials*

- Unofficial transcripts from each college attended (if you are accepted into the MFA program, you will be asked to send official transcripts to the Graduate School)
- Statement of Purpose - Letter of Intent/Artist Statement (your goals for Graduate Study, and a description of your current work and related concepts)
- Résumé (include exhibitions, awards, publications, artistic experience, etc.)
- Portfolio (20 digital images or video files that represent your most recent and accomplished body of work. Your work should indicate your major artistic interest and creative direction, as well as your creative ability and media competence. Maximum of 2 images for any one piece of artwork)
- Assistantship Application (a statement detailing your interest in teaching, past teaching experience and related professional skills)
- Recommendations - Three (3) letters of recommendation

### Contact:

Chris Daniggelis ([daniggelisc@missouri.edu](mailto:daniggelisc@missouri.edu)), Director of Graduate Studies

Jen Schneider ([schneiderjen@missouri.edu](mailto:schneiderjen@missouri.edu)), Graduate Student Coordinator

[visualstudies.missouri.edu](http://visualstudies.missouri.edu) (<https://visualstudies.missouri.edu/art/grad/graduate-program/>)

School of Visual Studies  
102 Swallow Hall  
University of Missouri  
573-882-7547

## PhD in Visual Studies

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### PhD in Visual Studies

The PhD program in Visual Studies blends disciplinary training in the history of art, material culture, and media studies with a commitment to public humanities. Graduate training in Visual Studies offers a combination of coursework; outreach, research, and teaching opportunities; and interdisciplinary collaboration with other professional programs, to prepare students for careers in educational institution, cultural organizations, and the broader creative economy.

### Degree Requirements

#### Coursework

The successful completion of the PhD requires a minimum of 72 hours of coursework. At least 42 of those hours must be completed at the University of Missouri. Students with an MA from another institution can apply up to 30 hours of previous coursework to the PhD program of study, while students with an MA from MU can apply all the hours they accumulated to it.

The 72 hours must include:

- ARH\_VS 8110 ([http://catalog.missouri.edu/search/?P=ARH\\_VS%208110](http://catalog.missouri.edu/search/?P=ARH_VS%208110)): Introduction to Graduate Study
- Three of four distribution requirements that cover four chronological periods: Ancient, Medieval and Renaissance, Early Modern (to 1850), and Modern and Contemporary
- 27 hours (9 courses) in a major field (defined as a geographical and chronological area of study conforming to contemporary professional practice).
- 15 hours (5 courses) in a minor field (defined as a geographical, chronological, or thematic area of study distinct from the major field that compliments the student's career objectives).

The student's program of study is determined in consultation with the Doctoral Program Committee, which consists of at least four people: the student's advisor; two additional scholars from within the School; and an outside committee member. The committee:

1. Accepts any transfer of credit from previous institutions (up to 30 hours);
2. Approves the plan of study;
3. Determines the major and minor fields;
4. Approves the student's dissertation topic;
5. Examines the student's dissertation.

#### Languages

All students must demonstrate a reading knowledge of two foreign languages consistent with their program of study, either through an SVS language exam or a grade of B or better in a course approved by the Director of Graduate Studies.

#### Comprehensive Exam Process

The comprehensive examination comprises both the major and minor fields. Particular emphases within the major and minor fields are determined by the Doctoral Program Committee. The examination is taken after the plan of study (D-2) and language requirements are complete, and must be passed at least seven months before the final defense of the dissertation. When students have passed their

comprehensive exams, they become official candidates for the doctoral degree (ABD) and may register for continuous enrollment.

The purpose of the comprehensive examinations is to demonstrate knowledge and intellectual engagement with the chosen field of study and to lay a broad foundation for future teaching, research, and engagement in the profession. They are retrospective, encouraging the student to integrate their coursework into a coherent narrative, and prospective, inviting the student to assemble different fields of study, theoretical models, and methods of inquiry into a unique vision and approach to visual studies.

Students spend one semester preparing exclusively for the examinations by registering for up to 9 hours of 9080. Since the form and content of the exam are determined by the student's Doctoral Program Committee, students are expected to be in close contact with members throughout the preparation process in order to set goals and determine progress.

### Dissertation Requirements

The dissertation is expected to be an original, scholarly contribution to the discipline. The topic must be approved by the advisor and the Doctoral Program Committee. A dissertation proposal should be filed with members of the committee within two months of passing the comprehensive exams. A proposal for a dissertation fellowship will satisfy this requirement.

Individual chapters are generally submitted to the advisor as they are written. Other members of the Doctoral Program Committee may also review them in draft form. A complete, revised draft of the dissertation must be approved by the advisor before the student distributes the final draft to each member of the committee at least one month before the defense.

Students maintain continuous enrollment after passing their comprehensive exams by registering for 9080 or 9090 and by submitting a progress report to their Doctoral Program Committee each term. Dissertation advising is not normally available during the summer unless previous arrangements have been made.

The final examination will be in the form of an oral defense of the dissertation. Any changes recommended by the committee during the defense must be made and approved before the finished thesis can be submitted to the Graduate School. Students are responsible for ensuring they meet the deadlines and guidelines established by the Graduate School for dissertation submission and graduation.

### Funding

Incoming students are considered for funding when they apply to the program. Returning students submit applications for continued funding in the spring semester.

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Visual Studies (<https://gradschool.missouri.edu/degreecategory/visual-studies>) and the minimum requirements of the graduate faculty, enforced by the Graduate School. (<https://gradstudies.missouri.edu/admissions/eligibility-process/>). Before official admission to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.



Admission to the PhD program in the School of Visual Studies is granted yearly to a small number of candidates who hold a recognized MA degree in art history, media studies, or a related field in the humanities and social sciences. Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Visual Studies (<https://gradschool.missouri.edu/degrecategory/visual-studies/>) and the minimum requirements of the graduate faculty, enforced by the Graduate School. (<https://gradstudies.missouri.edu/admissions/eligibility-process/>). Before official admission to the University of Missouri, application materials will be reviewed by both the Graduate School and the degree program to which the applicant has applied.

Students completing an MA degree in Visual Studies in the School of Visual Studies at the University of Missouri-Columbia who want to continue for the Ph.D. must be accepted for advising by a faculty member who is a member of the doctoral faculty. Such students should submit a statement of purpose and a current CV to the department by the application deadline. After they are accepted for advising, they need to submit a "Change of Program, Degree, Emphasis or Advisor Form" to the Graduate School.

## Required Application Materials

All application materials must be submitted directly to the Graduate School through its online application system. Applications will not be considered complete until we receive the following:

- Three letters of recommendation concerning the applicant's academic qualifications to undertake graduate work
- Official transcript from all colleges or universities attended.
- CV
- Statement of purpose (approximately 500 words): A personal statement (or intellectual biography) addresses an applicant's academic interests, including specific papers and projects they have worked on, as well as what they hope to accomplish as a graduate student. It explains, too, why the applicant wishes to pursue a graduate degree in History, Theory, and Criticism in the School of Visual Studies.
- Writing Sample: One 15-20- page scholarly paper that demonstrates the applicant's scholarship and writing.

GRE scores are not required for admission to the PhD program, but are necessary for consideration for some internal SVS fellowships.

## Contact Information

School of Visual Studies, College of Arts and Science  
102 Swallow Hall  
(573) 882-7547

[muassvs@missouri.edu](mailto:muassvs@missouri.edu) (<http://catalog.missouri.edu/undergraduategraduate/collegeofartsandscience/visualstudies/phd-visual-studies/%20mailto:muassvs@missouri.edu>)

<http://visualstudies.missouri.edu> (<https://visualstudies.missouri.edu>)

## More Information

Further guidelines are included in the school's graduate programs website.

## Additional Minors and Certificates - A&S

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## Certificate in American Constitutional Democracy

### Requirements

The certificate in American Constitutional Democracy recognizes students who have completed twelve (12) hours of coursework at the University of Missouri on the history, theory, and practice of constitutional democracy in the US and around the globe. In contrast to the minor, students pursuing the certificate are not required to complete a study abroad course, internship, or other experiential class. Note: courses used to satisfy a major requirement may also count toward a certificate. However, students may not receive credit for both the certificate and the minor in American Constitutional Democracy and cannot apply transfer credit to the certificate.

Students must maintain a 'B' average (3.0 GPA) in all certificate coursework. All coursework must be completed at MU.

**Must complete 12 hours from the following courses:**

AMS 3100	The Age of Pericles	3
AMS 4800	Political Thought in Classical and Christian Antiquity	3
BL_STU 2425	Race and the American Story	3
BL_STU 2804	Black Political Thought	3
CNST_DEM 2004	Topics in Constitutional Democracy - Social Science (Constitutional Litigation)	3
CNST_DEM 2004	Topics in Constitutional Democracy - Social Science (Women's Narratives in African-American Political Thought)	1
ECONOM 3367	Law and Economics	3
ECONOM 3367W	Law and Economics - Writing Intensive	3
ECONOM 4004	Topics in Economics- Social Science (American Political Economics)	1-3
ECONOM 4320	History of Economic Thought	3
GN_HON 2010H	Honors Tutorial (The Affordable Care Act & the Constitutional Order)	1
GN_HON 2010H	Honors Tutorial (Arbitration and Liberty of Contract)	1
GN_HON 2010H	Honors Tutorial (Constitutional Interpretation)	1
GN_HON 2010H	Honors Tutorial (Crisis and Constitutional Government)	1
GN_HON 2010H	Honors Tutorial (Give Me Liberty or Give Me Arbitration)	1
GN_HON 2010H	Honors Tutorial (Hamilton and the Constitutional Foreign Affairs Powers)	1

GN_HON 2010H	Honors Tutorial (The Idea of Human Rights)	1
GN_HON 2010H	Honors Tutorial (The Impeachment Power & American Constitutional Balance)	1
GN_HON 2010H	Honors Tutorial (The Unalienable Right to the Pursuit of Happiness)	1
GN_HON 2010H	Honors Tutorial (Justice)	1
GN_HON 2010H	Honors Tutorial (Liberal Democratic Theory and Practice)	1
GN_HON 2010H	Honors Tutorial (An Overview of Liberal Democratic Theory and Practice)	1
GN_HON 2010H	Honors Tutorial (Whitman's Democratic Legacy)	1
GN_HON 2010H	Honors Tutorial ('Dynamic Disequilibrium' in American Markets and Politics)	1
GN_HON 2010H	Honors Tutorial (Housing Segregation)	1
GN_HON 2010H	Honors Tutorial (The Cold War)	1
GN_HON 2010H	Honors Tutorial (How the Law Recognizes and Defines Property)	1
GN_HON 2010H	Honors Tutorial (Nuclear Weapons, Wartime Drafts, and Cyber Warfare)	1
GN_HON 2010H	Honors Tutorial (The Presidency & Ethics)	1
GN_HON 2010H	Honors Tutorial (Myths of American Political Culture)	1
GN_HON 2010H	Honors Tutorial (From Dred Scott to Mike Brown)	1
GN_HON 2010H	Honors Tutorial (Voting in America)	1
GN_HON 2010H	Honors Tutorial (Strategic Leadership & Moral Responsibility)	1
GN_HON 2010H	Honors Tutorial (Justice & Celebration in the Ethics of What We Eat)	1
GN_HON 2010H	Honors Tutorial (The United States and Mexico)	1
GN_HON 2010H	Honors Tutorial (Melvin B. Tolson, Poetry, and Politics)	1
GN_HON 2230H	Honors Social Science Colloquium (Race and Nationalism in American Political History)	2-3
HIST 1500	Origins of European History	3
HIST 1540	England Before the Glorious Revolution	3
HIST 2004	Topics in History-Social Science (British Empire, 1560-1858)	3
HIST 2100	The Revolutionary Transformation of America	3
HIST 2100H	The Revolutionary Transformation of America - Honors	3
HIST 2120	The Young Republic	3
HIST 2120H	The Young Republic - Honors	3
HIST 2150	The American Civil War: A Global History	3
HIST 2430	History of American Religion	3
HIST 2440	History of Missouri	3
HIST 2445	American Constitutional Democracy	3
HIST 3000	History of Religion in America to the Civil War	3
HIST 3210	History of Religion in Post-Civil War America	3

HIST 3220	U.S. Women's Political History, 1880-Present	3
HIST 4000	Age of Jefferson	3
HIST 4004	Topics in History-Social Science (Constitutionalism in the Americas)	3
HIST 4004	Topics in History-Social Science (Music & Politics in the United States)	3
HIST 4004	Topics in History-Social Science (18th Century Atlantic Revolutions)	3
HIST 4010	The Age of Jackson	3
HIST 4040	Slavery and the Crisis of the Union: The American Civil War Era	3
HIST 4060	The Period of the American Revolution, 1760-1789	3
HIST 4075	Global History in Oxford	4
HIST 4080	American Foreign Policy from Colonial Times to 1898	3
HIST 4100	American Cultural and Intellectual History to 1865	3
HIST 4200	American Cultural and Intellectual History Since 1865	3
HIST 4400	History of American Law	3
HIST 4510	Crime and Punishment: Law in Classical Athens	3
HIST 4515	Power and Oratory in Ancient Greece	3
HIST 4620	Modern England	3
HIST 4650	Revolutionary France, 1789-1815	3
HIST 4900	Beltway History: American Constitutional Democracy in Theory and Practice	3
HIST 4940	Internship in History	3
HIST 4975	Journal on Constitutional Democracy	1-3
PHIL 4600	Political and Social Philosophy	3
PHIL 4610	Philosophy of Law	3
POL_SC 2200	The Judicial Process	3
POL_SC 2250	Missouri Politics	3
POL_SC 2445	American Constitutional Democracy	3
POL_SC 2450	The Intellectual World of the American Founders	3
POL_SC 2450H	The Intellectual World of the American Founders - Honors	3
POL_SC 2455	Constitutional Debates	3
POL_SC 2455H	Constitutional Debates - Honors	3
POL_SC 2800	Liberty, Justice and the Common Good	3
POL_SC 2860	American Political Thought	3
POL_SC 4004	Topics in Political Science - Social Science (The Constitutional Debates)	3
POL_SC 4004	Topics in Political Science - Social Science (The Politics of Emergency)	3
POL_SC 4004	Topics in Political Science - Social Science (Natural Law & Natural Rights)	3
POL_SC 4004	Topics in Political Science - Social Science (History of American Legislatures)	3
POL_SC 4004	Topics in Political Science - Social Science (Nationalism and Democracy)	3
POL_SC 4130	African-American Politics	3
POL_SC 4140	Congress and Legislative Policy	3
POL_SC 4150	The American Presidency	3

POL_SC 4170	Politics of the American South	3
POL_SC 4190	Elections and Democracy in the United States	3
POL_SC 4200	The American Constitution	3
POL_SC 4210	Constitutional Rights	3
POL_SC 4220	The United States Supreme Court	3
POL_SC 4230	Constitution and Civil Liberties	3
POL_SC 4370	Law, Policy, and Regulation	3
POL_SC 4380	Politics of Criminal Justice	3
POL_SC 4390	United States Health Politics and Policy	3
POL_SC 4540	American Foreign Policies	3
POL_SC 4780	Dictatorship and Democracy	3
POL_SC 4790	The Age of Democratization?	3
POL_SC 4800	Classical Political Theory	3
POL_SC 4810	Modern Political Theory	3
POL_SC 4830	Democracy in America (and Elsewhere)	3
POL_SC 4840	Developing Dynamics of Democracy	3
POL_SC 4850	Scots and the Making of America	3
POL_SC 4900	Beltway History and Politics: American Constitutional Democracy in Theory and Practice	3
POL_SC 4940	Political Science Internship	3-6
POL_SC 4975	Journal on Constitutional Democracy	1-3
PUB_AF 4001	Topics in Public Affairs (Ethics & Leadership)	3

Note: Students may petition the director of the certificate to have a maximum of three (3) hours from a course not on the list above apply toward the degree. Outside courses may have additional prerequisites.

### Contact Information

For general questions about the certificate, contact:

Justin Dyer, Program Director  
(573) 882-3777  
dyerjb@missouri.edu

Thomas Kane  
(573) 882-3330  
kanetc@missouri.edu

### Certificate in Jazz Studies

Undergraduate Music and Music Education Majors (BM, BA Music) may earn a Certificate in Jazz Studies by completing this core of courses in jazz. Approval for admission into the Certificate program must be received from the Director of Jazz Studies.

### Requirements

A minimum of 12 credits is required, including the following:

MUS_THRY 4210	Jazz Harmony and Arranging I	2
MUS_THRY 4211	Jazz Harmony and Arranging II	2
MUS_I_VT 1620	Jazz Piano Class	1
MUS_I_VT 4645	Jazz Improvisation	2
MUS_H_LI 4317	Historical Studies in Jazz and Popular Music	3
MUS_ENS 1841	Instrumental Ensemble (Total Credits 2)	2
Total Credits		12

## Certificate in Multicultural Studies

The College of Arts and Sciences offers a Certificate in Multicultural Studies. Students earning the certificate will become familiar with multicultural and diversity issues. In an increasingly global environment, students earning this certificate will be better prepared to understand and to facilitate cross-cultural interactions in their future careers, as well as in their general life experiences.

### Requirements

Students are required to complete a coherent program of 15 credit hours from a list of approved courses\*. Approved courses for the certificate critically evaluate and examine issues of social inequality and social stratification (e.g., gender, race, ethnicity, religion, region, sexuality, and/or class inequality) globally and in the United States. Courses must be chosen from at least 2 different departments/programs. At least 6 credits must be completed at the 3000 level or above. One course (up to 3 credit hours minimum and 6 credit hours maximum) may include an applied experience of cultural difference\*. Approved research-based undergraduate courses, transcribed Study Abroad and other experiences approved through the Center for International Programs and Studies, and transcript-designated "Service Learning" coursework are among the possibilities. Only coursework in foreign languages that is numbered above 2100 is applicable, and the maximum number of such credit hours is 6. A grade of C- or higher must be earned in each course, and students must maintain a cumulative GPA of 2.0 for overall coursework counting towards the certificate. Consistent with MU policy on certificates, an undergraduate degree and certificate must be awarded simultaneously.

### Contact Information

\* Contact the Multicultural Certificate Program office, 58 McReynolds, for full details and an updated course list, or go to <http://multicultural.missouri.edu/>

## Certificate in Music Entrepreneurship

The Undergraduate Music Entrepreneurship Certificate offers MU students an officially recognized core of courses dealing with the development, business, and publicity aspects of a musical career. In today's fine arts economy, an increasingly viable and popular model is the 'portfolio career,' in which a person incorporates multiple roles (e.g. performer, teacher, advocate, manager, publicist, composer/arranger, etc.) rather than pursuing one narrowly defined career path. Contextualizing the vision, skills, and networking activities needed to achieve a viable arts career, while offering a combination of theoretical and practical career preparation for Mizzou students, is the overarching aim of the Certificate.

**Availability:** Aimed primarily at degree-seeking students in music and music education, this certificate is also available to students in other majors with a commitment to pursuing a career in the music industries. All students who wish to declare the certificate must receive approval from the School of Music by contacting Susan Worstell, [WorstellS@missouri.edu](mailto:WorstellS@missouri.edu).

### Requirements

#### Required Courses

MUS_GENL 4510	Career Development for Musicians	2
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MUS_GENL 4512	Principles of Arts Entrepreneurship	2
MUS_GENL 4514	Arts Marketing	1
MUS_GENL 4516	Grant Writing for the Arts	1
MUS_GENL 4518	Arts Industry Survey	1
MUS_GENL 4520	Non-Profit Management in the Arts	1
MUS_GENL 4522	Community Engagement in the Arts	1
MUS_GENL 4530	Leadership, Advocacy, and Policy in the Arts	1
MUS_GENL 4540	Music Entrepreneurship Practicum	2
Total Credits		12

## Certificate in Neuroscience

The Certificate in Neuroscience will provide students the opportunity to pursue the many neuroscience related disciplines; brain imaging, molecular neuroscience, cognitive neuroscience, behavioral neuroscience, bio-engineering, clinical neuroscience, developmental neuroscience, and neuropsychology. The certificate will prepare students to work in neuroscience related jobs and disciplines, both in research and industry. These areas would include but are not limited to medicine, neuro-rehabilitation, occupational therapy, clinical therapists, physical therapy, forensics, biotechnology industry, hospitals, science writing and science education.

### Requirements

Twelve credit hours are required for completion of the certificate. At least 6 hours must be at the 3000-level or above. A maximum of 6 hours from an department may be applied to the 12 hour requirement. A maximum of 3 hours from problems/readings and/or internship sections may be applied and the student must demonstrate that the experiential learning was related to neuroscience.

#### Psychological Sciences

PSYCH 2110	Learning, Memory, and Cognition	3
PSYCH 2210	Mind, Brain, and Behavior	3
PSYCH 2220	Drugs and Behavior	3
PSYCH 3140	Cognitive Psychology	3
PSYCH 3150	Human Memory	3
PSYCH 4210	Physiological Psychology	3
PSYCH 4240	Cognitive Neuroscience	3

#### Biological Sciences

BIO_SC 3700	Animal Physiology	5
BIO_SC 4500	Neurobiology	3
BIO_SC 4590	Computational Neuroscience	4
BIO_SC 4640	Behavioral Biology	3-4

#### Bioengineering

BIOL_EN 4070	Bioelectricity	3
BIOL_EN 4075	Brain Signals and Brain Machine Interfaces	3

#### Electrical Engineering

ECE 4590	Computational Neuroscience	4
ECE 2001	Experimental Course	1-99

#### Medical School

MPP 3202	Elements of Physiology	5
MPP 4204	Medical Pharmacology	4

## Certificate in Sports Analytics

The Certificate in Sports Analytics will prepare students with the skills and training needed to collect data and to interpret and analyze it. This is a free-standing certificate program within the Department of Statistics.

### Requirements:

Students will complete 12 credit hours of course work offered by the Department of Statistics, consisting of a two-course sequence in applied statistical models and a two-course sequence in sports analytics.

STAT 4510	Applied Statistical Models I	3
STAT 4520	Applied Statistical Models II	3
STAT 4330	Methods in Sports Analytics I	3
STAT 4340	Methods in Sports Analytics II	3

## Minor in Aerospace Studies

### Requirements

A minor in Aerospace Studies is available upon the completion of 15 semester hours, of which 12 hours are taught by Aerospace Studies. The additional 3 hours must be approved by the Department of Aerospace Studies and be in the academic area of history, political science, sociology, military science disciplines, or peace studies.

## Minor in Afro-Romance Literatures in Translation

### Requirements

Students may obtain a minor in Afro-Romance Literatures in Translation by completing the courses listed below. All courses must be completed with a grade of C- or higher, and students must maintain a 2.0 GPA in the minor.

#### Basic language sequences:

Choose a language and complete the sequence

Spanish		12
SPAN 1100	Elementary Spanish I	
SPAN 1200	Elementary Spanish II	
SPAN 2100	Elementary Spanish III	
French		12
FRENCH 1100	Elementary French I	
FRENCH 1200	Elementary French II	
FRENCH 2100	Elementary French III	
Italian		10-12
ITAL 1100	Elementary Italian I	
ITAL 1200	Elementary Italian II	
Portuguese		8
PORT 1100	Elementary Portuguese I	
PORT 1200	Elementary Portuguese II	

#### Literatures-in-translation courses:

Choose 3 courses representing at least two languages

FRENCH 2350	New World Francophone Literature in Translation	3
RM_LAN 2310	Literature of the African Diaspora	3
SPAN 2340	Hispanic Minority Literature	3

#### Upper level courses:

Choose 2 courses from the list below

FRENCH 3710	Survey of Minority and Creole Languages of the U.S. and the Caribbean	3
PORT 3001	Topics in Portuguese-General	1-3
RM_LAN 4310	Literature of the African Diaspora	3
SPAN 3710	Survey of Minority and Creole Languages of the U.S. and the Caribbean	3

## Minor in American Constitutional Democracy

The minor in American Constitutional Democracy is designed for those students who wish to delve more deeply into the philosophical roots and complex history of self-government by exploring the intellectual, political, historical, and cultural forces that contributed to the development of both the American republic and constitutional democracy around the globe. The minor is appropriate for students in many majors, particularly political science, economics, history, and journalism.

In addition to a wide-ranging interdisciplinary curriculum, the minor contains a required "experiential" component that allows students to consider constitutional issues in practice and/or in comparative perspective.

### Requirements

A minimum of fifteen (15) credits are required for the minor. Students in the minor must maintain a B average (3.0 GPA) for courses in the minor.

A minimum of twelve (12) credits must come from the courses below. At least nine (9) hours must be completed at MU.

Additionally, a minimum of three (3) credits must come from an experiential component. The experiential component may be satisfied through participation in either an internship or study abroad program associated with the minor or approved by the director of the minor.

The minor must be completed with courses from at least two (2) subject areas.

- A minor must be completed and awarded at the same time as the MU undergraduate degree
- Once an A&S minor is awarded, a student cannot return to MU to complete a major in the same department
- Minor coursework cannot also be used for Foreign Language Alternative

AMS 3100	The Age of Pericles	3
AMS 4800	Political Thought in Classical and Christian Antiquity	3
BL_STU 2425	Race and the American Story	3
BL_STU 2804	Black Political Thought	3
CNST_DEM 2004	Topics in Constitutional Democracy - Social Science (Constitutional Litigation)	3
CNST_DEM 2004	Topics in Constitutional Democracy - Social Science (Women's Narratives in African-American Political Thought)	1
ECONOM 3367	Law and Economics	3
ECONOM 3367W	Law and Economics - Writing Intensive	3

ECONOM 4004	Topics in Economics- Social Science (American Political Economics)	1-3	HIST 2100	The Revolutionary Transformation of America	3
ECONOM 4320	History of Economic Thought	3	HIST 2100H	The Revolutionary Transformation of America - Honors	3
GN_HON 2010H	Honors Tutorial (The Affordable Care Act & the Consitutional Order)	1	HIST 2120	The Young Republic	3
GN_HON 2010H	Honors Tutorial (Arbitration and Liberty of Contract)	1	HIST 2120H	The Young Republic - Honors	3
GN_HON 2010H	Honors Tutorial (Constitutional Interpretation)	1	HIST 2150	The American Civil War: A Global History	3
GN_HON 2010H	Honors Tutorial (Crisis and Consitutional Government)	1	HIST 2430	History of American Religion	3
GN_HON 2010H	Honors Tutorial (Give Me Liberty or Give Me Arbitration)	1	HIST 2440	History of Missouri	3
GN_HON 2010H	Honors Tutorial (Hamilton and the Constitutional Foreign Affairs Powers)	1	HIST 2445	American Constitutional Democracy	3
GN_HON 2010H	Honors Tutorial (The Idea of Human Rights)	1	HIST 3000	History of Religion in America to the Civil War	3
GN_HON 2010H	Honors Tutorial (The Impeachment Power & American Constitutional Balance)	1	HIST 3210	History of Religion in Post-Civil War America	3
GN_HON 2010H	Honors Tutorial (The Unalienable Right to the Pursuit of Happiness)	1	HIST 3220	U.S. Women's Political History, 1880-Present	3
GN_HON 2010H	Honors Tutorial (Justice)	1	HIST 4000	Age of Jefferson	3
GN_HON 2010H	Honors Tutorial (Liberal Democratic Legacy)	1	HIST 4004	Topics in History-Social Science (Constitutionalism in the Americas)	3
GN_HON 2010H	Honors Tutorial (An Overview of Liberal Democratic Theory and Practice)	1	HIST 4004H	Topics in History-Social Science - Honors (Music & Politics in the United States)	3
GN_HON 2010H	Honors Tutorial (Whitman's Democratic Legacy)	1	HIST 4004	Topics in History-Social Science (18th Century Atlantic Revolutions)	3
GN_HON 2010H	Honors Tutorial ('Dynamic Disequilibrium' in American Markets and Politics)	1	HIST 4010	The Age of Jackson	3
GN_HON 2010H	Honors Tutorial (Housing Segregation)	1	HIST 4040	Slavery and the Crisis of the Union: The American Civil War Era	3
GN_HON 2010H	Honors Tutorial (The Cold War)	1	HIST 4060	The Period of the American Revolution, 1760-1789	3
GN_HON 2010H	Honors Tutorial (How the Law Recognizes and Defines Property Rights)	1	HIST 4075	Global History in Oxford	4
GN_HON 2010H	Honors Tutorial (Nuclear Weapons, Wartime Drafts, and Cyber Warfare)	1	HIST 4080	American Foreign Policy from Colonial Times to 1898	3
GN_HON 2010H	Honors Tutorial (The Presidency & Ethics)	1	HIST 4100	American Cultural and Intellectual History to 1865	3
GN_HON 2010H	Honors Tutorial (Myths of American Political Culture)	1	HIST 4200	American Cultural and Intellectual History Since 1865	3
GN_HON 2010H	Honors Tutorial (Justice and Celebration in the Ethics of What We Eat)	1	HIST 4400	History of American Law	3
GN_HON 2010H	Honors Tutorial (From Dred Scott to Mike Brown)	1	HIST 4510	Crime and Punishment: Law in Classical Athens	3
GN_HON 2010H	Honors Tutorial (Voting in America)	1	HIST 4515	Power and Oratory in Ancient Greece	3
GN_HON 2010H	Honors Tutorial (Strategic Leadership & Moral Responsibility)	1	HIST 4620	Modern England	3
GN_HON 2010H	Honors Tutorial (The United States and Mexico)	1	HIST 4650	Revolutionary France, 1789-1815	3
GN_HON 2010H	Honors Tutorial (Melvin B. Tolson, Poetry, and Politics)	1	HIST 4900	Beltway History: American Constitutional Democracy in Theory and Practice	3
GN_HON 2230H	Honors Social Science Colloquium (Race and Nationalism in American Political History)	2-3	HIST 4940	Internship in History	3
HIST 1500	Origins of European History	3	HIST 4975	Journal on Constitutional Democracy	1-3
HIST 1540	England Before the Glorious Revolution	3	PHIL 4600	Political and Social Philosophy	3
HIST 2004	Topics in History-Social Science (British Empire, 1560-1858)	3	PHIL 4610	Philosophy of Law	3
			POL_SC 2200	The Judicial Process	3
			POL_SC 2250	Missouri Politics	3
			POL_SC 2445	American Constitutional Democracy	3
			POL_SC 2450	The Intellectual World of the American Founders	3
			POL_SC 2450H	The Intellectual World of the American Founders - Honors	3
			POL_SC 2455	Constitutional Debates	3
			POL_SC 2455H	Constitutional Debates - Honors	3
			POL_SC 2800	Liberty, Justice and the Common Good	3

POL_SC 2860	American Political Thought	3
POL_SC 4004	Topics in Political Science - Social Science (The Constitutional Debates)	3
POL_SC 4004	Topics in Political Science - Social Science (The Politics of Emergency)	3
POL_SC 4004	Topics in Political Science - Social Science (Natural Law & Natural Rights)	3
POL_SC 4004	Topics in Political Science - Social Science (History of American Legislatures)	3
POL_SC 4004	Topics in Political Science - Social Science (Nationalism and Democracy)	3
POL_SC 4130	African-American Politics	3
POL_SC 4140	Congress and Legislative Policy	3
POL_SC 4150	The American Presidency	3
POL_SC 4170	Politics of the American South	3
POL_SC 4190	Elections and Democracy in the United States	3
POL_SC 4200	The American Constitution	3
POL_SC 4210	Constitutional Rights	3
POL_SC 4220	The United States Supreme Court	3
POL_SC 4230	Constitution and Civil Liberties	3
POL_SC 4370	Law, Policy, and Regulation	3
POL_SC 4380	Politics of Criminal Justice	3
POL_SC 4390	United States Health Politics and Policy	3
POL_SC 4540	American Foreign Policies	3
POL_SC 4780	Dictatorship and Democracy	3
POL_SC 4790	The Age of Democratization?	3
POL_SC 4800	Classical Political Theory	3
POL_SC 4810	Modern Political Theory	3
POL_SC 4830	Democracy in America (and Elsewhere)	3
POL_SC 4840	Developing Dynamics of Democracy	3
POL_SC 4850	Scots and the Making of America	3
POL_SC 4900	Beltway History and Politics: American Constitutional Democracy in Theory and Practice	3
POL_SC 4940	Political Science Internship	3-6
POL_SC 4975	Journal on Constitutional Democracy	1-3
PUB_AF 4001	Topics in Public Affairs (Ethics & Leadership)	3

Note: Students may petition the director of the minor to have a maximum of three (3) hours from a related course not on the list above apply toward the degree. Outside courses may have additional prerequisites.

### Contact

For general questions about the minor, contact:

Justin Dyer, Program Director  
(573) 882-3777  
dyerjb@missouri.edu

Thomas Kane  
(573) 882-3330  
kanetc@missouri.edu

## Minor in Astronomy

### Requirements

A student whose major is in another department may receive a minor in astronomy. A student must have a total of 19 credit hours to receive a minor in astronomy. At least nine of the 19 credit hours must be completed on-campus. A grade of C- or better is required for all courses in the minor.

PHYSCS 2750	University Physics I	5
PHYSCS 2760	University Physics II	5
PHYSCS 3010	Introduction to Modern Astrophysics	3
Two additional astronomy courses at 3000/4000 level or above.		6
Total Credits		19

### Application for Minor

To receive your minor in astronomy, you must print and fill out the minor form (<https://physics.missouri.edu/sites/default/files/undergrad-files/fileastronomyminorform.pdf>), have it signed by the Director of Undergraduate Studies in the Physics and Astronomy Department, and then take it to 107 Lowry Hall.

## Minor in Black Studies

### Requirements

Students seeking a minor in Black Studies must complete 15 credit hours. A minimum of 6 hours numbered 2000 or above, and 3 hours numbered 3000 or above, are required in the minor. A minimum of 9 hours of minor coursework must be taken at MU. A minimum grade of C- or above is required in each minor course. A minimum GPA of 2.0 in all combined minor coursework is required to earn the minor.

BL_STU 1000	Introduction to Black Studies	3
Three hours of Black Studies coursework in each of the four content areas (consult Black Studies department for course options)		
Black Politics		3
Arts, Literature, and Culture		3
Diaspora Studies		3
Gender, Race, Sexuality, Class		3
Total Credits		15

## Minor in Canadian Studies

A Minor in Canadian Studies allows you to

- participate in Study Abroad programs in Canada
- enhance your degree and career options
- learn about the culture, history, and politics of Canada

With a minor in Canadian Studies, students will be better equipped to deal with political, economic, social and even cultural issues that will arise vis-a-vis Canada, a close military ally and trading partner. In an era that features the internet, Free Trade, and most importantly, issues of border security and national defense, knowledge of Canada is particularly useful in a number of careers. The Canadian Studies Program is an interdisciplinary program which includes Political Science, Geography, Anthropology, Romance Languages, and Public Affairs.

## Requirements

The minor concentration in Canadian Studies will require 15 hours of credits. Courses may be selected from at least two of the disciplines listed below. Any course qualifies for the Minor in Canadian Studies as long as it contains at least one-third content on Canada.

- A minor must be completed and awarded at the same time as the MU undergraduate degree
- Once an A&S minor is awarded, a student cannot return to MU to complete a major in the same department

### Courses in Political Science

POL_SC 2600	Canadian Politics and Government	3
POL_SC 4660	Canada in North America	3
POL_SC 4986	Special Readings in Political Science (consult with professor if interested)	1-99

Canadian Politics: Fundamentals and Selected Topics

### Courses in Geography

GEOG 2120	United States and Canada	3
GEOG 1100	Regions and Nations of the World I	3
GEOG 3780	World Political Geography: Patterns and Processes	3

### Courses in Anthropology

ANTHRO 2030	Cultural Anthropology	3
ANTHRO 1300	Multiculturalism: An Introduction	3
ANTHRO 4600	Ethnographic Studies of Selected Cultures	3

### Courses in Romance Languages and Literatures

FRENCH 3440	Francophone Literature of North America	3
The French Novel of Quebec		

### Courses in English

ENGLISH 4129	Ethnic Literature, 1890 to Present	3
ENGLISH 3855	Documentary Film	3

## For general questions about the minor, contact:

James Endersby, Program Director  
(573) 882-4238  
endersby@missouri.edu

Political Science Academic Advisor  
(573) 882-2580  
politicalscience@missouri.edu

## Minor in Chinese Studies

### Requirements

Students may obtain a minor in Chinese Studies by completing at least 15 credits of Chinese courses. At least nine of these hours must be completed on campus, or as part of an MU faculty-led study abroad program. At least nine of these credit hours must be earned in Chinese language courses beyond the elementary level. The remaining six hours can be earned in non-language Chinese culture courses, or courses from other departments that relate to China.

CHINSE 2100	Everyday Spoken Chinese Level I	3
CHINSE 2160	Intermediate Chinese I Conversation and Composition	3
CHINSE 2310	Chinese Civilization I	3

CHINSE 2330	Chinese Language and Culture	3
CHINSE 3085	Problems in Chinese	1-3
CHINSE 3160	Intermediate Chinese II Conversation and Composition	3
CHINSE 3170	Everyday Spoken Chinese Level II	3
CHINSE 3180	Advanced Chinese I	3
CHINSE 3310	Chinese Poetry (Course currently in CIM workflow.)	3
CHINSE 3320	Modern and Contemporary Chinese Fiction (in translation)	3
CHINSE 3300	Chinese Traditions and Global Integration	3
CHINSE 3300H	Chinese Traditions and Global Integration - Honors	3
CHINSE 3400	Negotiating Chinese Culture	3
CHINSE 3880	Contemporary Chinese Film	3
HIST 1871	History of China in Modern Times	3
HIST 1872	Mao's China and Beyond: China Since 1949	3
HIST 2820	Taiwan: The First Chinese Democracy	3
HIST 3820	Twentieth Century China	3
HIST 4800	Modern China and Japan: War, Imperialism and Memory	3
HIST 4880	Chinese Migration: From Yellow Peril to Model Minority	3
PHIL 4800	Asian Philosophy	3
POL_SC 4680	Chinese Politics and Foreign Policy	3
REL_ST 2310	Religions of China and Japan	3
REL_ST 3250	Buddhism in East Asia	3
REL_ST 4320	Introduction to Daoism	3

The Chinese Minor form can be downloaded here ([http://catalog.missouri.edu/undergraduategraduate/collegeofartsandsience/additional-minors-certifications/minor-chinese-studies/Chinese\\_Minor\\_Form.pdf](http://catalog.missouri.edu/undergraduategraduate/collegeofartsandsience/additional-minors-certifications/minor-chinese-studies/Chinese_Minor_Form.pdf)) (links to PDF). To apply for a minor in Chinese, visit the Department of German & Russian Studies in 448 Strickland Hall.

## Minor in Creative Writing

The Creative Writing Minor offers courses in writing fiction, creative nonfiction, and poetry. Upon completion of the Minor, students will be versed in the concepts and vocabulary integral to these genres and have experience applying these concepts and vocabulary in their own original works.

### Requirements

15 credit hours are required.

At least three credit hours at the 1000 level (1500, 1510, 1520, 1530) in any genre.

At least three credit hours at the 2000 level (2510, 2520, 2530) in any genre.

At least three credit hours at the 4000 level (4510, 4520, 4530) in any genre.

Students must also take 6 credits in 3000- or 4000-level English courses.

A grade of C- or above must be earned in all minor coursework and a minimum GPA of 2.0 achieved in the minor. A minimum of 9 credit hours



must be completed in MU coursework. Students who declare a major in English cannot simultaneously minor in Creative Writing.

## Minor in East Asian Studies

### Requirements

- Complete 9 hours related to one cultural group and 6 hours related to a second cultural group. For example, a student can complete 9 hours related to Chinese studies and 6 hours related to Japanese studies. The cultural group options are Chinese, Japanese, and Korean.
- At least 6 credits must be numbered 2000 level or above.
- Nine of the required credits must be completed at MU.
- The elementary levels of language (Japanese, Chinese, and/or Korean) may NOT be used to fulfill minor requirements.
- Intermediate-level language courses may be used to meet minor requirements.
- A minimum grade of C- is required for each course taken in the minor. A minimum cumulative GPA in all minor coursework is 2.0.

#### Course Options

Conversation & Composition Language Courses:		
CHINSE 2160	Intermediate Chinese I Conversation and Composition	3
CHINSE 3160	Intermediate Chinese II Conversation and Composition	3
CHINSE 3180	Advanced Chinese I	3
JAPNSE 2160	Japanese Conversation and Composition	3
JAPNSE 3160	Intermediate Japanese Composition and Conversation	3
JAPNSE 3370	Intermediate Readings in Japanese	3
JAPNSE 3380	Intermediate Japanese II	3
JAPNSE 4160	Advanced Japanese I	3
JAPNSE 4180	Advanced Japanese II	3
KOREAN 2160	Intermediate Korean Language I	3
KOREAN 3160	Intermediate Korean Language II	3
Courses Taught in English:		
CHINSE 2310	Chinese Civilization I	3
CHINSE 2330	Chinese Language and Culture	3
CHINSE 3300	Chinese Traditions and Global Integration	3
CHINSE 3320	Modern and Contemporary Chinese Fiction (in translation)	3
CHINSE 3400	Negotiating Chinese Culture	3
CHINSE 3880	Contemporary Chinese Film	3
GEOG 1200	Regions and Nations of the World II	3
GEOG 4770	Migration and Immigration	3
HIST 1830	Survey of East Asian History	3
HIST 1871	History of China in Modern Times	3
HIST 1872	Mao's China and Beyond: China Since 1949	3
HIST 4800	Modern China and Japan: War, Imperialism and Memory	3
HIST 4870	Southeast Asia Since the Eighteenth Century	3
HIST 4880	Chinese Migration: From Yellow Peril to Model Minority	3

JAPNSE 2310	Japanese Civilization I	3
JAPNSE 3360	Modern Japanese Literature (in Translation)	3
JAPNSE 3850	Traditional Japanese Theatre	3
JAPNSE 3880	Japan and its Cinema	3
KOREAN 2310	Korean Civilization I	3
KOREAN 2320	Korean Civilization II	3
KOREAN 3800	Korean Economic Development and US-Korean Free Trade Agreement	3
KOREAN 3890	Korean Society Through Cinema	3
KOREAN 4220	North Korean Politics	3
KOREAN 4260	The Korean Diaspora in the U.S., Japan and China	3
PHIL 2100	Philosophy: East and West	3
PHIL 4800	Asian Philosophy	3
REL_ST 2110	Global Religions	3
REL_ST 2310	Religions of China and Japan	3
REL_ST 3200	Hinduism	3
REL_ST 3230	Buddhism and Environmental Ethics	3
REL_ST 3250	Buddhism in East Asia	3
REL_ST 4320	Introduction to Daoism	3
S_A_ST 2100	Philosophy: East and West	3
S_A_ST 3200	Hinduism	3
S_A_ST 3230	Buddhism and Environmental Ethics	3
S_A_ST 3240	Buddhism of South and Southeast Asia	3

Topics courses with content related to East Asian Studies are often available in the following subject areas and can be used to fulfill minor requirements: Chinese, Japanese, Korean, Philosophy, Political Science, and Religious Studies.

### Policies

- Courses required for the minor may also be used to meet the College of Arts & Science Foundation requirements.
- Minors are only awarded to undergraduate students who are simultaneous recipients of a Bachelor degree.
- Students may not earn a major and a minor in the same field. In addition, students may not earn a major emphasis and a minor in the same field.

For course options see <https://omd.missouri.edu/?q=eas-minor/index>.

## Faculty for East Asian Studies

### Chinese

Associate Teaching Professor and Coordinator, Chinese: Michael Volz  
Assistant Teaching Professor: Huichung Liang

### Japanese

Instructor: Eric Lancaster  
Instructor: Chieko Kellar

### Korean

Associate Teaching Professor: Seungkwon You

Office of Multidisciplinary Degrees  
326H Strickland Hall  
<https://omd.missouri.edu/?q=eas-minor/index>

## Minor in French

### Requirements

Students may obtain a French minor by completing a minimum of 15 credits beyond FRENCH 2100, of which at least 6 credits must be in literature. Courses taught in English and cross-listed courses taught in English do not count toward the minor. The courses listed below are the most likely choice.

FRENCH 2160	Intermediate French Composition and Conversation	3
FRENCH 3160 or FRENCH 3280	Advanced French Composition and Conversation I Commercial French	3
FRENCH 3410	Introduction to Literary Analysis	3
FRENCH 3420	Introduction to French Literature I	3
FRENCH 3430	French Masterworks: Texts and Contexts	3

Students beginning at a level higher than FRENCH 2160 due to placement testing must still complete the minimum of 15 additional credits in order to receive the minor. A minimum of 9 credits, including 3 in literature, must be taken in residence.

Additionally, course work must be completed with a grade in the C range or higher in each of the required courses and students must maintain a 2.0 GPA in the minor.

### Application for Minor

Students interested in this minor should complete the French Minor Form. ([https://romancelanguages.missouri.edu/sites/default/files/undergrad-files/french\\_minor\\_form\\_x.pdf](https://romancelanguages.missouri.edu/sites/default/files/undergrad-files/french_minor_form_x.pdf))

## Minor in Italian Area Studies

### Requirements

Students may obtain a minor in Italian area studies by completing at least 9 credits must be obtained through the mandatory course sequence: ITAL 2160, ITAL 3150, and ITAL 3160. The remaining 6 credits may be obtained by enrolling in two of our elective courses in English. Elective course offerings vary from year to year. Consult the current course offerings on myZou and/or in the Course Catalogue or contact an Italian faculty member for information for each academic year.

Normally, 9 credits must be completed in residence at MU. However, students are permitted to count 6 credits toward the minor from an officially sanctioned semester or year-long foreign study program in Italy. Six credits toward the minor can also be earned in summer programs abroad, such as the summer intensive language program offered by the University of Bergamo (near Milan) or by the Centro Fiorenza in Florence or on the Island of Elba.

Additionally, course work must be completed with a grade in the C range or higher in each of the required courses and students must maintain a 2.0 GPA in the minor.

Elective courses may also be chosen among Italian-emphasis courses offered by other MU Departments (e.g., Art History, History, Music) or other MU programs. These courses are subject to approval by either Dr. Rita Caviglioli ([cavigliolr@missouri.edu](mailto:cavigliolr@missouri.edu)) or Dr. Roberta Tabanelli ([tabanellir@missouri.edu](mailto:tabanellir@missouri.edu)).

## Contact and Additional Information

Students coming from a different academic institution or students who took courses abroad should contact the Coordinator of Elementary Italian, Dr. Rita Caviglioli, an Italian faculty member before enrolling in any of our Minor courses taught in Italian. A placement exam may be administered in order to assess the student's linguistic and cultural competence.

## Minor in Japanese Studies

### Requirements

Students may obtain a minor in Japanese Studies by completing at least 15 credits of Japanese courses. At least nine of these hours must be completed on campus. At least nine of these credit hours must be earned in Japanese language courses beyond the elementary level. The remaining six hours can be earned in non-language Japanese culture courses, or courses from other departments that relate to Japan.

JAPNSE 2160	Japanese Conversation and Composition	3
JAPNSE 3160	Intermediate Japanese Composition and Conversation	3
JAPNSE 3370	Intermediate Readings in Japanese	3
JAPNSE 3380	Intermediate Japanese II	3
JAPNSE 3085	Problems in Japanese	1-3
JAPNSE 4160	Advanced Japanese I	3
JAPNSE 4180	Advanced Japanese II	3
JAPNSE 2310	Japanese Civilization I	3
JAPNSE 3360	Modern Japanese Literature (in Translation)	3
JAPNSE 3850	Traditional Japanese Theatre	3
JAPNSE 3880	Japan and its Cinema	3
JAPNSE 4005	Topics in Japanese - Humanities	1-3
JAPNSE 4005H	Topics in Japanese - Humanities - Honors	1-3
HIST 1830	Survey of East Asian History	3
REL_ST 2310	Religions of China and Japan	3

## Minor in Jazz Studies

Student who have chosen a major in a non-music field may complete a minor in jazz. The Minor is not intended for beginners, but for students with basic musical knowledge. Hence the prerequisites (MUSIC\_NM 1211 or MUS\_THRY 1220) for three of the required courses (MUS\_I\_VT 1620, MUS\_I\_VT 4645, and MUS\_THRY 4210) and auditions required for Jazz Ensembles. Approval for declaration of the Jazz Minor must be received from the Director of Jazz Studies.

### Requirements

A minimum of 15 credits is required, including the following:

MUS_THRY 4210	Jazz Harmony and Arranging I	2
MUS_THRY 4211	Jazz Harmony and Arranging II	2
MUS_I_VT 1620	Jazz Piano Class	1
MUS_I_VT 4645	Jazz Improvisation	2
MUSIC_NM 1311	Jazz, Pop, and Rock	3
MUS_ENS 1841 & MUS_ENS 1846	Instrumental Ensemble and Chamber Music (Large Jazz Ensemble & Small Jazz Ensemble)	2

MUSIC_NM 2445	Studio Instruction for Non-Majors (Or additional hours in Jazz Ensembles)	3
Total Credits		15

## Minor in Korean Studies

### Requirements

Students may obtain a minor in Korean Studies by completing at least 15 credits of Korean courses. At least nine of these hours must be completed on campus, or as part of an MU faculty-led study abroad program. At least six of these credit hours must be earned in Korean language courses beyond the elementary level. The remaining nine credit hours can be earned in non-language Korean culture courses, or courses from other departments that relate to Korea.

KOREAN 2160	Intermediate Korean Language I	3
KOREAN 3160	Intermediate Korean Language II	3
KOREAN 2310	Korean Civilization I	3
KOREAN 2320	Korean Civilization II	3
KOREAN 3800	Korean Economic Development and US-Korean Free Trade Agreement	3
KOREAN 3890	Korean Society Through Cinema	3
KOREAN 4220	North Korean Politics	3
KOREAN 4260	The Korean Diaspora in the U.S., Japan and China	3
KOREAN 3001	Topics in Korean-General	1-3
KOREAN 3005	Topics in Korean - Humanities	3
KOREAN 4001	Topics in Korean-General	1-3
KOREAN 4005	Topics in Korean - Humanities	1-3
HIST 1830	Survey of East Asian History	3
HIST 2810	History of Korea: Premodern to Hypermodern	3

## Minor in Latin American Studies

This is an interdisciplinary minor which allows students to take courses about Latin America from various departments. Find course options at the link above.

### Requirements

- Complete 15 credit hours from at least two departments.
- At least 6 credits must be numbered 2000 level or above.
- Nine of the required credits must be completed at MU.
- The elementary levels of language may NOT be used to fulfill minor requirements.
- Intermediate-level language courses may be used to meet minor requirements.
- A minimum grade of C- is required for each course taken in the minor. A minimum cumulative GPA in all minor coursework is 2.0.

### Policies

- Courses required for the minor may also be used to meet the College of Arts & Science Foundation requirements.
- Minors are only awarded to undergraduate students who are simultaneous recipients of a Bachelor degree.

- Students may not earn a major and a minor in the same field. In addition, students may not earn a major emphasis and a minor in the same field.

Office of Multidisciplinary Degrees  
326H Strickland Hall  
<https://omd.missouri.edu/?q=las-minor/index>

## Minor in Leadership and Public Service

The Minor in Leadership and Public Service combines an academic component of courses in leadership, public policy, ethics, and social issues with a strong focus on service-learning, community service, and public service internships.

Consider this minor if you are:

- Interested in a self-crafted minor that provides a framework for your own leadership goals
- Set on developing the skills needed to succeed in both the non-profit sector and government
- Determined to give back on a local, national, and international level
- Looking for an opportunity to set yourself apart from the applicant pool for both graduate and professional school

### Requirements

A minimum of 15 credit hours are required to complete the Minor.

SRV_LRN 2021	MU Community Engagement Project	3
or SRV_LRN 2021H	MU Community Engagement Project - Honors	
2 Electives (refer to list of Recommended Courses at <a href="https://servicelearning.missouri.edu/programs/leadership-public-service">https://servicelearning.missouri.edu/programs/leadership-public-service</a> )		6
Field Experience (Internship, Global Service-Learning, Seminar of Service-Learning Courses)		6
Total Credits		15

### For more information, contact:

Kirsten Pape  
MU Office of Service Learning  
208 Lowry Hall  
Columbia, MO 65211  
(573) 882-0227  
[servicelearning@missouri.edu](mailto:servicelearning@missouri.edu)

## Minor in Luso-Brazilian Area Studies

### Requirements

Students may obtain a minor in Luso-Brazilian Area Studies by completing at least 9 credits in the Portuguese language beyond Portuguese 1200, e.g. PORT 2160, PORT 3160 and PORT 3260.

An additional 6 credits may be chosen from the following list:

PORT 2310	Brazilian Civilization	3
PORT 3001/3005	Topics in Portuguese-General	1-3
PORT 3420	Survey of Brazilian Literature	3

PORT 3875	Brazilian Cinema	3
SPAN 2330	Latin American Civilization	3

Luso-Brazilian culture/topics emphasis courses offered by other programs/departments (e.g. Anthropology, History, Music, Political Science).

Normally 9 credits must be completed in residence at MU. However, students are permitted to count 6 credits toward the minor from an officially sanctioned semester or year-long foreign study program in Brazil or Portugal. These include the MU in Rio de Janeiro program at the Pontificia Universidade Catolica and the CIEE Universidade Nova de Lisboa program.

Additionally, course work must be completed with a grade in the C range or higher in each of the required courses and students must maintain a minimum GPA of 2.0 in the minor.

## Minor in Medieval and Renaissance Studies

If you are interested in learning more about dead languages, medieval literature, and the Middle Ages or the Renaissance, then explore the possibility of a MARS undergraduate minor. Student coursework is built on medieval and Renaissance topics. They will receive outstanding instruction from faculty in up to eleven different academic departments. For students interested in medieval and Renaissance history, art, literatures, religion, music, languages, and culture, the MARS minor offers the possibility of furthering interests while studying more broadly towards your major. Meet others interested in the same things as you, incorporate classwork you've already done, and learn new things about the Middle Ages and Renaissance, all while showing prospective employers or graduate schools the depth of your study.

### Requirements

- A minimum of fifteen (15) hours of approved coursework (see list below) in two different departments outside the student's major department.
- At least nine (9) hours of the fifteen must be in courses numbered 2000 or above.
- At least three (3) hours of the fifteen must be taken in a course numbered 3000 or above.
- A minimum of nine (9) hours must be taken in residence.
- A minimum GPA of 2.0 is required in all courses in the minor.
- Only one course from Classics may count towards the minor
- Students may specialize in either medieval or Renaissance, but must take at least one course in both.
- Students and their advisors may petition the Chair of MARS (Dr. Megan Moore, French) to have coursework with relevant content counted. Students may count courses toward the minor that are also used to fulfill general education requirements in the College of Arts and Science. Many upper-level courses in European languages and literature may be used to fulfill the minor requirements.

#### Generally Approved Courses

ARH_VS 1110	Ancient and Medieval Art	3
ENGLISH 1166	Themes in Literature, Beginnings to 1603	3
ENGLISH 1206	Readings in British Literature, Beginning to 1603	3

ENGLISH 1207	Readings in British Literature, 1603 to 1789	3
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HIST 1500	Origins of European History	3
HIST 1540	England Before the Glorious Revolution	3
HIST 1570	Survey of Early Modern Europe, 1350-1650	3
HIST 1590	Women and the Family in the Pre-Modern West	3
HIST 1600	Foundations of Russian History	3

#### Lower Level Courses

ENGLISH 2006	Studies in English, Beginning to 1603	1-3
ENGLISH 2186	Introduction to Women's Literature, Beginning to 1603	3
REL_ST 2610	Medieval Christianity	3
REL_ST 2700	Islam	3

#### Upper Level Courses

AMS 3520	Early Medieval Art and Archaeology	3
AMS 4510	Byzantine Art and Archaeology	3
AMS 4520	Art and Archaeology of Early Medieval Europe	3

ARH_VS 3530	Late Medieval Art	3
ARH_VS 3620	Italian Renaissance Art	3
ARH_VS 4540	Gothic Art and Architecture	3
ARH_VS 4630	The Renaissance Artist	3
ARH_VS 4640	Renaissance and Baroque Architecture	3
ARH_VS 4650	Venetian Painting	3
ARH_VS 4660	Art and Ideas in the Northern Renaissance	3

ENGLISH 3116	Special Themes in Literature, Beginning to 1603	3
ENGLISH 3200	Survey of British Literature: Beginnings to 1784	3

ENGLISH 4106	Genres, Beginning to 1603	3
ENGLISH 4166	Major Authors, Beginning to 1603	3
ENGLISH 4186	Major Women Writers, Beginning to 1603	3
ENGLISH 4200	Introduction to Old English	3
ENGLISH 4210	Medieval Literature	3
ENGLISH 4220	Renaissance and Seventeenth Century Literature	3

FRENCH 3420	Introduction to French Literature I	3
FRENCH 4410	French Medieval Literature	3
FRENCH 4420	French Renaissance	3
HIST 3550	Science and Medicine in Ancient and Medieval Europe	3

HIST 3560	The Scientific Revolution	3
HIST 3590	The Early Middle Ages	3
HIST 3600	The Later Middle Ages	3
HIST 4550	Age of the Vikings	3
HIST 4560	The Crusades	3
HIST 4630	The Age of the Renaissance	3
HIST 4640	The Age of the Reformation	3
LATIN 4590	Medieval Latin	3

#### Classical Foundations

AMS 1060	Classical Mythology	3
AMS 2100	The Ancient Greeks	3
AMS 2200	The Ancient Romans	3
AMS 2300	Greek Classics in Translation	3

AMS 2400	Roman Classics in Translation	3
AMS 3000	Foreigners and Dangerous Women in Greek and Latin Literature	3
AMS 3100	The Age of Pericles	3
AMS 3250	Greek and Roman Epic	3
AMS 3300	Greek Drama	3
AMS 3310	Greek Art and Archaeology	3
AMS 3350	Advanced Mythology	3
AMS 3400	Murder and Mayhem: Images of Justice in Classical Antiquity	3
AMS 3410	Roman Art and Archaeology	3
AMS 3450	Greek and Roman Characters and Ideals	3
AMS 3510	Byzantine and Islamic Art and Archaeology	3
AMS 3550	War and Democracy in Late 5th c. BCE Athens	3
AMS 3600	The Ancient Novel	3
AMS 3650	Paganism and Christianity	3
AMS 3700	Women in the Ancient World	3
AMS 3750	Classics in a Cross-Cultural Context	3
AMS 4300	Introduction to Text Criticism and Paleography	3
AMS 4340	Greek Cities and Sanctuaries	3
AMS 4350	Greek Pottery	3
AMS 4360	Greek Sculpture	3
AMS 4400	Ancient Pastoral	3
AMS 4420	Minor Arts of Antiquity	3
AMS 4440	Roman Architecture	3
AMS 4460	Roman Sculpture	3
AMS 4490	Late Antique Art and Archaeology	3
AMS 4500	Greek and Roman Religion	3
AMS 4550	Literature and Culture of the Hellenistic Age	3
AMS 4600	The Classical Tradition	3
AMS 4650	The World of Late Antiquity	3
ANTHRO 4700	Old World Prehistory	3
HIST 1520	The Ancient World	3
HIST 3510	The Ancient Greek World	3
HIST 3520	The Roman World	3
HIST 3530	The Hellenistic World: From Alexander to Rome	3
HIST 3550	Science and Medicine in Ancient and Medieval Europe	3
HIST 4500	Philip II and Alexander the Great of Macedonia	3
HIST 4510	Crime and Punishment: Law in Classical Athens	3
HIST 4520	The Rise and Fall of the Roman Republic	3
HIST 4530	The Roman Empire	3
HIST 4540	The Later Roman Empire	3
LATIN 4300	Latin Poetry	3
LATIN 4350	Latin Prose	3
LATIN 4510	Age of the Scipios	3-6
LATIN 4520	Age of Cicero	3
LATIN 4530	Vergil	3
LATIN 4540	Augustan Literature	3
LATIN 4580	The Theodosian Age	3

PHIL 3000	Ancient Western Philosophy	3
REL_ST 3200	Hinduism	3
REL_ST 3240	Buddhism of South and Southeast Asia	3
REL_ST 3250	Buddhism in East Asia	3
REL_ST 4320	Introduction to Daoism	3
REL_ST 4500	Greek and Roman Religion	3

## Additional Information

Departments keep a list of courses approved for the MARS minor on file for advisors. For a full description of the minor, including a list of all courses currently counted toward the minor, go to Medieval and Renaissance Studies (<https://medren.missouri.edu/undergrad.html>).

## Minor in Middle East Studies

The minor in Middle East Studies is designed for those students who want to explore the art, history, politics, cultures, and religions of the Middle East in greater detail. For those looking beyond graduation, the minor provides a solid inter-disciplinary foundation and credential with which to pursue graduate work or careers in fields related to the Middle East. Students have the opportunity to take a variety of courses from eleven different departments in the College of Arts and Science. Furthermore, the minor allows students engaged in different disciplines and on different career tracks to engage with and learn from each other and a broad range of faculty. The courses that count toward the minor emphasize and promote critical historical thinking by providing students with the conceptual and analytical tools to think about the often overlooked religious, ethnic, and political diversity of the peoples of the Middle East, past and present.

## Requirements

The minor requires a minimum of fifteen (15) credit hours from at least three (3) different departments within the College. Students in the minor must maintain a 2.0 GPA for courses in the minor.

At least six (6) of the fifteen (15) required credits must be taken at the level of 2000 or above.

At least nine (9) hours must be completed at MU.

There are no prerequisites.

## Course List

AMS 2230	Introduction to the Arts of Islam	3
AMS 3210	Near Eastern and Egyptian Art and Archaeology	3
AMS 3510	Byzantine and Islamic Art and Archaeology	3
AMS 4490	Late Antique Art and Archaeology	3
AMS 4510	Byzantine Art and Archaeology	3
AMS 4770	Oral Tradition	3
ARABIC 2130	Intermediate Arabic	3
ARABIC 2260	Intermediate Arabic II	3
ARABIC 3160	Intermediate Arabic III	3
GEOG 3270	Geography of the Middle East	3
FILMS_VS 3845	Modern Israeli Film	3
HEBREW 3845	Modern Israeli Film	3
HIST 1520	The Ancient World	3
HIST 3485	The United States and the Middle East	3
HIST 3850	Islam and the West	3

HIST 4560	The Crusades	3
PEA_ST 2255	Youth, Islam, and Global Cultures	3
POL_SC 4411	Genocide, Terrorism and Civil War	3
POL_SC 4430	Global Human Rights	3
POL_SC 4780	Dictatorship and Democracy	3
REL_ST 2700	Islam	3
REL_ST 3005	Topics in Religious Studies-Humanities (Introduction to the Qur'an)	3
REL_ST 3500	Judaism in the Time of Jesus	3
REL_ST 3900	Islam and the Myth of Religious Violence	3
SOCIOL 2255	Youth, Islam, and Global Cultures	3
WGST 3370	Gender and Religion (Women and Islam)	3

### Advising and Support

For information, questions, and advising for the minor, contact:

Nathan Hofer (<http://religiousstudies.missouri.edu/people/faculty/hofern.shtml/>), Associate Professor of Religious Studies and Director of the Minor in Middle East Studies

221G Arts and Science Building

hofern@missouri.edu

For more resources, including an updated course list, see <http://mes.missouri.edu/>

## Minor in Military Science

### Requirements

With departmental approval, students may earn a minor in military science and leadership by successfully completing the following courses:

MIL_SC 3230	Leadership and Problem Solving	3
MIL_SC 3240	Leadership and Ethics	3
MIL_SC 3260	Officership	3
MIL_SC 3250W	Leadership and Management	3
MIL_SC 3163	U.S. Military History in the Western Tradition	3

## Minor in Missouri Studies

The Minor in Missouri Studies will provide crucial knowledge about Missouri's diverse history, culture, resources, and policy challenges for college graduates entering various career tracks in politics, state and local government, education, journalism, agriculture, law, tourism--particularly for those intending to remain in the state after graduation.

### Requirements

- The minor will require a minimum of 15 credit hours
- At least 9 of those hours must be taken from a list of core courses
- At least 9 of the 15 must be completed in residence at the level of 2000 or above
- At least two of the areas below must be represented
- A minimum GPA of 2.00 is required for all minor courses; grades below a C- will not be accepted

#### Core Courses\*

ENGLISH 2310	Missouri Writers	3
GEOG 2130	Geography of Missouri	3

HIST 2440	History of Missouri	3
POL_SC 2250	Missouri Politics	3
<b>Elective Courses *</b>		
Environment and Resources*		
HLTH_SCI 2300	Health Care In Missouri	3
PUB_AF 4340	Regional and Economic Development Policy	3
Humanities/Fine Arts*		
ENGLISH 2310	Missouri Writers	3
Social Science *		
ENGLISH 4620	Regional and Social Dialects of American English	3
GEOG 2130	Geography of Missouri	3
GEOG 2720	The City	3
HIST 2230	Walt Disney and American Culture	3
GEOG 3580	Placewriting	3
HIST 2440	History of Missouri	3
HIST 4910	History in the Public: An Introduction to the Theory and Practice of Public History	3
HIST 4940	Internship in History	3
POL_SC 2250	Missouri Politics	3
POL_SC 4940	Political Science Internship	3-6

\* Some courses are currently being proposed/created and are not listed.

### Contact

For further information contact:

Samuel Cohen, Associate Professor  
Department of English  
Director, Minor in Missouri Studies  
missouristudies@missouri.edu

## Minor in Musical Theatre

### Requirements

The Minor of Musical Theatre is an interdisciplinary minor between the School of Music and the Theatre Department consisting of 18 credit hours.

#### Music Courses

MUS_THRY 1220	Tonal Music Theory I	2
or MUS_THRY 1213	Introduction to Music Theory	
or MUSIC_NM 1211	Fundamentals of Music I	
MUS_ENS 1842	Choral Ensemble	1
MUS_ENS 1865	Opera Workshop	1
MUS_APMS 2455	Studio Instruction	1
or MUS_APMS 2455	Studio Instruction	
MUS_H_LI 4376	American Musicals	3

#### Theatre Courses

THEATR 1420	Stage Movement for the Actor	3
or THEATR 3420	Acting I	
THEATR 2300	Production Workshop I	1
or THEATR 2410	Performance Workshop	
THEATR 2800	Principles of Script Analysis	3
THEATR 4460	Musical Theatre Performance	3

Total Credits 18

## Minor in Native American and Indigenous Studies

### Requirements

The minor in Native American and Indigenous Studies requires a minimum of 15 credit hours. At least 9 of the 15 credit hours must be taken at the level of 2000 or above. A minimum GPA of 2.0 is required for all courses.

## Minor in Peace Studies

### Requirements

A minor in peace studies requires a minimum of 15 credits. Online writing intensive versions of 1050 are available. It is recommended that the credits be distributed among the five areas outlined below.

<b>Required</b>		<b>3</b>
PEA_ST 1050	Introduction to Peace Studies	
<b>Area 1: International and Civil War and Peace</b>		<b>3</b>
PEA_ST 2200	Nuclear Weapons: Environmental, Health and Social Effects (Section 2 is writing intensive, section 1 not)	
PEA_ST 2286	Technological Futures, National Security, and Civil Liberties	
PEA_ST 2410	Philosophies of War and Peace	
PEA_ST 2550	Human Rights, Law, War and Peace	
PEA_ST 3230H	Terrorism and Conflict Resolution - Honors	
PEA_ST 3610	Ireland, 1100s to 1850	
PEA_ST 3611	Ireland, 1850-1923	
PEA_ST 3612	Ireland, 1920-Present	
PEA_ST 4331	Nonproliferation Issues for Weapons of Mass Destruction	
<b>Area 2: Global Social and Environmental Justice</b>		<b>3</b>
PEA_ST 1120	Population and Ecology	
PEA_ST 2000	Exploration in Social and Economic Justice	
PEA_ST 2285	Large Corporations, Economic Crisis, Social Responsibility	
PEA_ST 3401	Global Public Health and Health Care Systems	
PEA_ST 3600	Criminology	
PEA_ST 3870	Social Revolution in Latin America	
PEA_ST 4230	Women, Development and Globalization	
PEA_ST 4520	Political Sociology	
<b>Area 3: Nonviolent Social Movements, Process, and Change</b>		<b>3</b>
PEA_ST 2182	Critical Dialogues: Nonviolence in Peace/Democracy Movements (Section 2 is writing intensive, section 1 not)	
PEA_ST 3520	Collective Behavior	
PEA_ST 3521	Group Decision Making Processes	
PEA_ST 3522	New Media, Conflict and Control	
<b>Area 4: Cultures, Intellectuals, And Global Migration</b>		<b>3</b>
PEA_ST 2255	Youth, Islam, and Global Cultures	
PEA_ST 2280	Race, Democracy, and Violence in Cuba and Haiti (Section 2 is writing intensive, section 1 not)	

PEA_ST 2320	Literature of Spanish Civil War	
PEA_ST 3510	Think Global: Fundamentals of Globalization and Digital Technologies	
PEA_ST 3140	Art of War and Peace	
PEA_ST 3400	Fake News and Media Politics	
PEA_ST 3780	World Political Geography	
PEA_ST 4600	Political and Social Philosophy	
<b>Area 5: Indigenous Peoples, Human Rights, and The Imperial State</b>		<b>3</b>
REL_ST 2100	Indigenous Religions	
ENGLISH 2490	Introduction to Indigenous Literatures	
ENGLISH 3490	Special Themes in Native American and Indigenous Studies	
PEA_ST 3496	Digital Indigenous Studies	
PEA_ST 3496H	Digital Indigenous Studies - Honors	
GEOG 3560	Native American Geographies	
PEA_ST 4550	Gender and Human Rights in Cross Cultural Perspective	

## Minor in Romance Literatures in Translation

The Department of Romance Languages and Literatures is not currently accepting applications at this time for the Minor in Romance Literatures in Translation.

### Requirements

To obtain a minor in Romance Literatures in Translation, students must complete the basic language sequence shown below.

SPAN 1100 & SPAN 1200 & SPAN 2100	Elementary Spanish I and Elementary Spanish II and Elementary Spanish III	12
or FRENCH 1100 & FRENCH 1200 & FRENCH 2100	Elementary French I and Elementary French II and Elementary French III	
ITAL 1100 & ITAL 1200	Elementary Italian I and Elementary Italian II	8-12
or PORT 1100 & PORT 1200	Elementary Portuguese I and Elementary Portuguese II	

Students must also complete three 2000-level literature-in-translation courses and two 3000-level literature-in-translation courses (one of which must be either ITAL 3310 or PORT 3001) chosen from the list below:

FRENCH 2320	French Literature and Thought in English Translation I	3
FRENCH 2330	French Literature in Translation II	3
ITAL 2850	Italian Cinema	3
PORT 3001/3005	Topics in Portuguese-General	1-3
SPAN 2320	Literature of Spanish Civil War	3

Additionally, course work must be completed with a grade in the C range or higher in each of the required courses and students must maintain a 2.0 GPA in the minor.

## Minor in South Asian Studies

The South Asian Studies minor is a course of study that allows a student to acquire specialized knowledge about South Asia in a variety of

disciplines, e.g., anthropology, history, philosophy, religious studies, political science, sociology, women and gender studies and language studies.

## Requirements

To obtain a minor in South Asian Studies, a student must:

- Complete 15 hours of coursework relating to South Asia.
- At least nine of the 15 hours must be at the 2000 level or above.
- A student is required to take courses in two or more departments.
- A minimum of six hours must be taken in residence.
- A grade of C or better is required for all courses counting toward the South Asian Studies minor.

A minor in South Asian studies can easily be combined with a major in anthropology, philosophy, history, religious studies, political science, geography, journalism, sociology, women & gender studies, etc.

S_A_ST 1152 or ARH_VS 1230	Asian Humanities Introduction to Asian Arts	3
S_A_ST 3200 or REL_ST 3200	Hinduism Hinduism	3
S_A_ST 3230 or REL_ST 3230	Buddhism and Environmental Ethics Buddhism and Environmental Ethics	3
S_A_ST 3490	Indian Cinema (or ANTHRO 3490 or ARH_VS 3490 or FILMS_VS 3885)	3
S_A_ST 4630	Sanskrit I	3
S_A_ST 4790 or ANTHRO 4790	Culture and Society in South Asia Culture and Society in South Asia	3

## Minor in Spanish

### Requirements

Students may obtain a Spanish minor by completing a minimum of 15 credits beyond SPAN 2100, of which at least 6 credits must be in literature. Courses taught in English and cross-listed courses taught in English do not count toward the minor. The courses listed below are the most likely choice.

SPAN 2160	Intermediate Spanish Composition and Conversation	3
SPAN 3150 or SPAN 3721	Advanced Spanish Conversation Spanish Phonetics	3
SPAN 3160 or SPAN 3280	Advanced Spanish Composition Commercial Spanish	3
SPAN 3420	Introduction to Hispanic Literature I	3
SPAN 3430	Introduction to Hispanic Literature II	3

Students beginning at a level higher than SPAN 2160 due to placement testing must still complete the minimum of 15 additional credits to receive the minor. A minimum of 9 credits, including 3 in literature, must be taken in residence.

Additionally, course work must be completed with a grade in the C range or higher in each of the required courses and students must maintain a 2.0 GPA in the minor.

### Application for Minor

Students interested in this minor should complete the Spanish Minor Form. (<http://catalog.missouri.edu/undergraduategraduate/>)

[colleofartsandscience/additional-minors-certifications/minor-spanish/Spanish\\_Minor\\_Form\\_-\\_Fillable.pdf](#)

## Minor in Strategic Studies

The minor in Strategic Studies is designed for those students who wish to acquire the knowledge and analytical skills that are critical for working in a career field related to national security. The minor is appropriate for students of almost any major, particularly political science, economics, history, geography, journalism, and engineering. The program is also well suited for students in Army, Navy, or Air Force ROTC, providing a solid background for officers encountering the changing strategic environment of the twenty-first century.

The program affords students a unique opportunity to gain a broad perspective on security issues, allowing focus on areas where they may have additional educational requirements not offered in their chosen major field of study. Students may work for the defense department, national intelligence agencies, or other federal agencies, or any number of jobs related to security in the private and non-profit sectors.

### Requirements

Fifteen (15) credits are required for the minor in strategic studies, selected from the list below. Of these, six hours must be from political science. Students in the minor must maintain a B average (3.0 GPA) for courses in the minor.

- A minor must be completed and awarded at the same time as the MU undergraduate degree
- Once an A&S minor is awarded, a student cannot return to MU to complete a major in the same department

#### Select from the courses below

POL_SC 4410	Politics and War	3
POL_SC 4411	Genocide, Terrorism and Civil War	3
POL_SC 4412	Strategy and Warfare	3
POL_SC 4413	Politics of Cyber-Security	3
POL_SC 4415	Peacekeeping and Intervention	3
POL_SC 4430	Global Human Rights	3
POL_SC 4540	American Foreign Policies	3
POL_SC 4680	Chinese Politics and Foreign Policy	3
POL_SC 4690	Korean Politics: North and South Korea	3
POL_SC 4700	America's Wars in Asia/War and Peace in Asia	3
MIL_SC 3163	U.S. Military History in the Western Tradition	3
HIST 4080	American Foreign Policy from Colonial Times to 1898	3
HIST 4250	U.S. Foreign Relations, 1898-1945	3
HIST 4260	The Age of Ascendancy: U.S. Foreign Relations, 1945 - Present	3
GEOG 4200	Geopolitics	3
GEOG 4130	The Geospatial Sciences in National Security	3

### For general questions about the minor, contact:

Stephen Quackenbush, Program Director  
(573) 882-2082



quackenbushs@missouri.edu

Political Science Academic Advisor  
 (573) 882-2580  
 politicalscience@missouri.edu

## Minor in Women's and Gender Studies

A Women's and Gender Studies minor can be a component of any undergraduate degree granted at MU.

Women's and Gender Studies is an interdisciplinary field that establishes gender, sexuality, race, class, and dis/ability as fundamental categories for understanding social structures, cultural norms, and power dynamics. Combining research methods from the humanities and social sciences, the WGST minor strengthens critical thinking, writing and research skills and highlights multiple forms of knowledge.

When students graduate with a Women's and Gender Studies minor they should be able to:

- Apply cross-cultural and global awareness to 'big questions' about women and gender
- Have a comprehensive grasp of intersectionality and matrices of domination
- Think critically: i.e. consider an issue from multiple perspectives; locate, evaluate and interpret diverse sources, including statistics; engage in critical self-reflection
- Construct arguments with evidence obtained from research
- Work collaboratively
- Recognize sexist/racist writing and thinking
- Connect knowledge and experience, theory and activism, Women's and Gender Studies materials with other courses
- Communicate effectively in writing and speech
- Apply knowledge for social transformation, citizenship
- Use gender (and other identity categories) as a category/ies for analysis

### Requirements

A student minoring in Women's and Gender Studies is required to fulfill all requirements for their major degree program, and in addition complete at least 15 credits of Women's and Gender Studies courses: A minimum of 9 credits must come from WGST core courses (courses taught by WGST faculty and instructors), in addition 6 credits are required to come from 3000 level or higher courses. For current course offerings see the WGST website (<https://wgst.missouri.edu/>).

## Graduate Certificate in Geospatial Intelligence

An education in geospatial intelligence theories, methods, and applications is central to many problem-solving tasks and as such, students with proficiency in these areas are well-suited for an array of employment positions in sectors such as academia, military, intelligence analysis, emergency response and disaster management, law enforcement, etc.

### Requirements

A student must complete a minimum of **21 hours** of approved coursework and must earn a grade of at least **B (3.0)** in these courses. Seven courses must be successfully completed, with at least three courses selected from Group A – Technical Core Group; one course from Group B - Analytical Core Group; one course from Group C – Technical Elective Group; and one course from Group D – Analytic Electives. The final course must be a capstone experience in geospatial intelligence (GEOG 7130). A course may only count toward one of the coursework groups. It is important to note that for degree seeking students, courses can typically only be credited to one certificate program at MU (i.e., not counted as credit toward multiple certificates). The MU Graduate Certificate in Geospatial Intelligence will be awarded by MU after successful completion of the coursework and this accomplishment will appear in the student's academic transcript. Successful completion of the MU Graduate Certificate in Geospatial Intelligence also meets the criteria of MU's United States Geospatial Intelligence (USGIF) (<http://usgif.org/>) accredited certificate program in geospatial intelligence. As such, upon the completion of the graduate certificate, the USGIF will be notified of the student's accomplishment and will award the student their official certificate.

<b>Technical Core (choose 3 courses)</b>		<b>9</b>
GEOG 7840	Geographic Information Systems I	
GEOG 7940	Advanced Geographic Information Systems (GIS II)	
GEOG 7860	Advanced Remote Sensing	
<b>Analytical Core (choose 1 course)</b>		<b>3</b>
GEOG 7850	Transportation Geography	
GEOG 7790	Geographic Information Systems for the Social Sciences	
<b>Technical Elective (choose 1 course)</b>		<b>3</b>
GEOG 7710	Spatial Analysis in Geography	
GEOG 7740	Location Analysis and Site Selection	
GEOG 7810	Landscape Ecology and GIS Analysis I	
GEOG 7860	Advanced Remote Sensing	
GEOG 7940	Advanced Geographic Information Systems (GIS II)	
<b>Analytical Electives (choose 1 course)</b>		<b>3</b>
GEOG 7770	Migration and Immigration	
GEOG 8270	Seminar in the Geography of the Middle East	
GEOG 8710	Seminar	
NU_ENG 7330	Science and Technology of Terrorism and Counter Terrorism	
NU_ENG 7331	Nonproliferation Issues for Weapons of Mass Destruction	
<b>Capstone Requirement - Communication and Legal</b>		<b>3</b>
GEOG 7130	The Geospatial Sciences in National Security	

### Admission

For admission requirements, refer to the Graduate School's website for the minimum qualifications for the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate School and the Geospatial Intelligence Certificate Program.

Students wishing to graduate Geospatial Intelligence Certificate should complete the program of study (<http://catalog.missouri.edu/undergraduategraduate/collegeofartsandscience/additional-minors-certifications/grad-certif-geospatial-intel/GeoINTProgramOfStudyForm.pdf>). The program of study should be completed by the student at the time he/she begins the graduate certification program, and filed with the program Director (Dr. Matisziw).

**Inquiries regarding this certificate program can be directed to:**

Dr. Tim Matisziw ([matisziwt@missouri.edu](mailto:matisziwt@missouri.edu)), Director MU Graduate Certificate in Geospatial Intelligence  
 Department of Geography, Department of Civil & Environmental Engineering, Informatics Institute

## Graduate Certificate in Global Public Affairs

**NOTE: The Truman School is temporarily not accepting applications for the certificate program in Global Public Affairs.**

### Requirements

The graduate certificate in Global Public Affairs includes 12 credit hours of course work plus an international public affairs experience. The required course provides students with the comparative institutional and economic foundations to understand the complexities of governance and policy making internationally. The three elective courses, selected in consultation with the director of the Global Public Affairs certificate, allow students to delve deeply into specific realms of global policy or governance. The international experience component can be satisfied through an approved public affairs related internship or study abroad course. Students with substantial international public affairs experience prior to entering the certificate program should consult with the certificate director. International students automatically satisfy this experiential requirement through their study in the U.S.

<b>Required Course</b>	<b>3</b>
Comparative and Global Governance (course in development)	
<b>Take three of the following:</b>	<b>9</b>
PUB_AF 8630 Organizational Change in a Community and Global Context	
PUB_AF 8850 Policies and Institutions of the European Union	
PUB_AF 8860 International Comparative Rural Policy	
Global Intensive Public Affairs topics course(s)	
Approved courses outside of Public Affairs	
<b>Total Credits</b>	<b>12</b>

**Contact:**

For questions, email [truman@missouri.edu](mailto:truman@missouri.edu) or call 573-884-1656.

## Graduate Certificate in Grantsmanship

The Truman School offers one of the few completely online grant writing certificate programs in the country, making it easy to fit classes into a busy schedule. Students will learn to write grant proposals and manage grant funded programs effectively. Learn winning grant writing techniques

and proper grant management with this four-course graduate certificate in grantsmanship. Our program is well suited for a variety of audiences, including community-based professionals in nonprofit organizations, state and local government and educators in K-12 settings. Graduate and post-doctoral students and young faculty members who are seeking to become more competitive in research careers dependent on external funding will find this certificate to be useful.

### Requirements

Students must complete 12 credit hours to receive the certificate. Students may begin this program in the summer or fall semesters. Students do not need to be enrolled in a graduate degree program at MU to participate in the program.

**Required Courses**

PUB_AF 8830	Grant Writing I	3
PUB_AF 8831	Grant Writing II	3
PUB_AF 8832	Sponsor Relationships	3
PUB_AF 8833	Grant Award Management	3

**Contact:**

Harry S Truman School of Public Affairs  
 101 Middlebush Hall  
 573-884-1656  
 Email [truman@missouri.edu](mailto:truman@missouri.edu)  
<https://truman.missouri.edu/future-students/graduate-certificate-description> (<https://truman.missouri.edu/future-students/graduate-certificate-description/>)

## Graduate Certificate in Jazz Studies

The Graduate Certificate in Jazz Studies is a one-year program that provides opportunities for continued development of skills in jazz-specific areas, such as improvisation, pedagogy, and arranging. The certificate is available to degree-seeking and non-degree seeking students alike, non-music as well as music majors, and is designed as an intensive introduction to jazz performance. The program will deepen the student's preparation for a career in jazz performance or prepare the student for further study in jazz.

### Requirements

MUS_THRY 7210	Advanced Jazz Harmony and Arranging I	2
MUS_THRY 7211	Advanced Jazz Harmony and Arranging II	2
MUS_H_LI 7317	Historical Studies in Jazz and Popular Music	3
MUS_I_VT 7645	Graduate Jazz Improvisation	2
MUS_ENS 8841 & MUS_ENS 8846	Instrumental Ensemble and Advanced Chamber Ensemble	2
MUS_APMS 7435 & MUS_APMS 7455	Studio Instruction and Studio Instruction	2
or MUS_ENS 8841 & MUS_ENS 8846	Instrumental Ensemble and Advanced Chamber Ensemble	
<b>Total Credits</b>		<b>13</b>

## Admissions Criteria

Entrance into the Graduate Certificate program requires a live audition (see below), although video-recorded auditions will be acceptable in rare cases, by permission of the Director of Jazz Studies. Entrance into the program also requires completion of a Bachelor of Music degree (or demonstrated equivalent), with a GPA of 3.0 in the last 60 credit hours. In the event that a candidate does not meet the required prerequisites for a specific curriculum, appropriate course(s) may be added as additional requirements.

### Audition Information

Audition requirements can be found at <https://music.missouri.edu/grad/graduate-program?q=grad/audition> (<https://music.missouri.edu/grad/graduate-program/?q=grad/audition>), under MM in Jazz Performance and Pedagogy, Graduate Jazz Certificate.

## Graduate Certificate in Lifespan Development

### About the Certificate (Educational Objective)

Developmental psychology and lifespan developmental studies include the scientific study of psychological changes that occur over the life course. Therefore, developmental studies are inherently interested in many of the same questions of other areas of psychology, education, family studies, etc., but by investigating the ways in which particular psychological processes change and develop from infancy to adolescence, and through to adulthood. The purpose of the graduate certificate in lifespan development is to provide students in other areas of psychological study, or human behavior broadly defined, a better understanding of the ways in which psychological functions change with age, as well as the challenges and special considerations that are a part of research with children and adolescents and how they may be different from those of working with adults.

### Requirements

The requirements for acceptance and completion of work for the certificate are as follows:

1. The student must be enrolled and in good standing in a doctoral-level program at MU (available to degree-seeking students only).
2. A request to be included in the certificate program must be made in advance of final completion of courses to Nicole Campione-Barr, PhD. This can be done via e-mail or hard copy, however, the request must also be approved by the student's major advisor.
3. A formal plan of study must be submitted to the Office of Graduate School no later than the *semester prior to graduation*. This must be signed by the certificate coordinator (Nicole Campione-Barr) and the director of graduate studies of the student's major department.
4. Students must complete a minimum of 15 credit hours to be awarded the certificate, following the below guidelines:

#### Core Courses: students are required to take 3 core courses

PSYCH 8410 or H_D_FS 8210	Psychology of Development Theories of Human Development	3
PSYCH 8420 or H_D_FS 8420	Cognitive Development Cognitive Development	3

PSYCH 8440 or H_D_FS 8440	Social and Emotional Development Social and Emotional Development	3
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#### Electives\* 6

Options within the Department of Psychological Sciences, and Human Development and Family Studies are listed below. Other pre-approved options are listed and include courses in Communication Sciences and Disorders, Educational School and Counseling Psychology, Social Work, and Special Education. Courses other than those listed may be appropriate, but should be approved prior to registration.

Developmental psychology such as PSYCH 7420		
PSYCH 9440	Studies in Developmental Psychology	
PSYCH 8050	Research in Psychology - Non-Thesis	
PSYCH 9050	Research in Psychology - Non-Dissertation	
H_D_FS 7231	Foundations of Youth Development	
H_D_FS 7300	Black Families	
H_D_FS 8001	Topics in Human Development and Family Science	
H_D_FS 8012	Family Dynamics and Intervention	
H_D_FS 8110	Developmental Perspectives on Health and Illness	
H_D_FS 8220	Family Theories	
H_D_FS 8240	Youth Development	
H_D_FS 8300	Advanced Seminar on Multicultural Families	
H_D_FS 8450	Adolescence and Emerging Adulthood	
H_D_FS 8460	Life Course Perspective	
H_D_FS 8610	Remarriage & Stepfamilies: Development, Dynamics, & Intervention	
H_D_FS 8630	Gendered Relations in Families	
H_D_FS 8640	Family Interaction	
H_D_FS 8710	Children, Families and Public Policy	
H_D_FS 8770	Poverty	
H_D_FS 8085	Problems in Human Development and Family Science	
H_D_FS 8090	Research in Human Development and Family Science	
ESC_PS 7160	Developmental Aspects of Human Learning	
ESC_PS 8060	Lifespan Development	
ESC_PS 8135	Foundations of Career Psychology	
ESC_PS 8340	Cultural Backgrounds and Learning	
ESC_PS 8430	Mental, Emotional, and Behavioral Disorders in Youth	
ESC_PS 8530	Developmental Psychopathology and Exceptionality	
SLHS 7840	Language and Development in Infancy	
SLHS 8020	Developmental Language Disorders	
SLHS 8420	Reading and Language Disabilities in School-Age Children	
SOC_WK 7390	Helping Strategies With Children and Adolescents	
SPC_ED 7325	Language Development of Exceptional Students	
SPC_ED 8340	Advanced Studies in Developmental Disabilities	

When needed, advising will be provided to students by lifespan development certificate coordinator (Nicole Campione-Barr), in conjunction with the student's major advisor.

## Need for Certificate Program

For students within the child clinical psychology Ph.D. program of study there is a need for some students to gain greater exposure to developmental studies. Currently, the department of Psychological Sciences offers a dual child clinical and developmental psychology degree program. This program is extremely rigorous, however, and students and faculty within the Department of Psychological Sciences have identified a need for more in-depth study in developmental science without the commitment of a second degree. In creating the certificate program, however, it was determined that graduate students in other related fields may also wish to pursue further study in lifespan development. In particular, students in education, social work, communication science and disorders, and additional areas within psychology may benefit from greater understanding of developmental processes which could be gained through the required and elective course work outlined in this certificate program.

## Impact on Current Programs of Study

The impact to current programs of study is expected to be relatively minimal other than the inclusion of potentially a few more students enrolled in the aforementioned classes.

## Advisory Committee Members

- Debi Bell, Psychological Sciences
- Nicole Campione-Barr, Psychological Sciences
- Marilyn Coleman, Human Development & Family Studies
- Larry Ganong, Human Development & Family Studies
- Jean Ispa, Human Development & Family Studies
- Amanda Rose, Psychological Sciences

## Participating/Affiliated Faculty - Various faculty from the following departments:

- Psychological Sciences
- Human Development and Family Studies
- Communication Science and Disorders
- Educational, School, and Counseling Psychology
- Special Education
- Social Work

## Contact

Dr. Nicole Campione-Barr, Coordinator  
 Lifespan Development Graduate Certificate Program  
 204D McAlester Hall  
 email: [campionebarr@missouri.edu](mailto:campionebarr@missouri.edu)  
 phone: (573) 884-1681

## Graduate Certificate in Music Entrepreneurship

The Graduate Music Entrepreneurship Certificate offers MU graduate students, as well as post-baccalaureate students in the MU community, an officially recognized core of courses dealing with the development, business, and publicity aspects of a musical career. In today's fine arts economy, an increasingly viable and popular model is the 'portfolio

career,' in which a person incorporates multiple roles (e.g. performer, teacher, advocate, manager, publicist, composer/arranger, etc.) rather than pursuing one narrowly defined career path. Contextualizing the vision, skills, and networking activities needed to achieve a viable arts career, while offering a combination of theoretical and practical career preparation for Mizzou students, is the overarching aim of the Certificate.

**Availability:** Aimed primarily at degree-seeking students in music and music education, this certificate would be also be available to students as an add-on to a degree or as a stand-alone certificate. All students who wish to declare the certificate must receive approval from our certificate director, Prof. Jonathan Kuuskoski ([kuuskoskij@missouri.edu](mailto:kuuskoskij@missouri.edu)).

## Requirements

Required Courses		
MUS_GENL 7510	Career Development for Musicians	2
MUS_GENL 7512	Principles of Arts Entrepreneurship	2
MUS_GENL 7514	Arts Marketing	1
MUS_GENL 7516	Grant Writing for the Arts	1
MUS_GENL 7518	Arts Industry Survey	1
MUS_GENL 7520	Non-Profit Management in the Arts	1
MUS_GENL 7522	Community Engagement in the Arts	1
MUS_GENL 7530	Leadership, Advocacy, and Policy in the Arts	1
MUS_GENL 7540	Music Entrepreneurship Practicum	2
Total Credits		12

## Graduate Certificate in Nonprofit Management

The graduate certificate in nonprofit management provides students with the managerial, fiduciary, and analytical tools necessary for leadership of nonprofit entities. The goal is to develop and hone skills that can be used to achieve organizational missions uniquely aimed at serving the interests of the community.

## Careers

As one of the fastest growing sectors in today's economy, nonprofit organizations have undergone a professionalization in management, with board members changing their orientation from one of personal networks to a bottom-line, information-based outlook. Successful nonprofit organizations today thrive on their ability to compete effectively in the marketplace, read community needs and priorities, and deliver appropriate services within budget.

## Requirements

Students must complete 12 credit hours to receive the certificate. Students do not need to be enrolled in a graduate degree program at MU to participate.

Required Courses		
PUB_AF 8520	Human Resources Management and Development in Public and Nonprofit Sector	3
PUB_AF 8720	Budgeting and Financial Management in the Nonprofit Sector	3
PUB_AF 8710	The Nonprofit and Voluntary Sector	3

Elective (chosen in consultation with certificate coordinator)	3
<b>Total Credits</b>	<b>12</b>

**Contact:**

Harry S Truman School of Public Affairs  
 101 Middlebush Hall  
 573-884-1656

Email [truman@missouri.edu](mailto:truman@missouri.edu)  
<https://truman.missouri.edu/future-students/graduate-certificate-description> (<https://truman.missouri.edu/future-students/graduate-certificate-description/>)

## Graduate Certificate in Public Management

The graduate certificate in public management encompasses administrative skills for ethical, effective leadership and management roles in the public service. Students completing this graduate certificate will be well positioned to begin or advance a public service career with many expecting to pursue management careers in state and local governments.

### Requirements

Students must complete 12 credit hours to receive the certificate. Students do not need to be enrolled in a graduate degree program at MU to participate.

PUB_AF 8510	Public Budgeting and Taxation	3
PUB_AF 8520	Human Resources Management and Development in Public and Nonprofit Sector	3
PUB_AF 8530	Strategic Management of Public Service Organizations: People, Information and Money	3
or PUB_AF 7540	Local Government Management	3
Elective (chosen in consultation with certificate coordinator)		3
<b>Total Credits</b>		<b>12</b>

**Contact:**

Harry S Truman School of Public Affairs  
 101 Middlebush Hall  
 573-884-1656

Email [truman@missouri.edu](mailto:truman@missouri.edu)  
<https://truman.missouri.edu/future-students/graduate-certificate-description> (<https://truman.missouri.edu/future-students/graduate-certificate-description/>)

## Graduate Certificate in Public Policy

The public policy specialization offers students a strong foundation in the skills necessary to work effectively in the policy environment. Students in the public policy specialization learn theories of the policy process, quantitative and qualitative research methods to analyze policy, and program evaluation. Students also have the opportunity to gain expertise in specific policy areas including education policy, environmental policy, health policy, social policy, and regional development policy.

## Requirements

Students must complete 12 credit hours to receive the certificate.

Students do not need to be enrolled in a graduate degree program at MU to participate in the program. Some prerequisite courses may be necessary for students without prior coursework in statistical or micro-economic analysis.

**Required Courses**

PUB_AF 8170	Public Policy Processes and Strategies	3
PUB_AF 8430	Public Policy Analysis	3
Elective 1 - policy relevant (chosen in consultation with certificate coordinator)		3
Elective 2 - policy relevant (chosen in consultation with certificate coordinator)		3
<b>Total Credits</b>		<b>12</b>

\* Requires PUB\_AF 8190 and PUB\_AF 8181 as prerequisites. These cannot be used to fulfill the electives requirements.

**Contact:**

Harry S Truman School of Public Affairs  
 101 Middlebush Hall  
 573-884-1656

Email [truman@missouri.edu](mailto:truman@missouri.edu)  
<https://truman.missouri.edu/future-students/graduate-certificate-description> (<https://truman.missouri.edu/future-students/graduate-certificate-description/>)

## Graduate Certificate in Sports Analytics

The Graduate Certificate in Sports Analytics will provide students with the knowledge to interpret and analyze data. Sports analytics touches on a variety of disciplines across the campus and will facilitate collaborative opportunities for students.

### Requirements

Students are required to complete 12 credit hours of coursework offered by the Department of Statistics, consisting of a two-course sequence in applied statistical models and a two-course sequence in sports analytics.

Graduate students who are not pursuing a graduate degree in statistics will need to complete the following coursework.

STAT 7510	Applied Statistical Models I	3
STAT 7520	Applied Statistical Models II	3
STAT 7330	Methods in Sports Analytics I	3
STAT 7340	Methods in Sports Analytics II	3

Graduate students who are pursuing a graduate degree in statistics will need to complete the following coursework.

STAT 8310	Data Analysis I	3
STAT 8320	Data Analysis II	3
STAT 7330	Methods in Sports Analytics I	3
STAT 7340	Methods in Sports Analytics II	3

## Graduate Minor in Black Studies

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### Requirements

Graduate students earn the minor by completing 9-15 credit hours in Black Studies graduate courses. An individual program of specialization in Black Studies may be arranged within the framework of a conventional graduate degree in any one of several fields. The options within a regular degree program are employed to include maximum exposure to courses emphasizing the diverse histories, cultures, and societies of people of African descent in Africa, the U.S., and throughout the Black Diaspora. Courses outside the major department, but in related fields, are incorporated into the student's study plan.

### Application Information

Students interested in pursuing a Black Studies specialty within their chosen fields should consult a departmental advisor, who is an affiliate of the Department of Black Studies, to assist in course selection. Lacking such an advisor, students should contact the Chair of the Department of Black Studies for assistance or send an email to Dr. Stephen Graves ([gravessc@missouri.edu](mailto:gravessc@missouri.edu)) in the Department of Black Studies.

### About the Department of Black Studies

The central mission of Black Studies is to prepare students to critically understand, conduct research, and interpret the complex histories, societies, and cultures of people of African descent in the United States, Africa and the Diaspora.

The Department's interdisciplinary design encourages specialization within the University of Missouri's broad liberal arts curriculum. As a result, students and faculty may conduct research that develops new or builds upon existing concepts, theories, and approaches to the study of the evolving experiences and contributions of the African Diaspora. In so doing, Black Studies prepares students to participate competently in diverse and competitive global societies where they may contribute viable practical solutions to critical challenges on multiple levels.

### Affiliates of the Black Studies

The Department of Black Studies encourages the use of diverse curricular offerings throughout many different departments. Faculty members and affiliates of the department design new ways to incorporate topics of Black Studies in their courses. Departments affiliating with Black Studies include art, educational leadership and policy analysis, English, history, human development and family studies, journalism, law, music, political science, religious studies, romance languages, sociology, theatre, and women and gender studies.

### Resources

The Walter Daniel Resource Center is supported by an endowment set up by the estate of the late Dr. Walter C. Daniel. Dr. Daniel came to the University of Missouri in 1973 as its first vice chancellor. He was instrumental in helping to reorganize the University's administration. However, his success as an administrator never overshadowed his love of teaching and working with students. Located in 328 Gentry Hall, the books, periodicals, reference materials and media resources in this center will supplement and complement existing university resources on the histories, cultures, and societies of people of African descent in Africa, the U.S., and throughout the Diaspora available to the University community. Additionally, the center houses Dr. Daniel's extensive private

library of African American literature, as well as an extensive collection of primary and secondary sources including numerous periodicals and scholarly journals. The library also offers a small video collection which can be viewed on site. At the present time the library is a read-only research facility.

### Contact Information

Department of Black Studies  
313 Gentry Hall  
(573) 882-6229  
<http://blackstudies.missouri.edu/>

## Graduate Minor in Medieval and Renaissance Studies

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While most students still choose to study in a traditional disciplinary framework, a MARS minor allows students to expand the breadth of their studies and research by taking coursework in over 11 different departments on campus. So much of the research on the Middle Ages and the Renaissance is interdisciplinary in nature, and the MARS minor helps students gain expertise in areas outside of their home discipline while simultaneously offering a quick and comprehensive way for prospective employers to understand their specialization and background.

### Requirements

Courses that may be applied toward this minor are taught by faculty members from the departments of Art History and Archaeology, Classical Studies, English, Germanic and Russian Studies, History, Music, Philosophy, Religious Studies, and Romance Languages and Literatures. Under certain circumstances, a minor in Medieval or Renaissance studies may also be arranged for MA programs. A student must be accepted for advisement by the major department. Then, in consultation with the major advisor, who must be a specialist in the medieval or Renaissance period, an interdisciplinary curriculum for the minor is prepared and submitted to the Medieval and Renaissance Studies Committee for approval.

- A doctoral candidate in one of these departments offering a PhD may elect a minor concentration in interdisciplinary Medieval or Renaissance Studies by taking at least three appropriate courses outside the department, as well as all appropriate ones within it. Thus one earns, for example, a PhD in Art History and Archaeology with specialization in Medieval Studies, or a PhD in History with specialization in Renaissance Studies.
- At least nine (9) hours in relevant 7000 or 8000 level courses outside the major department are required to constitute the minor.
- Because the program places considerable emphasis on foreign languages, all doctoral candidates must study at least two languages.

### Perks

- The Newberry Library Center for Renaissance Studies consortium
- MU graduate Association for Medieval and Renaissance studies
- Renaissance reading group
- A listserv announcing campus-related activities for MARS members

For more information contact:  
Prof. Megan Moore  
Chair of MARS  
[mooremegan@missouri.edu](mailto:mooremegan@missouri.edu)

## Graduate Minor in Museum Studies

The graduate minor in Museum Studies, offered by the School of Visual Studies and the Museum of Art and Archaeology, provides students with a systematic introduction to the history, philosophy, and role of museums.

The program blends academic theory with practical experience to provide students with an opportunity to build a foundation applicable for work in either university or public museums.

### Requirements

The program comprises six courses designed to introduce students to the history and role of museums in society; to the philosophical, legal and administrative issues that face the modern museum; and to the exhibition and preservation skills required of a museum curator. The emphasis of the program is on museum management, curatorial responsibilities (collections management and exhibition) and educational interpretation. Internships and field trips to local museums provide additional insight into the world of museum professionals.

- Individual courses are listed under the School of Visual Studies. Successful completion of the program is accomplished through 12 credit hours of required course work, including ARH\_VS 8130, ARH\_VS 7130, ARH\_VS 7980, and is recognized when the student successfully completes an MA. in his or her academic field of study. An individual's course of study will be arranged with the program director.

### Admissions

Students who undertake the museum studies minor are normally already enrolled as graduate students in degree-granting academic departments. Students should apply at the beginning of the fall semester to the Director of Graduate Studies in the School of Visual Studies for admission to the program.

## Graduate Minor in Musicology

The Graduate Minor in Musicology provides the opportunity for graduate music students to develop and/or strengthen their skills in this academic area. In addition, completing this minor can enhance the employability of individuals with degrees in performance, theory, or composition, by preparing them to teach courses in music appreciation and music history.

### Requirements

Requires 15 credit hours to earn the minor.

MUS_H_LI 8313	Introduction to Graduate Study	2
MUS_H_LI 8314	Introduction to Graduate Studies in Music II	1
MUS_H_LI 7330	Music of the PostModern Era (Or any period course, including one of the following:)	3
or MUS_H_LI 7336	Music in the Baroque Era	
or MUS_H_LI 7337	Music of the Classic Era	
or MUS_H_LI 7338	Music of the Romantic Era	
or MUS_H_LI 7339	Music of the Modern Era	

MUS_H_LI 7311	Historical Studies in Art Song (Or any genre course, including one of the following:)	3
or MUS_H_LI 7312	Historical Studies in Choral Music	
or MUS_H_LI 7313	Historical Studies in Opera	
or MUS_H_LI 7315	Historical Studies in Chamber Music	
or MUS_H_LI 7317	Historical Studies in Jazz and Popular Music	
or MUS_H_LI 7318	Studies in World Music	
or MUS_H_LI 7320	Historical Studies in African-American Music	
or MUS_H_LI 7341	Advanced Studies in American Music	
MUS_H_LI 8340	Focal Composers	3
MUS_GENL 8085	Problems in Music (Capstone independent study project)	3
MUS_H_LI 7350	Introduction to Ethnomusicology (Not a required course, but may substitute for a period, genre, or focal composer course)	3

## Graduate Minor in Psychological Statistics and Methods

The Minor in Psychological Statistics and Methods is a joint program between the Department of Psychological Sciences and the Department of Statistics.

### Requirements

A total of seven courses at the 7000 level or above in statistics and methods is required. The course options are dependent on the doctoral program in which the student is admitted. More detailed specification of the courses required in the plan of study may be stipulated by the student's major department and the student should consult with them in this regard.

**Doctoral students in the Department of Psychological Sciences or Statistics** must take at least two of the seven required courses outside their major department.

**Doctoral students in other departments** must take five courses within the Department of Psychological Sciences or the Department of Statistics, at least two of which are in statistics and two of which are in psychology.

**A grade of B or better is required in the following courses:**

PSYCH 9710	Multivariate Statistics in Psychology	3
PSYCH 9720	Latent Variable Models in Statistical Analysis	3
PSYCH 9715	Multilevel Modeling	3
<b>Quantitative Psychology - one of the following is required:</b>		
PSYCH 9520	Psychometrics	3
PSYCH 9750	Advanced Structural Equation Modeling	3
PSYCH 9760	Categorical Data Analysis	3
PSYCH 9735	Psychological Process Models	3

**Two approved courses at the 7000 level or above in the Department of Statistics, Mathematics, or in other departments provided those courses are primarily statistics-oriented or methods-oriented. \***

\* The following courses **cannot** be used to fulfill minor requirements: STAT 7050, STAT 7510, STAT 7560, STAT 4970, STAT 7020, STAT 7070, STAT 7520, STAT 8370.

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## Contact Information

Questions regarding the minor in Psychological Statistics and Methods should be directed to:

Phil Woods  
Training Area Director  
phillipkwood@gmail.com

## Graduate Minor in Women's and Gender Studies

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### Requirements

15 credit hours will be chosen to complement the student's main area of graduate study. Students may take up to six hours in their home department. Students will gain expertise in the methodologies and theories in Women's and Gender Studies. The Women's and Gender Studies Graduate Minor is available to all students pursuing a graduate degree at MU.

The minor requires the following six credit hours:

WGST 8020	Graduate Feminist Theory	3
WGST 8040	Seminar: Problems and Issues in Feminist Scholarship	3

For lists of permanent courses and current offerings, refer to the Women and Gender Studies (<http://wgst.missouri.edu/>) website.

### Contact Information:

Linda Reeder, Chair  
Elisa Glick, Director of Graduate Studies  
325 Strickland Hall  
(573) 882-2703



## Robert J Trulaske, Sr. College of Business

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### Administration

Ajay Vinzé, Dean  
Christopher Robert, Associate Dean  
Gay Albright, Associate Dean  
Ryan Murray, Interim Director, Graduate Programs  
Jeff Wiese, Assistant Dean  
Vairam Arunachalam, Director, School of Accountancy  
Michael O'Doherty, Chair, Finance Department  
Anthony Ross, Chair, Management Department  
Srinath Gopalakrishna, Chair, Marketing Department

### Undergraduate Advising Contact Information

111 Cornell Hall  
(573) 882-7073

### Graduate Contact Information

306 Cornell Hall  
(573) 882-2750

The Robert J. Trulaske Sr., College of Business, established in 1914, educates students for professional opportunities and responsibilities in the private and public sectors. The college includes the School of Accountancy (the first established at a major public university) and the departments of Finance, Management and Marketing. The college offers an undergraduate degree in business administration, a combined bachelor's and master's degree program in accountancy, master's degrees in business administration and finance, and doctoral degrees in accountancy and business.

Students' educational experiences are enhanced through the scholarly activities of the faculty, who conduct research on significant, timely issues. Students in the college are exposed to relevant theories and concepts applied to real-world operations of private and public enterprises. Students gain added practical insights through internships, field projects, guest speakers, and executives-in-residence. The college's agencies provide information, research, continuing education, and managerial assistance to practitioners and organizations throughout Missouri and in other states.

The Trulaske College of Business accepts CLEP subject examinations, departmental exams, and Advanced Placement (College Board) credit. More information may be obtained from academic advisors in the Trulaske College of Business Undergraduate Advising Office and the Credit by Examination section in the beginning of this catalog.

### Department of Finance

Through the study of finance, students learn to independently analyze security markets, understand basic valuation techniques and use their knowledge to make investment decisions. In addition, students learn basic theoretical concepts in corporate finance and their application to corporate financing and investment decisions. Coursework focuses on the areas of investments, portfolio management, real estate appraisal, financial institutions, corporate finance, and risk management/insurance.

### Department of Management

Management is, at its core, the analyzing, planning, executing, and leading of workers to accomplish organizational goals. As such, coursework provides students with the knowledge and skills needed to manage value-adding processes and projects and to coordinate and lead human resources. The Department offers a Certificate in Global Supply Chain Management (in partnership with the College of Engineering) and a Certificate in Human Resource Management. The Department also offer the Entrepreneurship minor, which provides students with the mindset and skills to become an entrepreneur and to innovate within an organization. Students with a management emphasis accept positions as consultants, project managers, supply chain analysts, human resource managers, and in management rotational career positions.

### Department of Marketing

Marketing focuses on acquiring, developing, and managing customers. It deals with understanding the strategies, tactics, and business processes involved in researching markets, deciding which markets and segments to pursue, identifying what unique value to provide, and then assembling the products, services, people and partner firms needed to build, communicate and deliver that value. Coursework spans the domains of sales management, marketing analytics, retailing, marketing research, consumer behavior, digital marketing, and global marketing.

### Exploratory Course

Students wanting to explore business administration as a major should take BUS\_AD 1500.

### Double Emphasis

Students may have a dual emphasis of Finance and Real Estate, or may add on an Economics emphasis to any other BSBA emphasis program.

### Undergraduate

- Admissions (p. 376)
- Degree core Requirements (p. 377)
- Academic Regulations (p. 378)
- Enrolling in Other Institutions (p. 378)
- Advising (p. 378)
- Business Career Services (p. 379)
- Professional Development Programs (p. 379)

### Admissions

#### Freshmen

Freshman applicants to the Robert J. Trulaske Sr., College of Business (students applying to MU from high school) will be admitted to the lower level if they meet campus admission requirements. Admission to the lower level does not guarantee admission to the BSBA degree program and emphasis areas or the Accountancy program. Admission to an upper-level emphasis area is based on the UM cumulative grade of record (minimum 2.6 GPA), successful completion of the business and professional core courses, and completion of the Professional EDGE requirements.

## Transfer Students

Students in good standing in another school or college at MU must submit a Transfer of Division form to the Trulaske College of Business. Such students may be admitted to the lower level if they can complete degree-program admission requirements by the completion of 60 credits for Accountancy or Business students.

External transfer students who request admission to the Trulaske College of Business will be admitted to the lower level if they can complete degree-program admission requirements by the completion of 60 credits. Students are encouraged to have their transcripts evaluated by an academic advisor in the Trulaske College of Business prior to their enrollment at MU.

Coursework completed with a grade of D- or better at an accredited two- or four-year institution will be accepted if the courses are appropriate equivalents of the required MU courses, and if the equivalent MU courses do not require a grade in the C range. Only six hours of business coursework (Accounting, Business Administration, Economics, Finance, Management and Marketing) at the 3000-level or above can be transferred for the degree requirements. The college does not accept developmental or vocational/technical coursework.

Credits transferred from accredited community or junior colleges usually include general education, upper division or pre-accountancy admission requirements and unrestricted elective courses. The Trulaske College of Business accepts a maximum of 64 credits from a community or junior college toward the bachelor's degree. When more than 64 credits have been completed, the additional courses are evaluated on a course-by-course basis for applicability to lower-level requirements.

A student holding an associate of arts degree from an accredited Missouri Community College will have fulfilled general education requirements (p. 36). However, this does not exempt the student from satisfying the specialized degree, major or emphasis prerequisites of the college in the areas of business administration, accounting, economics, math, and statistics.

Students transferring to the college without an associate of arts degree will have their transcripts evaluated on a course-by-course basis and must meet the entrance requirements of the college in the same way as other MU students. Students transferring to the Trulaske College of Business will be required to meet the Professional EDGE requirements based on their catalog year at MU.

## Probationary Admissions

Students are placed on academic probation if they are admitted to the college without fully meeting the good-standing requirements of the school.

## Degree Core Requirements

### Credit Hour Requirements

In addition to University general education (p. 36) and graduation requirements, students must meet the following requirements:

- Students must complete a minimum of 120 credits from accredited colleges or universities for all BSBA emphasis areas except International Business, which requires 136-153 credits. (See separate section for international business major requirements.) Additionally, the joint BSACC and the MAcc degree program requires students to complete a minimum of 150 credit hours.

- In completing the 120 credits for graduation, students may count no more than 40 credits within their emphasis area.

A student who has a degree in another curricular area may receive a Bachelor of Science in Business Administration degree upon completion of all requirements for the degree.

## Professional EDGE (Professional Development Program)

In addition to completing required coursework to earn a Bachelor of Science, Business Administration degree, students must fulfill the requirements of the Professional EDGE. The goal of the Professional EDGE is to offer opportunities to all BSBA and Accountancy students to develop core competencies and values necessary for success in their professional careers.

As a graduation requirement, the program is comprised of the following:

- Completion of designated professional activities to acquire points for admission to the upper level. Once admitted to the upper level, students will continue to earn points to meet the graduation requirements. Specific activities may be required.
- Completion of BUS\_AD 3500 the semester immediately following admission to the upper level. This course is a pre-requisite to the completion of the required BUS\_AD 4500. BUS\_AD 3500 must be completed in residence.
- Completion of BUS\_AD 4500 once admitted to the upper level. This will include completion of a professional level internship/practicum experience. Practicums can be completed over a summer or semester-long period of time (intersession assignments will not meet the Professional EDGE requirement). Students must seek final approval of their internship/practicum experience from the Professional EDGE Office before beginning the course. BUS\_AD 4500 must be completed in residence.

If a student fails to meet the requirements of the Professional EDGE at either the lower or upper levels, the student will not be allowed to continue in or graduate from the Trulaske College of Business.

## Professional EDGE Graduation Requirement

- The student must earn a minimum of 70 EDGE points (maximum of 100) at the lower level by the end of the semester they apply for admittance to the upper level. Once admitted, students must earn a total of 200 EDGE points by the end of their final semester to meet the graduation requirement. Specific activities and workshops may be required.
- The student must earn a C- (or higher) in BUS\_AD 3500 to satisfy the requirement.
- BUS\_AD 4500 is graded as Satisfactory/Unsatisfactory. Students must complete practicum course to a satisfactory level of 70% or greater to receive a passing grade for the course

<https://business.missouri.edu/programs-and-admissions/undergraduate/student-development/professional-edge> (<https://business.missouri.edu/programs-and-admissions/undergraduate/student-development/professional-edge/>)

## Capstone

Students must complete MANGMT 4970 Strategic Management to meet the capstone requirement. Students must earn a C- or better to earn credit for this course in order to graduate.

## Required Work in Residence

Students must complete 30 of the last 36 hours of courses in residence at MU.

## Latin Honors

Graduation with Latin Honors is determined by grade point average from either the last 50 undergraduate credits in the UM system or overall UM System undergraduate credits, whichever is higher. Grade point average requirements for Latin Honors are 3.5 for *cum laude*; 3.7 for *magna cum laude* and 3.9 for *summa cum laude*.

## Academic Assessment

Students are required to complete a college-wide assessment exam in addition to a University assessment exam during their capstone course.

## Academic Regulations

### Credits by Examination

The Trulaske College of Business accepts CLEP subject examinations, departmental exams and advanced placement (College Board) credit. More information may be obtained from academic advisors in the Trulaske College of Business and the Credit by Examinations section (p. 853).

### Maximum Credits Enrolled

In special circumstances, a student may register for more than 18 credits for a fall or spring term and more than 9 credits for a summer term. Students must obtain the permission of their academic advisor in the Trulaske College of Business to enroll in additional credits.

### Satisfactory/Unsatisfactory Grades

The S/U grading system is limited to unrestricted elective courses or courses only offered with a S/U grade.

## Academic Standing Policies

### GPA Definitions

1. **UM Term (Semester) GPA:** GPA on courses taken in a single semester
2. **UM Cumulative GPA:** GPA on courses taken at a University of Missouri system campus (Columbia, Kansas City, Rolla (S&T), St. Louis)
3. **Trulaske College of Business (TCoB) GPA\*:** GPA on business courses taken at MU (applies to upper-level students only)
  - a. Students that are admitted to the Upper Level program and have earned between a 2.0-

2.499 TCoB GPA will receive a written warning and could be in jeopardy of not graduating.

### Good Academic Standing

An undergraduate student that has a semester, UM cumulative, and TCoB\* GPA of 2.00 or higher is in good academic standing.

### Probation

1. When a student's GPA falls below 2.00 but is at least a 1.00 the student is placed on academic probation.

2. In order to gain good academic standing a student placed on academic probation must establish
  - 2.00 semester GPA
  - 2.00 UM cumulative GPA
  - 2.00 TCoB GPA\* (upper level students only)
3. Students placed on probation may become ineligible to enroll at the end of their first semester of probation if they become subject to dismissal (see below).

## Continuing Probation

If adequate progress is made after one semester, a student may be eligible to continue on probation for a second successive semester (summer semesters excluded).

## Ineligible to Enroll (Dismissal)

Students may become ineligible to enroll if one or more of the following occurs:

1. A student's cumulative, term, or TCoB GPA falls below 1.00. (TCoB GPA only applies to upper level students.)
2. The student fails to earn Good Academic Standing within one semester of being placed on Continued or Final Probation.

## Final Probation

An undergraduate student is placed onto Final Probation if their dismissal appeal is granted, or if they had been previously dismissed and sat out one academic year. This student will then have one semester to earn good academic standing. If the student does not earn good academic standing, or if they ever fall out of good standing in any subsequent semester, then they will be dismissed a second time. A second dismissal is considered permanent.

## Readmission

A student who has been ineligible to enroll for a period of one year may be readmitted only on the approval of the Director. As a condition of readmission, the Director may set forth stipulations with regard to minimum standards of academic work that must be maintained by the student. After readmission, if the student again becomes ineligible to enroll by falling out of good standing in any subsequent semester, his or her ineligibility is considered permanent. ([registrar.missouri.edu/policies/academic-standing.php](http://registrar.missouri.edu/policies/academic-standing.php))

\* First Time College Students enrolled, beginning Fall Semester 2009 and later, are required to have a 2.500 Trulaske College of Business GPA to satisfy graduation requirements. A minimum of 2.600 is required to apply to the BSBA upper level, 3.000 for Accountancy.

## Enrolling in Other Institutions

The Trulaske College of Business has no restrictions on a student enrolling in another institution simultaneously as long as university residency requirements are met.

A student may take no more than six credit hours of transfer business coursework (Accounting, Business Administration, Economics, Finance, Management and Marketing) at the 3000-level or higher.

## Advising

Undergraduate Advising Office  
111 Cornell Hall

(573) 882-7073  
umcbusadvisingdesk@missouri.edu

Students admitted to a degree program in the college are assigned an academic advisor. The academic advisor works with students in determining coursework needed to complete a degree. Students are responsible for determining an appropriate schedule of courses each semester and are encouraged to meet with their academic advisor for assistance.

## Business Career Services

Business Career Services (BCS) is a valuable resource for all levels of TCoB students. BCS provides students individual career coaching, guidance and advice in areas such as résumé and cover letter construction/revision, mock interviews, interview preparation, salary negotiations, and much more. Business Career Services partners with numerous companies serving as a liaison to bridge employer with employee. BCS-sponsored events such as Corporate Visit Days and Emphasis Panels (Accountancy, Finance & Banking, Management, Marketing, Real Estate, Sales, Entrepreneurial, Consulting, Government, Health Care, and Human Resources) provide students with firsthand knowledge of what is required to be competitive in the job market upon graduation from the Trulaske College of Business. All students are encouraged to register with BCS and begin utilizing these services as early as freshman year. BCS hosts three career fairs annually.

## Professional EDGE

The mission of the Professional EDGE is to provide every BSBA and Accounting student with substantive professional development experiences during their degree program. Professional EDGE refers to activities, both inside and outside of the classroom, that provide students with the opportunity to develop and practice skills that are needed to perform successfully in professional roles after graduation. Students who graduate with a BSBA degree from the Robert J. Trulaske Sr., College of Business will have content knowledge and advanced professional competencies that are necessary for success in the business world.

## Graduate

The Robert J. Trulaske, Sr. College of Business enrolls about 350 graduate students for PhD degrees in both accountancy and business administration, the execMBA, Crosby MBA, MS in Finance, and MA in Accounting.

The primary mission of the college is to prepare students to succeed in the world of business and to advance the body of knowledge about the world of business. Over time, the college's degree programs and faculty research productivity have earned national acclaim. The college takes great pride in its graduates. More than 31,000 alumni are contributing their expertise to the public and private sectors in every state in the U.S. and in a host of foreign countries.

The Trulaske College's graduate-level degree programs and certificates are linked here:

Crosby MBA (<http://catalog.missouri.edu/undergraduategraduate/collegeofbusiness/businessadministration/mba-business-administration/#crosby>)

execMBA (<http://catalog.missouri.edu/undergraduategraduate/collegeofbusiness/businessadministration/mba-business-administration/#exec>)

MAcc in Accountancy (<http://catalog.missouri.edu/undergraduategraduate/collegeofbusiness/accountancy/macc-accountancy/>)

MS in Finance (<http://catalog.missouri.edu/undergraduategraduate/collegeofbusiness/finance/ms-finance/>)

Marketing Analytics Certificate (<http://catalog.missouri.edu/undergraduategraduate/collegeofbusiness/additionalminorsandcertificates/graduate-certificate-marketing-analytics/>)

Global Supply Chain Management Certificate

**Note:** Prospective graduate students must apply to *both* the degree program of interest and to the MU Graduate School. In most cases, the entire application process may be completed online. Find admission and application details by visiting: <https://gradschool.missouri.edu/admissions/apply/>.

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## Accountancy

### School of Accountancy 303 Cornell Hall (573)882-4463

Vairam Arunachalam, Director, School of Accountancy and PwC/Silvoso Distinguished Professor  
Shannon Ferguson, Director, 150-hour and Master of Accountancy Programs  
Alex Horn, Assistant Director, 150-Hour and Master of Accountancy Programs

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#### Academic Advising Contact

School of Accountancy  
303 Cornell Hall  
(573) 882-4463

#### Scholarship Contact

School of Accountancy  
303 Cornell Hall  
(573) 882-4463

The accountancy program at the University of Missouri has long been nationally recognized for its excellence. MU accountancy faculty have published leading textbooks and research articles and have served at high levels in numerous professional accounting associations. Accountancy prepares students for the competitive field of accounting with a combination of classroom study, practical experience, and student organizations.

Students wanting to explore accountancy as a major should take ACCTCY 2036 or ACCTCY 2026.

## Admissions

The bachelor of science and master of accountancy degree programs are merged into an integrated 150-hour curriculum to be entered into as a junior. The School of Accountancy also offers a Master of Accountancy degree offered both online and in-person as well as an accounting minor.

Admission decisions will be made at the end of the spring semester for *fall admissions only*. Meeting the minimum requirements does not guarantee admission. Admission cutoffs will be revised each year in order to control accountancy undergraduate enrollment at a limit that can be served with current authorized faculty staffing and still maintain program quality and meet accreditation guidelines.

Students not admitted to the 150 credit hour degree program in the School of Accountancy may meet Trulaske College of Business admission requirements and transfer into a business administration emphasis area, depending on available space.

A student may take no more than six credit hours of 3000 or higher business courses through non-MU courses off campus, excluding ACCTCY 3326, ACCTCY 3328, ACCTCY 3346, ACCTCY 3347, ACCTCY 4353, ACCTCY 4940 and ACCTCY 7940. Study abroad courses are also excluded from this requirement.

## Faculty

**Professor** V. Arunachalam\*\*, J. R. Francis\*\*, I. K. Khurana\*\*, E. G. Mauldin\*\*, R. Pereira\*\*

**Associate Professor** K. W. Shaw\*\*

**Assistant Professor** L. Baer\*\*, M. Chy\*\*, K. Czerney\*\*, W. Demere\*\*, M. Glendingen\*\*, H. Kyung\*\*, S. Neuman\*\*, A. Pawliczek\*\*, F. Silva\*\*

**Associate Teaching Professor** K. Hockman\*, T. Hurley\*, B. Runyan\*, C. Prestigiacomo\*

**Assistant Teaching Professor** E. Bartley\*, K. Gingrich\*

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BSAcc in Accountancy (p. 381)
- Minor in Accountancy (p. 383)

## Undergraduate Level

Information on students who are admitted to MU and who indicate an interest in becoming accountancy or business majors is subsequently forwarded to the Undergraduate Advising Office of the College of Business (111 Cornell Hall, 573-882-7073). Qualified applicants with less than 54 semester hours of college courses completed will be admitted to the lower level of the Trulaske College of Business. Applicants with more than 54 semester hours of college credit may be admitted to a specific upper level college of business program, e.g., the 150-Hour Accountancy Program, if they meet the program's admission requirements. Students who transfer into the Trulaske College of Business' upper or lower levels from another Mizzou school or college must submit a Transfer of Division form.

The combined BSAcc/MAcc (150-hour) program is open to qualified undergraduate students at Mizzou as well as qualified undergraduates who transfer to MU from other colleges and universities. Interested students not already admitted to Mizzou should visit the Office of Admissions website (<http://admissions.missouri.edu/apply/>). Undergraduate students are also responsible for completing all Trulaske College of Business requirements. These requirements can be found here (p. 376). A student must first be admitted to the Trulaske College

of Business before they are eligible to apply to the 150-hr BSAcc/MAcc program.

## Admission to the Joint BSAcc and MAcc Degree Program

In the School of Accountancy, the bachelor's and master's degree programs are merged into an integrated 150-hour program. Students should be admitted to the BSAcc/MAcc degree program by the time they have completed 60 hours. Refer to the list of Pre-Accountancy (p. 381) courses in the BSAcc (p. 381) information which are required for admission.

Students must also complete the Professional Edge point requirements for admission to the School of Accountancy and for graduation. Students must earn a minimum of 70 EDGE points (maximum of 100) at the lower level to be considered for official admittance to the upper level. Once admitted, students must earn a total of 200 EDGE points for graduation.

## Academic Standing - School of Accountancy

Accountancy students are in good academic standing if they maintain a cumulative UM grade point average of 3.0 or higher for all coursework subsequent to admission to the 150-hour Accountancy program. Failure to meet this requirement will result in a probationary semester, and if not rectified, potential dismissal from the program. Accountancy students are also subject to the probation and dismissal policies (p. 376) set by the Trulaske College of Business. An undergraduate who has been ineligible to enroll for a period of one year may be readmitted only on the approval of the Director of the 150-hour program in Accountancy. As a condition of readmission, the Director may set forth stipulations with regard to minimum standards of academic work that must be maintained by the student. After readmission, if the student again becomes ineligible to enroll, his or her ineligibility is considered permanent. Accountancy students entering the graduate portion of the 150-hour program should consult the Office of Graduate Studies (<http://gradstudies.missouri.edu/>) for academic standing policies for graduate students.

## Graduate

- MAcc in Accountancy (p. 383)
- PhD in Accountancy (p. 384)

## Robert J. Trulaske, Sr. College of Business School of Accountancy 303 Cornell Hall 573-882-4463

School of Accountancy Director: Vairam Arunachalam  
Director of 150 Hour and Master of Accountancy Programs: Shannon Ferguson  
Director of PhD Program: Raynolde Peirera

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## About Accountancy Graduate Programs

The School of Accountancy offers graduate work leading to the master of accountancy and doctor of philosophy degrees. Graduate programs in accountancy prepare students for advanced professional careers in

public, private and governmental accounting, and for careers in teaching and research.

Alert to change and recognizing that accounting education at the graduate level should be ahead of current practice, the School's programs require course work stressing advanced knowledge in accounting theory and practice, quantitative methods, economics and business. Opportunities exist on and off campus for exchanging ideas with practicing accountants and for participating in the solution of their professional problems.

Among the school's special facilities are a comprehensive collection of accounting and investment services, computer databases, technical journals and microfilm copies of annual reports, government documents and doctoral dissertations.

## Funding

Fellowships, scholarships and teaching and research assistantships are available to qualified graduate students.

## BSAcc in Accountancy

### Degree Program Description

Students in the School of Accountancy acquire practical experience in the field of accounting. The curriculum provides students with a strong technical accountancy background, a broad advanced business background and professional skills such as public speaking and information systems skills. Accountants engage in a wide variety of activities including preparing financial statements, reconciling business transactions, performing audits of public companies, and developing and using information systems to track financial performance and strategy. The field is competitive, challenging and rewarding. Typical careers in accountancy include auditor, tax advisor, wealth manager, forensic accountant, corporate finance officer, and consultant. The undergraduate and master's degree programs with a major in accountancy are merged into an integrated 150-credit curriculum to provide high-quality preparation for a career as a professional accountant in public accounting, business or government.

### Major Program Requirements

The Bachelor of Science with a major in Accountancy is only awarded along with the Master of Accountancy degree upon satisfactory completion of the 150-credit, integrated curriculum. In this integrated program, a minimum of 36 credits in accountancy courses at the 3000-level or above must be completed at MU. Admission is competitive; students are required to have a minimum 3.000 University of Missouri GPA of record and at least 45 credit hours earned to apply during the Spring semester. Meeting minimum qualifications does not guarantee admission.

### Major Core Requirements

The following courses are degree specific major requirements for the 150-credit program in the School of Accountancy. Courses that satisfy University general education (p. 36) and core program prerequisite requirements are recommended for the freshman and sophomore years.

#### Accountancy Foundation Courses

COMMUN 1200	Public Speaking	3
International Component (See your academic advisor about completion of this requirement.)		

#### Pre-Accountancy Courses

ACCTCY 2036	Accounting I <sup>1 2</sup> (for all courses)	3
or ACCTCY 2136H	Honors Accounting I	
or ACCTCY 2026	Accounting I	
ACCTCY 2037	Accounting II <sup>1 2</sup> (for all courses)	3
or ACCTCY 2137H	Honors Accounting II	
or ACCTCY 2027	Accounting II	
ACCTCY 2258	Computer-Based Data Systems	3
BUS_AD 1500	Foundations of Business and Professional Development Principles	2
BUS_AD 2500	Intermediate Professional Development Principles	2
ECONOM 1014	Principles of Microeconomics <sup>* 2</sup>	3
ECONOM 1015	Principles of Macroeconomics <sup>* 2</sup>	3
ENGLISH 1000	Exposition and Argumentation <sup>** 2</sup>	3
MATH 1100	College Algebra <sup>**</sup>	3
MATH 1300	Finite Mathematics <sup>2 3</sup>	3
MATH 1400	Calculus for Social and Life Sciences I <sup>2 3</sup>	3
STAT 2500	Introduction to Probability and Statistics I <sup>** 2</sup>	3

#### Required Core Courses

ECONOM 3229	Money, Banking and Financial Markets	3
ECONOM 3251	Managerial Economics	3
or ECONOM 4351	Intermediate Microeconomics	
FINANC 3000	Corporate Finance	3
MANGMT 3000	Principles of Management	3
MANGMT 3300	Introduction to Business Processes and Technologies	3
MANGMT 4140W	Business Communication - Writing Intensive <sup>**</sup>	3
or MANGMT 3200HW	Business and Society - Honors/Writing Intensive	
MANGMT 3540	Introduction to Business Law	3
MRKTNG 3000	Principles of Marketing	3
STAT 3500	Introduction to Probability and Statistics II	3

#### Required Accountancy Courses

ACCTCY 3326	Financial Accounting Theory and Practice I <sup>**</sup>	3
ACCTCY 3328	Accounting Information Systems <sup>**</sup>	3
ACCTCY 3346	Financial Accounting Theory and Practice II <sup>**</sup>	3
ACCTCY 3347	Cost and Managerial Accounting <sup>**</sup>	3
ACCTCY 4353	Introduction to Taxation <sup>**</sup>	3
ACCTCY 4384/7384	Auditing Theory and Practice I <sup>4</sup>	3
Accountancy/Business Elective <sup>5</sup>		3-6

#### Professional Electives

Six credits must be taken as 2000-level or higher University non-business electives or 3000-level business electives

#### Senior Capstone

MANGMT 4970	Strategic Management	3
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#### Graduate Level Coursework

Total Credits	124-127
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\* ECONOM 1051H/ECONOM 1000 may be taken in place of ECONOM 1014 and ECONOM 1015.

\*\* Requires a grade of C- or better.

- 1 Requires a grade of B- or better for ACCTCY 2036 and ACCTCY 2037, ACCTCY 2136H or ACCTCY 2026, ACCTCY 2137H or ACCTCY 2027 (including grades from other institutions).
- 2 Requires minimum 3.0 GPA (including grades from other institutions) for these Pre-Accountancy courses.
- 3 Need grade of C- or better in MATH 1300 or MATH 1400.
- 4 May take the graduate or undergraduate level course to fulfill this requirement.
- 5 A student may be required to take 3 or 6 business electives depending on if ACCTCY 4384/ACCTCY 7384 is taken at the graduate or undergraduate level as described above.

## School of Accountancy Graduation Requirements

The merged BSAcc and MAcc degrees require 150 total credits.

General Education <sup>*, **</sup>	18
Free Elective	8
Pre-Accountancy Courses	34
Accountancy Foundation Courses	3
Required Core Courses	27
Required Accountancy Courses	21
Professional Electives	6
Senior Capstone	3
Graduate Level Coursework	30
<b>Total Minimum</b>	<b>150</b>

\* Certain Accountancy Foundation Courses must be included. Students also need to fulfill an International Studies Component (3 hours) to be selected with your advisor. These classes can be taken at the undergraduate or graduate level.

\*\* A maximum of six hours from Pre-Accountancy Coursework (MATH 1300, MATH 1400, or STAT 2500) may fulfill general education requirements.

## Semester Plan - Bachelor of Science in Accountancy and Master of Accountancy\*\*\*

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
BUS_AD 1500		2 ENGLSH 1000 <sup>**</sup>	3
COMMUN 1200		3 MATH 1300 or 1400 <sup>*</sup>	3
MATH 1300 or 1400 <sup>*</sup>		3 Humanities	3
State Requirement		3 Physical/Biological Science with a Lab	3
Humanities		3 Free Elective	3
Free Elective		1	
			15
Second Year			
Fall	CR	Spring	CR
ACCTCY 2036 or 2136H		3 ACCTCY 2037 or 2137H	3
BUS_AD 2500		2 ACCTCY 2258	3
ECONOM 1014		3 ECONOM 1015	3

STAT 2500 <sup>**</sup>		3 STAT 3500	3
Free Elective		4 MANGMT 3300	3
			15

Third Year			
Fall	CR	Spring	CR
ACCTCY 3326 (FS Only) <sup>**</sup>		3 ACCTCY 3346 (SP Only) <sup>**</sup>	3
ACCTCY 3328 (FS Only) <sup>**</sup>		3 ACCTCY 4353 (SP Only) <sup>**</sup>	3
ECONOM 3229		3 FINANC 3000	3
MANGMT 3000		3 MANGMT 3200HW or 4140W (Writing Intensive) <sup>**</sup>	3
Free Elective		3 MRKTNG 3000	3
			15

Fourth Year			
Fall	CR	Spring	CR
		Non Internship (for Internship plan-see below) <sup>#</sup>	
ACCTCY 3347 (FS Only) <sup>**</sup>		3 MANGMT 4970	3
ACCTCY 4384		3 ACCTCY/BUS Elective	3
ECONOM 3251 or 4351		3 Professional Elective	3
MANGMT 3540		3 Professional Elective	3
Free Elective		3 Free Elective	3
			15

Fifth Year			
Fall	CR	Spring	CR
Accountancy Elective		3 ACCTCY 8450	3
Accountancy Elective		3 MANGMT 7010	3
Accountancy Elective		3 Accountancy Elective	3
Accountancy/Business Elective		3 Accountancy Elective	3
Accountancy/Business Elective		3 Accountancy/Business Elective	3
			15

Total Credits: 150

# Internship

ACCTCY 4940/7940	Professional Accounting Internship	3
Accountancy Elective		3
Accountancy Elective		3
Total Credits		9

# Some students get an opportunity to do a spring internship for 3 hours during the 8th semester. Internships are normally the 1st 8 weeks and students take 6-9 hours during 2nd 8 weeks for a total of 9-12 hours.

\* A grade of C- or better is required in MATH 1300 and MATH 1400. The sample plan assumes MATH 1100 is complete.

\*\* Need grade of C- or better to fulfill requirement. Additional writing intensive courses must also earn a grade of C- or better per general education requirements.

\*\*\* Many students are dual-enrolled (taking undergraduate and graduate coursework) during the fourth year. Therefore, the graduate course load is reduced in their fifth year. When a student begins to take graduate coursework they will begin paying graduate fees for coursework regardless of time spent on campus.

### Note:

MANGMT 3200HW OR MANGMT 4140W is a required course.

ECONOM 1051H/ECONOM 1000 satisfies both ECONOM 1014 and ECONOM 1015 requirement.

One humanity or science must be 2000-level or above.

Professional electives can be non-business electives (2000+ courses) or Business electives (3000+ courses) approved by academic advisor.

Electives must be approved by advisor so that international studies component is met.

## Minor in Accountancy

The Minor in Accountancy is open to non-Business students only. Accounting is often times referred to as the language of business. Non-business students with an accounting minor will bring an accounting mindset to their future careers. As they look to begin their careers in their chosen profession with hopes to become a manager or owner, the foundational knowledge of accounting will serve them well in making decisions regarding the operating, investing, and financing activities of their company. Additionally, basic understanding of profit and balance sheets, coming from the core accounting coursework, make a student more knowledgeable in general about world events and corporate operations.

### Requirements

Minor Requirements: 15 completed hours with a 2.0 GPA.

Required Courses		12
ACCTCY 2036	Accounting I	3
ACCTCY 2037	Accounting II	3
ACCTCY 2258	Computer-Based Data Systems	3
ACCTCY 4356	Financial Accounting Concepts	3
Electives (choose one)		3
ACCTCY 3328	Accounting Information Systems	3
ACCTCY 3347	Cost and Managerial Accounting	3
ACCTCY 4353	Introduction to Taxation	3

Contact the School of Accountancy, office 303 Cornell Hall, to complete a minor application form.

## MAcc in Accountancy

The growing scope and diversity of functions being performed by professional accountants has created a strong demand for individuals who have both a broader base of general and business education as well as more in-depth technical accounting education than can be obtained in a four-year. The Master of Accountancy degree is offered either 100% on-line or 100% in-seat for students focused on obtaining an advanced degree.

### Degree Requirements

Students who have a degree in a different curricular area or a bachelor's degree in accountancy from another college or university may earn a master's degree from the School of Accountancy upon completion of the requirements for the degree. The student's program must include a minimum of 30 credits beyond the bachelor's degree (or its equivalent) selected from courses carrying graduate credit. The basic 30-hour MAcc curriculum requires a minimum of 15 hours of accountancy courses and a minimum of 15 hours of courses reserved exclusively for graduate students. A maximum of 6 semester hours of graduate level course

work may be transferred from another accredited master's program. In addition, the student must meet the following stipulations:

- At least 15 of the 30 credits must be completed in 8000-9000-level courses.
- A minimum of 24 credits of advanced study must be completed under MU faculty.
- A maximum of 6 graduate credits may be transferred from another college or university.
- All requirements must be completed within eight years from the time of initial enrollment.

The MAcc program is designed especially to provide the additional breadth and depth of knowledge and skills required for success in contemporary accounting practice.

#### Professional Accountancy Education

ACCTCY 7384	Auditing Theory and Practice I **	3
ACCTCY 8450	Accounting and Strategic Business Analysis	3

Accounting Electives: 12-21 hours

#### Core Business Education

MANGMT 7010	Operations Management (or approved substitute *)	3
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Business electives: 0-9 hours

\* Management 7010 substitutes include Finance 7010, Finance 7020, Management 7540, Accountancy 7365 or Accountancy 8436.

\*\* If taken at the undergraduate level, audit is waived and an additional accounting elective is taken at the graduate level.

Through careful selection of electives, the MAcc program provides great flexibility to enable customized programs of study in specialty areas of particular interest to students. Students may earn a certificate in assurance or taxation within the 30 hours required for their Master of Accountancy degree. Go the following link for more information about graduate accounting certificates (p. 411).

#### Accountancy Electives:

ACCTCY 7365	Governmental Accounting and Budgeting	3
ACCTCY 7940	Professional Accounting Internship	3-6
ACCTCY 8363	Multi-Jurisdictional Tax	3
ACCTCY 8373	Taxation of Corporations and Shareholders	3
ACCTCY 8404	Internal Auditing	3
ACCTCY 8414	Audit of Internal Controls	3
ACCTCY 8419	International Accounting	3
ACCTCY 8423	Tax Research and Planning	3
ACCTCY 8428	Data Visualization and Data Mining	3
ACCTCY 8424	Fraud Examination (or Forensic Accounting)	3
ACCTCY 8433	Mergers and Acquisitions Taxation	3
ACCTCY 8436	Advanced Accounting	3
ACCTCY 8438	Forensic Accounting (or Fraud Examination)	3
ACCTCY 8444	Advanced Audit	3
ACCTCY 8448	Emerging Issues in Accounting Information Systems	3
ACCTCY 8453	Taxes and Business Strategies	3
ACCTCY 8456	Corporate Governance	3
ACCTCY 8463	Partnership Taxation	3



**MBA Courses**

MBA courses may be used to fulfill business electives at the graduate level. Please see the Director of the 150-Hour Program during pre-registration to get a list of courses that are available for accountancy students.

Note: Additional coursework may count towards the Master of Accountancy degree with Acct 8401 - Topics in Accounting courses, please inquire with an academic advisor in the School of Accountancy to discuss available coursework.

**Admission Criteria to the MAcc**

- Rolling admissions to begin in Fall, Spring or Summer semesters.
- Minimum Test of English as a Foreign Language (TOEFL) scores:

Internet-based test (iBT)	Paper-based test (PBT)
112	630

- Competitive GMAT score
- Competitive Undergraduate GPA
- Bachelor's degree from an accredited college or university
- Accountancy coursework:
  - Accounting I and II
  - Intermediate Financial Accounting I and II
  - Accounting Information Systems
  - Cost and Managerial Accounting
  - Introduction to Taxation
- Short answer essay question submitted as a part of application to Graduate School
- Resume
- Letters of Recommendation
- Interview may be required for admission

Work experience may be considered in lieu of some admittance requirements. Additionally, students that are employed or otherwise financially supported by an employer (i.e. an accounting firm or corporation) may receive a waiver of some admittance requirements.

\* GMAT/GRE waivers can be discussed by contacting Teal Snoddy at [snoddyt@missouri.edu](mailto:snoddyt@missouri.edu). Decisions are primarily based on undergraduate academic performance and work experience.

Note: Meeting the minimum requirements does not guarantee admission.

**Required Application Materials**

To the Graduate School

All required Graduate School documents - online application, unofficial transcripts (official transcript required if accepted by the program) Statement of objectives, no more than 500 words (upload to the online Graduate Application), Letters of Recommendation (upload to the online Graduate Application) and GMAT score (upload to the online Graduate Application).

TOEFL score (if native language is not English)

**Admission Contact Information**

School of Accountancy  
303 Cornell Hall  
573-882-4463

**PhD in Accountancy**

- Degree Requirements (p. 384)
- Admission Criteria (p. 384)

**Degree Requirements**

The University requires 72 total hours beyond a baccalaureate degree for a PhD. In order to meet this requirement, the School of Accountancy requires the following program of course work and dissertation research:

Doctoral-level Accounting Research courses	15
Course Work in supporting theoretical fields (e.g. economics, finance, organizational theory and behavior)	15
Statistics and other research methods courses	18
Weekly Research Seminar (meeting one hour per semester for four years)	8
Dissertation Research	12-16
<b>Total Credits</b>	<b>68-72</b>

Course work is designed to be completed in five semesters (two and one-half years). Written and oral comprehensive examinations are then taken after completion of course work, and the remainder of years three and four is devoted to the completion of the research dissertation. Specializations are available in areas of faculty research interests.

**Admissions**

**Prerequisites for the Doctoral Degree in Accountancy**

International students should note that we rarely admit a student directly from outside the United States unless they have studied/worked in an English-language setting.

Prerequisites to undertaking doctoral course work include one, and preferably two, semesters of calculus; an introductory statistics course; and intermediate-level microeconomic theory. An undergraduate accounting major (or equivalent) is desirable but required. Prior graduate work is not required for admission to the program, but most successful applicants do have a master's degree.

**Admission Criteria**

Fall deadline: February 1 (**Note:** Applications received after the deadline may be considered)

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
100	600

- Competitive GMAT score that is considered heavily in admission
- A prior record of outstanding academic performance
- Strong letters of recommendation

**Required Application Materials**

To the Graduate School

All required Graduate School documents

To the Accountancy PhD Program

Departmental Application  
\*3 Recommendation letters  
\*Statement of Purpose

- \*Résumé
- \*Official GMAT scores
- \*Upload electronically through the Graduate School application

## Admission Contact Information

School of Accountancy  
 Columbia, MO 65211  
 573-882-4463  
 accountancy@missouri.edu

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

## More Information

For information about the doctoral degree in accountancy, visit our website or write to:

Dr. Raynolde Pereira, Director of the Doctoral Program in Accountancy  
 School of Accountancy  
 Robert J. Trulaske, Sr. College of Business  
 303 Cornell Hall  
 University of Missouri  
 Columbia, MO 65211

## Business

The Business degree programs are collaborative programs within the College of Business and are a college wide initiative.

## Faculty

### Finance

**Professor** J. Howe\*\*  
**Associate Professor** M. O'Doherty\*\*, K. Pukthuanthong\*\*  
**Assistant Professor** F. Bereskin\*\*, M. Binfare, K. Holland\*, S. Jannati\*\*, J. Shen\*, M. Young, A.Yore\*, J.Wang  
**Associate Teaching Professor** M. Griswold, D. Johnson, J. Stansfield\*  
**Assistant Teaching Professor** M. Dorigan, D. Fischer, J. Hegger, K. Kim

### Management

**Professor** R. Johnson\*, A. Ross\*\*, J. Schaubroeck\*\*  
**Associate Professor** D. Moesel\*, A. Peng\*\*, C. Robert\*\*  
**Assistant Professor** J. Andrus\*, J. Arnold, J. Bort, J. Bush, S. Downing, J.H. Han, E. Misati, X. Wang\*  
**Associate Teaching Professor** S. Crews\*, M. B. Marrs\*, T. Waid\*  
**Assistant Teaching Professor** G. Albright\*, L. Brengarth, S. Breske\*, J. Christianson\*, T.Ford, A. Jakubovskis\*, K. Kim, A. Kendall, B. Kevin-Myer, S. Mariea\*, D. Smith\*

### Marketing

**Professor** S. Gopalakrishna\*\*, D. Marinova\*\*, M. Richins\*\*, L. Scheer\*\*, S. Zou\*\*  
**Associate Professor** N. Syam\*\*  
**Assistant Professor** Z. (Julien) Bei, T. Eapen, B. Hodges, S. Kim, A. Patil\*\*, S. Rajendran\*, S. Srinivas\*

**Associate Teaching Professor** J. Poor\*, C. W. Keene\*  
**Assistant Teaching Professor** C. Cothren\*, A. Essing

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- Minor in Business (p. 385)

While the Trulaske College of Business does not offer an undergraduate degree in Business, we do offer the BSBA (Bachelor of Science in Business Administration) (p. 387) or BSAcc (Bachelor of Science in Accountancy) (p. 380).

## Graduate

- MS in Business (p. 386)

## Minor in Business

The business minor has the same rigor and content as the fundamental courses taken by business students. It provides flexibility in undergraduate studies and better prepares students for jobs and for graduate school. The business minor includes courses that are highly complementary. For most students, the requirements for the business minor are far more valuable than a similar number of courses in one or two areas.

## Requirements

15 of the 18 hours must be taken in residence. A cumulative 2.0 GPA in all business courses and those required for the business minor is required. See a business advisor for questions regarding the business minor.

ACCTCY 2010	Introduction to Accounting	3
or ACCTCY 2026	Accounting I	
or ACCTCY 2036	Accounting I	
or ACCTCY 2136H	Honors Accounting I	
ECONOM 1014	Principles of Microeconomics (3)	3-5
or ABM 1041	Applied Microeconomics	
or ABM 1042	Applied Macroeconomics	
or ECONOM 1000	General Economics for Journalists	
or ECONOM 1014H	Principles of Microeconomics-Honors	
or ECONOM 1015	Principles of Macroeconomics	
or ECONOM 1015H	Principles of Macroeconomics - Honors	
or ECONOM 1051H	General Economics - Honors	
MANGMT 3000	Principles of Management	3
FINANC 2000	Survey of Business Finance	3
or FINANC 3000	Corporate Finance	
MRKTNG 3000	Principles of Marketing	3
Business Elective (any Trulaske College of Business courses Accounting, Business Administration, Economics, Finance, Management or Marketing above 3000 level)		3
Total Credits		18-20

## MS in Business

The Master of Science in Business is a customizable degree program students build based on existing certificate programs within the College of Business and other colleges within the University of Missouri System.

Students combine or 'stack' certificate programs in unique ways to fulfill degree requirements, thus creating a degree that is either narrowly focused on business, or is interdisciplinary with a solid business foundation. This unique concept is known as 'Stackable Certificates'.

### Degree Requirements

The basic framework for the degree involves three components: A required set of Core Business Foundations courses offered by the College of Business (TCoB), a graduate certificate offered by TCoB, and the choice of an additional certificate offered by TCoB, an approved certificate offered by another college at MU, or an approved certificate offered by another business school within the University of Missouri system.

The MS in Business requires 30 credit hours minimum. Depending on the certificates chosen, and the ability to waive credit hours, the maximum number of credit hours to complete the degree will vary. Twenty-one of the total 30 credit hours must originate from TCoB courses or courses jointly offered by TCOB and another college. Students will have the option to waive up to 6 credit hours of core courses under specific circumstances, including the completion of an undergraduate business degree.

Core Business Foundations Curriculum		12
ACCTCY 7310	Accounting for Managers	3
FINANC 7410	Managerial Finance I	1.5
FINANC 7210	Microeconomics for Business	1.50
MRKTNG 7470	Advanced Marketing Management	1.50
MRKTNG 7460	Managerial Marketing	1.50
MANGMT 7390	Organizational Behavior and Management: Dyadic, Group and Organizational Processes	1.5
MANGMT 7970	Introduction to Strategic Management	1.5
<b>Business Certificate</b>		<b>12-15</b>
<b>Additional Certificate</b>		<b>12+</b>

Contact the Trulaske College of Business Graduate Programs Office for additional details.

## Business Administration

Michael O'Doherty, Chair, Finance Department  
401C Cornell Hall  
(573) 882-2733

Anthony Ross, Chair, Management Department  
403 Cornell Hall  
(573) 882-5058

Srinath Gopalakrishna, Chair, Marketing Department  
402B Cornell Hall  
(573) 882-3282

### On Campus Advising Contact

Undergraduate Advising Office  
111 Cornell Hall  
(573) 882-7073

businessadvising@missouri.edu

### Online Advising Contact

(573)884-2004  
BSBAonline@missouri.edu

### Scholarship Information

408 Cornell Hall  
(573) 882-6769

## Department of Finance

Through the study of finance, students learn to independently analyze security markets, understand basic valuation techniques, and use their knowledge to make investment decisions. In addition, students learn basic theoretical concepts in corporate finance and their application to corporate financing and investment decisions. Coursework focuses on investments, portfolio management, real estate, financial institutions, corporate finance, and risk management/insurance.

## Department of Management

Management is, at its core, the analyzing, planning, executing, and leading of workers to accomplish organizational goals. As such, coursework provides students with the knowledge and skills needed to manage value-adding processes and projects and to coordinate and lead human resources. The Department offers a Certificate in Global Supply Chain Management (in partnership with the College of Engineering) and a Certificate in Human Resource Management. The Department also offer the Entrepreneurship minor, which provides students with the mindset and skills to become an entrepreneur and to innovate within an organization. Students with a management emphasis accept positions as consultants, project managers, supply chain analysts, human resource managers, and in management rotational career positions.

## Department of Marketing

Marketing focuses on acquiring, developing, and managing customers. It deals with understanding the strategies, tactics, and business processes involved in researching markets, deciding which markets and segments to pursue, identifying what unique value to provide, and then assembling the products, services, people, and partner firms needed to build, communicate, and deliver that value. Coursework spans the domains of sales management, marketing analytics, retailing, marketing research, consumer behavior, digital marketing, and global marketing.

## Exploratory Course

Students wanting to explore business administration as a major should take BUS\_AD 1500.

## Double Emphasis

Students in the on campus program may have a dual emphasis of Finance and Real Estate, or may add on an Economics emphasis to any other BSBA emphasis program.

## Faculty

### Finance

**Professor** J. Howe\*\*

**Associate Professor** M. O'Doherty\*\*, K. Pukthuanthong\*\*

**Assistant Professor** F. Bereskin\*\*, M. Binfare, K. Holland\*, S. Jannati\*\*, J. Shen\*, M. Young, A. Yore\*, J. Wang

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**Associate Professor** N. Syam\*\*

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\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BSBA in Business Administration (p. 389)
  - with emphasis in Economics (p. 391)
  - with emphasis in Finance and Banking (p. 392)
  - with emphasis in Real Estate (p. 401)
  - with emphasis in Management (p. 398)
  - with emphasis in Marketing (p. 400)
  - with emphasis in International Business - Economics (p. 393)
  - with emphasis in International Business - Finance (p. 394)
  - with emphasis in International Business - Management (p. 396)
  - with emphasis in International Business - Marketing (p. 397)

## Professional EDGE (Professional Development Program)

In addition to completing required coursework to earn a Bachelor of Science, Business Administration degree, students must fulfill the requirements of the Professional EDGE. The goal of the Professional EDGE is to offer opportunities to all BSBA and Accounting students to develop core competencies and values necessary for success in their professional careers.

As a graduation requirement, the program is comprised of the following:

- Completion of designated professional activities to acquire points for admission to the upper level. Once admitted to the upper level, students will continue to earn points to meet the graduation requirements. Specific activities may be required.
- Completion of BUS\_AD 3500 the semester immediately following admission to the upper level. This course is a pre-requisite to the

completion of the required BUS\_AD 4500 course. BUS\_AD 3500 must be completed in residence.

- Completion of BUS\_AD 4500 once admitted to the upper level. This will include completion of a professional level internship/practicum experience. Practicums can be completed over a summer or semester-long period of time (intersession assignments will not meet the Professional EDGE requirement). Students must seek final approval of their internship/practicum experience from the Professional EDGE Office before beginning the assignment. BUS\_AD 4500 must be completed in residence.

If a student fails to meet the requirements of the Professional EDGE at either the lower or upper levels, the student will not be allowed to continue in or graduate from the Trulaske College of Business.

## Professional EDGE Graduation Requirement

- The student must earn a minimum of 70 EDGE points (maximum of 100) at the lower level by the end of the semester they apply for admittance to the upper level. Once admitted, students must earn a total of 200 EDGE points by the end of their final semester to meet the graduation requirement. Specific activities and workshops may be required.
- The student must earn a C- (or higher) in BUS\_AD 3500 to satisfy the requirement.
- BUS\_AD 4500 is graded as Satisfactory/Unsatisfactory. Students must complete practicum course to a satisfactory level of 70% or greater to receive a passing grade for the course.

## Admission to the Business Administration Program

### Capacity Limitations (On Campus Program Only)

Admission into the upper-level Bachelor of Science in Business Administration (BSBA), or International Business (BSBA) degree program is highly competitive, because enrollment is limited. Each of the individual emphasis areas (Economics, Finance and Banking, Management, Marketing or Real Estate) has its own capacity limitation. Students who have earned a 3.4 minimum UM cumulative GPA or higher will be guaranteed admission to the upper level emphasis area of their choice. Other students with at least a 2.6 minimum UM cumulative GPA will be admitted on a space available basis.

### Pre-Professional Information

To apply to the upper-level BSBA (and a related emphasis area program, if an on campus student), a student must have completed a minimum of 45 credits, have at least a UM Cumulative GPA of a 2.6 (does not guarantee admission to Upper Level), and met the Professional EDGE requirements. A student must be admitted by the semester after the 60th credit hour is earned. The following courses must be among the credits completed or in progress at the time of application.

ACCTCY 2036	Accounting I	3
or ACCTCY 2026	Accounting I	
or ACCTCY 2136H	Honors Accounting I	
ACCTCY 2037	Accounting II	3
or ACCTCY 2027	Accounting II	
or ACCTCY 2137H	Honors Accounting II	
ACCTCY 2258	Computer-Based Data Systems	3

or CMP_SC 1050	Algorithm Design and Programming I	
or INFOTC 1040	Introduction to Problem Solving and Programming	
BUS_AD 1500	Foundations of Business and Professional Development Principles	2
BUS_AD 2500	Intermediate Professional Development Principles	2
ECONOM 1014	Principles of Microeconomics <sup>^</sup>	3-5
or ECONOM 1000	General Economics for Journalists	
or ECONOM 1014H	Principles of Microeconomics-Honors	
or ECONOM 1051H	General Economics - Honors	
ECONOM 1015	Principles of Macroeconomics <sup>^</sup>	3
or ECONOM 1015H	Principles of Macroeconomics - Honors	
ENGLSH 1000	Exposition and Argumentation <sup>+</sup>	3
MATH 1100	College Algebra <sup>+</sup>	3
MATH 1300	Finite Mathematics <sup>#</sup>	3
MATH 1500	Analytic Geometry and Calculus I <sup>+</sup>	
MATH 1400	Calculus for Social and Life Sciences I <sup>#</sup>	3
MATH 1500	Analytic Geometry and Calculus I <sup>+</sup>	
STAT 2500	Introduction to Probability and Statistics I <sup>+</sup>	3
or STAT 1200	Introductory Statistical Reasoning <sup>+</sup>	
and STAT 2200	and Introductory Statistical Methods <sup>+</sup>	
or STAT 1300	Elementary Statistics <sup>+</sup>	
or STAT 1400	Elementary Statistics for Life Science <sup>+</sup>	
and STAT 2200	and Introductory Statistical Methods <sup>+</sup>	
or ESC_PS 4170	Introduction to Applied Statistics <sup>+</sup>	
and STAT 2200	and Introductory Statistical Methods <sup>+</sup>	
or STAT 4710	Introduction to Mathematical Statistics <sup>+</sup>	
or STAT 2530	Statistical Methods in Natural Resources <sup>+</sup>	

<sup>^</sup> ECONOM 1051H OR ECONOM 1000 may be taken in place of ECONOM 1014 and ECONOM 1015.

<sup>#</sup> Needs grade of C- or better in MATH 1300 or MATH 1400

<sup>+</sup> Needs grade of C- or better in ENGLSH 1000, MATH 1100, and STAT 2500.

## Admission to BSBA Degree and Emphasis Areas

In addition to meeting the previous requirements, students are admitted to an upper-level BSBA emphasis area based on UM cumulative grade point average.

On Campus students request an emphasis area when applying to the upper-division BSBA degree program. If the requested emphasis area is at capacity, students who qualify for admission to the upper-division BSBA degree program are given the opportunity to choose another emphasis area. Online students do not select an emphasis area. Students are notified by email when they are eligible to apply for upper-level status. Students are admitted to upper level in February and September of each year.

Students who complete 60 credits without gaining admission to an upper-level BSBA emphasis area will not be eligible to re-enroll in the Trulaske College of Business, and should meet with an Academic Advisor in the Undergraduate Advising Office to discuss their options.

A student may take no more than six credit hours of 3000 or higher business courses (Accounting, Business Administration, Finance,

Economics, Management, or Marketing) off campus. University of Missouri sponsored study abroad courses are excluded from this requirement.

## Graduate

- MBA in Business Administration (p. 402)
- PhD in Business Administration (p. 404)
  - with emphasis in Business (p. 405)

## About the Crosby MBA (traditional full-time program)

Crosby MBA candidates come from all backgrounds, including science, engineering, liberal arts, journalism, business and health-related fields. There are no prerequisite courses. Our admission standards are high and the curriculum is rigorous. The Crosby MBA program is AACSB accredited, nationally recognized and highly ranked by U.S. News America's Best Graduate Schools, Forbes, Princeton Review, and The Wall Street Journal. Students attend full-time, although part-time is an option if the student is able to attend daytime classes.

Through the Crosby MBA program, highly capable graduate students gain real-world experience that prepares them for a wide variety of career paths. The program teaches skills necessary to compete in the global business environment, and helps you achieve a career path that will bring both personal fulfillment and professional success. We offer individual career counseling, an executive mentoring program, employer site visits, and workshops focused on résumé writing, presentation skills, negotiation skills and business etiquette. Students obtain employment in fields such as financial analysis, investments, banking, human resources, project management, strategy, operations and logistics, marketing, marketing analytics, consulting, and non-profit management.

Factors considered in the admissions decision include post-graduation work experience, professional internships and/or co-ops, leadership, community involvement and service, quality of undergraduate work (GPA) and rigor of coursework, competitive score on the GMAT (<http://www.mba.com/us/>) or the GRE (<http://www.ets.org/gre/>), interview required for competitive applicants, career focus and self-awareness demonstrated in question responses and interview. A baccalaureate degree in any discipline from an accredited school is required. See the Crosby MBA website (<https://business.missouri.edu/programs-and-admissions/crosby-mba/admissions/apply-now-crosby-mba-program/>) to apply.

## Cooperative Dual Degrees with the Crosby MBA Program

- MBA and Bachelor of Science in Industrial Engineering (BSIE)
- MBA and Bachelor of Science in Information Technology (BS)
- MBA and Master of Health Administration (MHA)
- MBA and Master of Science in Industrial Engineering (MS)
- MBA and Juris Doctor (JD)

## About the execMBA Program (for working professionals)

This innovative executive MBA is specifically designed for high achieving professionals seeking a first-rate MBA program that provides flexibility around their work schedules. This is the same renowned degree and the same renowned faculty offered with the Crosby MBA, but is specially designed for executives. Combining face-to-face class time with online

delivery for professionals with substantive experience, the 21-month execMBA program will connect you with peers, challenge you in relevant ways, and develop the mind- and skill-set to match today's marketplace.

All applicants to the MU execMBA must have a minimum of 5-7 years of professional work experience, as well as a letter of endorsement from their employer to participate in the program. Other factors considered in admission include undergraduate GPA (a bachelor's degree in any discipline from an accredited school is required), demonstrated leadership experience and a personal statement addressing criteria outlined on the exec MBA website. Interviews by invitation will also be conducted.

### About the PhD Program

The PhD program (p. 404) is designed to prepare graduates for careers as effective university researchers and teachers or for senior research positions in business or government. Course work involves research activities such as literature review and critique, theoretical modeling, research design, computer-assisted empirical analysis and preparation of proposals and research papers. PhD candidates are provided the opportunity to teach undergraduate courses in their specialty area. In addition, students are expected to participate in national and regional academic conferences and are encouraged to work with faculty in developing individual research and teaching skills.

### Program Location: Cornell Hall

Cornell Hall, a state-of-the-art building, houses the Robert J. Trulaske, Sr. College of Business. It contains labs with over 230 computers with a variety of up-to-date software. The College subscribes to the following online services, databases and software packages: Wharton Research Data Services, Audit Analytics Compustat, CRSP, Datastream/Worldscope, Eventus, I/B/E/S, IRR, ISSM, Mergent FISD, Mutual Fund Links, SDC Platinum, Thomson Reuters, Stock Trak, and Qualtrics (an online survey system).

## BSBA in Business Administration

The BSBA in Business Administration is offered on campus as well as online. On campus students must choose an emphasis area (see emphasis areas for degree requirements). (p. 387) Online students do not select an emphasis area unless they were previously in the on campus program and completed all requirements for their emphasis prior to switching into the online program.

### Degree Program Description

In the Trulaske College of Business students are in either the lower level (undeclared) or the upper level (admitted to an emphasis area). Students entering the Trulaske College of Business usually enter the lower level while they take University general education and business preparation courses. The first two years of all business programs (except international business and accounting) involve the same course sequences. A student typically applies to the upper level at the end of the sophomore year or the beginning of the junior year.

### Major Program Requirements

The BSBA has an On-Campus delivery option, as well as an Online option. Requirements differ slightly. Refer to the applicable list of requirements below.

### On-Campus - Major Core Requirements

A student may count a maximum of 40 credits in their emphasis area to meet the 120-credit requirement for the undergraduate degree. Requirements above and beyond general education requirements are listed under upper level admission courses. Students must complete all university requirements (p. 35), including general education (p. 36), and the degree requirements below.

General Education (see University General Education Requirements)	27
Upper Level Admission Courses	34
Required Core Courses	26
Emphasis Support Courses	30
Required Emphasis Courses	
Additional Emphasis Courses	
Emphasis Support Courses	
Senior Capstone	3
<b>Total minimum</b>	<b>120</b>

#### On Campus - Upper Level Admssion Courses

ACCTCY 2036	Accounting I	3
or ACCTCY 2026	Accounting I	
or ACCTCY 2136H	Honors Accounting I	
ACCTCY 2037	Accounting II	3
or ACCTCY 2027	Accounting II	
or ACCTCY 2137H	Honors Accounting II	
ACCTCY 2258	Computer-Based Data Systems	3
or INFOTC 1040	Introduction to Problem Solving and Programming	
or CMP_SC 1050	Algorithm Design and Programming I	
BUS_AD 1500	Foundations of Business and Professional Development Principles	2
BUS_AD 2500	Intermediate Professional Development Principles	2
ECONOM 1014	Principles of Microeconomics	3-5
or ECONOM 1000	General Economics for Journalists	
or ECONOM 1014H	Principles of Microeconomics-Honors	
or ECONOM 1051H	General Economics - Honors	
ECONOM 1015	Principles of Macroeconomics	3
or ECONOM 1000	General Economics for Journalists	
or ECONOM 1015H	Principles of Macroeconomics - Honors	
or ECONOM 1051H	General Economics - Honors	
ENGLSH 1000	Exposition and Argumentation <sup>+</sup>	3
MATH 1100	College Algebra <sup>+</sup>	3
MATH 1300	Finite Mathematics <sup>&gt;</sup>	3
or MATH 1500: Analytic Geometry and Calculus I <sup>+</sup>		
MATH 1400	Calculus for Social and Life Sciences I <sup>&gt;</sup>	3
or MATH 1500: Analytic Geometry and Calculus I <sup>+</sup>		
STAT 2500	Introduction to Probability and Statistics I <sup>+</sup>	3
or STAT 1200: Introductory Statistical Reasoning <sup>+</sup>		
and STAT 2200: and Introductory Statistical Methods <sup>+</sup>		
or STAT 1300: Elementary Statistics <sup>+</sup>		
or STAT 1400: Elementary Statistics for Life Sciences <sup>+</sup>		
and STAT 2200 :and Introductory Statistical Methods <sup>+</sup>		
or ESC_PS 4170: Introduction to Applied Statistics <sup>+</sup>		
and STAT 2200: and Introductory Statistical Methods <sup>+</sup>		
or STAT 4710: Introduction to Mathematical Statistics <sup>+</sup>		

or STAT 2530: Statistical Methods in Natural Resources <sup>+</sup>	
Total Credits	34-36

- + Needs a C- or above in ENGLISH 1000, MATH 1100, STAT 2500.
- > Must have either a C- in MATH 1300 or MATH 1400.

### Emphasis Areas

General Education Requirement	27
Upper Level Admissions Courses	34
Required Courses	26

### Online - Major Core Requirements

The online BSBA program provides students flexible access to a highly competitive degree. Coursework provides students with the tools to be successful in careers in Banking and Finance, Business Management, Human Resources, Insurance or Marketing and Sales. Students must complete all university requirements (p. 35), including general education (p. 36), and Department Level Requirements (p. 387), in addition to the degree requirements below.

General Education (see University General Education Requirements)	27 hrs
Upper Level Admission Courses	34 hrs
Required Core Business Courses	26 hrs
Additional Business Courses	27 hrs
Second Writing Intensive Course in Business	3 hrs
Senior Capstone	3 hrs
<b>Total</b>	<b>120 hrs</b>

#### Online - Upper Level Admission Courses (completed outside of program) 21

ECONOM 1014	Principles of Microeconomics	3
ECONOM 1015	Principles of Macroeconomics	3
ENGLISH 1000	Exposition and Argumentation <sup>+</sup>	3
MATH 1100	College Algebra <sup>+</sup>	3
MATH 1300	Finite Mathematics <sup>#</sup>	3
MATH 1400	Calculus for Social and Life Sciences I <sup>#</sup>	3
STAT 2500	Introduction to Probability and Statistics I <sup>+</sup>	3

#### Online - Upper Level Admission Courses (completed within the program) 13

ACCTCY 2026	Accounting I	3
or ACCTCY 2036	Accounting I	
ACCTCY 2027	Accounting II	3
or ACCTCY 2037	Accounting II	
ACCTCY 2258	Computer-Based Data Systems	3
BUS_AD 1500	Foundations of Business and Professional Development Principles	2
BUS_AD 2500	Intermediate Professional Development Principles	2

#### Online - Required Business Core Courses (completed outside of program) 6

ECONOM 3229	Money, Banking and Financial Markets	3
STAT 3500	Introduction to Probability and Statistics II	3

#### Online - Required Business Core Courses (completed within the program) 20

BUS_AD 3500	Advanced Professional Development Principles <sup>+</sup>	2
BUS_AD 4500	Professional Development Program - Internship	3

FINANC 3000	Corporate Finance	3
MANGMT 3000	Principles of Management	3
MANGMT 3300	Introduction to Business Processes and Technologies	3
MANGMT 3540	Introduction to Business Law	3
MRKTNG 3000	Principles of Marketing	3
<b>Online - Additional Business Courses (completed within the program)</b>		<b>27</b>

Coursework must be numbered 3000 or above and include at least one course from 3 of the 5 knowledge areas (Accountancy, Economics, Finance, Management, or Marketing)

<b>Second Writing Intensive Course</b>		
MANGMT 4140W	Business Communication - Writing Intensive <sup>+</sup>	3

<b>Online - Capstone Course (completed within the program)</b>		
MANGMT 4970	Strategic Management <sup>+</sup>	3

<b>Total</b>		<b>120 hours</b>
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- + Needs a C- or higher
- # Needs a C- or higher in MATH 1300 or MATH 1400

## Semester Plan

### On-Campus Semester Plan

Please refer to the degree program page (p. 387) for a list of emphasis areas. The semester plans are specific to the emphasis area for on-campus students.

### Online Semester Plan

Below is a sample plan of study, semester by semester. This plan reflects coursework a student will complete within the BSBA online program. All degree requirements not listed in this plan are completed outside of the BSBA online program. A student's actual plan may vary based on course choices and where options are available. Work with your academic advisor on questions specific to your plan of study.

First Year			
Fall	CR	Spring	CR
BUS_AD 1500	2	ECONOM 1014	3
MATH 1100	3	ENGLISH 1000	3
State Requirement	3	MATH 1400	3
Humanities	3	Humanities	3
Biological or Physical Science with Lab	3	Elective	3
		14	15

Second Year					
Fall	CR	Spring	CR	Summer	CR
ACCTCY 2026	3	ACCTCY 2027	3	STAT 3500	3
BUS_AD 2500	2	STAT 2500	3		
ECONOM 1015	3	Humanities WI 2000+	3		
MATH 1300	3	Elective	3		
Elective	3	Elective	3		
		14	15		3

Third Year					
Fall	CR	Spring	CR	Summer	CR
ACCTCY 2258	3	MANGMT 3300	3	FINANC 3000	3

BUS_AD 3500	2	MANGMT 3540	3	MANGMT 4010	3
ECONOM 3229	3	MANGMT 4020	3		
MANGMT 3000	3	MRKTNG 4220	3		
MRKTNG 3000	3				
		14	12		6

Fourth Year					
Fall	CR	Spring	CR	Summer	CR
FINANC 4500	3	FINANC 4630	3	BUS_AD 4500	3
MANGMT 3200	3	MANGMT 4140W	3		
MANGMT 4030	3	MANGMT 4700	3		
MRKTNG 4000	3	MANGMT 4970	3		
		12	12		3

Total Credits: 120

## BSBA in Business Administration with Emphasis in Economics

### Degree Program Description

Students pursuing a degree in Business Administration will gain exposure to multiple areas of business including Accounting, Economics, Finance and Banking, Management, and Marketing. By choosing to study business administration with an emphasis in Economics, students ready themselves for business careers from the broad perspective of economics, developing expertise in topics such as economic forecasting, analysis of interest rates and financial markets, labor economics and international economics. Students typically prepare for careers in a range of industrial, commercial, and financial organizations as well as government agencies and political institutions. Typical careers include business economist, financial analyst, risk manager, or economic research analyst.

### Major Program Requirements

Students must complete all university requirements (p. 35), including general education (p. 36), and the degree requirements below.

<b>General Education Requirements</b>	<b>27</b>
<b>Upper Level Admission Courses</b>	<b>34</b>
<b>Required Core Courses</b>	<b>26</b>
ECONOM 3229	Money, Banking and Financial Markets
FINANC 3000	Corporate Finance
MANGMT 3000	Principles of Management
MANGMT 3300	Introduction to Business Processes and Technologies
MANGMT 3540	Introduction to Business Law
MRKTNG 3000	Principles of Marketing
STAT 3500 or STAT 4510	Introduction to Probability and Statistics II Applied Statistical Models I
BUS_AD 3500	Advanced Professional Development Principles
BUS_AD 4500	Professional Development Program - Internship
<b>Required Economics Courses</b>	<b>6</b>
ECONOM 4351	Intermediate Microeconomics
ECONOM 4353	Intermediate Macroeconomics

**Additional Economic Courses**  
Courses selected from the following: 9-12

ECONOM 3224	Introduction to International Economics
ECONOM 3323	Capitalism, Democracy and Society
ECONOM 3367	Law and Economics
ECONOM 4004	Topics in Economics- Social Science
ECONOM 4311	Labor Economics
ECONOM 4315	Public Economics
ECONOM 4320	History of Economic Thought
ECONOM 4326	Economics of International Trade
ECONOM 4329	The Banking System and the Money Market
ECONOM 4340	Introduction to Game Theory
ECONOM 4345	Economics of Education
ECONOM 4355	Industrial Organization and Competitive Strategy
ECONOM 4357	Health Economics
ECONOM 4370	Quantitative Economics
ECONOM 4385	Problems in Economics
ECONOM 4775	Dynamic Optimization and its Applications to the Natural Sciences and Economics
ECONOM 4970	Senior Seminar in Economics
ECONOM 4995	Honors Thesis
Any 4000+ Level Economics Course	

<b>Emphasis Support Courses *</b>	
Courses to be selected from:	12-15
Accountancy: Any 3000 or 4000 level class	
Economics: Any 4000 level class not used as an Economics elective (and excluding ECONOM 4351)	
Finance: Any 3000 or 4000 level class	
INFOTC 1040	Introduction to Problem Solving and Programming
or CMP_SC 1050	Algorithm Design and Programming I
Management: Any 3000 or 4000 level class	
Marketing: Any 3000 or 4000 level class	
Psychology: Any 3000 or 4000 level class	
Sociology: Any 3000 or 4000 level class	
Statistics: Any 3000 or 4000 level class	
<b>Capstone Course - Senior year (on campus) Minimum grade of C- required</b>	<b>3</b>
MANGMT 4970	Strategic Management
<b>Total</b>	<b>120</b>

\* 12 credits Emphasis Support Courses required if 12 credits in economics are taken (from required economics courses section); 15 credit emphasis support courses required if 9 credits in economics are taken (from required economics courses section).

A student may count a maximum of 30 credits in economics to meet the 120-credit requirement for the undergraduate degree.

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices and where options are available.



First Year			
Fall	CR	Spring	CR
MATH 1100		3 MATH 1400	3
State requirement		3 ECONOM 1014	3
Humanities		3 Humanities	3
Biological or Physical Science with Lab		3 Elective	3
Elective		2 ENGLISH 1000	3
BUS_AD 1500		2	
		16	15

Second Year			
Fall	CR	Spring	CR
ACCTCY 2036		3 ACCTCY 2037	3
BUS_AD 2500		2 ACCTCY 2258	3
ECONOM 1015		3 STAT 2500	3
MATH 1300		3 Elective	3
Elective		4 Humanities 2000 level (writing intensive)	3
		15	15

Third Year			
Fall	CR	Spring	CR
BUS_AD 3500		2 ECONOM 4351	3
MRKTNG 3000		3 MANGMT 3540	3
STAT 3500		3 Emphasis Support course	3
ECONOM 3229		3 FINANC 3000	3
MANGMT 3300		3 Business Writing Intensive/ Emphasis Support	3
		14	15

Fourth Year			
Fall	CR	Spring	CR
MANGMT 3000		3 MANGMT 4970	3
ECONOM 4353		3 Additional Economics course	3
Additional Economics course		3 Emphasis Support course	3
Additional Economics course		3 Emphasis Support course	3
Emphasis Support course		3 Emphasis Support course	
		BUS_AD 4500	3
		15	15

Total Credits: 120

## BSBA in Business Administration with Emphasis in Finance and Banking

### Degree Program Description

Students pursuing a degree in Business Administration will gain exposure to multiple areas of business including Accounting, Economics, Finance and Banking, Management, and Marketing. An emphasis in Finance and Banking prepares students for careers in commercial banking, corporate finance, financial planning, insurance, investment banking, or money management. Students learn how to independently analyze security markets, understand the basic valuation techniques and use their knowledge to make investment decisions. In addition, students learn basic theoretical concepts in corporate finance and their application to corporate financing and investment decisions.

## Major Program Requirements

Students must complete all university requirements (p. 35), including general education (p. 36), and the degree requirements below

**General Education Requirements 27**

**Upper Level Admission Courses 34**

**Required Core Courses 26**

ECONOM 3229	Money, Banking and Financial Markets
or ECONOM 3251	Managerial Economics
FINANC 3000	Corporate Finance
MANGMT 3000	Principles of Management
MANGMT 3300	Introduction to Business Processes and Technologies
MANGMT 3540	Introduction to Business Law
MRKTNG 3000	Principles of Marketing
STAT 3500	Introduction to Probability and Statistics II
or STAT 4510	Applied Statistical Models I
BUS_AD 3500	Advanced Professional Development Principles
BUS_AD 4500	Professional Development Program - Internship

**Required Finance & Banking Courses 12**

FINANC 4010	Financial Management
FINANC 4020	Investments
ACCTCY 4356	Financial Accounting Concepts
MANGMT 4010	Operations Management

**Additional Finance & Banking Courses 12**

Select 4 of the following

FINANC 4030	Financial Intermediaries and Markets
FINANC 4110	Financial Management Policy
FINANC 4120	Security Analysis
FINANC 4130	Management of Financial Institutions
FINANC 4185	Problems in Finance
FINANC 4201	Topics in Finance (with academic advisor consent)
FINANC 4220	Portfolio Management
FINANC 4310	Financial Modeling and Databases
FINANC 4320	Financial Futures and Options
FINANC 4450	Financial Ethics and Professional Standards
FINANC 4500	Principles of Real Estate
FINANC 4510	Real Estate Appraisal
FINANC 4520	Real Estate Finance and Investment
FINANC 4530	Real Estate Portfolio Analysis and REITs
FINANC 4620	Investment Strategy of Warren Buffett
FINANC 4630	Introduction to Risk Management and Insurance
FINANC 4632	Principles of Commercial Property and Liability Insurance
FINANC 4640	Enterprise Risk Management
FINANC 4710	Topics in International Finance
FINANC 4720	International Finance
FINANC 4820	Investment Fund Management
FINANC 4830	Chartered Financial Analyst Exam Review Course
FINANC 4840	Angel Capital Education Program

**Emphasis Support Courses**

Select two of the following:	6
Accountancy: Any 3000 or 4000 level class	
CMP_SC 1050      Algorithm Design and Programming I (if not used in required core courses)	
CMP_SC 2050      Algorithm Design and Programming II	
Economics: ECONOM 3251 or any 4000 level class (if not used in required core courses)	
Finance: Any 3000 or 4000 level class (if not used in required core courses)	
FINPLN 4187      Tax Planning	
Management: Any 3000 or 4000 level class (if not used in required core courses)	
Marketing: Any 3000 or 4000 level class (if not used in required core courses)	
<b>Capstone course - Senior year (on campus) Minimum grade of C- required</b>	<b>3</b>
MANGMT 4970      Strategic Management (3)	
<b>Total Credits</b>	<b>120</b>

**Semester Plan**

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
MATH 1100		3 MATH 1400	3
BUS_AD 1500		2 ECONOM 1014	3
State Requirement		3 ENGLSH 1000	3
Humanities		3 Humanities	3
Biological or Physical Science with Lab		3 Elective	3
Elective		1	
		<b>15</b>	<b>15</b>
Second Year			
Fall	CR	Spring	CR
ACCTCY 2036		3 ACCTCY 2037	3
MATH 1300		3 ACCTCY 2258	3
ECONOM 1015		3 FINANC 3000	3
STAT 2500		3 Humanities (2000 level) Writing Intensive	3
BUS_AD 2500		2 Elective	3
Elective		2	
		<b>16</b>	<b>15</b>
Third Year			
Fall	CR	Spring	CR
FINANC 4010		3 FINANC 4020	3
BUS_AD 3500		2 MANGMT 3300	3
MANGMT 3000		3 MANGMT 3540	3
ECONOM 3229		3 Business Writing Intensive/ Emphasis Support	3
STAT 3500		3 Elective	3
		<b>14</b>	<b>15</b>
Fourth Year			
Fall	CR	Spring	CR
ACCTCY 4356		3 MANGMT 4970 (Capstone)	3

BUS_AD 4500	3 Additional Finance Course	3
MANGMT 4010	3 Additional Finance Course	3
MRKTNG 3000	3 Additional Finance Course	3
Additional Finance Course	3 Emphasis Support	3
	<b>15</b>	<b>15</b>

Total Credits: 120

**BSBA in Business Administration with Emphasis in International Business - Economics**

**Degree Program Description**

International Business is a joint degree program offered by the College of Arts and Science and the Trulaske College of Business. The program incorporates foreign language, geographic region and cultural environment courses with core and international business courses. Completion of this degree program requires 136-144 credits depending on emphasis.

**Major Program Requirements**

To complete this course of study, students must be accepted in both the Bachelor of Arts in International Studies program in the College of Arts and Science and the Bachelor of Science in Business Administration program in the Trulaske College of Business. Students must also complete all university requirements (p. 35), including general education (p. 36), and the degree requirements below.

<b>Social Sciences</b>		<b>6</b>
GEOG 1100      Regions and Nations of the World I or GEOG 1200      Regions and Nations of the World II		
POL_SC 1400      International Relations or POL_SC 2700      Comparative Political Systems		
<b>State Requirement</b>		<b>3</b>
<b>Behavioral Sciences</b>		<b>6</b>
ANTHRO 2030      Cultural Anthropology		
The additional 3 hours can be any general education approved Behavioral Science from the list.		
<b>Humanities</b>		<b>12</b>
Civilization course in language studied		
Literature course in language studied		
Select one of the following:		
ARCHST 1600      Fundamentals of Environmental Design		
ARH_VS 1110      Ancient and Medieval Art		
ARH_VS 1120      Renaissance through Modern Art		
ENGLSH 2155      Introduction to World Literatures		
ENGLSH 2159      Introduction to World Literatures, 1890 to Present		
FILMS_VS 2820      Trends in World Cinema		
GN_HON 2112H      The Middle Ages and the Renaissance		
GN_HON 2113H      The Early Modern World: The 17th-19th Centuries Enlightenment		
GN_HON 2114H      The Modern Era		
JOURN 1000      The News Media: Journalism and Advertising in a Democratic Society		
MUSIC_NM 1310      Masterpieces of Western Music		
MUSIC_NM 1313      Introduction to World Music		

PEA_ST 3510	Think Global: Fundamentals of Globalization and Digital Technologies	
PHIL 2100	Philosophy: East and West	
PHIL 2410	Philosophies of War and Peace	
PHIL 2430	Contemporary Moral Issues	
REL_ST 1100	Introduction to Religion	
REL_ST 2100	Indigenous Religions	
REL_ST 2110	Global Religions	
REL_ST 2310	Religions of China and Japan	
WGST 2080	Perspectives on Sexual and Gender Diversity	
Additional Humanities		
<b>Biological &amp; Physical Sciences</b>		<b>1-5</b>
One course must include a lab		
<b>Foreign Language</b>		<b>18-20</b>
All in the same language		
<b>Area Support</b>		<b>9</b>
To be selected with the A&S advisor. Coursework typically includes classes in Culture, Geography, Government, or History related to language studied.		
<b>Upper Level Admission Courses</b>		<b>34</b>
<b>Required Business Core Courses</b>		<b>26</b>
ECONOM 3229	Money, Banking and Financial Markets	
FINANC 3000	Corporate Finance	
MANGMT 3000	Principles of Management	
MANGMT 3300	Introduction to Business Processes and Technologies	
MANGMT 3540	Introduction to Business Law	
MRKTNG 3000	Principles of Marketing	
STAT 3500	Introduction to Probability and Statistics II	
or STAT 4510	Applied Statistical Models I	
BUS_AD 3500	Advanced Professional Development Principles	
BUS_AD 4500	Professional Development Program - Internship	
College of Business WI Course		3
<b>Business Area</b>		<b>15-18</b>
to be selected with Business advisor, depending on emphasis area. Excluding ECONOM 4351.		
<b>Capstone Course - senior year (on campus) Minimum grade of C- required</b>		
MANGMT 4970	Strategic Management	3
Total Credits		136-145

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
BUS_AD 1500		2 ENGLISH 1000	3
MATH 1100		3 ECONOM 1014	3
State Requirement		3 MATH 1400	3
Foreign Language		4 Foreign Language	4
Humanity		3 Behavioral Science	3
		15	16

Second Year			
Fall	CR	Spring	CR
ACCTCY 2036		3 ACCTCY 2037	3
ECONOM 1015		3 ACCTCY 2258	3
BUS_AD 2500		2 STAT 2500	3
MATH 1300		3 Biological or Physical Science with Lab	3
Foreign Language		4 Foreign Language	3
		15	15

Third Year			
Fall	CR	Spring	CR
BUS_AD 3500		2 MANGMT 3000	3
ECONOM 3229		3 MANGMT 3540	3
STAT 3500		3 MRKTNG 3000	3
MANGMT 3300		3 POL_SC 1400 or 2700	3
Business Writing Intensive		3 Foreign Civilization/Writing Intensive Non-Business	3
Foreign Language		3	
		17	15

Fourth Year			
Fall	CR	Spring	CR
FINANC 3000		3 ECONOM 4351	3
BUS_AD 4500		3 Additional Economics course	3
ANTHRO 2030		3 A&S Area Support	3
GEOG 1100 or 1200		3 A&S Area Support	3
Foreign Literature		3 A&S Area Support	3
		15	15

Fifth Year			
Fall	CR		
MANGMT 4970		3	
ECONOM 4353		3	
Additional Economics course		3	
Additional Economics course		3	
Humanity-Global Core		3	
		15	

Total Credits: 138

# BSBA in Business Administration with Emphasis in International Business - Finance

## Degree Program Description

International Business is a joint degree program offered by the College of Arts and Science and the Trulaske College of Business. The program incorporates foreign language, geographic region and cultural environment courses with core and international business courses. Completion of this degree program requires 145-153 credits depending on emphasis.

## Major Program Requirements

To complete this course of study, students must be accepted in both the Bachelor of Arts in International Studies program in the College of Arts and Science and the Bachelor of Science in Business Administration program in the Trulaske College of Business. Students must also

complete all university requirements (p. 35), including general education (p. 36), and the degree requirements below.

**Social Sciences 6**

GEOG 1100	Regions and Nations of the World I
or GEOG 1200	Regions and Nations of the World II
POL_SC 1400	International Relations
or POL_SC 2700	Comparative Political Systems

**State Requirement 3**

**Behavior Sciences 6**

ANTHRO 2030	Cultural Anthropology
The additional 3 hours can be any general education approved Behavioral Science from the list.	

**Humanities 12**

Civilization course in language studied	
Literature course in language studied	

Select one of the following:

ARCHST 1600	Fundamentals of Environmental Design
ARH_VS 1110	Ancient and Medieval Art
ARH_VS 1120	Renaissance through Modern Art
ENGLISH 2155	Introduction to World Literatures
ENGLISH 2159	Introduction to World Literatures, 1890 to Present
FILMS_VS 2820	Trends in World Cinema
GN_HON 2112H	The Middle Ages and the Renaissance
GN_HON 2113H	The Early Modern World: The 17th-19th Centuries Enlightenment
GN_HON 2114H	The Modern Era
JOURN 1000	The News Media: Journalism and Advertising in a Democratic Society
MUSIC_NM 1310	Masterpieces of Western Music
MUSIC_NM 1313	Introduction to World Music
PEA_ST 3510	Think Global: Fundamentals of Globalization and Digital Technologies
PHIL 2100	Philosophy: East and West
PHIL 2410	Philosophies of War and Peace
REL_ST 1100	Introduction to Religion
REL_ST 2100	Indigenous Religions
REL_ST 2110	Global Religions
REL_ST 2310	Religions of China and Japan

Additional Humanities

**Biological & Physical Sciences 1-5**

One course must include a lab

**Foreign Language 18-20**

All in the same language

**Area Support 9**

To be selected with the A&S advisor. Coursework typically includes classes in Culture, Geography, Government, or History related to language studied.

**Upper Level Admission Courses 34**

**Required Business Core Courses 26**

ECONOM 3229	Money, Banking and Financial Markets
or ECONOM 3251	Managerial Economics
FINANC 3000	Corporate Finance
MANGMT 3000	Principles of Management
MANGMT 3300	Introduction to Business Processes and Technologies

MANGMT 3540	Introduction to Business Law
MRKTNG 3000	Principles of Marketing
STAT 3500	Introduction to Probability and Statistics II
or STAT 4510	Applied Statistical Models I
BUS_AD 3500	Advanced Professional Development Principles
BUS_AD 4500	Professional Development Program - Internship

**College of Business WI Course 3**

**Business Area 24**

to be selected with Business advisor, depending on emphasis area.

**Capstone Course 3**

MANGMT 4970	Strategic Management	Complete senior year, on campus. Minimum grade of C- required.
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Total Credits 145-151

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
MATH 1100		3 MATH 1400	3
BUS_AD 1500		2 ENGLISH 1000	3
State Requirement		3 ECONOM 1014	3
Foreign Language		4 Foreign Language	4
POL_SC 1100 or 2700		3 Behavioral Science	3
			16
		15	16

Second Year			
Fall	CR	Spring	CR
ACCTCY 2036		3 ACCTCY 2037	3
MATH 1300		3 ACCTCY 2258	3
STAT 2500		3 FINANC 3000	3
BUS_AD 2500		2 ECONOM 1015	3
Foreign Language		4 Biological or Physical Science with Lab	3
			3
		15	18

Third Year			
Fall	CR	Spring	CR
STAT 3500		3 ECONOM 3229	3
MANGMT 3300		3 MRKTNG 3000	3
Writing Intensive Business		3 MANGMT 3540	3
BUS_AD 3500		2 GEOG 1100 or 1200	3
Humanities		3 Foreign Civilization/Writing Intensive Non-Business	3
Foreign Language		3	3
			15
		17	15

Fourth Year			
Fall	CR	Spring	CR
FINANC 4010		3 FINANC 4020	3
MANGMT 3000		3 MANGMT 4010	3
BUS_AD 4500		3 Additional Finance Course	3
Humanity- Global Core		3 A&S Area Support	3
Foreign Literature		3 A&S Area Support	3

ANTHRO 2030	3 A&S Area Support	3
		18

Fifth Year		
Fall	CR	
MANGMT 4970	3	
ACCTCY 4356	3	
Additional Finance Course	3	
Additional Finance Course	3	
Additional Finance Course	3	
		15

Total Credits: 147

## BSBA in Business Administration with Emphasis in International Business - Management

### Degree Program Description

International Business is a joint degree program offered by the College of Arts and Science and the Trulaske College of Business. The program incorporates foreign language, geographic region and cultural environment courses with core and international business courses. Completion of this degree program requires 139-147 credits depending on emphasis.

### Major Program Requirements

To complete this course of study, students must be accepted in both the Bachelor of Arts in International Studies program in the College of Arts and Science and the Bachelor of Science in Business Administration program in the Trulaske College of Business. Students must also complete all university requirements (p. 35), including general education (p. 36), and the degree requirements below.

<b>Social Sciences</b>		<b>6</b>
GEOG 1100	Regions and Nations of the World I	
or GEOG 1200	Regions and Nations of the World II	
POL_SC 1400	International Relations	
or POL_SC 2700	Comparative Political Systems	
<b>State Requirement</b>		<b>3</b>
<b>Behavioral Sciences</b>		<b>6</b>
ANTHRO 2030	Cultural Anthropology	
The additional 3 hours can be any general education approved Behavioral Science from the list.		
<b>Humanities</b>		<b>12</b>
Civilization course in language studied		
Literature course in language studied		
Select one of the following:		
ARCHST 1600	Fundamentals of Environmental Design	
ARH_VS 1110	Ancient and Medieval Art	
ARH_VS 1120	Renaissance through Modern Art	
ENGLSH 2155	Introduction to World Literatures	
ENGLSH 2159	Introduction to World Literatures, 1890 to Present	
FILMS_VS 2820	Trends in World Cinema	
GN_HON 2112H	The Middle Ages and the Renaissance	

GN_HON 2113H	The Early Modern World: The 17th-19th Centuries Enlightenment
GN_HON 2114H	The Modern Era
JOURN 1000	The News Media: Journalism and Advertising in a Democratic Society
MUSIC_NM 1310	Masterpieces of Western Music
MUSIC_NM 1313	Introduction to World Music
PEA_ST 3510	Think Global: Fundamentals of Globalization and Digital Technologies
PHIL 2100	Philosophy: East and West
PHIL 2410	Philosophies of War and Peace
PHIL 2430	Contemporary Moral Issues
REL_ST 1100	Introduction to Religion
REL_ST 2100	Indigenous Religions
REL_ST 2110	Global Religions
REL_ST 2310	Religions of China and Japan
WGST 2080	Perspectives on Sexual and Gender Diversity

Additional Humanities	
<b>Biological &amp; Physical Sciences</b>	<b>1-5</b>
One course must include a lab	
<b>Foreign Language</b>	<b>18-20</b>
All in the same language	
<b>Area Support</b>	<b>9</b>
To be selected with the A&S advisor. Coursework typically includes classes in Culture, Geography, Government, or History related to language studied.	
<b>Upper Level Admission Courses</b>	<b>34</b>
<b>Required Business Core Courses</b>	<b>26</b>
ECONOM 3229	Money, Banking and Financial Markets
or ECONOM 3251	Managerial Economics
FINANC 3000	Corporate Finance
MANGMT 3000	Principles of Management
MANGMT 3300	Introduction to Business Processes and Technologies
MANGMT 3540	Introduction to Business Law
MRKTNG 3000	Principles of Marketing
STAT 3500	Introduction to Probability and Statistics II
or STAT 4510	Applied Statistical Models I
BUS_AD 3500	Advanced Professional Development Principles
BUS_AD 4500	Professional Development Program - Internship
College of Business WI Course	3
<b>Business Area</b>	<b>18-21</b>
to be selected with Business advisor, depending on emphasis area.	
MANGMT 4970	Strategic Management (minimum C-GPA requirement)
Total Credits	139-148

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
BUS_AD 1500		2 MATH 1400	3
MATH 1100		3 ECONOM 1014	3
Foreign Language		4 ENGLSH 1000	3
State Requirement		3 Foreign Language	4
Humanities		3 Behavioral Science	3
		15	16

Second Year			
Fall	CR	Spring	CR
ACCTCY 2036		3 ACCTCY 2037	3
BUS_AD 2500		2 ACCTCY 2258	3
MATH 1300		3 STAT 2500	3
ECONOM 1015		3 Biological or Physical Science with Lab	3
Foreign Language		4 Foreign Language	3
		15	15

Third Year			
Fall	CR	Spring	CR
BUS_AD 3500		2 MANGMT 3000	3
STAT 3500		3 MANGMT 3540	3
MANGMT 3300		3 ECONOM 3229 or 3251	3
Writing Intensive Business		3 POL_SC 1400 or 2700	3
Foreign Language		3 Foreign Civilization/Writing Intensive Non-Business	3
Humanity-Global Core		3	
		17	15

Fourth Year			
Fall	CR	Spring	CR
FINANC 3000		3 MANGMT 4020	3
MRKTNG 3000		3 Additional Management Course	3
BUS_AD 4500		3 Additional Management Course	3
Foreign Literature		3 A&S Area Support	3
GEOG 1100 or 1200		3 A&S Area Support	3
		ANTHRO 2030	3
		15	18

Fifth Year	
Fall	CR
MANGMT 4010	3
MANGMT 4030	3
MANGMT 4970	3
Additional Management Course	3
A&S Area Support	3
15	

Total Credits: 141

# BSBA in Business Administration with Emphasis in International Business - Marketing

## Degree Program Description

International Business is a joint degree program offered by the College of Arts and Science and the Trulaske College of Business. The program incorporates foreign language, geographic region and cultural

environment courses with core and international business courses. Completion of this degree program requires 139-147 credits depending on emphasis.

## Major Program Requirements

To complete this course of study, students must be accepted in both the Bachelor of Arts in International Studies program in the College of Arts and Science and the Bachelor of Science in Business Administration program in the Trulaske College of Business. Students must also complete all university requirements (p. 35), including general education (p. 36), and the degree requirements below.

### Social Sciences 6

GEOG 1100	Regions and Nations of the World I
or GEOG 1200	Regions and Nations of the World II
POL_SC 1400	International Relations
or POL_SC 2700	Comparative Political Systems

### State Requirement

### Behavioral Sciences 6

ANTHRO 2030	Cultural Anthropology
The additional 3 hours can be any general education approved Behavioral Science from the list.	

### Humanities 12

Civilization course in language studied	
Literature course in language studied	

Select one of the following:

ARCHST 1600	Fundamentals of Environmental Design
ARH_VS 1110	Ancient and Medieval Art
ARH_VS 1120	Renaissance through Modern Art
ENGLSH 2155	Introduction to World Literatures
ENGLSH 2159	Introduction to World Literatures, 1890 to Present
FILMS_VS 2820	Trends in World Cinema
GN_HON 2112H	The Middle Ages and the Renaissance
GN_HON 2113H	The Early Modern World: The 17th-19th Centuries Enlightenment
GN_HON 2114H	The Modern Era
JOURN 1000	The News Media: Journalism and Advertising in a Democratic Society
MUSIC_NM 1310	Masterpieces of Western Music
MUSIC_NM 1313	Introduction to World Music
PEA_ST 3510	Think Global: Fundamentals of Globalization and Digital Technologies
PHIL 2100	Philosophy: East and West
PHIL 2410	Philosophies of War and Peace
REL_ST 1100	Introduction to Religion
REL_ST 2100	Indigenous Religions
REL_ST 2110	Global Religions
REL_ST 2310	Religions of China and Japan
WGST 2080	Perspectives on Sexual and Gender Diversity

### Additional Humanities

### Biological & Physical Sciences 1-5

One course must include a lab

### Foreign Language 18-20

All in the same language

### Area Support 9

To be selected with the A&S advisor. Coursework typically includes classes in Culture, Geography, Government, or History related to language studied.

**Upper Level Admission Courses 34**

**Required Business Core Courses 26**

ECONOM 3229	Money, Banking and Financial Markets
or ECONOM 3251	Managerial Economics
FINANC 3000	Corporate Finance
MANGMT 3000	Principles of Management
MANGMT 3300	Introduction to Business Processes and Technologies
MANGMT 3540	Introduction to Business Law
MRKTNG 3000	Principles of Marketing
STAT 3500	Introduction to Probability and Statistics II
or STAT 4510	Applied Statistical Models I
BUS_AD 3500	Advanced Professional Development Principles
BUS_AD 4500	Professional Development Program - Internship

College of Business WI Course

**Business Area 18**

to be selected with Business advisor, depending on emphasis area.

**Capstone Course - senior year (on campus) Minimum grade of C- required 3**

MANGMT 4970	Strategic Management
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Total Credits 133-139

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
MATH 1100		3 MATH 1400	3
BUS_AD 1500		2 ENGLSH 1000	3
State Requirement		3 ECONOM 1014	3
Foreign Language		4 Foreign Language	4
Humanities		3 Behavioral Science	3
		15	16

Second Year			
Fall	CR	Spring	CR
ACCTCY 2036		3 ACCTCY 2037	3
BUS_AD 2500		2 ACCTCY 2258	3
MATH 1300		3 STAT 2500	3
ECONOM 1015		3 Foreign Language	3
Foreign Language		4 ANTHRO 2030	3
		15	15

Third Year			
Fall	CR	Spring	CR
BUS_AD 3500		2 FINANC 3000	3
MANGMT 3300		3 MANGMT 3000	3
Writing Intensive Business		3 MANGMT 3540	3
STAT 3500		3 ECONOM 3229 or 3251	3
MRKTNG 3000		3 Foreign Civilization/Writing Intensive Non-Business	3

Foreign Language	3	
	17	15

Fourth Year			
Fall	CR	Spring	CR
BUS_AD 4500		3 MRKTNG 4000	3
Foreign Literature		3 Additional Marketing Course	3
POL_SC 1400 or 2700		3 Additional Marketing Course	3
Biological or Physical Science with Lab		3 Additional Marketing Course	3
Humanity-Global Core		3 A&S Area Support	3
		GEOG 1100 or 1200	3
		15	18

Fifth Year	
Fall	CR
MRKTNG 4050	3
MANGMT 4970	3
Additional Marketing Course	3
A&S Area Support	3
A&S Area Support	3
	15

Total Credits: 141

## BSBA in Business Administration with Emphasis in Management

### Degree Program Description

Students pursuing a degree in Business Administration will gain exposure to multiple areas of business including Accounting, Economics, Finance and Banking, Management, and Marketing. By selecting an emphasis in management, students will take courses focusing on supply chain management, human resource management, and entrepreneurship. Students will learn knowledge and skills needed to manage value-adding processes and projects; to coordinate and lead human resources to accomplish organizational goals; and the mindset and skills to become an entrepreneur and to innovate within an organization. Students with a management emphasis accept positions as consultants, project managers, supply chain analysts, human resource managers, and in management rotational career positions.

### Major Program Requirements

Students must complete all university requirements (p. 35), including general education (p. 36), and the degree requirements below.

**General Education Requirements 27**

**Upper Level Admission Courses 34**

**Required Core Courses 26**

ECONOM 3229	Money, Banking and Financial Markets
or ECONOM 3251	Managerial Economics
FINANC 3000	Corporate Finance
MANGMT 3000	Principles of Management
MANGMT 3300	Introduction to Business Processes and Technologies
MANGMT 3540	Introduction to Business Law
MRKTNG 3000	Principles of Marketing
STAT 3500	Introduction to Probability and Statistics II
or STAT 4510	Applied Statistical Models I

BUS_AD 3500	Advanced Professional Development Principles
BUS_AD 4500	Professional Development Program - Internship
<b>Required Management Courses</b>	
<b>9</b>	
MANGMT 4010	Operations Management
MANGMT 4020	Human Resource Management
MANGMT 4030	Organizational Behavior
<b>Additional Management Courses</b>	
Select three of the following:	
<b>9</b>	
MANGMT 3200	Business and Society
MANGMT 3700	Diversity and Inclusion in Management
MANGMT 3720	The Entrepreneurial Mindset
MANGMT 3760	Design Thinking for New Business Innovation
MANGMT 3900	International Management
MANGMT 3901	Special Topics in Management
MANGMT 3910	Managing Across Cultures
MANGMT 3920	Managing People in the Global Enterprise
MANGMT 3975	Current Issues in International Management
MANGMT 4050	Management of Service Operations
MANGMT 4060	Project Management Fundamentals
MANGMT 4070	Supply Chain Management
MANGMT 4080	Managing Global Trade
MANGMT 4090	Purchasing and Supply Management
MANGMT 4110	Total Quality Management
MANGMT 4120	Human Resource Management Law
MANGMT 4185	Problems in Management
MANGMT 4201	Topics in Management
MANGMT 4210	Management Science
MANGMT 4220	Compensation Theory and Practice
MANGMT 4310	Modern Manufacturing
MANGMT 4320	Selected Problems in Human Resource Management
MANGMT 4340	Crisis Management
MANGMT 4350	Leadership Development
MANGMT 4420	Collective Bargaining
MANGMT 4450	Management of Electronic Commerce
MANGMT 4520	Change Management in Business
MANGMT 4540	Legal Aspects of Business Organization and Operation
MANGMT 4610	Database Management
MANGMT 4620	Web Development Fundamentals
MANGMT 4700	Principles of Entrepreneurship
MANGMT 4710	The Entrepreneurial Process
MANGMT 4730	New Business Planning and Management
MANGMT 4740	Entrepreneurial Consulting for Small Business
MANGMT 4940	Professional Management Internship
<b>Emphasis Support Courses</b>	
<b>12</b>	

Courses to be selected from:

- Accountancy: Any 3000 or 4000 level class.
- Economics: Any 3000 or 4000 level class
- Finance: Any 3000 or 4000 level class.

Management: Any 3000 or 4000 level class (if not used in required core courses)

Marketing: Any 3000 or 4000 level class.

Other 3000 or 4000 level courses taken in fulfillment of requirements for an official certificate, minor or dual major.

<b>Capstone Course - senior year (on campus) Minimum grade of C- required</b>		<b>3</b>
MANGMT 4970	Strategic Management	

Total Credits 120

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
BUS_AD 1500		2 MATH 1400	3
MATH 1100		3 ECONOM 1014	3
Biological or Physical Science with Lab		3 Humanities	3
Humanities		3 ENGLISH 1000	3
State Requirement		3 Elective	3
Elective		1	
			15

Second Year			
Fall	CR	Spring	CR
ACCTCY 2036		3 STAT 2500	3
BUS_AD 2500		2 ACCTCY 2037	3
ECONOM 1015		3 ACCTCY 2258	3
MATH 1300		3 Humanities (2000 level) Writing Intensive	3
Elective		4 Elective	4
			16

Third Year			
Fall	CR	Spring	CR
BUS_AD 3500		2 FINANC 3000	3
STAT 3500		3 MANGMT 3540	3
ECONOM 3229		3 MANGMT 4020	3
MANGMT 3000		3 MRKTNG 3000	3
MANGMT 3300		3 Business Writing Intensive/Emphasis Support	3
			14

Fourth Year			
Fall	CR	Spring	CR
MANGMT 4010		3 MANGMT 4970	3
MANGMT 4030		3 Additional Management Course	3
Additional Management course		3 Emphasis Support Course	3
Emphasis Support Course		3 Emphasis Support Course	3
BUS_AD 4500		3 Additional Management Course	3
			15

Total Credits: 120



# BSBA in Business Administration with Emphasis in Marketing

## Degree Program Description

Students pursuing a degree in Business Administration will gain exposure to multiple areas of business including Accounting, Economics, Finance and Banking, Management, and Marketing. An emphasis in Marketing focuses on acquiring and managing customers by studying business activities that connect consumers with goods and services. The degree deals with the strategies, tactics and business processes involved in researching markets, deciding which markets and segments to pursue, identifying what unique value to provide and then assembling the products, services, people and partner firms needed to build, communicate and deliver that value. The marketing major is an exciting option for those students seeking an in-depth knowledge of the tools, concepts and practice of modern marketing. This program prepares students for a career in marketing, sales, and marketing analytics. Students are able to earn an in-degree certificate in **Sales and Customer Development** and in **Marketing Analytics** (newly launched in fall 2020). Courses in this area span the domains of marketing management, marketing analytics, sales, marketing communications, digital marketing, sales promotion, retail, services, brand management, and global marketing.

## Major Program Requirements

Students must complete all university requirements (p. 35), including general education (p. 36), and the degree requirements below.

<b>General Education Requirements</b>	<b>27</b>
<b>Upper Level Admission Courses</b>	<b>34</b>
<b>Required Core Courses</b>	<b>26</b>
ECONOM 3229 or ECONOM 3251	Money, Banking and Financial Markets Managerial Economics
FINANC 3000	Corporate Finance
MANGMT 3000	Principles of Management
MANGMT 3300	Introduction to Business Processes and Technologies
MANGMT 3540	Introduction to Business Law
MRKTNG 3000	Principles of Marketing
STAT 3500 or STAT 4510	Introduction to Probability and Statistics II Applied Statistical Models I
BUS_AD 3500	Advanced Professional Development Principles
BUS_AD 4500	Professional Development Program - Internship
<b>Required Marketing Courses</b>	<b>6</b>
MRKTNG 4000	Marketing Management
MRKTNG 4050	Marketing Research
<b>Additional Marketing Courses</b>	<b>12</b>
Select from the following:	
MRKTNG 3410	Personal Selling
MRKTNG 3510	Procurement Processes and Analytics
MRKTNG 3901	Special Topics in Marketing *
MRKTNG 3975	Current Issues in International Marketing *
MRKTNG 4185	Problems in Marketing *

MRKTNG 4220	Consumer Behavior
MRKTNG 4250	Retail Marketing
MRKTNG 4420	Sales Management
MRKTNG 4430	Advanced Professional Selling
MRKTNG 4440	Services Marketing
MRKTNG 4510	Artificial Intelligence and Machine Learning Applications in Sales and Marketing
MRKTNG 4550	Integrated Marketing Communications
MRKTNG 4650	e-Marketing
MRKTNG 4720	Global Marketing
MRKTNG 4880	Contemporary Issues in Marketing
MRKTNG 4890	Marketing Supply Chain Analytics
MRKTNG 4900	Analyzing and Communicating Business Data
MRKTNG 4910	Marketing Data Analytics
MRKTNG 4920	Data Visualization
MRKTNG 4930	Databases for Marketing Decisions
MRKTNG 4950	Data-Based Decision-Making in Marketing

**Emphasis Support Courses 12**

Courses to be selected from: \*\*

Accountancy: Any 3000 or 4000 level class
Economics: Any 3000 or 4000 level class
Finance: Any 3000 or 4000 level class
Management: Any 3000 or 4000 level class
Marketing: Any 3000 or 4000 level class (if not used in required core courses)
Other 3000+ level courses taken in fulfillment of requirements for an official certificate, minor or dual major

**Capstone course - senior year (on campus) Minimum grade of C- required 3**

MANGMT 4970	Strategic Management
<b>Total Credits</b>	<b>120</b>

- \* Only one may be used to fulfill additional marketing course requirement.
- \*\* NOTE: Only courses not used to fulfill other Marketing or Trulaske College of Business requirements (except some WI) qualify as emphasis support electives. Check the *Undergraduate Course Catalog* for prerequisites.
- \*\*\* Note: A maximum of 6 credits from MRKTNG 3901, MRKTNG 3975, and MRKTNG 4185, can be counted towards emphasis support courses.

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
BUS_AD 1500		2 MATH 1400	3
MATH 1100		3 ECONOM 1014	3
State Requirement		3 ENGLISH 1000	3
Humanities		3 Humanities	3
Biological or Physical Science with Lab		3 Elective	3

Elective		1		
		15		15
<b>Second Year</b>				
<b>Fall</b>	<b>CR</b>	<b>Spring</b>		<b>CR</b>
ACCTCY 2036	3	ACCTCY 2037		3
BUS_AD 2500	2	ACCTCY 2258		3
ECONOM 1015	3	STAT 2500		3
MATH 1300	3	Elective		3
Elective	3	Humanity (Writing Intensive, 2000+)		3
Elective	2			
		16		15
<b>Third Year</b>				
<b>Fall</b>	<b>CR</b>	<b>Spring</b>		<b>CR</b>
BUS_AD 3500	2	FINANC 3000		3
ECONOM 3229	3	MANGMT 3540		3
MANGMT 3000	3	MRKTNG 4050		3
MRKTNG 3000	3	MANGMT 3300		3
STAT 3500	3	Business Writing Intensive/ Emphasis Support		3
		14		15
<b>Fourth Year</b>				
<b>Fall</b>	<b>CR</b>	<b>Spring</b>		<b>CR</b>
MRKTNG 4000	3	MANGMT 4970 (Capstone)		3
Additional Marketing Course	3	Additional Marketing Course		3
Additional Marketing Course	3	Emphasis Support Course		3
Emphasis Support Course	3	Emphasis Support Course		3
BUS_AD 4500	3	Additional Marketing Course		3
		15		15

Total Credits: 120

## BSBA in Business Administration with Emphasis in Real Estate

### Degree Program Description

Students pursuing a degree in Business Administration will gain exposure to multiple areas of business including Accounting, Economics, Finance and Banking, Management, and Marketing. Students who pursue an emphasis in Finance and Banking can add on an emphasis in Real Estate. Real estate is an ideal field for those with an entrepreneurial spirit who seek career options around the globe. The Real Estate emphasis is for students contemplating a career in real estate investment, property management, mortgage banking, or associated field. Related careers include real estate investment analyst, property manager, mortgage banking officer, REIT (real estate investment fund) manager, and real estate valuation specialist.

### Major Program Requirements

Students must complete all university requirements (p. 35), including general education (p. 36), and the degree requirements below.

<b>General Education Requirements</b>	<b>27</b>
<b>Upper Level Admissions Courses</b>	<b>34</b>
<b>Required Core Courses</b>	<b>26</b>
ECONOM 3229	Money, Banking and Financial Markets
or ECONOM 3251	Managerial Economics

FINANC 3000	Corporate Finance
MANGMT 3000	Principles of Management
MANGMT 3300	Introduction to Business Processes and Technologies
MANGMT 3540	Introduction to Business Law
MRKTNG 3000	Principles of Marketing
STAT 3500	Introduction to Probability and Statistics II
or STAT 4510	Applied Statistical Models I
BUS_AD 3500	Advanced Professional Development Principles
BUS_AD 4500	Professional Development Program - Internship
<b>Real Estate Required Courses</b>	<b>15</b>
FINANC 4010	Financial Management
FINANC 4020	Investments
MANGMT 4010	Operations Management
ACCTCY 4356	Financial Accounting Concepts
FINANC 4500	Principles of Real Estate
<b>Additional Real Estate Courses</b>	<b>6</b>
Select two of the following:	
FINANC 4510	Real Estate Appraisal
FINANC 4520	Real Estate Finance and Investment
FINANC 4530	Real Estate Portfolio Analysis and REITs
<b>Additional Finance and Banking Course (any 4000 level Finance Course)</b>	<b>3</b>
<b>Emphasis Support Courses</b>	<b>6</b>
Select two of the following	
Accountancy: Any 3000 or 4000 level class (if not used in required core courses)	
ACCTCY 2258	Computer-Based Data Systems (if not used in UL requirements)
CMP_SC 1050	Algorithm Design and Programming I
CMP_SC 2050	Algorithm Design and Programming II (or any 4000 level class (if not used in required course courses))
Economics: ECONOM 3251 or any 4000 level class (if not used in required core courses)	
Finance: Any 3000 or 4000 level class (if not used in required core courses)	
FINPLN 4187	Tax Planning
Management: Any 3000 or 4000 level class (if not used in required core courses)	
Marketing: Any 3000 or 4000 level class (if not used in required core courses)	
<b>Capstone course - senior year (on campus) minimum grade of C- required</b>	<b>3</b>
MANGMT 4970	Strategic Management
Total Credits	120

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

<b>First Year</b>				
<b>Fall</b>	<b>CR</b>	<b>Spring</b>		<b>CR</b>
BUS_AD 1500		2 MATH 1400		3
MATH 1100		3 ECONOM 1014		3

State Requirement	3 ENGLISH 1000	3
Humanities	3 Humanities	3
Biological or Physical Science with Lab	3 Elective	3
Elective	1	
		15

Second Year			
Fall	CR	Spring	CR
ACCTCY 2036		3 ACCTCY 2037	3
MATH 1300		3 ACCTCY 2258	3
ECONOM 1015		3 FINANC 3000	3
STAT 2500		3 ECONOM 3229	3
BUS_AD 2500		2 Humanity (Writing Intensive, 2000+)	3
			15

Third Year			
Fall	CR	Spring	CR
BUS_AD 3500		2 MANGMT 3540	3
FINANC 4010		3 FINANC 4020	3
STAT 3500		3 MRKTNG 3000	3
MANGMT 3000		3 Business Writing Intensive/Emphasis Support	3
MANGMT 3300		3 Elective	3
Elective		3	
			15

Fourth Year			
Fall	CR	Spring	CR
MANGMT 4010		3 MANGMT 4970 (Capstone)	3
ACCTCY 4356		3 Additional Real Estate Course	3
Additional Real Estate Course		3 Additional Real Estate Course	3
BUS_AD 4500		3 Additional Finance Course	3
Elective		2 Emphasis Support Course	3
			15

Total Credits: 120

## MBA in Business Administration

### Degree Requirements

#### Crosby MBA

Required course work in Quantitative Analysis, Finance, Management, Marketing, and Professional Development provides a comprehensive business education for Crosby MBA students. Our curriculum assures that graduates enter the 21st century business world with tools that will enable them to be successful.

The program consists of 36 required credits, including foundation and advanced coursework, plus 21 elective credits. The delivery format includes 1.5 credit hour (8-week modules) to allow for focused attention to a particular topic, as well as 3 credit (16 week) courses. The structure of the Crosby MBA allows students to concentrate in a specific area of business, develop a broad managerial focus, or complement business training with coursework from other areas on campus. Total graduate course work necessary to qualify for the Crosby MBA degree is 57 credit hours; however, students who meet the criteria for waiving certain beginning level courses may substitute those courses with electives. For

graduation, MBA students must earn a cumulative grade point average of 3.0 or better.

#### REQUIRED COURSES

ACCTCY 7310	Accounting for Managers	3
BUS_AD 7050	MBA Communications Practice	3
BUS_AD 7340	Business Ethics and Leadership	1.5
BUS_AD 8010	MBA Seminar	1.5
BUS_AD 8030	MBA Seminar	1.5
BUS_AD 8500	Business Problem Analysis: Field Project	3
FINANC 7210	Microeconomics for Business	1.5
FINANC 7440	Managerial Finance	3
FINANC 8350	Financial Statement Analysis I	1.5
MANGMT 7380	Organizational Behavior and Management: The Individual	1.5
MANGMT 7390	Organizational Behavior and Management: Dyadic, Group and Organizational Processes	1.5
MANGMT 7410	Management Information Systems	1.5
MANGMT 7420	Managerial Statistics	1.5
MANGMT 7430	Operations Strategy	1.5
MANGMT 7470	Data Analysis for Managers	1.5
MANGMT 7480	Managerial Analytics	1.5
MANGMT 7970	Introduction to Strategic Management	1.5
MANGMT 8970	Strategy and Global Competitiveness	1.5
MRKTNG 7460	Managerial Marketing	1.5
MRKTNG 7470	Advanced Marketing Management	1.5

#### ELECTIVES (offerings vary semester by semester)

##### Accounting Electives

ACCTCY 8453	Taxes and Business Strategies	3
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##### Business Administration Electives

BUS_AD 8001	Topics in Business Administration	1-99
BUS_AD 8600	Business Consulting	3
BUS_AD 8730	International Study Abroad	1-6

##### Finance Electives

FINANC 7020	Investments	3
FINANC 7201	Special Topics in Finance	1-3
FINANC 7820	Investment Fund Management	1-3
FINANC 7830	Chartered Financial Analyst Exam Review Course	1-3
FINANC 7840	Angel Capital Education Program	3
FINANC 8001	Topics in Finance	1-3
FINANC 8352	Financial Statement Analysis II	1.5-3
FINANC 8360	Equity Securities Analysis	1-3
FINANC 8510	Management of Financial Institutions	1-3
FINANC 8620	Investment Strategy of Warren Buffett	1-3

##### Management Electives

MANGMT 7201	Topics in Management	3
MANGMT 8001	Topics in Management	1-6
MANGMT 8054	Entrepreneurship and Media of the Future	3
MANGMT 8100	Exploring the Digital Globe	3
MANGMT 8200	Commercialization of Life Science Innovations	3
MANGMT 8510	Project Management	1-3
MANGMT 8550	Launching a High-Growth Venture	3

MANGMT 8900	Corporate Governance and Professional Accountability	3
<b>Marketing Electives</b>		
MRKTNG 8001	MBA Topics in Marketing	1-3
MRKTNG 8060	Competitive Marketing Strategy	1-3
MRKTNG 8180	Applied Statistics for Marketing Analytics	1-3
MRKTNG 8720	International Marketing	1-3
MRKTNG 8760	Marketing Analytics for Business Decisions	1-3
MRKTNG 8770	Marketing Databases and SQL	1-3
MRKTNG 8780	Advanced Marketing Analytics	1-3
MRKTNG 8800	R for Marketing Analytics	1.5
MRKTNG 8810	Python for Marketing Analytics	1-3
MRKTNG 8820	Artificial Intelligence and Machine Learning Applications in Marketing	1-3

### execMBA

Total graduate course work necessary to qualify for the execMBA degree is 48 credit hours. For graduation, execMBA students must earn a cumulative grade point average of 3.0 or better.

The program curriculum, designed with executives in mind, is inventive, practical and market-facing. Students will build skills that increase self- and global-awareness, develop strategic risk-taking, and heighten influence. Delivery is a blend of approximately 75% online and 25% in-class coursework. Students will amplify global expertise and value in the marketplace with an 8- to 10-day international residency. This lock-step, cohort program – meaning students will take the same classes together in the same order – is conducive to personal interactions with the other high-level professionals.

#### Required Courses

ACCTCY 7310	Accounting for Managers	3
BUS_AD 8001	Topics in Business Administration	6
BUS_AD 8730	International Study Abroad	6
BUS_AD 8010	MBA Seminar	1
BUS_AD 8020	MBA Seminar	1
BUS_AD 8030	MBA Seminar	1
FINANC 7220	Economics for Managers	3
FINANC 7440	Managerial Finance	3
FINANC 8350	Financial Statement Analysis I	3
MANGMT 8001	Topics in Management	3
MANGMT 7030	Organizational Behavior	3
MANGMT 7430	Operations Strategy	3
MANGMT 8970	Strategy and Global Competitiveness	3
MANGMT 7450	Business Analytics	3
MRKTNG 7470	Advanced Marketing Management	3
MRKTNG 8060	Competitive Marketing Strategy	3
Total Credits		48

### International Residency (execMBA)

The international residency is an 8-10 day immersion in a foreign culture and its business practices during the summer between the first and second year in the program. It serves as an opportunity to apply classroom education to an international setting. Students will consult with businesses on strategic issues, network with local businesses and government officials, and explore international culture.

## Sample Plan of Study

### Crosby MBA

The plan of study below, while it is a sample, is truly representative of the majority of full time students.

First Year			
Fall	CR	Spring	CR
MANGMT 7420	1.5	MANGMT 7410	1.5
MANGMT 7430	1.5	FINANC 7440	3
MANGMT 7470	1.5	BUS_AD 7340	1.5
MANGMT 7480	1.5	MANGMT 7380	1.5
ACCTCY 7310	3	MANGMT 7390	1.5
FINANC 7210	1.5	MRKTNG 7460	1.5
MANGMT 7970	1.5	MRKTNG 7470	1.5
BUS_AD 7050	3		
BUS_AD 8010	1.5		
			12
<hr/>			
Second Year			
Fall	CR	Spring	CR
FINANC 8350	1.5	MANGMT 8970	1.5
BUS_AD 8030	1.5	7000/8000 level FINANC elective	3
BUS_AD 8500	3	Open Electives*	9
7000/8000 level MRKTG elective	3		
Open Electives*	6		
			13.5
			16.5

Total Credits: 57

\* Students may choose from any 7000/8000 level business elective

### execMBA

First Year					
Fall	CR	Spring	CR	Summer	CR
1st 8-week session		1st 8-week session		8-10 days in June	
MANGMT 7030	3	BUS_AD 8001	3	BUS_AD 8730	6
MANGMT 7450	3	FINANC 7220	3		
2nd 8-week session		2nd 8-week session			
ACCTCY 7310	3	BUS_AD 8010	1		
MRKTNG 7470	3	FINANC 7410	3		
			12	10	6
<hr/>					
Second Year					
Fall	CR	Spring	CR		
1st 8-week session		1st 8-week session			
MANGMT 7430	3	FINANC 8350	3		
BUS_AD 8001	3	MRKTNG 8060	3		
2nd 8-week session		2nd 8-week session			
BUS_AD 8001	3	MANGMT 8970	3		
BUS_AD 8020	1	BUS_AD 8030	1		
			10	10	

Total Credits: 48

## Contact Information

**Crosby MBA**  
 573-882-2750  
 mba@missouri.edu

<http://mba.missouri.edu>

**exec MBA**

573-882-8266

[execmba@missouri.edu](mailto:execmba@missouri.edu)

<http://info.execmba.missouri.edu> (<http://info.execmba.missouri.edu/>)

## PhD in Business Administration

The PhD program in Business Administration is designed to prepare graduates for careers as effective university researchers and teachers, or for senior research positions in business or government. A primary objective of the program is to train PhD candidates to become proficient researchers. Therefore, course work involves research activities such as literature review and critique, theoretical modeling, research design, computer-assisted empirical analysis and preparation of proposals and research papers. Another objective is to train students to become high-quality teachers. PhD candidates are provided the opportunity to teach undergraduate courses in their specialty area. In addition, students are expected to participate in national and regional academic conferences and are encouraged to work with faculty in developing individual research and teaching skills. The PhD in Business Administration offers three concentration areas: Finance (<https://business.missouri.edu/programs-and-admissions/phd/academics/business-administration/phd-concentration-finance/>), Management (<https://business.missouri.edu/programs-and-admissions/phd/academics/business-administration/phd-concentration-management/>) and Marketing (<https://business.missouri.edu/programs-admissions/phd/phd-marketing/>) (Concentrations will not appear on diplomas or transcripts.) See the page for the emphasis in Business Administration (p. 405) for details on the three concentration areas.

### Degree Requirements

Below are the degree requirements for all PhD students in Business Administration, regardless of the concentration chosen.

**General Business Courses**

Before enrolling in concentration area courses, all students must take or have waived the following courses (students with an MBA typically have these requirements waived):

ACCTCY 7310	Accounting for Managers	3
FINANC 7440	Managerial Finance	3
MRKTNG 7460	Managerial Marketing	3
FINANC 7210	Microeconomics for Business	3

And one of the following:

MANGMT 7380	Organizational Behavior and Management: The Individual
MANGMT 7390	Organizational Behavior and Management: Dyadic, Group and Organizational Processes
MANGMT 7970	Introduction to Strategic Management

**Concentration Area of Finance, Management or Marketing**

Minimum of 15 hours of 8000/9000 level courses.

**Support Areas**

Supporting areas offer students considerable latitude in identifying a course of study that can be tailored to the individual's interests and goals.

Two support areas of at least 9 credit hours each, one of which must be taken outside the College of Business

OR

One support area of at least 12 credit hours

**Research Methods and Analysis Sequence**

Includes appropriate courses in economics, mathematics, psychology, sociology, statistics or other areas deemed appropriate by the program committee.

If 2 support areas chosen, student must satisfy 12 hours analytical tool requirement.

If 1 support area chosen, student must satisfy 18 hours analytical tool requirement.

**Seminar**

Ongoing seminar experience each semester until successful completion of comprehensive exams, to acquaint student with current literature and research in the major area of interest. This is in addition to other seminars offered departmentally. Minimum of 4 credit hours.

**Dissertation**

Minimum 12 hours of credit in 9090.

These requirements are independent of one another; courses taken to satisfy one requirement may not be used to satisfy any other requirement. Previous graduate work taken before admission to the PhD program may be used to satisfy these requirements if it is deemed appropriate by the student's program committee.

### Qualifying Process

#### Program Committee

During the first semester of course work, the PhD Coordinator, a member of the doctoral faculty from the major area of study (finance, management or marketing), serves as the student's faculty advisor.

By the end of the first year of course work, a student should make formal application for the doctoral degree and, after consultation with faculty, request appointment of a Doctoral Program Committee. This committee consists of at least three members from the student's major area of study and at least one member from a supporting area of study.

The Doctoral Program Committee conducts the qualifying examination and works with the student to design a plan of study.

#### Residency Requirement

In compliance with University regulations, the doctor of philosophy degree requires the completion of 72 semester hours of graduate work beyond the baccalaureate degree. Within the credit-hour requirement is the residency requirement. To satisfy the residency requirement, a student must complete at least two 9-hour semesters or three 6-hour semesters in an 18-month period at MU. All courses taken to satisfy the residency requirement must be MU courses approved for graduate credit and approved by the student's doctoral program committee. Correspondence and off-campus courses may not be counted toward the residency requirement. This program is designed for full-time students and requires a minimum 4-year on-campus commitment.

#### Qualifying Examination and First-Year Project

Every marketing doctoral student is required to pass the qualifying exam consisting of two major components. The first component is a comprehensive evaluation of overall performance in coursework and RA assignments and participation in formal and informal doctoral program elements. The second component is a first-year project addressing a scholarly research topic in marketing consisting of three major parts: a written outline, presentation, and paper suitable for submission to

a conference or journal. The goal of this project is to promote early research engagement, interaction with faculty, and the development of communication and presentation skills that will enhance the overall experience of the student throughout the doctoral program.

**Finance** students take the comprehensive exam following the completion of their doctoral course work requirements. The exam consists of written and oral sections and is typically scheduled at the beginning of the fall semester in the third year of study.

**Management** doctoral students are required to pass a qualifying exam composed of two parts: 1) major written sections of a faculty-led research paper and 2) an oral presentation of the entire research project.

First year students are expected to write first drafts of one or more major sections of the paper and to present the entire project before the end of the Spring semester of their first year. During this presentation, students are expected to demonstrate excellence in their specific contributions and to demonstrate they understand all aspects of the research project.

## Comprehensive Examination Process

Typically, after completion of the course work specified on the plan of study, the student's doctoral program committee determines the student's readiness to undertake the comprehensive examination. The student must be enrolled at MU the semester s/he takes this examination.

The comprehensive examination process differs by department, but consists of written and oral sections. Both sections must be completed within one month of each other, and at least seven months before a final dissertation defense. Successful completion of the comprehensive examination requires that the student's doctoral program committee vote to pass the student on the entire examination, both written and oral sections, with no more than one dissenting or abstaining vote. The student who fails this exam may not take a second comprehensive examination for at least 12 weeks. Failure to pass two successive comprehensive examinations automatically prevents candidacy.

## Dissertation Requirements

A dissertation is required to complete the doctoral program. Each student, working under the supervision of the doctoral program committee chair, must propose an original scholarly research project. The dissertation proposal is normally defended at the end of the third year of the program in an oral presentation. The proposal must be approved formally by the student's program committee. Following completion of the research, the written dissertation must be orally defended and approved by the student's program committee.

## Admissions

BusinessPhD@Missouri.edu  
407 Cornell Hall  
Columbia, MO 65211  
573-882-0181  
<http://business.missouri.edu/programs-and-admissions/phd> (<http://business.missouri.edu/programs-and-admissions/phd/>)

## PhD in Business Administration with Emphasis in Business

The PhD program is designed to prepare graduates for careers as effective university researchers and teachers or for senior research positions in business or government. A primary objective of the

program is to train PhD candidates to become proficient researchers. Therefore, course work involves research activities such as literature review and critique, theoretical modeling, research design, computer-assisted empirical analysis and preparation of proposals and research papers. Another objective is to train students to become high-quality teachers. PhD candidates are provided the opportunity to teach undergraduate courses in their specialty area. In addition, students are expected to participate in national and regional academic conferences and are encouraged to work with faculty in developing individual research and teaching skills. The PhD in Business Administration offers three concentration areas: Finance (<https://business.missouri.edu/programs-and-admissions/phd/academics/business-administration/phd-concentration-finance/>), Management (<https://business.missouri.edu/programs-and-admissions/phd/academics/business-administration/phd-concentration-management/>) and Marketing. (<https://business.missouri.edu/programs-and-admissions/phd/phd-marketing/>) (Concentrations will not appear on diplomas or transcripts.)

## Concentration in Finance

The PhD program with a concentration in Finance emphasizes university-level research and teaching skills. The program of study is flexible to meet individual needs and interests, but all students take advanced classes in Finance, Economics, and Statistics. Students are only admitted on a full-time basis and normally work as research or teaching assistants. Students must complete an on-campus interview before any decision can be made regarding their ultimate admission. The GMAT is strongly preferred with the GRE only considered in special circumstances.

## Concentration in Management

PhD students with a concentration in Management emphasize university level research and teaching skills. The program of study is flexible to allow students to focus on their personal interests. The program includes a business core of at least 15 hours, at least 15 hours of doctoral seminars in management, one 12-hour or two 9-hour support areas, and a minimum of 12 hours in research methods and statistics (18 hours with one 12-hour support area). Students typically work as research or teaching assistants. The PhD program in management is designed to provide students with a sound foundation for a productive career as an academic at a research-oriented university.

## Concentration in Marketing

Students with an interest in behavioral, strategic, or methodological issues marketing are a great fit for this program. It emphasizes the development of research and teaching skills needed to pursue career placement at a research-oriented university. The program is flexible to meet individual needs and interests and graduates annually well-situated professionals prepared for the market. In addition, the program offers small class sizes, a set of doctoral specific seminars, and a collaborative environment. Students develop research skills by working with faculty on research projects and from faculty mentoring. Students also gain valuable experience by teaching undergraduate courses.

## Degree Requirements - all concentrations

Below are the degree requirements for all PhD students in Business Administration, regardless of the concentration chosen.

**General Business Courses**

Before enrolling in concentration area courses, all students must take or have waived the following courses (students with an MBA typically have these requirements waived):

ACCTCY 7310	Accounting for Managers	3
FINANC 7440	Managerial Finance	3
MRKTNG 7460	Managerial Marketing	3
FINANC 7210	Microeconomics for Business	3

And one of the following:

MANGMT 7380	Organizational Behavior and Management: The Individual	
MANGMT 7390	Organizational Behavior and Management: Dyadic, Group and Organizational Processes	
MANGMT 7970	Introduction to Strategic Management	

**Concentration Area of Finance, Management or Marketing**

Minimum of 15 hours of 8000/9000 level courses. See below for details.

**Support Areas**

Supporting areas offer students considerable latitude in identifying a course of study that can be tailored to the individual's interests and goals.

Two support areas of at least 9 credit hours each, one of which must be taken outside the College of Business

OR

One support area of at least 12 credit hours

**Research Methods and Analysis Sequence**

Includes appropriate courses in economics, mathematics, psychology, sociology, statistics or other areas deemed appropriate by the program committee.

If 2 support areas chosen, student must satisfy 12 hours analytical tool requirement.

If 1 support area chosen, student must satisfy 18 hours analytical tool requirement.

**Seminar**

Ongoing seminar experience each semester until successful completion of comprehensive exams, to acquaint students with current literature and research in the major area of interest. This is in addition to other seminars offered departmentally. Minimum of 4 credit hours.

**Dissertation**

Minimum 12 credit hours in 9090.

These requirements are independent of one another; courses taken to satisfy one requirement may not be used to satisfy any other requirement. Previous graduate work taken before admission to the PhD program may be used to satisfy these requirements if it is deemed appropriate by the student's program committee.

**Degree Requirements - Finance Concentration**

**Prerequisites typically needed for Finance program of study:**

ECONOM 7351	Intermediate Microeconomics	3
MATH 1500	Analytic Geometry and Calculus I	5
MATH 1700	Calculus II	5
STAT 2500	Introduction to Probability and Statistics I	3

**Required courses:**

FINANC 9100	Seminar in Corporate Finance	3
FINANC 9200	Research in Corporate Finance	3

FINANC 9300	Financial Economics	3
FINANC 9400	Seminar in Investment Analysis	3
FINANC 9001	Advanced Topics in Finance	3
FINANC 9101	Topics Seminar in Finance (taken for 1 credit hour each semester while taking other course work)	1-3
ECONOM 7370	Quantitative Economics	3
ECONOM 8451	Microeconomic Theory	3
ECONOM 8472	Econometric Methods I	3
ECONOM 9473	Econometric Theory II	3
ECONOM 9452	Advanced Microeconomic Theory II	3
STAT 7510	Applied Statistical Models I	3
or MATH 7140	Matrix Theory	
STAT 7750	Introduction to Probability Theory	3
STAT 7760	Statistical Inference	3

**Support Areas**

Students must complete either two 9-hour Support Areas or one 12-hour Support Area to complement advanced training in Finance. Successful completion may require a written examination. At least one Support Area must come from outside the College of Business. Most students choose Support Areas in Microeconomics and Statistics resembling the following examples.

**Example support area in Microeconomics:**

ECONOM 7370	Quantitative Economics
ECONOM 8451	Microeconomic Theory
ECONOM 9452	Advanced Microeconomic Theory II

**Example support area in Statistics:**

STAT 7510	Applied Statistical Models I
STAT 7750	Introduction to Probability Theory
STAT 7760	Statistical Inference

**Collateral Area**

Students must complete a Collateral Area (12 hours if completing two 9-hour Support Areas, or 18 hours if completing one 12-hour Support Area) selected in cooperation with a student's program committee. Coursework applied to a Support Area cannot be applied to a Collateral Area.

The purpose of the Collateral Area for Finance students is to provide them with the necessary quantitative skills to undertake original empirical research.

Recommended is a Collateral Area in Accounting, Econometrics, Economics, Mathematics, Statistics, or Corporate Law. Some representative examples are shown below.

**Example collateral area in Econometrics:**

ECONOM 8472	Econometric Methods I
ECONOM 9473	Econometric Theory II
ECONOM 9476	Advanced Topics in Econometrics II

**Example collateral area in Economics:**

ECONOM 8451	Microeconomic Theory
ECONOM 9452	Advanced Microeconomic Theory II

**Example collateral area in Corporate Law:**

LAW 5365	Bankruptcy
LAW 5395	Business Organizations
LAW 5470	Criminal Clinic

**Example collateral area in Statistics:**

STAT 7210	Applied Nonparametric Methods
STAT 7750	Introduction to Probability Theory

STAT 7760	Statistical Inference
STAT 7850	Introduction to Stochastic Processes

## Degree Requirements - Management Concentration

### Seminars

Students are required to take four core seminars, and 3 credits of additional seminars that will be offered to match the needs and interests of current students.

Four core seminars:

MANGMT 9030	Seminar in Macro Organizational Behavior	3
MANGMT 9040	Seminar in Human Resource Management	3
MANGMT 9060	Seminar in Corporate Strategy	3
MANGMT 9080	Seminar in Entrepreneurship	3

While pursuing required course work, all students participate in MANGMT 9101 Topics Seminar in Management (1 hour per semester), which is taken on a Pass/Fail basis.

### Support Areas

Students must complete either two 9-hour or one 12-hour Support Areas, tailored to the research and teaching goals of the student. Programs are highly individualized to reflect student interests and desired focus, and subject to approval by the student's program committee.

Typical Support Areas include psychology, economics, research methods and statistics, career development, sociology, marketing, and communication. Below are examples of Support Areas.

#### Example support area in Psychology:

PSYCH 8610	Motivation
PSYCH 8620	Personality Psychology
ESC_PS 7200	Positive Psychology
PSYCH 9350	Studies in Social Psychology

#### Example support area in Economics:

AAE 8050	Economics of Institutions and Organizations
AAE 9001	Advanced Topics in Economics II
FINANC 9001	Advanced Topics in Finance
ECONOM 7355	Industrial Organization and Competitive Strategy
ECONOM 8451	Microeconomic Theory

#### Example support area in Research Methods and Statistics:

MRKTNG 9010	Introduction to Research Methods in Marketing
PSYCH 8710	General Linear Models in Psychology I
PSYCH 8730	Statistical Software Packages
PSYCH 9510	Studies in Clinical Psychology
ESC_PS 9650	Application of Multivariate Analysis in Educational Research
ESC_PS 9710	Structural Equation Modeling
ESC_PS 9720	Hierarchical Linear Modeling
SOCIOL 8120	The Logic of Social Research
SOCIOL 9288	Ethnographic Fieldwork
ECONOM 7370	Quantitative Economics
ECONOM 8472	Econometric Methods I
ECONOM 8473	Applied Econometrics
COMMUN 8130	Topics in Qualitative Research Methods

STAT 7110	Statistical Software and Data Analysis
STAT 7510	Applied Statistical Models I
STAT 7710	Introduction to Mathematical Statistics

### Research Methods & Analysis (RM&A) Area

Students must complete an RM&A Area (12 hours if completing two 9-hour Support Areas, 18 hours if completing one 12-hour Support Area). These courses, selected in cooperation with a student's program committee, will provide students with the tools and techniques necessary for conducting empirical research.

Sample courses are those listed in the Support Area in Research Methods and Statistics above. Courses applied to a Support Area cannot be applied to the RM&A.

## Degree Requirements - Marketing Concentration

### Prerequisites typically needed

STAT 1400	Elementary Statistics for Life Sciences	3
MATH 1400	Calculus for Social and Life Sciences I	3

### Required courses:

MRKTNG 9010	Introduction to Research Methods in Marketing	1-3
MRKTNG 9020	Seminar in Advanced Research Methods in Marketing	3
MRKTNG 9030	Seminar in Applied Multivariate Analysis in Marketing	1-3
MRKTNG 9210	Seminar in Marketing Strategy	3
MRKTNG 9220	Seminar Marketing Models	3
MRKTNG 9230	Seminar in Consumer Behavior	3

### Electives (minimum of 3 credits):

MRKTNG 9185	Doctoral Independent Study in Marketing	3
MRKTNG 9101	Current Topics Seminar in Marketing (taken each fall and spring while in residence at MU)	1
MRKTNG 9090	Research in Marketing (Dissertation - minimum of 12 hours with at least 2 hours each fall and spring and 1 hour each summer semester)	12

### Support Areas

Students must complete either two 9-hour Support Areas or one 12-hour Support Area, to provide depth in theory and research appropriate for the particular research interests of the student.

Typical Support Areas are social psychology, organizational behavior, economics, and statistics, but other areas may be appropriate. See examples below.

#### Example support area in Psychology/Social Psychology:

PSYCH 8610	Motivation
PSYCH 9310	Theories of Social Psychology
PSYCH 9360	Seminar in Social Psychology

#### Example support area in Organizational Behavior:

MANGMT 9087	Seminar in Management (Human Resource Management)
MANGMT 9087	Seminar in Management (Organizational Behavior I)
MANGMT 9087	Seminar in Management (Organizational Behavior II)
MANGMT 9087	Seminar in Management (Strategic Management I)



MANGMT 9087	Seminar in Management (Organizational Theory)	
<b>Example support area in Economics:</b>		
ECONOM 7340	Introduction to Game Theory	
ECONOM 7351	Intermediate Microeconomics	
ECONOM 8451	Microeconomic Theory	
ECONOM 8472	Econometric Methods I	
ECONOM 9452	Advanced Microeconomic Theory II	
ECONOM 9471	Advanced Game Theory	
ECONOM 9473	Econometric Theory II	
<b>Example support area in Statistics:</b>		
STAT 7530	Analysis of Variance	
STAT 7750	Introduction to Probability Theory	
STAT 7760	Statistical Inference	
STAT 7830	Categorical Data Analysis	
STAT 7850	Introduction to Stochastic Processes	
STAT 8640	Bayesian Analysis I	
STAT 9710	Advanced Mathematical Statistics I	
STAT 9720	Advanced Mathematical Statistics II	
ECONOM 8472	Econometric Methods I	
ECONOM 9473	Econometric Theory II	

**Analytical Tools**

Students must complete courses in research methods and statistics (12 hours for students with two support areas, 18 hours for students with one support area) to provide each student with a sound foundation in research skills.

Two marketing seminars that focus on research methods are required, with additional courses chosen as appropriate for the student's specific research emphasis. Courses in multiple regression, analysis of variance, and multivariate statistics are required.

Students often take additional analytical tools courses to further develop the depth of knowledge in tools required for their specific research interests.

Example analytical tools courses are listed below.

MRKTNG 9010	Introduction to Research Methods in Marketing	1-3
MRKTNG 9030	Seminar in Applied Multivariate Analysis in Marketing	1-3
ECONOM 7340	Introduction to Game Theory	3
ECONOM 7351	Intermediate Microeconomics	3
ECONOM 8472	Econometric Methods I	3
ECONOM 9473	Econometric Theory II	3
PSYCH 8710	General Linear Models in Psychology I	4
PSYCH 8720	General Linear Models in Psychology II	4
PSYCH 9320	Social Psychology Methodology	3
PSYCH 9330	Field Research Methods	3
PSYCH 9520	Psychometrics	3
PSYCH 9710	Multivariate Statistics in Psychology	3
SOCIOL 7120	Social Statistics	3
SOCIOL 8120	The Logic of Social Research	3
SOCIOL 8130	Advanced Social Statistics	3
SOCIOL 9287	Seminar in Qualitative Methods in Sociology	3
STAT 7210	Applied Nonparametric Methods	3
STAT 7310	Sampling Techniques	3
STAT 7510	Applied Statistical Models I	3
STAT 7530	Analysis of Variance	3

STAT 7540	Experimental Design	3
STAT 7750	Introduction to Probability Theory	3
STAT 7760	Statistical Inference	3
STAT 7830	Categorical Data Analysis	3
STAT 7850	Introduction to Stochastic Processes	3
STAT 8640	Bayesian Analysis I	3
STAT 9710	Advanced Mathematical Statistics I	3
STAT 9720	Advanced Mathematical Statistics II	3
<b>Seminars</b>		
MRKTNG 9010	Introduction to Research Methods in Marketing	1-3
MRKTNG 9020	Seminar in Advanced Research Methods in Marketing	1-3
MRKTNG 9030	Seminar in Applied Multivariate Analysis in Marketing	1-3
MRKTNG 9210	Seminar in Marketing Strategy	1-3
MRKTNG 9220	Seminar Marketing Models	1-3
MRKTNG 9230	Seminar in Consumer Behavior	1-3

**Sample Plan of Study - Management Concentration**

**First Year**

Fall	CR	Spring	CR	Summer	CR
MANGMT Seminar	3	MANGMT Seminar	3	Support Area Course #2	3
Research Methods #1	3	Research Methods #3	3		
Research Methods #2	3	Support Area Course #1	3		
MANGMT 9101	1	MANGMT 9101	1		
		10		10	
				3	

**Second Year**

Fall	CR	Spring	CR	Summer	CR
MANGMT Seminar	3	MANGMT Seminar	3	Research Experience	
Support Area Course #3	3	Support Area Course #4	3	Comprehensive Exam Preparation	
Research Methods #4	3	Research Methods #6	3		
Research Methods #5	3	MANGMT Seminar	3		
MANGMT 9101	1	MANGMT 9101	1		
		13		13	
				0	

**Third Year**

Fall	CR	Spring	CR
Comprehensive Examination		MANGMT 9090 (Dissertation)	Variable Credit
MANGMT 9090 (Dissertation)	Variable Credit		
		0	
		0	

**Fourth Year**

Fall	CR	Spring	CR
MANGMT 9090 (Dissertation)	Variable Credit	MANGMT 9090 (Dissertation)	Variable Credit
		0	
		0	

Total Credits: 49

## All Concentrations

### Qualifying Process

#### Program Committee

During the first semester of course work, the PhD Coordinator, a member of the doctoral faculty from the major area of study (finance, management or marketing), serves as the student's faculty advisor.

By the end of the first year of course work, a student should make formal application for the doctoral degree and, after consultation with faculty, request appointment of a Doctoral Program Committee. This committee consists of at least three members from the student's major area of study and at least one member from a supporting area of study.

The Doctoral Program Committee conducts the qualifying examination and works with the student to design a plan of study.

#### Residency Requirement

In compliance with University regulations, the doctor of philosophy degree requires the completion of 72 semester hours of graduate work beyond the baccalaureate degree. Within the credit-hour requirement is the residency requirement. To satisfy the residency requirement, a student must complete at least two 9-hour semesters or three 6-hour semesters in an 18-month period at MU. All courses taken to satisfy the residency requirement must be MU courses approved for graduate credit and approved by the student's doctoral program committee. Correspondence and off-campus courses may not be counted toward the residency requirement. This program is designed for full-time students and requires a minimum 4-year on-campus commitment.

#### Qualifying Examination and First-Year Project

Every marketing doctoral student is required to pass the qualifying exam consisting of two major components. The first component is a comprehensive evaluation of overall performance in coursework and RA assignments and participation in formal and informal doctoral program elements. The second component is a first-year project addressing a scholarly research topic in marketing consisting of three major parts: a written outline, presentation, and paper suitable for submission to a conference or journal. The goal of this project is to promote early research engagement, interaction with faculty, and the development of communication and presentation skills that will enhance the overall experience of the student throughout the doctoral program.

Finance students take the comprehensive exam following the completion of their doctoral course work requirements. The exam consists of written and oral sections and is typically scheduled at the beginning of the fall semester in the third year of study.

Management doctoral students are required to pass a qualifying exam composed of two parts: 1) major written sections of a faculty-led research paper and 2) an oral presentation of the entire research project.

First year students are expected to write first drafts of one or more major sections of the paper and to present the entire project before the end of the Spring semester of their first year. During this presentation, students are expected to demonstrate excellence in their specific contributions and to demonstrate they understand all aspects of the research project.

### Comprehensive Examination Process

Typically, after completion of the course work specified on the plan of study, the student's doctoral program committee determines the student's

readiness to undertake the comprehensive examination. The student must be enrolled at MU the semester s/he takes this examination.

The comprehensive examination process differs by department, but consists of written and oral sections. Both sections must be completed within one month of each other, and at least seven months before a final dissertation defense. Successful completion of the comprehensive examination requires that the student's doctoral program committee vote to pass the student on the entire examination, both written and oral sections, with no more than one dissenting or abstaining vote. The student who fails this exam may not take a second comprehensive examination for at least 12 weeks. Failure to pass two successive comprehensive examinations automatically prevents candidacy.

### Dissertation Requirements

A dissertation is required to complete the doctoral program. Each student, working under the supervision of the doctoral program committee chair, must propose an original scholarly research project. The dissertation proposal is normally defended at the end of the third year of the program in an oral presentation. The proposal must be approved formally by the student's program committee. Following completion of the research, the written dissertation must be orally defended and approved by the student's program committee.

### Admissions

BusinessPhD@Missouri.edu

407 Cornell Hall

Columbia, MO 65211

573-882-0181

<http://business.missouri.edu/programs-and-admissions/phd> (<http://business.missouri.edu/programs-and-admissions/phd/>)

### Finance

Through the study of finance, students learn to independently analyze security markets, understand basic valuation techniques and use their knowledge to make financial decisions. In addition, students learn basic theoretical concepts in corporate finance and their application to corporate financing and investment decisions. Coursework focuses on investments, portfolio management, real estate, financial institutions, corporate finance, and risk management/insurance.

### Faculty

**Professor** J. Howe\*\*, K. Pukthuanthong\*\*

**Associate Professor** M. O'Doherty\*\*

**Assistant Professor** F. Bereskin\*, M. Binfare, K. Holland\*, S. Jannati\*, J. Shen\*, M. Young, A. Yore\*, J. Wang

**Associate Teaching Professor** M. Griswold, D. Johnson, J. Stansfield\*

**Assistant Teaching Professor** M. Dorigan, D. Fischer, J. Hegger, K. Kim

*\*Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.*

*\*\*Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.*

## Undergraduate

While the Trulaske College of Business does not offer an undergraduate degree in Finance, we do offer the BSBA (Bachelor of Science in Business Administration) (p. 387) or BSACC (Bachelor of Science in Accountancy) (p. 380).

## Graduate

- MS in Finance (p. 410)

The emphasis areas are currently unavailable, however the MS in Finance degree (p. 410) and Graduate Certificate in Investments (p. 414) are available.

## MS in Finance

Mizzou's online MS Finance is the degree for individuals who want to advance their knowledge of finance in our global business environment and enhance their analytical and financial decision skills. The design of the program fits career objectives of:

- Working finance professionals who seek to enhance their career opportunities by gaining additional financial skills and knowledge.
- Recent degree recipients looking to strengthen their career prospects by furthering their financial training.
- University of Missouri undergraduate senior-level students wanting to jump-start their career by continuing their financial education.

## Degree Requirements

Delivery of this program is 100% online. You may choose to complete an optional one-week international experience. Successful completion of the master's degree requires a combination of required coursework and elective credits. You must complete four prerequisite courses or equivalents before enrolling in finance master's degree courses. Online courses are offered as 16-week/3 credit hour classes or 8-week paired class modules at 1.5 credit hours each.

### Prerequisite courses

ACCTCY 7310	Accounting for Managers	3.0
FINANC 7210	Microeconomics for Business	1.5
FINANC 7410	Managerial Finance I	1.5
STAT 7070	Statistical Methods for Research	3.0

### Required Courses

FINANC 7220	Economics for Managers	1.5
FINANC 7420	Managerial Finance II	1.5
FINANC 8310	Financial Databases and Analysis	1.5
FINANC 8312	Financial Modeling	1.5
FINANC 8350	Financial Statement Analysis I	1.5
FINANC 8352	Financial Statement Analysis II	1.5
FINANC 8450	Ethics and Standards of Financial Practice	1.5
FINANC 8320	Financial Markets	1.5

NOTE: Certain required courses may be waived depending upon candidate experience, credentials or undergraduate degree.

### Elective Courses

Any online 7000 or 8000 level course in FINANC

Any online 7000 or 8000 level course, with approval of Director of MS in Finance program, offered in Agricultural Applied Economics (AAE), Architectural Studies (ARCHST), Economics (ECONOM), Management (MANGMT), Marketing (MRKTNG), Personal Financial Planning (FINPLN), Statistics (STAT), Accountancy (ACCTCY), or Law (LAW)

### Thesis Option (3-6 credit hours)

Not required, but may be written with approval of program director.

Finance Department

401 Cornell Hall

573-882-2180

[business.missouri.edu/programs-and-admissions/online-ms-finance](https://business.missouri.edu/programs-and-admissions/online-ms-finance)

(<https://business.missouri.edu/programs-and-admissions/online-ms-finance/>)

## MS in Finance with Emphasis in Financial Management

## Degree Requirements

- 30 credit hours – finish in 1 year (full-time) or 2 years (part-time)
- Fully online or a combination of online and on-campus classes
- One-week study-abroad experience with costs covered by the program
- CFA Institute Affiliated University
- The Trulaske College of Business is accredited by AACSB

### Finance Foundation

FINANC 7220	Economics for Managers	1.5-3
FINANC 7420	Managerial Finance II	1-3
FINANC 8320	Financial Markets	1-3
FINANC 8350	Financial Statement Analysis I	1-3

### Finance Common Core

FINANC 8352	Financial Statement Analysis II	1.5-3
FINANC 8310	Financial Databases and Analysis	1-3
FINANC 8312	Financial Modeling	1-3
FINANC 8450	Ethics and Standards of Financial Practice	1-3

### International Core

FINANC 8010	Multicultural and Global Finance Study Abroad	1-3
FINANC 8012	International Financial Markets	1-3

### Approved electives in Finance

9

Approved electives in Finance or any of the interdepartmental approved courses: Accountancy, Agricultural Economics, Architectural Studies, Economics, Management, Marketing, Personal Financial Planning, or Law.

## MS in Finance with Emphasis in Investments

## Degree Requirements

- 30 credit hours – finish in 1 year (full-time) or 2 years (part-time)
- Fully online or a combination of online and on-campus classes
- One-week study-abroad experience with costs covered by the program

- CFA Institute Affiliated University
- The Trulaske College of Business is accredited by AACSB

**Finance Foundation**

FINANC 7220	Economics for Managers	1.5-3
FINANC 7420	Managerial Finance II	1-3
FINANC 8320	Financial Markets	1-3
FINANC 8350	Financial Statement Analysis I	1-3

**Finance Common Core**

FINANC 8352	Financial Statement Analysis II	1.5-3
FINANC 8310	Financial Databases and Analysis	1-3
FINANC 8312	Financial Modeling	1-3
FINANC 8450	Ethics and Standards of Financial Practice	1-3

**International Core**

FINANC 8010	Multicultural and Global Finance Study Abroad	1-3
FINANC 8012	International Financial Markets	1-3

**Approved elective in Finance**

**9**

Approved electives in Finance or any of the interdepartmental approved courses: Accountancy, Agricultural Economics, Architectural Studies, Economics, Management, Marketing, Personal Financial Planning, or Law.

## MS in Finance with Emphasis in Real Estate

### Degree Requirements

- 30 credit hours – finish in 1 year (full-time) or 2 years (part-time)
- Fully online or a combination of online and on-campus classes
- One-week study-abroad experience with costs covered by the program
- CFA Institute Affiliated University
- The Trulaske College of Business is accredited by AACSB

**Finance Foundation**

FINANC 7220	Economics for Managers	1.5-3
FINANC 7420	Managerial Finance II	1-3
FINANC 8320	Financial Markets	1-3
FINANC 8350	Financial Statement Analysis I	1-3

**Finance Common Core**

FINANC 8352	Financial Statement Analysis II	1.5-3
FINANC 8310	Financial Databases and Analysis	1-3
FINANC 8312	Financial Modeling	1-3
FINANC 8450	Ethics and Standards of Financial Practice	1-3

**International Core**

FINANC 8010	Multicultural and Global Finance Study Abroad	1-3
FINANC 8012	International Financial Markets	1-3

**Approved electives in Finance**

**9**

Approved electives in Finance or any of the interdepartmental approved courses: Accountancy, Agricultural Economics, Architectural Studies, Economics, Management, Marketing, Personal Financial Planning, Law.

## Additional Minors and Certificates - Business

### Undergraduate Certificates

- Certificate in Human Resource Management (p. 411)
- Certificate in Marketing Analytics (<http://catalog.missouri.edu/undergraduategraduate/collegeofbusiness/additionalminorsandcertificates/cert-marketing-analytics/>)
- Certificate in Risk Management and Insurance (p. 412)
- Certificate in Sales and Customer Development (p. 412)

Business offers an interdisciplinary Undergraduate Certificate in Global Supply Chain Management (p. 807) with Engineering.

### Undergraduate Minors

- Minor in Entrepreneurship and Innovation Mangement (p. 412)

### Graduate Certificates

- Certificate in Assurance (p. 413)
- Certificate in Investments (p. 414)
- Certificate in Marketing Analytics (p. 414)
- Certificate in Taxation (p. 415)

Business offers the following interdisciplinary certificate programs in collaboration with other departments across campus: Graduate Certificate in Center for the Digital Globe (p. 807), Graduate Certificate in Global Supply Chain Management (p. 810) and Graduate Certificate in Life Science Innovation and Entrepreneurship (p. 811).

## Certificate in Human Resource Management

Human capital can be a source of sustainable competitive advantage for organizations. Human Resource Management (HRM) is a specialized management track for those interested in helping employees meet professional goals and organizations optimize employee talent in order to directly enhance business results.

### Requirements

**Required Courses** **9**

MANGMT 4020	Human Resource Management
MANGMT 4030	Organizational Behavior
BUS_AD 4500	Professional Development Program - Internship
or MANGMT 4940	Professional Management Internship

**Elective Courses (choose any 6 hours below)** **6**

MANGMT 3700	Diversity and Inclusion in Management
MANGMT 3920	Managing People in the Global Enterprise
MANGMT 4120	Human Resource Management Law
MANGMT 4130	Advanced Organizational Behavior
MANGMT 4220	Compensation Theory and Practice
MANGMT 4320	Selected Problems in Human Resource Management
MANGMT 4350	Leadership Development
MANGMT 4420	Collective Bargaining

MANGMT 4520	Change Management in Business
<b>Required GPA: 3.0 or higher for these 15 credit hours</b>	
Note: for the purposes of this Certificate, a student can transfer in credit from another institution only for MANGMT 3000. Management 3000 is a prerequisite for all other Management courses.	
<b>Total hours:</b>	<b>15</b>

## Certificate in Risk Management and Insurance

The Certificate in Risk Management and Insurance is a specialized track for students interested in career opportunities in this field. The coursework allows students to develop skills for identifying, assessing and managing risks faced by individuals, businesses and organizations. These risk management strategies require an understanding of the sources, dimensions and qualities of risk, as well as the development and implementation of efficient techniques to mitigate, control or avoid risks.

### Requirements

Students must have a 3.0 overall GPA.

<b>Certificate Requirements and Curriculum</b>		<b>12</b>
Required Courses (6 hours)		
FINANC 3000	Corporate Finance	
or FINANC 2000	Survey of Business Finance	
FINANC 4630	Introduction to Risk Management and Insurance	
Elective Courses (choose any 6 hours below)		
FINANC 4201	Topics in Finance (Managing an Insurance Company)	
FINANC 4632	Principles of Commercial Property and Liability Insurance	
FINANC 4640	Enterprise Risk Management	

## Certificate in Sales and Customer Development

Through the required coursework and internship of the certificate, students acquire vital skills and knowledge of current best practices in the sales profession and sales management. Students who finish the 13-15 credit-hour curriculum earn the Certificate in Sales and Customer Development upon completion of their bachelor's degree, offering employers tangible evidence of a strong background in sales.

### Requirements

<b>Required Courses (a minimum 3.2 cumulative GPA is required for these three courses)</b>		<b>9</b>
MRKTNG 3410	Personal Selling	3
MRKTNG 4420	Sales Management	3
MRKTNG 4430	Advanced Professional Selling	3
<b>Elective Courses (choose one)</b>		<b>3</b>
MRKTNG 4220	Consumer Behavior	
MRKTNG 4250	Retail Marketing	
MRKTNG 4440	Services Marketing	
MRKTNG 4550	Integrated Marketing Communications	

Note: A student can transfer in credit from another institution only for MRKTNG 3000, which is a pre-requisite for all other Marketing classes, as well as the Sales Certificate. Students may however enroll in MRKTNG 3000 concurrently (as a co-requisite) with MRKTNG 3410.

<b>Internship Requirement (Minimum 1 credit hour) *</b>	<b>1-3</b>
<b>Certificate Requirements and Curriculum</b>	<b>13-15</b>

\* Satisfactory completion of at least one credit hour for a supervised internship (summer or regular semester), with significant customer contact and a minimum of 120 hours on-the-job experience. This credit hour can be earned in any College at MU. Internships that qualify for this Certificate will need to be approved by the Program Coordinator as a part of the Certificate application process.

### Notes:

- Trulaske College of Business students can satisfy the internship requirement by completing a suitable internship under the College's BUS\_AD 4500 requirement. Students who have already completed BUS\_AD 4500 with an internship that does not meet the requirements of this certificate are advised to register for one credit hour under MRKTNG 4185 for an internship that would qualify for the certificate.
- Non-business majors should contact the Program Coordinator, salescertificate@missouri.edu, regarding the internship component.
- For students starting at Mizzou before Fall 2017, the required coursework is MRKTNG 3000, MRKTNG 3410, and MRKTNG 4420 with a minimum overall 3.0 GPA.

## Minor in Entrepreneurship and Innovation Management

### Requirements

15 credit hours are required, at least 6 of the required 15 credit hours must be taken from Management designated course numbers from the approved course list.

<b>Required Core (3 credit hours): Choose one of the following</b>		<b>3</b>
MANGMT 4700	Principles of Entrepreneurship	3
ABM 3283	Fundamentals of Entrepreneurship	3
T_A_M 3800	Retail Entrepreneurship	3
<b>Experiential Core (minimum of 6 credit hours)</b>		
MANGMT 2700	Introduction to Entrepreneurship	3
MANGMT 3720	The Entrepreneurial Mindset	3
MANGMT 3760	Design Thinking for New Business Innovation	3
MANGMT 4740	Entrepreneurial Consulting for Small Business	3
FINANC 4840	Angel Capital Education Program	1-3
JOURN 4246	Taking People With You: Entrepreneurial Leadership and Innovation *	3
JOURN 4444	Team-Based Mobile Device Application Development *	3
JOURN 4734	Journalism and Chaos: How to Understand and Cover 21st Century Business Models *	3
JOURN 4736	Changing Media Business Models *	3
BUS_AD 4500	Professional Development Program - Internship ^	3

MANGMT 4940	Professional Management Internship <sup>^</sup>	3
ABM 4940	Internship Opportunities <sup>^</sup>	1-3
ARCHST 4940	Internship in Environmental Design <sup>^</sup>	1-3
MUS_GENL 4540	Music Entrepreneurship Practicum <sup>^</sup>	1-2
T_A_M 4949	Field Training in Textiles and Apparel Management <sup>^</sup>	3
<b>Electives (minimum of 6 credit hours)</b>		
MANGMT 4710	The Entrepreneurial Process	3
MANGMT 4730	New Business Planning and Management	3
Any one of the following accounting classes:		
ACCTCY 2010	Introduction to Accounting	
ACCTCY 2036	Accounting I	
ACCTCY 3347	Cost and Managerial Accounting	
ACCTCY 4353	Introduction to Taxation	
ACCTCY 4356	Financial Accounting Concepts	
ACCTCY 4365	Governmental Accounting and Budgeting	
MRKTNG 4420	Sales Management	3
MRKTNG 4650	e-Marketing	3
ABM 3224W	New Products Marketing - Writing Intensive	3
ABM 4983W	Strategic Entrepreneurship in Agri-Food - Writing Intensive	3
ARCHST 4710	Design Business Practices	3
MUS_GENL 4512	Principles of Arts Entrepreneurship	2
MUS_GENL 4514	Arts Marketing	1
The following courses are options for Journalism Majors only:		
JOURN 4150	Using Infographics	1
JOURN 4212	Sports and Entertainment Promotion	3
JOURN 4213	Strategic Communication Mobile Sports Production	3
JOURN 4214	Strategic Communication Integrated Sports Production	3
JOURN 4216	Media Sales	3
JOURN 4250	Management of Strategic Communication	3
JOURN 4252	Branded Strategic Storytelling	3
JOURN 4254	Tools, Techniques and Technology of Visual Storytelling	3
JOURN 4263	Digital Strategy II	3
JOURN 4375	Documentary Business and the Public Sphere	2
JOURN 4464	Magazines Across Platforms	3
JOURN 4502	Multimedia Planning and Design	3
JOURN 4700	Engaged Journalism	1-3
JOURN 4970W	Strategic Campaigns - Writing Intensive	3
JOURN 4974	Advanced Internet Applications for Radio/TV News	3
JOURN 4992	Innovation and Audience Outreach in Converged Media	3
JOURN 4994	Magazine Publishing	3
JOURN 4978	Media Management and Leadership	3
JOURN 4984	Magazine Staff	3

+ This Spring course is open to students from all disciplines but students must apply for instructor consent by a deadline in the Fall.

\* Students must be Journalism Majors for the course to count towards the minor.

<sup>^</sup> Internship option based on Consistent Standards (no more than three credit hours total of internship credit can be counted toward the minor and specific internship must be preapproved by the Director of the Minor). Must be in a declared degree program within the School or College offering the course. For example: MU\_GENL if only for A&S students to take. Only exception is MANGMT 4940 which can be taken by both business majors and non-majors with approval from the Director of the Minor.

## Graduate Certificate in Assurance

### About the Certificate

The Assurance Certificate program will provide students with advanced skills necessary to succeed in Assurance Services-related careers. Through completion of the required coursework, students will be able to:

- Assess business and financial reporting risks
- Understand and apply auditing concepts and procedures
- Design and implement internal controls
- Understand the role of corporate governance in risk management
- Implement fraud prevention and detection procedures
- Understand how corporate taxes can impact a corporation's financial statements
- Understand the basis of corporate taxation and book-to-tax differences (ASC 740)

School of Accountancy graduates with an Assurance Certificate will be prepared for a variety of careers including: external and internal auditor, risk management, fraud examination, and consulting on risk, assurance, and fraud prevention.

### Eligibility

Students may be admitted to the MAcc program to pursue the Assurance Certificate. For students working towards an accountancy degree, courses will count towards the degree programs for the School of Accountancy. Additional credit hours beyond those needed for the MAcc will not be required in most cases.

Students may also pursue the certificate as a stand-alone certificate or be working towards their Master of Science in Business.

Students must achieve an average of 3.0 GPA in all courses. Coursework may only count towards two graduation requirements for students pursuing multiple graduate certificates.

### Requirements

Students are required to complete 15 credit hours to receive the certificate. Courses are listed below for the assurance certificate.

**Required:**

ACCTCY 4384/7384	Auditing Theory and Practice I	3
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**Electives:**

ACCTCY 8373	Taxation of Corporations and Shareholders	3
ACCTCY 8404	Internal Auditing	3
ACCTCY 8414	Audit of Internal Controls	3
ACCTCY 8424	Fraud Examination	3

or ACCTCY 8438	Forensic Accounting	
ACCTCY 8428	Data Visualization and Data Mining	3
ACCTCY 8436	Advanced Accounting	3
ACCTCY 8444	Advanced Audit	3
ACCTCY 8448	Emerging Issues in Accounting Information Systems	3
ACCTCY 8456	Corporate Governance	3

**Total Hours: (12 of 15 credit hours must be graduate credit) 15**

Note: Additional coursework may count towards the assurance certificate with Acct 8401 - Topics in Accounting courses, please inquire with an academic advisor in the School of Accountancy to discuss available coursework.

**School of Accountancy  
303 Cornell Hall  
(573) 882-4463**

## Graduate Certificate in Investments

The Graduate Certificate in Investments is designed to provide cutting-edge knowledge to those who wish to pursue a career in financial services. The certificate program allows students to focus on one aspect of Finance. Students can obtain the certificate as a stand-alone program. This may best serve students who are seeking to augment their education and to enhance their knowledge in order to advance in their careers. For students who are seeking their master's degree, the certificate is a big step towards completion of their degree program requirements.

### Requirements

Students must complete a minimum of 12 credit hours with at least a 3.0 GPA from the courses listed below.

Required Courses (6.0 credit hours)		
FINANC 8360	Equity Securities Analysis	3.0
FINANC 8370	Fixed-Income Securities Analysis	3.0
Elective Courses (6.0 credit hours)		
FINANC 8320	Financial Markets	1.5
FINANC 8330	Investment Policy and Portfolio Management	1.5
FINANC 8340	Derivative Financial Securities	3.0
FINANC 8350	Financial Statement Analysis I	1.5
FINANC 8352	Financial Statement Analysis II	1.5
FINANC 8380	Investment Banking	3.0
FINANC 8450	Ethics and Standards of Financial Practice	1.5

Notes: All prerequisites must be taken before enrolling in a course.

### Sample Plan of Study

The certificate can be completed in nine months for a student who takes six credit hours per semester. This is only a sample plan of study and could change per student.

First Year			
Fall	CR	Spring	CR
FINANC 8360	3.0	FINANC 8370	3.0
FINANC 8350	1.5	FINANC 8320	1.5

FINANC 8352	1.5	FINANC 8450	1.5
	6		6

Total Credits: 12

Finance Department  
401 Cornell Hall  
573-882-2180

## Graduate Certificate in Marketing Analytics

The Graduate Certificate in Marketing Analytics is focused on the development, implementation, and delivery of data-driven solutions that assist in marketing strategies, tasks, and decisions. The certificate can either be completed as a stand-alone credential or in conjunction with another master's degree.

For those applying to complete the coursework as a stand-alone certificate, a GMAT/GRE score is optional. Applicants must complete the typical application process through the Graduate School and must also provide evidence of basic statistical knowledge, which can be demonstrated by completion of introductory undergraduate, graduate, or online statistics coursework. Contact the College of Business Graduate Programs Office for further information about qualifying coursework. Admitted applicants who have not taken an undergraduate, graduate, or online marketing course will be required to take a marketing course during the first semester of the program unless they have qualifying marketing-related job experience. Due to course sequencing, students begin taking courses in the **fall semester only**.

### Requirements

The graduate certificate requires completion of 12 credit hours. See the list below of required courses. The Department of Marketing may approve course substitution if prior equivalence is determined.

MRKTNG 8180	Applied Statistics for Marketing Analytics	3
MRKTNG 8760	Marketing Analytics for Business Decisions	1.5
MRKTNG 8780	Advanced Marketing Analytics	1.5
MRKTNG 8770	Marketing Databases and SQL	3
MRKTNG 8800	R for Marketing Analytics	1.5
MRKTNG 8810	Python for Marketing Analytics	1.5
or MRKTNG 8820	Artificial Intelligence and Machine Learning Applications in Marketing	

Total Credits 12

### Sample Plan of Study

Fall	CR	Spring	CR
MRKTNG 8180		3 MRKTNG 8770	3
MRKTNG 8760		1.5 MRKTNG 8800	1.5
MRKTNG 8780		1.5 MRKTNG 8810	1.5
	6		6

Total Credits: 12

### Graduate Programs Office

306 Cornell Hall  
Columbia, MO 65211  
trulaskemasters@missouri.edu  
573-882-2750

## Graduate Certificate in Taxation

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### About the Certificate

Depending on the course configuration in the program, completion of the Certificate in Taxation indicates that a student has developed expertise in tax planning and preparation in regard to international, federal, state, or estate issues for corporations, partnerships, or individuals.

### Eligibility

Students may be enrolled in the MAcc graduate degree program in the School of Accountancy at MU to be eligible for the Taxation Certificate. For students working towards an accountancy degree, courses will count towards the degree programs for the School of Accountancy. Additional credit hours beyond those needed for the MAcc will not be required in most cases.

Students may also pursue the certificate as a stand-alone certificate or be working towards their Master of Science in Business.

Students must achieve an average of a 3.0 GPA in all courses. Coursework may only count towards two graduation requirements for students pursuing multiple graduate certificates.

### Requirements

Students are required to complete 15 credit hours to receive the certificate. Courses are listed below for the tax certificate.

#### Required:

ACCTCY 4353/7353	Introduction to Taxation	3
ACCTCY 8373	Taxation of Corporations and Shareholders	3
ACCTCY 8423	Tax Research and Planning	3

#### Electives:

ACCTCY 8363	Multi-Jurisdictional Tax	3
ACCTCY 8433	Mergers and Acquisitions Taxation	3
ACCTCY 8453	Taxes and Business Strategies	3
ACCTCY 8463	Partnership Taxation	3

**Total Hours: (12 of 15 hours must be graduate credit) 15**

Note: Additional coursework may count towards the tax certificate with Acct 8401 - Topics in Accounting courses, please inquire with an academic advisor in the School of Accountancy to discuss available coursework.

**School of Accountancy**  
**303 Cornell Hall**  
**(573) 882-4463**



## College of Education

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### Administration

Kathryn Chval, Dean and Joanne H. Hook Dean's Chair in Educational Renewal

John Lannin, Associate Dean, Student Success & Academic Affairs  
Christi Bergin, Associate Dean, Research & Innovation  
(573) 882-7832

[education.missouri.edu](https://education.missouri.edu/) (<https://education.missouri.edu/>)

[MizzouEdCertification@missouri.edu](mailto:MizzouEdCertification@missouri.edu)

[MizzouEdAdvising@missouri.edu](mailto:MizzouEdAdvising@missouri.edu)

The College of Education, established in 1868, is the oldest teacher preparation program west of the Mississippi River. Today's MU graduates are employed in a variety of educational institutions and non-school settings. The college serves the educational community through research-based professional practice and a variety of learning constructs applied to real-world experiences. The college is a member of the American Association of Colleges for Teacher Education. All programs are fully accredited by the North Central Association of Secondary Schools and the Teacher Education Accreditation Council.

The College of Education (<https://education.missouri.edu/>) has a number of undergraduate (<https://education.missouri.edu/degrees-programs/undergraduate-degrees/>) and graduate (<https://education.missouri.edu/degrees-programs/graduate-degrees/>) programs. All programs that lead to earning a certificate by the Missouri Department of Elementary and Secondary Education (DESE) (<https://dese.mo.gov/>) are fully approved by the State Board of Education. DESE accredits all teacher certification programs at MU. The Office of Educator Quality at DESE is working with representative stakeholder groups to redesign the standards for educator preparation including certification requirements. These changes and implementation schedule are communicated to students through individual advising sessions or other university communications.

### Academic Policy Manual

Policies for Undergraduate and Graduate Education majors can be found in the Faculty and Academic Policy Manual (<https://education.missouri.edu/faculty-staff/>). Admission requirements to Phase II for Undergraduate & Initial Teaching Certification can also be found in the Faculty and Academic Policy Manual, (<https://missouri.app.box.com/s/e735yitm7mo0e94a7k3l9dpnkvcgk5/>) page 55.

### Undergraduate

#### Student Success and Academic Affairs

The College of Education offers services to assist students interested in pursuing coursework in Education. The following offices support students in the College of Education.

**Academic Advising** (<https://education.missouri.edu/students/advising/>)

573-882-5659

[MizzouEdAdvising@missouri.edu](mailto:MizzouEdAdvising@missouri.edu)

**Career Services** (<https://education.missouri.edu/career-services/>)

573-882-5069

[MizzouEdCareers@missouri.edu](mailto:MizzouEdCareers@missouri.edu)

**Assessment** (<https://education.missouri.edu/assessment/>)

573-884-8556

[EduTech@missouri.edu](mailto:EduTech@missouri.edu)

**Certification** (<https://education.missouri.edu/degrees-programs/certification/>)

573-882-4500

[coedcert@missouri.edu](mailto:coedcert@missouri.edu)

**Recruitment and Retention Initiatives** (<https://education.missouri.edu/ambassadors/>)

573-882-7772

[MizzouEdRecruit@missouri.edu](mailto:MizzouEdRecruit@missouri.edu)

**Global Engagement** (<https://education.missouri.edu/global-engagement/>)

573-882-0732

[MizzouEdGlobal@missouri.edu](mailto:MizzouEdGlobal@missouri.edu)

**Scholarship Services** (<https://education.missouri.edu/admissions/undergraduate-financial-assistance/>)

573-882-8828

[MizzouEdScholarships@missouri.edu](mailto:MizzouEdScholarships@missouri.edu)

### Teacher Education

573-882-0560

[TeacherEducation@missouri.edu](mailto:TeacherEducation@missouri.edu)

**Field Experience** (<https://education.missouri.edu/students/field-experiences/>)

573-884-2390

[MizzouEdFieldExp@missouri.edu](mailto:MizzouEdFieldExp@missouri.edu)

### Policy for Admission to Phase II and Phase III for Undergraduate and Initial Teacher Certification

1. The Bachelor of Science in Education degree within the College of Education consists of four distinct phases of preparation, the first three are part of the 4-year undergraduate degree. Phase I of the program is generally completed during the first 2 years of the undergraduate experience. All students who meet the minimum admission requirements to MU and declare education as a major are admitted into Phase I. In order to be admitted to Phases II and III of the programs, students must demonstrate competence in areas they have studied in the previous phase(s). In order to be admitted to Phase II, students must provide evidence of readiness.

Baseline criteria for admittance to Phase II consist of the following:

- a. Satisfactory completion of Phase I courses (Orientation, grade of "S"; ESC\_PS 2014 and LTC 2044, grade of "S" in each course; ESC\_PS 2010 and LTC 2040, C-range grade or higher (i.e., C- minimum) in each course);
- b. Satisfactory completion of English 1000 Exposition and Argumentation, C-range grade or higher (i.e., C- minimum);
- c. Math and Quantitative Reasoning requirement (or equivalent), C-range grade or higher (i.e., C- minimum); and
- d. Overall GPA of 2.750 or higher.

2. All candidates admitted into Phase II must meet the traditional first-year admission requirements to the University of Missouri (see MU Admissions Requirements (<https://admissions.missouri.edu/apply-freshmen/admission-requirements/>) for more information), which includes a qualifying ACT score. For external transfer candidates, the candidate must submit the ACT score (or SAT) and the following GPA requirements must be met

- a. Traditional first-year Classification: 2.600 or higher
- b. Sophomore Classification: 2.700 or higher
- c. Junior Classification: 2.750 or higher
- d. Senior Classification: 2.750 or higher

Candidates can appeal and submit appropriate materials if they do not meet the satisfactory entrance score. Within the appeal, candidates can provide other test scores, exam credits, GPA from similar coursework, or proof of accommodations. The Teacher Preparation Review Committee will review the materials and determine if the entrance requirement can be waived.

3. A student who progresses to Phase II must maintain the standards met at the time of entry. Continued assessment will be made of the characteristics associated with effective performance in the role of a professional at the level(s) and in the major(s) selected.

4. All students pursuing initial teacher certification and/or the BSEd degree (regardless of level) must complete all professional education courses with a C-range grade or higher (i.e., C- minimum).

This policy will go into effect immediately upon the revision to the College of Education Faculty & Academic Policy Manual eliminating any contradictory requirements to those specified herein. Any changes made to these requirements will be recommended by the Teacher Education Council (TEC) and approved by LTC and Special Education faculty.

## Graduate

Expand your career opportunities by pursuing graduate studies in the MU College of Education. A range of online and face-to-face professional and graduate education degrees (<https://education.missouri.edu/degrees-programs/graduate-degrees/>) and certificates (<https://education.missouri.edu/degrees-programs/certificates-minors/>) are available.

Our faculty members provide a rich environment through their innovative teaching and cutting-edge research.. Choosing the right college for graduate studies is not an easy or simple decision. We welcome you to visit our website (<https://education.missouri.edu/>) or the MU Columbia campus (for face-to-face programs) and meet with our faculty and current students to find out more about the College of Education.

**Note:** Prospective graduate students must apply to *both* the degree program of interest and to the Graduate School. The application process may be completed online. Find admission and application details by selecting the degree program of interest in the left navigation column.

## Applied Behavior Analysis

The Master of Science in Applied Behavior Analysis (ABA) program is designed to address the state-wide and national shortage of health care providers by training practitioners to affect meaningful change.

ABA is a discipline that relies upon evidenced-based behavioral interventions to improve socially significant behaviors. It has been used as an intervention to improve the quality of life for a variety of populations including, but limited to, individuals with autism spectrum disorder (ASD).

The goal of our master's program is to become a leading, accredited professional program that will train highly-skilled Behavior Analysts who apply behavioral science to address the behavioral challenges of individuals in need.

## Faculty

**Assistant Teaching Professor:** L. A. Becerra\*, J. R. Weyman\*

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

Currently MU does not offer undergraduate degrees specifically in Applied Behavior Analysis. The University does offer an undergraduate course (SPC\_ED 3100: Autism and ABA) which prepares students to complete the required 40 hr content for the Registered Behavior Technician (RBT) certification. Additional baccalaureate opportunities are available in a number of related areas in the other Schools and Colleges at the University. The catalog provides a complete list of these degree options (p. 20).

## Graduate

- MS in Applied Behavior Analysis (p. 417)
- Certificate in Applied Behavior Analysis (p. 418)

The Master of Science in Applied Behavior Analysis (ABA) program will train you to be an exceptional behavior analyst who has the skills to improve quality of life for people with behavioral challenges, including children and adults with developmental needs. You will also gain experience, and knowledge, in cutting edge research in the field of ABA. Behavior analysts successfully use ABA techniques across a variety of populations and settings to bring about meaningful and positive change in behavior. Behavior analysts are employed in numerous fields, including general and special education, mental health, disability, business, and institutions of higher learning. There is a high demand for individuals who finish their degree and obtain certification who then can practice as independent educational specialists or clinicians. The Behavior Analyst Certification Board, Inc. (<http://bacb.com/>) has approved the course sequence as meeting the coursework requirements for eligibility to take the Board Certified Behavior Analyst Examination. Applicants will have to meet additional requirements to qualify.

## MS in Applied Behavior Analysis

The Master of Science in Applied Behavior Analysis (ABA) program will teach you to be an exceptional behavior analyst who has the skills to

improve quality of life for people with behavioral challenges, including children and adults with developmental needs. In our program, you will learn the conceptual foundations of ABA and how these behavioral principles are applied to improve behavior. Central to this program is a collaboration with the MU Thompson Center for Autism and Neurodevelopmental Disorders (<https://thompsoncenter.missouri.edu/>), which serves as the primary practicum site to give you an exceptional experiential learning opportunity working with individuals with developmental needs. We place a heavy emphasis on face-to-face contact.

## Degree Requirements

A minimum of 39 semester credit hours must be completed in fulfillment of degree requirements. Completion of this degree includes completion of a Thesis/Capstone. In addition to the coursework requirement, you will need to meet experience standards. The BACB has two experience categories: (a) supervised fieldwork (2000 hrs) and (b) concentrated supervised fieldwork (1500 hrs). Students in the Master's program will be required to complete concentrated supervised fieldwork at the MU Thompson Center for Autism and Neurodevelopmental Disorders.

## Sample Plan of Study

The course sequence can be completed in two years on campus. The following is a sample program:

First Year					
Fall	CR	Spring	CR	Summer	CR
SPC_ED 8440	3	SPC_ED 8385	3	SPC_ED 8800	2
SPC_ED 8100	3	SPC_ED 8353	3	SPC_ED 8090	1
SPC_ED 8800	3	SPC_ED 8800	3		
		9	9		3
Second Year					
Fall	CR	Spring	CR		
SPC_ED 8450	3	SPC_ED 8460	3		
SPC_ED 8500	3	SPC_ED 8305	3		
SPC_ED 8090	3	SPC_ED 8090	3		
		9	9		

Total Credits: 39

## Graduate Certificate in Applied Behavior Analysis

A Graduate Certificate in Applied Behavior Analysis (ABA) program will train you to be an exceptional practitioner of ABA-based interventions to improve quality of life for people with behavioral challenges, including children and adults with developmental needs. MU graduate students can complete the certificate program while pursuing a degree, and the certificate also complements the skills of recent graduates and experienced professionals who want to specialize in ABA. The program is designed to meet eligibility requirements to sit for the Behavior Analyst Certification Board's (BACB) (<http://www.bacb.com/>) Board Certified Behavior Analyst (BCBA) (<http://www.bacb.com/?page=53>) exam.

In this program, you will learn the conceptual foundations of ABA and methods to apply these behavioral principles to improve behavior. Central to this program is a collaboration with the MU College of Education (<https://education.missouri.edu/>) and the MU Thompson Center for Autism and Neurodevelopmental Disorders (<http://thompsoncenter.missouri.edu/>). Partnerships with the College of

Education incorporates interdisciplinary educational and training opportunities by professors from the School of Health Professions and the College of Education. The MU Thompson Center serves as the primary practicum site to prepare you for an exceptional experiential learning opportunity working with individuals with developmental needs.

## Requirements

The 5th Edition Task list requirements include 21 hours of coursework (315 classroom hrs). Please note that we value in person face-to-face contact. Therefore, this is an on-campus program only.

The BACB has two experience categories: (a) supervised fieldwork (2000 hrs) and (b) concentrated supervised fieldwork (1500 hrs). Students in the graduate certificate program are not required but are encouraged to enroll in Practicum and complete their concentrated supervised fieldwork at the MU Thompson Center for a minimum of 6 credits. If they do not enroll in Practicum, the student is responsible for gaining the appropriate fieldwork experience if they wish to become a BCBA.

## Additional Information

For additional information about the Graduate Certificate in Applied Behavior Analysis including a program description go to: <https://gradstudies.missouri.edu/degrecategory/applied-behavior-analysis> (<https://gradstudies.missouri.edu/degrecategory/applied-behavior-analysis/>)

## Early Childhood Education

Dr. Laurie Kingsley, Director of Teacher Education  
 Department of Learning, Teaching and Curriculum  
 202 Townsend Hall  
 573-882-0560  
 TeacherEducation@missouri.edu

Professional education coursework is delivered by four departments within the College of Education, namely, Learning, Teaching and Curriculum; Special Education; Educational Leadership and Policy Analysis; and Educational, School and Counseling Psychology.

## Faculty

College of Education Faculty (<https://education.missouri.edu/people/faculty/>)

## Undergraduate

- BSEd in Early Childhood Education (p. 419)

For a complete list of degree programs please visit: <https://education.missouri.edu/degrees-programs/undergraduate-degrees/>

## Graduate

While the College of Education does not offer a graduate degree specifically in Early Childhood Education, we do offer other graduate programs in closely related areas. The catalog provides a complete list of these degree options (p. 20).

# BSEd in Early Childhood Education

## Degree Program Description

The Bachelor of Science in Education in Early Childhood will prepare you to work with children from birth through third grade in public, private, and alternative school systems. Students consider a degree in education if they enjoy working with children and/or adolescents, want to strengthen the future through education, and want to make a difference in the lives of others. MU Students work closely with mentors, practicing teachers, administrators, and university faculty to develop the knowledge and skills to enhance learning outcomes for children and youth. The coursework through the College of Education focuses on teachers' roles in facilitating learning at all levels of development and considers the influences of cultural, political, historical, and economic factors on students, teachers, and schools. Upon successful completion of the initial teacher certification process, the state grants you certification in early childhood education. Practical and rewarding clinical experience in schools and agencies, which will enhance your teaching abilities and confidence, begins during the sophomore year, and continues each semester, culminating in a senior-level teaching internship. Coursework within Early Childhood will challenge you to consider ways to support the development and learning of young children from birth through age eight.

## Major Program Requirements

Students must complete all university (p. 35), general education (p. 36), and content requirements, in addition to degree requirements. Please meet with an Academic Advisor (<https://education.missouri.edu/students/advising/>) to discuss degree requirements and to create a semester plan.

**Teacher Education programs in the College of Education are accredited by the Missouri Department of Elementary and Secondary Education (DESE (<https://dese.mo.gov/>)). Curriculum changes mandated to earn teacher certification may become effective at any point during your academic program. Therefore, it is extremely important that you DO NOT SELF ADVISE.**

### Degree Requirements Sample Program

**Additional Subject/Concentration-Choose One of the following options:** 3

H_D_FS 3150	Child Development 4-8 (Early Childhood)	
or H_D_FS 3150W	Child Development 4-8 (Early Childhood) - Writing Intensive	
or H_D_FS 3420	Early and Middle Childhood	
or H_D_FS 3420W	Early and Middle Childhood - Writing Intensive	
or PSYCH 2410	Developmental Psychology	
or PSYCH 2410H	Developmental Psychology - Honors	
<b>Phase I</b>		
LTC 1100	Orientation (Recommended)	1
or LTC 1120	Orientation: Math Education	
or LTC 1130	Orientation: Middle School Education	
or LTC 1155	Orientation: Science Education	
or LTC 1170	Orientation: English/Language Arts	
or SPC_ED 1100	Orientation: Special Education	
LTC 2200	School Health and Student Wellbeing	3
ESC_PS 2000	Experiencing Cultural Diversity in the United States	3

ESC_PS 2010	Inquiry Into Learning I	3
ESC_PS 2014	Inquiry into Learning I - Field Experience	1
LTC 2040	Inquiring into Schools, Community and Society I	3
LTC 2044	Inquiry into Schools, Community and Society: Field	1
IS_LT 2467	Inquiry into Empowering Learners with Technology	3
<b>Phase II</b>		
LTC 4110	Working with Infants and Toddlers	3
LTC 4120W	Early Childhood Education Literacy Methods & Assessment I - Writing Intensive	3
LTC 4124	Emergent and Developing Literacy Early Childhood Field Experience	3
LTC 4210	Children's Language and Literature	3
LTC 4250	Music for Children	2
LTC 4460	Teaching English to Speakers of Other Languages	3
LTC 4091	Assessment and Family Collaboration in Early Childhood Education	3
LTC 4130	Teaching and Learning Math, Science and Social Studies w/ Young Children	9
LTC 4134	Teaching & Learning Math, Sci & Soc Studies w/Young Children Field Experience	3
LTC 4150	Early Childhood Education Literacy Teaching Methods and Assessment II	3
ED_LPA 4060	Inquiring into Schools, Community and Society II	3
LTC 4140W	Curriculum, Theory and Classroom Management in Early Childhood Education - Writing Intensive	3
LTC 4170	Program Management & Environmental Organization in PreKindergarten	3
LTC 4240	Art for Children	2
SPC_ED 4020	Teaching the Exceptional Learner	3
LTC 4971	Internship and Capstone Seminar	3
<b>Phase III</b>		
LTC 4971	Internship and Capstone Seminar	12

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices and where options are available.

First Year			
Fall	CR	Spring	CR
LTC 1100		1 LTC 2200	3
ENGLSH 1000		3 General Education Math Requirement	3
American History or Government		3 Humanities	3
ESC_PS 2000 (Social Science)		3 Elective	3
Humanities		3 Elective	3
		13	15
Second Year			
Fall	CR	Spring	CR
ESC_PS 2010 or LTC 2040 (Social Science)		3 ESC_PS 2010 or LTC 2040 (Social Science)	3

ESC_PS 2014 or LTC 2044	1 ESC_PS 2014 or LTC 2044	1
IS_LT 2467	3 Lab Science	3
Biological, Physical, Mathematical Science	3 Humanities	3
Biological, Physical, Mathematical Science	3 H_D_FS 3150W	3
	Elective	2
	13	15

Third Year			
Fall	CR	Spring	CR
LTC 4110		3 LTC 4170	3
LTC 4120		3 LTC 4971	3
LTC 4124		3 LTC 4140	3
LTC 4210		3 LTC 4150	3
LTC 4250		2 ED_LPA 4060	3
LTC 4460		3 SPC_ED 4020	3
		17	18

Fourth Year			
Fall	CR	Spring	CR
LTC 4091		3 LTC 4971	12
LTC 4240		2	
LTC 4134		3	
LTC 4130		9	
		17	12

Total Credits: 120

## Educational, School, and Counseling Psychology

ESCP provides a diverse, supportive, and caring environment for students. Our faculty members create rich and stimulating learning opportunities through their teaching, research, and service. Our faculty are more than academic advisors and teachers - they are mentors providing students with role models featuring the scientist-practitioner model.

### Faculty

**Professor** D. Bergin\*\*, L. Flores\*\*, K. Herman\*\*, M. Martens\*\*, W. M. Reinke\*\*, T. Riley-Tillman\*\*

**Associate Professor** F. Huang\*\*, P. Rottinghaus\*\*, F. Sanchez\*\*, Z. Wang\*\*, S. Whitney\*\*,

**Assistant Professor** W. Bonifay\*\*, Y. Kim\*\*, S., Owens\*\*, C. Slaten\*\*, W. Wiedermann\*\*, S. Holmes\*\*, S. McClain\*\*

**Associate Teaching Professor** K. Boggs\*, C. A. Offutt\*\*

**Assistant Teaching Professor** B. Beasley\*, M. Easter\*\*, G. Sullivan\*\*

**Clinical Professor** A. J. Knoop\*\*

**Dean of Education** K. Chval

**Professor Emeritus** J. W. Alspaugh, R. B. Caple, R. Cox, R. A. English, N. Gysbers, M. Heppner, P. Heppner, J. A. Johnston Jr., J. T. Kunce, J. F. McGowan, S. J. Osterlind, M. J. Patton, R. W. Thoreson, R. R. Trimble, J. Wedman, R. L., F. E. Wellman, V. R. Wheeler, B. Williamson.

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

While MU does not offer undergraduate degrees specifically in educational and counseling psychology, the University does offer baccalaureate opportunities in a number of related areas, both within the College of Education, and in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 20).

## Graduate

- MA in Educational, School, and Counseling Psychology (p. 421)
  - with emphasis in Counseling Psychology (p. 421)
  - with emphasis in Educational Psychology (p. 422)
  - with emphasis in Health Education and Promotion (p. 423) (not accepting applications)
  - with emphasis in School Psychology (p. 424)
  - with emphasis in Statistics, Measurement, and Evaluation in Education (p. 425)
- MEd in Educational, School, and Counseling Psychology (p. 426)
  - with emphasis in Career Counseling Psychology (p. 426)
  - with emphasis in Counseling Psychology (p. 427)
  - with emphasis in Educational Psychology (p. 428)
  - with emphasis in Health Education and Promotion (p. 429) (not accepting applications)
  - with emphasis in Mental Health Practices in Schools (p. 430)
  - with emphasis in Positive Coaching and Athletic Leadership (p. 431)
  - with emphasis in School Counselor, Elementary, Certification (p. 433)
  - with emphasis in School Counselor, Elementary and Secondary, Certification (p. 434)
  - with emphasis in School Counselor, Secondary, Certification (p. 435)
  - with emphasis in School Psychology (p. 436)
  - with emphasis in Sport Psychology (p. 437) (not accepting applications)
  - with emphasis in Statistics, Measurement, and Evaluation in Education (p. 438)
- EdSp in Educational, School, and Counseling Psychology (p. 439)
  - with emphasis in Counseling Psychology (p. 439)
  - with emphasis in Mental Health Practices in Schools (p. 440)
  - with emphasis in School Psychology, Certification (p. 441)
- PhD in Educational, School, and Counseling Psychology (p. 442)
  - with emphasis in Counseling Psychology (p. 442)
  - with emphasis in Educational Psychology (p. 443)
  - with emphasis in Health Education and Promotion (p. 445) (not accepting applications)
  - with emphasis in School Psychology, Certification (p. 445)
  - with emphasis in Statistics, Measurement, and Evaluation in Education (p. 446)

16 Hill Hall  
 573-882-7732  
<https://education.missouri.edu/educational-school-counseling-psychology/>

**Chair:** David Bergin, Ph.D.

## About the Program

The PhD programs in counseling psychology and school psychology is accredited by the American Psychological Association. The 2005 Faculty Scholarly Productivity Index ranked MU's graduate program in counseling psychology 4th in the nation and the 2018 U.S. News & World Report ranked it 3rd nationally.

Our faculty members create a rich and stimulating learning environment for students through their teaching, research, and service. ESCP has centers that provide students and faculty with many opportunities to collaborate on research and service-related projects while focusing on improving life for learners in all environments.

## Career Opportunities

Our graduates find employment in a wide range of settings, including colleges and universities, public schools, agencies, clinics, hospitals, business and industry, research laboratories and government service. Occupations include, but are not limited to, school counselors, licensed professional counselors, faculty members, school psychologists, psychometricians, health educators and educational researchers.

## Application Deadlines

- Fall Deadline: December 1st for Counseling and School Psychology Doctoral programs
- Fall Deadline: January 15th for Educational Psychology and Statistics, Measurement, and Evaluation in Education (SMEE)
- Fall Deadline: February 1st for Counseling Psychology Masters programs
- M Ed in Ed Psych/Student Learning and Well-being focus (online degree) - rolling admission
- M Ed, EdSp in Mental Health Practices in Schools (online degrees) - rolling admission
- M Ed in Positive Coaching (online degree) - rolling admission
- Graduate Certificate in Multicultural Education - rolling admission
- Graduate Certificate in Positive Psychology - rolling admission
- Graduate Certificate in Quantitative Research - rolling admission

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program Web site or ask the program contact for details.

## MA in Educational, School, and Counseling Psychology

### Degree Requirements

The MA in Educational, School, and Counseling Psychology has several emphasis areas for a student to choose from: Counseling Psychology (p. 421), Educational Psychology (p. 422), School Psychology (p. 424), and Statistics, Measurement, and Evaluation in Education

(p. 425). A student must select an emphasis area to complete the degree.

## Admission Criteria

- Minimum GPA: 3.0
- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
92	580

- Recommended GRE scores:

When did you take the GRE?	Verbal + Quantitative	Analytical
On or After August 1, 2015	305	4.0

## Application Deadlines

- Fall deadline:
  - December 1st Counseling Psychology and School Psychology Doctoral programs
  - January 15th Educational Psychology and Statistics, Measurement, and Evaluation in Education (SMEE)
  - February 1st Counseling Psychology Masters programs

**Note:** If an applicant is admitted but does not hold a bachelor's degree in a related discipline or does not have relevant background course work, the applicant must complete prerequisite courses as specified by the faculty of the department.

## Required Application Materials

*To the Graduate School:*

- All required Graduate School documents
- Official transcripts
- GRE scores
- TOEFL scores
- 3 letters of recommendation via the online application
- Personal statement and vitae via online application per departmental requirements

## Admission Contact Information

Brooke Hartman (Hartmanem@missouri.edu)  
 16 Hill Hall; Columbia, MO 65211  
 573-882-7738

## MA in Educational, School, and Counseling Psychology with Emphasis in Counseling Psychology

### Degree Requirements

The MU Masters program in Counseling Psychology provides students training and education in the scientist-practitioner philosophy that is consistent with most Counseling Psychology Ph.D. programs, including the one at MU. Students will complete core coursework in counseling psychology and receive clinical training in the form of practicum experience and research training through faculty labs, research teams,

and other research projects. They will also be required to complete an independent research manuscript during their second year in the program. This program has more of a research focus than most counseling masters programs. The program is not designed for students interested exclusively in practicing at the masters level, and students who graduate from this program will not yet be license-eligible for a LPC in the state of Missouri (this would require additional coursework and training).

<b>GENERAL PSYCHOLOGY CORE</b>		<b>30</b>
The Helping Relationship		3
ESC_PS 8040	Counseling Methods and Practices	
Social and Cultural Foundations		3
ESC_PS 9000	Multicultural Issues in Counseling	
Counseling Theory		3
ESC_PS 7120	Theories and Techniques of Counseling	
ESC_PS 8060	Lifespan Development	
Career Development		3
ESC_PS 8135	Foundations of Career Psychology	
Professional Orientation		3
ESC_PS 8070	Ethical and Legal Issues in Psychological Practice	
Group Dynamics		3
ESC_PS 8110	Methods in Group Counseling	
Appraisal		6
ESC_PS 8082	Foundations of Educational and Psychological Measurement	
ESC_PS 8640	Interviewing, Diagnosis, and Assessment	
Statistics		3
ESC_PS 7170	Introduction to Applied Statistics	
<b>COUNSELING PSYCHOLOGY CORE</b>		<b>21</b>
Research Methods		9
ESC_PS 8020	Overview of Research Methods	
ED_LPA 8957	Qualitative Methods in Educational Research I	
ED_LPA 9620	Qualitative Methods in Educational Research II	
ESC_PS 8850	Quantitative Foundations in Educational Research	
Independent Research		3
ESC_PS 8095	Research in Educational, School, and Counseling Psychology	
Practicum		3-6
ESC_PS 8940	Counseling Psychology Practicum ((Practicum I and II))	

## Sample Plan of Study

First Year					
Fall	CR	Spring	CR	Summer	CR
ESC_PS 7120	3	ESC_PS 8040	3	ESC_PS 8110	3
ESC_PS 8135	3	ESC_PS 8020	3		
ESC_PS 8082	3	ESC_PS 8070	3		
ESC_PS 8640	3	ESC_PS 8850	3		
	12		12		3
Second Year					
Fall	CR	Spring	CR		
ESC_PS 8090	3	ESC_PS 8060	3		
ED_LPA 8957	3	ESC_PS 8090	3		

ESC_PS 8940	3	ESC_PS 8940	6
ESC_PS 9000	3		
	12		12

Total Credits: 51

## Thesis/Non-Thesis Requirements

The thesis/research manuscript is a project that the student completes with his or her advisor and receives advisor approval. This project will serve as the student's comprehensive examination. Two additional committee members will be required to approve the project. The project can be either a comprehensive literature review (i.e., modeled after a review article one would see in a scholarly journal) or an independent research study written in manuscript form (i.e., introduction, method, results, discussion) or traditional thesis format. The topic of the project should be selected by the beginning of the student's second year in the program. The project is to be completed by the deadline date for comprehensive examinations, dissertations, and thesis in April of the student's second year.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MA in Educational and Counseling Psychology program (<https://gradstudies.missouri.edu/degrecategory/educational-school-and-counseling-psychology/>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

## MA in Educational, School, and Counseling Psychology with Emphasis in Educational Psychology

The Educational Psychology program is committed to the dissemination and development of knowledge and skills in human learning and cognition, development, and motivation. We use quantitative and qualitative methods to study how people's thinking, motivation, and behavior change across time. We study how different social settings like classroom, family, work, and peers affect people's well-being, learning, and behavior. The study of educational psychology is relevant to teachers, coaches, athletes, nurses, counselors, software developers, trainers, social workers, program evaluators, and administrators.

Educational psychologists attempt to understand how:

- to improve learning, academic achievement, and motivation to improve human performance
- development influences learning and well-being
- society influences learning and behavior
- school influences students' development in other settings

## Degree Requirements

The master's degree program requires at least 33 credit hours. Students enrolled in the MA do a thesis or research manuscript that demonstrates research competence and includes an oral defense of the paper. The MA is the preferred degree for students who intend to pursue a PhD.

Master's students must have completed or plan to complete 15 hours of *prerequisite* course work as listed below. The prerequisite coursework is over and above that required for the master's degree itself, and thus cannot be counted on the Program of Study for the master's degree. Many students will have completed these prerequisites in their undergraduate programs.

- 1. Statistics:** A course in statistics covering descriptive statistics, correlation, t-tests, and chi-square. If undergraduate coursework does not include an introductory level course in statistics, ESC\_PS 4170/ESC\_PS 7170 must be taken to satisfy this prerequisite, but it then cannot count on the Program of Study.
- 2. Psychological Theory:** Two courses in psychological theory (not including the introductory course in psychology), for example, personality, social, developmental, or learning.
- 3. Additional courses:** Two additional courses in education, psychology, or sociology.

### Required Coursework

Research		9
ESC_PS 8020	Overview of Research Methods	
ESC_PS 8850	Quantitative Foundations in Educational Research	
ESC_PS 8082	Foundations of Educational and Psychological Measurement	
Psychological Foundations		9
ESC_PS 8060	Lifespan Development	
ESC_PS 8320	Advanced Human Learning	
ESC_PS 8355	Cognition and Emotion	
ESC_PS 9450	Motivation	
Human Diversity		3
Relevant Course		
General Electives		12
For MA with thesis or manuscript, 6 hours of these courses must be ESC_PS 8090. Elective courses can be taken from Educational, School, & Counseling Psychology or from other departments such as Human Development and Family Studies, Psychological Sciences, or Information Science and Learning Technology.		

## Sample Plan of Study

The plan of study will depend on the student's career goals and research interests and should be completed in consultation with the advisor.

## Thesis/Non-Thesis Requirements

After working with the academic advisor on developing a thesis proposal, the student meets with the thesis committee to obtain approval. This happens before data collection begins. After the project is completed, the student submits a written thesis and defends the thesis to the committee. The defense can occur only when MU is officially in session.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MA in Educational, School, and

Counseling Psychology program (<https://gradstudies.missouri.edu/degreecategory/educational-school-and-counseling-psychology/>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility, and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

## MA in Educational, School, and Counseling Psychology with Emphasis in Health Education and Promotion

Health Education is a strong graduate program within the Department of Educational and Counseling Psychology. The graduate program serves bachelors and masters degreed students from the state of Missouri as well as from other states. Many of our graduate students are professionals practicing in the field and come to MU for graduate training. A number of our graduate students cross train in health related fields like athletics, nursing, nutrition, physical training, physical therapy, occupational therapy, and psychology.

## Degree Requirements

Students who earned a bachelor's degree in a health-related program of study are qualified to enter the masters program in health education. A minimum of 30 credit hours are required for the M.A. M.A. students are required to write a thesis. Students who earn a master's degree are encouraged to take the CHES (Certified Health Education Specialist) examination for certification.

<b>Foundations Core Courses</b>		6
ESC_PS 4185/7185	Health Behavior: Drug and Sexuality Education	
ESC_PS 8185	Health Promotion	
<b>General Core Courses</b>		
Health Area Courses		
Statistics and Research Methodology		
ESC_PS 8020	Overview of Research Methods	
ESC_PS 7170	Introduction to Applied Statistics	
<b>Individual Studies</b>		9
Individual Studies are electives related to student's area of expertise.		

## Sample Plan of Study

Fall	CR	Spring	CR
ESC_PS 4185		3 ESC_PS 8020	3
ESC_PS 8185		3 ESC_PS 7170	3
ESC_PS 8515		3 ESC_PS 8240	3
		9	9

Total Credits: 18



## Thesis/Non-Thesis Requirements

All MA students are required to complete a Thesis in the last semester of the program.

## Admissions

This program is not accepting applications at this time.

# MA in Educational, School, and Counseling Psychology with Emphasis in School Psychology

## Degree Requirements

The Masters of Arts (M.A.) program in School Psychology is completed concurrently with the Doctoral (Ph.D.) program in School Psychology.

The M.A. program itself is not a terminal degree program. Students admitted to the Doctoral program in School Psychology (Ph.D.) who have already completed an advanced degree in School Psychology or a related field, including completion of a data-based graduate level research project, may not be required to complete a Masters of Education (M.A.) program in School Psychology. Students admitted to the Ph.D. degree program typically complete degree requirements (coursework and comprehensive examination) for the Masters of Arts by the end of their second year in the program. Students admitted to the M.A./Ph.D. programs in School Psychology are prepared to support the learning, behavior, and mental health of youth and their families as well as support the enhancement of the educational and mental health systems that serve those children and families. Through coursework as well as research, clinical, and teaching experiences, graduates are prepared to serve as leaders in clinical settings as well as researcher/scholars in higher education settings. Completion of the M.A. program alone does not lead to licensure as a Psychologist nor state certification as a School Psychologist; however, graduates of both the M.A. and Ph.D. programs are eligible for licensure as a Psychologist and state certification as a School Psychologist, pending completion of additional examinations specified in their intended jurisdiction.

### General Core 26

ESC_PS 8082	Foundations of Educational and Psychological Measurement
ESC_PS 8095	Research in Educational, School, and Counseling Psychology
or ESC_PS 8090	Master's Thesis in Educational, School, and Counseling Psychology
ESC_PS 8125	Professional Iss. in Sch. Psych. I:Hist., Trends & Ethical Pract.
ESC_PS 8100	Psychological Assessment of Children and Adolescents: Cognitive Assessment
ESC_PS 8140	Psychological Assessment in Children and Adolescents: Behavior and Social Emotional Assessment
ESC_PS 8145	Psychological Interventions with Children and Adolescents: Behavioral Intervention
ESC_PS 8160	Psychological Interventions with Children and Adolescents: Educational Instruction
ESC_PS 8250	School Psychology Practicum: Introduction

### Psychological Foundations (select from the following): 6

ESC_PS 8060	Lifespan Development
ESC_PS 8070	Ethical and Legal Issues in Psychological Practice
ESC_PS 8355	Cognition and Emotion
ESC_PS 8530	Developmental Psychopathology and Exceptionality
ESC_PS 9000	Multicultural Issues in Counseling
ESC_PS 9030	Social Bases of Behavior
ESC_PS 9060	Advanced History and Systems of Psychology
ESC_PS 9080	Biological Basis of Behavior

## Sample Plan of Study

First Year			
Fall	CR	Spring	CR
ESC_PS 8082		3 ESC_PS 8100	3
ESC_PS 8125		3 ESC_PS 8145	3
ESC_PS 8140		3 ESC_PS 8160	3
ESC_PS 8250		1 ESC_PS 8250	1
		ESC_PS 9000	3
			13
		10	
Second Year			
Fall	CR	Spring	CR
ESC_PS 8095		3 ESC_PS 8095	3
ESC_PS 8530		3	
			3
		6	

Total Credits: 32

## Thesis/Non-Thesis Requirements

Students are required to complete a data-based research project in order to earn their M.A. in School Psychology. Students have two options, the master's thesis or the master's manuscript, both requiring similar scholarly and scientific rigor to their project. The thesis option requires that students comply with the graduate school expectations for committee membership and formatting, while the manuscript option does not. Students taking the latter option often format their manuscript for publication in professional journals.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MA in Educational, School, and Counseling Psychology program (<https://gradstudies.missouri.edu/degreecategory/educational-school-and-counseling-psychology/>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility, and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

# MA in Educational, School, and Counseling Psychology with Emphasis in Statistics, Measurement, and Evaluation in Education

## Degree Requirements

The Statistics, Measurement, and Evaluation in Education program offers courses in applied statistics, from the quantitative foundations of educational research to advanced methods such as multivariate statistics, multilevel modeling, and latent variable modeling. We also offer a number of courses in educational measurement, covering topics such as classical test theory, item response theory, and generalizability theory. In addition, our students have the opportunity to take a wide range of advanced statistics and quantitative methods courses, from probability, sampling methodology, and categorical data analysis to stochastic theory, time series analysis, Bayesian statistics, and other cutting-edge quantitative techniques. We train our students in various statistical software programs including SPSS, SAS, R, Mplus, Amos, HLM, and BILOG-MG. Our students also take courses in learning theories, aspects of human development, and program evaluation.

### I. General Core Courses 21

Core Statistics and Measurement Courses		12
ESC_PS 7170	Introduction to Applied Statistics	
ESC_PS 8020	Overview of Research Methods	
ESC_PS 8082	Foundations of Educational and Psychological Measurement	
ESC_PS 8850	Quantitative Foundations in Educational Research	
Core General Courses		9
ESC_PS 8957	Qualitative Methods in Educational Research I	
Human Learning (Relevant Course)		
Human Diversity (Relevant Course)		

### II. Research Methods Emphasis Area 12

Courses in this area may vary. Possible courses include:

ESC_PS 8655	Item Response Theory
ESC_PS 8087	Seminar in Educational, School, and Counseling Psychology
ESC_PS 8690	Educational Planning and Evaluation
ESC_PS 8860	Statistical Data Management and Analysis in Educational Research
ESC_PS 9660	Generalized Linear Modeling
ESC_PS 9710	Structural Equation Modeling
ESC_PS 9720	Hierarchical Linear Modeling

Selected graduate level courses in the Psychology Department with advisor approval (e.g. latent variable models in statistical analyses, categorical data analysis)

Selected graduate level courses from the Statistics Department with advisor approval (e.g. Bayesian statistics, nonparametric statistics). NOTE: MA with thesis or manuscript, 6 hours of these courses must be ESC\_PS 8090.

## Sample Plan of Study

The plan of study will depend on the student's career goals and research interests and should be completed in consultation with the Master's Committee.

## Thesis/Comprehensive Exam Requirements

The student will consult with the academic advisor about whether to complete a thesis or comprehensive exam.

If choosing a thesis, students work with the academic advisor on developing a thesis proposal, and the student then meets with the Master's program committee to obtain approval of the written thesis proposal. This happens before data collection begins. After the project is completed, the student submits a written thesis and defends the thesis to the Master's program committee. The defense can occur only when MU is officially in session.

If choosing a comprehensive exam, the student must complete: 1) Demonstration of Knowledge via a written exam; and 2) Oral Exam on the Demonstration of Knowledge exam.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MA in Educational, School, and Counseling Psychology program (<https://gradstudies.missouri.edu/degreecategory/educational-school-and-counseling-psychology/>) and the minimum requirements of the Graduate School (<https://gradschool.missouri.edu/admissions/eligibility-process/>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

Apply online by submitting the following documents using the MU Graduate School (<http://gradstudies.missouri.edu/admissions/apply/>) application form by January 15<sup>th</sup> for the next Fall cohort.

- Three letters of recommendation
- Curriculum Vita
- Official academic transcripts of all previous undergraduate and graduate work
  - a. Minimum undergraduate GPA of 3.0 from an accredited institution in psychology, education, statistics, or a related major.
- Statement of purpose addressing the following:
  - a. Describe (1) your research interests that you hope to pursue in graduate school, (2) your career objectives, and (3) how being accepted into MU's program will benefit your career aspirations.
  - b. Describe interests or experience in designing empirical studies and/or analyzing empirical data. (500 words max.)
  - c. Describe interest or experiences that demonstrate your potential in applied, theoretical, and/or computational statistics that you believe distinguish you as a candidate for graduate study. (250 words max.)
- Official Graduate Record Examination (GRE) scores (preferred Verbal score > 151 and Quantitative score > 155)

- TOEFL for international students (preferred score of 580 for paper test, 92 iBT, IELTS 6.5 or higher)

## MEd in Educational, School, and Counseling Psychology

### Degree Requirements

The MEd in Educational, School, and Counseling Psychology has several emphasis areas for a student to choose from. Please see the degree offerings (p. 420) page for information. A student must select an emphasis area to complete the degree.

### Admission Criteria

- Minimum GPA: 3.0
- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
92	580

- Recommended GRE scores:

When did you take the GRE?	Verbal + Quantitative	Analytical
On or after August 1, 2015	305	4.0

Recommended Analytic Writing score = 4

### Application Deadlines

- Fall deadline:
  - December 1st Counseling Psychology and School Psychology Doctoral programs
  - January 15th Educational Psychology and Statistics, Measurement, and Evaluation in Education (SMEE)
  - February 1st Counseling Psychology Masters programs

**Note:** If an applicant is admitted but does not hold a bachelor's degree in a related discipline or does not have relevant background course work, the applicant must complete prerequisite courses as specified by the faculty of the department.

### Required Application Materials

To the Graduate School:

- All required Graduate School documents
- Official transcripts
- GRE scores
- TOEFL scores
- 3 letters of recommendation via the online application
- Personal statement and vitae via online application per departmental requirements

### Admission Contact Information

Brooke Hartman (Hartmanem@missouri.edu)  
 16 Hill Hall; Columbia, MO 65211  
 573-882-7738

## MEd in Educational, School, and Counseling Psychology with Emphasis in Career Counseling Psychology

Career Psychology provides the theoretical basis for this program. It prepares one to practice in a variety of settings, most notably college career or advising centers, other student affairs settings, or business settings where there may be opportunity for defining or developing career roles for students or employees. MU's Career Center is where students practice what is learned in classes making this a strong scientific-practitioner model of training. This program was designed to move one toward qualifying a student to meet most but not all of the State of Missouri's curricular requirements for Licensure as a Professional Counselor (LPC). In addition to completing course work beyond what is required for this degree, the graduate must also complete 3000 hours of supervised counseling and pass a licensure examination.

### Degree Requirements

General Psychology Core		30
The Helping Relationship		3
ESC_PS 8040	Counseling Methods and Practices	
Social and Cultural Foundations		3
ESC_PS 9000	Multicultural Issues in Counseling	
Counseling Theory		3
ESC_PS 7120	Theories and Techniques of Counseling	
Career Development		3
ESC_PS 8060	Lifespan Development	
ESC_PS 8135	Foundations of Career Psychology	
Professional Orientation		3
ESC_PS 8070	Ethical and Legal Issues in Psychological Practice	
Group Dynamics		3
ESC_PS 8110	Methods in Group Counseling	
Appraisal		6
ESC_PS 8082	Foundations of Educational and Psychological Measurement	
ESC_PS 8640	Interviewing, Diagnosis, and Assessment	
Statistics		3
ESC_PS 7170	Introduction to Applied Statistics	
Counseling Psychology Core		21
Career & Organizational		9
ESC_PS 7087	Seminar in Educational, School, and Counseling Psychology	
ESC_PS 9570	Psychological Consultation: Organizations	
ESC_PS 8400	Analysis of Research in Career Psychology	
Practicum		3-6
ESC_PS 8940	Counseling Psychology Practicum	
ESC_PS 8940	Counseling Psychology Practicum	
Electives		6-9

## Sample Plan of Study

First Year					
Fall	CR	Spring	CR	Summer	CR
ESC_PS 9000	3	ESC_PS 8040	3	ESC_PS 8070	3
ESC_PS 7120	3	ESC_PS 8640	3		
ESC_PS 8135	3	ESC_PS 7170	3		
ESC_PS 8082	3	ESC_PS 7200	3		
		12	12		
Second Year					
Fall	CR	Spring	CR		
ESC_PS 8110	3	ESC_PS 8060	3		
ESC_PS 8940	3-9	ESC_PS 8400	3		
		ESC_PS 8940	3-9		
		ESC_PS 9570	3		
		6-12	12-18		

Total Credits: 45-57

## Thesis/Non-Thesis Requirements

Students are required to pass the National Counselor Examination in Fall or Spring semester of the second year to demonstrate they have gained the requisite knowledge for the profession.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Educational, School & Counseling Psychology program (<https://gradstudies.missouri.edu/degrecategory/educational-school-and-counseling-psychology/>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>).

Apply online by submitting the following documents using the MU Graduate School (<https://applygrad.missouri.edu/apply/>) application by February 1st for the next Fall cohort.

- Three letters of recommendation
- Curriculum Vita
- Official academic transcripts of all previous undergraduate and graduate work
  - Minimum undergraduate GPA of 3.0 from an accredited institution in psychology, education, or a related major.
- Statement of purpose addressing the following:
  - Describe interests and experiences working with people from diverse backgrounds (e.g. ethnic, cultural, socio-economic, religious, ability status, sexual orientation). How have these experiences influenced you? (250 word maximum).
  - Describe experiences that demonstrate your potential for leadership that you believe distinguish you as a candidate for graduate study. (250 word maximum)
  - Describe (1) your previous experience serving in a helping or counseling role, (2) your interests and career objectives, (3) how these interests and career objectives have developed, (4) how these interests match those of specific program faculty, and (5) how being accepted into the program of your choice will benefit your career aspirations and help you act upon your beliefs, goals, and philosophy. (Please limit to 1000 words)

- Official Graduate Record Examination (GRE) scores for tests taken on or after August 1, 2015 should have a combined Verbal and Quantitative score of 305.
- TOEFL for international students (preferred score of 580 for paper test, 92 iBT, IELTS 6.5 or higher)

Applicants with a bachelor's degree in a field not related to psychology will be required to complete 15 hours of prerequisite courses in the behavioral sciences (including an introductory statistics course) either prior to, or concurrently with, coursework in the program. This prerequisite coursework is over and above that required for the master's degree itself and is not counted on the Program of Study for the master's degree.

## MEd in Educational, School, and Counseling Psychology with Emphasis in Counseling Psychology

The MU Masters program in Counseling Psychology provides students training and education in the scientist-practitioner philosophy that is consistent with most Counseling Psychology Ph.D. programs, including the one at MU. Students will complete core coursework in counseling psychology and receive clinical training in the form of practicum experience and research training through faculty labs, research teams, and other research projects. They will also be required to complete an independent research manuscript during their second year in the program. This program has more of a research focus than most counseling masters programs. The program is not designed for students interested exclusively in practicing at the masters level, and students who graduate from this program will not yet be license-eligible for a LPC in the state of Missouri (this would require additional coursework and training).

## Degree Requirements

General Psychology Core		30
The Helping Relationship		3
ESC_PS 8040	Counseling Methods and Practices	
Social and Cultural Foundations		3
ESC_PS 9000	Multicultural Issues in Counseling	
Counseling Theory		3
ESC_PS 7120	Theories and Techniques of Counseling	
ESC_PS 8060	Lifespan Development	
Career Development		3
ESC_PS 8135	Foundations of Career Psychology	
Professional Orientation		3
ESC_PS 8070	Ethical and Legal Issues in Psychological Practice	
Group Dynamics		3
ESC_PS 8110	Methods in Group Counseling	
Appraisal		6
ESC_PS 8082	Foundations of Educational and Psychological Measurement	
ESC_PS 8640	Interviewing, Diagnosis, and Assessment	
Statistics		3
ESC_PS 7170	Introduction to Applied Statistics	
<b>Counseling Psychology Core</b>		<b>21</b>

Research Methods		9
ESC_PS 8020	Overview of Research Methods	
ED_LPA 8957	Qualitative Methods in Educational Research I	
ESC_PS 8850	Quantitative Foundations in Educational Research	
ED_LPA 9620	Qualitative Methods in Educational Research II	
Independent Research		3
ESC_PS 8095	Research in Educational, School, and Counseling Psychology	
Practicum		3-6
ESC_PS 8940	Counseling Psychology Practicum	
ESC_PS 8940	Counseling Psychology Practicum	
Electives		6-9

## Sample Plan of Study

First Year					
Fall	CR	Spring	CR	Summer	CR
ESC_PS 9000	3	ESC_PS 8040	3	ESC_PS 8070	3
ESC_PS 7120	3	ESC_PS 8640	3		
ESC_PS 8135	3	ESC_PS 7170	3		
ESC_PS 8082	3	ESC_PS 8020	3		
	12		12		3
Second Year					
Fall	CR	Spring	CR		
ESC_PS 8110	3	ESC_PS 8060	3		
ESC_PS 8940	3-9	ESC_PS 8095	3-6		
ED_LPA 8957	3	ESC_PS 8940	3-9		
		Elective	3		
	9-15		12-21		

Total Credits: 48-63

## Thesis/Non-Thesis Requirements

Students are required to pass the National Counselor Examination in Fall or Spring semesters of the second year to demonstrate they have gained the requisite knowledge for the profession.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Educational, School & Counseling Psychology program (<https://gradstudies.missouri.edu/degrecategory/educational-school-and-counseling-psychology/>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>).

Apply online by submitting the following documents using the MU Graduate School (<https://applygrad.missouri.edu/apply/>) application form by February 1st for the next Fall cohort.

- Three letters of recommendation
- Curriculum Vita
- Official academic transcripts of all previous undergraduate and graduate work
  - Minimum undergraduate GPA of 3.0 from an accredited institution in psychology, education, or a related major.
- Statement of purpose addressing the following:

- Describe interests and experiences working with people from diverse backgrounds (e.g. ethnic, cultural, socio-economic, religious, ability status, sexual orientation). How have these experiences influenced you? (250 word maximum).
  - Describe experiences that demonstrate your potential for leadership that you believe distinguish you as a candidate for graduate study. (250 word maximum)
  - Describe (1) your previous experience serving in a helping or counseling role, (2) your interests and career objectives, (3) how these interests and career objectives have developed, (4) how these interests match those of specific program faculty, and (5) how being accepted into the program of your choice will benefit your career aspirations and help you act upon your beliefs, goals, and philosophy. (Please limit to 1000 words)
- Official Graduate Record Examination (GRE) scores for tests taken on or after August 1, 2015 should have a combined Verbal and Quantitative score of 305.
  - TOEFL for international students (preferred score of 580 for paper test, 92 iBT, IELTS 6.5 or higher)

Applicants with a bachelor's degree in a field not related to psychology will be required to complete 15 hours of prerequisite courses in the behavioral sciences (including an introductory statistics course) either prior to, or concurrently with, coursework in the program. This prerequisite coursework is over and above that required for the master's degree itself and is not counted on the Program of Study for the master's degree.

## MEd in Educational, School, and Counseling Psychology with Emphasis in Educational Psychology

The Educational Psychology program is committed to the dissemination and development of knowledge and skills in human learning and cognition, development, and motivation. We use quantitative and qualitative methods to study how people's thinking, motivation, and behavior change across time. We study how different social settings like classroom, family, work, and peers affect people's well-being, learning and behavior. The study of educational psychology is relevant to teachers, coaches, athletes, nurses, counselors, software developers, trainers, social workers, program evaluators, and administrators.

Educational psychologists attempt to understand how:

- to improve learning, academic achievement, and motivation
- development influences learning and well-being
- society influences learning and behavior
- school influences students' development in other settings

## Degree Requirements

The master's degree program requires at least 33 credit hours. Students enrolled in the MEd take a 4 hour comprehensive exam at the end of the program unless in the online program. Master's students must have completed or plan to complete 15 hours of *prerequisite* course work as listed below. The prerequisite coursework is over and above that required for the master's degree itself, and thus cannot be counted on

the Program of Study for the master's degree. Many students will have completed these prerequisites in their undergraduate programs.

1. **Statistics:** A course in statistics covering descriptive statistics, correlation, t-tests, and chi-square. If undergraduate coursework does not include an introductory level course in statistics, ESC\_PS 4170/ESC\_PS 7170 must be taken to satisfy this prerequisite, but it then cannot count on the Program of Study.
2. **Psychological Theory:** Two courses in psychological theory (not including the introductory course in psychology), for example, personality, social, developmental, or learning.
3. **Additional courses:** Two additional courses in education, psychology, or sociology.

**Requirements**

Research		9
ESC_PS 8020	Overview of Research Methods	
ESC_PS 8082	Foundations of Educational and Psychological Measurement	
ESC_PS 8850	Quantitative Foundations in Educational Research	
Psychological Foundations		9
ESC_PS 8355	Cognition and Emotion	
ESC_PS 8060	Lifespan Development	
ESC_PS 8320	Advanced Human Learning	
ESC_PS 9450	Motivation	
Human Diversity (Relevant Course)		3
General Electives		12

For MA with thesis or manuscript, 6 hours of these courses must be 8090. Elective courses can be taken from Educational, School, & Counseling Psychology or from other departments such as Human Development and Family Science, Psychological Sciences, or Information Science and Learning Technology.

**Student Learning and Well-being (online)**

An online master's degree with a student learning and well-being focus is also available. The 33-hour program was developed with the working K-12 classroom teacher in mind. Course work is completely online and provides practical applications of learning theory, motivation, assessment of student well-being, mental health, issues of bullying, positive psychology, and the development of a safe and supportive school environment.

No GRE is required.

Complete program details (e.g., how to apply, course planner) are available at the **Student Learning and Well-being** website.

**Sample Plan of Study**

The plan of study will depend on the student's career goals and research interests and should be completed in consultation with the advisor.

**Thesis/Non-Thesis Requirements**

After working with the academic advisor on developing a thesis or project proposal, the student meets with his or her committee to obtain approval. This happens before data collection begins. After the project is completed, the student submits a written thesis and defends the thesis to the committee. The defense can occur only when MU is officially in session.

**Admissions**

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Educational, School & Counseling Psychology program (<https://gradstudies.missouri.edu/degreecategory/educational-school-and-counseling-psychology/>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>).

Apply online by submitting the following documents using the MU Graduate School (<https://applygrad.missouri.edu/apply/>) application form by January 15th for the next Fall cohort.

1. The three letters of recommendation
2. Curriculum Vita
3. Official academic transcripts of all previous undergraduate and graduate work
  - a. Minimum undergraduate GPA of 3.0 from an accredited institution in psychology, education, or a related major.
4. Statement of purpose addressing the following:
  - a. Describe experiences teaching, designing instruction, and engaging in research and how these experiences have prepared you for graduate study. (500 word maximum)
  - b. Describe (1) your research interests that you hope to pursue in graduate school (2) how these interests match those of specific faculty (3) your career objectives, and (4) how being accepted into MU's program will benefit your career aspirations. (Please limit to 500 words)
5. Official Graduate Record Examination (GRE) scores for tests taken on or after August 1, 2012 should have a combined Verbal and Quantitative score of 305.
6. TOEFL for international students (preferred score of 580 for paper test, 92 iBT, IELTS 6.5 or higher)

Applicants with a bachelor's degree in a field not related to psychology will be required to complete 15 hours of prerequisite courses in the behavioral sciences (including an introductory statistics course) either prior to, or concurrently with, coursework in the program. This prerequisite coursework is over and above that required for the master's degree itself and is not counted on the Program of Study for the master's degree.

**MEd in Educational, School, and Counseling Psychology with Emphasis in Health Education and Promotion**

**Our department is no longer admitting students to this emphasis area. We invite you to explore the other graduate degree options within Educational, School and Counseling Psychology (p. 420).**

Health Education is a strong graduate program within the Department of Educational and Counseling Psychology. The graduate program serves bachelors and masters degree students from the state of Missouri as well as from other states. Many of our graduate students are professionals practicing in the field, and come to MU for graduate training. A number of our graduate students cross train in health related fields like athletics,

nursing, nutrition, physical training, physical therapy, occupational therapy, and psychology.

## Degree Requirements

Students who earned a bachelor's degree in a health-related program of study are qualified to enter the masters program in health education. A minimum of 30 credit hours are required. The MEd Students who earn a master's degree are encouraged to take the CHES (Certified Health Education Specialist) examination for certification.

### Foundations Core Courses 6

ESC_PS 4185	Health Behavior: Drug and Sexuality Education
or ESC_PS 7185	Health Behaviors: Drug and Sexuality Education
ESC_PS 8185	Health Promotion

### General Core Courses

Health Area Courses	
Statistics and Research Methodology course	
ESC_PS 8020	Overview of Research Methods
ESC_PS 7170	Introduction to Applied Statistics

### Individual Studies 9

(Individual Studies are electives related to student's area of expertise)	
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## Sample Plan of Study

A student's plan of study will vary depending on their program track and career goals and should be completed in consultation with her/his academic advisor.

## Comprehensive Examination

The M.Ed. student is required to take a comprehensive examination during the last semester in the program.

## Admissions

This program is not accepting applications at this time.

# MEd in Educational, School, and Counseling Psychology with Emphasis in Mental Health Practices in Schools

The online Mental Health Practices in Schools (<http://online.missouri.edu/degreeprograms/education/mental-health-practices-in-schools/masters/>) program is intended for school personnel, educators and other community mental health professionals who work with children and adolescents in schools and community agencies. This includes elementary and secondary teachers, special education professionals, school counselors, school nurses, administrators, at-risk coordinators and resource officers, safety coordinators, substance abuse coordinators, speech/language pathologists, itinerant and migrant educators, and private practitioners.

Courses are designed to offer practical applications of psychological concepts and are taught by experts in the field. The program identifies and deals with issues that promote positive mental health of children and adolescents. Courses in the program provide a solid base to increase awareness, knowledge, and skills in areas such as:

- Identifying and assessing evidence-based prevention and intervention strategies and programs
- Communicating effectively with parents, children and school personnel
- Building resiliency and optimism in children and adolescents
- Increasing awareness of multicultural and diversity issues
- Understanding mental, emotional, and behavioral factors in youth
- Managing crisis interventions
- Applying wellness management for self and others
- Implementing positive behavior support and strategies in the classroom
- Collaborating with families and other school personnel

Note: This program does not provide school counselor certification, nor any professional counseling licensure.

Website: Mental Health Practices in Schools (<http://online.missouri.edu/degreeprograms/education/mental-health-practices-in-schools/masters/>).

## Degree Requirements

This is a 34 credit hour program. Students take 25 hours of required course work and 9 hours of electives.

### Required courses (25 credit hours)

ESC_PS 7160	Developmental Aspects of Human Learning	3
ESC_PS 7460	Foundations of School Mental Health	3
ESC_PS 8020	Overview of Research Methods	3
ESC_PS 8430	Mental, Emotional, and Behavioral Disorders in Youth	3
ESC_PS 8440	School Mental Health: Policy, Law and Ethics	3
ESC_PS 8450	Diversity Issues in School Mental Health	3
ESC_PS 8460	Communication and Collaboration with Children and Families	3
ESC_PS 8470	Preventions and Interventions in School Mental Health	3
ESC_PS 8490	Mental Health in Schools Capstone Paper	1

### Elective courses (9 credit hours)

ESC_PS 8087	Seminar in Educational, School, and Counseling Psychology (Empirically Supported Treatments and Interventions for Youth Mental Health)	3
ESC_PS 8087	Seminar in Educational, School, and Counseling Psychology (Understanding and Addressing Youth Trauma in Schools)	3
ESC_PS 8370	Social Emotional Learning	3
ESC_PS 8425	Effects of Maltreatment on Child and Adolescent Development	3
ESC_PS 8435	Wellness Management for School Personnel	3
ESC_PS 8445	Building Resiliency and Optimism in Youth	3
ESC_PS 8455	Bully and Youth Violence: Prevention and Reduction	3
ESC_PS 8465	Vital Issues in School Mental Health	3

ESC_PS 8475	Proactive Behavior Management	3
ESC_PS 8550	Diversity and Multiculturalism II - Practical Application	3
ESC_PS 8555	African American Education - Historic and Current Issues	3
ESC_PS 8560	Immigrant Issues in Education	3
ESC_PS 8565	Gay, Lesbian and Bisexual Issues in the Schools	3

**Additional Electives** are available through the other ESCP online programs (<http://online.missouri.edu/degreeprograms/escp.aspx>) with advisor approval.

## Thesis/Non-Thesis Requirements

### Capstone paper

The program requires a capstone integrative paper allowing students to demonstrate the knowledge, skills, and competencies acquired through the program's course work.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Educational, School, and Counseling Psychology program (below) and the minimum requirements of the Graduate School (<https://gradstudies.missouri.edu/admissions/eligibility-process/>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility, and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

### Admission Criteria (M Ed)

1. Successful completion of the baccalaureate degree at an accredited college/university.
2. 3.0 or better grade point average in the last 60 hours of baccalaureate coursework
3. TOEFL score: Minimum 580 (paper) or 92 (ibt). Applies to non-native English speaking applicants only. If the non-native English-speaking applicant has successfully completed one year of full-time post-secondary (college-level) study in a country where English is the native language within the past two years, then the TOEFL is waived .
4. GRE scores are NOT required.

### Application Process

1. Complete the online Graduate Admissions application (<https://gradstudies.missouri.edu/admissions/apply/>).
2. As part of the submission process, applicants are **required to upload UNOFFICIAL** copies of all transcripts to the online application. **NOTE:** If you are accepted by our academic program, you will then be asked to provide official copies of all transcripts to: Graduate School, University of Missouri, 210 Jesse Hall, Columbia, Missouri 65211.
3. Three letters of recommendation will need to be submitted via the online application. Each recommender will receive directions on how to submit the recommendation once you have entered their contact information in the application system.

4. You must also provide the following supplementary materials: Personal Statement and Vita/Résumé via the online Graduate Admissions application (<https://gradstudies.missouri.edu/admissions/apply/>). In your statement describe:
  - a. Your previous/current experience serving in a teaching, helping or counseling role,
  - b. Your interests and career objectives,
  - c. How these interests and career objectives have developed, and
  - d. How being accepted into the program will benefit your career aspirations and help you act upon your beliefs, goals, and philosophy. Include interests and experiences working with diverse groups (e.g. ethnic, cultural, socio-economic, religious, ability status, sexual orientation, grade levels, ages), leadership roles, or other skills or experiences (not previously mentioned) that you believe distinguish you as a candidate for graduate study. (Please limit to 1000 words).
5. If your native language is other than English, the Test of English as a Foreign Language (TOEFL (<http://www.toefl.org/>)) is required. Please send this to the Graduate School using school code 6875.
  - Please be sure to upload all supplemental materials **BEFORE** you submit the application.

### For applicants currently enrolled as graduate students at MU

1. Complete the Change of Degree (<http://gradstudies.missouri.edu/forms-downloads/repository/change-degree.pdf>) form.
2. Provide **unofficial** copies of your University of Missouri transcripts.
3. Provide 3 letters of recommendation.
4. Provide supplementary materials: Personal statement and Vita/Résumé.

Send application materials to David Lineberry (Lineberry@missouri.edu) or mail to the ESCP Dept., 16 Hill Hall, Columbia, MO 65211

**Application deadline: None - rolling admission.**

## MED in Educational, School, and Counseling Psychology with Emphasis in Positive Coaching and Athletic Leadership

The online Positive Coaching program (<http://online.missouri.edu/degreeprograms/education/positive-coaching/masters/>) is intended for all athletic coaches and sports coordinators who have completed a bachelor's degree program, and now wish to pursue their master's degree. The program is well-suited for athletic coaches at all levels of sport participation, as well as any individuals in educational or other settings, who provide instructional, leadership or counseling services to students or to others.

The required core courses focus on identifying and applying the most pertinent and impactful aspects of sport, coaching and positive psychology. The core courses also focus on leading individuals, teams and groups to experience the fulfillment and happiness associated with striving for and achieving excellence. Emphasis is on the understanding, skills and strategies of highly effective teaching, learning and leading.



The electives emphasize the development of professional knowledge and awareness of key topical issues and areas pertinent to preparing to serve as competent, caring and committed coaches for others. Course topics include:

- Administration of athletics programs
- Ethical and legal aspects of athletics
- Athlete training and conditioning
- Gender and multicultural issues in sports
- Positive coaching
- Positive interventions contributing to coordinated school health programs
- Healthier total school or organizational environments

## Degree Requirements

This is a 30 credit hour program. Students take 21 hours of required core course work and 9 hours of electives.

### Required Core Courses (21 hours, 7 courses)

ESC_PS 7195	Sport and Applied Coaching Psychology	3
ESC_PS 7200	Positive Psychology	3
ESC_PS 8195	Applied Positive Coaching	3
ESC_PS 8232	Foundations of Sport Performance *	3
or		
ESC_PS 8087	Seminar in Educational, School, and Counseling Psychology (Psychology of the Injured Athlete) *	
ESC_PS 8265	Administration of Athletic Programs	3
ESC_PS 8280	Gender Issues in Sport	3
ESC_PS 8300	Positive Leadership in Sport	3

\* If one course is taken as required, the other can be taken as an elective.

### Elective Courses (9 hours, 3 courses)

ESC_PS 8270	Student-Athlete Wellbeing	3
ESC_PS 8087	Seminar in Educational, School, and Counseling Psychology (Character and Ethics in Sport)	3
ESC_PS 8087	Seminar in Educational, School, and Counseling Psychology (Resiliency, Grit and Mental Toughness)	3
ESC_PS 7087	Seminar in Educational, School, and Counseling Psychology (Motivation and Positive Psychology)	3
ESC_PS 8200	Applied Positive Psychology	3
ESC_PS 8700	Life/Career Coaching and Development	3
ESC_PS 8710	Meaning In Work	3
ESC_PS 8720	Community and Stewardship	3

## Thesis/Non-Thesis Requirements

Students complete a project in the capstone course ESC\_PS 8300 Positive Leadership in Sport.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Educational and Counseling Psychology program (below) and the minimum requirements of the Graduate School (<https://gradstudies.missouri.edu/admissions/eligibility->

process/). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

### Admission criteria (M Ed)

1. Successful completion of the baccalaureate degree at an accredited college/university.
2. 3.0 or better grade point average in the last 60 hours of baccalaureate coursework.
3. TOEFL score: Minimum 580 (paper) or 92 (ibt). Applies to non-native English speaking applicants only. If the non-native English-speaking applicant has successfully completed one year of full-time post-secondary (college-level) study in a country where English is the native language within the past two years, then the TOEFL is waived.
4. GRE scores are NOT required.

### Application Process:

1. Complete the online Application to the Graduate School (<https://applygrad.missouri.edu/apply/>).
2. As part of the submission process, applicants are **required to upload UNOFFICIAL** copies of all transcripts to the online application. **NOTE:** If you are accepted by our academic program, you will then be asked to provide official copies of all transcripts to: Graduate School, University of Missouri, 210 Jesse Hall, Columbia, Missouri 65211.
3. One letter of recommendation will need to be submitted via the online application. The recommender will receive directions on how to submit the recommendation once you have entered their contact information in the application system.
4. If your native language is other than English, the Test of English as a Foreign Language (TOEFL (<http://www.toefl.org/>)) is required. Please send this to the Office of Graduate Studies using school code 6875.

**Note:** If your undergraduate GPA (last 60 hours) is below 3.0 additional information will be required.

Please be sure to upload all supplemental materials **BEFORE** you submit the application.

### For applicants currently enrolled as graduate students at MU:

1. Complete the Change of Degree (<http://gradstudies.missouri.edu/forms-downloads/repository/change-degree.pdf>) form.
2. Provide **unofficial** copies of your University of Missouri transcripts.
3. Provide one letter of recommendation.

Send application materials to Sandy Sites (SitesS@missouri.edu) or mail to the ESCP Dept., 16 Hill Hall, Columbia, MO 65211

**Application deadline: None - rolling admission.**

# MEd in Educational, School, and Counseling Psychology with Emphasis in School Counselor, Elementary, Certification

Students who select this specialty have an interest in working as elementary school, middle school, or high school counselors. The curriculum of this specialty is based on the scientist-practitioner model of training as well as the comprehensive school guidance and counseling program model, both of which emphasize the best in counseling psychology theory, research, and practice. The missions of the MU School Counseling Masters and Specialist degree programs are to prepare individuals to practice successfully as entry-level multiculturally sensitive professional school counselors in socially and economically diverse work settings.

## Degree Requirements

The specific courses that meet these requirements are as follows:

### I. General Psychology Core 9

ESC_PS 8060	Lifespan Development
ESC_PS 8070	Ethical and Legal Issues in Psychological Practice
ESC_PS 8082	Foundations of Educational and Psychological Measurement

### II. Counseling Psychology Core 21

ESC_PS 7120	Theories and Techniques of Counseling
ESC_PS 8135	Foundations of Career Psychology
ESC_PS 8110	Methods in Group Counseling
ESC_PS 8040	Counseling Methods and Practices (Secondary)
ESC_PS 8140	Psychological Assessment in Children and Adolescents: Behavior and Social Emotional Assessment
ESC_PS 8145	Psychological Interventions with Children and Adolescents: Behavioral Intervention (Elementary)
ESC_PS 8165	Psychological Interventions with Children and Adolescents: Evidence-Based Therapies (Elementary)

### III. Practicum 12

Secondary school counseling students must complete two practicums in a secondary school setting for a total of 9 semester hours. Elementary school counseling students must complete two practicums in an elementary school setting for a total of 9 semester hours. Students wishing all level certification are required to complete an additional 3 hours of practicum in the setting in which they did not previously complete a practicum plus complete all of the other coursework in both elementary and secondary school counseling.

ESC_PS 8940	Counseling Psychology Practicum
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### IV. Specialty Requirements 12

ESC_PS 7130	Parent Counseling and Consultation
ESC_PS 8410	School Guidance Programs
ESC_PS 8415	Program Evaluation for School Counselors
ESC_PS 9000	Multicultural Issues in Counseling

### V. Required Teacher Education courses to fulfill the State of Missouri requirements for School Counselor candidates who are not Certified Teachers

ESC_PS 2010	Inquiry Into Learning I
ESC_PS 2014	Inquiry into Learning I - Field Experience
SPC_ED 7020	Teaching the Exceptional Learner
SPC_ED 4310	Behavioral and Classroom Management

### VI. Credential Preparation

Candidates must apply for an official evaluation of their credentials in the Office of Certification, 102 Hill Hall prior to the completion of the last 15 hours of required course work.

### VII. Licensure, Certification and Registry

The courses in this planner are designed to meet the requirements of the Department of Educational, School, and Counseling Psychology (42 hours), the College of Education, and the University of Missouri Graduate School. They also fulfill state certification requirements to become entry-level professional school counselors, but do not fulfill requirements for state licensure as a psychologist or counselor, for certification as a marriage and family therapist, alcoholism counselor or other specialties, or certification by the National Board of Certified Counselors. If you wish to fulfill the requirements for licensure, certification or registry, you will need to inform yourself accordingly and add to your M.Ed. degree planner the additional coursework necessary. Information about psychologist and counselor licensure, certification, and registry in Missouri is available in Room 16 Hill Hall.

### VIII. Prerequisites to Master's Programs

In order to apply for any master's degree program in the Department of Educational, School, & Counseling Psychology, an applicant either must have completed or plan to complete 15 hours of prerequisite course work as indicated below:

Statistics. A course in statistics covering descriptive statistics, correlation, t-tests and Chi-square.

Psychological Theory. Two courses in psychological theory (not including the introductory course in psychology) for example: personality, social, developmental or learning.

Additional Courses. Two additional courses in education, psychology and/or sociology.

If you are deficient in one or more of these areas, you may still be admitted with the provision that you make up any prerequisites during your graduate enrollment. Such make-up work will not count toward the hours required for any degree.

### IV. Policy on Non-degree Graduate Students (NGS) for School Counseling

If admitted to an ESCP program, a NGS may apply up to 12 hours. The ONLY courses a NGS may take to apply to the Elementary and Secondary School Counseling program are:

ESC_PS 8060	Lifespan Development
ESC_PS 8135	Foundations of Career Psychology
ESC_PS 8082	Foundations of Educational and Psychological Measurement
ESC_PS 8410	School Guidance Programs

## Sample Plan of Study

First Year					
Fall	CR	Spring	CR	Summer	CR
ESC_PS 7120	3	ESC_PS 8040	3	ESC_PS 8070	3
ESC_PS 8135	3	ESC_PS 8060	3	ESC_PS 8110	3
ESC_PS 8140	3	ESC_PS 8165	3	ESC_PS 8410	3
ESC_PS 8415	3	SPC_ED 4310	3		
		12			9
			12		

Second Year			
Fall	CR	Spring	CR
ESC_PS 8082	3	ESC_PS 7130	3
ESC_PS 8415	3	ESC_PS 8165	3
ESC_PS 8940	6	ESC_PS 8145	3
ESC_PS 9000	3	ESC_PS 8940	6
15		15	

Total Credits: 63

## Thesis/Non-Thesis Requirements

Students will be required to complete state requirements for licensure, including the Missouri State Performance Task Assessment for School Counselors and the state licensure exam for school counselors.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Educational and Counseling Psychology program (<https://gradstudies.missouri.edu/degreecategory/educational-school-and-counseling-psychology/>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

# MEd in Educational, School, and Counseling Psychology with Emphasis in School Counselor, Elementary and Secondary, Certification

Students who select this specialty have an interest in working as elementary school, middle school, or high school counselors. The curriculum of this specialty is based on the scientist-practitioner model of training as well as the comprehensive school guidance and counseling program model, both of which emphasize the best in counseling psychology theory, research, and practice. The missions of the MU School Counseling Masters and Specialist degree programs are to prepare individuals to practice successfully as entry-level multiculturally sensitive professional school counselors in socially and economically diverse work settings.

## Degree Requirements

The specific courses that meet these requirements are as follows (42 credit hours):

I. General Psychology Core		6
ESC_PS 8060	Lifespan Development	
ESC_PS 8070	Ethical and Legal Issues in Psychological Practice	
ESC_PS 8082	Foundations of Educational and Psychological Measurement	
II. Counseling Psychology Core		21

ESC_PS 7120	Theories and Techniques of Counseling
ESC_PS 8135	Foundations of Career Psychology
ESC_PS 8110	Methods in Group Counseling
ESC_PS 8040	Counseling Methods and Practices (Secondary)
ESC_PS 8140	Psychological Assessment in Children and Adolescents: Behavior and Social Emotional Assessment
ESC_PS 8145	Psychological Interventions with Children and Adolescents: Behavioral Intervention (Elementary)
ESC_PS 8165	Psychological Interventions with Children and Adolescents: Evidence-Based Therapies (Elementary)

### III. Practicum 12

Secondary school counseling students must complete two practicums in a secondary school setting for a total of 9 semester hours. Elementary school counseling students must complete two practicums in an elementary school setting for a total of 9 semester hours. Students wishing all level certification are required to complete an additional 3 hours of practicum in the setting in which they did not previously complete a practicum plus complete all of the other coursework in both elementary and secondary school counseling.

ESC_PS 8940	Counseling Psychology Practicum (Elementary and Secondary School Counseling - Public Schools)
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### IV. Specialty Requirements 12

ESC_PS 7130	Parent Counseling and Consultation
ESC_PS 8410	School Guidance Programs
ESC_PS 8415	Program Evaluation for School Counselors
ESC_PS 9000	Multicultural Issues in Counseling

### V. Required Teacher Education courses to fulfill the State of Missouri requirements for School Counselor candidates who are not Certified Teachers

ESC_PS 2010	Inquiry Into Learning I
ESC_PS 2014	Inquiry into Learning I - Field Experience
SPC_ED 7020	Teaching the Exceptional Learner
SPC_ED 4310	Behavioral and Classroom Management

### VI. Credential Preparation

Candidates must apply for an official evaluation of their credentials in the Office of Certification, 102 Hill Hall prior to the completion of the last 15 hours of required course work.

### VII. Licensure, Certification and Registry

The courses in this planner are designed to meet the requirements of the Department of Educational, School, and Counseling Psychology (42 hours), the College of Education, and the University of Missouri Graduate School. They also fulfill state certification requirements to become entry-level professional school counselors, but do not fulfill requirements for state licensure as a psychologist or counselor, for certification as a marriage and family therapist, alcoholism counselor or other specialties, or certification by the National Board of Certified Counselors. If you wish to fulfill the requirements for licensure, certification or registry, you will need to inform yourself accordingly and add to your M.Ed. degree planner the additional coursework necessary. Information about psychologist and counselor licensure, certification, and registry in Missouri is available in Room 16 Hill Hall.

### VIII. Prerequisites to Master's Programs

In order to apply for any master's degree program in the Department of Educational, School, & Counseling Psychology, an applicant either must have completed or plan to complete 15 hours of prerequisite course work as indicated below:

Statistics. A course in statistics covering descriptive statistics, correlation, t-tests and Chi-square.

Psychological Theory. Two courses in psychological theory (not including the introductory course in psychology) for example: personality, social, developmental or learning.

Additional Courses. Two additional courses in education, psychology and/or sociology.

If you are deficient in one or more of these areas, you may still be admitted with the provision that you make up any prerequisites during your graduate enrollment. Such make-up work will not count toward the hours required for any degree.

#### IV. Policy on Non-degree Graduate Students (NGS) for School Counseling

If admitted to an ESCP program, a NGS may apply up to 12 hours. The ONLY courses a NGS may take to apply to the Elementary and Secondary School Counseling program are:

ESC_PS 8060	Lifespan Development
ESC_PS 8135	Foundations of Career Psychology
ESC_PS 8020	Overview of Research Methods
ESC_PS 8410	School Guidance Programs

### Sample Plan of Study

First Year					
Fall	CR	Spring	CR	Summer	CR
ESC_PS 7120	3	ESC_PS 8040	3	ESC_PS 8070	3
ESC_PS 8135	3	ESC_PS 8060	3	ESC_PS 8110	3
ESC_PS 8140	3	ESC_PS 8165	3	ESC_PS 8410	3
ESC_PS 8415	3	SPC_ED 4310	3	ESC_PS 2010	3
				ESC_PS 2014	1
		12			13
Second Year					
Fall	CR	Spring	CR		
ESC_PS 8082	3	ESC_PS 7130	3		
ESC_PS 8415	3	ESC_PS 8145	3		
ESC_PS 8940	6	ESC_PS 8165	3		
ESC_PS 9000	3	ESC_PS 8940	6		
		15			15

Total Credits: 67

### Thesis/Non-Thesis Requirements

Students will required to complete state requirements for licensure, including the Missouri State Performance Task Assessment for School Counselors and the state licensure exam for school counselors.

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Educational and Counseling Psychology program (<https://gradstudies.missouri.edu/degreecategory/educational-school-and-counseling-psychology/>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials

will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

## MEd in Educational, School, and Counseling Psychology with Emphasis in School Counselor, Secondary, Certification

Students who select this specialty have an interest in working as elementary school, middle school, or high school counselors. The curriculum of this specialty is based on the scientist-practitioner model of training as well as the comprehensive school guidance and counseling program model, both of which emphasize the best in counseling psychology theory, research, and practice. The missions of the MU School Counseling Masters and Specialist degree programs are to prepare individuals to practice successfully as entry-level multiculturally sensitive professional school counselors in socially and economically diverse work settings.

### Degree Requirements

The specific courses that meet these requirements are as follows (42 credit hours):

<b>I. General Psychology Core</b>		<b>9</b>
ESC_PS 8060	Lifespan Development	
ESC_PS 8070	Ethical and Legal Issues in Psychological Practice	
ESC_PS 8082	Foundations of Educational and Psychological Measurement	
<b>II. Counseling Psychology Core</b>		<b>21</b>
ESC_PS 7120	Theories and Techniques of Counseling	
ESC_PS 8135	Foundations of Career Psychology	
ESC_PS 8110	Methods in Group Counseling	
ESC_PS 8040	Counseling Methods and Practices (Secondary)	
ESC_PS 8140	Psychological Assessment in Children and Adolescents: Behavior and Social Emotional Assessment	
ESC_PS 8145	Psychological Interventions with Children and Adolescents: Behavioral Intervention (Elementary)	
ESC_PS 8165	Psychological Interventions with Children and Adolescents: Evidence-Based Therapies (Elementary)	
<b>III. Practicum</b>		<b>12</b>
Secondary school counseling students must complete two practicums in a secondary school setting for a total of 9 semester hours. Elementary school counseling students must complete two practicums in an elementary school setting for a total of 9 semester hours. Students wishing all level certification are required to complete an additional 3 hours of practicum in the setting in which they did not previously complete a practicum plus complete all of the other coursework in both elementary and secondary school counseling.		
ESC_PS 8940	Counseling Psychology Practicum (Elementary and Secondary School Counseling - Public Schools)	
<b>IV. Specialty Requirements</b>		<b>12</b>

ESC_PS 7130	Parent Counseling and Consultation
ESC_PS 8410	School Guidance Programs
ESC_PS 8415	Program Evaluation for School Counselors
ESC_PS 9000	Multicultural Issues in Counseling

**V. Required Teacher Education courses to fulfill the State of Missouri requirements for School Counselor candidates who are not Certified Teachers** **13**

ESC_PS 2010	Inquiry Into Learning I
ESC_PS 2014	Inquiry into Learning I - Field Experience
SPC_ED 7020	Teaching the Exceptional Learner
SPC_ED 4310	Behavioral and Classroom Management

**VI. Credential Preparation**

Candidates must apply for an official evaluation of their credentials in the Office of Certification, 102 Hill Hall prior to the completion of the last 15 hours of required course work.

**VIII. Licensure, Certification and Registry**

The courses in this planner are designed to meet the requirements of the Department of Educational, School, and Counseling Psychology (42 hours), the College of Education, and the University of Missouri Graduate School. They also fulfill state certification requirements to become entry-level professional school counselors, but do not fulfill requirements for state licensure as a psychologist or counselor, for certification as a marriage and family therapist, alcoholism counselor or other specialties, or certification by the National Board of Certified Counselors. If you wish to fulfill the requirements for licensure, certification or registry, you will need to inform yourself accordingly and add to your M.Ed. degree planner the additional coursework necessary. Information about psychologist and counselor licensure, certification, and registry in Missouri is available in Room 16 Hill Hall.

**IX. Prerequisites to Master's Programs**

In order to apply for any master's degree program in the Department of Educational, School, & Counseling Psychology, an applicant either must have completed or plan to complete 15 hours of prerequisite course work as indicated below:

- Statistics. A course in statistics covering descriptive statistics, correlation, t-tests and Chi-square.
- Psychological Theory. Two courses in psychological theory (not including the introductory course in psychology) for example: personality, social, developmental or learning.
- Additional Courses. Two additional courses in education, psychology and/or sociology.

If you are deficient in one or more of these areas, you may still be admitted with the provision that you make up any prerequisites during your graduate enrollment. Such make-up work will not count toward the hours required for any degree.

**X. Policy on Non-degree Graduate Students (NGS) for School Counseling**

If admitted to an ESCP program, a NGS may apply up to 12 hours. The ONLY courses a NGS may take to apply to the Elementary and Secondary School Counseling program are:

ESC_PS 8060	Lifespan Development
ESC_PS 8082	Foundations of Educational and Psychological Measurement
ESC_PS 8135	Foundations of Career Psychology
ESC_PS 8410	School Guidance Programs

## Sample Plan of Study

First Year					
Fall	CR	Spring	CR	Summer	CR
ESC_PS 7120	3	ESC_PS 8040	3	ESC_PS 8070	3
ESC_PS 8135	3	ESC_PS 8060	3	ESC_PS 8110	3
ESC_PS 8140	3	ESC_PS 8165	3	ESC_PS 8410	3
ESC_PS 8415	3	SPC_ED 4310	3		
			12	12	9
Second Year					
Fall	CR	Spring	CR		
ESC_PS 8940	6	ESC_PS 8940	6		
ESC_PS 8082	3	ESC_PS 7130	3		
ESC_PS 8415	3	ESC_PS 8145	3		
ESC_PS 9000	3				
			15	12	

Total Credits: 60

## Thesis/Non-Thesis Requirements

Students will be required to complete state requirements for licensure, including the Missouri State Performance Task Assessment for School Counselors and the state licensure exam for school counselors.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Educational and Counseling Psychology program (<https://gradstudies.missouri.edu/degrecategory/educational-school-and-counseling-psychology/>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

# MEd in Educational, School, and Counseling Psychology with Emphasis in School Psychology

## Degree Requirements

General Core		<b>23</b>
ESC_PS 8082	Foundations of Educational and Psychological Measurement	
ESC_PS 8100	Psychological Assessment of Children and Adolescents: Cognitive Assessment	
ESC_PS 8125	Professional Iss. in Sch. Psych. I: Hist., Trends & Ethical Pract.	
ESC_PS 8140	Psychological Assessment in Children and Adolescents: Behavior and Social Emotional Assessment	
ESC_PS 8145	Psychological Interventions with Children and Adolescents: Behavioral Intervention	
ESC_PS 8250	School Psychology Practicum: Introduction	

ESC_PS 8160	Psychological Interventions with Children and Adolescents: Educational Instruction
<b>Psychological Foundations (selected from the following) 9</b>	
ESC_PS 8060	Lifespan Development
ESC_PS 8120	Psychological Assessment of Children and Adolescents: Psychoeducational Assessment
ESC_PS 8355	Cognition and Emotion
ESC_PS 8530	Developmental Psychopathology and Exceptionality
ESC_PS 9000	Multicultural Issues in Counseling
ESC_PS 9080	Biological Basis of Behavior

### Sample Plan of Study

First Year			
Fall	CR	Spring	CR
ESC_PS 8082	3	ESC_PS 8100	3
ESC_PS 8120	3	ESC_PS 8145	3
ESC_PS 8125	3	ESC_PS 8160	3
ESC_PS 8140	3	ESC_PS 8250	1
ESC_PS 8250	1	ESC_PS 9000	3
ESC_PS 8355	3		
		16	13
Second Year			
Fall	CR		
ESC_PS 8530	3		
		3	

Total Credits: 32

### Thesis/Non-Thesis Requirements

No thesis is required from the Masters of Education program in school psychology.

### Admissions

Students are admitted concurrently to the M.Ed. and Ed.S. programs in School Psychology based on the admissions criteria identified below in the Educational Specialist program.

## MEd in Educational, School, and Counseling Psychology with Emphasis in Sport Psychology

**Our department is not currently admitting students to this emphasis area. We invite you to explore the other graduate degree options within Educational, School and Counseling Psychology (p. 420).**

Students who choose this specialty area have an interest in working with the careers of individuals in the world of sports (sport coaches, strength and conditioning coaches, athletic trainers, athletic academic counselors, Life Skills coordinators, athletic administrators, career coaches, life coaches, and the like). The curriculum is based on a scientist-practitioner model of training as well as a holistic view of how sport, career choice, and personal adjustment provide one with both an engaging and rewarding career and personal life. There is a strong emphasis on learning thru experience, where the experiences derived in and with athletic teams and with a college career center.

### Degree Requirements

This degree program provides a strong, fortified (51 credit hours) Masters Degree that blends the two fields of Sport Psychology and Career Counseling.

The Counseling Sport Psychology program was designed to move one toward qualifying a student to meet most but not all of the State of Missouri's curricular requirements for Licensure as a Professional Counselor (LPC). In addition to required course work, the graduate must also complete 3000 hours of supervised counseling and pass a licensure examination. The Counseling Sport Psychology program was also designed to qualify a student to meet some of the Association for the Advancement of Applied Sport Psychology's (AAASP) curricular requirements to become a Certified AAASP Consultant. Additional courses/experiences necessary for AAASP Certification are included in a separate Sport Psychology electives section.

<b>General Psychology Core</b>	<b>27</b>
The Helping Relationship	3
ESC_PS 8040	Counseling Methods and Practices
<b>Social and Cultural Foundations</b>	<b>3</b>
ESC_PS 9000	Multicultural Issues in Counseling
<b>Counseling Theory</b>	<b>3</b>
ESC_PS 7120	Theories and Techniques of Counseling
ESC_PS 8135	Foundations of Career Psychology
<b>Professional Orientation</b>	<b>3</b>
ESC_PS 8070	Ethical and Legal Issues in Psychological Practice
<b>Group Dynamics</b>	<b>3</b>
ESC_PS 8110	Methods in Group Counseling
<b>Appraisal</b>	<b>6</b>
ESC_PS 8082	Foundations of Educational and Psychological Measurement
ESC_PS 8640	Interviewing, Diagnosis, and Assessment
<b>Statistics</b>	<b>3</b>
ESC_PS 7170	Introduction to Applied Statistics
<b>Counseling Psychology</b>	<b>21</b>
<b>Sport</b>	<b>12</b>
ESC_PS 8087	Seminar in Educational, School, and Counseling Psychology (Philosophy of Sport)
ESC_PS 8515	Sport Psychology
ESC_PS 7200	Positive Psychology
ESC_PS 9610	Applied Sport Psychology
ESC_PS 8240	Sport in America
<b>Internship in Sport Psychology</b>	<b>3</b>
ESC_PS 8085	Problems in Educational, School, and Counseling Psychology
<b>Practicum</b>	
ESC_PS 8940	Counseling Psychology Practicum
<b>Electives</b>	<b>3</b>

### Sample Plan of Study

First Year					
Fall	CR	Spring	CR	Summer	CR
ESC_PS 9000	3	ESC_PS 8040	3	ESC_PS 8240	3
ESC_PS 7120	3	ESC_PS 8640	3		

ESC_PS 8515	3	ESC_PS 7170	3
ESC_PS 8082	3	ESC_PS 8070	3
12		12	
<b>3</b>			
<b>Second Year</b>			
<b>Fall</b>	<b>CR</b>	<b>Spring</b>	<b>CR</b>
ESC_PS 8110	3	ESC_PS 8085	1-3
ESC_PS 8940	3-9	ESC_PS 7087	1-3
ESC_PS 9610	3	undefined	3
ESC_PS 8135	3		
12-18		5-9	

Total Credits: 44-54

## Examination

Students are required to pass the National Counselor Examination in Fall or Spring semesters of the second year to demonstrate they have gained the requisite knowledge for the profession.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Educational and Counseling Psychology program (<https://gradstudies.missouri.edu/degreecategory/educational-school-and-counseling-psychology/>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

# MEd in Educational, School, and Counseling Psychology with Emphasis in Statistics, Measurement, and Evaluation in Education

The Statistics, Measurement, and Evaluation in Education program offers courses in applied statistics, from the quantitative foundations of educational research to advanced methods such as multivariate statistics, multilevel modeling, and latent variable modeling. We also offer a number of courses in educational measurement covering topics such as classical test theory, item response theory, and generalizability theory. In addition, our students have the opportunity to take a wide range of advanced statistics and quantitative methods courses, from probability, sampling methodology, and categorical data analysis to stochastic theory, time series analysis, Bayesian statistics, and other cutting-edge quantitative techniques. We train our students in various statistical software programs including SPSS, SAS, R, Mplus, Amos, HLM, and BILOG-MG. Our students also take courses in learning theories, aspects of human development, and program evaluation.

## Degree Requirements

<b>General Core Courses</b>	<b>21</b>
Core Statistics and Measurement Courses	12

ESC_PS 7170	Introduction to Applied Statistics
ESC_PS 8020	Overview of Research Methods
ESC_PS 8082	Foundations of Educational and Psychological Measurement
ESC_PS 8850	Quantitative Foundations in Educational Research
<b>Core General Courses</b>	
<b>9</b>	
ESC_PS 8957	Qualitative Methods in Educational Research I
Human Diversity (Relevant Course)	
Human Learning (Relevant Course)	
<b>Research Methods Emphasis Area</b>	
<b>12</b>	
Courses in this area may vary. Possible course selection includes:	
ESC_PS 8087	Seminar in Educational, School, and Counseling Psychology
ESC_PS 8655	Item Response Theory
ESC_PS 8690	Educational Planning and Evaluation
ESC_PS 8860	Statistical Data Management and Analysis in Educational Research
ESC_PS 9660	Generalized Linear Modeling
ESC_PS 9710	Structural Equation Modeling
ESC_PS 9720	Hierarchical Linear Modeling
Selected graduate level courses in the Psychology Department with advisor approval (e.g. latent variable models in statistical analyses, categorical data analysis).	
Selected graduate level courses from the Statistics Department with advisor approval (e.g. Bayesian statistics, nonparametric statistics).	

## Sample Plan of Study

The plan of study will depend on the student's career goals and research interests and should be completed in consultation with the Master's Committee.

## Thesis/Comprehensive Exam Requirements

The student must complete: 1) Demonstration of Knowledge via a written exam; and 2) Oral Exam on the Demonstration of Knowledge.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Educational, School & Counseling Psychology program (<https://gradstudies.missouri.edu/degreecategory/educational-school-and-counseling-psychology/>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>).

1. Apply online by submitting the following documents using the MU Graduate School (<https://applygrad.missouri.edu/apply/>) application form by January 15th for the next Fall cohort.
2. The three letters of recommendation
3. Curriculum Vita
4. Official academic transcripts of all previous undergraduate and graduate work
  - a. Minimum undergraduate GPA of 3.0 from an accredited institution in psychology, education, or a related major.
5. Statement of purpose addressing the following:

- a. Describe (1) your research interests that you hope to pursue in graduate school, (2) your career objectives, and (3) how being accepted into MU's program will benefit your career aspirations.
  - b. Describe interests or experience in designing empirical studies and/or analyzing empirical data. (500 words max.)
  - c. Describe interest or experiences that demonstrate your potential in applied, theoretical, and/or computational statistics that you believe distinguish you as a candidate for graduate study. (250 words max.)
6. Official Graduate Record Examination (GRE) scores (preferred Verbal score > 151 and Quantitative score > 155)
  7. TOEFL for international students (preferred score of 580 for paper test, 92 iBT, IELTS 6.5 or higher)

- Personal statement and vitae via online application per departmental requirements

### Admission Contact Information

Brooke Hartman (Hartmanem@missouri.edu)  
 16 Hill Hall; Columbia, MO 65211  
 573-882-7738

## EdSp in Educational, School, and Counseling Psychology with Emphasis in Counseling Psychology

### Degree Requirements

The program of study outlined for the degree must contain a minimum of 30 semester hours of approved graduate credit beyond the master's degree. No more than 12 semester hours of non-degree seeking (NGS) course work may be used in a program. Evidence of proficiency in the areas of educational statistics and research methodology must be shown prior to the candidates' taking the final comprehensive examination. This will normally be provided through satisfactory completion of ESC\_PS 7170 Introduction to Applied Statistics and ESC\_PS 8020 Overview of Research Methods or equivalent. If not completed as part of the master's degree, the program must include a course in the behavioral, social, historical, or philosophic foundations of education. The program may consist entirely of courses in education or may be made up, in part, of courses from other disciplines selected to fit the candidate's professional needs. A minimum of 15 semester hours of the program must be courses offered in the College of Education. A minimum of 15 semester hours of the program must also be courses numbered 8000 or above. To adhere to the concept of a planned program, at least eight semester hours of the program must be completed after the Program of Study has been filed with the Graduate School.

### Sample Plan of Study

The plan of study will depend on the student's career goals and research interests, and should be completed in consultation with the student's advisor.

### Comprehensive Examination Process

The Comprehensive Exam is administered once a year in July or August. The Comprehensive Exam is administered as a take-home exam and follows an essay/long answer response format. It is expected that responses will not exceed 10 pages (double-spaced; not including references) in length and will adequately provide both breadth and depth on the topic. Appropriate citations are expected. Attention should also be paid to grammar, APA style, and overall professional writing conventions. Students will have two consecutive weekends to complete the exam. Students schedule an oral exam after successfully passing the written portion of the comprehensive exam.

The Comprehensive Exam is designed as an integrative, culminating assessment of foundational knowledge of (1) counseling theories, assessment and practice, (2) research design, measurement, and statistics, (3) multicultural and professional issues, and (4) career development. Thus, the exam is designed to assess students' ability to (a) use counseling theories and appropriate assessment strategies

## EdSp in Educational, School, and Counseling Psychology

### Degree Requirements

The EdSp requires students to select one of the three emphasis areas offered: Counseling Psychology; Mental Health Practices in Schools; School Psychology, Certification. Requirements differ for each emphasis area, so students should refer to their chosen emphasis area page for detailed requirements.

### Admission Criteria

- Minimum GPA: 3.0
- Minimum TOEFL score:

Internet-based test (iBT)	Paper-based test (PBT)
92	580

- Recommended GRE Score:

When did you take the GRE?	Verbal + Quantitative	Analytical
On or After August 1, 2015	305	4.0

### Application Deadlines

- Fall deadline:
  - December 1st Counseling Psychology and School Psychology Doctoral programs
  - January 15th Educational Psychology and Statistics, Measurement, and Evaluation in Education (SMEE)
  - February 1st Counseling Psychology Masters programs

**Note:** If an applicant is admitted but does not hold a bachelor's degree in a related discipline or does not have relevant background course work, the applicant must complete prerequisite courses as specified by the faculty of the department.

### Required Application Materials

To the Graduate School:

- All required Graduate School documents
- Official transcripts
- GRE scores
- TOEFL scores
- 3 letters of recommendation via the online application



to conceptualize clinical cases and to identify appropriate intervention strategies in clinical practice; (b) design research studies, including developing appropriate research questions, addressing issues related to a study's internal and external validity, applying appropriate methods for the research methodology, and identifying appropriate statistical analyses; (c) understand multicultural, ethical and professional issues related to counseling psychology; and (d) apply appropriate vocational theories and assessment in practice.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the EdSp in Educational, School & Counseling Psychology program (<https://gradstudies.missouri.edu/degreecategory/educational-school-and-counseling-psychology/>) and the minimum requirements of the Graduate School (<https://gradstudies.missouri.edu/admissions/eligibility-process/>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Office of Graduate Studies and the degree program to which you've applied before official admission to the University of Missouri.

## EdSp in Educational, School, and Counseling Psychology with Emphasis in Mental Health Practices in Schools

The online Mental Health Practices in Schools (<http://online.missouri.edu/degreeprograms/education/mental-health-practices-in-schools/education-specialist/>) program is intended for school personnel, educators and other community mental health professionals who work with children and adolescents in schools and community agencies. This includes elementary and secondary teachers, special education professionals, school counselors, school nurses, administrators, at-risk coordinators and resource officers, safety coordinators, substance abuse coordinators, speech/language pathologists, itinerant and migrant educators, and private practitioners.

Courses are designed to offer practical applications of psychological concepts and are taught by experts in the field. The program identifies and deals with issues that promote positive mental health of children and adolescents. Courses in the program provide a solid base to increase awareness, knowledge and skills in areas such as:

- Identifying and assessing evidence-based prevention and intervention strategies and programs
- Communicating effectively with parents, children and school personnel
- Building resiliency and optimism in children and adolescents
- Increasing awareness of multicultural and diversity issues
- Understanding mental, emotional, and behavioral factors in youth
- Managing crisis interventions
- Applying wellness management for self and others
- Implementing positive behavior support and strategies in the classroom
- Collaborating with families and other school personnel

Note: This program does not provide school counselor certification, nor any professional counseling licensure.

Website: Mental Health Practices in Schools (<http://online.missouri.edu/degreeprograms/education/mental-health-practices-in-schools/education-specialist/>).

## Degree Requirements

The educational specialist degree is a 31-hour program of specialization built upon the master's degree. To earn the Mental Health Practices in Schools educational specialist degree, students complete 31 credit hours from among the courses listed below. The only required courses are the research methods (ESC\_PS 8020) and capstone (ESC\_PS 8490). At least 5 courses must be at the 8000 level. Students can select the remaining courses that best fit their educational and professional experience and interests.

Required Courses		4
ESC_PS 8020	Overview of Research Methods	3
ESC_PS 8490	Mental Health in Schools Capstone Paper	1
Elective Courses		27
ESC_PS 7160	Developmental Aspects of Human Learning	3
ESC_PS 7460	Foundations of School Mental Health	3
ESC_PS 8087	Seminar in Educational, School, and Counseling Psychology (Empirically Supported Treatments and Interventions for Youth Mental Health)	3
ESC_PS 8425	Effects of Maltreatment on Child and Adolescent Development	3
ESC_PS 8430	Mental, Emotional, and Behavioral Disorders in Youth	3
ESC_PS 8435	Wellness Management for School Personnel	3
ESC_PS 8440	School Mental Health: Policy, Law and Ethics	3
ESC_PS 8445	Building Resiliency and Optimism in Youth	3
ESC_PS 8450	Diversity Issues in School Mental Health	3
ESC_PS 8455	Bully and Youth Violence: Prevention and Reduction	3
ESC_PS 8460	Communication and Collaboration with Children and Families	3
ESC_PS 8465	Vital Issues in School Mental Health	3
ESC_PS 8470	Preventions and Interventions in School Mental Health	3
ESC_PS 8475	Proactive Behavior Management	3

**Additional Electives** are available through the other ESCP online programs (<http://online.missouri.edu/degreeprograms/escp.aspx>) with advisor approval.

## Comprehensive Examination Process

### Capstone paper

The program requires a capstone integrative paper allowing students to demonstrate the knowledge, skills, and competencies acquired through the program's course work.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the EdSp in Educational and Counseling Psychology (<https://gradstudies.missouri.edu/degrecategory/educational-school-and-counseling-psychology/>) program and the minimum requirements of the Graduate School (<https://gradstudies.missouri.edu/admissions/eligibility-process/>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

### Admission criteria (EdSp)

1. Successful completion of the baccalaureate and master's degree at an accredited college/university.
2. 3.0 or better grade point average in the last 60 hours of baccalaureate coursework
3. TOEFL score: Minimum 580 (paper) or 92 (ibt). Applies to non-native English speaking applicants only. If the non-native English-speaking applicant has successfully completed one year of full-time post-secondary (college-level) study in a country where English is the native language within the past two years, then the TOEFL is waived .
4. GRE scores are NOT required.

### Application Process:

1. Complete the online Application to the Graduate School (<https://gradstudies.missouri.edu/admissions/apply/>).
2. As part of the submission process, applicants are **required to upload UNOFFICIAL** copies of all transcripts to the online application. **NOTE:** If you are accepted by our academic program, you will then be asked to provide official copies of all transcripts to: Graduate School, University of Missouri, 210 Jesse Hall, Columbia, Missouri 65211.
3. Three letters of recommendation will need to be submitted via the online application. Each recommender will receive directions on how to submit the recommendation once you have entered their contact information in the application system.
4. You must also provide the following supplementary materials: Personal Statement and Vita/Résumé via the online Application to the Graduate School (<https://gradstudies.missouri.edu/admissions/apply/>). In your statement describe:
  - a. Your previous/current experience serving in a teaching, helping or counseling role,
  - b. Your interests and career objectives,
  - c. How these interests and career objectives have developed, and
  - d. How being accepted into the program will benefit your career aspirations and help you act upon your beliefs, goals and philosophy. Include interests and experiences working with diverse groups (e.g. ethnic, cultural, socio-economic, religious, ability status, sexual orientation, grade levels, ages), leadership roles, or other skills or experiences (not previously mentioned) that you believe distinguish you as a candidate for graduate study. (Please limit to 1000 words).

5. If your native language is other than English, the Test of English as a Foreign Language (TOEFL (<http://www.toefl.org/>)) is required. Please send your score to the Graduate School using school code 6875.
6. Please be sure to upload all supplemental materials **BEFORE** you submit the application.

### For applicants currently enrolled as graduate students at MU:

1. Complete the Change of Degree (<http://gradstudies.missouri.edu/forms-downloads/repository/change-degree.pdf>) form.
2. Provide **unofficial** copies of your University of Missouri transcripts.
3. Provide 3 letters of recommendation.
4. Provide supplementary materials: Personal statement and Vita/Résumé.

Send application materials to Sandy Sites (SitesS@missouri.edu) or mail to the ESCP Dept., 16 Hill Hall, Columbia, MO 65211

### Application deadline: None - rolling admission.

### Admissions Contact

Sandy Sites (SitesS@missouri.edu)  
16 Hill Hall, Columbia, MO 65211  
573-882-3651

## EdSp in Educational, School, and Counseling Psychology with Emphasis in School Psychology, Certification

### Degree Requirements

Graduates of the Ed.S. program in School Psychology are prepared to work with children, youth, families, and educators to promote effective functioning in the areas of learning, behavior, and mental health in schools. Operating from a problem solving framework, our focus is on preparing data-based decision makers capable of intervening to address both individual - and systems-level challenges. Students develop professional competencies in assessment, intervention, consultation, and research/evaluation. Graduates of the Ed.S. program are eligible for state certification as a School Psychologist in Missouri and in most other states, though additional requirements may need to be fulfilled per each state's certification rules.

General Core		26
ESC_PS 7130	Parent Counseling and Consultation	3
ESC_PS 8020	Overview of Research Methods	3
ESC_PS 8155	Crisis Prevention, Intervention, and Response in Schools	3
ESC_PS 8165	Psychological Interventions with Children and Adolescents: Evidence-Based Therapies	3
ESC_PS 8260	School Psychology Practicum: Intermediate	6
ESC_PS 8850	Quantitative Foundations in Educational Research	3
ESC_PS 9092	Internship in School Psychology	2
ESC_PS 9560	Psychological Consultation: Schools	3
Psychological Foundations		15
ESC_PS 8060	Lifespan Development	3

ESC_PS 8355	Cognition and Emotion	3
ESC_PS 8530	Developmental Psychopathology and Exceptionality	3
ESC_PS 9000	Multicultural Issues in Counseling	3
ESC_PS 9080	Biological Basis of Behavior	3

## Sample Plan of Study

Below is a sample plan of study for completion of the coursework requirements for the Ed.S. in school psychology; however, each individual student's plan of study varies depending on their pace in the program and individual choices when options are available. The Educational Specialist program in School Psychology is completed concurrently with the Masters in Education (M.Ed.) program in School Psychology. As a result, the first year after admission to the program is predominately focused on the M.Ed. coursework.

First Year					
	Spring	CR	Summer	CR	
	ESC_PS 8060	3	ESC_PS 8155	3	3
			3		3
Second Year					
Fall	CR	Spring	CR	Summer	CR
ESC_PS 8260	3	ESC_PS 7130	3	ESC_PS 8020	3
ESC_PS 8850	3	ESC_PS 8165	3		
ESC_PS 9560	3	ESC_PS 8260	3		
		ESC_PS 9080	3		
	9		12		3
Third Year					
Fall	CR	Spring	CR		
ESC_PS 9092	1-6	ESC_PS 9092	1-6		
	1-6		1-6		

Total Credits: 32-42

## Comprehensive Examination Process

The comprehensive examination for the Ed.S. in School Psychology includes two components: a portfolio documenting specific clinical experiences completed during the internship year and the Praxis II national School Psychology exam (administered by the Educational Testing Service).

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the EdSp in Educational, School & Counseling Psychology program (<https://gradstudies.missouri.edu/degrecategory/educational-school-and-counseling-psychology/>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>).

## PhD in Educational, School, and Counseling Psychology

### Degree Requirements

The PhD in Educational, School, and Counseling Psychology has several emphasis areas for a student to choose from. Please see the degree

offerings (p. 420) page for information. A student must select an emphasis area to complete the degree.

## Admission Criteria

- GRE score with combined score of 305 preferred
- Minimum TOEFL scores per the Graduate School

Internet-based test (iBT)	Paper-based test (PBT)	
92	580	
When did you take the GRE?	Verbal + Quantitative	Analytical
On or After August 1, 2015	305	4.0

## Application Deadlines

- Fall deadline:
  - December 1st Counseling Psychology and School Psychology Doctoral programs
  - January 15th Educational Psychology and Statistics, Measurement, and Evaluation in Education (SMEE)
  - February 1st Counseling Psychology Masters programs

**Note:** If an applicant is admitted but does not hold a bachelor's degree in a related discipline or does not have relevant background course work, the applicant must complete prerequisite courses as specified by the faculty of the department.

## Required Application Materials

To the Graduate School:

- All required Graduate School documents
- Official transcripts
- GRE score within the last 5 years
- TOEFL scores
- 3 letters of recommendation via the online application
- Personal statement and vitae via online application per departmental requirements

## Admission Contact Information

Brooke Hartman (Hartmanem@missouri.edu)  
 16 Hill Hall  
 Columbia, MO 65211  
 (573) 882-7738

## PhD in Educational, School, and Counseling Psychology with Emphasis in Counseling Psychology

### Degree Requirements

<b>I. GENERAL PSYCHOLOGY CORE*</b>	<b>27</b>
Statistics and Research Methodology	12
Psychological Foundations	15
<b>II. COUNSELING PSYCHOLOGY CORE</b>	<b>89</b>
(Exclusive of and in addition to the General Psychology Core)	
Historical and Research Foundations	9

Ethic and Legal Standards	3
Human Diversity	5
Intervention Procedures	18
Assessment	12
Supervision	3
Clinical	24
Consultation	3
Dissertation	12

## Sample Plan of Study

A student’s plan of study will vary depending on her/his program track and career goals and should be completed in consultation with her/his academic advisor.

## Qualifying Process

The Graduate School requires that students pass a qualifying examination as a condition of official admittance to the PhD program. Acceptable performance on the Departmental Qualifying Examination is defined as a achieving a grade of “B” or better in each of the courses comprising the “core” courses for each of four emphasis areas. These courses are:

- ESC\_PS 7120 Theories and Techniques of Counseling
- ESC\_PS 8040 Counseling Methods and Practices
- ESC\_PS 8135 Foundations of Career Psychology

## Comprehensive Examination Process

The Comprehensive Exam is administered once a year in July or August. The Comprehensive Exam is administered as a take-home exam and follows an essay/long answer response format. It is expected that responses will not exceed 10 pages (double-spaced; not including references) in length and will adequately provide both breadth and depth on the topic. Appropriate citations are expected. Attention should also be paid to grammar, APA style, and overall professional writing conventions. Students will have two consecutive weekends to complete the exam. Students schedule an oral exam after successfully passing the written portion of the comprehensive exam.

The Comprehensive Exam is designed as an integrative, culminating assessment of foundational knowledge of (1) counseling theories, assessment and practice, (2) research design, measurement, and statistics, (3) multicultural and professional issues, and (4) career development. Thus, the exam is designed to assess students’ ability to (a) use counseling theories and appropriate assessment strategies to conceptualize clinical cases and to identify appropriate intervention strategies in clinical practice; (b) design research studies, including developing appropriate research questions, addressing issues related to a study’s internal and external validity, applying appropriate methods for the research methodology, and identifying appropriate statistical analyses; (c) understand multicultural, ethical and professional issues related to counseling psychology; and (d) apply appropriate vocational theories and assessment in practice.

## Dissertation Requirements

After working with the academic advisor on developing a dissertation proposal, the student meets with her/his doctoral program committee to obtain approval of the written dissertation proposal. This happens before data collection begins. After the project is completed, the student

submits a written dissertation and defends her/his dissertation project to the doctoral program committee.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Educational, School & Counseling Psychology program (<https://gradstudies.missouri.edu/degrecategory/educational-school-and-counseling-psychology/>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>).

Apply online by submitting the following documents using the MU Graduate School (<https://applygrad.missouri.edu/apply/>) application form by December 1st for the next Fall cohort.

- Three letters of recommendation
- Curriculum Vita
- Official academic transcripts of all previous undergraduate and graduate work
  - Minimum undergraduate GPA of 3.0 from an accredited institution in psychology, education, or a related major.
- Statement of purpose addressing the following:
  - a. Describe interests and experiences working with people from diverse backgrounds (e.g. ethnic, cultural, socio-economic, religious, ability status, sexual orientation). How have these experiences influenced you? (250 word maximum)
  - b. Describe experiences that demonstrate your potential for leadership that you believe distinguish you as a candidate for graduate study. (250 word maximum)
  - c. Describe (1) your previous experience serving in a helping or counseling role, (2) your interests and career objectives, (3) how these interests and career objectives have developed, (4) how these interests match those of specific program faculty, and (5) how being accepted into the program of your choice will benefit your career aspirations and help you act upon your beliefs, goals, and philosophy. (1000 word maximum)
- Official Graduate Record Examination (GRE) scores for tests taken on or after August 1, 2015 should have a combined Verbal and Quantitative score of 305.
- TOEFL for international students (preferred score of 580 for paper test, 92 iBT, IELTS 6.5 or higher)

Applicants with a bachelor’s degree in a field not related to psychology will be required to complete 15 hours of prerequisite courses in the behavioral sciences (including an introductory statistics course) either prior to, or concurrently with, coursework in the program.

## PhD in Educational, School, and Counseling Psychology with Emphasis in Educational Psychology

The Educational Psychology program is committed to the dissemination and development of knowledge and skills in human learning and cognition, development, and motivation. We use quantitative and qualitative methods to study how people’s thinking, motivation, and behavior change across time. We study how different social settings

like classroom, family, work, and peers affect people’s well-being, learning, and behavior. The study of educational psychology is relevant to teachers, coaches, athletes, nurses, counselors, software developers, trainers, social workers, program evaluators, and administrators.

Educational psychologists attempt to understand:

- how to improve learning, academic achievement, and motivation
- developmental influences on learning and well-being
- how society influences learning and behavior
- school influences on students’ development in other settings
- improving human performance

## Degree Requirements

The Ph.D. program focuses on generating original research and consists of a minimum of 72 semester hours of graduate credit beyond the bachelor’s degree. The plan of study provides additional details about requirements. The following is a synopsis.

<b>I. Core Statistics and Research Courses</b>		<b>21</b>
ESC_PS 8020	Overview of Research Methods	3
ESC_PS 8082	Foundations of Educational and Psychological Measurement	3
ESC_PS 8850	Quantitative Foundations in Educational Research	3
ED_LPA 8957	Qualitative Methods in Educational Research I	3
ESC_PS 9660	Generalized Linear Modeling	3
Electives		6
<b>II. Core Learning and Development</b>		<b>15</b>
ESC_PS 8060	Lifespan Development	3
ESC_PS 8320	Advanced Human Learning	3
ESC_PS 8355	Cognition and Emotion	3
ESC_PS 9450	Motivation	3
Human Diversity (Relevant Course)		3
<b>III. Electives</b>		<b>27</b>
Students can take more than 6 research hours if they wish to enroll in more electives. Elective courses can be taken from Educational, School, & Counseling Psychology or from other departments such as Human Development and Family Science, Psychological Sciences, or Information Science and Learning Technology.		
<b>IV. Dissertation</b>		<b>6-18</b>

## Sample Plan of Study

The plan of study will depend on the student’s career goals and research interests, and should be completed in consultation with the Doctoral Dissertation Committee.

## Qualifying Process

The Graduate School requires that students pass a qualifying examination as a condition of official admittance to the PhD program. Acceptable performance on the Departmental Qualifying Examination is defined as a achieving a grade of “B” or better in each of the courses comprising the “core” courses. For educational psychology, these courses are the following:

- ESC\_PS 8060 Lifespan Development
- ESC\_PS 8082 Foundations of Educational and Psychological Measurement
- ESC\_PS 8355 Cognition and Emotion

## Comprehensive Examination Process

To complete the comprehensive exam, students must complete evidence of professional activity, evidence of teaching, two assigned papers, and an oral exam. The two papers are administered as a take-home exam with one week for completion of each paper. The procedure is described in a separate document. The papers can be written during any semester. They must be scored as passing before the oral exam can be conducted. The oral exam must be scheduled during fall or spring semesters.

## Dissertation Requirements

After working with the academic advisor on developing a dissertation proposal, the student meets with the doctoral program committee to obtain approval of the written dissertation proposal. This happens before data collection begins. After the project is completed, the student submits a written dissertation and defends the dissertation to the doctoral program committee. The defense can occur only when MU is officially in session.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Educational, School & Counseling Psychology program (<https://gradstudies.missouri.edu/degreecategory/educational-school-and-counseling-psychology/>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Apply online by submitting the following documents using the MU Graduate School (<https://applygrad.missouri.edu/apply/>) application form by January 15th for the next Fall cohort.

1. The three letters of recommendation
2. Curriculum Vita
3. Official academic transcripts of all previous undergraduate and graduate work
  - a. Minimum undergraduate GPA of 3.0 from an accredited institution in psychology, education, or a related major.
4. Statement of purpose addressing the following:
  - a. Describe experiences teaching, designing instruction, and engaging in research and how these experiences have prepared you for graduate study. (500 word maximum)
  - b. Describe (1) your research interests that you hope to pursue in graduate school (2) how these interests match those of specific faculty (3) your career objectives, and (4) how being accepted into MU’s program will benefit your career aspirations. (Please limit to 500 words)
5. Official Graduate Record Examination (GRE) scores for tests taken within the last 5 years should have a combined Verbal and Quantitative score of 305.
6. TOEFL for international students (preferred score of 580 for paper test, 92 iBT, IELTS 6.5 or higher)

# PhD in Educational, School, and Counseling Psychology with Emphasis in Health Education and Promotion

Our department is no longer admitting students to this emphasis area. We invite you to explore the other graduate degree options within Educational, School and Counseling Psychology (p. 420).

## Degree Requirements

<b>General Core Courses</b>	<b>36</b>
Health Area Courses	21
ESC_PS 4185      Health Behavior: Drug and Sexuality Education	
or ESC_PS 7185    Health Behaviors: Drug and Sexuality Education	
ESC_PS 8185      Health Promotion	
Statistics and Research Methodology	12-15
Measurement and Evaluation	3
<b>Individual Studies (Health Related Electives)</b>	<b>12</b>
	<b>minimum</b>
<b>General Electives</b>	<b>12</b>
<b>Dissertation</b>	<b>12</b>

## Sample Plan of Study

A student's plan of study will vary depending on her/his program track and career goals and should be completed in consultation with her/his academic advisor.

## Qualifying Process

The Graduate School requires that students pass a qualifying examination as a condition of official admittance to the PhD program.

## Comprehensive Examination Process

The Comprehensive Exam is administered once a year.

## Dissertation Requirements

After working with the academic advisor on developing a dissertation proposal, the student meets with her/his doctoral program committee to obtain approval of the written dissertation proposal. After the project is completed, the student submits a written dissertation and defends her/his dissertation project to the doctoral program committee.

## Admissions

This program is not accepting admissions at this time.

# PhD in Educational, School, and Counseling Psychology with Emphasis in School Psychology, Certification

The doctoral program in School Psychology is focused on training the next generation of research, teaching, clinical, and policy leaders who are singularly focused on solving significant societal problems in education

and psychology. We utilize an integrated systems approach to address academic and behavioral evidence-based practice with world-class research lines in prevention science, assessment, and intervention. Our graduates are prepared to work in higher education and research settings as well as clinical settings, such as schools, community health agencies, and hospitals. The PhD program is accredited by the American Psychological Association and approved by the National Association of School Psychologists. The Doctoral (PhD) program in School Psychology is completed concurrently with the Masters in Arts (MA) program in School Psychology. As a result, the first year after admission to the program is predominately focused on the M.Ed. coursework.

## Degree Requirements

### I. General Core (61 hours)

ESC_PS 7130	Parent Counseling and Consultation	3
ESC_PS 8120	Psychological Assessment of Children and Adolescents: Psychoeducational Assessment	3
ESC_PS 8165	Psychological Interventions with Children and Adolescents: Evidence-Based Therapies	3
ESC_PS 8260	School Psychology Practicum: Intermediate	6
ESC_PS 8850	Quantitative Foundations in Educational Research	3
ESC_PS 8957	Qualitative Methods in Educational Research I	3
ESC_PS 9090	Doctoral Dissertation Educational School & Counseling Psychology	12
ESC_PS 9093	Doctoral Internship in School Psychology	3
ESC_PS 9125	Professional Iss. in Sch. Psych. II: Rsrch. Design & Application	3
ESC_PS 9250	School Psychology Practicum: Advanced	6
ESC_PS 9400	Theories and Practices in Supervision	3
ESC_PS 9560	Psychological Consultation: Schools	3
	Advanced Qual or Quant Analysis Course	3
<b>II. Psychological Foundations (selected from the following):</b>		<b>18</b>
ESC_PS 8060	Lifespan Development	3
ESC_PS 8070	Ethical and Legal Issues in Psychological Practice	3
ESC_PS 8355	Cognition and Emotion	3
ESC_PS 8530	Developmental Psychopathology and Exceptionality	3
ESC_PS 9000	Multicultural Issues in Counseling	3
ESC_PS 9030	Social Bases of Behavior	3
ESC_PS 9060	Advanced History and Systems of Psychology	3
ESC_PS 9080	Biological Basis of Behavior	3

## Sample Plan of Study

Below is a sample plan of study for completion of the coursework requirements for the Ph.D. in school psychology; however, each individual student's plan of study varies depending on their pace in the program and individual choices when options are available. The Doctoral program in School Psychology is completed concurrently with the Masters in Education (M.A.) program in School Psychology. As a result, the first year after admission to the program is predominately focused on the M.A. coursework.

First Year					
Fall	CR	Spring	CR		
ESC_PS 8120	3	ESC_PS 9125	3		
		3	3		
Second Year					
Fall	CR	Spring	CR	Summer	CR
ESC_PS 8082	3	ESC_PS 8060	3	ESC_PS 8957	3
ESC_PS 8260	3	ESC_PS 8165	3		
ESC_PS 8530	3	ESC_PS 8260	3		
ESC_PS 9560	3	ESC_PS 9030	3		
		12	12	3	
Third Year					
Fall	CR	Spring	CR	Summer	CR
ESC_PS 8355	3	ESC_PS 7130	3	ESC_PS 9060	3
ESC_PS 9250	3	ESC_PS 8250	3	ESC_PS 9090	3
ESC_PS 8070	3	ESC_PS 9080	3		
		9	9	6	
Fourth Year					
Fall	CR	Spring	CR		
ESC_PS 9090	6	ESC_PS 9400	3		
ESC_PS 9710	3	ESC_PS 9090	6		
		9	9		

Total Credits: 75

## Qualifying Process

The qualifying examination for the Ph.D. in School Psychology includes a take-home written examination. It is typically completed at the start of the Fall semester of year 2 in the program, presuming successful completion of ESC\_PS 8125, ESC\_PS 9125, and ESC\_PS 8082.

## Comprehensive Examination Process

The comprehensive examination for the Ph.D. in School Psychology includes a take-home written examination followed by an oral examination with the doctoral committee. This examination process is typically completed at the beginning of the winter semester in year 3 or the start of the fall semester in year 4. Students jointly enrolled in the Masters of Arts program in School Psychology must have completed their master's thesis/manuscript prior to sitting for their Doctoral Comprehensive Exams.

## Dissertation Requirements

After working with the academic advisor on developing a dissertation proposal, the student meets with her/his doctoral program committee to obtain approval of the written dissertation proposal. This happens before data collection begins. After the project is completed, the student submits a written dissertation and defends her/his dissertation project to the doctoral program committee. The dissertation proposal must be approved by committee prior to applying for terminal internships.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the Ph.D. in Educational, School & Counseling Psychology program (<https://gradstudies.missouri.edu/degreecategory/educational-school-and-counseling-psychology/>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>).

Apply online by submitting the following documents using the MU Graduate School (<https://applygrad.missouri.edu/apply/>) application form by December 1 for the next Fall cohort.

1. Three letters of recommendation
2. Curriculum Vita
3. Official academic transcripts of all previous undergraduate and graduate work
  - a. Minimum undergraduate GPA of 3.0 from an accredited institution in psychology, education, or a related major.
4. Statement of purpose addressing the following:
  - a. Describe interests and experiences with working with people from diverse backgrounds (e.g. ethnic, cultural, socio-economic, religious, ability status, sexual orientation). How have these experiences influenced you? (250 word maximum)
  - b. Describe experiences that demonstrate your potential for leadership that you believe distinguish you as a candidate for graduate study. (250 word maximum)
  - c. Describe (1) your research interests that you hope to pursue in graduate school (2) how these interests match those of specific faculty. (Please limit to 500 words)
  - d. Describe (1) your career objectives (2) how these career objectives have developed, and (3) how being accepted into MU's program will benefit your career aspirations and help you act upon your beliefs, goals, and philosophy. (Please limit to 500 words)
5. Official Graduate Record Examination (GRE) scores for test taken within the last 5 years should have a combined Verbal and Quantitative score of 305.
6. TOEFL for international students (preferred score of 580 for paper test, 92 iBT, IELTS 6.5 or higher)

# PhD in Educational, School, and Counseling Psychology with Emphasis in Statistics, Measurement, and Evaluation in Education

The Statistics, Measurement, and Evaluation in Education program offers courses in applied statistics, from the quantitative foundations of educational research to advanced methods such as multivariate statistics, multilevel modeling, and latent variable modeling. We also offer a number of courses in educational measurement covering topics such as classical test theory, item response theory, and generalizability theory. In addition, our students have the opportunity to take a wide range of advanced statistics and quantitative methods courses from probability, sampling methodology, and categorical data analysis to stochastic theory, time series analysis, Bayesian statistics, and other cutting-edge quantitative techniques. We train our students in various statistical software programs including SPSS, SAS, R, Mplus, Amos, HLM, and BILOG-MG. Our students also take courses in learning theories, aspects of human development, and program evaluation.

## Degree Requirements

<b>I. General Core Courses</b>	<b>33</b>
Core Statistics and Measurement	24
ESC_PS 8020 Overview of Research Methods	
ESC_PS 8082 Foundations of Educational and Psychological Measurement	
ESC_PS 8655 Item Response Theory	
ESC_PS 8850 Quantitative Foundations in Educational Research	
ESC_PS 9660 Generalized Linear Modeling	
ESC_PS 9710 Structural Equation Modeling	
ESC_PS 9720 Hierarchical Linear Modeling	
ESC_PS 8087 Seminar in Educational, School, and Counseling Psychology	
General Core Courses	9
ED_LPA 8957 Qualitative Methods in Educational Research I	
Human Learning (Relevant Course)	
Human Diversity (Relevant course)	
<b>II. Advanced &amp; General Elective Courses</b>	<b>21</b>
Possible elective areas include other departments in the College of Education, Statistics, Psychological Sciences, and/or as approved by advisor.	
Advanced Measurement Elective	
Advanced Statistics Electives	
Program Evaluation Elective	
Statistical Programming Elective	
Research in Statistics and/or Measurement	
<b>III. General Electives</b>	<b>6</b>
Elective courses can be taken from Educational, School, & Counseling Psychology or from other departments such as Psychological Sciences, Statistics, or Information Science and Learning Technology.	
<b>IV. Dissertation</b>	<b>6-18</b>

## Sample Plan of Study

The plan of study will depend on the student's career goals and research interests, and it should be completed in consultation with the doctoral dissertation committee.

## Qualifying Process

Acceptable performance on the departmental qualifying examination is defined as achieving a grade of "B" or better in each of the courses comprising the selected courses. If a student receives lower than a 'B' on a course, the student must retake the course. Failure to receive the appropriate grade a second time could result in dismissal from the program. For Statistics, Measurement, and Evaluation in Education, these courses are the following:

- ESC\_PS 8082 Foundations of Educational and Psychological Measurement
- ESC\_PS 8020 Overview of Research Methods
- ESC\_PS 8850 Quantitative Foundations in Educational Research

## Comprehensive Examination Process

To complete the comprehensive exam, students must complete: 1) Curriculum Vitae including teaching experience, 2) Demonstration of knowledge via written exam, 3) Demonstration of research via published

work, submitted manuscript, conference paper presentation, or a literature review created specifically to meet this requirement; 4) Oral exam on both the demonstration of knowledge and demonstration of research items from above.

## Dissertation Requirements

The student works with an academic advisor to develop a dissertation proposal. The student meets with the doctoral program committee to obtain approval of the written dissertation proposal. Upon study completion, the student defends the dissertation to the doctoral program committee. The defense can occur only when MU is officially in session.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Educational, School & Counseling Psychology program (<https://gradstudies.missouri.edu/degrecategory/educational-school-and-counseling-psychology/>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>).

Apply online by submitting the following documents using the MU Graduate School (<https://applygrad.missouri.edu/apply/>) application form by January 15th for the next Fall cohort.

1. The three letters of recommendation
2. Curriculum Vitae
3. Unofficial academic transcripts of all previous undergraduate and graduate work
  - a. Minimum undergraduate GPA of 3.0 from an accredited institution in psychology, education, or a related major.
4. Statement of purpose addressing the following:
  - a. Describe (1) your research interests that you hope to pursue in graduate school, (2) your career objectives, and (3) how being accepted into MU's program will benefit your career aspirations (500 words max).
  - b. Describe your experiences in educational measurement, assessment, or evaluation (250 words max).
  - c. Describe interests and experience in analyzing empirical data. Briefly describe why you have chosen particular statistical models to answer the research questions (250 words max.).
  - d. Describe experiences that demonstrate your potential in applied, theoretical, and/or computational statistics that you believe distinguish you as a candidate for graduate study (250 words max).
5. Official Graduate Record Examination (GRE) scores for tests taken within the last 5 years should have a combined Verbal and Quantitative score of 305.
6. TOEFL for international students (preferred score of 580 for paper test, 92 iBT, IELTS 6.5 or higher).

## Educational Leadership & Policy Analysis

ELPA - Our mission is to create knowledge while preparing leaders to critically shape and transform educational issues, policies, and practices.

Consider ELPA if you:



- Want to improve your organizational leadership skills and knowledge in elementary, secondary, or postsecondary settings
- Are interested in principal or superintendent certification
- Want to work in student affairs or higher education administration
- Want to become a scholar or researcher in an academic setting
- Desire to shape policy through legislative or research activity

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website: <https://education.missouri.edu/educational-leadership-policy-analysis/>

## Faculty

**Professor** J. Hart\*\*, S. Graham\*\*

**Associate Professor** E. Crawford-Rossi\*\*, B. Curs\*\*, S. Diem\*\*, L. Dorner\*\*, T. Douglas\*\*, C. Harper Morris\*\*, P. Mendoza\*\*, J. Sebastian\*\*

**Assistant Professor** M. Dorime-Williams\*, S. W. Lee\*, M. Williams\*

**Associate Teaching Professor** G. Malfatti

**Assistant Teaching Professor** C. Belcher\*, J. Fellabaum-Toston\*, B. Whitaker\*

**Distinguished Adjunct Professor** T. Whitaker\*

**Adjunct Professor** M. Alden\*, M. Ayllon\*, D. Barksdale\*, M. Beglau\*, J. Bies\*, L. Blockus\*, D. Burns-Wallace\*, P. Corum\*, C. Cozette\*, M. Doss\*, M. Eimers\*, K. Schmidtke Felts\*, K. Fishman-Weaver\*, S. Goldammer\*, T. Hausman\*, K. Hoffman\*, A. Hull\*, M. Kateman\*, M. Laffey\*, T. Majerus\*, V. Mitchell\*, K. Morris\*, E. Neville\*, L. Page\*, T. Page\*, K. Presko\*, K. Quinn\*, D. Russell\*, C. Scroggs\*, E. Shaw\*, B. Solomon\*, B. Tankersley-Bankhead\*, L. Wilcox\*, J. Hermesen Wood\*, D. Wren\*, J. Zeilenga\*

**Professor Emeritus** R. Andrews\*, I. Cockriel\*, J. Donaldson\*\*, J. Valentine\*\*

**Associate Professor Emerita** K. Cockrell\*, P. Placier\*, J. Simmons\*

**Clinical Associate Professor Emeritus** D. Cockrell\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

While MU does not offer undergraduate degrees specifically in educational leadership and policy analysis, the University does offer baccalaureate opportunities in a number of related areas, both within the College of Education, and in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 20).

## Graduate

- MA in Educational Leadership and Policy Analysis (p. 449)
  - with emphasis in Higher Education (p. 449)
- MEd in Educational Leadership and Policy Analysis (p. 450)

- with emphasis in Higher Education (p. 450)
- with emphasis in PK-12 Educational Leadership and Administration, Elementary Principal, Certification (p. 451)
- with emphasis in PK-12 Educational Leadership and Administration, Secondary Principal, Certification (p. 452)
- with emphasis in PK-12 Educational Leadership and Administration, Elementary and Secondary Principal, Certification (p. 451)
- EdD in Educational Leadership (p. 452)
- EdSp in Educational Leadership and Policy Analysis (p. 453)
  - with emphasis in PK-12 Educational Leadership and Administration, Elementary Principal, Certification (p. 456) (**not accepting applications**)
  - with emphasis in PK-12 Educational Leadership and Administration, Secondary Principal, Certification (p. 457) (**not accepting applications**)
  - with emphasis in PK-12 Educational Leadership and Administration, Elementary and Secondary Principal, Certification (p. 453)
  - with emphasis in PK-12 Educational Leadership and Administration, Superintendent, Certification (p. 458)
  - with emphasis in PK-12 Educational Leadership and Administration, Elementary Principal and Superintendent, Certification (p. 455) (**not accepting applications**)
  - with emphasis in PK-12 Educational Leadership and Administration, Secondary Principal and Superintendent, Certification (p. 456) (**not accepting applications**)
  - with emphasis in PK-12 Educational Leadership and Administration, Elementary and Secondary Principal and Superintendent, Certification (p. 454)
- PhD in Educational Leadership and Policy Analysis (p. 458)
  - with emphasis in Educational Administration (p. 459)
  - with emphasis in Educational Policy Studies (p. 459)
  - with emphasis in Higher Education (p. 460)

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573-884-5714 (fax)  
<http://elpa.missouri.edu/>

**Director of Graduate Studies:** Sarah Diem

## About ELPA's Graduate Programs

The graduate programs in the Department of Educational Leadership and Policy Analysis are designed to meet the specific educational needs of the student in a particular area of emphasis. Graduates find employment in a wide range of settings including colleges and universities, public schools, policy agencies, professional associations, government and business and industry.

**The PhD Program in ELPA** requires a minimum of 60 hours beyond the master's degree. The goal of the PhD program is the preparation of professional researchers and scholars who have high levels of competence in conducting research that adds to the knowledge base.

The program also has a goal of meeting the student's individual career goals and interests through the development of an appropriate plan of study. Each emphasis area has slightly different requirements and areas of focus; however, all 3 emphasis areas require a department-wide

core; emphasis area coursework; electives; a research core; and the completion of a minimum of 6 hours for the dissertation.

**The Statewide Cooperative EdD Program** in Educational Leadership is a cohort program designed for practicing educational leaders to enhance their knowledge and competencies so they provide optimal leadership in organizations that educate a wide range of learners from youth to adult. The program's curriculum is designed to prepare leaders who are inquiring, reflective practitioners who are competent in defining and solving complex problems in education.

The **Educational Specialist (EdSp) Program** is designed to enhance the knowledge and competencies of K-12 educational administrators and to lead to advanced principal certification and/or superintendent certification. The program has a thematic, integrated, problem-based curriculum intended to prepare school and district leaders who are inquiring, reflective practitioners. The curriculum is aligned with state standards for certification.

The department's **Master's Programs** are intended to provide initial preparation for leaders in a variety of educational contexts, including higher education and PK-12 schools. Programs vary according to emphasis area and are designed to meet student's individual career goals and interests — e.g., student affairs administration, initial principal certification and higher education administration.

A minimum of 33 credit hours is required for the M Ed or MA in Higher Education and a minimum of 30 hours is required for the M Ed in Educational Leadership.

**Note:** Per ELPA policy, students have 5 years to complete their MA or M Ed degree.

#### **Graduate Certificates:**

- College Teaching
- Education Policy
- Higher Education Administration

## **Satisfactory Rate of Progress**

All ELPA students are expected to make satisfactory progress toward their degrees. Satisfactory progress of students will be determined through an annual review by the director of graduate studies, graduate students' academic advisors and their committees. Judgments about satisfactory progress will include consideration of the following:

- University-wide time limits for degree completion
- GPA for departmental courses
- Continuous enrollment and active engagement in course work or research (EdD and PhD)
- Student performance in research credits
- Timely resolution of incomplete grades

## **Financial Aid from the Program**

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

## **MA in Educational Leadership and Policy Analysis**

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### **Degree Requirements**

Master's degree candidates can complete the required 33 hours by selecting courses with their advisers that will most fully meet the students needs. At least 16 hours in professional education must be taken at the 8000 or 9000 level.

A maximum of 6 semester hours of graduate-level graded course work completed at another accredited college or university may be transferred with approval of the adviser, the department director of graduate studies and the Graduate School. Up to 12 hours earned as a post-baccalaureate graduate student at MU may be applied to the degree pending admission to the program and approval of higher education faculty.

Students pursuing a master of arts (MA) degree are required to take 12 hours (of the 33) dedicated to research design, methods, and thesis writing. If the thesis is not successfully completed in 33 hours, additional research hours may be required. Because of the time involved in completing a thesis, the program may take longer than 2 years for full-time students.

The MA in Educational Leadership and Policy Analysis has emphasis areas in Higher Education (p. 449). Please see the individual emphasis area page for degree requirements and admissions information.

### **Contact Information**

Educational Leadership and Policy Analysis

202 Hill Hall

573-882-8221

573-884-5714 (fax)

ELPA website: <https://education.missouri.edu/educational-leadership-policy-analysis/>

## **MA in Educational Leadership and Policy Analysis with Emphasis in Higher Education**

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### **Degree Requirements**

Master's degree candidates can complete the required 33 hours by selecting courses with their advisers that will most fully meet the students needs. At least 16 hours in professional education must be taken at the 8000 or 9000 level.

A maximum of 6 semester hours of graduate-level graded course work completed at another accredited college or university may be transferred with approval of the adviser, the department director of graduate studies and the Graduate School. Up to 12 hours earned as a post-baccalaureate graduate student at MU may be applied to the degree pending admission to the program and approval of higher education faculty.

Students pursuing a master of arts (MA) degree are required to take 12 hours (of the 33) dedicated to research design, methods, and thesis writing. If the thesis is not successfully completed in 33 hours, additional research hours may be required. Because of the time involved in completing a thesis, the program may take longer than 2 years for full-time students.

## Requirements for Higher Education and Student Affairs

ED_LPA 7452	Overview of Higher Education	3
ED_LPA 9440	Race, Gender, and Ethnicity in Higher Education	3
ED_LPA 9445	College Student Development	3
ED_LPA 9447	College Student Culture and Environment	3
ED_LPA 9450	Administration and Governance of Higher Education	3
ED_LPA 9451	Higher Education Finance	3
ED_LPA 9457	Higher Education Policy	3
ED_LPA 9485	Assessment in Higher Education	3
ED_LPA 9095	Problems in Educational Leadership and Policy Analysis ((Thesis Hours))	1
Research Methods 1		3
Research Methods 2		3

## Sample Plan of Study

Below is a sample plan of study for Higher Education and Student Affairs

First Year			
Fall	CR	Spring	CR
ED_LPA 9451		3 Research Methods 2	3
ED_LPA 7452		3 ED_LPA 9457	3
Research Methods 1		3 ED_LPA 9445	3
		9	9

  

Second Year			
Fall	CR	Spring	CR
ED_LPA 9440		3 ED_LPA 9450	3
ED_LPA 9447		3 ED_LPA 9095 (Thesis Hours)	3
ED_LPA 9485		3	
		9	6

Total Credits: 33

## Admissions

Contact Information:

College of Education

202 Hill Hall

573-882-8221

573-884-5714 (fax)

ELPA website: <https://education.missouri.edu/educational-leadership-policy-analysis/>

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MA in Educational Leadership and Policy Analysis (<https://gradstudies.missouri.edu/degreecategory/educational-leadership-policy-analysis/>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

## MEd in Educational Leadership and Policy Analysis

### Degree Requirements

The MEd in Educational Leadership and Policy Analysis has emphasis areas in Higher Education (p. 450), PK-12 Educational Leadership and Administration, Elementary Principal, Certification (p. 451), PK-12 Educational Leadership and Administration, Secondary Principal, Certification (p. 452), and PK-12 Educational Leadership and Administration, Elementary and Secondary Principal, Certification (p. 451). Please see the individual emphasis area page for degree requirements and admissions information.

### Contact Information

Educational Leadership and Policy Analysis

202 Hill Hall

573-882-8221

573-884-5714 (fax)

ELPA website: <https://education.missouri.edu/educational-leadership-policy-analysis/>

## MEd in Educational Leadership and Policy Analysis with Emphasis in Higher Education

### Degree Requirements

#### For Higher Education and Student Affairs

(Concentrations do not show on transcripts or diplomas.)

ED_LPA 7452	Overview of Higher Education	3
ED_LPA 9440	Race, Gender, and Ethnicity in Higher Education	3
ED_LPA 9445	College Student Development	3
ED_LPA 9447	College Student Culture and Environment	3
ED_LPA 9450	Administration and Governance of Higher Education	3
ED_LPA 9451	Higher Education Finance	3
ED_LPA 9457	Higher Education Policy	3
ED_LPA 9485	Assessment in Higher Education	3
Electives (3)		3

## Sample Plan of Study

Below is a sample plan of study for Higher Education and Student Affairs

First Year			
Fall	CR	Spring	CR
ED_LPA 7452		3 ED_LPA 9445	3
ED_LPA 9440		3 ED_LPA 9457	3
Elective 1		3 ED_LPA 9450	3
		9	9

  

Second Year			
Fall	CR	Spring	CR
ED_LPA 9451		3 Elective 2	3

ED_LPA 9485	3 Elective 3	3
ED_LPA 9447	3	
		6
		9
		6

Total Credits: 33

### Thesis/Non-Thesis Requirements

In addition to 33 hours of coursework, to complete a Master of Education (MEd), students must write a reflective capstone paper, drawing on knowledge gained throughout the program.

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Educational Leadership and Policy Analysis (<https://gradstudies.missouri.edu/degreecategory/educational-leadership-policy-analysis/>) and the minimum requirements of the Gradua (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>)te School. Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

For application instructions, see: <https://education.missouri.edu/degree/higher-education-med/#apply>

## MEd in Educational Leadership and Policy Analysis with Emphasis in PK-12 Educational Leadership and Administration, Elementary Principal, Certification

At this time we are not offering an MEd in Educational Leadership and Policy Analysis with Emphasis in PK-12 Educational Leadership and Administration, **Elementary Principal**, Certification.

You do have the option of getting both certifications – Elementary and Secondary. Please refer to MEd in Educational Leadership and Policy Analysis with Emphasis in PK-12 Educational Leadership and Administration, Elementary and Secondary Principal, Certification (p. 451).

## MEd in Educational Leadership and Policy Analysis with Emphasis in PK-12 Educational Leadership and Administration, Elementary and Secondary Principal, Certification

### Degree Requirements

ED_LPA 8409	Learning, Curriculum and Assessment for School Leaders	3
ED_LPA 8410	Learning Cultures	3

ED_LPA 8411	Professional Development for Learning	3
ED_LPA 8412	School Improvement	3
ED_LPA 8416	Foundations of School Leadership	3
ED_LPA 8418	Supervision for Learning Environments	3
ED_LPA 8430	School Law and Finance for Principal Leadership	3
ED_LPA 8431	Leadership for Data-Driven Change	3
ED_LPA 8408	Introduction to Ethics and PK-12 Policymaking	3

### Internship Requirement

Students may become eligible for both elementary and secondary level principal certifications by completing two internships. This is gained over three semesters and two hours of internship per semester (a total of 6 graduate hours). To be eligible for PK-12 building level certifications, 300 internship hours must be completed. Specific activities and expectations are provided to students by their internship advisor.

A new cohort begins every summer.

### Sample Plan of Study

First Year					
Fall	CR	Spring	CR	Summer	CR
ED_LPA 8409	3	ED_LPA 8410	3	ED_LPA 8416	3
ED_LPA 8411	3	ED_LPA 8412	3	ED_LPA 8418	3
ED_LPA 9481	2	ED_LPA 9481	2	ED_LPA 8431	3
		8		8	
Second Year					
				Summer	CR
				ED_LPA 8408	3
				ED_LPA 8430	3
				ED_LPA 9481	2
				8	

Total Credits: 33

### Thesis/Non-Thesis Requirements

Upon completion of course work and during the semester of graduation, all students must participate in and pass a capstone exam.

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Educational Leadership and Policy Analysis (<https://gradstudies.missouri.edu/degreecategory/educational-leadership-policy-analysis/>) and the minimum requirements of the Graduat (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>)e School. Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

For application instructions, see: <https://education.missouri.edu/educational-leadership-policy-analysis/degrees-programs/pk-12-administration/>

# MEd in Educational Leadership and Policy Anyalsis with Emphasis in PK-12 Educational Leadership and Administration, Secondary Principal, Certification

At this time we are not offering an MEd in Educational Leadership and Policy Analysis with Emphasis in PK-12 Educational Leadership and Administration, **Secondary Principal**, Certification.

You do have the option of getting both certifications – Elementary and Secondary. Please refer to MEd in Educational Leadership and Policy Analysis with Emphasis in PK-12 Educational Leadership and Administration, Elementary and Secondary Principal, Certification (p. 451).

## EdD in Educational Leadership

The University of Missouri Statewide Cooperative EdD Program (<https://education.missouri.edu/degree/educational-leadership-edd/>) is an innovative, cohort-based program in educational leadership. This professional doctorate enhances knowledge and competencies of leaders in PK-20+ educational organizations. The emphasis of the doctor of education program is on developing effective, thoughtful, and reflective practitioners who are competent in identifying and solving complex problems of practice in educational settings.

### Locations

We work with four partner institutions to deliver the program at locations throughout the state of Missouri:

- Missouri State University
- Northwest Missouri State University
- Southeast Missouri State University
- University of Central Missouri

Students are employed full time as educational leaders while in the program. Following graduation, many remain in their current positions, often receiving a pay raise for completing an advanced degree. Several of our students have also received promotions while in the program or soon after graduating, and some have even transitioned into higher level positions within other educational organizations.

### Degree Requirements

This educational doctorate program is known as **The Statewide Cooperative EdD Program**.

The EdD program requires a minimum of 76 credit hours beyond the baccalaureate degree. The program, offered in a cohort format, includes 34 hours of course work in 6 contiguous semesters, beginning in the summer of odd years and concluding in the spring semester 2 years later. In addition to course work credit, 12 credit hours of dissertation-in-practice research are required.

ED_LPA 9470	Organizational Analysis for Educational Leadership	4
ED_LPA 9471	Educational Leadership Inquiry I	2
ED_LPA 9480	Team Building and Group Dynamics	1

ED_LPA 9476	Leadership Theory and Practice	3
ED_LPA 9477	Leadership Theory and Practice Application	1
ED_LPA 9474	Professional Seminar I (offered over 2 semesters- 1 hour each)	2
ED_LPA 9483	Qualitative Tools for Applied Research in Educational Leadership	3
ED_LPA 9472	Educational Leadership Inquiry II	1
ED_LPA 9478	Policy Analysis for Educational Leadership	4
ED_LPA 9482	Quantitative Tools for Applied Research in Educational Leadership	3
ED_LPA 9484	Program Evaluation and Planning for Educational Leaders	3
ED_LPA 9473	Educational Leadership Inquiry III	1
ED_LPA 9475	Professional Seminar II (offered over 2 semesters - 1 hour each)	2
ED_LPA 9479	Content and Context of Learning	3
ED_LPA 9469	Education Leadership Inquiry IV	1
ED_LPA 9090	Research in Educational Leadership and Policy Analysis	12

### Sample Plan of Study

First Year					
Fall	CR	Spring	CR	Summer	CR
ED_LPA 9476	3	ED_LPA 9483	3	ED_LPA 9470	4
ED_LPA 9477	1	ED_LPA 9472	1	ED_LPA 9471	2
ED_LPA 9474	1	ED_LPA 9474	1	ED_LPA 9480	1
			5	5	7
Second Year					
Fall	CR	Spring	CR	Summer	CR
ED_LPA 9484	3	ED_LPA 9479	3	ED_LPA 9478	4
ED_LPA 9473	1	ED_LPA 9469	1	ED_LPA 9482	3
ED_LPA 9475	1	ED_LPA 9475	1		
			5	5	7

Total Credits: 34

### Admission Contact Information

Educational Leadership & Policy Analysis  
 202 Hill Hall  
 573-884-2163  
 573-884-5714 (fax)  
<http://edd.missouri.edu/>

### Admission Criteria

- GPA of 3.0 (4.0 scale) in the last 60 hours of undergraduate education
- GPA of 3.5 (4.0 scale) in Graduate School (Master's Degree)
- A competitive GRE score - only required if both of the above GPA requirements are not met.
- Official English Proficiency Test Scores (if applicable): Minimum scores accepted by the MU Graduate School for TOEFL, IELTS, PTE, or the Cambridge C1 Advanced Exams for non-native English Speakers: <https://gradschool.missouri.edu/admissions/eligibility-process/international-applicants/>

### EdD Application Information

This cohort program accepts applicants only during even-numbered years with a deadline of October 15.

<http://edd.missouri.edu/>

Candidates who are selected during the initial screening are invited to participate in an Interview Day, which includes completing a problem-solving activity and interviewing with program faculty and alumni.

**Note:** Admissions screening and decisions for all graduate programs are not made until all required materials have been submitted. Admissions recommendations are based on a profile developed from data that include undergraduate (last 60 hours) and graduate grade point averages, scores on the Graduate Record Examinations (GRE), recommendations, evidence of consistency between candidate and program goals, and relevant organizational or educational leadership experience.

For additional information: <https://education.missouri.edu/educational-leadership-policy-analysis/degrees-programs/educational-leadership/>

For general questions:  
573-884-2163  
[mucoeelpaedd@missouri.edu](mailto:mucoeelpaedd@missouri.edu)

## EdSp in Educational Leadership and Policy Analysis

The EdSp program prepares students to become inquiring, reflective school leaders at the school and district levels. We serve a diverse population of graduate students who are making a positive difference in students' lives. The program is delivered through a series of authentic learning experiences and formative assessments designed to meet the individual and group needs of students in each class. Students are expected to demonstrate their competence across a broad range of school and district issues such as instructional leadership, organizational development, fiscal and legal compliance, professional ethics and responsibility, professional development, and internal/external interpersonal relationships. Classes are typically taught as 'hybrid' courses, which include online coursework and face-to-face meetings on weekends. Typically, in the Fall and Spring semesters, classes meet once a month on Friday evenings and Saturdays, during the day. In the summer, courses meet on Fridays and Saturdays, but only for three weekends during the first (June) or second (July) summer sessions. The program meets the requirements for both building-level and district-level certification requirements in Missouri, as well as many other states.

Certification may require additional or particular course choices. Check with your advisor.

The EdSp requires a student to select one of three emphasis areas. While the general degree requirements are listed below, students should refer to the emphasis area pages (p. 448) for detailed information on degree requirements.

### Degree Requirements

The EdSp degree is a 30-hour or more program of study, which includes the following required courses.

ED_LPA 8417	Site-Level Organization and Leadership	3
ED_LPA 8419	Structures and Processes for Effective Schools	3
ED_LPA 8423	Advanced Leadership for Learning Environments	3

ED_LPA 8424	Education Politics and Policymaking	3
ED_LPA 8431	Leadership for Data-Driven Change (this course may be waived if student had similar course in Master's program)	3
ED_LPA 9420	Superintendent: Fiscal Leadership and Management	3
ED_LPA 9424	Superintendent: Instructional Leadership	3
ED_LPA 9429	Superintendent: Communication, Team Leadership	3
ED_LPA 9435	Superintendent: Legal Leadership and Management	3
ED_LPA 9461	Ethics in Education	3

### Internship Requirement

Two internships are offered as part of the EdSp program:

ED_LPA 9481	Internship in Educational Leadership and Policy Analysis (Principal Internship)	3-4
ED_LPA 9481	Internship in Educational Leadership and Policy Analysis (Central Office/ Superintendent Internship)	4

Internship hours will vary depending upon how many certifications the student desires. Students may take more than six hours of electives if the student does not need the internship credit associated with a particular certification (building or district level). If a student already has, or does not desire to have, any type of certification, then internship courses are not required.

### Contact Information

Educational Leadership and Policy Analysis  
202 Hill Hall  
573-882-8221  
573-884-5714 (fax)  
ELPA website: [education.missouri.edu/educational-leadership-policy-analysis/](https://education.missouri.edu/educational-leadership-policy-analysis/) (<https://education.missouri.edu/educational-leadership-policy-analysis/>)

## EdSp in Educational Leadership and Policy Analysis with Emphasis in PK-12 Educational Leadership and Administration, Elementary and Secondary Principal, Certification

### Degree Requirements

ED_LPA 8417	Site-Level Organization and Leadership (this course may be waived if student has principal certificate)	3
ED_LPA 8419	Structures and Processes for Effective Schools	3
ED_LPA 8423	Advanced Leadership for Learning Environments	3
ED_LPA 8424	Education Politics and Policymaking	3
ED_LPA 8431	Leadership for Data-Driven Change (this course may be waived if student had similar course in Master's program)	3

ED_LPA 9420	Superintendent: Fiscal Leadership and Management	3
ED_LPA 9424	Superintendent: Instructional Leadership	3
ED_LPA 9429	Superintendent: Communication, Team Leadership	3
ED_LPA 9435	Superintendent: Legal Leadership and Management	3
ED_LPA 9461	Ethics in Education	3

### Internship Requirement

Students may become eligible for both elementary and secondary level principal certifications by completing two internships. This is gained over three semesters and two hours of coursework per semester (a total of 4 graduate hours). To be eligible for PK-12 building level certifications, 300 internship hours must be completed. Specific activities and expectations are provided to students by their internship advisor.

### Sample Plan of Study

First Year					
Fall	CR	Spring	CR	Summer	CR
ED_LPA 8423	3	ED_LPA 8419	3	ED_LPA 8417	3
ED_LPA 9429	3	ED_LPA 8424	3	ED_LPA 8431	3
ED_LPA 9461	3	ED_LPA 9424	3	ED_LPA 9420	3
ED_LPA 9481	4			ED_LPA 9435	3
(Taken over 2 - 3 semesters)					
		13			12

Total Credits: 34

**\*\* Program can be completed in 3 - 6 semesters.**

### Qualifying Process

Contact department for more information.

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### Comprehensive Examination Process

Upon completion of course work and during the semester of graduation, all students must take and pass a capstone project.

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### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the EdSp in Educational Leadership and Policy Analysis (<https://gradstudies.missouri.edu/degreecategory/educational-leadership-policy-analysis/>) and the minimum requirements of the Grada (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>)fe School. Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

For application instructions, see: <https://education.missouri.edu/educational-leadership-policy-analysis/degrees-programs/pk-12-administration/>

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## EdSp in Educational Leadership and Policy Analysis with Emphasis in PK-12 Educational Leadership and Administration, Elementary and Secondary Principal and Superintendent, Certification

### Degree Requirements

ED_LPA 8417	Site-Level Organization and Leadership	3
ED_LPA 8419	Structures and Processes for Effective Schools	3
ED_LPA 8423	Advanced Leadership for Learning Environments	3
ED_LPA 8424	Education Politics and Policymaking	3
ED_LPA 8431	Leadership for Data-Driven Change (this course may be waived if student had similar course in Master's program)	3
ED_LPA 9420	Superintendent: Fiscal Leadership and Management	3
ED_LPA 9424	Superintendent: Instructional Leadership	3
ED_LPA 9429	Superintendent: Communication, Team Leadership	3
ED_LPA 9435	Superintendent: Legal Leadership and Management	3
ED_LPA 9461	Ethics in Education	3

### Internship Requirement

Students may become eligible for both elementary and secondary level principal certifications by completing two internships, but in two or three semesters (a total of 4 graduate hours). To be eligible for PK-12 building level certifications, 300 internship hours must be completed. Specific activities and expectations are provided to students by their internship advisor.

Students may become eligible for central office/superintendent certification by completing the internship experience required by ELPA for graduation and recommendation to the MO DESE for central office/superintendent certification. This is gained over two or three semesters and two hours of coursework per semester (a total of 4 graduate hours).

To be eligible for central office/superintendent certification, 300 internship hours must be completed. Specific activities and expectations are provided to students by their internship advisor.

All internships may be completed simultaneously, if the student's workday and class schedule allows. (For two building level internships and one central office internship, however, it is unlikely that a student would be able to complete all requirements.) The total number of graduate hours required for both elementary principal and central office/superintendent certifications is 8. **NOTE:** DESE requires two years of building-level administration before they will issue a superintendent certificate.

## Sample Plan of Study

First Year					
Fall	CR	Spring	CR	Summer	CR
ED_LPA 8423	3	ED_LPA 8419	3	ED_LPA 8417	3
ED_LPA 9429	3	ED_LPA 8424	3	ED_LPA 8431	3
ED_LPA 9461	3	ED_LPA 9424	3	ED_LPA 9420	3
ED_LPA 9481	8			ED_LPA 9435	3
(Taken over several semesters)					
		17			12

Total Credits: 38

## Qualifying Process

Contact department for more information.

## Comprehensive Examination Process

Upon completion of course work and during the semester of graduation, all students must take and pass a capstone.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the EdSp in Educational Leadership and Policy Analysis (<https://gradstudies.missouri.edu/degrecategory/educational-leadership-policy-analysis/>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>) at School. Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

For application instructions, see: <https://education.missouri.edu/educational-leadership-policy-analysis/degrees-programs/pk-12-administration/> (<http://catalog.missouri.edu/undergraduategraduate/collegeofeducation/educationalleadershippolicyanalysis/edsp-educational-leadership-policy-analysis-emphasis-pk12-elem-sec-princ-super-cert/>) <https://education.missouri.edu/educational-leadership-policy-analysis/degrees-programs/pk-12-administration/>)

## EdSp in Educational Leadership and Policy Analysis with Emphasis in PK-12 Educational Leadership and Administration, Elementary Principal and Superintendent, Certification

### Degree Requirements

ED_LPA 8417	Site-Level Organization and Leadership	3
ED_LPA 8419	Structures and Processes for Effective Schools	3
ED_LPA 8423	Advanced Leadership for Learning Environments	3
ED_LPA 8424	Education Politics and Policymaking	3

ED_LPA 8431	Leadership for Data-Driven Change	3
ED_LPA 9420	Superintendent: Fiscal Leadership and Management	3
ED_LPA 9424	Superintendent: Instructional Leadership	3
ED_LPA 9429	Superintendent: Communication, Team Leadership	3
ED_LPA 9435	Superintendent: Legal Leadership and Management	3
ED_LPA 9461	Ethics in Education	3

## Internship Requirement

The internship experience required by ELPA for graduation and recommendation to the MO DESE for elementary principal certification is gained over two semesters and two hours of coursework per semester (a total of 4 graduate hours). To be eligible for elementary principal certification, 300 internship hours must be completed. Specific activities and expectations are provided to students by their internship advisor.

Students may become eligible for central office/superintendent certification by completing the internship experience required by ELPA for graduation and recommendation to the MO DESE for central office/superintendent certification. This is gained over three semesters and two hours of coursework per semester (a total of 6 graduate hours). To be eligible for central office/superintendent certification, 300 internship hours must be completed. Specific activities and expectations are provided to students by their internship advisor.

The internships may be completed simultaneously, if the student's workday and class schedule allows. The total number of graduate hours required for both elementary principal and central office/superintendent certifications is 10. **NOTE:** DESE requires two years of building-level administration before they will issue a superintendent certificate.

## Sample Plan of Study

First Year					
Fall	CR	Spring	CR	Summer	CR
ED_LPA 8423	3	ED_LPA 8419	3	ED_LPA 8417	3
ED_LPA 9429	3	ED_LPA 8424	3	ED_LPA 8431	3
ED_LPA 9461	3	ED_LPA 9424	3	ED_LPA 9420	3
ED_LPA 9481	10			ED_LPA 9435	3
(Taken over several semesters)					
		19			12

Total Credits: 40

## Qualifying Process

Contact department for more information.

## Comprehensive Examination Process

Upon completion of course work and during the semester of graduation, all students must take and pass a capstone exam.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the EdSp in Educational Leadership and Policy Analysis (<https://gradstudies.missouri.edu/degrecategory/educational-leadership-policy-analysis/>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements



vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

For application instructions, see: <https://education.missouri.edu/educational-leadership-policy-analysis/degrees-programs/pk-12-administration/>

## EdSp in Educational Leadership and Policy Analysis with Emphasis in PK-12 Educational Leadership and Administration, Elementary Principal, Certification

Our department is no longer admitting students to this emphasis area. We invite you to explore the other graduate degree options within Educational Leadership and Policy Analysis (p. 448).

### Degree Requirements

ED_LPA 8417	Site-Level Organization and Leadership	3
ED_LPA 8419	Structures and Processes for Effective Schools	3
ED_LPA 8423	Advanced Leadership for Learning Environments	3
ED_LPA 8424	Education Politics and Policymaking	3
ED_LPA 8431	Leadership for Data-Driven Change	3
ED_LPA 9420	Superintendent: Fiscal Leadership and Management	3
ED_LPA 9424	Superintendent: Instructional Leadership	3
ED_LPA 9429	Superintendent: Communication, Team Leadership	3
ED_LPA 9435	Superintendent: Legal Leadership and Management	3
ED_LPA 9461	Ethics in Education	3

### Internship Requirement

The internship experience required by ELPA for graduation and recommendation to the MO DESE for elementary principal certification is gained over two semesters and two hours of coursework per semester (a total of 4 graduate hours). To be eligible for elementary building level certification, 300 internship hours must be completed. Specific activities and expectations are provided to students by their internship advisor.

### Sample Plan of Study

First Year					
Fall	CR	Spring	CR	Summer	CR
ED_LPA 8423	3	ED_LPA 8419	3	ED_LPA 8417	3
ED_LPA 9429	3	ED_LPA 8424	3	ED_LPA 8431	3
ED_LPA 9461	3	ED_LPA 9424	3	ED_LPA 9420	3
ED_LPA 9481	4			ED_LPA 9435	3
(Taken over 2 semesters)					
		13			12

Total Credits: 34

### Qualifying Process

Contact department for more information.

### Comprehensive Examination Process

Upon completion of course work and during the semester of graduation, all students must take and pass a capstone exam.

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the EdSp in Educational Leadership and Policy Analysis (<https://gradstudies.missouri.edu/degrecategory/educational-leadership-policy-analysis/>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

For application instructions, see: <https://education.missouri.edu/educational-leadership-policy-analysis/degrees-programs/pk-12-administration/>

## EdSp in Educational Leadership and Policy Analysis with Emphasis in PK-12 Educational Leadership and Administration, Secondary Principal and Superintendent, Certification

### Degree Requirements

ED_LPA 8417	Site-Level Organization and Leadership	3
ED_LPA 8419	Structures and Processes for Effective Schools	3
ED_LPA 8423	Advanced Leadership for Learning Environments	3
ED_LPA 8424	Education Politics and Policymaking	3
ED_LPA 8431	Leadership for Data-Driven Change	3
ED_LPA 9420	Superintendent: Fiscal Leadership and Management	3
ED_LPA 9424	Superintendent: Instructional Leadership	3
ED_LPA 9429	Superintendent: Communication, Team Leadership	3
ED_LPA 9435	Superintendent: Legal Leadership and Management	3
ED_LPA 9461	Ethics in Education	3

### Internship Requirement

The internship experience required by ELPA for graduation and recommendation to the MO DESE for secondary principal certification is gained over two semesters and two hours of coursework per semester (a total of 4 graduate hours). To be eligible for secondary building level

certification, 300 internship hours must be completed. Specific activities and expectations are provided to students by their internship advisor.

Students may become eligible for central office/superintendent certification by completing the internship experience required by ELPA for graduation and recommendation to the MO DESE for central office/superintendent certification. This is gained over three semesters and two hours of coursework per semester (a total of 6 graduate hours). To be eligible for central office/superintendent level certification, 300 internship hours must be completed. Specific activities and expectations are provided to students by their internship advisor.

The internships may be completed simultaneously, if the student's workday and class schedule allows. The total number of graduate hours required for both secondary principal and central office/superintendent certifications is 10. **NOTE:** DESE requires two years of building-level administration before they will issue a superintendent certificate.

### Sample Plan of Study

First Year					
Fall	CR	Spring	CR	Summer	CR
ED_LPA 8423	3	ED_LPA 8419	3	ED_LPA 8417	3
ED_LPA 9429	3	ED_LPA 8424	3	ED_LPA 8431	3
ED_LPA 9461	3	ED_LPA 9424	3	ED_LPA 9420	3
ED_LPA 9481	10			ED_LPA 9435	3
(Taken over several semesters)					
		19			12

Total Credits: 40

### Qualifying Process

Contact department for more information.

### Comprehensive Examination Process

Upon completion of course work and during the semester of graduation, all students must take and pass a capstone exam.

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the EdSp in Educational Leadership and Policy Analysis (<https://gradstudies.missouri.edu/degreecategory/educational-leadership-policy-analysis/>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

For application instructions, see: <https://education.missouri.edu/educational-leadership-policy-analysis/degrees-programs/pk-12-administration/>

## EdSp in Educational Leadership and Policy Analysis with Emphasis in PK-12 Educational Leadership and Administration, Secondary Principal, Certification

### Degree Requirements

ED_LPA 8417	Site-Level Organization and Leadership	3
ED_LPA 8419	Structures and Processes for Effective Schools	3
ED_LPA 8423	Advanced Leadership for Learning Environments	3
ED_LPA 8424	Education Politics and Policymaking	3
ED_LPA 8431	Leadership for Data-Driven Change	3
ED_LPA 9420	Superintendent: Fiscal Leadership and Management	3
ED_LPA 9424	Superintendent: Instructional Leadership	3
ED_LPA 9429	Superintendent: Communication, Team Leadership	3
ED_LPA 9435	Superintendent: Legal Leadership and Management	3
ED_LPA 9461	Ethics in Education	3

### Internship Requirement

The internship experience required by ELPA for graduation and recommendation to the MO DESE for secondary principal certification is gained over two semesters and two hours of coursework per semester (a total of 4 graduate hours). To be eligible for secondary building level certification, 300 internship hours must be completed. Specific activities and expectations are provided to students by their internship advisor.

### Sample Plan of Study

First Year					
Fall	CR	Spring	CR	Summer	CR
ED_LPA 8423	3	ED_LPA 8419	3	ED_LPA 8417	3
ED_LPA 9429	3	ED_LPA 8424	3	ED_LPA 8431	3
ED_LPA 9461	3	ED_LPA 9424	3	ED_LPA 9420	3
ED_LPA 9481	4			ED_LPA 9435	3
(Taken over 2 semesters)					
		13			12

Total Credits: 34

### Qualifying

Contact department for more information.

### Comprehensive Examination Process

Upon completion of course work and during the semester of graduation, all students must take and pass a capstone exam.

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the EdSp in Educational Leadership and Policy Analysis (<https://gradstudies.missouri.edu/degreecategory/>)

educational-leadership-policy-analysis/) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

For application instructions, see: <https://education.missouri.edu/educational-leadership-policy-analysis/degrees-programs/pk-12-administration/>

## EdSp in Educational Leadership and Policy Analysis with Emphasis in PK-12 Educational Leadership and Administration, Superintendent, Certification

### Degree Requirements

ED_LPA 8419	Structures and Processes for Effective Schools	3
ED_LPA 8423	Advanced Leadership for Learning Environments	3
ED_LPA 8424	Education Politics and Policymaking	3
ED_LPA 8431	Leadership for Data-Driven Change (this course may be waived if student had similar course in Master's program)	3
ED_LPA 9420	Superintendent: Fiscal Leadership and Management	3
ED_LPA 9424	Superintendent: Instructional Leadership	3
ED_LPA 9429	Superintendent: Communication, Team Leadership	3
ED_LPA 9435	Superintendent: Legal Leadership and Management	3
ED_LPA 9461	Ethics in Education	3

### Internship Requirement

Students may become eligible for central office/superintendent certification by completing the internship experience required by ELPA for graduation and recommendation to the MO DESE for central office/superintendent certification. This is gained over two or three semesters and two hours of coursework per semester (a total of 4 graduate hours). To be eligible for central office/superintendent certification, 300 internship hours must be completed. Specific activities and expectations are provided to students by their internship advisor.

### Sample Plan of Study

First Year					
Fall	CR	Spring	CR	Summer	CR
ED_LPA 8423	3	ED_LPA 8419	3	ED_LPA 8431	3
ED_LPA 9429	3	ED_LPA 8424	3	ED_LPA 9420	3
ED_LPA 9461	3	ED_LPA 9424	3	ED_LPA 9435	3

ED_LPA 9481 (Taken over 3 semesters)	4		
	13	9	9

Total Credits: 31

### Qualifying Process

Contact department for more information.

### Comprehensive Examination Process

Upon completion of course work and during the semester of graduation, all students must take and pass a capstone project.

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the EdSp in Educational Leadership and Policy Analysis (<https://gradstudies.missouri.edu/degreecategory/educational-leadership-policy-analysis/>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>) the School. Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

For application instructions, see: <https://education.missouri.edu/educational-leadership-policy-analysis/degrees-programs/pk-12-administration/>

## PhD in Educational Leadership and Policy Analysis

### Degree Requirements

The PhD Program in ELPA requires a minimum of 60 hours beyond the master's degree. The PhD in Educational Leadership and Policy Analysis has several emphasis areas for degree choices. For detailed information on degree requirements, please refer to the emphasis area pages (p. 448). Each emphasis area has slightly different requirements and areas of focus. However, all three emphasis areas require a department-wide core, emphasis area coursework, electives, a research core, and the completion of a minimum of 6 hours for the dissertation.

### Contact Information

Educational Leadership and Policy Analysis  
 202 Hill Hall  
 573-882-8221  
 573-884-5714 (fax)  
 ELPA website: <https://education.missouri.edu/educational-leadership-policy-analysis/>

# PhD in Educational Leadership and Policy Analysis with Emphasis in Educational Administration

## Degree Requirements

<b>Core Requirements</b>	<b>12</b>
ED_LPA 9400 Social Theory in Education	
ED_LPA 9401 Educational Leadership	
ED_LPA 9402 Educational Policy Analysis	
ED_LPA 9403 Organizational Analysis	
<b>Research Requirements</b>	<b>15</b>
ED_LPA 9409 Introduction to Research Design	
ED_LPA 8957 Qualitative Methods in Educational Research I	
or LTC 8957 Qualitative Methods in Educational Research I	
ESC_PS 8850 Quantitative Foundations in Educational Research (*)	
Qualitative or Quantitative II course	
ED_LPA 9410 Proseminar in Educational Leadership and Policy Analysis	3
<b>Emphasis Area (one of the areas below)</b>	<b>18</b>
PK-12	18
Educational Policy Studies	18
Higher Education	18
<b>Electives</b>	<b>9</b>
Electives selected with advisor and committee approval (may include additional research, ELPA, or outside ELPA courses)	
<b>Dissertation</b>	<b>6 minimum</b>

## Sample Plan of Study

<b>First Year</b>					
<b>Fall</b>	<b>CR</b>	<b>Spring</b>	<b>CR</b>		
ED_LPA 9400	3	ED_LPA 9409	3		
ED_LPA 9402	3	ED_LPA 9401	3		
ED_LPA 9410	3	Emphasis 1	3		
		9	9		
<b>Second Year</b>					
<b>Fall</b>	<b>CR</b>	<b>Spring</b>	<b>CR</b>		
Research Methods 1	3	Emphasis 3	3		
ED_LPA 9403	3	Emphasis 4	3		
Emphasis 2	3	Research Methods 2	3		
		9	9		
<b>Third Year</b>					
<b>Fall</b>	<b>CR</b>	<b>Spring</b>	<b>CR</b>	<b>Summer</b>	<b>CR</b>
Elective 1	3	Elective 2	3	ED_LPA 9090	1
Research Methods 3	3	Elective 3	3		
Emphasis 5	3	Emphasis 6	3		
		9	9		1

<b>Fourth Year</b>					
<b>Fall</b>	<b>CR</b>	<b>Spring</b>	<b>CR</b>	<b>Summer</b>	<b>CR</b>
ED_LPA 9090	2	ED_LPA 9090	2	ED_LPA 9090	1
		2	2		1

Total Credits: 60

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Educational Leadership and Policy Analysis (<https://gradstudies.missouri.edu/degreecategory/educational-leadership-policy-analysis/>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

For application instructions, see: <https://education.missouri.edu/degree/educational-administration-phd/#apply>

# PhD in Educational Leadership and Policy Analysis with Emphasis in Educational Policy Studies

## Degree Requirements

<b>Core Requirements</b>	<b>12</b>
ED_LPA 9400 Social Theory in Education	
ED_LPA 9401 Educational Leadership	
ED_LPA 9402 Educational Policy Analysis	
ED_LPA 9403 Organizational Analysis	
<b>Research Requirements</b>	<b>15</b>
ED_LPA 9409 Introduction to Research Design	
ED_LPA 8957 Qualitative Methods in Educational Research I	
or LTC 8957 Qualitative Methods in Educational Research I	
ESC_PS 8850 Quantitative Foundations in Educational Research (*)	
Qualitative or Quantitative II course	
ED_LPA 9410 Proseminar in Educational Leadership and Policy Analysis	3
<b>Emphasis Area (one of the areas below)</b>	<b>18</b>
PK-12	18
Educational Policy Studies	18
Higher Education	18
<b>Electives</b>	<b>9</b>
Electives selected with advisor and committee approval (may include additional research, ELPA, or outside ELPA courses)	
<b>Dissertation</b>	<b>6 minimum</b>

\* ESC\_PS 7170: Introduction to Education Statistics is the formal prerequisite to ESC\_PS 8850 and does not count toward your doctoral program plan.

## Sample Plan of Study

First Year					
Fall	CR	Spring	CR		
ED_LPA 9400	3	ED_LPA 9401	3		
ED_LPA 9402	3	ED_LPA 9409	3		
ED_LPA 9410	3	Emphasis 1	3		
		9	9		
Second Year					
Fall	CR	Spring	CR		
ED_LPA 9403	3	Emphasis 3	3		
Research Methods 1	3	Emphasis 4	3		
Emphasis 2	3	Research Methods 2	3		
		9	9		
Third Year					
Fall	CR	Spring	CR	Summer	CR
Emphasis 5	3	Elective 2	3	ED_LPA 9090	1
Elective 1	3	Elective 3	3		
Research Methods 3	3	Emphasis 6	3		
		9	9	1	
Fourth Year					
Fall	CR	Spring	CR	Summer	CR
ED_LPA 9090	2	ED_LPA 9090	2	ED_LPA 9090	1
		2	2	1	

Total Credits: 60

For information about the qualifying process, comprehensive examination process, and dissertation examination, please contact the department.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Educational Leadership and Policy Analysis (<https://gradstudies.missouri.edu/degrecategory/educational-leadership-policy-analysis/>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

# PhD in Educational Leadership and Policy Analysis with Emphasis in Higher Education

## Degree Requirements

Core Requirements		12
ED_LPA 9400	Social Theory in Education	
ED_LPA 9401	Educational Leadership	
ED_LPA 9402	Educational Policy Analysis	
ED_LPA 9403	Organizational Analysis	
Research Requirements		15
ED_LPA 9409	Introduction to Research Design	

ED_LPA 8957	Qualitative Methods in Educational Research I	
or LTC 8957	Qualitative Methods in Educational Research I	
ESC_PS 8850	Quantitative Foundations in Educational Research (*)	
Qualitative or Quantitative II course		
ED_LPA 9410	Proseminar in Educational Leadership and Policy Analysis	3
Emphasis Area (one of the areas below)		18
PK-12		18
Educational Policy Studies		18
Higher Education		18
Electives		9
Electives selected with advisor and committee approval (may include additional research, ELPA, or outside ELPA courses)		
Dissertation		6 minimum

\* ESC\_PS 7170: Introduction to Education Statistics is the formal pre-requisite to ESC\_PS 8850 and does not count toward your doctoral program plan.

## Sample Plan of Study

First Year					
Fall	CR	Spring	CR		
ED_LPA 9400	3	ED_LPA 9401	3		
ED_LPA 9402	3	ED_LPA 9409	3		
ED_LPA 9410	3	Emphasis 1	3		
		9	9		
Second Year					
Fall	CR	Spring	CR		
ED_LPA 9403	3	Emphasis 3	3		
Research Methods 1	3	Emphasis 4	3		
Emphasis 2	3	Research Methods 2	3		
		9	9		
Third Year					
Fall	CR	Spring	CR	Summer	CR
Emphasis 5	3	Elective 2	3	ED_LPA 9090	1
Elective 1	3	Elective 3	3		
Research Methods 3	3	Emphasis 6	3		
		9	9	1	
Fourth Year					
Fall	CR	Spring	CR	Summer	CR
ED_LPA 9090	2	ED_LPA 9090	2	ED_LPA 9090	1
		2	2	1	

Total Credits: 60

For information about the qualifying process, comprehensive examination process, and dissertation examination, please contact the department.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Educational Leadership and Policy Analysis (<https://gradstudies.missouri.edu/degrecategory/educational-leadership-policy-analysis/>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to

learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

## Educational Studies

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Dr. Casandra Harper Morris  
Department of Educational Leadership and Policy Analysis  
202 Hill Hall  
573-882-2818  
harpercas@missouri.edu

The Bachelor of Educational Studies (BES) is for students with interests in the scientific and scholarly study of education and/or education-related careers in non-school settings. Specific areas of interest may include learning theory, technology in education (including game design), educational and community leadership, organizational change, and policies that shape learning environments. BES coursework provides a foundation in educational theory, research, and practice that engages students in settings where they can influence change (e.g., schools; international contexts; student affairs; churches; sports, non-profit, and private organizations).

This degree maybe be completed on campus or online and offers an interdisciplinary approach with flexibility to personalize a program of study based on career aspirations and interests.

For information about the online BES program, contact the College of Education Advising Office.  
Phone: 573-882-5659  
Address: 101 Hill Hall  
Email: MizzouEdAdvising@missouri.edu

### Faculty

There are two main faculty groups involved in delivering the Bachelor of Educational Studies. Follow these links to meet our faculty!  
Educational Leadership and Policy Analysis Faculty (<https://education.missouri.edu/educational-leadership-policy-analysis/people/faculty/>)

School of Information Science and Learning Technologies Faculty (<http://sislt.missouri.edu/faculty/>)

### Educational Leadership and Policy Analysis Faculty

**Adjunct Professor** T. Whitaker  
**Assistant Professor** M. Dorimé-Williams, M. S. Williams, S. Woong Lee,  
**Assistant Teaching Professor** C. Belcher, B. Whitaker  
**Associate Professor** E. Crawford-Rossi, B. Curs, S. Diem, L. Dornier, T. Douglas, J. Sebastian, P. Mendoza, C. H. Morris  
**Postdoctoral Fellow** D. Aguayo, L. Schultz  
**Professor** S. Graham

### School of Information Science and Learning Technologies Faculty

**Adjunct Professor** K. Galyen  
**Assistant Adjunct Professor** G. Allen  
**Assistant Professor** S. Buchanan, Hyerim Cho, T. Gibson. D. Oprean, X. Xu

**Assistant Teaching Professor** J. Alston, C. L. Beau, B. Brendler, A. Klimczak, K. Robinson  
**Associate Professor** D. Adkins, J. Bossaller, I. Jahnke, H. M. Sandy, C. A. Seavey  
**Associate Professor Emeritus** J. A. Caplow, T. R. Kochtanek  
**Professor** D. Johassen, R. M. Marra, J. L. Moore, J. Strobel  
**Professor Emeritus** B. Allen, J. M. Budd, S. Erdelez, G. Fitzgerald, J. M. Laffey, M. E. Sievert, J. Wedman  
**Teaching Professor** L. R. Esser, J. L. Howland,

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BES in Educational Studies (p. 461)
  - with emphasis in Interdepartmental (p. 462)

## Graduate

For graduate degree programs related to educational studies, please see the Department of Educational Leadership and Policy Analysis (p. 448) or other College of Education (p. 416) programs. You might also browse the complete list of degree options (p. 20) at the University of Missouri.

## BES in Educational Studies

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### Degree Program Description

The Bachelor of Educational Studies (BES) is for students with interests in the scientific and scholarly study of education and/or education-related careers in non-school settings. Specific areas of interest may include learning theory, technology in education (including game design), educational and community leadership, organizational change, and policy. BES coursework provides a foundation in educational theory, research, and practice that engage students in settings where they can influence change (e.g., schools; international contexts; student affairs; churches; sports, non-profit, and private organizations). The College of Education will not recommend certification to teach in the public schools on the basis of this degree. The Bachelor of Educational Studies may be completed on campus or online. Students interested in this degree on campus may complete an individualized major course of study developed with an advisor from the office of Advising Services.

### Major Program Requirements

Candidates for the BES degree must complete a total of at least 120 semester hours of college credit applicable to the Bachelor of Educational Studies degree.

The remaining degree program graduation requirements are as follows:

1. The candidate for the Bachelor of Educational Studies degree must meet the general education requirements of MU.
2. The candidate must complete at least 24 semester hours of course work offered by the College of Education in accordance with the candidate's educational and career objectives.

3. The candidate must complete at least one area of concentration totaling 24 or more semester hours (exclusive of 2 above) in accordance with the candidate's educational and career objectives.
4. The candidate must have a cumulative GPA of at least 2.500 based upon all MU coursework as well as an overall GPA of 2.500 based upon all college coursework completed.
5. The candidate must meet the residence requirement of MU.
6. Candidates shall have a professional practicum or field experience for academic credit appropriate to their degree program. This credit shall be for a minimum of 2 credit hours. The instructor of record for this experience will be a faculty member within the College of Education.
7. The candidate must be recommended for the degree by the faculty of the College of Education.
8. At 60 credit hours of completed coursework, students will be required to complete a Graduation Plan that will serve as a preliminary graduation check.
9. Degree candidates must earn 30 of their last 36 semester hours of credit through the University of Missouri-Columbia in order to obtain the degree of Bachelor of Educational Studies.

## Semester Plan

This degree does not currently have a sample semester plan. Please schedule an appointment with a College of Education academic advisor (MizzouEdAdvising@missouri.edu) to discuss courses.

## BES in Educational Studies with Emphasis in Interdepartmental

### Degree Program Description

The Bachelor of Educational Studies (BES) is for students with interests in the scientific and scholarly study of education and/or education-related careers in non-school settings. Specific areas of interest may include learning theory, technology in education (including game design), educational and community leadership, organizational change, and policy. BES coursework provides a foundation in educational theory, research, and practice that engage students in settings where they can influence change (e.g., schools; international contexts; student affairs; churches; sports, non-profit, and private organizations). The College of Education will not recommend certification to teach in the public schools on the basis of this degree. The Bachelor of Educational Studies may be completed on campus or online. Students interested in this degree on campus may complete an individualized major course of study developed with an advisor from the office of Advising Services.

### Major Program Requirements

Candidates for the BES degree must complete a total of at least 120 semester hours of college credit applicable to the Bachelor of Educational Studies degree.

The remaining degree program graduation requirements are as follows:

1. The candidate for the Bachelor of Educational Studies degree must meet the general education requirements of MU.
2. The candidate must complete at least 24 semester hours of course work offered by the College of Education in accordance with the candidate's educational and career objectives.

3. The candidate must complete at least one area of concentration totaling 24 or more semester hours (exclusive of 2 above) in accordance with the candidate's educational and career objectives.
4. The candidate must have a cumulative GPA of at least 2.500 based upon all MU coursework as well as an overall GPA of 2.500 based upon all college coursework completed.
5. The candidate must meet the residence requirement of MU.
6. Candidates shall have a professional practicum or field experience for academic credit appropriate to their degree program. This credit shall be for a minimum of 2 credit hours. The instructor of record for this experience will be a faculty member within the College of Education.
7. The candidate must be recommended for the degree by the faculty of the College of Education.
8. At 60 credit hours of completed coursework, students will be required to complete a Graduation Plan that will serve as a preliminary graduation check.
9. Degree candidates must earn 30 of their last 36 semester hours of credit through the University of Missouri-Columbia in order to obtain the degree of Bachelor of Educational Studies.

## Semester Plan

This degree does not currently have a sample semester plan. Please schedule an appointment with a College of Education academic advisor (MizzouEdAdvising@missouri.edu) to discuss courses.

## Elementary Education

Dr. Laurie Kingsley, Director of Teacher Education  
Department of Learning, Teaching and Curriculum  
202 Townsend Hall  
573-882-0560  
TeacherEducation@missouri.edu

Professional education coursework is delivered by four departments within the College of Education, namely, Learning, Teaching and Curriculum; Special Education; Educational Leadership and Policy Analysis; and Educational, School and Counseling Psychology.

### Faculty

College of Education Faculty (<https://education.missouri.edu/people/faculty/>)

### Undergraduate

- BSEd in Elementary Education (p. 462)
  - with emphasis in Elementary Education (p. 463)

### Graduate

For graduate degree programs related to elementary education, please see the Department of Learning, Teaching and Curriculum (p. 467) or other College of Education (p. 416) programs. You might also browse the complete list of degree programs at the University of Missouri (p. 20).

## BSEd in Elementary Education

### Degree Program Description

The Elementary Education program leads to a Bachelor of Science in Education in Elementary Education, grades one through six. A student must enroll in the emphasis area, Elementary Education (p. 463)

in order to obtain this degree. Coursework focuses on development of the knowledge, skills, and dispositions needed to support teaching and learning in a variety of diverse settings, and includes elementary methods courses designed to support elementary school teaching and learning in all subject areas. Each semester includes extensive experiences in elementary classrooms working with teachers and children, with immediate opportunities to put course ideas into practice. Placements are carefully chosen to represent schools that represent diverse demographics and populations. The culminating Senior Year On-Site Program (SYOSP) is a unique yearlong internship that gives interns the opportunity to experience all facets of the teaching profession. SYOSP is designed to immerse the interns in the life and culture of a school community, and begins with teacher back-to-school meetings and assisting with classroom set-up. Interns are regarded as full-time members of the school faculty and participate in all school events and experiences such as teacher workdays, professional learning communities, and data team meetings. Students will spend a minimum of three full days per week in the schools during the first semester while also completing a full course load that complements the internship. During the second semester, the internship extends to five full days in a single classroom where the SYOSP intern completes the student teaching experience.

## Major Program Requirements

Students must complete all university (p. 35), general education (p. 36) and degree requirements (p. 463). Please meet with a Mizzou Ed Academic Advisor to discuss degree requirements and to create a semester plan.

Teacher Education programs in the College of Education are accredited by the Missouri Department of Elementary and Secondary Education (DESE (<https://dese.mo.gov/>)). Curriculum changes mandated to earn teacher certification may become effective at any point during your academic program. Therefore, it is extremely important that you DO NOT SELF ADVISE.

## Semester Plan

The BSEd in Elementary Education has an emphasis area in Elementary Education. Please see the emphasis area page for a semester plan.

## BSEd in Elementary Education with Emphasis in Elementary Education

### Degree Program Description

The Elementary Education program leads to a Bachelor of Science in Education in Elementary Education, grades one through six. Coursework focuses on development of the knowledge, skills, and dispositions needed to support teaching and learning in a variety of diverse settings, and includes elementary methods courses designed to support elementary school teaching and learning in all subject areas. Each semester includes extensive experiences in elementary classrooms working with teachers and children, with immediate opportunities to put course ideas into practice. Placements are carefully chosen to represent schools that represent diverse demographics and populations. The culminating Senior Year On-Site Program (SYOSP) is a unique yearlong internship that gives interns the opportunity to experience all facets of the teaching profession. SYOSP is designed to immerse the interns

in the life and culture of a school community, and begins with teacher back-to-school meetings and assisting with classroom set-up. Interns are regarded as full-time members of the school faculty and participate in all school events and experiences such as teacher workdays, professional learning communities, and data team meetings. Students will spend a minimum of three full days per week in the schools during the first semester while also completing a full course load that complements the internship. During the second semester, the internship extends to five full days in a single classroom where the SYOSP intern completes the student teaching experience.

## Major Program Requirements

Students must complete all university (p. 35), general education (p. 36), and content requirements, in addition to the degree requirements.

Please meet with an Academic Advisor to discuss degree requirements and to create a semester plan.

**Teacher Education programs in the College of Education are accredited by the Missouri Department of Elementary and Secondary Education (DESE (<https://dese.mo.gov/>)). Curriculum changes mandated to earn teacher certification may become effective at any point during your academic program. Therefore, it is extremely important that you DO NOT SELF ADVISE.**

### Degree Requirements Sample Program

#### Phase I

LTC 1100	Orientation (Recommended)	1
or LTC 1120	Orientation: Math Education	
or LTC 1130	Orientation: Middle School Education	
or LTC 1155	Orientation: Science Education	
or LTC 1170	Orientation: English/Language Arts	
or SPC_ED 1100	Orientation: Special Education	
LTC 2200	School Health and Student Wellbeing	3
ESC_PS 2000	Experiencing Cultural Diversity in the United States	3
ESC_PS 2010	Inquiry Into Learning I	3
ESC_PS 2014	Inquiry into Learning I - Field Experience	1
LTC 2040	Inquiring into Schools, Community and Society I	3
LTC 2044	Inquiry into Schools, Community and Society: Field	1
IS_LT 2467	Inquiry into Empowering Learners with Technology	3

#### Phase II

LTC 4194	Elementary Education Field Experience I	1-3
LTC 4211	Literacy Assessment and Development	3
LTC 4250	Music for Children	2
LTC 4280	Teaching Science in Elementary Schools	3
LTC 4300	Learning and Teaching Number and Operation in the Elementary School	3
SPC_ED 4020	Teaching the Exceptional Learner	3
LTC 4221	Contexts and Methods for Elementary Reading Instruction	3
LTC 4240	Art for Children	2
LTC 4260	Elementary Social Studies	3
LTC 4294	Elementary Education Field Experience II	1-3
LTC 4310	Learning and Teaching Geometry in the Elementary School	3



LTC 4460	Teaching English to Speakers of Other Languages	3
<b>Phase III</b>		
ED_LPA 4060	Inquiring into Schools, Community and Society II	3
LTC 4231W	Contexts and Methods for Writing Instruction - Writing Intensive	3
LTC 4241	Diverse Literature for Children and Youth	3
LTC 4971	Internship and Capstone Seminar	3
SPC_ED 4310	Behavioral and Classroom Management	3
LTC 4971	Internship and Capstone Seminar	12

## Semester Plan

First Year			
Fall	CR	Spring	CR
LTC 1100		1 LTC 2200	3
ENGLSH 1000		3 General Education Math Requirement	3
American History or Government		3 Humanities	3
ESC_PS 2000 (Social Science)		3 Writing Intensive	3
Humanities		3 Elective	3
Elective		3	
		16	15

Second Year			
Fall	CR	Spring	CR
ESC_PS 2010 or LTC 2040 (Social Science)		3 ESC_PS 2010 or LTC 2040 (Social Science)	3
ESC_PS 2014 or LTC 2044		1 ESC_PS 2014 or LTC 2044	1
IS_LT 2467		3 Lab Science	3
Biological, Physical, Mathematical Science		3 Humanities	3
Biological, Physical, Mathematical Science		3 Elective	3
		Elective	2
		13	15

Third Year			
Fall	CR	Spring	CR
LTC 4194		3 LTC 4221	3
LTC 4211		3 LTC 4240	2
LTC 4250		2 LTC 4260	3
LTC 4280		3 LTC 4294	3
LTC 4300		3 LTC 4310	3
SPC_ED 4020		3 LTC 4460	3
		17	17

Fourth Year			
Fall	CR	Spring	CR
ED_LPA 4060		3 LTC 4971	12
LTC 4231W		3	
LTC 4241		3	
LTC 4971		3	
SPC_ED 4310		3	
		15	12

Total Credits: 120

## Information Science and Learning Technologies

School of Information Science & Learning Technologies  
 304 Townsend Hall  
 Columbia, MO 65211  
 phone: 877-747-5868  
 phone: 573-882-4546  
 fax: 573-884-0122  
 email: [sislt@missouri.edu](mailto:sislt@missouri.edu)  
 website: <http://sislt.missouri.edu/>

### Faculty

**Professor** R. Marra\*\*, J. Moore\*\*, J. Strobel\*\*  
**Associate Professor** D. Adkins\*\*, J. Bossaller\*\*, I. Jahnke\*\*, H. Moulaison-Sandy\*\*  
**Assistant Professor** S. Buchanan\*\*, H. Cho\*\*, T. Gibson\*\*, D. Oprean\*, X. Xu\*\*  
**Teaching Professor** J. Howland\*  
**Assistant Teaching Professor** J. Alston\*, B. Brendler\*, A. Klimczak\*, K. Robinson\*,  
**Professor Emeriti** J. M. Budd\*\*, J. Caplow\*, G. Fitzgerald\*\*, T. R. Kochtanek\*\*, J. Laffey\*\*, M. Sievert

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

### Undergraduate

While MU does not offer undergraduate degrees specifically in information science and learning technologies, the University does offer baccalaureate opportunities in a number of related areas, both within the College of Education (specifically, the Bachelor of Educational Studies (p. 461)), and in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 20).

### Graduate

- PhD in Information Science and Learning Technologies (p. 465)

### About the PhD in Information Science & Learning Technologies

In January 1997, the School of Information Science & Learning Technologies (SISLT) became the home for MU's graduate programs in Library and Information Science and Educational Technologies as well as a new, interdisciplinary doctoral program in Information Science & Learning Technologies.

As a SISLT doctoral student you can follow interdisciplinary paths. Approaches to inquiry include technical, cognitive, epistemological, cultural, political, and economic aspects of informing and learning. Interest areas include:

- Advanced study of contemporary learning and instructional theories
- Learner-centered design, interface design, and information access design

- Advanced networked learning systems, including digital libraries and learning communities
- Human centered computing
- Information-seeking and use
- Information organization
- Human institutions, including libraries, that support the production and dissemination of and access to information

SISLT is a member of the iSchools consortium, an international consortium of information schools in institutions of higher education dedicated to advancing the information field in the 21st century.

SISLT Student Services, 304 Townsend Hall  
 573-882-4546 or toll free 877-747-5868  
<http://sislt.missouri.edu/>

## PhD in Information Science and Learning Technologies

### About the Program

The PhD program prepares professionals to understand and influence learning, information and performance in diverse settings, especially through the use of interactive technologies. We seek individuals who are committed to conducting research that integrates theory and practice.

You will gain the competencies required to:

- Analyze specific informational organization and retrieval, learning and performance needs and evaluate systems to meet these needs.
- Design, develop and implement technologies and technological interventions to improve information organization and retrieval, learning and performance.
- Conduct systematic research, which contributes to the knowledge base of learning, information organization and retrieval, performance and/or technology.

### Degree Requirements

1-3 master's level conceptual courses in Educational Technology or Library Science (if entering doctoral program without Master's in Educational Technology, Library Science, or a related field)

<b>Doctoral Seminar Courses (9 credit hours)</b>		
IS_LT 9411	Doctoral Seminar in Information Science and Learning Technologies (Design & Analysis of Research in Information Science & Learning Technologies, and other research and theory seminars)	9
<b>Elective SISLT Coursework (minimum of 18 credit hours)</b>		
IS_LT coursework		18
<b>Research Methodologies (minimum of 9 credit hours)</b>		
9 credit hours minimum includes: at least one course in qualitative research design and one course in quantitative research design. You should choose research methods courses that will support your dissertation. You may choose them from the College of Education's research method courses, or you may look outside the College of Education if your Program of Study committee thinks it is appropriate.		
ESC_PS 7170	Introduction to Applied Statistics	3
ESC_PS 8957	Qualitative Methods in Educational Research I	3
ESC_PS 9620	Qualitative Methods in Educational Research II	3

### Support Field (9 or more credit hours)

Coordinated coursework related to an area of emphasis outside IS_LT and research courses selected in consultation with your program committee	9
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### Dissertation

Course work, internships and independent study projects support the achievement of these competencies, and your program centers on producing a portfolio of achievements indicating that the competencies have been attained. While course work supports production of the portfolio, we encourage students to develop products that cut across several courses, resulting in products that are personally satisfying, solve real problems and represent high quality work. We are particularly interested in products developed in collaboration with other students, faculty, practicing professionals and others beyond our program and campus.

The program culminates with a significant research effort - the dissertation - that contributes to the knowledge base of learning, information organization and retrieval, performance and/or technology. Whether one major study or a series of smaller studies, the research is designed to position our graduates alongside the leading theorists, researchers and practitioners in the field. There is no minimum number of 9090 research hours.

### Sample Plan of Study

During your first two academic semesters, you will work with your assigned advisor to select courses and identify Professional Immersion activities that will successfully lead toward the completion of your degree. During this same time period, you should work to establish professional relationships with faculty in SISLT and your supporting field who you would like to include on your Program Committee. Prior to the beginning of your second academic year of study, you must have identified your Program Committee and conducted a Program of Study meeting with your Program Committee. Early approval of your Program of Study will enhance your academic experience in SISLT. This is a very important part of the degree planning process; failure to receive approval of your Program of Study prior to the second academic year may mean that courses or activities completed afterward may not count toward your degree.

### Qualifying Examination

Approximately one to two semesters after you have had your Program of Study and Residency plan approved by your committee, AND BEFORE you may complete your portfolio and take comprehensive exams, you will be required to complete a qualifying examination. The exam task will require you to complete a task that academic professionals would be required to perform. For example, we might have you provide a scholarly review of a journal or conference paper submission. Your advisor will provide more details.

### Comprehensive Examination Process

The comprehensive examination is an assessment of your comprehensive knowledge of information science and learning technologies. It is your responsibility to inform your committee members of your intent to complete your comprehensive exam prior to the beginning of the semester in which you plan to complete the exam.

The IS&LT examination consists of three parts:

- Portfolio
- Written component
- Oral component

For more information on the comprehensive exam process, please refer to the SISLT PhD Handbook at [http://sislt.missouri.edu/phd\\_handbook/index.html](http://sislt.missouri.edu/phd_handbook/index.html) ([http://sislt.missouri.edu/phd\\_handbook/](http://sislt.missouri.edu/phd_handbook/)).

## Dissertation Requirements

You should become involved in research throughout your program so that, by the time the comprehensive examination is completed, you have a well-formulated topic for research. Research may include required coursework activities, collaborations with faculty, or an independent effort. Earlier research can serve to explore a dissertation topic, serve as a pilot study, or become part of a dissertation prospectus. However, formal approval of a dissertation prospectus by your Committee must precede the serious pursuit of the study.

### Dissertation Committee

Following the completion of the comprehensive examination, the responsibility of the Program Committee is completed. You will then form a committee to direct your dissertation. This committee may, but does not have to, consist of the same members as the Program Committee. You are encouraged to include those faculty members who can best support your line of research as members of your Dissertation Committee. During your academic program, your interests may change and should be reflected in the Dissertation Committee membership. The Dissertation Committee must consist of a minimum of three SISLT faculty members. The Dissertation Committee chair must be a member of the MU doctoral faculty. A faculty member or practitioner holding a terminal degree from outside of SISLT who has expertise in your research may be added as a special Committee member with program approval. At least one member must be from a program other than IS&LT, typically from your minor or supporting field.

### Dissertation Proposal Meeting

You will be required to schedule a dissertation proposal meeting prior to beginning your research. Your Dissertation Committee must approve your conceptualization and methodology prior to beginning any data collection. The proposal meeting is open to all faculty and students in the School. The proposal should include the first three chapters (Chapter 1: Rationale for the Study, Chapter 2: Literature Review, Chapter 3: Description of Methodology) of the dissertation unless your Committee has approved an alternative form.

### Dissertation Defense

After receiving your Dissertation Chair's approval, you may schedule your dissertation defense. A copy of your dissertation must be sent to each committee member at least three weeks prior to the defense meeting. Other faculty, students, and staff may also attend your oral defense. It will be announced to the entire program at least one week prior to the scheduled examination time. These people will be excused while the Committee evaluates your performance.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Information Science and Learning Technologies program (<http://sislt.missouri.edu/islt/>) and the minimum requirements of the Graduate School ([http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-](http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php)

requirements.php). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

Email: [sislt@missouri.edu](mailto:sislt@missouri.edu)  
SISLT Student Services  
304 Townsend Hall  
Columbia, MO 65211  
Phone: 573-882-4546 or toll free 877-747-5868

## Learning, Teaching and Curriculum

Professionals interested in advancing their careers in education can specialize in a variety of disciplines in MU's Department of Learning, Teaching and Curriculum. LTC specializes in teacher preparation and in graduate programming for professionals in education. Students find challenging, yet rewarding, opportunities through MU's dynamic research centers and projects and are supported by faculty who are subject matter experts.

Consider LTC if you:

- want to advance as a professional in education through a field specialization
- enjoy exercising independent judgment, and
- desire to help all learners achieve success and strengthen the future through education.

Contact us:

Dr. Candace Kuby, Department Chair  
303 Townsend Hall  
Columbia, MO 65211  
phone: 573-882-2965  
website: <https://education.missouri.edu/learning-teaching-curriculum/>

## Faculty

**Professor** E. Baker\*\*, K. B. Chval\*\*, S. Empson\*\*, P. J. Friedrichsen\*\*, J. Lannin\*\*  
**Associate Professor** A. J. Castro\*\*, Z. de Araujo\*\*, L. King\*\*, C. Kuby\*\*, A. Lannin\*\*, S. Otten\*\*, R. Petrone\*, R. Pinnow\*\*, M. Siegel\*\*, K. Unrath\*\*, C. Weibel\*\*, A. Zapata  
**Assistant Professor** L. Helmick\*, M. Metz\*\*, T. Morton\*, C. Munter\*\*, S. von Gillern\*, A. Woodson\*, L. Zangori\*\*  
**Teaching Professor** L. Kingsley\*  
**Associate Teaching Professor** L. Neier\*, J. Ostrow\*  
**Assistant Teaching Professor** N. Ashcraft\*, R. Metro, L. Ray\*  
**Postdoctoral Fellow** R. Ellis  
**Department Chair** C. Kuby\*\*  
**Associate Department Chair** S. Otten\*\*  
**Richard G. Miller Professor** S. Empson\*\*  
**Lois Knowles Faculty Fellow** S. Otten\*\*  
**Curators' Professor** B. Reys\* (Emerita), R. E. Reys\*\* (Emeritus)  
**Research Professor Emeritus** D. A. Grouws\*  
**Professor Emeritus** L. H. Barrow\*, R. F. Fox\*\*, N. Knipping\*, S. Palonsky\*\*, R. Robinson\*  
**Associate Professor Emeritus** M. Volkmann\*, C. Gilles\*\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

While MU does not offer undergraduate degrees specifically in Learning, Teaching & Curriculum, the University does offer baccalaureate opportunities in a number of related areas, both within the College of Education, and in the other Schools and Colleges that comprise the University. The catalog provides a complete list of these degree options (p. 20).

## Graduate

- MEd in Learning, Teaching and Curriculum (p. 467)
  - with emphasis in Art Education (p. 468)
  - with emphasis in Art Education, Certification (p. 468)
  - with emphasis in Early Childhood Education (p. 469)
  - with emphasis in Early Childhood Education, Certification (p. 470) (currently closed to new applications)
  - with emphasis in Elementary Education (p. 470)
  - with emphasis in English Education (p. 471)
  - with emphasis in Literacy Education (p. 472)
  - with emphasis in Mathematics Education (p. 473)
  - with emphasis in Mathematics Education, Certification (p. 473) (currently closed to new applications)
  - with emphasis in Science Education (p. 474)
  - with emphasis in Science Education, Certification (p. 474) (currently closed to new applications)
  - with emphasis in Social Studies Education (p. 475)
  - with emphasis in Teaching English to Speakers of Other Languages (p. 475)
- EdSp in Learning, Teaching and Curriculum (p. 478)
  - with emphasis in Literacy Education (p. 478) (currently closed to new applications)
  - with emphasis in Mathematics Education (p. 479)
  - with emphasis in Science Education (p. 480)
- EdD in Learning, Teaching and Curriculum (p. 476) (currently closed to new applications)
  - with emphasis in Elementary Education (p. 477)
  - with emphasis in General (p. 477)
  - with emphasis in Reading Education (p. 477)
- PhD in Learning, Teaching and Curriculum (p. 480)
  - with emphasis in Art Education (p. 481)
  - with emphasis in Early Childhood Education (p. 481)
  - with emphasis in Elementary Education (p. 482) (currently closed to new applications)
  - with emphasis in Foreign Language Education (p. 482) (currently closed to new applications)
  - with emphasis in General (p. 482) (currently closed to new applications)
  - with emphasis in Language and Literacies for Social Transformation (p. 482)
- with emphasis in Mathematics Education (p. 483)
- with emphasis in Reading Education (p. 484) (currently closed to new applications)
- with emphasis in Science Education (p. 485)
- with emphasis in Social Studies Education (p. 485)

Learning, Teaching and Curriculum  
Graduate Student Services  
303 Townsend Hall  
Columbia, MO 65211  
573-882-3742  
<https://education.missouri.edu/learning-teaching-curriculum/>

**Director of Graduate Studies:** Dr. Patricia Friedrichsen

## About the Program

Graduate study in Learning, Teaching, & Curriculum prepares teachers, curriculum leaders and teacher educators for professional excellence. With the rapid changes in education--especially developments in instructional materials and techniques, curriculum construction and classroom organization--teachers who have completed their certification may need to update, refine and extend their knowledge and skills.

Further, many educators enter new roles as subject-matter specialists, curriculum coordinators, supervisors of instruction, department heads, leaders of professional development education or teacher educators. Graduate programs in Learning, Teaching, & Curriculum are designed to prepare the professionals for these new roles.

## Areas of Study

Depending on the degree program, students can pursue discipline-specific emphasis areas (e.g., English education, mathematics education, science education and others) and focus on curriculum development, research, or teacher education.

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

## MEd in Learning, Teaching and Curriculum

### Degree Requirements

The M.Ed. program requires a minimum of 30 hours in Learning, Teaching, & Curriculum coursework.

The following emphasis areas are currently offered: Art Education, Early Childhood Education, Elementary Education, English Education, Literacy Education, Mathematics Education, Science Education, Social Studies Education, and Teaching English to Speakers of Other Languages (TESOL).

### Admission Requirements

Applicants are encouraged to submit their applications as early in the process as possible. Applications can take 6-8 weeks to complete through the procedures and processing system. Every reasonable effort will be made to process the application for the semester requested.

- Completion of an appropriate baccalaureate degree with a GPA of 3.0 or better
- Evidence of at least 2 years of successful experience in an appropriate field

Applicants can submit all required materials and information through the Graduate School's online application system. (<https://applygrad.missouri.edu/apply/>)

**Required Application Materials:**

- Unofficial transcripts of all prior coursework
- Statement of Purpose
- Letters of recommendation (minimum 2 letters; confidential and sent through the online application system)
- Personal Data Sheet
- Official TOEFL scores (if applicable):

Internet-based test (iBT)	Paper-based test (PBT)
80	550

- Official GRE scores (required for Science Education and TESOL M.Ed. applications only):

When did you take the GRE?	Verbal + Quantitative
On or After August 1, 2011	291= (V150,Q141)

**Confirmation Materials (required to finalize admission upon acceptance, sent to the Graduate School):**

- Official transcripts
- Any additional required documentation

The LTC graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program. Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

**Admission Contact Information**

Caitlin Rosbach  
rosbachc@missouri.edu  
303 Townsend Hall  
Columbia, MO 65211  
573-882-3742

## MEd in Learning, Teaching and Curriculum with Emphasis in Art Education

### Degree Requirements

The master's degree in Art Education is designed to allow elementary teachers or secondary teachers to pursue a program of study to increase competence in curriculum planning, techniques of teaching art, and the subject matter of studio art and art history.

The MEd degree in Art Education comprises 32 semester hours of graduate work that meets the professional needs of the students. The

courses include 16 hours of classes at the 8000-9000 level and 16 hours of work in education at the 7000-9000 level or above, which includes a course that enables the student to read, interpret and evaluate research.

**Core Courses in Art Education (on-campus)**

LTC 8730	Survey of Art Education	3
LTC 8740	Curriculum in Art Education	3
LTC 8750	Review of Research in Art Education	3
LTC 8910	Individual Research	2

**Foundation Requirements**

LTC 8913	Curriculum Development	3
LTC 8914	Culturally Responsive Pedagogy	3

**Electives**

LTC 8735	Visual Literacy and Visual Culture	3
LTC 8745	Visual Thinking Strategies I	3
LTC 8746	Visual Thinking Strategies II	3
LTC 8765	Artistic Thinking: Multimedia Applications for Teaching Art	3
LTC 8766	Illuminating Process and Product: Making Learning Visible	3
LTC 8767	The Art of Teacher Reflection	3

Additional Elective Options: Graduate Studio, Graduate Art History, Graduate Digital Media

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Learning, Teaching and Curriculum program (<https://gradstudies.missouri.edu/degreecategory/learning/>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

The LTC graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program. Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

## MEd in Learning, Teaching and Curriculum with Emphasis in Art Education, Certification

- Degree Requirements (p. 468)
- Admissions (p. 469)

### Degree Requirements

The master's degree in Art Education with certification is designed to allow non-certified students to pursue a program of study to increase competence in curriculum planning, techniques of teaching art, and the

subject matter of studio art and art history and lead to certification to teach art.

The MEd degree in Art Education comprises 32 semester hours of graduate work that meets the professional needs of the students. The courses include 16 hours of classes at the 8000-9000 level and 16 hours of work in education at the 7000-9000 level or above, which includes a course that enables the student to read, interpret and evaluate research.

**Core Courses in Art Education (on-campus)**

LTC 8730	Survey of Art Education	3
LTC 8740	Curriculum in Art Education	3
LTC 8750	Review of Research in Art Education	3

**General College of Education Requirements**

Take one of the following:

ESC_PS 7160	Developmental Aspects of Human Learning	3
ESC_PS 7115	Human Learning	3
ED_LPA 9462	History of U.S. Education Policy	3

**Electives**

FA Graduate Art Studies		
Graduate Art History		
Graduate Multi Media		
Art Education Certification (2-4 courses)		
LTC 8941	Internship in Curriculum and Instruction	1-3
LTC 8735	Visual Literacy and Visual Culture (spring)	3
LTC 8745	Visual Thinking Strategies I	3
LTC 8746	Visual Thinking Strategies II	3
LTC 8765	Artistic Thinking: Multimedia Applications for Teaching Art (fall)	3
LTC 8766	Illuminating Process and Product: Making Learning Visible	3
LTC 8767	The Art of Teacher Reflection	3
LTC 8900	Seminar in Curriculum and Instruction	1-3
LTC 8085	Problems in Curriculum and Instruction	1-3
LTC 7587	Seminar in Curriculum and Instruction (Art Education in the Multicultural Classroom)	1-3
LTC 8915	Classroom Research-Learning, Teaching and Curriculum (Classroom Research in Art Education (fall))	1-3

**Admissions**

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Learning, Teaching and Curriculum program (<https://gradstudies.missouri.edu/degreecategory/learning/>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

Admission requirements will be based upon the following criteria. Complete admission requirements for the Master's program.

- Completion of an appropriate Bachelor's degree with a GPA of 3.0 or better.
- A minimum of two letters of recommendation; three letters, if your undergraduate GPA (last 60 hours) is below a 3.0.
- Statement of purpose clearly indicating that the proposed Masters degree is appropriate to the applicant's professional aspirations.
- For students whose native language is not English, a score of 80 IBT or better on the TOEFL or a 6.5 on the IELTS taken within the past two years

The LTC graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program. Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

## MEd in Learning, Teaching and Curriculum with Emphasis in Early Childhood Education

- Overview (p. 469)
- Degree Requirements (p. 469)
- Admissions (p. 470)

**Overview**

In the early childhood education emphasis, students will gain increased knowledge and skills in the design, delivery and evaluation of educational services to children from birth through age 8. The program addresses the essential problems of practice with special emphasis given to effective teaching approaches for children who are at risk for school failure: children with special needs, children who are English-language learners and children who have challenging behaviors.

The program is designed for early childhood practitioners, Head Start teachers, early childhood special education teachers, child-care center staff and others who work with children from birth through age 8.

More information about the Early Childhood Education M.Ed. program (<http://online.missouri.edu/degreeprograms/education/early-childhood/masters/>) can be found on the Mizzou Online website.

**Degree Requirements**

Delivery of this program is 100% online: no campus visits are required. Successful completion of the program requires 30 credit hours of required course work.

<b>LTC Core Courses</b>		<b>9</b>
LTC 8913	Curriculum Development	3
LTC 8914	Culturally Responsive Pedagogy	3
LTC 8915	Classroom Research-Learning, Teaching and Curriculum	3
LTC 8900	Seminar in Curriculum and Instruction	1
<b>Early Childhood Education Core Courses</b>		<b>15</b>
LTC 8612	Play, Inquiry, and Project-based Learning in Classrooms with Young Children	3

LTC 8613	Advanced Assessment in Early Childhood	3
LTC 8625	Language Acquisition and Development	3
LTC 8600	Home-School Partnerships: Working with Families	3
LTC 8611	Instructional Leadership and Advocacy in Early Childhood Education	3
<b>Electives</b>		<b>6</b>
SPC_ED 8350	Research with Exceptional Children	3
SPC_ED 8440	Advanced Behavior Management: Applied Behavior Analysis	3
SPC_ED 8485	Introduction and Methods of Early Intervention	3
SPC_ED 8605	Young Children with Autism	3
LTC 8681	Guiding all Readers Toward Independence	3
LTC 8664	Practicum in Child Study I	3-5
LTC 8685	Literature Opportunities: Using Children's and Young Adult's Literature in the Classroom	3

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Learning, Teaching and Curriculum program (<https://gradstudies.missouri.edu/degrecategory/learning/>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

The LTC graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program. Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

## MEd in Learning, Teaching and Curriculum with Emphasis in Early Childhood Education, Certification

Our department is no longer admitting students to this emphasis area. We invite you to explore the other graduate degree options within Learning, Teaching and Curriculum (p. 467).

In the early childhood education emphasis, students will gain increased knowledge and skills in the design, delivery and evaluation of educational services to children from birth through age 8. The program addresses the essential problems of practice with special emphasis given to effective teaching approaches for children who are at risk for school failure:

children with special needs, children who are English-language learners and children who have challenging behaviors.

The program is designed for early childhood practitioners, Head Start teachers, early childhood special education teachers, child-care center staff and others who work with children from birth through age 8 and wish to qualify for certification.

## Degree Requirements

Successful completion of the program requires 30 credit hours.

### LTC Core Courses

LTC 8913	Curriculum Development	3
LTC 8914	Culturally Responsive Pedagogy	3
LTC 8915	Classroom Research-Learning, Teaching and Curriculum	1-3
LTC 8900	Seminar in Curriculum and Instruction	1-3

### Early Childhood Education Core Courses

LTC 8612	Play, Inquiry, and Project-based Learning in Classrooms with Young Children	2-3
LTC 8613	Advanced Assessment in Early Childhood	3
LTC 8625	Language Acquisition and Development	3
LTC 8600	Home-School Partnerships: Working with Families	3
LTC 8611	Instructional Leadership and Advocacy in Early Childhood Education	3

### Electives

LTC 8681	Guiding all Readers Toward Independence	3
LTC 8685	Literature Opportunities: Using Children's and Young Adult's Literature in the Classroom	3
LTC 8664	Practicum in Child Study I	3-5
SPC_ED 8350	Research with Exceptional Children	3
SPC_ED 8440	Advanced Behavior Management: Applied Behavior Analysis	3
SPC_ED 8485	Introduction and Methods of Early Intervention	3
SPC_ED 8605	Young Children with Autism	3

## MEd in Learning, Teaching and Curriculum with Emphasis in Elementary Education

The online masters degree in elementary education from MU is designed to support new elementary school teachers in the early stages of their career. With a classroom-focused approach, bridging research and practice with relevant course work and mentorship, this program prepares early-career teachers for success.

## Degree Requirements

The online masters in elementary education is 100 percent online: no campus visits are required. This program has rolling admission and accepts students to matriculate in the fall term only. Students take four to eight credit hours each semester and finish the program in two years.

Course work covers:

- Managing classrooms for learning
- Meeting the needs of all learners
- Culturally responsive pedagogy
- Curriculum development
- Classroom research

To receive an the degree, you must complete 30 hours of graduate-level coursework. This coursework includes nine hours of core courses in elementary education and six hours of research courses.

**Required Courses**

ESC_PS 8430	Mental, Emotional, and Behavioral Disorders in Youth	3
SPC_ED 8520	Meeting the Needs of all Learners	3
LTC 8780	Managing Classrooms for Learning	3
LTC 8900	Seminar in Curriculum and Instruction (Advanced Science)	3
LTC 8900	Seminar in Curriculum and Instruction (Advanced Literacy)	3
LTC 8900	Seminar in Curriculum and Instruction (Advanced Mathematics)	3
LTC 8900	Seminar in Curriculum and Instruction (Advanced Social Studies)	3
LTC 8910	Individual Research	1
LTC 8913	Curriculum Development	3
LTC 8914	Culturally Responsive Pedagogy	3
LTC 8915	Classroom Research-Learning, Teaching and Curriculum	2
Total Credits		30

**Sample Plan of Study**

First Year					
Fall	CR	Spring	CR	Summer	CR
LTC 8780	3	LTC 8900 (Advanced Literacy)	3	ESC_PS 8430	3
LTC 8900 (Advanced Science)	3	SPC_ED 8520	3	LTC 8913	3
				LTC 8915	2
		6			8
Second Year					
Fall	CR	Spring	CR		
LTC 8900 (Advanced Mathematics)	3	LTC 8900 (Advanced Social Studies)	3		
LTC 8914	3	LTC 8910	1		
		6			4

Total Credits: 30

**Admissions**

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Learning, Teaching and Curriculum program (<https://gradstudies.missouri.edu/degreecategory/learning/>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the

Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

The LTC graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program. Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

**MEd in Learning, Teaching and Curriculum with Emphasis in English Education**

**Overview**

The English area gives students a strong background in reading and writing pedagogy, adolescent literature, and media literacy. We also emphasize lesson planning, curriculum creation and teaching, classroom management, diversity and social equity.

We prepare candidates to be English teachers and follow the guidelines of National Council of Teachers of English (NCTE), as well as those of the National Middle School Association (NMSA).

**Degree Requirements**

This degree program is a completely online masters of education degree in English Education. It requires successful completion of the program requires 30 credit hours: 9 credit hours in the Learning Teaching and Curriculum Core, 12 from the English Education Core, and 9 from electives. At least 16 credit hours must be at the 8000 level.

More information about the E (<http://online.missouri.edu/degreeprograms/education/early-childhood/masters/>)nglish Education M.Ed. program (<https://online.missouri.edu/degreeprograms/education/english/masters/>) can be found on the Mizzou Online website.

LTC Core Courses		9
LTC 8913	Curriculum Development	3
LTC 8914	Culturally Responsive Pedagogy	3
LTC 8900	Seminar in Curriculum and Instruction	1
LTC 8915	Classroom Research-Learning, Teaching and Curriculum	2
English Education Core Courses		12
LTC 8641	Foundations of English Education	3
LTC 8640	Studies in English Education	3
LTC 8636	Teaching Literature	3
LTC 8617	Teaching Writing in Middle and Secondary Classroom	3
Electives		9
ENGLSH 7100	Genres	3
ENGLSH 7140	Modern Literature	3
ENGLSH 7179	Comparative Approaches to Literature, 1890-Present	3
ENGLSH 7220	Renaissance and 17th-Century English Literature	3
ENGLSH 7310	19th-Century American Literature	3



ENGLISH 7510	Creative Writing: Advanced Fiction	3
ENGLISH 7530	Creative Writing: Advanced Poetry	3
ENGLISH 7611	The Story of English: Medieval to Modern	3
LTC 8618	Writing, Reading and Teaching Nonfiction	3
LTC 8619	Media Literacy	3
LTC 8638	Critical Literacy	3
LTC 8900	Seminar in Curriculum and Instruction (Reading, Writing, Teaching the Graphic Novel)	3
LTC 8681	Guiding all Readers Toward Independence	3
LTC 8687	Literacy and the Internet (Grades K-12)	3
LTC 8675	Foundations of Reading Instruction	3
ESC_PS 7160	Developmental Aspects of Human Learning	3
IS_LT 9467	Technology to Enhance Learning	3
ED_LPA 7428	Curriculum Leadership	3

Consult your advisor for additional electives that match your interests and needs.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Learning, Teaching and Curriculum program (<https://gradstudies.missouri.edu/degreecategory/learning/>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

The LTC graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program. Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

## MEd in Learning, Teaching and Curriculum with Emphasis in Literacy Education

### Overview

A masters degree in literacy education from MU can help you advance your career in reading instruction. If you want to better serve students in overcoming their challenges in reading and writing, this may be the program for you.

### Degree Requirements

The MEd degree in Literacy Education requires a minimum of 30 semester hours of graduate coursework. Courses are sequenced and semester-based. You can choose from a 2 year plan or 4 year plan.

The majority of students take two classes per semester, and earn their masters degree in two years. Successful completion of the program requires 9 credit hours of core course work, courses in literacy pedagogy and assessment (12 credit hours), and courses in language, culture and leadership (12 credit hours).

More information about the Literacy Education M.Ed. program (<https://online.missouri.edu/degreeprograms/education/literacy/masters/>) can be found on the Mizzou Online website.

#### Literacy Core (15 credit hours)

LTC 8913	Curriculum Development	3
LTC 8914	Culturally Responsive Pedagogy	3
LTC 8915	Classroom Research-Learning, Teaching and Curriculum	1-3
LTC 8625	Language Acquisition and Development	3
LTC 8675	Foundations of Reading Instruction	3
LTC 8900	Seminar in Curriculum and Instruction (Masters Capstone)	1-3

#### Literacy Electives (15 credit hours)

LTC 8612	Play, Inquiry, and Project-based Learning in Classrooms with Young Children	2-3
LTC 8618	Writing, Reading and Teaching Nonfiction	3
LTC 8642	Teaching Writing and Reading in Content Areas	3
LTC 8664	Practicum in Child Study I	3-5
LTC 8670	Analysis & Correction of Reading Disabilities	3
LTC 8681	Guiding all Readers Toward Independence	3
LTC 8682	Focus on Writing in the Classroom	3
LTC 8685	Literature Opportunities: Using Children's and Young Adult's Literature in the Classroom	3
LTC 8687	Literacy and the Internet (Grades K-12)	3
LTC 8688	Nature of Literacy in a Digital World	3
LTC 8689	Curricular Decisions for Literacy in a Digital World (Grades K-12)	3
LTC 8900	Seminar in Curriculum and Instruction (Reading, Writing, Informational Texts)	1-3
LTC 8638	Critical Literacy	3

## Certification Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Learning, Teaching and Curriculum program (<https://gradstudies.missouri.edu/degreecategory/learning/>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

The LTC graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program.

Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

## MEd in Learning, Teaching and Curriculum with Emphasis in Mathematics Education

The Master of Education degree in Mathematics Education is intended for those who wish to improve their mathematics teaching practice and to gain a broader understanding of issues related to teaching and learning mathematics, K-12.

### This program emphasizes

- Current issues in mathematics education
- Elementary or secondary mathematics content
- Increasing equity in mathematics teaching and learning
- Recent research in mathematics education
- Strategies for incorporating technology into mathematics instruction

### Degree Requirements

Delivery of this program is 100 percent online: no campus visits are required. However, you may choose to enroll in electives that require face-to-face meetings on campus. Course work may be tailored for teachers of any grade level with optional areas of focus in elementary or secondary education. Successful completion of the program requires 30 credit hours. At least 16 credit hours must be at the 8000 level.

More information about the Mathematics Education M.Ed. program (<https://online.missouri.edu/degreeprograms/education/mathematics/masters/>) can be found on the Mizzou Online website.

<b>Master's Core</b>		<b>9</b>
LTC 8913	Curriculum Development	3
LTC 8914	Culturally Responsive Pedagogy	3
LTC 8915	Classroom Research-Learning, Teaching and Curriculum	2
LTC 8910	Individual Research	1-3
<b>Mathematics education or mathematics courses</b>		<b>18</b>
LTC 8085	Problems in Curriculum and Instruction	1-3
LTC 8865	Assessment in Mathematics Education	3
LTC 8866	Contemporary Curriculum Issues in Mathematics Education	2
LTC 8871	Teaching and Learning Number/Operations Advanced	3
LTC 8872	Teaching and Learning Rational Number Advanced	3
LTC 8873	Teaching and Learning Geometry and Measurement Advanced	3
LTC 8874	Teaching and Learning Algebraic Reasoning Advanced	3
LTC 8875	Technology and Mathematics Education	3
LTC 8876	Teaching Data Analysis and Mathematical Modeling	3

LTC 8877	Foundations of Mathematics Leadership in Elem Schools	2
LTC 8896	Secondary Mathematics from an Advanced Perspective	3
MATH 7060	Connecting Geometry to Middle and Secondary Schools	3
MATH 7070	Connecting Algebra to Middle and Secondary Schools	3
MATH 7100	Differential Equations	3
MATH 7140	Matrix Theory	3
MATH 7510	Higher Algebra	3
MATH 7540	Mathematical Modeling I	3
MATH 7940	Introduction to Complex Variables	3
MATH 7960	Special Readings in Mathematics	3
<b>Education electives</b>		<b>3</b>
ED_LPA 7428	Curriculum Leadership	3
ESC_PS 7115	Human Learning	3
IS_LT 9467	Technology to Enhance Learning	3
SPC_ED 7300	Introduction to Special Education	3

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Learning, Teaching and Curriculum program (<https://gradstudies.missouri.edu/degreecategory/learning/>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

The LTC graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program. Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

## MEd in Learning, Teaching and Curriculum with Emphasis in Mathematics Education, Certification

Our department is no longer admitting students to this emphasis area. We invite you to explore the other graduate degree options within Learning, Teaching and Curriculum (p. 467).

The Master of Education degree in Learning, Teaching and Curriculum with emphasis in Mathematics Education, Certification is intended for those who wish to improve their mathematics teaching practice and to gain a broader understanding of issues related to teaching and learning mathematics, K-12, and qualify for certification.

## Degree Requirements

Successful completion of the program requires 30 credit hours. In addition the the teaching related courses listed below, minimum mathematics credits must also be completed.

LTC 7040	Inquiring into Schools, Community and Society I	2-3
LTC 7560	Reading and Writing in Content Areas	3
LTC 8861	Teaching, Learning & Research in Middle & Secondary School Math I	3
LTC 8862	Teaching, Learning & Research Middle & Secondary School Math: II	3
LTC 8863	Teaching, Learning, and Research Middle and Secondary Math III	3
LTC 8900	Seminar in Curriculum and Instruction	1-3
LTC 8942	Advanced Internship in Curriculum and Instruction	1-10
ESC_PS 7000	Foundation of Teacher Prep I	3
SPC_ED 7020	Teaching the Exceptional Learner	3

## MEd in Learning, Teaching and Curriculum with Emphasis in Science Education

The MU Master's Program in Science Education is intended for classroom teachers who want to become reflective and inquiring professionals by:

- Enhancing their knowledge and skills about science teaching and learning,
- Inquiring into and improving their practice and
- Building leadership skills in science education.

### Degree Requirements

The MEd program requires a minimum of 32 semester hours beyond the Bachelor's (16 hours at the 8000 or 9000 level, 16 hours of education courses), planned in agreement with the student's Advisory Committee.

Listed below are the requirements for a Master's degree in Science Education.

- **Science Education** (9 or more semester hours)
- **Science Content** (9 or more semester hours)
- **Educational Foundations** (1 course in sociology, philosophy, or history of education--e.g., ED\_LPA 9462, or educational psychology--e.g., ESC\_PS 8320)
- **Research Methods** (1 course in research methods: LTC 8714 or Action Research)
- **Comprehensive Exam** (Written comps, either in exam or project format, are individually designed for each student by committee members.)

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Learning, Teaching and Curriculum program (<https://gradstudies.missouri.edu/degreecategory/learning/>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a

degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

The LTC graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program. Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

## MEd in Learning, Teaching and Curriculum with Emphasis in Science Education, Certification

### Overview

The MU Master's Program in Science Education is intended for students who have a BA or BS in a science field and want to become classroom teachers by:

- Enhancing their knowledge and skills about science teaching and learning,
- Inquiring into and improving their practice and
- Building leadership skills in science education.

### Degree Requirements

The MEd program requires a minimum of 32 semester hours beyond the bachelors (16 hours at the 8000 or 9000 level), planned in agreement with the student's Advisory Committee. Listed below are the requirements for a Masters degree in Science Education.

- **Science Education** (9 or more semester hours)
- **Science Content** (9 or more semester hours)
- **Educational Foundations** (1 course in sociology, philosophy, or history of education--e.g., ED\_LPA 9462, or educational psychology--e.g., ESC\_PS 8320)
- **Research Methods** (1 course in research methods: LTC 8714 or Action Research)
- **Comprehensive Exam** (Written comps, either in exam or project format, are individually designed for each student by committee members.)

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Learning, Teaching and Curriculum program (<https://gradstudies.missouri.edu/degreecategory/learning/>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you must refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the

Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

The LTC graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program. Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

## MEd in Learning, Teaching and Curriculum with Emphasis in Social Studies Education

The masters degree program in Social Studies Education is primarily for classroom teachers, grades 1-12, who wish to advance their knowledge and practice of social studies while obtaining an advanced degree. If you want to engage in meaningful discussion about the role of social studies and how research and theory can inform classroom practice, this may be the degree for you.

### Degree Requirements

This degree program is completely online. It requires successful completion of a minimum of 30 credit hours. Courses are semester-based. Students typically take one or two classes each semester and finish in two years.

More information about the S (<https://online.missouri.edu/degreeprograms/education/mathematics/masters/>)ocial Studies M.Ed. program (<https://online.missouri.edu/degreeprograms/education/social-studies/masters/>) can be found on the Mizzou Online website.

Social Studies Course Work		15
LTC 8790	Patterns for Instruction in Social Studies	3
LTC 8800	Secondary Social Studies Curriculum	3
LTC 8805	Inquiry into K-12 History and Social Science	3
LTC 8806	Issues in the Social Studies Classroom	3
LTC 8900	Seminar in Curriculum and Instruction (Topics: Technology and Social Studies)	3
LTC Core Course Work		6
LTC 8913	Curriculum Development	3
LTC 8914	Culturally Responsive Pedagogy	3
Electives		6
ED_LPA 7428	Curriculum Leadership	3
ESC_PS 8555	African American Education - Historic and Current Issues	3
ESC_PS 8560	Immigrant Issues in Education	3
ESC_PS 8565	Gay, Lesbian and Bisexual Issues in the Schools	3
ESC_PS 7115	Human Learning	3
ESC_PS 7160	Developmental Aspects of Human Learning	3
H_D_FS 8087	Seminar in Human Development and Family Science (Contemporary Youth Issues)	1-99
H_D_FS 8237	Youth Cultures and the Cultures of Youth	3

IS_LT 9467	Technology to Enhance Learning	3
IS_LT 9484	Teaching Online Courses	3
<b>Capstone</b>		<b>3</b>
LTC 8807	Exploration of Research in Social Studies	3

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Learning, Teaching and Curriculum program (<https://gradstudies.missouri.edu/degreecategory/learning/>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

The LTC graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program. Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

## MEd in Learning, Teaching and Curriculum with Emphasis in Teaching English to Speakers of Other Languages

The University of Missouri's Teaching English to Speakers of Other Languages (TESOL) program is designed to meet the challenges of a diverse student body in a variety of education settings. Given the use of English as a global lingua franca, learning the unique methodology and theories associated with second language teaching is crucial to effectively meeting the challenges of a multilingual global society.

The TESOL program at MU can meet the needs of teachers seeking ESOL certification in the state of Missouri, those seeking advanced education in ESL/EFL teaching and learning, as well as those who seek further education in TESOL. Currently, many of our students begin the ESOL certification courses but find the topic so intriguing that they go on to pursue advanced education in the field.

The student body in the TESOL program at MU is made up of teachers in the U.S and abroad who work with a wide range of learner populations, including children and adults. We welcome traditional and nontraditional students as the program is designed to meet the needs of a variety of learners in a variety of academic settings.

The TESOL program at MU is informed by the second language acquisition theories and pedagogy unique to students who speak English in addition to their native language(s). The courses in the TESOL program are taught by faculty with expertise and knowledge in the field of English language learning including applied linguistics, sociolinguistics, intercultural communication, and English language education. By focusing on the interplay of theory and methods, as well as the cultural

and linguistic diversity of English Language Learners, this program focuses on developing effective, responsive scholars and practitioners who use theory and research to enhance their work in a global, diverse, and technological society.

## Degree Requirements

The MEd program in TESOL requires 33 semester hours beyond the Bachelor's (21 hours at the 8000 or 9000 level), planned in agreement with the student's Advisory Committee.

### TESOL Focus Courses (21 semester hours)

LTC 8645	Second Language Acquisition	3
LTC 8646	Materials for and Assessment of English Language Learners	3
LTC 8647	Language and Culture for Educators	3
LTC 8648	Linguistics for Educators	3
LTC 8649	Methods of Teaching English Language Learners	3
LTC 8650	English to Speakers of Other Languages Practicum	3
LTC 8654	ESOL Curriculum Development	3

Practicum: All master's students will be required to complete a practicum upon completion of the TESOL focus courses. LTC 8649 Methods of Teaching English Language Learners is a prerequisite and cannot be taken during the same semester as the practicum. If you are currently teaching English language learners, the 16-week practicum can be conducted in your own classroom and will be supervised online by a TESOL instructor. The Practicum may be waived for two years of full-time teaching experience in an ELL program

### Core Master's Courses (6 semester hours)

ESC_PS 7115	Human Learning	3
LTC 8915	Classroom Research-Learning, Teaching and Curriculum	3

### Electives (6 semester hours)

LTC 8900	Seminar in Curriculum and Instruction (Teaching ESL/EFL to Adult Learners)	1-3
LTC 8642	Teaching Writing and Reading in Content Areas	3
LTC 8643	Teaching ESL/EFL to Adult Learners	3
LTC 8644	Teaching English Grammar and Pronunciation	3
LTC 8683	Celebrating Reading Through Good Books	3
LTC 8900	Seminar in Curriculum and Instruction (Seminar in Bilingual Education)	1-3
IS_LT 9467	Technology to Enhance Learning	3

Other electives may be chosen in consultation with your advisor

## Exams

To complete the masters programs, students are required to pass 'comprehensive exams' or equivalent. Please speak with your advisor what this exam/project may entail.

## Admission

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MEd in Learning, Teaching and Curriculum program (<https://gradstudies.missouri.edu/degrecategory/learning/>) and the minimum requirements of the Graduate School ([http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-](http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php)

requirements.php). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

Admission requirements will be based upon the following criteria.

Complete admission requirements for the Master's program.

- Completion of an appropriate Bachelor's degree with a GPA of 3.0 or better.
- A minimum of two letters of recommendation; three letters, if your undergraduate GPA (last 60 hours) is below a 3.0.
- Statement of purpose clearly indicating that the proposed Masters degree is appropriate to the applicant's professional aspirations.
- GRE scores taken within the last 5 years (preferred minimum scores should be V150,Q145,A3.5 or higher). The verbal must meet the 150 minimum in order to be considered for the program.
- For students whose native language is not English, a score of 550 or better on the TOEFL or a 6.5 on the IELTS taken within the past two years

The LTC graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program.

Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

## EdD in Learning, Teaching and Curriculum

**Our department is not currently admitting students to this degree program. We invite you to explore the other graduate degree options within Learning, Teaching and Curriculum (p. 467).**

## Degree Requirements

The EdD in Learning, Teaching and Curriculum requires completion of a minimum of 72 credit hours above the bachelor's. The program is currently offered with an emphasis in General LTC studies, Elementary Education, or Reading Education. Students must choose an emphasis area. More details are available on the emphasis area pages.

## Admissions Requirements

Applicants are encouraged to submit their applications as early in the process as possible. Applications can take 6-8 weeks to complete through the procedures and processing system. Every reasonable effort will be made to process the application for the semester requested.

- Completion of an appropriate baccalaureate degree with a GPA of 3.0 or better
- Evidence of at least 2 years of successful experience in an appropriate field

Applicants can submit all required materials and information through the Graduate School's online application system (<https://applygrad.missouri.edu/apply/>).

**Required Application Materials:**

- Unofficial transcripts of all prior coursework
- Statement of purpose
- Letters of recommendation (minimum 3 letters; confidential and sent through the online application system)
- Personal Data Sheet
- Official GRE Scores

When did you take the GRE?	Verbal + Quantitative
On or After August 1, 2011	297 (V153, Q144)

- Official TOEFL scores (if applicable):

Internet-based test (iBT)	Paper-based test (PBT)
80	550

**Confirmation Materials (required to finalize admission upon acceptance, sent to the Graduate School):**

- Official transcripts
- Any additional required information

The LTC graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program. Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

**Admission Contact Information**

Caitlin Rosbach  
 rosbachc@missouri.edu  
 303 Townsend Hall  
 Columbia, MO 65211  
 573-882-3742

## EdD in Learning, Teaching and Curriculum with Emphasis in Elementary Education

Our department is not currently admitting students to this emphasis area. We invite you to explore the other graduate degree options within Learning, Teaching and Curriculum (p. 467).

**Overview**

This program prepares students to:

- Understand the depth and breath of elementary education in terms of research, curriculum, policy, teacher development and student learning;
- Develop, carry out, and report independent research in elementary education;
- Become outstanding teachers/advisors of college students;
- Become a leader in elementary school settings; and

- Understand the role of service in the university setting and begin those memberships in organizations that can lead to a service agenda.

These goals are achieved through a combination of coursework, internships, and authentic experiences with research, development, and teacher education.

**Degree Requirements**

The Ed.D. in LTC with an emphasis in elementary education is a 72-hour program above the bachelor's. Coursework includes core education courses, research courses, electives and internships.

## EdD in Learning, Teaching and Curriculum with Emphasis in General

Our department is not currently admitting students to this emphasis area. We invite you to explore the other graduate degree options within Learning, Teaching and Curriculum (p. 467).

**Overview**

This program prepares students to:

- Understand education in terms of research, curriculum, policy, teacher development and student learning;
- Develop, carry out, and report independent research related to education;
- Become outstanding teachers/advisors of college students;
- Understand the role of service in the university setting and begin those memberships in organizations that can lead to a service agenda.

These goals are achieved through a combination of coursework, internships, and authentic experiences with research, development, and teacher education.

**Degree Requirements**

The Ed.D in LTC is a 72-hour program above the bachelor's. Coursework includes core education courses, research courses, electives and internships.

## EdD in Learning, Teaching and Curriculum with Emphasis in Reading Education

**Our department is no longer admitting students to this emphasis area. We invite you to explore the other graduate degree options within Learning, Teaching and Curriculum (p. 467).**

This program prepares students to:

- Understand the depth and breath of literacy education in terms of research, curriculum, policy, teacher development and student learning;
- Develop, carry out, and report independent research in literacy education;
- Become outstanding teachers/advisors of college students;

- Understand the role of service in the university setting and begin those memberships in organizations that can lead to a service agenda.

These goals are achieved through a combination of course-work, internships, and authentic experiences with research, development, and teacher education.

## Degree Requirements

The Ed.D. in Reading Education is a 72-hour program above the bachelor's. Coursework includes core reading education courses, research courses, electives and internships.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the EdD in Learning, Teaching and Curriculum program (<https://gradstudies.missouri.edu/degreecategory/learning/>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you must refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

The LTC graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program. Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

## EdSp in Learning, Teaching and Curriculum

### Degree Requirements

The EdSp is a 30-hour program beyond a master's degree. Curriculums involve courses in the core area, research, and electives. Students must select from one of three emphasis areas: Literacy Education, Mathematics Education, and Science Education. Specific degree requirements can be found on the emphasis area pages.

### Admissions Requirements

Applicants are encouraged to submit their applications as early in the process as possible. Applications can take 6-8 weeks to complete through the procedures and processing system. Every reasonable effort will be made to process the application for the semester requested.

- Completion of an appropriate baccalaureate degree with a GPA of 3.0 or better
- Evidence of at least 2 years of successful experience in an appropriate field

Applicants can submit all required materials and information through the Graduate School's online application system (<https://applygrad.missouri.edu/apply/>).

### Required Application Materials:

- Unofficial transcripts of all prior coursework
- Statement of purpose
- Letters of recommendation (minimum 3 letters; confidential and sent through the online application system)
- Personal Data Sheet
- Official TOEFL scores (if applicable):

Internet-based test (iBT)	Paper-based test (PBT)
80	550

### Confirmation Materials (required to finalize admission upon acceptance, sent to the Graduate School):

- Official transcripts
- Any additional required information

The LTC graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program. Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

### Admission Contact Information

Caitlin Rosbach  
rosbachc@missouri.edu  
303 Townsend Hall  
Columbia, MO 65211  
573-882-3742

## EdSp in Learning, Teaching and Curriculum with Emphasis in Literacy Education

### Degree Requirements

The EdSp is a 30-hour program of specialization built on the master's degree. The program requires course work in core, research, and electives. The program is directed by an advisory committee (3 members) and supervised by the major advisor. Coursework will generally comprise upper-level graduate work in literacy education, tailored to the student's needs and career objectives.

- **Prerequisites**
  - Foundations of Educational Psychology (or equivalent)
  - Introduction to Statistics (or equivalent)
- **English Education or Literacy Education Core**
  - To be negotiated with advisor to meet your professional goals
- **Education Core** (3+ semester hours)
  - If not completed as a part of the master's degree, one or more graduate courses in the behavioral, social, philosophical, or historical foundations of education
- **Research Courses** (6+ semester hours)
  - Introduction to Educational Statistics
  - Overview of Educational Research

**Electives**

- May be taken to deepen specialization or to advance the student's career goals

## Sample Plan of Study

Please consult with an advisor to inquire what a sample program of study may look like.

## Comprehensive Examination Process

A thesis or seminar paper and final examination are required.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the EdS in Learning, Teaching and Curriculum program (<https://gradschool.missouri.edu/degreecategory/learning/>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you must refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

The LTC graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program. Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

## EdSp in Learning, Teaching and Curriculum with Emphasis in Mathematics Education

The Educational Specialist degree in Mathematics Education is intended for teachers who have already completed a masters degree and are seeking additional work related to leadership, curriculum development, research and/or improving their own teaching skills.

## Degree Requirements

The Ed.S. is a 30-hour program beyond a master's degree. Coursework is comprised of at least 15 hours at the 8000 level or higher; and at least half the coursework in education. The program of study is approved by the student's advisor and two committee members. Courses for this program are 100 percent online: no campus visits are required. However, you may choose to enroll in electives that require face-to-face meetings on campus.

More information about the Mathematics Education Ed.S. program (<https://online.missouri.edu/degreeprograms/education/mathematics/education-specialist/>) can be found on the Mizzou Online website.

The course work for the Educational Specialist degree in Mathematics Education is comprised of three key areas: Mathematics Education, general electives, and research.

### Mathematics education curriculum (select at least 14 credit hours)

LTC 8085	Problems in Curriculum and Instruction	1-3
LTC 8865	Assessment in Mathematics Education	3
LTC 8866	Contemporary Curriculum Issues in Mathematics Education	2
LTC 8875	Technology and Mathematics Education	3
LTC 8886	Contemporary Equity Issues in Mathematics Education	3
LTC 8896	Secondary Mathematics from an Advanced Perspective	3
LTC 8900	Seminar in Curriculum and Instruction	1-3

### Elementary curriculum (if you wish to simultaneously pursue an elementary math specialist certificate)

LTC 8871	Teaching and Learning Number/Operations Advanced	
LTC 8872	Teaching and Learning Rational Number Advanced	
LTC 8873	Teaching and Learning Geometry and Measurement Advanced	
LTC 8874	Teaching and Learning Algebraic Reasoning Advanced	
LTC 8876	Teaching Data Analysis and Mathematical Modeling	
LTC 8877	Foundations of Mathematics Leadership in Elem Schools	
LTC 8878	Mathematical Leadership for Elementary Schools Advanced	

### General electives (choose up to 9 credit hours)

LTC 8642	Teaching Writing and Reading in Content Areas	3
LTC 8647	Language and Culture for Educators	3
ED_LPA 7428	Curriculum Leadership	3
ESC_PS 7115	Human Learning	3
SPC_ED 7300	Introduction to Special Education	3
IS_LT 9467	Technology to Enhance Learning	3

Or others based on student interest and course availability (with advisor approval)

### Research core (7 credit hours)

ESC_PS 7170	Introduction to Applied Statistics	3
ESC_PS 8020	Overview of Research Methods	3
LTC 8910	Individual Research	1

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the EdS in Learning, Teaching and Curriculum program (<https://gradschool.missouri.edu/degreecategory/learning/>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you must refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

The LTC graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program.



Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

## EdSp in Learning, Teaching and Curriculum with Emphasis in Science Education

The Educational Specialist (EdS) Program in Science Education is designed for individuals holding a Master's in Science Education who desire further education. The EdS in Science Education is typically considered a terminal degree, not a stepping stone to the PhD.

### Degree Requirements

The Ed.S. is a 30-hour program beyond a master's degree. Coursework is comprised of at least 15 hours at the 8000 level or higher; and at least half the coursework in education. The program of study is approved by the student's advisor and two committee members.

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the EdS in Learning, Teaching and Curriculum program (<https://gradschool.missouri.edu/degrecategory/learning/>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you must refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

The LTC graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program. Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

## PhD in Learning, Teaching and Curriculum

### Degree Requirements

The PhD in Learning, Teaching and Curriculum is offered with emphasis in Art Education, Early Childhood Education, Language and Literacies For Social Transformation, Mathematics Education, Science Education and Social Studies Education. Students must choose an emphasis area.

To receive a PhD degree, you must complete a minimum of 72 hours of coursework beyond a bachelor's degree. A minimum of 15 credit hours must be at the 8000-level or above, exclusive of research, problems, and independent study experiences. Programs of study are individually

planned with a faculty committee. More details are available on the emphasis area pages.

### Admissions Requirements

Applicants are encouraged to submit their applications as early in the process as possible. Applications can take 6-8 weeks to complete through the procedures and processing system. Every reasonable effort will be made to process the application for the semester requested.

- Completion of an appropriate baccalaureate degree with a GPA of 3.0 or better
- Evidence of at least 2 years of successful experience in an appropriate field

Applicants can submit all required materials and information through the Graduate School's online application system (<https://applygrad.missouri.edu/apply/>).

**Priority Deadline:** While admissions are rolling, the priority deadline for Fall admission is **November 15** of the previous year. For full consideration in funding opportunities, applications must be submitted and complete prior to the deadline. The graduate admissions committee will begin reviewing applications shortly after that date.

#### Required Application Materials:

- Unofficial transcripts of all prior coursework
- Statement of purpose
- Letters of recommendation (minimum 3 letters; confidential and sent through the online application system)
- Personal Data Sheet
- Official GRE Scores

When did you take the GRE?	Verbal + Quantitative
On or After August 1, 2011	297 (V153, Q144)

- Official TOEFL scores (if applicable):

Internet-based test (iBT)	Paper-based test (PBT)
80	550

#### Confirmation Materials (required to finalize admission upon acceptance, sent to the Graduate School):

- Official transcripts
- Any additional required information

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A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

#### Admission Contact Information

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 Columbia, MO 65211  
 573-882-3742

# PhD in Learning, Teaching and Curriculum with Emphasis in Art Education

The MU Art Education PhD program prepares individuals for research and teacher education careers in higher education and for leadership positions in various educational settings. The program offers opportunities to expand a teaching repertoire and research current topics in art education as well as to develop expertise in conceptualizing, conducting and reporting research in the arts arena.

The individual and a faculty committee develop an individualized program of study based upon a candidate's background, experiences, and professional goals. The majority of MU PhD graduates take positions in Colleges of Education or Fine Arts in Art and Art Education at universities or colleges. However, some graduates move into administrative and supervisory positions at art museums, and arts agencies.

## Degree Requirements

The PhD in art education is a 72-hour hybrid program of on-campus and online courses beyond a bachelor's degree. Nine hours of core content courses must be taken on campus at either the beginning or end of your program of study. This program does not lead to certification.

### Prerequisite (does not count toward degree)

ESC_PS 7170	Introduction to Applied Statistics	3
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### Core Courses 10

LTC 8900	Seminar in Curriculum and Instruction	1-3
LTC 8730	Survey of Art Education	3
LTC 8740	Curriculum in Art Education	3
LTC 8750	Review of Research in Art Education	3

### Emphasis area 15

LTC 8735	Visual Literacy and Visual Culture	3
LTC 8745	Visual Thinking Strategies I	3
LTC 8765	Artistic Thinking: Multimedia Applications for Teaching Art	3
LTC 8766	Illuminating Process and Product: Making Learning Visible	3
LTC 8767	The Art of Teacher Reflection	3
LTC 8746	Visual Thinking Strategies II	3
LTC 8941	Internship in Curriculum and Instruction	1-99
LTC 8915	Classroom Research-Learning, Teaching and Curriculum	2
ED_LPA 9456	The Professoriate	3

### Art content course work 12-18

We encourage a strong art background in one content area or in integrated art disciplines.

### Educational research course 12

LTC 8957	Qualitative Methods in Educational Research I	3
LTC 9620	Qualitative Methods in Educational Research II	3
ESC_PS 8957	Qualitative Methods in Educational Research I	3
ESC_PS 9620	Qualitative Methods in Educational Research II	3

Or other advanced education research course work focusing on specific methodologies

### Electives and/or minors 12-15

Courses that help focus and support your research interests (with committee approval). Possible minors include educational policy, educational leadership, educational technology/digital media, college teaching, learning theory, art studio and art history.

<b>Dissertation</b>		<b>12</b>
LTC 9090	Research in Curriculum and Instruction	12

In addition to the course work above, students pursue other competencies in consultation with your advisor including:

- Conference presentation (single or co-author)
- Colloquium participation and presentation
- Submission of manuscript to a refereed journal (single or co-author)
- Experience with grant writing
- Comprehensive examination
- Teaching/teacher education internship (in your emphasis area)
- Experience with teacher professional development (K-16)

## Admissions

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The LTC graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program.

Resource constraints do not permit the admission of all qualified applicants.

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# PhD in Learning, Teaching and Curriculum with Emphasis in Early Childhood Education

The faculty and students in early childhood education work closely together. Faculty and students share ideas and learn from one another.

Your faculty advisor has the strongest interest in your professional/personal growth, but each early childhood faculty member will be a valued part of your community.

## Goals of the PhD Program

These goals are achieved through a combination of course-work, internships and authentic experiences with research, development, and teacher education.

- Understand the depth and breath of the field of early childhood education in terms of research, curriculum, policy, teacher development and student learning;
- Develop, carry out, and report independent research in some area of early childhood education;
- Become outstanding teachers/advisors of college students;
- Understand the role of service in the university setting and learn how memberships in organizations can lead to a service agenda.

## Degree Requirements

To receive a PhD degree, you must complete a minimum of 72 hours of coursework beyond a bachelor's degree. This includes at least 18 hours of early childhood education core course and a minimum of 12 hours of research methodology.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Learning, Teaching and Curriculum (<https://gradstudies.missouri.edu/degrecategory/learning/>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

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## PhD in Learning, Teaching and Curriculum with Emphasis in Elementary Education

Our department is not currently admitting students to this emphasis area. We invite you to explore the other graduate degree options within Learning, Teaching and Curriculum (p. 467).

### Overview

This program consists of a combination of coursework, internships and authentic experiences with research, development, and teacher education that are directed toward the following goals:

- Understand the depth and breadth of the field of elementary education in terms of research, curriculum, policy, teacher development and student learning;
- Develop, carry out, and report independent research in some area of elementary education;
- Become outstanding teachers/advisors of college students; and

- Understand the role of service in the university setting and learn how membership in organizations can lead to a service agenda.

## Degree Requirements

To receive a PhD degree, you must complete a minimum of 72 hours of coursework beyond a bachelor's degree. This includes at least 18 hours of education core courses and a minimum of 12 hours of research methodology.

## PhD in Learning, Teaching and Curriculum with Emphasis in Foreign Language Education

Our department is no longer admitting students to this emphasis area. We invite you to explore the other graduate degree options within Learning, Teaching and Curriculum (p. 467).

## PhD in Learning, Teaching and Curriculum with Emphasis in General

Our department is no longer admitting students to this emphasis area. We invite you to explore the other graduate degree options within Learning, Teaching and Curriculum (p. 467).

## PhD in Learning, Teaching and Curriculum with Emphasis in Language and Literacies for Social Transformation

The Language and Literacies for Social Transformation emphasis area gives students a strong background in reading and writing pedagogy, adolescent literature, and media literacy. We also emphasize lesson planning, curriculum creation and teaching, classroom management, diversity and social equity.

We prepare candidates to be English teachers and follow the guidelines of National Council of Teachers of English (NCTE), as well as those of the National Middle School Association (NMSA).

## Degree Requirements

A minimum of 72 semester hours beyond the bachelor's degree is required.

English Education	33-36 semester hours
Support Area I	12-15 semester hours
Support Area II	12-15 semester hours
Research Methodology	12-15 semester hours

Dissertation

9 semester hours

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Learning, Teaching and Curriculum (<https://gradstudies.missouri.edu/degrecategory/learning/>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

Admission requirements will be based upon the following criteria. Complete admission requirements (<https://education.missouri.edu/admissions/>) for the PhD program.

- Completion of an appropriate Bachelor's degree with a GPA of 3.0 or better.
- Completion of an appropriate master's degree with a GPA of 3.0 or better.
- A minimum of three letters of recommendation.
- Statement of purpose clearly indicating that the proposed graduate degree is appropriate to the applicant's professional aspirations.
- GRE scores taken within the last 5 years (preferred minimum scores should be V150, Q144, A4.0 or higher)
- For students whose native language is not English, a score of 100 or better on the IBT TOEFL or a 6.5 on the IELTS taken within the past two years

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## PhD in Learning, Teaching and Curriculum with Emphasis in Mathematics Education

The MU Ph.D. program in Mathematics Education is designed to prepare individuals for careers in higher education and leadership positions in a variety of educational settings. The program aims to enhance student knowledge about the field of mathematics education and develop expertise in conceptualizing, conducting and reporting research studies. Programs of study are individually planned with a faculty committee, and are based upon candidate's background, experiences, and professional goals. The majority of our graduates take positions in Colleges of Education or Departments of Mathematics at universities or colleges. However, some graduates move into administrative and supervisory roles at district or state levels.

## Degree Requirements

The PhD program is designed to require about four years of study, which consists of a minimum of 72 hours of coursework beyond the bachelor's degree, participation in a variety of research and teaching internships, and the design and implementation of a dissertation study focused on original research.

### Mathematics Education (about 30 credit hours)

#### Core Courses:

LTC 8860	Mathematics Curriculum	3
LTC 8870	Studying Mathematics Teaching in Schools	3
LTC 8879	Mathematical Thinking and Learning	3
LTC 8900	Seminar in Curriculum and Instruction (Research on Equity and Diversity in Mathematics Education)	1-3
LTC 9860	Research in Mathematics Education	1

#### Other Recommended Courses:

### LTC (minimum of 9 credit hours)

#### Required Courses:

LTC 9060	Theories of Learning and Implications for Education	3
LTC 9050	Curriculum Theories	3

Choose one of the following courses:

LTC 9070	Philosophical Perspectives in Education Research	3
LTC 9040	Curriculum Theories	

### Outside Emphasis Area (minimum of 12 credit hours)

Students identify an outside emphasis area related to mathematics education such as mathematics, statistics, psychology, or educational leadership.

### Educational Research (minimum of 12 credit hours)

#### Required Courses:

ESC_PS 8830	Quantitative Analysis in Educational Research	
ESC_PS 8957	Qualitative Methods in Educational Research I	3
ESC_PS 9620	Qualitative Methods in Educational Research II	3

At least one additional course in quantitative methods such as:

ESC_PS 7170	Introduction to Applied Statistics	3
ESC_PS 8020	Overview of Research Methods	3
ESC_PS 8087	Seminar in Educational, School, and Counseling Psychology	1-3

### Experiences in Research, College Teaching, Design, Teacher Development (in consultation with advisor)

It is expected that doctoral students will have a range of 'beyond-course' experiences, including:

- Completing a second-year study
- Teaching mathematics teaching methods course(s)
- Supervising and working with student teachers
- Preparing grant proposals
- Design
- Planning and facilitating professional development for teachers
- Formulating and delivering presentations at professional meetings
- Critiquing submissions to mathematics education journals or professional conferences

**Dissertation (12 semester hours)**

LTC 9090

Research in Curriculum and Instruction

12

## Admissions

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## PhD in Learning, Teaching and Curriculum with Emphasis in Reading Education

**Our department is no longer admitting students to this emphasis area. We invite you to explore the other graduate degree options within Learning, Teaching and Curriculum (p. 467).**

The Doctoral Program in Literacy Education is designed to prepare individuals for careers in higher education and leadership positions in a variety of educational settings. Besides enhancing students' knowledge of literacy education, students develop expertise in conceptualizing, conducting and reporting research studies.

## Degree Requirements

To receive a PhD degree in reading education, you must complete a minimum of 72 hours of coursework beyond a bachelor's degree.

A minimum of 15 credit hours must be at the 8000-level or above, exclusive of research, problems, and independent study experiences. Programs of study are individually planned with a faculty committee. Recommendations include the following:

### I. Literacy Education Core (18+ hours)

#### A. Foundations (9-12 hours)

- Theoretical Foundations of Literacy
- Whole Language Curriculum or Talk in the Curriculum
- History of Literacy or Issues and Trends of Literacy Education
- Linguistics, Sociolinguistics, Psycholinguistics

#### B. Concentration (9-12 hours)

Declared area of interest or specialization selected in consultation with advisor. Possible areas of specialization include:

- Early Literacy
- Children's Literature
- Linguistics and Literacy
- Literacy in a Digital World
- Literacy for Special Needs Children
- Other

### II. Professional Education Core

(12 hours, 3 hours from each category)

#### A. Humanistic Dimensions of Education

- Social and Philosophical Aspects of Teaching
- Sociology of the Classroom
- Issues in Education and Human Development: Historical and Philosophical
- Multicultural Dimensions of Education

#### B. Psychological Foundations of Education

- Psychological Foundations of Education
- Human Learning
- Human Cognition
- Applications of Computer Based Systems to Educational Settings
- Instructional Programs for Young Children
- Parents, the School, and the Community

### III. Research Core (12 hours of the following or equivalent courses)

- Quantitative Methods in Educational Research I
- Quantitative Methods in Educational Research II
- Qualitative Methods of Educational Research I
- Qualitative Methods of Educational Research II

### IV. Teaching and Research Internships (0-6 hours)

To be negotiated with advisor to meet your professional goals

### V. Electives (0-12+ hours)

Select courses within or outside the College of Education that will help focus and support your research interests (with committee approval). Or take a concentrated set of 9-12 hours as a minor

### VI. Dissertation (12 hours)

Includes proposal approval, Institutional Review Board Approval, approval from participants, write up, and oral defense

#### PREREQUISITES:

- Introduction to Statistics (or equivalent)
- Foundations of Educational Psychology (or equivalent)

## Admissions

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## PhD in Learning, Teaching and Curriculum with Emphasis in Science Education

The doctoral program emphasizes science education research and culminates with a dissertation project completed under the supervision of a science education faculty member. The program requires coursework in science education, science content, educational foundations, and educational research.

### Degree Requirements

The Science Education Ph.D. requires a minimum of 72 semester hours beyond the Bachelor's degree (the Master's degree can be counted toward this total). The Science Education Ph.D. program includes three emphasis areas:

1. Elementary Science Education
2. Middle/Secondary Science Education
3. College Science Teaching

Each emphasis area requires coursework in science education, science content, and educational research as well as teaching and research experiences.

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Learning, Teaching and Curriculum (<https://gradstudies.missouri.edu/degreecategory/learning/>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

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## PhD in Learning, Teaching and Curriculum with Emphasis in Social Studies Education

The Ph.D. in Social Studies Education at the University of Missouri provides increased opportunities for its graduates to assume leadership roles in a variety of academic, knowledge-driven, and/or governmental and politically-based institutions and organizations. The core of the Ph.D. experience lies in scholarship and in the process by which graduate students transition from being knowledge-consumers to knowledge-producers. Hence, the doctoral experience involves a journey of personal growth and development, which leads the graduate student towards a deeper sense of the self and towards crafting a personal agenda for scholarship in the social studies field.

### The Culture of the Social Studies Education Doctoral Program

Unique among graduate programs, the social studies doctoral students and faculty form a community of learners and employ democratic practices to shape the direction of the community, its scholarship, and future coursework. As a result, in dialogue with faculty members, doctoral students help co-direct the structure of their Ph.D. experience. This occurs in two ways. First, doctoral students have flexibility in much of the design of their own coursework, research endeavors, and scholarship. Second, in community with the other doctoral students and faculty members, doctoral students vote on coursework requirements, expectations for the program, and program goals.

An important aspect of forming this community of learners involves identifying and clarifying the academic and research interests of its members. As a result, the current doctoral students have established four **research clusters**, or areas that describe their often overlapping research interests in the social studies education field. At this time, these clusters include the following:

- **Social Studies Teacher Education for Social Justice:** addressing issues of citizenship, diversity, and social justice in teacher education.
- **Multicultural and Global Education:** Preparing teachers and students to address local, national, and global concerns of culture, environment, and the socio- and geopolitical landscape in education.
- **Social Studies Curriculum and Instruction:** Confronting persistent issues in social studies curriculum and teaching, including official and master narratives, teaching methodologies, assessment, technology, and student engagement in the classroom.
- **Educational Policy and Politics Affecting Social Studies Teaching:** Investigating the power structures, political dynamic, curriculum control, and educational policy and system structure influence social studies education and teaching.

These research clusters not only clarify and support doctoral students in team-oriented scholarship, but also inform social studies faculty on which courses to offer and what kinds of research opportunities to promote. Research clusters are reviewed and revised on a yearly basis. Because admission into the doctoral program also includes membership into our community of learners, we recommend that individuals interested in applying for the Social Studies Education doctoral program at the University of Missouri demonstrate research interests that align with one or more of these research clusters.

## Degree Requirements

In order to receive a PhD, you must complete a minimum of 72 hours of coursework beyond a bachelor's degree. This coursework includes a minimum of 12 hours of social studies core courses, a minimum of 9 hours of research method courses and your dissertation.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Learning, Teaching and Curriculum (<https://gradstudies.missouri.edu/degrecategory/learning/>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

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## Learning Technologies and Design

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School of Information Science & Learning Technologies  
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Columbia, MO 65211  
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fax: 573-884-0122  
email: [sislt@missouri.edu](mailto:sislt@missouri.edu)  
website: <http://sislt.missouri.edu/>

## Faculty

**Professor** R. Marra\*\*, J. Moore\*\*, J. Strobel\*\*

**Associate Professor** D. Adkins\*\*, J. Bossaller\*\*, I. Jahnke\*\*, H. Moulaison-Sandy\*\*

**Assistant Professor** S. Buchanan\*\*, H. Cho\*\*, T. Gibson\*\*, D. Oprean\*, X.Xu\*\*

**Teaching Professor** J. Howland\*

**Assistant Teaching Professor** J. Alston\*, B. Brendler\*, A. Klimczak\*, K. Robinson\*

**Professor Emeriti** J. M. Budd\*\*, J. Caplow\*, G. Fitzgerald\*\*, T. R. Kochtanek\*\*, J. Laffey\*\*, M. Sievert

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

While MU does not offer undergraduate degrees specifically in information science and learning technologies, the University does offer baccalaureate opportunities in a number of related areas, both within the College of Education, and in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 20).

## Graduate

- MS in Learning Technologies and Design (p. 486)
  - with emphasis in Online Education (p. 486)
  - with emphasis in Technology in Schools (p. 487)
- EdSp in Learning Technologies and Design (p. 489)
  - with emphasis in Online Education (p. 489)
  - with emphasis in Technology in Schools (p. 490)

The Learning Technologies and Design Master's and Educational Specialist programs have been fully online since 2003. We prepare students for a variety of professional positions in the fields of education, instructional design, digital media and web design, training, and more.

All areas emphasize project-based learning where you learn while working on projects relevant to your interests. You pick the professional goal that makes sense to you, and our faculty will help you transform your goal into your reality.

We also offer two 12 credit hour Graduate Certificate programs which apply to any of the MS or EdSp programs – User Experience and Usability (<https://sislt.missouri.edu/certificates/user-experience-and-usability/>) and Online Educator (<https://sislt.missouri.edu/certificates/online-educator/>). The Online Educator Certificate program is endorsed by the Association for Educational Communications and Technology, a leading international organization in the field of instructional design and technology.

## MS in Learning Technologies and Design

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### Degree Requirements

The masters degree is offered in two emphasis areas: Online Education, and Technology in Schools. The MS consists of 30 graduate credit hours, with a minimum of 15 at the 9000 level or above. Specific degree requirements for each emphasis can be found on the emphasis pages: Online Education (p. 529), and Technology in Schools (p. 487).

## MS in Learning Technologies and Design with Emphasis in Online Education

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In the Online Education emphasis area you will develop the knowledge and skills in eLearning offerings. You will prepare for jobs in an expanding field where online education is used in schools, universities, industry, health care, museums, and other learning settings. Your work

will culminate in an authentic capstone project that documents your learning and accomplishments.

Working with a faculty advisor, each student develops a customized program of study. You pick the professional goal that makes sense to you, and our faculty will help you transform your goal into reality.

Your degree will open an array of career options. Some graduates work in K-12 schools, others work in corporations, and still others apply their skills in government, healthcare, higher education, and other settings. For example, some of our recent graduates are Software Designers and Developers, Learning Strategy Managers, Adaptive Technology Specialists, Training Designers, School Technology Coordinators, and Online Instructors. Whatever the setting, you will graduate with a skill set that will serve you well in the future.

## Degree Requirements

The MS consists of 30 graduate credit hours, with a minimum of 15 at the 9000 level or above. The Online Educator curriculum allows you to customize your course work by focusing on technology design and development or technology implementation.

IS_LT 7361	Introduction to Digital Media	3
IS_LT 9484	Teaching Online Courses	3
IS_LT 9485	Designing Online Learning	3
IS_LT 9471	Instructional Systems Design	3
IS_LT 9450	Research Methods in Information Science and Learning Technologies	3
IS_LT 7374	Exploring Canvas	1
IS_LT 7372	Exploring CourseSites	1
IS_LT 9483	Capstone: Online Education Emphasis Area	1
IS_LT 7384	Designing Games for Learning	3
IS_LT 9440	Learning with Web-based Technologies	3
IS_LT 9474	Front End Analysis of Systems	3
IS_LT 7383	Rapid Development Tools for Online Learning	3
Total Credits		30

## Capstone

You will meet the LT Goals and Objectives throughout your program; however, the Online Education (OE) emphasis area culminates in a capstone course project showing mastery of the OE competencies. The capstone is used as the comprehensive exam at the end of the program of study. Students should enroll in the capstone course during the last semester of their program.

### Capstone

You must enroll in the one credit hour 9483 Capstone: Online Education. The capstone is designed as the means for you to synthesize your learning and demonstrate mastery of the competencies for this emphasis area.

Although each capstone project will be as unique as the individuals in the Learning Technologies program, all share the following elements:

- Design and development of an online course (or redesign/development of an existing online course)
- Evaluation of the course by two external reviewers
- Report including evaluation results, your reflection and critique

## How Is the Capstone Project Created?

After enrolling in IS\_LT 9483 Capstone: Online Education Emphasis Area, immediately notify your advisor about the online learning environment you will use for your project. Most students will request that a course is set up on a learning management system such as CourseSites, Canvas or Moodle. After creating your online course, you are responsible for finding two reviewers who will provide feedback you should use to improve your course before submitting for faculty review.

## How Is the Capstone Evaluated?

Three SISLT faculty members evaluate a student's capstone project. The review process asks two basic questions:

- Has the student fulfilled the requirements of the capstone course?
- Has the student demonstrated adequate mastery of the competencies?

Faculty reviewers do not consider your evaluators' data, only the online course and your report. Additionally, consideration is given to the entry knowledge and skills of the student and the student's professional goals. If a capstone project is found to be lacking, the student is given the opportunity to make the necessary adjustments (e.g., make improvements to the online course, enhance the instructional products or innovations).

## Admissions

Email: [sislt@missouri.edu](mailto:sislt@missouri.edu)  
 SISLT Student Services Coordinator  
 304 Townsend Hall  
 Columbia, MO 65211  
 Phone: 573-882-4546 or toll free 877-747-5868  
<http://edtech.missouri.edu/oe> (<http://edtech.missouri.edu/oe/>)

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MS in Learning Technologies and Design program (<http://sislt.missouri.edu/edtech/online-education/>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

## MS in Learning Technologies and Design with Emphasis in Technology in Schools

The Technology in Schools emphasis area is your portal to excellence and leadership in designing, developing, and implementing technology in education, training and performance support. In the TiS focus area you will prepare to use innovative and effective technology to improve teaching and learning in a wide variety of settings. In addition to gaining a working knowledge of the underlying theories and strategies involved, you will get practical experience using technology as an effective teaching and learning tool.



Working with a faculty advisor, each student develops a customized program of study. You pick the professional goal that makes sense to you, and our faculty will help you transform your goal into reality.

Your degree will open an array of career options. Some graduates work in K-12 schools, others work in corporations, and still others apply their skills in government, healthcare, higher education, and other settings. For example, some of our recent graduates are Software Designers and Developers, Learning Strategy Managers, Adaptive Technology Specialists, Training Designers, School Technology Coordinators, and Online Instructors. Whatever the setting, you will graduate with a skill set that will serve you well in the future.

## Degree Requirements

The MS consists of 30 graduate credit hours, with a minimum of 15 at the 9000 level or above. The Technology in Schools curriculum allows you to customize your course work by focusing on technology design and development or technology implementation.

IS_LT 7361	Introduction to Digital Media	3
IS_LT 7360	Introduction to Web Development	3
IS_LT 7378	Electronic Portfolio Development	3
IS_LT 9450	Research Methods in Information Science and Learning Technologies	3
IS_LT 9484	Teaching Online Courses	3
IS_LT 9458	Technology and Assessment	3
IS_LT 7366	Technology Leadership	3
IS_LT 9440	Learning with Web-based Technologies	3
IS_LT 9467	Technology to Enhance Learning	3
IS_LT 9471	Instructional Systems Design	3

## Portfolio

Your performance in the Technology in Schools emphasis area will be assessed through a portfolio process. You should start on your portfolio early in your course work. SISLT will not provide a server. You may build your portfolio on a web hosting site such as BlueHost, Neocities, Weebly, Wix, etc. This gives you control of your portfolio and its availability after you graduate.

### Portfolio Assessment

You will meet the LT Goals and Objectives throughout your program; however, your portfolio will be based on documenting your mastery of the ISTE standards through narratives and supporting examples of work. You will work with a faculty advisor to ensure that your portfolio meets all requirements.

Each portfolio includes:

- Professional resume, including a list of technology in schools-related skills and experiences
- Documentation of ISTE standards mastery using the ISTE template
- Self-assessment narrative of your mastery of the ISTE standards with special attention given to the terms learning, evaluation and leadership
- Reflection paper linking program content to classroom practice
- Learning technologies concept map

## Portfolio Details

A portfolio is a website consisting of products and artifacts demonstrating mastery of the Technology in Schools emphasis area competencies

and ISTE standards (<https://sislt.missouri.edu/lt/technology-in-schools/#standards>). There might be a few elements that are not actually included in the website (e.g., video clips of needs assessment interviews, a network solution you designed), but there is some representation of these products (e.g., a slide show about the interviews, blueprints or design documents for the network).

Ideally, products and artifacts are added to the portfolio as the work is completed rather than waiting until the last minute to assemble the portfolio. Creating the portfolio is just like creating any other website: Design it, build it, test it and revise it. Periodically, you may add something to the website.

In addition, a one-credit-hour course is offered to assist students in portfolio development (7378: Portfolio Development). The course should be taken during your final semester of coursework.

A SISLT advisor will examine the portfolio before it is presented for formal review and make suggestions for improvement when warranted.

## Presenting and Evaluating Your Portfolio

Portfolios are presented completely online. The portfolio must be available for faculty review on the date given. Consideration is given to the entry knowledge and skills of the student and the student's professional goals. The SISLT review committee examines your portfolio and either passes it or suggests revisions.

The review process asks:

- Does the student know what the competencies/standards mean?
- Has the student demonstrated adequate mastery of the competencies/standards?

If a portfolio or presentation is found to be lacking, the student is given the opportunity to make the necessary adjustments (e.g., add elements to the portfolio, enhance the products or innovations). A conference call or email correspondence will be used to get the portfolio back on track. The review committee will offer suggestions for additional work or changes to the portfolio. Once the committee is satisfied the competencies are adequately addressed, the portfolio is accepted.

You must be a registered student the semester in which you plan to graduate. Simply put: You cannot finish all of your course work and present your portfolio the following semester without being enrolled in something. This means you must register for at least one course, or there is an exam-only option available for students who have completed all required course work.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MS in Learning Technologies and Design program (<http://edtech.missouri.edu/#admission>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

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<http://edtech.missouri.edu/tis> (<http://edtech.missouri.edu/tis/>)

## EdSp in Learning Technologies and Design

### Degree Requirements

The EdSp in Learning Technologies and Design requires students to select an emphasis area from the two options offered: Technology in Schools (p. 490), and Online Educator (p. 489). While general degree requirements information is below, students should refer to the emphasis page for detailed requirements.

The EdSp consists of 30 graduate credit hours, with a minimum of 15 at the 9000 level or above. The curriculums allow you to customize your course work by focusing on technology design and development or technology implementation.

#### Courses required of both emphasis areas

IS_LT 7361	Introduction to Digital Media	3
IS_LT 9440	Learning with Web-based Technologies	3
IS_LT 9450	Research Methods in Information Science and Learning Technologies	3
IS_LT 9471	Instructional Systems Design	3
IS_LT 9484	Teaching Online Courses	3

## EdSP in Learning Technologies and Design with Emphasis in Online Education

The Educational Specialist degree at MU is your portal to excellence and leadership in designing, developing, and implementing technology in education, training and performance support. In the Online Educator emphasis area you will develop the knowledge and skills in eLearning offerings. You will prepare for jobs in an expanding field where online education is used in schools, universities, industry, health care, museums, and other learning settings. Your work will culminate in an authentic capstone project that documents your learning and accomplishments.

Working with a faculty advisor, each student develops a customized program of study. You pick the professional goal that makes sense to you, and our faculty will help you transform your goal into reality.

Your degree in Online Educator will open an array of career options. Some graduates work in K-12 schools, others work in corporations, and still others apply their skills in government, healthcare, higher education, and other settings. For example, some of our recent graduates are Software Designers and Developers, Learning Strategy Managers, Adaptive Technology Specialists, Training Designers, School Technology Coordinators, and Online Instructors. Whatever the setting, you will graduate with a skill set that will serve you well in the future.

### Degree Requirements

The Educational Specialist degree is a 30-hour program of specialization built upon the master's degree. It requires 27 credit hours of coursework relevant to the Online Educator competencies plus 3 credit hours in

ESC\_PS 7170 Introduction to Applied Statistics. At least 15 credit hours must be at the 8000/9000 level.

IS_LT 7361	Introduction to Digital Media	3
IS_LT 9484	Teaching Online Courses	3
IS_LT 9485	Designing Online Learning	3
IS_LT 9471	Instructional Systems Design	3
IS_LT 9450	Research Methods in Information Science and Learning Technologies	3
IS_LT 7374	Exploring Canvas	1
IS_LT 7372	Exploring CourseSites	1
IS_LT 9483	Capstone: Online Education Emphasis Area	1
IS_LT 9440	Learning with Web-based Technologies	3
IS_LT 9474	Front End Analysis of Systems	3
IS_LT 7310	Seminar in Information Science and Learning Technology (Designing Games for Learning)	3
IS_LT 7383	Rapid Development Tools for Online Learning	3

### Comprehensive Examination Process

In your final semester, you will develop and present a portfolio of your work to demonstrate your mastery of the competencies specific to your focus area. The portfolio contains descriptions of competencies and what they mean to you, explanations of artifacts, and reflections. You should start on your portfolio early in your coursework.

Portfolios can be submitted spring, fall, and summer semesters. Portfolios must be submitted to the assigned portfolio coach for review no later than three (3) weeks prior to the last day of classes; you will be notified by the SISLT Student Services Office of the specific date at the beginning of your final semester.

The student will work with the portfolio coach who will provide feedback and support to the student as she/he prepares the portfolio for review.

The review process asks three basic questions:

1. Does the portfolio demonstrate the student's knowledge of what the competencies mean?
2. Does the portfolio demonstrate the student's mastery of the competencies?
3. Does the portfolio present the student in a positive and professional manner?

Once a portfolio is deemed acceptable or unacceptable by the portfolio coach, the coach will notify the student and the SISLT Student Services Office. Should the portfolio be deemed unacceptable by the portfolio coach, the student may appeal this decision by petitioning the Director of SISLT and requesting that two other faculty review the portfolio.

### Admissions

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<http://edtech.missouri.edu/oe> (<http://edtech.missouri.edu/oe/>)

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the EdSp in Learning Technologies

and Design program (<http://edtech.missouri.edu/#admission>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

## EdSP in Learning Technologies and Design with Emphasis in Technology in Schools

The Educational Specialist degree at MU is your portal to excellence and leadership in designing, developing, and implementing technology in education, training and performance support. In the Technology in Schools (TiS) emphasis area you will prepare to use innovative and effective technology to improve teaching and learning in a wide variety of settings. In addition to gaining a working knowledge of the underlying theories and strategies involved, you will get practical experience using technology as an effective teaching and learning tool.

Working with a faculty advisor, each student develops a customized program of study. You pick the professional goal that makes sense to you, and our faculty will help you transform your goal into reality.

Your degree in Educational Specialist degree will open an array of career options. Some graduates work in K-12 schools, others work in corporations, and still others apply their skills in government, healthcare, higher education, and other settings. For example, some of our recent graduates are Software Designers and Developers, Learning Strategy Managers, Adaptive Technology Specialists, Training Designers, School Technology Coordinators, and Online Instructors. Whatever the setting, you will graduate with a skill set that will serve you well in the future.

### Degree Requirements

The EdSp is a 30 credit hour option is available for students who already have a master's degree. The Technology in Schools curriculum allows you to customize your course work by focusing on technology design and development or technology implementation.

### Sample Plan of Study

First Year			
Fall	CR	Spring	CR
IS_LT 9450	3	IS_LT 9484	3
IS_LT 7361	3	IS_LT 9458	3
IS_LT 7360	3		
		9	6
Second Year			
Fall	CR	Spring	CR
IS_LT 9440	3	IS_LT 9471	3
IS_LT 9467	3	IS_LT 7366	3
		IS_LT 7378	3
		6	9

Total Credits: 30

## Comprehensive Examination Process

In your final semester, you will develop and present a portfolio of your work to demonstrate your mastery of the competencies specific to your focus area. The portfolio contains descriptions of competencies and what they mean to you, explanations of artifacts, and reflections. You should start on your portfolio early in your coursework.

Portfolios can be submitted spring, fall, and summer semesters. Portfolios must be submitted to the assigned portfolio coach for review no later than three (3) weeks prior to the last day of classes; you will be notified by the SISLT Student Services Office of the specific date at the beginning of your final semester.

The student will work with the portfolio coach who will provide feedback and support to the student as she/he prepares the portfolio for review.

The review process asks three basic questions:

1. Does the portfolio demonstrate the student's knowledge of what the competencies mean?
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Once a portfolio is deemed acceptable or unacceptable by the portfolio coach, the coach will notify the student and the SISLT Student Services Office. Should the portfolio be deemed unacceptable by the portfolio coach, the student may appeal this decision by petitioning the Director of SISLT and requesting that two other faculty review the portfolio.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the EdSp in Learning Technologies and Design program (<http://edtech.missouri.edu/#admission>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

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## Library and Information Science

School of Information Science & Learning Technologies  
 304 Townsend Hall  
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 fax: 573-884-0122  
 email: [sislt@missouri.edu](mailto:sislt@missouri.edu)  
 website: <http://sislt.missouri.edu/lis/>

## Faculty

**Professor** R. Marra\*\*, J. Moore\*\*, J. Strobel\*\*

**Associate Professor** D. Adkins\*\*, J. Bossaller\*\*, I. Jahnke\*\*, H. Moulaison-Sandy\*\*

**Assistant Professor** S. Buchanan\*\*, H. Cho\*\*, T. Gibson\*\*, D. Oprean\*, X. Xu\*\*

**Teaching Professor** J. Howland\*

**Assistant Teaching Professor** J. Alston\*, B. Brendler\*\*, A. Klimczak\*, K. Robinson\*

**Professor Emeriti** J. M. Budd\*\*, J. Caplow\*, G. Fitzgerald\*\*, T. R. Kochtanek\*\*, J. Laffey\*\*, M. Sievert

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

While MU does not offer undergraduate degrees specifically in information science and learning technologies, the University does offer baccalaureate opportunities in a number of related areas, both within the College of Education, and in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 20).

## Graduate

- MLIS in Library and Information Science (p. 491)
  - with emphasis in Archival Studies (p. 492)
  - with emphasis in E-Learning Information Professionals (p. 493)
  - with emphasis in Library Media Specialist, Certification (p. 494)

This is a **Master of Library and Information Science** degree.

The program is accredited (<http://www.ala.org/cfapps/lisdir/listing.cfm>) by the American Library Association (ALA) (<http://www.ala.org/>), which granted continued accreditation status in 2015. The Library and Information Science (LIS) Program contributes to the essential knowledge, skills, and values of librarianship and the information professions through research, education, and engagement. SISLT is a member of the iSchools consortium, an international consortium of information schools in institutions of higher education dedicated to advancing the information field in the 21st century.

MLIS students can also earn transcripted emphasis areas in Electronic Learning Information Professional (ELIP) and Archival Studies, or earn an MLIS with School Library Media Certification (<https://sislt.missouri.edu/lis/lis-masters-degree-forms/#forms-pos>).

The MLIS can be completed fully online.

We use several different course structures to provide you with the broadest and most instructionally appropriate class opportunities.

- Online asynchronous classes allow you to participate anytime, anywhere.
- Online synchronous classes, scheduled at fixed times to allow online, offer real-time interaction without the drive time.
- Hybrid classes, combine face-to-face and online instruction.

Most library and information science faculty are based in Columbia. Clinical faculty in St. Louis and Kansas City, and a Program Liaison in Omaha, NE provide student support and coordinate extracurricular activities.

## Degree Requirements

The program consists of **39 credit hours**, including 18 credits of required courses (<https://missouri.box.com/s/wcmkuxn6y74bws8kuvqohxj7x8p4y9sk/>).

Each student completes a practicum (<https://sislt.missouri.edu/lis/practicum/#practicum>) (two to three credits)

Elective courses are selected in consultation with faculty advisers.

Prior to graduation, all students must complete a graduate examination which requires them to demonstrate mastery of the LIS Student Learning Outcomes (<http://sislt.missouri.edu/lis/#outcomes>), demonstrated in an **ePortfolio**.

Missouri School Library Media Certification:

In the State of Missouri, School Library Media Certification for school librarians is granted by the Missouri Department of Elementary and Secondary Education (DESE). The University of Missouri is approved to offer courses that lead to both Stand Alone and Add-on Certification through our MLIS degree, under the Library Media Specialist emphasis area.

If you are not a Missouri resident but are seeking school library media certification, you will have to meet the certification requirements set forth by your state. School Library Connection (<https://blog.schoollibraryconnection.com/school-library-media-certification-by-state/>) and the American Association of School Librarians (<http://www.ala.org/aasl/about/ed/recruit/state/>) have compiled some information about the certification requirements for various states, but we recommend you contact your state's certification office directly.

SISLT Student Services, 304 Townsend Hall  
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<http://sislt.missouri.edu/>

## MLIS in Library and Information Science

The Library and Information Science (LIS) Program contributes to the essential knowledge, skills, and values of librarianship and the information professions through research, education, and outreach. Our Program offers the only Master's Degree (<https://sislt.missouri.edu/lis/academics/>) in the state of Missouri that is accredited (<http://www.ala.org/cfapps/lisdir/listing.cfm>) by the American Library Association (ALA) (<http://www.ala.org/>). ALA's initial accreditation was granted in 1966/67, and the program was given continued accreditation in 2015.

The MLIS can be completed online.

We use several different course structures to provide you with the broadest and most instructionally appropriate class opportunities.

- Online asynchronous classes allow you to participate anytime, anywhere.
- Online synchronous classes, scheduled at fixed times to allow online, offer real-time interaction without the drive time.
- Hybrid classes combine face-to-face and online instruction.

Most library and information science faculty are based in Columbia. Clinical faculty in St. Louis and Kansas City, and a Program Liaison in Omaha, NE provide student support and coordinate extracurricular activities.

Students can seek the MLIS with emphasis areas of Archival Science, eLearning Information Professional, or Library Media Specialist, as well as Library Media Specialist with Certification.

## Degree Requirements

The program consists of **39 credit hours**, including 18 credits of required courses (<https://missouri.box.com/s/wcmkuxn6y74bws8kuvqohxj7x8p4y9sk/>). Each student completes a practicum (<https://sislt.missouri.edu/lis/practicum/#practicum>) (two to three credits). Elective courses are selected in consultation with faculty advisers. The program of study must include 15 credit hours of 9000-level courses, and 12 hours of courses taught by a full-time faculty member.

### Required Courses - must be taken prior to eportfolio development

IS_LT 7301 or IS_LT 7320	Introduction to Information Technology Emerging Technologies in Libraries	3
IS_LT 7305	Foundations of Library and Information Science	3
IS_LT 7312 or IS_LT 7302	Principles of Cataloging and Classification Organization of Information	3
IS_LT 7313	Collection and Access Management	3
IS_LT 7314	Reference Sources and Services	3
IS_LT 7315	Management of Information Agencies	3

### Practicum

(choose one of these, for 2 or 3 credit hours)

IS_LT 7380 or IS_LT 7381	School Library Practicum Practicum in Information Agencies	2-3
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### Elective Courses

(at least 15 hours of 9000 level courses required)

## Graduate Examination Process

In your final semester, you will develop and present a portfolio of your work to demonstrate your mastery of the <https://sislt.missouri.edu/lis/#outcomes> LIS Student Learning Outcomes. The portfolio contains descriptions of competencies and what they mean to you, explanations of artifacts, and reflections. You should start on your portfolio early in your coursework.

## Admissions

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Applicants are required to meet two sets of minimum qualifications for admission: the <https://sislt.missouri.edu/lis/students/#apply> minimum requirements of the Master of Library & Information Science program and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific

admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

## MLIS in Library and Information Science with Emphasis in Archival Studies

The MLIS emphasis area of Archival Studies will prepare students to work within the expanding arena of archives and records management within the information field. Students will graduate with the credentials of an American Library Association (ALA) accredited library program, which is required to work in most archives and libraries, and the skills and knowledge that they need to work as archivists and records managers.

An archivist selects, preserves, and makes available primary sources that document the activities of institutions, communities, and individuals. Archivists increasingly provide long-term stewardship for archival materials in both analog and digital formats- from traditional paper records, photographs, audio recordings, and moving images, to email messages, word processing documents and websites. The core values of archivists include access and use, accountability, advocacy, diversity, history and memory, preservation, professionalism, responsible custody, selection or appraisal, service, and social responsibility. There are many job listings that articulate the qualifications that students will gain by completing the coursework in the Archival Studies emphasis area.

## Degree Requirements

The MLIS degree consists of 39 credit hours, including 18 credits of required courses. Elective courses are selected in consultation with faculty advisors, and specifically, must include 15 credit hours of 9000-level courses, and 12 hours of courses taught by a full-time faculty member.

Archival Studies students will be advised to complete their practicum (two to three credits) in an archival setting. Each student completes a practicum unless they have an approved practicum waiver. Students will be advised to complete the one-credit MLIS portfolio course.

### Required Core Courses (18 credit hours)

IS_LT 7301 or IS_LT 7320	Introduction to Information Technology Emerging Technologies in Libraries	3
IS_LT 7305	Foundations of Library and Information Science	3
IS_LT 7312 or IS_LT 7302	Principles of Cataloging and Classification Organization of Information	3
IS_LT 7313	Collection and Access Management	3
IS_LT 7314	Reference Sources and Services	3
IS_LT 7315	Management of Information Agencies	3

### Emphasis Area Courses (9 credit hours)

IS_LT 9490	Archival Practice	3
IS_LT 9491	Appraisal and Archival Systems	3
IS_LT 9492	Data and Records Management	3

### Elective Courses (12 credit hours) \*

IS_LT 7381	Practicum in Information Agencies	2-3
IS_LT 9410	Seminar in Information Science and Learning Technology	1-3

IS_LT 9409	Seminar in Digital Libraries	3
IS_LT 9428	History of Books and Media	3
IS_LT 9429	Metadata	3
IS_LT 9439	Digital Humanities and Information	3
IS_LT 9445	Special Libraries and Information Centers	3

\* Students will need to take at least 6 credit hours at the 9000-level and 3 credit hours by a full-time faculty member.

## Graduate Examination Process

In your final semester, you will develop and present a portfolio of your work to demonstrate your mastery of the LIS Student Learning Outcomes (<https://sislt.missouri.edu/lis/#outcomes>). The portfolio contains descriptions of competencies and what they mean to you, explanations of artifacts, and reflections. You should start on your portfolio early in your coursework.

## Admissions

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Applicants are required to meet two sets of minimum qualifications for admission: The minimum requirements of the Master of Library & Information Science program (<https://sislt.missouri.edu/lis/students/#apply>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

## MLIS in Library and Information Science with Emphasis in E-Learning Information Professionals

The MLIS in E-Learning Information Professionals (ELIP) will prepare students to work within an emerging and crucial field within librarianship: e-learning and information delivery. An e-learning information professional is a link between the library and people who use library materials online, either in formal or informal educational environments. They are advocates for the library and for informational materials that enhance the learning experience and they can aid instructors in information provision.

Graduates will have the credentials of an American Library Association (ALA) accredited library program. Students will have the skills and knowledge needed to work in institutions such as schools, libraries, and with companies requiring effective information provision and online teaching skills.

## Degree Requirements

The MLIS degree consists of 39 credit hours, including 18 credits of required courses. Elective courses are selected in consultation with faculty advisors, and specifically, must include 15 credit hours of 9000-level courses, and 12 hours of courses taught by a full-time faculty member.

### Required Courses (18 credit hours)

IS_LT 7301	Introduction to Information Technology	3
or IS_LT 9410	Seminar in Information Science and Learning Technology	
IS_LT 7305	Foundations of Library and Information Science	3
IS_LT 7312	Principles of Cataloging and Classification	3
or IS_LT 7302	Organization of Information	
IS_LT 7313	Collection and Access Management	3
IS_LT 7314	Reference Sources and Services	3
IS_LT 7315	Management of Information Agencies	3

### Practicum (3 credit hours)

IS_LT 7380	School Library Practicum	1-3
or IS_LT 7381	Practicum in Information Agencies	

### Core ELIP Courses (12 credit hours from the following courses)

IS_LT 7361	Introduction to Digital Media	3
IS_LT 9454	Copyright in Libraries	3
IS_LT 9471	Instructional Systems Design	3
IS_LT 9450	Research Methods in Information Science and Learning Technologies	3
IS_LT 9452	Information Literacy Instruction	3
IS_LT 9457	Designing Computer Support for Cooperative Work	3
IS_LT 9467	Technology to Enhance Learning	3
IS_LT 9473	Project Management	3
IS_LT 9485	Designing Online Learning	3

### Electives (6 credit hours)

## Graduate Examination Process

In your final semester, you will develop and present a portfolio of your work to demonstrate your mastery of the LIS Student Learning Outcomes (<https://sislt.missouri.edu/lis/#outcomes>). The portfolio contains descriptions of competencies and what they mean to you, explanations of artifacts, and reflections. You should start on your portfolio early in your coursework.

## Admissions

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degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

## MLIS in Library and Information Science with Emphasis in Library Media Specialist, Certification

In the Library Media Specialist emphasis area you will develop knowledge, skills, and abilities in school librarianship, culminating in a practicum or internship experience to help strengthen your skills and develop your professional networks. Please visit the Library and Information Science web page (<https://sislt.missouri.edu/lis/>) for the most current information.

Working with a faculty advisor, each student develops a customized program of study. Your degree will open an array of career options beyond school librarianship, including academic librarianship and public librarianship.

### Degree Requirements

#### for Students Who Already Hold a Teaching Certificate

For students who already hold Missouri teaching certificates, the program consists of **39 credit hours**, including 30 credits of required courses. Each student completes a three-credit school library practicum (<https://sislt.missouri.edu/lis/practicum/>). Elective courses are selected in consultation with faculty advisers.

IS_LT 7301	Introduction to Information Technology	3
or IS_LT 7320	Emerging Technologies in Libraries	
IS_LT 7302	Organization of Information	3
or IS_LT 7312	Principles of Cataloging and Classification	
IS_LT 7305	Foundations of Library and Information Science	3
IS_LT 7313	Collection and Access Management	3
IS_LT 7314	Reference Sources and Services	3
IS_LT 9404	School Library Administration	3
IS_LT 9406	Curriculum and the School Library	3
IS_LT 9417	Action Research	3
IS_LT 9431	Children's Library Materials	3
or IS_LT 9434	Teen Library Materials	
IS_LT 7380	School Library Practicum	3

#### for Students Who Do Not Hold a Teaching Certificate

For students who do not hold Missouri teaching certificates, the program consists of 58 credit hours, including 30 credit hours of library and information science content, 18 hours of professional teacher education, and 10 hours of school library practicum and internship (<https://sislt.missouri.edu/lis/practicum/>).

IS_LT 7301	Introduction to Information Technology	3
or IS_LT 7320	Emerging Technologies in Libraries	
IS_LT 7302	Organization of Information	3

or IS_LT 7312	Principles of Cataloging and Classification	
IS_LT 7305	Foundations of Library and Information Science	3
IS_LT 7313	Collection and Access Management	3
IS_LT 7314	Reference Sources and Services	3
IS_LT 9404	School Library Administration	3
IS_LT 9406	Curriculum and the School Library	3
IS_LT 9417	Action Research	3
IS_LT 9431	Children's Library Materials	3
or IS_LT 9434	Teen Library Materials	
IS_LT 7380	School Library Practicum (Early Field Experience)	1
IS_LT 7380	School Library Practicum (Mid-Level Field Experience)	2
IS_LT 7380	School Library Practicum (Advanced Field Experience)	3
IS_LT 9480	Internship in Information Science and Learning Technologies (Student Teaching)	7
IS_LT 9467	Technology to Enhance Learning	3
SPC_ED 4020	Teaching the Exceptional Learner	3
LTC 4460	Teaching English to Speakers of Other Languages	3
ESC_PS 2010	Inquiry Into Learning I	3
LTC 2040	Inquiring into Schools, Community and Society I	3
LTC 4560	Reading and Writing in the Content Areas	3

### Graduate Examination Process

In your final semester, you will develop and present a portfolio of your work to demonstrate your mastery of the LIS Student Learning Outcomes (<https://sislt.missouri.edu/lis/#outcomes>). The portfolio contains descriptions of competencies and what they mean to you, explanations of artifacts, and reflections. You should start on your portfolio early in your coursework.

### Admissions

Email: [sislt@missouri.edu](mailto:sislt@missouri.edu)  
 SISLT Student Services  
 304 Townsend Hall  
 Columbia, MO 65211  
 Phone: 573-882-4546 or toll free 877-747-5868

<https://sislt.missouri.edu/lis/students/#apply>

Applicants are required to meet two sets of minimum qualifications for admission: The minimum requirements of the Master of Library & Information Science program (<https://sislt.missouri.edu/lis/students/#apply>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

## Middle School Education

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Dr. Laurie Kingsley, Director of Teacher Education  
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TeacherEducation@missouri.edu

Professional education coursework is delivered by four departments within the College of Education, namely, Learning, Teaching and Curriculum; Special Education; Educational Leadership and Policy Analysis; and Educational, School and Counseling Psychology.

### Faculty

College of Education Faculty (<https://education.missouri.edu/people/faculty/>)

### Undergraduate

- BSEd in Middle School Education (p. 495)
  - with emphasis in Language Arts (p. 495)
  - with emphasis in Mathematics (p. 497)
  - with emphasis in Science (p. 498)
  - with emphasis in Social Studies (p. 499)

For a complete list of degree programs please visit: <https://education.missouri.edu/degrees-programs/undergraduate-degrees/>

### Graduate

For graduate degree programs related to Middle School Education, please see the Department of Learning, Teaching and Curriculum (p. 467) or other College of Education (<https://education.missouri.edu/>) programs. You might also browse the complete list of degree options at the University of Missouri (p. 20).

## BSEd in Middle School Education

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### Degree Program Description

The Bachelor of Science in Education in Middle School Education prepares students to work with children from fifth through ninth grade in public, private, and alternative school systems. You may consider a degree in education if you enjoy working with children and/or adolescents, want to strengthen the future through education, and want to make a difference in the lives of others. MU Students work closely with mentors, practicing teachers, administrators, and university faculty to develop the knowledge and skills to enhance learning outcomes for children and youth. The coursework through the College of Education focuses on teachers' roles in facilitating learning at all levels of development and considers the influences of cultural, political, historical, and economic factors on students, teachers, and schools. Practical and rewarding clinical training in schools and agencies begins sophomore year, and continues each semester culminating in a senior-level teaching internship, enhancing teaching skills and confidence. Coursework will help you learn about general teaching and learning strategies as well as those specific to your discipline.

### Major Program Requirements

The BSEd in Middle School Education is offered in four emphasis areas: Language Arts (p. 495), Mathematics (p. 497), Science (p. 498),

and Social Studies (p. 499). Students must choose one of the emphasis areas to earn the BSEd. Students must complete all university (p. 35), general education (p. 36), and content requirements in addition to the degree requirements. Please meet with a Mizzou Ed Academic Advisor to discuss degree requirements and to create a semester plan.

Teacher Education programs in the College of Education are accredited by the Missouri Department of Elementary and Secondary Education (DESE (<https://dese.mo.gov/>)). Curriculum changes mandated to earn teacher certification may become effective at any point during your academic program. Therefore, it is extremely important that you DO NOT SELF ADVISE.

### Semester Plan

The BSEd in Middle School Education has emphasis areas in Language Arts (p. 495), Mathematics (p. 497), Science (p. 498), and Social Studies (p. 499). Please see the emphasis area pages for semester plans specific to the emphasis.

### Major and Career Exploration

The University of Missouri has many resources to assist you in exploring majors and career possibilities. For guidance, visit the Majors and Careers (<https://career.missouri.edu/majors-careers/>) website or view specific resources below.

- If you are considering a change of major or are exploring multiple majors, schedule an appointment with an advisor in the Discovery Center (<https://discoverycenter.missouri.edu/>) by calling (573)884-9700 or through MU Connect (<https://mizzou.starfishsolutions.com/starfish-ops/dl/instructor/serviceCatalog.html?bookmark=service/3761489>) Discovery Center service in your success network.
- If you have decided on a major, visit an academic advisor in the School or College that you are interested in to discuss the process of declaring the major (<https://advising.missouri.edu/majors-minors/changing-major/>).
- If you would like to learn more about your career interests, abilities, values and talents, visit the MU Career Center (<http://career.missouri.edu/connect/>). No Appointment is necessary to explore career options with one of our staff members.
- If you would like information about MU majors and degree programs, visit:
  - the Degrees, Majors (Degree Programs), Emphasis Areas, Minors and Certificates (p. 20) page in the catalog,
  - the MU Majors (<https://majors.missouri.edu>) website.

For additional major and career exploration resources, visit Major & Career Exploration (p. 34) in the catalog.

## BSEd in Middle School Education with Emphasis in Language Arts

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### Degree Program Description

The Bachelor of Science in Education in Middle School Education prepares students to work with children from fifth through ninth grade in public, private, and alternative school systems. You may consider a degree in education if you enjoy working with children and/or adolescents, want to strengthen the future through education,



and want to make a difference in the lives of others. MU Students work closely with mentors, practicing teachers, administrators, and university faculty to develop the knowledge and skills to enhance learning outcomes for children and youth. The coursework through the College of Education focuses on teachers' roles in facilitating learning at all levels of development and considers the influences of cultural, political, historical, and economic factors on students, teachers, and schools. Practical and rewarding clinical training in schools and agencies begins sophomore year, and continues each semester culminating in a senior-level teaching internship, enhancing teaching skills and confidence. Coursework will help you learn about general teaching and learning strategies as well as those specific to your discipline.

## Major Program Requirements

Students must complete all university (p. 35), general education (p. 36), and content requirements in addition to the degree requirements. Please meet with an Academic Advisor to discuss degree requirements and to create a semester plan.

**Teacher Education programs in the College of Education are accredited by the Missouri Department of Elementary and Secondary Education (DESE (<https://dese.mo.gov/>)). Curriculum changes mandated to earn teacher certification may become effective at any point during your academic program. Therefore, it is extremely important that you DO NOT SELF ADVISE.**

### Degree Requirements Sample Program

#### Phase I

LTC 1100 or LTC 1120 or LTC 1130 or LTC 1155 or LTC 1170 or SPC_ED 1100	Orientation Orientation: Math Education Orientation: Middle School Education Orientation: Science Education Orientation: English/Language Arts Orientation: Special Education	1
LTC 2200	School Health and Student Wellbeing	3
ESC_PS 2000	Experiencing Cultural Diversity in the United States	3
ESC_PS 2010	Inquiry Into Learning I	3
ESC_PS 2014	Inquiry into Learning I - Field Experience	1
LTC 2040	Inquiring into Schools, Community and Society I	3
LTC 2044	Inquiry into Schools, Community and Society: Field	1
IS_LT 2467	Inquiry into Empowering Learners with Technology	3

#### Phase II

LTC 4380	Teaching Middle School Language Arts I	3
LTC 4384	Teaching Middle School Language Arts I Field Experience	1
LTC 4460	Teaching English to Speakers of Other Languages	3
SPC_ED 4020	Teaching the Exceptional Learner	3
LTC 4390W	Teaching Middle and Secondary English/Language Arts II - Writing Intensive	3
LTC 4394	Teaching Middle School Language Arts II Field Experience	1
LTC 4565	Reading and Writing in the Content Areas II	3

LTC 4400	Teaching Middle and Secondary English/Language Arts III	3
LTC 4404	Teaching Middle School Language Arts III Field Experience	1
LTC 4410W	Teaching, Engaging and Assessing Middle-Level Students - Writing Intensive	3
ED_LPA 4060	Inquiring into Schools, Community and Society II	3
SPC_ED 4310	Behavioral and Classroom Management	3
<b>Phase III</b>		
LTC 4971	Internship and Capstone Seminar	12
<b>Content Area</b>		
ENGLISH 2010	Intermediate Composition	3
ENGLISH 2100	Writing About Literature	3
Choose 2 of 3		6
ENGLISH 4600	Structure of American English (OR)	
ENGLISH 4610	History of the English Language (OR)	
ENGLISH 4620	Regional and Social Dialects of American English	
Eng. Adolescent Literature (Recommended) (see advisor for course list)		3
English Literature (see advisor for course list)		3
English Elective (see advisor for course list)		3
English Elective (see advisor for course list)		3

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices and where options are available.

First Year			
Fall	CR	Spring	CR
LTC 1100		1 LTC 2200	3
ENGLISH 1000		3 General Education Math Requirement	3
American History or Government		3 IS_LT 2467	3
ESC_PS 2000 (Social Science)		3 ENGLISH 2010	3
Humanities (Not English)		3 Elective	3
		13	15
Second Year			
Fall	CR	Spring	CR
ESC_PS 2010 or LTC 2040 (Social Science)		3 ESC_PS 2010 or LTC 2040 (Social Science)	3
ESC_PS 2014 or LTC 2044		1 ESC_PS 2014 or LTC 2044	1
Biological, Physical, Mathematical Science		3 Lab Science	3
Biological, Physical, Mathematical Science		3 Eng. Literature (Adolescent Recommended)	3
ENGLISH 2100		3 English Literature	3
Elective		3 Elective	3
		16	16
Third Year			
Fall	CR	Spring	CR
LTC 4380		3 LTC 4390W	3
LTC 4384		1 LTC 4394	1
SPC_ED 4020		3 ENGLISH 4610, 4620, or 4600	3
LTC 4460		3 English Elective	3

ENGLSH 4600, 4610, or 4620	3 English Elective	3
Elective	3 Elective	3
		16

Fourth Year			
Fall	CR	Spring	CR
LTC 4400	3	LTC 4971	12
LTC 4404	1		
LTC 4410W	3		
ED_LPA 4060	3		
SPC_ED 4310	3		
Elective	3		
		16	12

Total Credits: 120

## BSEd in Middle School Education with Emphasis in Mathematics

### Degree Program Description

The Bachelor of Science in Education in Middle School Education prepares students to work with children from fifth through ninth grade in public, private, and alternative school systems. You may consider a degree in education if you enjoy working with children and/or adolescents, want to strengthen the future through education, and want to make a difference in the lives of others. MU Students work closely with mentors, practicing teachers, administrators, and university faculty to develop the knowledge and skills to enhance learning outcomes for children and youth. The coursework through the College of Education focuses on teachers' roles in facilitating learning at all levels of development and considers the influences of cultural, political, historical, and economic factors on students, teachers, and schools. Upon successfully completing the initial teacher certification process, the state grants you certification in middle school mathematics. Practical and rewarding clinical training in schools and agencies begins sophomore year, and continues each semester culminating in a senior-level teaching internship, enhancing teaching skills and confidence. Coursework within Middle School Mathematics will teach you ways to support the development and mathematical learning of middle school students by learning research-based instructional practices.

### Major Program Requirements

Students must complete all university (p. 35), general education (p. 36), and content requirements, in addition to degree requirements. Please meet with an Academic Advisor to discuss degree requirements and to create a semester plan.

**Teacher Education programs in the College of Education are accredited by the Missouri Department of Elementary and Secondary Education (DESE (<https://dese.mo.gov/>)). Curriculum changes mandated to earn teacher certification may become effective at any point during your academic program. Therefore, it is extremely important that you DO NOT SELF ADVISE.**

#### Degree Requirements Sample Program

Phase I		
LTC 1100	Orientation	1
or LTC 1120	Orientation: Math Education	
or LTC 1130	Orientation: Middle School Education	

or LTC 1155	Orientation: Science Education	
or LTC 1170	Orientation: English/Language Arts	
or SPC_ED 1100	Orientation: Special Education	
LTC 2200	School Health and Student Wellbeing	3
ESC_PS 2000	Experiencing Cultural Diversity in the United States	3
ESC_PS 2010	Inquiry Into Learning I	3
ESC_PS 2014	Inquiry into Learning I - Field Experience	1
LTC 2040	Inquiring into Schools, Community and Society I	3
LTC 2044	Inquiry into Schools, Community and Society: Field	1
IS_LT 2467	Inquiry into Empowering Learners with Technology	3

Phase II		
LTC 4360	Intro. Teaching Mathematics in Middle and Secondary Schools	3
LTC 4364	Intro. Teaching Math in Middle and Secondary School Field Experience	1
LTC 4410W	Teaching, Engaging and Assessing Middle-Level Students - Writing Intensive	3
LTC 4560	Reading and Writing in the Content Areas	3
SPC_ED 4310	Behavioral and Classroom Management	3
LTC 4581	Teaching Mathematics in Middle and Secondary Schools: Focus on Algebra and Technology	3
LTC 4584	Teaching Math in Middle and Secondary Schools: Algebra and Technology Field	1
LTC 4565	Reading and Writing in the Content Areas II	3
SPC_ED 4020	Teaching the Exceptional Learner	3

Phase III		
LTC 4971	Internship and Capstone Seminar	12
LTC 4370W	Teaching and Modeling Middle School Mathematics - Writing Intensive	3
LTC 4374	Teaching and Modeling Middle School Mathematics Field Experience	1
LTC 4460	Teaching English to Speakers of Other Languages	3
ED_LPA 4060	Inquiring into Schools, Community and Society II	3

Content Area		
STAT 1200	Introductory Statistical Reasoning (Recommended)	3
Or one of the following:		
STAT 1300	Elementary Statistics (Transfer only)	
STAT 1400	Elementary Statistics for Life Sciences (Transfer Only)	
STAT 2500	Introduction to Probability and Statistics I (Also Accepted)	
MATH 1160	Precalculus Mathematics (OR)	5
MATH 1100	College Algebra (And)	
MATH 1140	Trigonometry	
MATH 1300	Finite Mathematics	3
MATH 1360	Geometric Concepts	3
MATH 4060	Connecting Geometry to Middle and Secondary Schools	3

MATH 4070	Connecting Algebra to Middle and Secondary Schools	3
MATH 1400	Calculus for Social and Life Sciences I (OR)	3
MATH 1500	Analytic Geometry and Calculus I	
MATH 2320	Discrete Mathematical Structures	3
STAT 4050	Connecting Statistics to Middle and Secondary Schools	3

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices and where options are available.

First Year			
Fall	CR	Spring	CR
LTC 1100		1 LTC 2200	3
MATH 1160 or 1100 <i>and</i> 1140		5 ENGLISH 1000	3
American History or Government		3 IS_LT 2467	3
ESC_PS 2000 (Social Science)		3 STAT 1200	3
Humanities		3 Elective	3
		15	15

Second Year			
Fall	CR	Spring	CR
ESC_PS 2010 or LTC 2040 (Social Science)		3 ESC_PS 2010 or LTC 2040 (Social Science)	3
ESC_PS 2014 or LTC 2044		1 ESC_PS 2014 or LTC 2044	1
Lab Science		3 Humanities	3
Humanities		3 MATH 1360	3
MATH 1300		3 MATH 1400 or 1500	3
Elective		3 Elective	3
		16	16

Third Year			
Fall	CR	Spring	CR
LTC 4360		3 LTC 4581	3
LTC 4364		1 LTC 4584	1
SPC_ED 4310		3 LTC 4565	3
LTC 4410W		3 STAT 4050	3
LTC 4560		3 SPC_ED 4020	3
MATH 4070		3 MATH 4060	3
		16	16

Fourth Year			
Fall	CR	Spring	CR
LTC 4971		12 LTC 4370W	3
		LTC 4374	1
		ED_LPA 4060	3
		LTC 4460	3
		MATH 2320	3
		Elective	1
		12	14

Total Credits: 120

# BSEd in Middle School Education with Emphasis in Science

## Degree Program Description

The Bachelor of Science in Education in Middle School Education prepares students to work with children from fifth through ninth grade in public, private, and alternative school systems. You may consider a degree in education if you enjoy working with children and/or adolescents, want to strengthen the future through education, and want to make a difference in the lives of others. MU students work closely with mentors, practicing teachers, administrators, and university faculty to develop the knowledge and skills to enhance learning outcomes for children and youth. The coursework through the College of Education focuses on teachers' roles in facilitating learning at all levels of development and considers the influences of cultural, political, historical, and economic factors on students, teachers, and schools. Upon successfully completing the initial teacher certification process, the state grants you certification in middle school science. Practical and rewarding clinical training in schools and agencies begins sophomore year, and continues each semester culminating in a senior-level teaching internship, enhancing teaching skills and confidence. Coursework within Middle School Science will teach you ways to support the development of science learning of middle school students. This includes consideration of the nature of science, methods for teaching science, strategies for assessing science learning, and pathways for developing into a professional science educator.

## Major Program Requirements

Students must complete all university (p. 35), general education (p. 36), and content requirements, in addition to degree requirements. Please meet with an Academic Advisor to discuss degree requirements and to create a semester plan.

**Teacher Education programs in the College of Education are accredited by the Missouri Department of Elementary and Secondary Education (DESE (<https://dese.mo.gov/>)). Curriculum changes mandated to earn teacher certification may become effective at any point during your academic program. Therefore, it is extremely important that you DO NOT SELF ADVISE.**

### Degree Requirements Sample Program

Phase I		
LTC 1100	Orientation (OR)	1
or LTC 1120	Orientation: Math Education	
or LTC 1130	Orientation: Middle School Education	
or LTC 1155	Orientation: Science Education	
or LTC 1170	Orientation: English/Language Arts	
or SPC_ED 1100	Orientation: Special Education	
LTC 2200	School Health and Student Wellbeing	3
ESC_PS 2000	Experiencing Cultural Diversity in the United States	3
ESC_PS 2010	Inquiry Into Learning I	3
ESC_PS 2014	Inquiry into Learning I - Field Experience	1
LTC 2040	Inquiring into Schools, Community and Society I	3
LTC 2044	Inquiry into Schools, Community and Society: Field	1

IS_LT 2467	Inquiry into Empowering Learners with Technology	3
<b>Phase II</b>		
LTC 4340W	Middle School Science I - Writing Intensive	4
LTC 4344	Middle School Science Field I	1
LTC 4460	Teaching English to Speakers of Other Languages	3
LTC 4560	Reading and Writing in the Content Areas	3
LTC 4350	Middle School Science II	3
LTC 4354	Middle School Science Field Experience	1
LTC 4565	Reading and Writing in the Content Areas II	3
SPC_ED 4020	Teaching the Exceptional Learner	3
LTC 4654	Teach Sci MS/Sec Sch: Phil,Hist,Sci Inq,Curr,Assm & Tech III Fld	1
LTC 4410W	Teaching, Engaging and Assessing Middle-Level Students - Writing Intensive	3
ED_LPA 4060	Inquiring into Schools, Community and Society II	3
SPC_ED 4310	Behavioral and Classroom Management	3
<b>Phase III</b>		
LTC 4971	Internship and Capstone Seminar	12
<b>Content Area</b>		
CHEM 1320	College Chemistry I	4
CHEM 1330	College Chemistry II	4
PHYSICS 1210	College Physics I (OR)	4
PHYSICS 2750	University Physics I	
PHYSICS 2330	Exploring the Principles of Physics	4
GEOL 1100	Principles of Geology with Laboratory (OR)	4
GEOL 1200	Environmental Geology with Laboratory	
ATM_SC 1050	Introductory Meteorology	3
BIO_SC 1500	Introduction to Biological Systems with Laboratory (Recommended)	5
Or both of the following:		
BIO_SC 1010	General Principles and Concepts of Biology (Also Accepted)	
BIO_SC 1020	General Biology Laboratory (Also Accepted)	
Or the following:		
BIO_SC 1030	General Principles and Concepts of Biology with Laboratory (Transfer Only)	
BIO_SC 1060	Basic Environmental Studies (OR)	3
NAT_R 1060	Ecology and Conservation of Natural Resources	
BIO_SC 4994	Senior Seminar (Teaching Middle/Secondary Bio)	3

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices and where options are available.

First Year			
Fall	CR	Spring	CR
LTC 1100		1 LTC 2200	3
MATH 1100		3 ENGLISH 1000	3
American History or Government		3 IS_LT 2467	3
ESC_PS 2000 (Social Science)		3 BIO_SC 1500	5
Humanities		3 Elective	1
Elective		3	
		16	15

Second Year			
Fall	CR	Spring	CR
ESC_PS 2010 or LTC 2040 (Social Science)		3 ESC_PS 2010 or LTC 2040 (Social Science)	3
ESC_PS 2014 or LTC 2044		1 ESC_PS 2014 or LTC 2044	1
Humanities		3 Humanities	3
CHEM 1320		4 CHEM 1330	4
Elective		3 GEOL 1200 or 1100	4
		14	15

Third Year			
Fall	CR	Spring	CR
LTC 4340W		4 LTC 4350	3
LTC 4344		1 LTC 4354	1
LTC 4460		3 LTC 4565	3
LTC 4560		3 SPC_ED 4020	3
PHYSICS 2330		4 PHYSICS 1210 or 2750	4-5
BIO_SC 1060 or NAT_R 1060		3	
		18	14-15

Fourth Year			
Fall	CR	Spring	CR
LTC 4654		1 LTC 4971	12
LTC 4410W		3	
ED_LPA 4060		3	
SPC_ED 4310		3	
BIO_SC 4994		3	
ATM_SC 1050		3	
		16	12

Total Credits: 120-121

## BSEd in Middle School Education with Emphasis in Social Studies

### Degree Program Description

The Bachelor of Science in Education in Middle School Education prepares students to work with children from fifth through ninth grade in public, private, and alternative school systems. You may consider a degree in education if you enjoy working with children and/or adolescents, want to strengthen the future through education, and want to make a difference in the lives of others. MU Students work closely with mentors, practicing teachers, administrators, and university faculty to develop the knowledge and skills to enhance learning outcomes for children and youth. The coursework through the College of Education focuses on teachers' roles in facilitating learning at all levels of development and considers the influences of cultural, political, historical, and economic factors on students, teachers, and schools. Upon successfully completing the initial teacher certification process, the

state grants you certification in middle school social studies. Practical and rewarding clinical training in schools and agencies begins sophomore year, and continues each semester culminating in a senior-level teaching internship, enhancing teaching skills and confidence. Coursework within Middle School Social Studies will teach you ways to support the social studies learning of middle school students.

## Major Program Requirements

Students must complete all university (p. 35), general education (p. 36), and content requirements, in addition to degree requirements. Please meet with an Academic Advisor to discuss degree requirements and to create a semester plan.

**Teacher Education programs in the College of Education are accredited by the Missouri Department of Elementary and Secondary Education (DESE (<https://dese.mo.gov/>)). Curriculum changes mandated to earn teacher certification may become effective at any point during your academic program. Therefore, it is extremely important that you DO NOT SELF ADVISE.**

### Degree Requirements Sample Program

#### Phase I

LTC 1100 or LTC 1120 or LTC 1130 or LTC 1155 or LTC 1170 or SPC_ED 1100	Orientation Orientation: Math Education Orientation: Middle School Education Orientation: Science Education Orientation: English/Language Arts Orientation: Special Education	1
LTC 2200	School Health and Student Wellbeing	3
ESC_PS 2000	Experiencing Cultural Diversity in the United States	3
ESC_PS 2010	Inquiry Into Learning I	3
ESC_PS 2014	Inquiry into Learning I - Field Experience	1
LTC 2040	Inquiring into Schools, Community and Society I	3
LTC 2044	Inquiry into Schools, Community and Society: Field	1
IS_LT 2467	Inquiry into Empowering Learners with Technology	3

#### Phase II

LTC 4530	Introduction to Social Studies	3
LTC 4534	Secondary Social Studies I Field Experience	1
LTC 4460	Teaching English to Speakers of Other Languages	3
LTC 4560	Reading and Writing in the Content Areas	3
LTC 4320	Middle School Social Studies I	3
LTC 4324	Middle School Social Studies Field I	1
SPC_ED 4020	Teaching the Exceptional Learner	3
LTC 4565	Reading and Writing in the Content Areas II	3
LTC 4334	Middle School Social Studies Field Experience II	1
LTC 4550W	Assessment in Social Studies - Writing Intensive	3
LTC 4410W	Teaching, Engaging and Assessing Middle-Level Students - Writing Intensive	3

ED_LPA 4060	Inquiring into Schools, Community and Society II	3
SPC_ED 4310	Behavioral and Classroom Management	3
<b>Phase III</b>		
LTC 4971	Internship and Capstone Seminar	12
<b>Content Area</b>		
HIST 1100	Survey of American History to 1865	3
HIST 1200	Survey of American History Since 1865	3
American History Required Elective (see advisor for course list)		3
HIST 1500	Origins of European History (OR)	3
HIST 1510	History of Modern Europe	
World History Required Elective (see advisor for course list)		3
World History Required Elective (see advisor for course list)		3
POL_SC 1100	American Government	3
ABM 1041	Applied Microeconomics (OR)	3
ABM 1042	Applied Macroeconomics (OR)	
ECONOM 1014	Principles of Microeconomics	
GEOG 1100	Regions and Nations of the World I (OR)	3
GEOG 1200	Regions and Nations of the World II	
Psychology 1000+		3
Non-Western World History (see advisor for course list)		3

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices and where options are available.

First Year			
Fall	CR	Spring	CR
LTC 1100		1 General Education Math Requirement	3
ENGLISH 1000		3 HIST 1200	3
HIST 1100		3 IS_LT 2467	3
ESC_PS 2000 (Social Science)		3 Biological, Physical, Mathematical Science	3
Humanities		3	
LTC 2200		3	
		16	12

Second Year			
Fall	CR	Spring	CR
ESC_PS 2010 or LTC 2040 (Social Science)		3 ESC_PS 2010 or LTC 2040 (Social Science)	3
ESC_PS 2014 or LTC 2044		1 ESC_PS 2014 or LTC 2044	1
Lab Science		3 Humanities	3
Humanities and Writing Intensive		3 Biological, Physical, Mathematical Science	3
Psychology 1000+		3 POL_SC 1100	3
HIST 1500 or 1510		3 American History Elective	3
		16	16

Third Year			
Fall	CR	Spring	CR
LTC 4350		3 LTC 4320	3
LTC 4534		1 LTC 4324	1
SPC_ED 4020		3 LTC 4565	3
LTC 4560		3 LTC 4460	3
World History Elective		3 World History Elective	3

GEOG 1100 or 1200	3	ECONOM 1014, ABM 1041, or ABM 1042	3
16		16	

Fourth Year			
Fall	CR	Spring	CR
LTC 4550W		3 LTC 4971	12
LTC 4334	1		
LTC 4410W	3		
ED_LPA 4060	3		
SPC_ED 4310	3		
Non-Western World History	3		
16		12	

Total Credits: 120

## Secondary Education

Dr. Laurie Kingsley, Director of Teacher Education  
 Department of Learning, Teaching and Curriculum  
 202 Townsend Hall  
 573-882-0560  
 TeacherEducation@missouri.edu

Professional education coursework is delivered by four departments within the College of Education, namely, Learning, Teaching and Curriculum; Special Education; Educational Leadership and Policy Analysis; and Educational, School and Counseling Psychology.

### Faculty

College of Education Faculty (<https://education.missouri.edu/people/faculty/>)

### Undergraduate

- BSEd in Secondary Education (p. 501)
  - with emphasis in Art Education (p. 501) (not accepting applications)
  - with emphasis in Biology (p. 502)
  - with emphasis in Chemistry (p. 504)
  - with emphasis in Earth Science (p. 505)
  - with emphasis in General Science (p. 506) (not accepting applications)
  - with emphasis in Language Arts (p. 506)
  - with emphasis in Mathematics Education (p. 508)
  - with emphasis in Physics (p. 509)
  - with emphasis in Social Studies (p. 510)

For a complete list of degree programs please visit: <https://education.missouri.edu/degrees-programs/undergraduate-degrees/>

### Graduate

For graduate degree programs related to Secondary Education, please see the Department of Learning, Teaching and Curriculum (p. 467) or other College of Education (<https://education.missouri.edu/>) programs.

You might also browse the complete list of degree options at the University of Missouri (p. 20).

## BSEd in Secondary Education

### Degree Program Description

The Bachelor of Science in Education in Secondary Education prepares students to work with children from ninth through twelfth grade in public, private, and alternative school systems. You may consider a degree in education if you enjoy working with children and/or adolescents, want to strengthen the future through education, and want to make a difference in the lives of others. MU Students work closely with mentors, practicing teachers, administrators, and university faculty to develop the knowledge and skills to enhance learning outcomes for children and youth. The coursework through the College of Education focuses on teachers' roles in facilitating learning at all levels of development and considers the influences of cultural, political, historical, and economic factors on students, teachers, and schools. Practical and rewarding clinical training in schools and agencies begins sophomore year, and continues each semester culminating in a senior-level teaching internship, enhancing teaching skills and confidence.

### Major Program Requirements

The BSEd in Secondary Education is offered in emphasis areas: Biology (p. 502), Chemistry (p. 504), Earth Science (p. 505), Language Arts (p. 506), Mathematics Education (p. 508), Physics (p. 509), and Social Studies (p. 510). Students must choose one of the emphasis areas to earn the BSEd. Students must complete all university (p. 35), general education (p. 36), and content requirements, in addition to the degree requirements. Please meet with an Academic Advisor to discuss degree requirements and to create a semester plan.

Teacher Education programs in the College of Education are accredited by the Missouri Department of Elementary and Secondary Education (DESE (<https://dese.mo.gov/>)). Curriculum changes mandated to earn teacher certification may become effective at any point during your academic program. Therefore, it is extremely important that you DO NOT SELF ADVISE.

## BSEd in Secondary Education with Emphasis in Art Education

- Degree Description
- Major Program Requirements
- Semester Plan
- Degree Audit
- Major and Career Exploration

Our department is not currently admitting students to this emphasis area. We invite you to explore the other degree options within Secondary Education, or Learning, Teaching and Curriculum (p. 467).

### Degree Description

The Bachelor of Science in Education with an emphasis in Art Education prepares students to work with children in public, private and alternative school systems. You may consider a degree in education if you are an artist/designer, enjoy working with children and/or adolescents, want to strengthen the future through art education, and want to make a difference in how students see and respond to their world and the lives of others. MU students work closely with artists, mentors, practicing teachers, administrators, and university faculty in the School of Visual

Studies to develop the knowledge and skills to enhance learning outcomes for children and youth. The coursework through the College of Education focuses on teachers' roles in facilitating learning at all levels of development and considers the influences of cultural, political, historical, and economic factors on students, teachers, and schools. Upon successfully completing the initial teacher certification process, the state grants you certification in K-12 Art Education. Practical and rewarding clinical training in schools and agencies begins sophomore year, and continues each semester culminating in a senior-level teaching internship, enhancing teaching skills and confidence. Coursework within Art Education provides you with experience in the methods of teaching art at all levels in supporting learners in the development of visual literacy. This includes consideration of visual art production, responding to art, connecting art to all content areas, and presenting art for varied audiences. This includes methods for teaching art, talking about art, design, and digital/mass media, strategies for assessing art learning, and pathways for developing into a professional artist educator.

## Major Program Requirements

Phase 1 education coursework	18
Phase 2 education coursework	30
Education Internship	12
Art or Art-related coursework	30

Students must complete all university (p. 35), general education (p. 36), and content requirements, in addition to degree requirements. Please meet with an Academic Advisor to discuss degree requirements and to create a semester plan.

## Semester Plan

At this time, it is recommended that a student consult with their advisor to develop a semester-by-semester plan of study.

## Degree Audit

The degree audit is an automated report reflecting a student's academic progress toward the completion of a degree. Degree Audits are not available for all programs; however, please consult with the appropriate college or school for audit information.

**MU students can** request a degree audit by logging in to myDegreePlanner (<https://mydegreeplanner.missouri.edu>). Students may also access myDegreePlanner via myZou, in the Student Center, by clicking on the Request Degree Audit link. The audit automatically pulls in the student's MU course work, transfer courses and courses in progress.

This is available to current students, admitted students, and those who last attended less than three terms ago.

**Past MU students** can request a degree audit by contacting the Academic Advising Unit of the division in which they were last enrolled at MU. For contact information, go to <http://advising.missouri.edu/contact/>.

**Prospective students**, can access a preliminary MU degree audit via <https://www.transferology.com/index.htm> (<https://www.transferology.com/>). (<https://www.transferology.com/>) Information on the college credits already earned will have to be manually entered before it can be evaluated against current degree requirements.

For additional details on degree audits, go to <http://registrar.missouri.edu/degree-audits/index.php> (<http://registrar.missouri.edu/degree-audits/>).

## Major and Career Exploration

The University of Missouri has many resources to assist you in exploring majors and career possibilities. For guidance, visit the Majors and Careers (<https://career.missouri.edu/majors-careers/>) website or view specific resources below.

- If you are considering a change of major or are exploring multiple majors, schedule an appointment with an advisor in the Discovery Center (<https://discoverycenter.missouri.edu/>) by calling (573)884-9700 or through MU Connect (<https://mizzou.starfishsolutions.com/starfish-ops/dl/instructor/serviceCatalog.html?bookmark=service/3761489>) Discovery Center service in you success network.
- If you have decided on a major, visit an academic advisor in the School or College that you are interested in to discuss the process of declaring the major (<https://advising.missouri.edu/majors-minors/changing-major/>).
- If you would like to learn more about your career interests, abilities, values and talents, visit the MU Career Center (<http://career.missouri.edu/connect/>). No Appointment is necessary to explore career options with one of our staff members.
- If you would like information about MU majors and degree programs, visit:
  - the Degrees, Majors (Degree Programs), Emphasis Areas, Minors and Certificates (p. 20) page in the catalog,
  - the MU Majors (<https://majors.missouri.edu>) website.

For additional major and career exploration resources, visit Major & Career Exploration (p. 34) in the catalog.

## BSEd in Secondary Education with Emphasis in Biology

### Degree Program Description

The Bachelor of Science in Education in Secondary Education prepares students to work with children from ninth through twelfth grade in public, private, and alternative school systems. You may consider a degree in education if you enjoy working with children and/or adolescents, want to strengthen the future through education, and want to make a difference in the lives of others. MU Students work closely with mentors, practicing teachers, administrators, and university faculty to develop the knowledge and skills to enhance learning outcomes for children and youth. The coursework through the College of Education focuses on teachers' roles in facilitating learning at all levels of development and considers the influences of cultural, political, historical, and economic factors on students, teachers, and schools. Upon successfully completing the initial teacher certification process, the state grants you certification in secondary biology. Practical and rewarding clinical training in schools and agencies begins sophomore year, and continues each semester culminating in a senior-level teaching internship, enhancing teaching skills and confidence. Coursework within Secondary Biology provides you with experience in the methods of teaching biology in supporting learners in the development of scientific literacy. This includes consideration of the nature of science, methods for teaching science, strategies for assessing science learning, and pathways for developing into a professional biology educator.

## Major Program Requirements

Students must complete all university (p. 35), general education (p. 36), and content requirements, in addition to degree requirements. Please meet with an Academic Advisor to discuss degree requirements and to create a semester plan.

Teacher Education programs in the College of Education are accredited by the Missouri Department of Elementary and Secondary Education (DESE (<https://dese.mo.gov/>)). Curriculum changes mandated to earn teacher certification may become effective at any point during your academic program. Therefore, it is extremely important that you DO NOT SELF ADVISE.

### Phase I

LTC 1100	Orientation (OR)	1
or LTC 1120	Orientation: Math Education	
or LTC 1130	Orientation: Middle School Education	
or LTC 1155	Orientation: Science Education	
or LTC 1170	Orientation: English/Language Arts	
or SPC_ED 1100	Orientation: Special Education	

LTC 2200	School Health and Student Wellbeing	3
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ESC_PS 2000	Experiencing Cultural Diversity in the United States	3
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ESC_PS 2010	Inquiry Into Learning I	3
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ESC_PS 2014	Inquiry into Learning I - Field Experience	1
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LTC 2040	Inquiring into Schools, Community and Society I	3
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LTC 2044	Inquiry into Schools, Community and Society: Field	1
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IS_LT 2467	Inquiry into Empowering Learners with Technology	3
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### Phase II

LTC 4631W	Teach.Sci.Second.Sch.:Phil.,Hist., Sci.Inq.,Curr., Assm., & Teach I - Writing Intensive	4
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LTC 4634	Teaching Middle and Secondary Science I Field	1
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LTC 4560	Reading and Writing in the Content Areas	3
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LTC 4460	Teaching English to Speakers of Other Languages	3
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LTC 4641	Teaching Middle and Secondary Science II	3
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LTC 4644	Teaching Middle and Secondary Science II Field	1
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LTC 4654	Teach Sci MS/Sec Sch: Phil,Hist,Sci Inq,Curr,Assm & Tech III Fld	1
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SPC_ED 4020	Teaching the Exceptional Learner	3
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LTC 4565	Reading and Writing in the Content Areas II	3
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ED_LPA 4060	Inquiring into Schools, Community and Society II	3
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SPC_ED 4310	Behavioral and Classroom Management	3
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### Phase III

LTC 4971	Internship and Capstone Seminar	12
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### Content Area

BIO_SC 1500	Introduction to Biological Systems with Laboratory	5
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BIO_SC 1200	General Botany with Laboratory (OR)	5
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BIO_SC 3210	Plant Systematics	
BIO_SC 2200	General Genetics	4
BIO_SC 2300	Introduction to Cell Biology	4
BIO_SC 3650	General Ecology	5
BIO_SC 3700	Animal Physiology (OR)	5
MPP 3202	Elements of Physiology	
BIO_SC 4600	Evolution	3
BIO_SC 4994	Senior Seminar (Teaching Middle/Secondary Bio)	3
CHEM 1320	College Chemistry I	4
CHEM 1330	College Chemistry II	4
PHYSICS 1210	College Physics I (OR)	4
PHYSICS 2750	University Physics I	
GEOL 1200	Environmental Geology with Laboratory (Recommended)	4
OR		
GEOL 1100	Principles of Geology with Laboratory (Also Accepted)	

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices and where options are available.

### First Year

Fall	CR	Spring	CR
LTC 1100		1 LTC 2200	3
MATH 1100		3 ENGLISH 1000	3
ESC_PS 2000 (Social Science)		3 BIO_SC 2200	4
American History or Government		3 CHEM 1320	4
BIO_SC 1500		5 Humanities	3
			17

### Second Year

Fall	CR	Spring	CR
ESC_PS 2010 or LTC 2040 (Social Science)		3 ESC_PS 2010 or LTC 2040 (Social Science)	3
ESC_PS 2014 or LTC 2044		1 ESC_PS 2014 or LTC 2044	1
Writing Intensive & Humanities		3 Humanities	3
IS_LT 2467		3 BIO_SC 4600	3
BIO_SC 2300		4 GEOL 1200	4
CHEM 1330		4	
			14

### Third Year

Fall	CR	Spring	CR
LTC 4631W		4 LTC 4641	3
LTC 4634		1 LTC 4644	1
SPC_ED 4020		3 LTC 4460	3
LTC 4560		3 LTC 4565	3
BIO_SC 3700 or MPP 3202		5 BIO_SC 1200 or 3210	4-5
		PHYSICS 1210 or 2750	4-5
			18-20

### Fourth Year

Fall	CR	Spring	CR
LTC 4654		1 LTC 4971	12
ED_LPA 4060		3	
SPC_ED 4310		3	



BIO_SC 3650	5	
BIO_SC 4994	3	
	15	12

Total Credits: 125-127

## BSEd in Secondary Education with Emphasis in Chemistry

### Degree Program Description

The Bachelor of Science in Education in Secondary Education prepares students to work with children from ninth through twelfth grade in public, private, and alternative school systems. You may consider a degree in education if you enjoy working with children and/or adolescents, want to strengthen the future through education, and want to make a difference in the lives of others. MU Students work closely with mentors, practicing teachers, administrators, and university faculty to develop the knowledge and skills to enhance learning outcomes for children and youth. The coursework through the College of Education focuses on teachers' roles in facilitating learning at all levels of development and considers the influences of cultural, political, historical, and economic factors on students, teachers, and schools. Upon successfully completing the initial teacher certification process, the state grants you certification in secondary chemistry. Practical and rewarding clinical training in schools and agencies begins sophomore year, and continues each semester culminating in a senior-level teaching internship, enhancing teaching skills and confidence. Coursework within Secondary Chemistry provides you with experience in the methods of teaching chemistry and supporting learners in the development of scientific literacy. This includes consideration of the nature of science, methods for teaching science, strategies for assessing science learning, and pathways for developing into a professional chemistry educator.

### Major Program Requirements

Students must complete all university (p. 35), general education (p. 36), and content requirements, in addition to degree requirements. Please meet with an Academic Advisor to discuss degree requirements and to create a semester plan.

Teacher Education programs in the College of Education are accredited by the Missouri Department of Elementary and Secondary Education (DESE (<https://dese.mo.gov/>)). Curriculum changes mandated to earn teacher certification may become effective at any point during your academic program. Therefore, it is extremely important that you DO NOT SELF ADVISE.

#### Phase I

LTC 1100	Orientation (OR)	1
or LTC 1120	Orientation: Math Education	
or LTC 1130	Orientation: Middle School Education	
or LTC 1155	Orientation: Science Education	
or LTC 1170	Orientation: English/Language Arts	
or SPC_ED 1100	Orientation: Special Education	
LTC 2200	School Health and Student Wellbeing	3
ESC_PS 2000	Experiencing Cultural Diversity in the United States	3
ESC_PS 2010	Inquiry Into Learning I	3
ESC_PS 2014	Inquiry into Learning I - Field Experience	1

LTC 2040	Inquiring into Schools, Community and Society I	3
LTC 2044	Inquiry into Schools, Community and Society: Field	1
IS_LT 2467	Inquiry into Empowering Learners with Technology	3
<b>Phase II</b>		
LTC 4631W	Teach.Sci.Second.Sch.:Phil.,Hist., Sci.Inq.,Curr., Assm., & Teach I - Writing Intensive	4
LTC 4634	Teaching Middle and Secondary Science I Field	1
LTC 4560	Reading and Writing in the Content Areas	3
LTC 4460	Teaching English to Speakers of Other Languages	3
LTC 4641	Teaching Middle and Secondary Science II	3
LTC 4644	Teaching Middle and Secondary Science II Field	1
SPC_ED 4020	Teaching the Exceptional Learner	3
LTC 4565	Reading and Writing in the Content Areas II	3
LTC 4654	Teach Sci MS/Sec Sch: Phil,Hist,Sci Inq,Curr,Assm & Tech III Fld	1
ED_LPA 4060	Inquiring into Schools, Community and Society II	3
SPC_ED 4310	Behavioral and Classroom Management	3
<b>Phase III</b>		
LTC 4971	Internship and Capstone Seminar	12
<b>Content Area</b>		
CHEM 1320	College Chemistry I	4
CHEM 1330	College Chemistry II	4
CHEM 2100	Organic Chemistry I	3
CHEM 2110	Organic Chemistry II	3
CHEM 2130	Organic Laboratory I	2
CHEM 3200	Quantitative Methods of Analysis with Lab	4
CHEM 4310	Physical Chemistry I	3
BIOCHM 3630	General Biochemistry	3
MATH 1500	Analytic Geometry and Calculus I	5
MATH 1700	Calculus II	5
BIO_SC 1500	Introduction to Biological Systems with Laboratory (Recommended)	5
Or both of the following:		
BIO_SC 1010	General Principles and Concepts of Biology (Also Accepted)	
BIO_SC 1020	General Biology Laboratory (Also Accepted)	
Or the following:		
BIO_SC 1030	General Principles and Concepts of Biology with Laboratory (Transfer Only)	
PHYSICS 1210	College Physics I (OR)	4
PHYSICS 2750	University Physics I	
GEOL 1200	Environmental Geology with Laboratory (Recommended)	4
Or		

GEOL 1100

Principles of Geology with Laboratory  
(Also Accepted)

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices and where options are available.

First Year			
Fall	CR	Spring	CR
LTC 1100		1 LTC 2200	3
MATH 1500		5 ENGLISH 1000	3
ESC_PS 2000 (Social Science)	3	MATH 1700	5
American History or Government	3	CHEM 1330	4
CHEM 1320	4		
		16	15
Second Year			
Fall	CR	Spring	CR
ESC_PS 2010 or LTC 2040 (Social Science)	3	ESC_PS 2010 or LTC 2040 (Social Science)	3
ESC_PS 2014 or LTC 2044	1	ESC_PS 2014 or LTC 2044	1
Writing Intensive & Humanities	3	Humanities	3
Humanities	3	CHEM 2110	3
CHEM 2100	3	CHEM 2130	2
BIO_SC 1500	5		
		18	12
Third Year			
Fall	CR	Spring	CR
LTC 4631W	4	LTC 4641	3
LTC 4634	1	LTC 4644	1
SPC_ED 4020	3	LTC 4460	3
LTC 4560	3	LTC 4565	3
CHEM 3200	4	BIOCHM 3630	3
		PHYSICS 1210 or 2750	4-5
		15	17-18
Fourth Year			
Fall	CR	Spring	CR
LTC 4654	1	LTC 4971	12
ED_LPA 4060	3		
SPC_ED 4310	3		
IS_LT 2467	3		
CHEM 3300	3		
GEOL 1200	4		
		17	12

Total Credits: 122-123

## BSEd in Secondary Education with Emphasis in Earth Science

### Degree Program Description

The Bachelor of Science in Education in Secondary Education prepares students to work with children from ninth through twelfth grade in public, private, and alternative school systems. You may consider a degree in education if you enjoy working with children and/or adolescents, want to strengthen the future through education, and want to make a difference

in the lives of others. MU Students work closely with mentors, practicing teachers, administrators, and university faculty to develop the knowledge and skills to enhance learning outcomes for children and youth. The coursework through the College of Education focuses on teachers' roles in facilitating learning at all levels of development and considers the influences of cultural, political, historical, and economic factors on students, teachers, and schools. Upon successfully completing the initial teacher certification process, the state grants you certification in secondary earth science. Practical and rewarding clinical training in schools and agencies begins sophomore year, and continues each semester culminating in a senior-level teaching internship, enhancing teaching skills and confidence. Coursework within Secondary Earth Science provides you with experience in the methods of teaching earth science and supporting learners in the development of scientific literacy. This includes consideration of the nature of science, methods for teaching science, strategies for assessing science learning, and pathways for developing into a professional earth science educator.

### Major Program Requirements

Students must complete all university (p. 35), general education (p. 36), and content requirements, in addition to degree requirements. Please meet with an Academic Advisor to discuss degree requirements and to create a semester plan.

Teacher Education programs in the College of Education are accredited by the Missouri Department of Elementary and Secondary Education (DESE (<https://dese.mo.gov/>)). Curriculum changes mandated to earn teacher certification may become effective at any point during your academic program. Therefore, it is extremely important that you DO NOT SELF ADVISE.

#### Phase I

LTC 1100	Orientation (OR)	1
or LTC 1120	Orientation: Math Education	
or LTC 1130	Orientation: Middle School Education	
or LTC 1155	Orientation: Science Education	
or LTC 1170	Orientation: English/Language Arts	
or SPC_ED 1100	Orientation: Special Education	
LTC 2200	School Health and Student Wellbeing	3
ESC_PS 2000	Experiencing Cultural Diversity in the United States	3
ESC_PS 2010	Inquiry Into Learning I	3
ESC_PS 2014	Inquiry into Learning I - Field Experience	1
LTC 2040	Inquiring into Schools, Community and Society I	3
LTC 2044	Inquiry into Schools, Community and Society: Field	1
IS_LT 2467	Inquiry into Empowering Learners with Technology	3

#### Phase II

LTC 4631W	Teach.Sci.Second.Sch.:Phil.,Hist., Sci.Inq.,Curr., Assm., & Teach I - Writing Intensive	4
LTC 4634	Teaching Middle and Secondary Science I Field	1
LTC 4560	Reading and Writing in the Content Areas	3
LTC 4460	Teaching English to Speakers of Other Languages	3

LTC 4641	Teaching Middle and Secondary Science II	3
LTC 4644	Teaching Middle and Secondary Science II Field	1
SPC_ED 4020	Teaching the Exceptional Learner	3
LTC 4565	Reading and Writing in the Content Areas II	3
LTC 4654	Teach Sci MS/Sec Sch: Phil,Hist,Sci Inq,Curr,Assm & Tech III Fld	1
ED_LPA 4060	Inquiring into Schools, Community and Society II	3
SPC_ED 4310	Behavioral and Classroom Management	3
<b>Phase III</b>		
LTC 4971	Internship and Capstone Seminar	12
<b>Content Area</b>		
GEOL 1200	Environmental Geology with Laboratory	4
GEOL 2600	Mineral and Energy Resources of the Earth (Recommended)	3
GEOL 1050	Planet Earth (Also Accepted)	
GEOL 2150	The Age of the Dinosaurs	3
GEOL 2350	Historical Geology	3
GEOL 2360	Historical Geology Laboratory	1
GEOL 2400	Surficial Earth Processes and Products with Laboratory	4
ATM_SC 1050	Introductory Meteorology	3
ASTRON 1010	Introduction to Astronomy	4
GEOL Electives (Choose 2 of the 4) (7-9 hrs)		7-9
GEOL 2500	Regional Geology Field Trip	
GEOL 3250	Mineralogy	
GEOL 3650	Structural Geology	
GEOL 3800	Sedimentology and Stratigraphy with Lab	
MATH 1400	Calculus for Social and Life Sciences I	3
BIO_SC 1500	Introduction to Biological Systems with Laboratory (Recommended)	5
Or both of the following:		
BIO_SC 1010	General Principles and Concepts of Biology (Also Accepted)	
BIO_SC 1020	General Biology Laboratory (Also Accepted)	
Or		
BIO_SC 1030	General Principles and Concepts of Biology with Laboratory (Transfer Only)	
CHEM 1320	College Chemistry I	4
PHYSICS 1210	College Physics I (OR)	4
PHYSICS 2750	University Physics I	

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices and where options are available.

First Year			
Fall	CR	Spring	CR
LTC 1100		1 LTC 2200	3
MATH 1400		3 ENGLISH 1000	3
ESC_PS 2000 (Social Science)		3 Humanities	3
American History or Government		3 GEOL 2600	3

GEOL 1200	4 ATM_SC 1050	3
	14	15

Second Year			
Fall	CR	Spring	CR
ESC_PS 2010 or LTC 2040 (Social Science)		3 ESC_PS 2010 or LTC 2040 (Social Science)	3
ESC_PS 2014 or LTC 2044		1 ESC_PS 2014 or LTC 2044	1
Writing Intensive & Humanities		3 Humanities	3
BIO_SC 1500		5 GEOL 2150	3
ASTRON 1010		4 GEOL 2350	3
		GEOL 2360	1
		16	14

Third Year			
Fall	CR	Spring	CR
LTC 4631W		4 LTC 4641	3
LTC 4634		1 LTC 4644	1
SPC_ED 4020		3 LTC 4460	3
LTC 4560		3 LTC 4565	3
GEOL 2400		4 Geology Elective	3-5
		CHEM 1320	4
		15	17-19

Fourth Year			
Fall	CR	Spring	CR
LTC 4654		1 LTC 4971	12
ED_LPA 4060		3	
SPC_ED 4310		3	
IS_LT 2467		3	
PHYSICS 1210 or 2750		4-5	
Geology Elective		3-5	
		17-20	12

Total Credits: 120-125

## BSEd in Secondary Education with Emphasis in General Science

The College of Education is no longer accepting applications to the BSEd in Secondary Education with emphasis in General Science. Please see our science emphasis areas (Biology (p. 502), Chemistry (p. 504), Earth Science (p. 505), or Physics (p. 509)).

## BSEd in Secondary Education with Emphasis in Language Arts

### Degree Program Description

The Bachelor of Science in Education in Secondary Education prepares students to work with children from ninth through twelfth grade in public, private, and alternative school systems. You may consider a degree in education if you enjoy working with children and/or adolescents, want to strengthen the future through education, and want to make a difference in the lives of others. MU Students work closely with mentors, practicing teachers, administrators, and university faculty to develop the knowledge and skills to enhance learning outcomes for children and youth. The coursework through the College of Education focuses on teachers' roles in facilitating learning at all levels of development and considers the influences of cultural, political, historical, and economic factors on

students, teachers, and schools. Upon successfully completing the initial teacher certification process, the state grants you certification in secondary language arts. Practical and rewarding clinical training in schools and agencies begins sophomore year, and continues each semester culminating in a senior-level teaching internship, enhancing teaching skills and confidence. Coursework within Secondary language arts provides you with experience in the methods of teaching language arts. Education courses include an introduction to language arts education, and three teaching language arts methods and assessment courses focused on literature, writing, and mass media.

## Major Program Requirements

Students must complete all university (p. 35), general education (p. 36), and content requirements, in addition to degree requirements. Please meet with an Academic Advisor to discuss degree requirements and to create a semester plan.

Teacher Education programs in the College of Education are accredited by the Missouri Department of Elementary and Secondary Education (DESE (<https://dese.mo.gov/>)). Curriculum changes mandated to earn teacher certification may become effective at any point during your academic program. Therefore, it is extremely important that you DO NOT SELF ADVISE.

### Phase I

LTC 1100 or LTC 1120 or LTC 1130 or LTC 1155 or LTC 1170 or SPC_ED 1100	Orientation	1
LTC 2200	School Health and Student Wellbeing	3
ESC_PS 2000	Experiencing Cultural Diversity in the United States	3
ESC_PS 2010	Inquiry Into Learning I	3
ESC_PS 2014	Inquiry into Learning I - Field Experience	1
LTC 2040	Inquiring into Schools, Community and Society I	3
LTC 2044	Inquiry into Schools, Community and Society: Field	1
IS_LT 2467	Inquiry into Empowering Learners with Technology	3

### Phase II

LTC 4470	Teaching Secondary English/Language Arts I	3
LTC 4474	Teaching Secondary English/Language Arts I Field Experience	1
LTC 4560	Reading and Writing in the Content Areas	3
LTC 4460	Teaching English to Speakers of Other Languages	3
LTC 4480W	Teaching Middle and Secondary English/Language Arts II - Writing Intensive	3
LTC 4484	Teaching Secondary English/Language Arts II Field Experience	1
SPC_ED 4020	Teaching the Exceptional Learner	3
LTC 4565	Reading and Writing in the Content Areas II	3
LTC 4490	Teaching Middle and Secondary English/Language Arts III	3

LTC 4494	Teaching Secondary English/Language Arts III Field Experience	1
ED_LPA 4060	Inquiring into Schools, Community and Society II	3
SPC_ED 4310	Behavioral and Classroom Management	3
<b>Phase III</b>		
LTC 4971	Internship and Capstone Seminar	12
<b>Content Area</b>		
ENGLISH 2010	Intermediate Composition	3
ENGLISH 2100	Writing About Literature	3
English Structure/History (*Choose 2/3)		6
ENGLISH 4600	Structure of American English	
ENGLISH 4610	History of the English Language	
ENGLISH 4620	Regional and Social Dialects of American English	
British or World Literature (see advisor for course list)		6
English Adolescent Literature OR American Literature (see advisor for course list)		3
English African American/Ethnic Lit (see advisor for course list)		3
English Writing (see advisor for course list)		3
English Elective (see advisor for course list)		3

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices and where options are available.

First Year			
Fall	CR	Spring	CR
LTC 1100		1 Writing Intensive	3
ENGLISH 1000		3 General Education Math Requirement	3
ESC_PS 2000 (Social Science)		3 ENGLISH 2010	3
Humanities (Not English)		3 IS_LT 2467	3
LTC 2200		3 English Writing Elective	3
		13	15
Second Year			
Fall	CR	Spring	CR
ESC_PS 2010 or LTC 2040 (Social Science)		3 ESC_PS 2010 or LTC 2040 (Social Science)	3
ESC_PS 2014 or LTC 2044		1 ESC_PS 2014 or LTC 2044	1
Biological, Physical, Mathematical Science		3 Lab Science	3
Biological, Physical, Mathematical Science		3 American History or Government	3
ENGLISH 2100		3 Adolescent or American Literature	3
Elective		3 English African American/Ethnic Literature	3
		16	16
Third Year			
Fall	CR	Spring	CR
LTC 4470		3 LTC 4480W	3
LTC 4474		1 LTC 4484	1
SPC_ED 4020		3 LTC 4565	3
LTC 4560		3 LTC 4460	3

ENGLSH 4600, 4610, or 4620	3 British or World Literature Elective	3
British or World Lit Elective	3 ENGLSH 4600, 4610, or 4620	3
		16

Fourth Year			
Fall	CR	Spring	CR
LTC 4490		3 LTC 4971	12
LTC 4494	1		
ED_LPA 4060	3		
SPC_ED 4310	3		
English Elective (see advisor for course list)	3		
Elective	3		
		16	12

Total Credits: 120

## BSEd in Secondary Education with Emphasis in Mathematics Education

### Degree Program Description

The Bachelor of Science in Education in Secondary Education prepares students to work with children from ninth through twelfth grade in public, private, and alternative school systems. You may consider a degree in education if you enjoy working with children and/or adolescents, want to strengthen the future through education, and want to make a difference in the lives of others. MU Students work closely with mentors, practicing teachers, administrators, and university faculty to develop the knowledge and skills to enhance learning outcomes for children and youth. The coursework through the College of Education focuses on teachers' roles in facilitating learning at all levels of development and considers the influences of cultural, political, historical, and economic factors on students, teachers, and schools. Upon successfully completing the initial teacher certification process, the state grants you certification in secondary mathematics. Practical and rewarding clinical training in schools and agencies begins sophomore year, and continues each semester culminating in a senior-level teaching internship, enhancing teaching skills and confidence. Coursework within Secondary Mathematics provides you with research-based methods of teaching mathematics.

### Major Program Requirements

Students must complete all university (p. 35), general education (p. 36), and content requirements, in addition to degree requirements. Please meet with an Academic Advisor to discuss degree requirements and to create a semester plan.

Teacher Education programs in the College of Education are accredited by the Missouri Department of Elementary and Secondary Education (DESE (<https://dese.mo.gov/>)). Curriculum changes mandated to earn teacher certification may become effective at any point during your academic program. Therefore, it is extremely important that you DO NOT SELF ADVISE.

#### Phase I

LTC 1100	Orientation	1
or LTC 1120	Orientation: Math Education	

or LTC 1130	Orientation: Middle School Education	
or LTC 1155	Orientation: Science Education	
or LTC 1170	Orientation: English/Language Arts	
or SPC_ED 1100	Orientation: Special Education	
LTC 2200	School Health and Student Wellbeing	3
ESC_PS 2000	Experiencing Cultural Diversity in the United States	3
ESC_PS 2010	Inquiry Into Learning I	3
ESC_PS 2014	Inquiry into Learning I - Field Experience	1
LTC 2040	Inquiring into Schools, Community and Society I	3
LTC 2044	Inquiry into Schools, Community and Society: Field	1
IS_LT 2467	Inquiry into Empowering Learners with Technology	3

#### Phase II

LTC 4571	Introduction to Teaching Mathematics in Middle and Secondary Schools	3
LTC 4574	Intro. Teaching Math in Middle and Secondary School Field Experience	1
LTC 4560	Reading and Writing in the Content Areas	3
SPC_ED 4310	Behavioral and Classroom Management	3
LTC 4581	Teaching Mathematics in Middle and Secondary Schools: Focus on Algebra and Technology	3
LTC 4584	Teaching Math in Middle and Secondary Schools: Algebra and Technology Field	1
SPC_ED 4020	Teaching the Exceptional Learner	3
LTC 4565	Reading and Writing in the Content Areas II	3

#### Phase III

LTC 4971	Internship and Capstone Seminar	12
LTC 4590W	Teach.Math in Sec.Schools: Focus on Geometry, Probability and Statistics - Writing Intensive	3
LTC 4594	Teach Math in Sec Sch: Focus on Geometry/Probability	1
LTC 4460	Teaching English to Speakers of Other Languages	3
ED_LPA 4060	Inquiring into Schools, Community and Society II	3

#### Content Area

MATH 1500	Analytic Geometry and Calculus I	5
MATH 1700	Calculus II	5
MATH 2300	Calculus III	3
MATH 2320	Discrete Mathematical Structures (Recommended)	3
or MATH 3000	Introduction to Advanced Mathematics	
MATH 4060	Connecting Geometry to Middle and Secondary Schools (Recommended)	3
or MATH 4100	Differential Equations	
MATH 4140	Matrix Theory	3
MATH 4510	Higher Algebra	3
MATH 4350	Introduction to Non-Euclidean Geometry	3
STAT 4050	Connecting Statistics to Middle and Secondary Schools (Recommended)	3
or STAT 4710	Introduction to Mathematical Statistics	

INFOTC 1040	Introduction to Problem Solving and Programming	3
Math Elective (Choose one)		3
MATH 4100	Differential Equations	
MATH 4330	Theory of Numbers	
MATH 4150	History of Mathematics	
MATH 4400	Introduction to Topology	

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices and where options are available.

First Year			
Fall	CR	Spring	CR
LTC 1100		1 LTC 2200	3
MATH 1500		5 ENGLISH 1000	3
American History or Government	3	MATH 1700	5
ESC_PS 2000 (Social Science)	3	Humanities	3
Humanities	3		
		15	14
Second Year			
Fall	CR	Spring	CR
ESC_PS 2010 or LTC 2040 (Social Science)	3	ESC_PS 2010 or LTC 2040 (Social Science)	3
ESC_PS 2014 or LTC 2044	1	ESC_PS 2014 or LTC 2044	1
MATH 2300	3	IS_LT 2467	3
Writing Intensive	3	Lab Science	3
Humanities	3	MATH 2320	3
INFOTC 1040	3	Elective	2
		16	15
Third Year			
Fall	CR	Spring	CR
LTC 4571	3	LTC 4581	3
LTC 4574	1	LTC 4584	1
SPC_ED 4310	3	LTC 4565	3
LTC 4560	3	SPC_ED 4020	3
MATH 4350	3	STAT 4050	3
MATH 4140	3	MATH 4060	3
		16	16
Fourth Year			
Fall	CR	Spring	CR
LTC 4971	12	LTC 4590W	3
		LTC 4594	1
		ED_LPA 4060	3
		LTC 4460	3
		Math Elective (MATH 4100, 4330, 4150, 4400)	3
		MATH 4510	3
		12	16

Total Credits: 120

# BSEd in Secondary Education with Emphasis in Physics

## Degree Program Description

The Bachelor of Science in Education in Secondary Education prepares students to work with children from ninth through twelfth grade in public, private, and alternative school systems. You may consider a degree in education if you enjoy working with children and/or adolescents, want to strengthen the future through education, and want to make a difference in the lives of others. MU Students work closely with mentors, practicing teachers, administrators, and university faculty to develop the knowledge and skills to enhance learning outcomes for children and youth. The coursework through the College of Education focuses on teachers' roles in facilitating learning at all levels of development and considers the influences of cultural, political, historical, and economic factors on students, teachers, and schools. Upon successfully completing the initial teacher certification process, the state grants you certification in secondary physics. Practical and rewarding clinical training in schools and agencies begins sophomore year, and continues each semester culminating in a senior-level teaching internship, enhancing teaching skills and confidence. Coursework within Physics provides you with experience in the methods of teaching earth science and supporting learners in the development of scientific literacy. This includes consideration of the nature of science, methods for teaching science, and strategies for assessing science learning.

## Major Program Requirements

Students must complete all university (p. 35), general education (p. 36), and content requirements, in addition to degree requirements. Please meet with an Academic Advisor to discuss degree requirements and to create a semester plan.

Teacher Education programs in the College of Education are accredited by the Missouri Department of Elementary and Secondary Education (DESE (<https://dese.mo.gov/>)). Curriculum changes mandated to earn teacher certification may become effective at any point during your academic program. Therefore, it is extremely important that you DO NOT SELF ADVISE.

### Phase I

LTC 1100	Orientation	1
or LTC 1120	Orientation: Math Education	
or LTC 1130	Orientation: Middle School Education	
or LTC 1155	Orientation: Science Education	
or LTC 1170	Orientation: English/Language Arts	
or SPC_ED 1100	Orientation: Special Education	
LTC 2200	School Health and Student Wellbeing	3
ESC_PS 2000	Experiencing Cultural Diversity in the United States	3
ESC_PS 2010	Inquiry Into Learning I	3
ESC_PS 2014	Inquiry into Learning I - Field Experience	1
LTC 2040	Inquiring into Schools, Community and Society I	3
LTC 2044	Inquiry into Schools, Community and Society: Field	1
IS_LT 2467	Inquiry into Empowering Learners with Technology	3

### Phase II

LTC 4631W	Teach.Sci.Second.Sch.:Phil.,Hist., Sci.Inq.,Curr., Assm., & Teach I - Writing Intensive	4
LTC 4634	Teaching Middle and Secondary Science I Field	1
LTC 4560	Reading and Writing in the Content Areas	3
LTC 4460	Teaching English to Speakers of Other Languages	3
LTC 4641	Teaching Middle and Secondary Science II	3
LTC 4644	Teaching Middle and Secondary Science II Field	1
SPC_ED 4020	Teaching the Exceptional Learner	3
LTC 4565	Reading and Writing in the Content Areas II	3
LTC 4654	Teach Sci MS/Sec Sch: Phil,Hist,Sci Inq,Curr,Assm & Tech III Fld	1
ED_LPA 4060	Inquiring into Schools, Community and Society II	3
SPC_ED 4310	Behavioral and Classroom Management	3
<b>Phase III</b>		
LTC 4971	Internship and Capstone Seminar	12
<b>Content Area</b>		
PHYSICS 2750	University Physics I	5
PHYSICS 2760	University Physics II	5
PHYSICS 3150	Introduction to Modern Physics	3
PHYSICS 4050	Electronic Laboratory	4
Physics Elective (Choose one)		3
PHYSICS 4060	Advanced Physics Laboratory I	
PHYSICS 4120	Introduction to Thermodynamics	
PHYSICS 4190	Physics and Chemistry of Materials	
MATH 1500	Analytic Geometry and Calculus I	5
MATH 1700	Calculus II	5
MATH 2300	Calculus III	3
BIO_SC 1500	Introduction to Biological Systems with Laboratory (Recommended)	5
Or both of the following:		
BIO_SC 1010	General Principles and Concepts of Biology (Also Accepted)	
BIO_SC 1020	General Biology Laboratory (Also Accepted)	
Or		
BIO_SC 1030	General Principles and Concepts of Biology with Laboratory (Transfer Only)	
CHEM 1320	College Chemistry I	4
GEOL 1200	Environmental Geology with Laboratory (Recommended)	4
or GEOL 1100	Principles of Geology with Laboratory	

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices and where options are available.

<b>First Year</b>			
Fall	CR	Spring	CR
LTC 1100		1 ENGLISH 1000	3
MATH 1500		5 Humanities	3
American History or Government		3 MATH 1700	5
ESC_PS 2000 (Social Science)		3 PHYSICS 2750	5
GEOL 1200		4	
		16	16

<b>Second Year</b>			
Fall	CR	Spring	CR
ESC_PS 2010 or LTC 2040 (Social Science)		3 ESC_PS 2010 or LTC 2040 (Social Science)	3
ESC_PS 2014 or LTC 2044		1 ESC_PS 2014 or LTC 2044	1
Humanities		3 Humanities	3
MATH 2300		3 PHYSICS 4050	4
PHYSICS 2760		5 LTC 2200	3
		Elective	1
		15	15

<b>Third Year</b>			
Fall	CR	Spring	CR
LTC 4631W		4 LTC 4641	3
LTC 4634		1 LTC 4644	1
SPC_ED 4020		3 LTC 4565	3
LTC 4560		3 LTC 4460	3
PHYSICS 3150W		3 CHEM 1320	4
		PHYSICS 4060, 4120, or 4190	3
		14	17

<b>Fourth Year</b>			
Fall	CR	Spring	CR
LTC 4654		1 LTC 4971	12
ED_LPA 4060		3	
SPC_ED 4310		3	
IS_LT 2467		3	
BIO_SC 1500		5	
		15	12

Total Credits: 120

## BSEd in Secondary Education with Emphasis in Social Studies

### Degree Program Description

The Bachelor of Science in Education in Secondary Education prepares students to work with children from ninth through twelfth grade in public, private, and alternative school systems. You may consider a degree in education if you enjoy working with children and/or adolescents, want to strengthen the future through education, and want to make a difference in the lives of others. MU Students work closely with mentors, practicing teachers, administrators, and university faculty to develop the knowledge and skills to enhance learning outcomes for children and youth. The coursework through the College of Education focuses on teachers' roles in facilitating learning at all levels of development and considers the influences of cultural, political, historical, and economic factors on students, teachers, and schools. Upon successfully completing the initial teacher certification process, the state grants you certification in secondary social studies. Practical and rewarding clinical training

in schools and agencies begins sophomore year, and continues each semester culminating in a senior-level teaching internship, enhancing teaching skills and confidence. Coursework within Secondary social studies provides you with experience in the methods of teaching social studies. Education courses include an introduction to social studies education, methodology for teaching science and assessment within the field. Inquiry courses focus on how issues related to schools, family, community and society affect educators, classroom management, and special needs learners.

## Major Program Requirements

Students must complete all university (p. 35), general education (p. 36), and content requirements, in addition to degree requirements. Please meet with an Academic Advisor to discuss degree requirements and to create a semester plan.

Teacher Education programs in the College of Education are accredited by the Missouri Department of Elementary and Secondary Education (DESE (<https://dese.mo.gov/>)). Curriculum changes mandated to earn teacher certification may become effective at any point during your academic program. Therefore, it is extremely important that you DO NOT SELF ADVISE.

### Phase I

LTC 1100	Orientation	1
or LTC 1120	Orientation: Math Education	
or LTC 1130	Orientation: Middle School Education	
or LTC 1155	Orientation: Science Education	
or LTC 1170	Orientation: English/Language Arts	
or SPC_ED 1100	Orientation: Special Education	
LTC 2200	School Health and Student Wellbeing	3
ESC_PS 2000	Experiencing Cultural Diversity in the United States	3
ESC_PS 2010	Inquiry Into Learning I	3
ESC_PS 2014	Inquiry into Learning I - Field Experience	1
LTC 2040	Inquiring into Schools, Community and Society I	3
LTC 2044	Inquiry into Schools, Community and Society: Field	1
IS_LT 2467	Inquiry into Empowering Learners with Technology	3

### Phase II

LTC 4530	Introduction to Social Studies	3
LTC 4534	Secondary Social Studies I Field Experience	1
LTC 4560	Reading and Writing in the Content Areas	3
SPC_ED 4020	Teaching the Exceptional Learner	3
LTC 4541	Reading and Writing in the Social Studies	3
LTC 4544	Reading and Writing in the Social Studies Field	1
LTC 4460	Teaching English to Speakers of Other Languages	3
LTC 4550W	Assessment in Social Studies - Writing Intensive	3
LTC 4554	Secondary Social Studies III Field Experience	1
ED_LPA 4060	Inquiring into Schools, Community and Society II	3

SPC_ED 4310	Behavioral and Classroom Management	3
<b>Phase III</b>		
LTC 4971	Internship and Capstone Seminar	12
<b>Content Area</b>		
HIST 1100	Survey of American History to 1865	3
HIST 1200	Survey of American History Since 1865	3
American History Course (see advisor for course list)		6
History 1400 can replace HIST 1100 & HIST 1200. An additional course in American History required to earn a minimum of 12 credit hours in American History.		
HIST 1500	Origins of European History	3
HIST 1510	History of Modern Europe	3
Non-Western World History Course (see advisor for course list)		3
ECONOM 1014	Principles of Microeconomics	3
or ABM 1041	Applied Microeconomics	
or ABM 1042	Applied Macroeconomics	
GEOG 1100	Regions and Nations of the World I	3
GEOG 1200	Regions and Nations of the World II	3
POL_SC 1100	American Government	3
POL_SC 1400	International Relations	3
or POL_SC 2700	Comparative Political Systems	
Psychology Course 1000+		3
Sociology Course 1000+		3

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices and where options are available.

### First Year

Fall	CR	Spring	CR
LTC 1100		1 General Education Math Requirement	3
ENGLISH 1000		3 LTC 2200	3
HIST 1100		3 Humanities	3
ESC_PS 2000 (Social Science)		3 IS_LT 2467	3
Humanities		3 HIST 1200	3
Psychology 1000+		3	
		16	15

### Second Year

Fall	CR	Spring	CR
ESC_PS 2010 or LTC 2040 (Social Science)		3 ESC_PS 2010 or LTC 2040 (Social Science)	3
ESC_PS 2014 or LTC 2044		1 ESC_PS 2014 or LTC 2044	1
Humanities & Writing Intensive		3 Lab Science	3
Biological, Physical, Mathematical Science		3 POL_SC 1100	3
GEOG 1100		3 GEOG 1200	3
Sociology 1000+		3 Biological, Physical, Mathematical Science	3
		16	16

### Third Year

Fall	CR	Spring	CR
LTC 4530		3 LTC 4541	3
LTC 4534		1 LTC 4544	1
SPC_ED 4020		3 LTC 4460	3
LTC 4560		3 HIST 1510	3



POL_SC 1400 or 2700	3 American History Elective	3
HIST 1500	3 Economics	3
		16

Fourth Year			
Fall	CR	Spring	CR
LTC 4550W		3 LTC 4971	12
LTC 4554	1		
ED_LPA 4060	3		
SPC_ED 4310	3		
American History Elective	3		
Non-Western World History Elective	3		
		16	12

Total Credits: 123

## Special Education

Our mission is to prepare educators to work with children, youth and adults with disabilities to be academically and socially successful life-long learners. The department offers comprehensive degree programs that blend pedagogy and practices across developmental, specific content, and exceptionality to prepare educators to work with individuals at-risk and those with disabilities. In addition, the department offers comprehensive programs within exceptionalities, curriculum development for learners with disabilities, policy, and research across the lifespan.

### Contact us:

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Dr. Erica Lembke  
 Professor & Department Chair  
 email: [lembkee@missouri.edu](mailto:lembkee@missouri.edu)

### For Graduate questions:

Dr. Delinda van Garderen  
 Professor and Director of Graduate Studies  
 email: [vanguardere@missouri.edu](mailto:vanguardere@missouri.edu)

## Faculty

- Professor** M. Burns\*\*, E. Lembke\*\*, T. Lewis\*\*, J. Stichter\*\*, M. Stormont\*\*, D. van Garderen\*\*  
**Associate Professor** R. McCathren\*, C. Rose\*\*  
**Assistant Professor** J. Rodrigues\*  
**Assistant Research Professor** H. Hatton, B. Mitchell, J. Randolph\*, K. Morris  
**Assistant Teaching Professor** L. Becerra\*, L. Goran\*, J. Weyman\*  
**Professor Emeritus** J. E. Leigh  
**Associate Professor Emeritus** M. Pullis  
**Assistant Professor Emeritus** S. Huntze

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BSEd in Special Education (p. 513)
  - with emphasis in Cross Categorical Special Education (p. 513)

The requirements for the Bachelor of Science in Education are specified in three areas: University general education (p. 36), professional education and a teaching major. All students preparing to be teachers in early childhood, elementary, special education, middle or secondary schools, regardless of the major field, are required to complete the University general education program. Students transferring from other institutions are required to fulfill the equivalencies of these courses.

## Graduate

- MA in Special Education (p. 514)
  - with emphasis in Special Education, General (p. 515)
- MEd in Special Education (p. 516)
  - with emphasis in Autism (p. 517)
  - with emphasis in Behavior Disorders (p. 517)
  - with emphasis in Combined Early Childhood and Autism (p. 518)
  - with emphasis in Cross-Categorical, Certification (p. 519)
  - with emphasis in Early Childhood Special Education (p. 519)
  - with emphasis in Gifted Education (p. 520)
  - with emphasis in Learning Disabilities (p. 521)
- EdSp in Special Education (p. 521) (not accepting applications)
- PhD in Special Education (p. 522)
  - with emphasis in Administration and Supervision of Special Education (p. 522) (not accepting applications)
  - with emphasis in Behavior Disorders (p. 523)
  - with emphasis in Early Childhood Special Education (p. 523)
  - with emphasis in Learning Disabilities (p. 524)

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**Director of Graduate Studies:** Delinda van Garderen

## About Special Education Graduate Programs

We strive to prepare educators to assist children, youth and adults with disabilities to be academically and socially successful life-long learners. Our faculty are consistently recognized — internationally and across the U.S. — for their individual and collaborative teaching and research excellence. The department's unique mix of faculty expertise areas creates a wide range of opportunities for students and researchers. Special Education hosts or co-hosts several state and federally supported training, demonstration and research projects, including the following three centers that focus on facilitating positive developmental outcomes for children and youth with disabilities:

- Center for School-Wide Positive Behavioral Supports
- Center for Adolescent Research in Schools
- Thompson Center for Autism and Neuro-developmental Disorders

## Areas of Study

Students pursuing a master's degree may pursue course work in autism, behavior disorders, early-childhood special education, general special education, gifted education, or learning disabilities.

Doctoral student may study in areas such as behavior disorders, early-childhood special education, general special education, or learning disabilities.

## Careers

Undergraduate and graduate programs prepare teachers and leadership personnel in the field of special education. Program graduates assume roles as teachers in a variety of educational settings, as consulting teachers, college professors, researchers, school administrators and leaders in state and federal governmental agencies. Programs meet students' needs and interests within the framework of the requirements of each specific degree and state certification guidelines.

## BSEd in Special Education

### Degree Program Description

The Bachelor of Science in Education in Special Education prepares students to work with children from kindergarten through twelfth grade in public, private, and alternative school systems. Students should consider a degree in special education if they enjoy working with children and/or adolescents who are struggling or who have special needs, want to help these students develop into strong citizens, and are excellent collaborators. MU Students work closely with mentors, practicing teachers, administrators, and university faculty to develop the knowledge and skills to enhance learning outcomes for children and youth with and at risk for disabilities. The coursework through the College of Education focuses on teachers' roles in facilitating learning at all levels of development and considers the influences of cultural, political, historical, and economic factors on students, teachers, and schools. Students must choose the emphasis area.

### Major Program Requirements

Students are required to select the emphasis area in Cross Categorical Special Education (p. 513) for this degree. Refer to the emphasis area for degree requirements.

### Semester Plan

The BSEd in Special Education has an emphasis area in Cross Categorical Special Education. Please see the emphasis area page for a semester plan.

## BSEd in Special Education with Emphasis in Cross Categorical Special Education

### Degree Program Description

The Bachelor of Science in Education in Special Education prepares students to work with children from kindergarten through twelfth grade in public, private, and alternative school systems. Students should consider a degree in special education if they enjoy working with children and/or adolescents who are struggling or who have special needs, want to help these students develop into strong citizens, and are excellent collaborators. MU Students work closely with mentors, practicing teachers, administrators, and university faculty to develop the knowledge and skills to enhance learning outcomes for children and youth with and at risk for disabilities. The coursework through the College of Education focuses on teachers' roles in facilitating learning at all levels of development and considers the influences of cultural, political, historical, and economic factors on students, teachers, and schools. Upon successfully completing the initial teacher certification process, the state grants certification in Special Education: Mild-Moderate Cross Categorical. Practical and rewarding clinical training in schools begins sophomore year, and continues each semester culminating in a full year senior-level teaching internship, enhancing teaching skills and confidence. Students focus on understanding and teaching students with a range of mild and moderate disabilities. Courses within special education address foundational principles of how to teach students with special needs, including methods in mathematics and literacy, behavior management, language, and introduction and methods in cross categorical instruction, among others.

### Major Program Requirements

Students must complete all university (p. 35), general education (p. 36), and content requirements, in addition to degree requirements. Please meet with an Academic Advisor to discuss degree requirements and to create a semester plan.

**Teacher Education programs in the College of Education are accredited by the Missouri Department of Elementary and Secondary Education (DESE (<https://dese.mo.gov/>)). Curriculum changes mandated to earn teacher certification may become effective at any point during your academic program. Therefore, it is extremely important that you DO NOT SELF ADVISE.**

#### Phase I

SPC_ED 1100	Orientation: Special Education (Recommended)	1
or LTC 1100	Orientation	
or LTC 1120	Orientation: Math Education	
or LTC 1130	Orientation: Middle School Education	
or LTC 1155	Orientation: Science Education	
or LTC 1170	Orientation: English/Language Arts	
LTC 2200	School Health and Student Wellbeing	3
ESC_PS 2000	Experiencing Cultural Diversity in the United States	3
ESC_PS 2010	Inquiry Into Learning I	3
ESC_PS 2014	Inquiry into Learning I - Field Experience	1

LTC 2040	Inquiring into Schools, Community and Society I	3
LTC 2044	Inquiry into Schools, Community and Society: Field	1
IS_LT 2467	Inquiry into Empowering Learners with Technology	3
SPC_ED 4300	Introduction to Special Education	3
<b>Phase II</b>		
SPC_ED 4325	Language Development of Exceptional Students	3
SPC_ED 4375	Cross Categorical Special Education	3
SPC_ED 4940	Cross-Categorical Special Education: Practicum I	2
LTC 4194	Elementary Education Field Experience I	2
LTC 4211	Literacy Assessment and Development	3
LTC 4300	Learning and Teaching Number and Operation in the Elementary School	3
SPC_ED 4310	Behavioral and Classroom Management	3
SPC_ED 4370	Literacy in Special Education	3
SPC_ED 4380W	Methods in Cross-Categorical Special Education - Writing Intensive	4
SPC_ED 4941	Practicum in Cross-Categorical II	2
LTC 4460	Teaching English to Speakers of Other Languages	3
SPC_ED 4600	Diagnosis and Remediation of Learning Problems in Math - Middle	3
<b>Phase III</b>		
SPC_ED 4320	Assessment and Evaluation in Special Education	3
SPC_ED 4330	Collaboration and Consultation in Special Education	3
SPC_ED 4371	Literacy in Special Education II	3
ED_LPA 4060	Inquiring into Schools, Community and Society II	3
SPC_ED 4981	Internship in Special Education	4
SPC_ED 4972	Capstone Seminar and Portfolio in Special Education	1
SPC_ED 4500	Science and Social Studies for Struggling Learners	3
SPC_ED 4981	Internship in Special Education	10

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices and where options are available.

First Year			
Fall	CR	Spring	CR
SPC_ED 1100		1 LTC 2200	3
ENGLISH 1000		3 General Education Math Requirement	3
American History or Government		3 Humanities	3
ESC_PS 2000 (Social Science)		3 SPC_ED 4300	3
Humanities		3	
		13	12

Second Year			
Fall	CR	Spring	CR
ESC_PS 2010 or LTC 2040		3 ESC_PS 2010 or LTC 2040 (Social Science)	3
ESC_PS 2014 or LTC 2044		1 ESC_PS 2014 or LTC 2044	1
IS_LT 2467		3 Lab Science	3
Biological, Physical, Mathematical Science		3 Humanities	3
Biological, Physical, Mathematical Science		3 Writing Intensive	3
Elective		3 Elective	2
		16	15

Third Year			
Fall	CR	Spring	CR
SPC_ED 4325		3 SPC_ED 4310	3
SPC_ED 4375		3 SPC_ED 4370	3
SPC_ED 4940		2 SPC_ED 4380W	4
LTC 4194		2 SPC_ED 4941	2
LTC 4211		3 LTC 4460	3
LTC 4300		3 SPC_ED 4600	3
		16	18

Fourth Year			
Fall	CR	Spring	CR
SPC_ED 4320		3 SPC_ED 4972	1
SPC_ED 4330		3 SPC_ED 4500	3
SPC_ED 4371		3 SPC_ED 4981	10
ED_LPA 4060		3	
SPC_ED 4981		4	
		16	14

Total Credits: 120

## MA in Special Education

### Degree Requirements

The Master of Arts program emphasizes research and requires 33 hours. MA candidates must follow graduate school guidelines with respect to timeliness and committee formation. The Master of Education program requires a comprehensive examination and project or thesis.

### Admissions Criteria

#### Application Submission/Completion Deadline:

Fall deadline: May 1

Spring deadline: October 1

Summer deadline: March 1

Minimum GPA: 3.0/4.0

Minimum TOEFL/IELTS scores: 100 (TOEFL Internet-based Test), 7.0 (IELTS)

Minimum preferred GRE scores:

When did you take the GRE?	Verbal + Quantitative
On or After August 1, 2011	291+ (V 150, Q 141) / Analytic Writing 3.5+

Faculty selection committees review applications for admission into the various graduate programs. Factors considered in the graduate student review process include previous academic course work and

performance, GRE scores, letters of recommendation from professors or professional supervisors and relevant professional work experiences. The letter of intent is evaluated for advising purposes and is an indication of the applicant's motivation, professionalism and writing competencies. Interviews with faculty are often arranged as part of the admissions review process.

### Required Application Materials

- Unofficial transcripts of all prior coursework
- Statement of Purpose
- Letters of recommendation (minimum 2 letters; confidential and sent through the online application system)
- Personal Data Sheet
- Official GRE scores
- Official TOEFL scores (if applicable)

### Confirmation Materials (required to finalize admission upon acceptance, sent to the Graduate School):

- Official transcripts
- Any additional required documentation

The Special Education graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program. Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

### Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

### Retention

To remain in good standing in the master's program and earn a master's degree, each student must earn and maintain an overall grade point of 3.0 or higher in all required and elective course work each semester. If student's GPA falls below 3.0 for any semester, they will be dropped from the degree program. If students receive a grade of "C" in any core or required course, remedial activities will be required. Students must also complete course work assigned a grade of "I" prior to the end of the following semester.

### Satisfactory Progress

For information on general progress guidelines and the dismissal policy, see the Special Education website.

### For more information, contact:

Caitlin Rosbach  
 303 Townsend Hall  
 Columbia, MO 65211  
 rosbachc@missouri.edu  
 (573) 882-3742

## MA in Special Education with Emphasis in Special Education, General

### Degree Requirements

Delivery of this program is 100% online with no campus visits required. The degree requires completion of 33 credit hours: 28 credit hours in required course work and 5+ credit hours of electives. More information about this graduate program can be found at the Mizzou Online program page (<https://online.missouri.edu/degreeprograms/education/special/masters/>).

Master's candidates must follow the guidelines of the Graduate School with respect to timeliness and committee formations and complete paperwork.

Degree prerequisite (does not count toward degree)		
SPC_ED 7300	Introduction to Special Education	3
Required courses		28
SPC_ED 7310	Behavioral and Classroom Management	3
SPC_ED 7320	Assessment and Evaluation in Special Education	3
SPC_ED 7330	Collaboration and Consultation in Special Education	3
SPC_ED 7375	Cross Categorical Special Education	3
SPC_ED 7380	Methods in Cross-Categorical Special Education	4
SPC_ED 8090	Masters Project Research Hours	3
SPC_ED 8350	Research with Exceptional Children	3
SPC_ED 8440	Advanced Behavior Management: Applied Behavior Analysis	3
ESC_PS 7170	Introduction to Applied Statistics	3
Electives		5+
SPC_ED 7325	Language Development of Exceptional Students	3
SPC_ED 7370	Literacy in Special Education	3
SPC_ED 7390	Methods in Vocational Education for the Disabled & Disadvantaged	2-3
SPC_ED 8387	Seminar in Special Education	1-3

### Admissions

Faculty selection committees review applications for admission into the various graduate programs. Factors considered in the graduate student review process include previous academic course work and performance, GRE scores, letters of recommendation from professors or professional supervisors and relevant professional work experiences. The letter of intent is evaluated for advising purposes and is an indication of the applicant's motivation, professionalism and writing competencies. Interviews with faculty are often arranged as part of the admissions review process.

The Special Education graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program. Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related

to the criteria that applicants must meet in order to be considered for admission to the program.

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

## Retention

To remain in good standing in the master's program and earn a master's degree, each student must earn and maintain an overall grade point of 3.0 or higher in all required and elective course work each semester. If student's GPA falls below 3.0 for any semester, they will be dropped from the degree program. If students receive a grade of "C" in any core or required course, remedial activities will be required. Students must also complete course work assigned a grade of "I" prior to the end of the following semester.

## Satisfactory Progress

For information on general progress guidelines and the dismissal policy, see the Special Education website.

## MEd in Special Education

### Degree Requirements

The Master of Education program emphasizes practical applications. M.Ed. candidates must follow graduate school guidelines with respect to timeliness of committee formation and paperwork completion. A minimum of 30 semester credit hours must be completed in fulfillment of degree requirements. A minimum of 15 of those credit hours must be at or above the 8000 level.

### Admission Criteria

#### Application Submission/Completion Deadline:

Fall deadline: May 1  
 Spring deadline: October 1  
 Summer deadline: March 1

Minimum GPA: 3.0/4.0  
 Minimum TOEFL/IELTS scores: 100 (TOEFL Internet-based Test), 7.0 (IELTS)

Minimum preferred GRE scores:

When did you take the GRE?	Verbal + Quantitative
On or After August 1, 2011	291+ (V 150, Q 141) / Analytic Writing 3.5+

Faculty selection committees review applications for admission into the various graduate programs. Factors considered in the graduate student review process include previous academic course work and performance, GRE scores, letters of recommendation from professors or professional supervisors and relevant professional work experiences. The letter of intent is evaluated for advising purposes and is an indication of the applicant's motivation, professionalism and writing competencies. Interviews with faculty are often arranged as part of the admissions review process.

## Required Application Materials

- Unofficial transcripts of all prior coursework
- Statement of Purpose
- Letters of recommendation (minimum 2 letters; confidential and sent through the online application system)
- Personal Data Sheet
- Official GRE scores
- Official TOEFL scores (if applicable)

### Confirmation Materials (required to finalize admission upon acceptance, sent to the Graduate School):

- Official transcripts
- Any additional required documentation

The Special Education graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program. Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

## Retention

To remain in good standing in the master's program and earn a master's degree, each student must earn and maintain an overall grade point of 3.0 or higher in all required and elective course work each semester. If student's GPA falls below 3.0 for any semester, they will be dropped from the degree program. If students receive a grade of "C" in any core or required course, remedial activities will be required. Students must also complete course work assigned a grade of "I" prior to the end of the following semester.

## Degree Completion

Master's candidates must follow the guidelines of the Graduate School with respect to timeliness and committee formations and complete paperwork.

## Satisfactory Progress

For information on general progress guidelines and the dismissal policy, see the Special Education website.

## For more information, contact:

Caitlin Rosbach  
 303 Townsend Hall  
 Columbia, MO 65211  
 rosbachc@missouri.edu  
 (573) 882-3742

## MEd in Special Education with Emphasis in Autism

This program prepares personnel to effectively implement evidenced based practices for students along the full continuum of autism spectrum disorders (ASD). The MU Autism Master's program prepares personnel to effectively implement evidenced based practices for students along the full continuum of autism spectrum disorders (ASD). The program enables special educators to integrate all areas of curriculum to effectively assess and develop social competence benchmarks for students with ASD.

### Degree Requirements

The College of Education's Special Education program delivers curriculum and practica in collaboration with the Thompson Center for Autism and Neurodevelopmental Disorders (<https://mizzougivedirect.missouri.edu/Division.aspx?division=C905>). A minimum of 30 semester credit hours must be completed in fulfillment of degree requirements. The MEd in Autism is available on campus or online through Mizzou Online. More information about the online degree program is available at the Mizzou Online program page (<https://online.missouri.edu/degreeprograms/education/autism/masters/>).

#### Degree Prerequisite

SPC_ED 7300	Introduction to Special Education	3
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#### Autism Courses 21

SPC_ED 8440	Advanced Behavior Management: Applied Behavior Analysis	3
SPC_ED 8601	Introduction to Autism	3
SPC_ED 8602	Methods of Instruction for Students with Autism	3
SPC_ED 8603	Social Competency for Students with Autism	3
SPC_ED 8604	High Functioning Students with Autism	3
SPC_ED 8605	Young Children with Autism	3
SPC_ED 8606	Assessment in Autism, Special Education	3

#### Core Requirements 9

ESC_PS 7160	Developmental Aspects of Human Learning	3
SPC_ED 7330	Collaboration and Consultation in Special Education	3
SPC_ED 8350	Research with Exceptional Children	3

### Admissions

Faculty selection committees review applications for admission into the various graduate programs. Factors considered in the graduate student review process include previous academic course work and performance, GRE scores, letters of recommendation from professors or professional supervisors and relevant professional work experiences. The letter of intent is evaluated for advising purposes and is an indication of the applicant's motivation, professionalism and writing competencies. Interviews with faculty are often arranged as part of the admissions review process.

The Special Education graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program. Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

### Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

### Retention

To remain in good standing in the master's program and earn a master's degree, each student must earn and maintain an overall grade point of 3.0 or higher in all required and elective course work each semester. If student's GPA falls below 3.0 for any semester, they will be dropped from the degree program. If students receive a grade of "C" in any core or required course, remedial activities will be required. Students must also complete course work assigned a grade of "I" prior to the end of the following semester.

### Satisfactory Progress

For information on general progress guidelines and the dismissal policy, see the Special Education website.

## MEd in Special Education with Emphasis in Behavior Disorders

Coursework and practica in MU's Behavioral Disorders Program focus on the preparation of high quality teachers for students with behavioral disorders. MU prepares teachers for a variety of delivery settings, including general education classrooms as well as resource and self-contained classes from kindergarten through 12th grade.

The program is grounded in the MOSTEP Quality Indicators, the DESE Cross-Categorical Competencies, the standards of the Council for Exceptional Children, relevant research pertaining to best practice, significant field work and a problems-based approach to content.

The MEd in Behavior Disorders emphasizes applied knowledge to prepare special educators to work directly with children and youth across a variety of settings.

### Degree Requirements

A minimum of 30 semester credit hours must be completed in fulfillment of degree requirements. A minimum of 15 of those credit hours must be at or above the 8000 level.

### Admissions

Faculty selection committees review applications for admission into the various graduate programs. Factors considered in the graduate student review process include previous academic course work and performance, GRE scores, letters of recommendation from professors or professional supervisors and relevant professional work experiences. The letter of intent is evaluated for advising purposes and is an indication of the applicant's motivation, professionalism and writing competencies. Interviews with faculty are often arranged as part of the admissions review process.

The Special Education graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program. Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

## Retention

To remain in good standing in the master's program and earn a master's degree, each student must earn and maintain an overall grade point of 3.0 or higher in all required and elective course work each semester. If student's GPA falls below 3.0 for any semester, they will be dropped from the degree program. If students receive a grade of "C" in any core or required course, remedial activities will be required. Students must also complete course work assigned a grade of "I" prior to the end of the following semester.

## Satisfactory Progress

For information on general progress guidelines and the dismissal policy, see the Special Education website.

# MEd in Special Education with Emphasis in Combined Early Childhood and Autism

- Degree Requirements (p. 518)
- Admissions (p. 518)
- Retention (p. 518)

## Degree Requirements

The Master of Education program requires 33 hours and a comprehensive examination or project. It emphasizes practical applications. MEd candidates must follow graduate school guidelines with respect to timeliness of committee formation and paperwork completion. More information about this program can be found on the Mizzou Online program page (<https://online.missouri.edu/degreeprograms/education/early-childhood-special-education-autism/masters/>).

### Degree Prerequisite

SPC_ED 7300	Introduction to Special Education	3
<b>Program Courses</b>		<b>30</b>
SPC_ED 7330	Collaboration and Consultation in Special Education	3
SPC_ED 8350	Research with Exceptional Children	3
SPC_ED 8440	Advanced Behavior Management: Applied Behavior Analysis	3
SPC_ED 8485	Introduction and Methods of Early Intervention	3

SPC_ED 8495	Introduction and Methods of Early Childhood Special Education	2-3
SPC_ED 8601	Introduction to Autism	3
SPC_ED 8602	Methods of Instruction for Students with Autism	3
SPC_ED 8603	Social Competency for Students with Autism	3
SPC_ED 8605	Young Children with Autism	3
SPC_ED 8606	Assessment in Autism, Special Education	3
LTC 8614	Language and Early Literacy Development	3

## Admissions

Faculty selection committees review applications for admission into the various graduate programs. Factors considered in the graduate student review process include previous academic course work and performance, GRE scores, letters of recommendation from professors or professional supervisors and relevant professional work experiences. The letter of intent is evaluated for advising purposes and is an indication of the applicant's motivation, professionalism and writing competencies. Interviews with faculty are often arranged as part of the admissions review process.

The Special Education graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program. Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

## Retention

To remain in good standing in the master's program and earn a master's degree, each student must earn and maintain an overall grade point of 3.0 or higher in all required and elective course work each semester. If student's GPA falls below 3.0 for any semester, they will be dropped from the degree program. If students receive a grade of "C" in any core or required course, remedial activities will be required. Students must also complete course work assigned a grade of "I" prior to the end of the following semester.

## Satisfactory Progress

For information on general progress guidelines and the dismissal policy, see the Special Education website.

## MEd in Special Education with Emphasis in Cross Categorical, Certification

MU's cross-categorical disabilities program is tailored to graduate students who are receiving initial and secondary certification in cross-categorical special education. Upon completion of the degree, graduates are certified to teach students with mild disabilities (i.e., learning disabilities, emotional/behavior disorders, mental retardation) and are certified to teach all grades K-12.

### Degree Requirements

In addition to enrolling in courses to fulfill general certification requirements, students are required to take graduate coursework (30 hours) in the area of cross-categorical disabilities.

The coursework represents a broad scope of content including language development, assessment, advanced behavior management, vocational education, collaboration and consultation, literacy instruction, mathematics instruction, research, and trends and issues in special education. In addition to the above requirements, students in the cross-categorical program also need to take a 3-hour characteristics of students with cross-categorical disabilities course and a 4-hour strategies for students with cross-categorical disabilities course.

To enhance the generalization of critical skills and knowledge to the classroom setting, students are also required to take two practica concurrent with the characteristics and methods courses that include field experiences and applications of key concepts. Students are required to have their practica represent the range of grade levels for which they will be responsible. More specifically, if their first practicum was in an elementary setting, then their second will be in a middle school, junior high or high school setting or vice versa.

### Admissions

Faculty selection committees review applications for admission into the various graduate programs. Factors considered in the graduate student review process include previous academic course work and performance, GRE scores, letters of recommendation from professors or professional supervisors and relevant professional work experiences. The letter of intent is evaluated for advising purposes and is an indication of the applicant's motivation, professionalism and writing competencies. Interviews with faculty are often arranged as part of the admissions review process.

The Special Education graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program. Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

### Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding

packages. Check the program website or ask the program contact for details.

### Retention

To remain in good standing in the master's program and earn a master's degree, each student must earn and maintain an overall grade point of 3.0 or higher in all required and elective course work each semester. If student's GPA falls below 3.0 for any semester, they will be dropped from the degree program. If students receive a grade of "C" in any core or required course, remedial activities will be required. Students must also complete course work assigned a grade of "I" prior to the end of the following semester.

### Satisfactory Progress

For information on general progress guidelines and the dismissal policy, see the Special Education website.

## MEd in Special Education with Emphasis in Early Childhood Special Education

The Early Childhood Special Education (ECSE) Program is a graduate program that provides students with the necessary experiences and information to work with young children, both typically developing and those with disabilities, and their families in a variety of settings, including both home and school. The program also focuses on working effectively with families and children from a variety of cultures and how to provide intervention in a culturally consistent manner.

### Degree Requirements

The Masters program in ECSE is 30 credit hours. In the campus program there are six required courses. Additional coursework is negotiated with the advisor.

The online program coursework is set and can be found at Mizzou Online (<https://online.missouri.edu/degreeprograms/education/early-childhood-special-education/masters/>).

#### Degree Prerequisite

SPC_ED 7300	Introduction to Special Education	3
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#### Core Courses 24

SPC_ED 8350	Research with Exceptional Children	3
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SPC_ED 8440	Advanced Behavior Management: Applied Behavior Analysis	3
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SPC_ED 8485	Introduction and Methods of Early Intervention	3
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SPC_ED 8490	Assessment in Early Childhood Special Education	3
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SPC_ED 8495	Introduction and Methods of Early Childhood Special Education	2-3
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SPC_ED 8605	Young Children with Autism	3
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LTC 8614	Language and Early Literacy Development	3
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LTC 8600	Home-School Partnerships: Working with Families	3
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#### Electives 6

LTC 8914	Culturally Responsive Pedagogy	3
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LTC 8612	Play, Inquiry, and Project-based Learning in Classrooms with Young Children	2-3
SPC_ED 7330	Collaboration and Consultation in Special Education	3

## Admissions

Faculty selection committees review applications for admission into the various graduate programs. Factors considered in the graduate student review process include previous academic course work and performance, GRE scores, letters of recommendation from professors or professional supervisors and relevant professional work experiences. The letter of intent is evaluated for advising purposes and is an indication of the applicant's motivation, professionalism and writing competencies. Interviews with faculty are often arranged as part of the admissions review process.

The Special Education graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program. Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

## Retention

To remain in good standing in the master's program and earn a master's degree, each student must earn and maintain an overall grade point of 3.0 or higher in all required and elective course work each semester. If student's GPA falls below 3.0 for any semester, they will be dropped from the degree program. If students receive a grade of "C" in any core or required course, remedial activities will be required. Students must also complete course work assigned a grade of "I" prior to the end of the following semester.

## Satisfactory Progress

For information on general progress guidelines and the dismissal policy, see the Special Education website.

## MEd in Special Education with Emphasis in Gifted Education

The Gifted Education Master's Program (MEd) is a graduate level program designed to provide candidates with advanced preparation in gifted education methodology and practices. Candidates become equipped with the knowledge and skills necessary to work with children and youth in the field of gifted education. The program meets Missouri Department of Education (DESE) academic requirements for Missouri Gifted Certification. This program is offered through Mizzou Online (<http://online.missouri.edu/degreeprograms/education/gifted/masters/>).

## Degree Requirements

Applicants who are accepted into the master's program will participate in a 30-hour online degree program with 15 hours of gifted education courses and 15 hours of core course work. Courses are selected to provide educators with skills and knowledge in current learning theory and to translate this knowledge into practical strategies and techniques for use in the classroom.

The 15 hours of gifted focus courses include content covering, nature and needs of gifted students, curriculum methods, differentiated curriculum, assessment and evaluation, and gifted practicum. The 15 hours of core course work in this program include study in learning theory, research with exceptional children, instructional technology, instructional leadership, and instructional strategies.

Gifted education courses		15
SPC_ED 8380	Nature and Needs of Gifted and Talented Students	3
SPC_ED 8391	Curriculum Methods for Gifted and Talented Students	3
SPC_ED 8405	Assessment and Evaluation in Gifted Education	3
SPC_ED 8406	Differentiating Instruction: Reaching Gifted, Typical and Struggling Learners	3
SPC_ED 8946	Practicum: Gifted Education *	3
Core requirements		15
ESC_PS 7115	Human Learning	3
ESC_PS 7160	Developmental Aspects of Human Learning	3
SPC_ED 8350	Research with Exceptional Children *	3
SPC_ED 8410	Administration and Supervision of Gifted Education Programs	3
SPC_ED 8085	Problems in Special Education	3

\* Required for certification.

## Missouri gifted certification preparation

The 23 hours of gifted education course work above meet Missouri Department of Elementary and Secondary Education (DESE) requirements for Missouri gifted education certification. DESE requires 15 credit hours of gifted education course work in addition to SPC\_ED 8410, SPC\_ED 8350, and a course in Psychology and/or Education of the Exceptional Child (if not already taken as an undergraduate course) for a total of 23 credit hours.

Check the DESE educator certification web page (<https://dese.mo.gov/educator-quality/certification/teacher/>) for details.

If you wish only to enroll to complete the course work required for Missouri gifted certification, no formal application is required.

## Admissions

Faculty selection committees review applications for admission into the various graduate programs. Factors considered in the graduate student review process include previous academic course work and performance, GRE scores, letters of recommendation from professors or professional supervisors and relevant professional work experiences. The letter of intent is evaluated for advising purposes and is an indication of the applicant's motivation, professionalism and writing competencies.

Interviews with faculty are often arranged as part of the admissions review process.

The Special Education graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program. Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

## Retention

To remain in good standing in the master's program and earn a master's degree, each student must earn and maintain an overall grade point of 3.0 or higher in all required and elective course work each semester. If student's GPA falls below 3.0 for any semester, they will be dropped from the degree program. If students receive a grade of "C" in any core or required course, remedial activities will be required. Students must also complete course work assigned a grade of "I" prior to the end of the following semester.

## Satisfactory Progress

For information on general progress guidelines and the dismissal policy, see the Special Education website.

## MEd in Special Education with Emphasis in Learning Disabilities

A Master's degree with an emphasis in Learning Disabilities may be earned in conjunction with certification to teach in the state of Missouri. Although the state no longer offers certification in the area of learning disabilities, certification in cross-categorical special education can be obtained, along with a Master's degree in Learning Disabilities, through supplemental coursework. Coursework and practica in the LD program focus on the preparation of high quality teachers for students with a range of learning and behavioral needs. Graduates may work in a variety of service delivery settings, including general education classes as well as resource and self-contained classes from kindergarten through 12th grade.

## Degree Requirements

A minimum of 30 semester credit hours must be completed in fulfillment of degree requirements. Students are required to complete course work that addresses a broad range of content pertaining to special education in areas such as:

- Language development
- Assessment
- Behavior management
- Collaboration and consultation

- Literacy instruction
- Mathematics instruction
- Research

Students in the learning disabilities emphasis area who are not seeking certification will complete a four-credit-hour field-based practicum in learning disabilities working in conjunction with a faculty supervisor as well as a certified learning disabilities or cross-categorical teacher in the public schools.

## Admissions

Faculty selection committees review applications for admission into the various graduate programs. Factors considered in the graduate student review process include previous academic course work and performance, GRE scores, letters of recommendation from professors or professional supervisors and relevant professional work experiences. The letter of intent is evaluated for advising purposes and is an indication of the applicant's motivation, professionalism and writing competencies. Interviews with faculty are often arranged as part of the admissions review process.

The Special Education graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program. Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

## Retention

To remain in good standing in the master's program and earn a master's degree, each student must earn and maintain an overall grade point of 3.0 or higher in all required and elective course work each semester. If student's GPA falls below 3.0 for any semester, they will be dropped from the degree program. If students receive a grade of "C" in any core or required course, remedial activities will be required. Students must also complete course work assigned a grade of "I" prior to the end of the following semester.

## Satisfactory Progress

For information on general progress guidelines and the dismissal policy, see the Special Education website.

## EdSp in Special Education

Our department is no longer admitting students to the EdSp program. We invite you to explore the other graduate degree options within the Special Education Department (p. 512).

## PhD in Special Education

The Doctorate of Philosophy in Special Education is offered with emphasis options in Behavior Disorders, Early Childhood Special Education, and Learning Disabilities.

### Degree Requirements

The PhD program requires 72 hours beyond the requirements of the master's degree. Candidates will develop a program to meet their learning and research goals in the chosen emphasis area.

- Students meeting entrance criteria will be conditionally admitted to the program, assigned an advisor, and expected to enroll in designated requisite coursework.
- After completion of 9 credit hours, including 3 credits of quantitative methods plus 6 credits of special education doctoral core coursework, students must pass a qualifying examination to be fully admitted into the department.
- Upon successful completion of the qualifying examination, students form a program committee and develop a program plan. The committee shall consist of four or more graduate faculty members (at least three from within the department and at least one from outside the department). The program plan will delineate coursework and competency activities to meet department requirements.
- Once the majority of course-work and competencies are completed (80-90%), students will be required to pass a comprehensive examination to advance to candidacy.
- Upon successful completion of the comprehensive examination, students will form a dissertation committee and develop a research proposal. The dissertation committee may be the same as the program committee or may change based on the need to include faculty members with specific areas of expertise. Once all committee members approve the proposal, students can begin implementation of the dissertation study.
- Upon completion of the study, students must submit a written draft to the dissertation committee and orally defend their work.
- Students will graduate only after all dissertation committee members approve the written dissertation and oral defense.
- Students must also comply with all College of Education and Graduate School guidelines.

### Qualifying Exam

Doctoral students must successfully pass a qualifying exam. This is given to assess the student's current knowledge of the field, their ability to synthesize professional literature, engage in professional writing practices, and orally present/discuss key issues within the field. This process is conducted by three faculty members and may be used to help define the student's plan of study.

### Comprehensive Exam and Dissertation Admission Criteria

Fall deadline: January 15  
Spring deadline: August 15

Minimum GPA: 3.5/4.0  
Minimum TOEFL/IELTS scores: 100 (TOEFL iBT), 7.0 (IELTS)  
Minimum preferred GRE scores:

When did you take the GRE?	Verbal + Quantitative
On or After August 1, 2011	297+ (V153 +Q144) / Analytic Writing 4.0

Faculty selection committees review applications for admission into the various graduate programs. Factors considered in the graduate student review process include previous academic course work and performance, GRE scores, letters of recommendation from professors or professional supervisors and relevant professional work experiences. The letter of intent is evaluated for advising purposes and is an indication of the applicant's motivation, professionalism and writing competencies. Interviews with faculty are often arranged as part of the admissions review process.

### Required Application Materials

- Unofficial transcripts of all prior coursework
- Statement of Purpose
- Letters of recommendation (minimum 3 letters; confidential and sent through the online application system)
- Personal Data Sheet
- Official GRE scores
- Official TOEFL scores (if applicable)

### Confirmation Materials (required to finalize admission upon acceptance, sent to the Graduate School):

- Official transcripts
- Any additional required documentation

The Special Education graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program. Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

### Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

### Satisfactory Progress

For information on general progress guidelines and the dismissal policy, see the Special Education website.

## PhD in Special Education with Emphasis in Administration and Supervision of Special Education

Our department is not currently admitting students to the PhD in Special Education with Emphasis in Administration and Supervision of Special Education program. We invite you to explore the other graduate degree options within the Special Education Department (p. 512).

## PhD in Special Education with Emphasis in Behavior Disorders

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### Degree Requirements

The Doctorate of Philosophy in Special Education with an emphasis in Behavior Disorders supports advanced instruction and research in Behavior Disorders. Candidates complete individualized programs of study to meet their learning objectives and prepare for further research in the field. The candidate will build on prior graduate coursework through special education doctoral coursework, specified behavior disorders coursework, and dissertation preparation and defense. Students meeting entrance criteria will be conditionally admitted to the program, assigned an advisor, and expected to enroll in designated requisite coursework.

1. After completion of 9 credit hours, including 3 credits of quantitative methods plus 6 credits of special education doctoral core coursework, students must pass a qualifying examination to be fully admitted into the department.
2. Upon successful completion of the qualifying examination, students form a program committee and develop a program plan. The committee shall consist of four or more graduate faculty members (at least three from within the department and at least one from outside the department). The program plan will delineate coursework and competency activities to meet department requirements.
3. Once the majority of course-work and competencies are completed (80-90%), students will be required to pass a comprehensive examination to advance to candidacy.
4. Upon successful completion of the comprehensive examination, students will form a dissertation committee and develop a research proposal. The dissertation committee may be the same as the program committee or may change based on the need to include faculty members with specific areas of expertise. Once all committee members approve the proposal, students can begin implementation of the dissertation study.
5. Upon completion of the study, students must submit a written draft to the dissertation committee and orally defend their work.
6. Students will graduate only after all dissertation committee members approve the written dissertation and oral defense.
7. Students must also comply with all College of Education and Graduate School guidelines.

### Qualifying Exam

Doctoral students must successfully pass a qualifying exam. This is given to assess the student's current knowledge of the field, their ability to synthesize professional literature, engage in professional writing practices, and orally present/discuss key issues within the field. This process is conducted by three faculty members and may be used to help define the student's plan of study.

### Comprehensive Exam and Dissertation

Doctoral students must complete comprehensive exams, which have a written and oral component, which is constructed and evaluated by the student's doctoral committee in order to advance to "candidacy" status. A minimum of six hours of 9090 Research is required for the doctoral program in completion of the dissertation.

### Admissions

Faculty selection committees review applications for admission into the various graduate programs. Factors considered in the graduate student review process include previous academic course work and performance, GRE scores, letters of recommendation from professors or professional supervisors and relevant professional work experiences. The letter of intent is evaluated for advising purposes and is an indication of the applicant's motivation, professionalism and writing competencies. Interviews with faculty are often arranged as part of the admissions review process.

The Special Education graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program. Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

### Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

### Satisfactory Progress

For information on general progress guidelines and the dismissal policy, see the Special Education website.

## PhD in Special Education with Emphasis in Early Childhood Special Education

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### Degree Requirements

The Doctorate of Philosophy program in Special Education with an emphasis in Early Childhood Special Education (ECSE) supports advanced instruction in ECSE. Candidates will develop a program to meet their learning and research goals in the field of ECSE.

1. After completion of 9 credit hours, including 3 credits of quantitative methods plus 6 credits of special education doctoral core coursework, students must pass a qualifying examination to be fully admitted into the department.
2. Upon successful completion of the qualifying examination, students form a program committee and develop a program plan. The committee shall consist of four or more graduate faculty members (at least three from within the department and at least one from outside the department). The program plan will delineate coursework and competency activities to meet department requirements.
3. Once the majority of course-work and competencies are completed (80-90%), students will be required to pass a comprehensive examination to advance to candidacy.
4. Upon successful completion of the comprehensive examination, students will form a dissertation committee and develop a research proposal. The dissertation committee may be the same as the program committee or may change based on the need to include

faculty members with specific areas of expertise. Once all committee members approve the proposal, students can begin implementation of the dissertation study.

5. Upon completion of the study, students must submit a written draft to the dissertation committee and orally defend their work.
6. Students will graduate only after all dissertation committee members approve the written dissertation and oral defense.
7. Students must also comply with all College of Education and Graduate School guidelines.

## Qualifying Exam

Doctoral students must successfully pass a qualifying exam. This is given to assess the student's current knowledge of the field, their ability to synthesize professional literature, engage in professional writing practices, and orally present/discuss key issues within the field. This process is conducted by three faculty members and may be used to help define the student's plan of study.

## Comprehensive Exam and Dissertation

Doctoral students must complete comprehensive exams, which have a written and oral component, which is constructed and evaluated by the student's doctoral committee in order to advance to "candidacy" status. A minimum of six hours of 9090 Research is required for the doctoral program in completion of the dissertation.

## Admissions

Faculty selection committees review applications for admission into the various graduate programs. Factors considered in the graduate student review process include previous academic course work and performance, GRE scores, letters of recommendation from professors or professional supervisors and relevant professional work experiences. The letter of intent is evaluated for advising purposes and is an indication of the applicant's motivation, professionalism and writing competencies. Interviews with faculty are often arranged as part of the admissions review process.

The Special Education graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program. Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

## Satisfactory Progress

For information on general progress guidelines and the dismissal policy, see the Special Education website.

# PhD in Special Education with Emphasis in Learning Disabilities

## Degree Requirements

The Doctorate of Philosophy in Special Education with an emphasis in Learning Disabilities supports advanced instruction in Learning Disabilities. Candidates will develop a program to meet their learning and research goals in the field of Learning Disabilities.

1. Students meeting entrance criteria will be conditionally admitted to the program, assigned an advisor, and expected to enroll in designated requisite coursework.
2. After completion of 9 credit hours, including 3 credits of quantitative methods plus 6 credits of special education doctoral core coursework, students must pass a qualifying examination to be fully admitted into the department.
3. Upon successful completion of the qualifying examination, students form a program committee and develop a program plan. The committee shall consist of four or more graduate faculty members (at least three from within the department and at least one from outside the department). The program plan will delineate coursework and competency activities to meet department requirements.
4. Once the majority of course-work and competencies are completed (80-90%), students will be required to pass a comprehensive examination to advance to candidacy.
5. Upon successful completion of the comprehensive examination, students will form a dissertation committee and develop a research proposal. The dissertation committee may be the same as the program committee or may change based on the need to include faculty members with specific areas of expertise. Once all committee members approve the proposal, students can begin implementation of the dissertation study.
6. Upon completion of the study, students must submit a written draft to the dissertation committee and orally defend their work.
7. Students will graduate only after all dissertation committee members approve the written dissertation and oral defense.
8. Students must also comply with all College of Education and Graduate School guidelines.

## Qualifying Exam

Doctoral students must successfully pass a qualifying exam. This is given to assess the student's current knowledge of the field, their ability to synthesize professional literature, engage in professional writing practices, and orally present/discuss key issues within the field. This process is conducted by three faculty members and may be used to help define the student's plan of study.

## Comprehensive Exam and Dissertation

Doctoral students must complete comprehensive exams, which have a written and oral component, which is constructed and evaluated by the student's doctoral committee in order to advance to "candidacy" status. A minimum of six hours of 9090 Research is required for the doctoral program in completion of the dissertation.

## Admissions

Faculty selection committees review applications for admission into the various graduate programs. Factors considered in the graduate student review process include previous academic course work and performance, GRE scores, letters of recommendation from professors or professional supervisors and relevant professional work experiences. The letter of intent is evaluated for advising purposes and is an indication of the applicant's motivation, professionalism and writing competencies. Interviews with faculty are often arranged as part of the admissions review process.

The Special Education graduate program cannot assure admission to all applicants who meet minimum standards specified for the degree program. Resource constraints do not permit the admission of all qualified applicants.

A committee of faculty reviews the credentials of each applicant. It is the responsibility of this committee to exercise professional judgment related to the criteria that applicants must meet in order to be considered for admission to the program.

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

## Satisfactory Progress

For information on general progress guidelines and the dismissal policy, see the Special Education website.

## Additional Minors and Certificates - Education

### Undergraduate Minors

- Minor in Education (p. 525)

### Graduate Certificates

- Certificate in College Teaching (p. 526)
- Certificate in Digital Humanities (p. 526)
- Certificate in Education Policy (p. 527)
- Certificate in Elementary Mathematics Specialist (p. 527)
- Certificate in Global Education and Leadership (p. 527)
- Certificate in Higher Education Administration (p. 528)
- Certificate in Multicultural Education (p. 528)
- Certificate in Online Educator (p. 529)
- Certificate in Positive Psychology (p. 529)
- Certificate in Qualitative Research (p. 530)
- Certificate in Quantitative Research (p. 530)
- Certificate in Serious Game and Simulation Design (p. 531)
- Certificate in Teaching English to Speakers of Other Languages (p. 531)
- Certificate in User Experience and Usability (p. 531)

## Graduate Minors

- Minor in Multicultural Psychology (p. 532)

## Minor in Education

### Requirements

To receive a Minor in Education students will complete a minimum of 15 credit hours. Students must receive a grade of C- or better and a 2.0 overall minimum GPA in Education courses for the minor.

Some of these courses will require permission numbers. Please see the Enrollment Information and Course Description in MyZou for more information.

A minor must be completed and awarded at the same time as the MU undergraduate degree (i.e., minors cannot be claimed after graduation).

#### At least one course from the following (3 or 6 credits):

ESC_PS 2000	Experiencing Cultural Diversity in the United States *	3
LTC 2040	Inquiring into Schools, Community and Society I *	3

#### Additional courses from the following (9 or 12 credits):

LTC 1100	Orientation *	1
SPC_ED 1100	Orientation: Special Education *	1
ESC_PS 2010 & ESC_PS 2014	Inquiry Into Learning I and Inquiry into Learning I - Field Experience *	4
LTC 2200 & LTC 2044	School Health and Student Wellbeing and Inquiry into Schools, Community and Society: Field *	4
IS_LT 2467	Inquiry into Empowering Learners with Technology *	3
SPC_ED 3100	Applied Behavior Analysis and Autism **	3
SPC_ED 4020	Teaching the Exceptional Learner *	3
ED_LPA 4060	Inquiring into Schools, Community and Society II *	3
LTC 4085	Problems in Curriculum and Instruction	1-3
IS_LT 4099	Making and Education (3D printing)	3
ED_LPA 4115	Introduction to Learning Spaces	3
ESC_PS 4115	Human Learning	3
SPC_ED 4300	Introduction to Special Education *	3
SPC_ED 4310	Behavioral and Classroom Management *	3
IS_LT 4310	Seminar in Information Science and Learning Technologies	3
IS_LT 4361	Introduction to Digital Media	3
IS_LT 4374	Exploring Canvas	1
IS_LT 4384	Designing Games for Learning	3
LTC 4460	Teaching English to Speakers of Other Languages	3

\* Courses are part of an accredited teacher certification program and so have the potential to be usable by students in the future if they wish to pursue teacher certification.

\*\* Courses can provide students with coursework necessary to be a Registered Behavior Technician (RBT).

## Graduate Certificate in College Teaching

### Requirements

The Graduate Certificate in College Teaching requires the completion of a total of 4 courses (12 credit hours) of which two courses are required and the remaining two courses can be chosen from the list of approved electives in consultation with the certificate advisor.

Courses for this program are 100 percent online: no campus visits are required.

The University reserves the right to change or cancel courses as needed.

#### Required Courses

ED_LPA 9448	College Teaching	3
ED_LPA 9456	The Professoriate	3

#### Elective Courses

ED_LPA 9442	Curriculum Philosophy and Development in Higher Education	3
ED_LPA 9455	The Community College	3
AG_ED_LD 8330	Advanced Methods of Teaching	3
IS_LT 9484	Teaching Online Courses	3

For more information about this graduate certificate, contact the ELPA Department by phone at 573-882-8221 or by e-mail at [elpagrad@missouri.edu](mailto:elpagrad@missouri.edu).

#### Contact Information:

Department of Educational Leadership and Policy Analysis  
 202 Hill Hall  
 573-882-8221  
<https://online.missouri.edu/degreeprograms/education/college-teaching/grad-cert/>

## Graduate Certificate in Digital Humanities

The Graduate Certification in Digital Humanities (GCDH) is a twelve-credit hours (4 courses), online and hybrid delivery, interdisciplinary graduate certificate that will be offered through the Digital Humanities Commons at the Allen Institute at the University of Missouri's School of Information Science & Learning Technologies (SISLT). The Certification is an additional credential for students enrolled in graduate programs at MU and as a 'stand alone' diploma for distance students.

The Graduate Certificate in Digital Humanities certifies that students are equipped with skills in interdisciplinary research using new digital technologies- skills that university researchers and public and private sector employers recognize as essential in the 21st Century. The Certificate requires completion of a major paper or digital project that integrates specialized disciplinary knowledge and digital media. The Certificate can be completed in two semesters; there is no mandatory time frame for finishing.

"Digital Humanities" (DH) is a rapidly growing "bridge discipline" spanning various subject areas: liberal arts, library and information science, communication arts, media studies, education, journalism, cultural studies, history and philosophy of science and technology, computer science, and informatics. Also, the contexts of the academy, libraries, archives, museums, media, and industry are important for

understanding Digital Humanities. A DH scholar uses new computational and statistical tools and methods to address research problems in arts and humanities subject areas, and they apply humanistic modes of inquiry and interpretation to information, "big data," new electronic media, and computer science.

### Committee

Students who register for the Graduate Certificate in Digital Humanities will form a committee of two professors who will supervise their program. The supervisor will typically be from the student's home discipline in the humanities, social sciences, or professional school (e.g., English, Romance Languages, Classics, History, Sociology, Computer Science, Library & Information Science, or Journalism). The other advisor will be from the iSchool

### Requirements

The graduate certificate requires 12 graduate credit hours. The overall program structure includes coursework in two categories:

- Required (6 credit hours)
- Electives (6 credit hours). Selected by students in consultation with their committee

#### Required Courses (6 credit hours)

IS_LT 9410	Seminar in Information Science and Learning Technology	1-3
IS_LT 7302	Organization of Information	3

#### Recommended Electives

IS_LT 9423	Ethics, Data, and Information	1-3
IS_LT 7305	Foundations of Library and Information Science	3
IS_LT 7310	Seminar in Information Science and Learning Technology	1-3
IS_LT 7312	Principles of Cataloging and Classification	3
IS_LT 7360	Introduction to Web Development	3
IS_LT 7370	Intermediate Web Development	3
IS_LT 7334	Library Information Systems	3
IS_LT 7361	Introduction to Digital Media	3
IS_LT 7378	Electronic Portfolio Development	1
IS_LT 9450	Research Methods in Information Science and Learning Technologies	3
IS_LT 9461	Interaction Design	3
IS_LT 9474	Front End Analysis of Systems	3

#### Relevant Courses Offered through Other MU Divisions

JOURN 7150	Using Infographics	1
NAT_R 8325	Introduction to Geographic Information Systems	3

### Additional Information

Certificate Web Site: <https://sislt.missouri.edu/certificates/digital-humanities/>

For information about certificate, contact:

SISLT Student Services

304 Townsend Hall

Columbia, MO 65211

[sislt@missouri.edu](mailto:sislt@missouri.edu)

phone: 877-747-5868 or 573-882-4546

## Graduate Certificate in Education Policy

Through an interdisciplinary partnership among Education, Law, and Public Policy scholars, our Education Policy Graduate Certificate serves to develop critical leaders, policymakers, and scholars who demonstrate excellence in implementing and analyzing policy. A carefully planned set of courses will provide students with the knowledge, skills, and tools to answer tough policy questions facing our society, for instance: How do we address the rising costs of higher education? Segregated schooling? Undocumented immigrant students? Families who speak languages other than English?

The Education Policy Graduate Certificate will provide students with:

- *Knowledge* that they can apply to the study of education policy within their major discipline or their work in policy settings;
- *Skills* in analyzing education policy issues, i.e., understanding differing values, political and economic arguments, costs/benefits, and policy processes;
- *Conceptual tools* to use in understanding and resolving issues faced in educational policy development and implementation.

### Requirements

#### Foundations - Students choose 1 of the following:

PUB_AF 8170	Public Policy Processes and Strategies	3
ED_LPA 9402	Educational Policy Analysis	3

#### Knowledge/Concepts - Students choose 1 or 2 of the following:

ED_LPA 9451	Higher Education Finance	3
ED_LPA 9457	Higher Education Policy	3
ED_LPA 7458	Sociology of Education	3
ED_LPA 9462	History of U.S. Education Policy	3
ED_LPA 9463	Politics of Education	3
LAW 5525	Education Law	1-3

#### Skills - Students choose 1 or 2 of the following:

ED_LPA 8955	Discourse Analysis in Education	3
ED_LPA 9465	Policy Analysis Using Large Data Bases	3
PUB_AF 8190	Economic Analysis for Public Affairs	3
PUB_AF 8420	Public Program Evaluation	3
PUB_AF 8430	Public Policy Analysis	3
ESC_PS 8690	Educational Planning and Evaluation	3

After coursework is complete, students will develop a mini-portfolio to demonstrate their learning. **NOTE:** Before taking courses and assembling a portfolio, you will need to fill out an initial plan of study (available at <https://missouri.app.box.com/s/tdz06h6857mpj1x4y9iks74vriz8> (<https://missouri.app.box.com/s/tdz06h6857mpj1x4y9iks74vriz8/>)) and have a meeting with the policy certificate coordinator.

### Contact Information

Educational Leadership and Policy Analysis  
 202 Hill Hall  
 573-882-8221  
[elpagrad@missouri.edu](mailto:elpagrad@missouri.edu)  
<https://education.missouri.edu/degrees-programs/certificates-minors/education-policy/>

## Graduate Certificate in Elementary Mathematics Specialist

The program is designed for inservice K-6 teachers interested in pursuing advanced learning experiences and training to increase their knowledge and skill to teach or lead others in teaching mathematics in elementary classrooms. That is, the program is designed for teachers currently working full time.

### Requirements

The EMS graduate certificate program includes five integrated mathematics content/pedagogy courses, each with an attached internship and two leadership development courses (total of 24 credits). The courses will be offered over a 2-year cycle beginning in the Fall semester (6 semesters of part-time student effort).

LTC 8871	Teaching and Learning Number/Operations Advanced	3
LTC 8881	Internship - Number and Operations in Elementary Schools	1
LTC 8872	Teaching and Learning Rational Number Advanced	3
LTC 8882	Internship - Rational Numbers in Elementary Schools	1
LTC 8876	Teaching Data Analysis and Mathematical Modeling	3
LTC 8877	Foundations of Mathematics Leadership in Elem Schools	2
LTC 8874	Teaching and Learning Algebraic Reasoning Advanced	3
LTC 8884	Internship - Algebraic Reasoning in Elementary Schools	1
LTC 8873	Teaching and Learning Geometry and Measurement Advanced	3
LTC 8883	Internship - Geometry/Measurement in Elementary Schools	1
LTC 8878	Mathematical Leadership for Elementary Schools Advanced	3

### For information about certificate, contact Dr. Barbara Reys:

Phone: 573-882-4406  
 Address: 121 F Townsend  
 email: [reysb@missouri.edu](mailto:reysb@missouri.edu)

## Graduate Certificate in Global Education and Leadership

The Graduate Certificate in Global Education and Leadership prepares and positions educators to develop, sustain, and lead globally-minded schools, (from preschool through high school). Regardless of geographic location, educators and students are growing and learning in a transnational world. Examining global and local contexts, this certificate will provide the theories, tools, and resources for aspiring principals, curriculum leaders and other educators to successfully lead colleagues



and students to be critical, reflective, and inquiring global stewards with refined intercultural skills.

The required four courses each take an inquiry approach that allows educators to question and examine locally-relevant and globally-minded leadership principles and practices. The program as a whole expands upon ELPA's commitment to developing equitable and inclusive leadership by bridging best practices in school leader development with the underpinning values of the International Baccalaureate (IB) organization ([ibo.org](https://ibo.org) (<https://ibo.org/>)) and the Sustainable Development Goals of the United Nations (<https://sustainabledevelopment.un.org/sdg4> (<https://sustainabledevelopment.un.org/sdg4/>)). In turn, the core value underlying the certificate is to foment intercultural understanding and global-mindedness in each of these critical aspects of educational leadership: Effective curriculum and instruction, collaborative teamwork, risk-taking and innovation, reflective practice, leadership development, and systems of continuous improvement.

## Requirements

The 12 credit hour Graduate Certificate in Global Education and Leadership will be offered as a stand-alone certificate.

### Required Courses

ED_LPA 7151	Leading Educational Organizations in Global Contexts	3
ED_LPA 7152	Leadership for Student Learning in a Global Context	3
ED_LPA 7153	Leading Professional Development in Global Contexts	3
ED_LPA 7154	Leadership for School-Community Partnerships in a Global Context	3
Total Credits		12

## Contact

Lisa Dorner  
Ph.D., Associate Professor, ELPA  
[dornerl@missouri.edu](mailto:dornerl@missouri.edu)

## Graduate Certificate in Higher Education Administration

The Graduate Certificate in Higher Education Administration is designed to address the need for enhanced understanding of the higher education institutional context and for improved skills in areas required for effective administration in higher education. The graduate certificate program provides students with an overview of higher education administration and governance, and technical knowledge about various aspects of administration (e.g., finance, law, policy).

## Requirements

### Required Courses

Six semester hours/two 3-credit courses		
ED_LPA 9450	Administration and Governance of Higher Education	3
ED_LPA 9451	Higher Education Finance	3

### Elective Courses

Six semester hours/two 3-credit courses, select two of the following (or a course approved by your advisor):		
ED_LPA 7452	Overview of Higher Education	3

ED_LPA 9440	Race, Gender, and Ethnicity in Higher Education	3
ED_LPA 9445	College Student Development	3
ED_LPA 9446	Student Affairs Administration	3
ED_LPA 9447	College Student Culture and Environment	3
ED_LPA 9449	History of Higher Education in the United States	3
ED_LPA 9454	Introduction to Post-Secondary Law	3
ED_LPA 9455	The Community College	3
ED_LPA 9457	Higher Education Policy	3
ED_LPA 9467	International Higher Education	3
ED_LPA 9485	Assessment in Higher Education	3

## Contact Information

For more information about this graduate certificate, contact the ELPA Department by phone at 573-882-8221 or by e-mail at [elpagrad@missouri.edu](mailto:elpagrad@missouri.edu).

### Contact Information

Department of Educational Leadership and Policy Analysis  
202 Hill Hall  
573-882-8221  
<https://education.missouri.edu/degrees-programs/certificates-minors/higher-education-administration/>

## Graduate Certificate in Multicultural Education

This certificate will provide the requisite awareness, knowledge and skill to effectively work with students and families from diverse cultural backgrounds and is ideal for teachers, counselors and administrators in P-12 school settings. By creating this online certificate, Mizzou is working to increase the number of qualified teachers and other school personnel who can serve diverse populations and prepare all students to function more effectively in society.

Certificate web site: Multicultural Education Graduate Certificate. (<http://online.missouri.edu/degreeprograms/education/multicultural/grad-cert/>)

## Requirements

The 12 hour certificate can be completed entirely online, but some students may choose electives that are offered on campus.

### Core Courses

The foundation of the certificate starts with the following two courses:		
ESC_PS 8450	Diversity Issues in School Mental Health	3
ESC_PS 8550	Diversity and Multiculturalism II - Practical Application	3

### Electives

Students complete two courses (6 credit hours):		
ESC_PS 8555	African American Education - Historic and Current Issues	3
ESC_PS 8565	Gay, Lesbian and Bisexual Issues in the Schools	3
ESC_PS 8560	Immigrant Issues in Education	3

## How To Apply

Certificate program admission requirements will be the same as those for the Graduate School. (<https://gradschool.missouri.edu/admissions/apply/>)

- Grade point average of B or better in the last 60 hours of undergraduate education for applicants with less than a master's degree.
- Submit the Graduate School online application (<https://applygrad.missouri.edu/apply/>).
- Upload unofficial transcripts when using the Graduate School online application system.
- Two letters of recommendation.
- GRE scores are NOT required.

## Application Deadline

None. Rolling admission.

## Financial Aid

To receive financial aid, students must be admitted to the graduate certificate program. Financial aid is generally available to eligible students who are fully accepted into the program and who carry a course load of at least four credit hours per semester.

## Contact Information

- Dr. Francisco Sanchez (SanchezF@missouri.edu) - Multicultural Education Faculty Coordinator
- Sandy Sites (SitesS@missouri.edu) - ESCP Online Program Coordinator

# Graduate Certificate in Online Educator

The Online Educator Graduate Certificate Program will equip individuals with the knowledge and skills needed to design and provide effective online learning experiences including:

- Designing online learning activities and assessments for meaningful learning
- Designing, facilitating, and evaluating online discussions
- Promoting student engagement and motivation in online learning environments
- Understanding unique characteristics of online learning environments
- Selecting appropriate technology tools and learning objects to support online learners
- Using Learning Management Systems to support and deliver online learning
- Seeking for and evaluating Internet-based information and resources that can be used to enhance online learning
- Organizing course materials in an online format

## Requirements

The graduate certificate requires 12 graduate credit hours, with a maximum of 3 hours of transfer credit.

### Required Courses (9 credit hours)

IS_LT 9471	Instructional Systems Design	3
IS_LT 9484	Teaching Online Courses	3

IS_LT 9485	Designing Online Learning	3
<b>Recommended Electives (3 credit hours)</b>		
IS_LT 7361	Introduction to Digital Media	3
IS_LT 9410	Seminar in Information Science and Learning Technology (Social Media and Learning)	3
IS_LT 7373	Exploring Moodle	1
IS_LT 7374	Exploring Canvas	1
IS_LT 7383	Rapid Development Tools for Online Learning	3
IS_LT 9473	Project Management	3

## For information about certificate, contact:

SISLT Student Services  
 304 Townsend Hall  
 Columbia, MO 65211  
 sislt@missouri.edu  
 phone: 877-747-5868 or 573-882-4546  
 Certificate web site: <https://sislt.missouri.edu/certificates/online-educator/>

# Graduate Certificate in Positive Psychology

This **certificate in positive psychology** from Mizzou's Department of Educational, School, and Counseling Psychology (ESCP) is designed for individuals seeking a program that emphasizes applied interventions and theory in building thriving individuals, families, communities and organizations. Combining 21st century psychology and several ancient philosophies, contemporary positive psychology is focused on advancement of individuals and their collective well-being.

The program will provide you with a thorough understanding of the science of well-being and flourishing that will allow you to be more effective in your professional and personal life. Individuals may use this graduate certificate for personal enrichment or to increase their professional marketability across many career paths such as life/career coaching, teaching, managing, and organizational consulting.

Note: This graduate certificate does not provide counselor certification.

Certificate web site: Positive Psychology Graduate Certificate (<http://online.missouri.edu/degreeprograms/education/positive-psychology/grad-cert/>)

## Requirements

An online graduate certificate program requiring 15 credit hours to complete.

### Core Course

ESC_PS 7200	Positive Psychology	3
<b>Electives (Select twelve hours from the list below.)</b>		
ESC_PS 7087	Seminar in Educational, School, and Counseling Psychology (Creativity and Innovation: Scientific Foundations & Everyday Applications)	3
ESC_PS 8200	Applied Positive Psychology	3
ESC_PS 8700	Life/Career Coaching and Development	3
ESC_PS 8710	Meaning In Work	3
ESC_PS 8720	Community and Stewardship	3
ESC_PS 8730	Positive Organizational Psychology	3

## How To Apply

Certificate program admission requirements will be the same as those for the Graduate School.

- Grade point average of B or better in the last 60 hours of undergraduate education for applicants with less than a master's degree.
- Submit the Graduate School online application (<https://applygrad.missouri.edu/apply/>).
- Upload unofficial transcripts when using the Graduate School online application system.
- Statement of interest: Briefly describe how this program will benefit your career aspirations and help you act upon your personal beliefs, goals, and philosophy. (Maximum of 500 words)
- Two letters of recommendation.
- Résumé or curriculum vitae.
- GRE scores are NOT required.

## Application Deadline

None. Rolling admission.

## Financial Aid

To receive financial aid, students must be admitted to the graduate certificate program. Financial aid is generally available to eligible students who are fully accepted into the program and who carry a course load of at least four credit hours per semester.

## Contact Information

- Dr. Patrick Rottinghaus (RottinghausP@missouri.edu) - Positive Psychology Faculty Coordinator
- Sandy Sites (SitesS@missouri.edu) - ESCP Online Program Coordinator

# Graduate Certificate in Qualitative Research

## Requirements

Courses outside of the College of Education may be accepted upon approval. Open to all MU doctoral students.

<b>Qualitative Research Methods II</b>	<b>3</b>
ESC_PS 9620 Qualitative Methods in Educational Research II (or comparable course outside the College of Education as approved by the certificate committee; sometimes listed as ED_LPA or LTC)	
<b>Qualitative III (Combination of advanced courses in qualitative research)</b>	<b>12</b>
Methodologies	
Theories	
Methods of data production and analysis	
<b>Qualitative Research Internship</b>	<b>3</b>
Qualitative Research Internship with a Faculty Member	
<b>Total Credits</b>	<b>18</b>

## Prerequisites

Students must have taken LTC 8957 Qualitative Methods in Educational Research I\* or a comparable course outside the College of Education, as approved by the certificate committee. LTC 8957 will not count towards the 18 hours required for the certificate.

\*Note: LTC 8957 is cross-listed as ED\_LPA 8957 and ESC\_PS 8957.

# Graduate Certificate in Quantitative Research

The Quantitative Research Certificate (QRC) is designed to prepare researchers and scholars to be users and critical consumers of quantitative research. Certificate holders are trained to conduct rigorous, scientific quantitative research.

Students completing the QRC (depending on the chosen track) will be able to:

- Design effective experimental and quasi-experimental studies
- Manage and use large scale datasets
- Analyze various types of datasets (e.g., nested data, longitudinal data) with the appropriate modeling techniques
- Apply advanced statistical methods (e.g., structural equation modeling, multilevel modeling) in their own research
- Critically review studies that make use of a diverse set of statistical methods
- Conduct measurement-related studies using techniques such as factor analysis or item response theory

## Requirements

Earning the Quantitative Research Certificate (QRC) requires students to complete 18 hours of approved coursework with a grade of at least a B in all courses. A plan of study must be approved by the QRC committee and may include the following courses:

ESC_PS 7170	Introduction to Applied Statistics (prerequisite coursework not counted towards the 18 hour completion)	3
ESC_PS 8082	Foundations of Educational and Psychological Measurement	3
ESC_PS 8850	Quantitative Foundations in Educational Research	3
ESC_PS 9660	Generalized Linear Modeling	3
ESC_PS 9710	Structural Equation Modeling	3
or ESC_PS 9720	Hierarchical Linear Modeling	
Elective courses (see QRC Initial Plan of Study form)		6

For additional information including the Initial Plan of Study, visit: <https://education.missouri.edu/degrees-programs/certificates-minors/quantitative-research/>

## Contact

For more information about the quantitative research certificate, email [quantcertificate@missouri.edu](mailto:quantcertificate@missouri.edu).

## Graduate Certificate in Serious Game and Simulation Design

The SGSD certificate program prepares students as significant professional contributors to the design and prototype of Games and Simulations that have purposes that go beyond entertainment. Certificate graduates would have a competitive advantage to market themselves as prepared practicing professionals in the Serious Game and Simulation Industry.

### Educational Objectives:

- Learn and apply a systematic, agile, team-based and flexible process for game and simulation design.
- Learn and apply skills for prototyping game and/or simulation designs using appropriate software and/or game engine tools.
- Analyze existing games and simulations for usage of game/simulation strategies and mechanisms shown to be effective in achieving cognitive, affective and psychomotor learning outcomes.
- Become fluent in usage of serious gaming and simulation technology equipment (e.g. HTC Vive, Oculus Rift, Samsung GearVR, etc.)
- Analyze needs of user groups (e.g. accessibility, diversity, gender/LGBTQ representations, anti-harassment, etc.) using different methods, design, and prototype a “serious” game and/or simulation using strategies and mechanisms shown to be effective in achieving cognitive, affective and psychomotor “serious” outcomes.
- Assess and evaluate learning outcomes from employing game/simulation strategies using user experience and usability methods.

## Requirements

The graduate certificate is a 16 credit hour program. All courses are online.

### Required Courses:

IS_LT 7384	Designing Games for Learning	3
IS_LT 7308	Game Engine Skills	1
ARCHST 7230	Computer Graphic Application for Design I	3
IS_LT 9486	Advanced Designing Games for Learning	3
IS_LT 9480	Internship in Information Science and Learning Technologies	3

### One of the following electives:

IS_LT 9440	Learning with Web-based Technologies	3
IS_LT 7383	Rapid Development Tools for Online Learning	3
IS_LT 7888	Intro to VR-enabled Instructional Design	3

### For additional information contact:

## Graduate Certificate in Teaching English to Speakers of Other Languages

The Graduate Certificate in Teaching English to Speakers of Other Languages (TESOL) prepares English language teachers, English language program administrators, language testers, and educational materials writers to work in contexts where English is a foreign language (EFL contexts). The objectives of the certificate are to develop

professionals with a) knowledge of the structure of the English language; b) an understanding of how languages are used and learned; and c) skills in designing and implementing pedagogical tasks to facilitate language learning.

## Requirements

The certificate consists of 18 graduate credit hours divided among five core courses and one elective course. Begin your course work with LTC 8645, LTC 8648 or both.

### Required core courses

LTC 8644	Teaching English Grammar and Pronunciation	3
LTC 8645	Second Language Acquisition	3
LTC 8648	Linguistics for Educators	3
LTC 8649	Methods of Teaching English Language Learners	3
LTC 8650	English to Speakers of Other Languages Practicum	3

### Electives (choose one)

LTC 8900	Seminar in Curriculum and Instruction (Teaching Languages Online)	1-3
LTC 8900	Seminar in Curriculum and Instruction (Materials in Language Teaching)	1-3
LTC 8643	Teaching ESL/EFL to Adult Learners	3
LTC 8646	Materials for and Assessment of English Language Learners	3
LTC 8647	Language and Culture for Educators	3
LTC 8654	ESOL Curriculum Development	3

You may choose electives from other programs in consultation with your advisor.

- \* Upon completion of your core courses, you must complete a 16-week practicum, supervised online by a TESOL faculty member. If you currently teach English language learners, you may conduct the practicum in your own classroom. You cannot take LTC 8649 and LTC 8650 in the same semester.

## Contact Information

Certificate web site: <http://online.missouri.edu/degreeprograms/education/tesol/grad-cert/>

Dr. Nikki Ashcraft  
ashcraftn@missouri.edu  
573-882-8394

Dr. Rachel Pinnow  
pinnowr@missouri.edu  
573-882-8465

Address:  
Learning, Teaching and Curriculum  
303 Townsend Hall  
University of Missouri  
Columbia, MO 65211

## Graduate Certificate in User Experience and Usability

The User Experience and Usability (UXU) Certificate, offered by the School of Information Science & Learning Technologies (<https://>

sislt.missouri.edu/), prepares students to design and evaluate technology tools and information systems. The multi-faceted human-centered lens for design and evaluation is a systematic process supported by research and best practices.

Our UXU certificate is uniquely positioned in the area of usability because our Information Experience Laboratory (IE Lab) performs extensive usability and user experience research with internal and external clients. You will prepare for jobs in an expanding field where UXU competencies are used in education, industry, healthcare, museums and other learning and performance settings.

## Requirements

The certificate curriculum consists of 12 graduate credit hours that may be transferred into SISLT's M.S. or Ed.Sp. programs. The 12 graduate credit hours apply toward any of the emphasis areas: Online Education, Technology in Schools.

### Required Courses

IS_LT 9474	Front End Analysis of Systems	3
IS_LT 9461	Interaction Design	3
IS_LT 9421	Usability of Information Systems and Services	3
IS_LT 9480	Internship in Information Science and Learning Technologies	1-99

Certificate web site: <https://sislt.missouri.edu/certificates/user-experience-and-usability/>

### For information about certificate, contact:

SISLT Student Services Office  
 304 Townsend Hall  
 Columbia, MO 65211  
 sislt@missouri.edu

Toll-free: 877-747-5868  
 Local: 573-882-4546  
 Fax: 573-884-0122

## Graduate Minor in Multicultural Psychology

As we enter the new millennium, the U.S. population is becoming more multiracial, multiethnic, and multilingual. Some estimate that by the year 2020, racial and ethnic minorities will become the numerical majority. This demographic shift has already occurred in specific contexts, such as K-12 schools in Los Angeles. Applied psychologists and educators have begun to develop competency standards for professionals to provide culturally relevant and effective services to our ever-changing population. In fact, multiculturalism has been identified as the fourth focus in counseling psychology. The purpose of the graduate minor in multicultural psychology and education would be to (a) expose graduate students to the growing theoretical and empirical research completed in the fields of multicultural psychology and education, (b) help graduate students develop multicultural competencies in research and practice, and (c) provide graduate students with training necessary to meet the psychological and educational demands of diverse populations.

## Requirements

- A minimum of 12 credit hours
- 9 credit hours must be taken as a graduate student at the University of Missouri
- No more than 6 credit hours should be listed in the masters or doctoral planner. That is, a maximum of 6 hours can overlap between the courses applied to the Minor in Multicultural Psychology and the courses applied toward a masters or doctoral degree.
- A minimum of 9 credit hours must be 8000 or above (graduate level)
- 6 credit hours must be taken within the core area with a foci on racial and ethnic minorities (see listing below)
- 3 credit hours must be taken in the auxiliary area (see listing below)
- 3 credit hours must be taken in the skills area (see listing below)

### Core Courses

Must complete at least 6 credit hours from the following courses with a main emphasis on race/ethnicity in psychology and/or education

ESC_PS 8590	Multicultural Counseling Competencies: Theory and Research	3
ESC_PS 9000	Multicultural Issues in Counseling	3

Other racial/ethnic-focused graduate level courses in other departments, with pre-approval.

### Auxiliary Courses

Must complete 3 credit hours from the following courses emphasizing a wide range of diversity and social change issues.

ESC_PS 8990	Career Development Theory for Women	3
ESC_PS 9020	Psychology of Crossing Cultural Borders	3

Other diversity issues and inequality in social systems graduate level courses in other departments, with pre-approval.

### Skill Courses

Must complete 3 credit hours from one of the options below.

#### I. Research Skills \*

ESC_PS 8090	Master's Thesis in Educational, School, and Counseling Psychology	
ESC_PS 9090	Doctoral Dissertation Educational School & Counseling Psychology	

#### II. Applied Multicultural Skills ^

ESC_PS 8943	Practicum in Multicultural Counseling Interventions	
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Pre-approved Multiculturally-designated applied course (e.g. counseling practica, teaching practica, group counseling practica)

Applied experience via community outreach programs, work placements in agencies, or extended volunteer experiences in community agencies.

Multicultural Competency Portfolio to demonstrate awareness, knowledge and skill competencies, as approved by a Center Director.

Consultation courses in organization or systemic changes including applied consultation activities, as pre-approved by a Center Director.

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- \* The scope and quality of the research project is expected to be of such a caliber that it could be submitted to a refereed journal in the student's discipline. The research project must be on a multicultural-related topic (i.e. issues related to race, sexual orientation, gender, and international concerns). Successful completion of this requirement will consist of approval of the project from a Director of the Center for Multicultural Research, Training and Consultation, or have an ESCP faculty affiliated with the Center on the committee with at least one committee member having expertise in multicultural issues.
  - ^ The person must demonstrate competencies in working with diverse populations (with an emphasis on racial and ethnic minority populations).

## College of Engineering

### Administration

Noah D Manring, Interim Dean  
W1024 Lafferre Hall  
(573) 882 4378  
manringn@missouri.edu

The University of Missouri College of Engineering recruits high-caliber students and offers research opportunities in laboratories, a wide variety of opportunities to develop leadership skills through more than 50 College-supported student organizations, and supports interdisciplinary collaboration through our many campus partnerships.

The College strives to develop a new generation of engineering leaders who are focused on using engineering creatively to solve the grand challenges facing the world, the nation and the state of Missouri.

With 10 undergraduate degree programs, eight master's programs and seven doctoral programs, the College of Engineering offers opportunities in a wide variety of engineering fields. Through its four Pillars of Pursuit – Educating Engineering Leaders (<https://engineering.missouri.edu/mission/pillars-of-pursuit/eng-leaders/>), Big Data Analytics (<https://engineering.missouri.edu/mission/pillars-of-pursuit/big-data/>), Biomedical Innovations (<https://engineering.missouri.edu/mission/pillars-of-pursuit/biomed-innovation/>) and Sustainability in (<https://engineering.missouri.edu/mission/pillars-of-pursuit/infewsed/>) FEWSed (Sustainability in Food, Energy, Water, and Smart Cities) – the College seeks to produce graduates who collaborate to affect the world around them.

### Mission

The mission of the College of Engineering is to provide students with the resources and services needed to reach their academic and professional goals. This is accomplished through a focus on four core values: Integrity, Accountability, Collaboration and Excellence.

This mission is supported by:

- Supporting the academic and research mission of the University of Missouri, the College of Engineering and College of Engineering departments
- Providing programs and resources to support student success
- Valuing and promoting diversity, multiculturalism and an inclusive environment within the College of Engineering
- Encouraging positive self-growth through academic planning and accountability
- Creating an environment that fosters development by focusing on individual student needs

### Undergraduate

- Admissions (p. 534)
- Graduation Requirements (p. 535)
- Academic Regulations (p. 535)
- Student Services (p. 536)

The MU College of Engineering is committed to a longstanding tradition of educating future engineering leaders. Here, students are inspired and challenged. Students work, learn, research and create in an atmosphere

where innovation, collaboration and finding ways to rise above challenges are more than aspirations — they are simply how we operate.

### Admissions

#### Freshman Admission to Engineering

Entering freshmen are expected to have completed 17 units of approved high school course work (in grades 9-12), including 4 units in English, 4 in mathematics and 3 in science with laboratory. Mathematics should include 2 units of algebra, 1 unit of plane and solid geometry (combination course), and 1/2 unit of trigonometry. Additional senior mathematics is recommended.

The College of Engineering has two levels of admissions. Direct Program admits and Pre-Engineering admits. The two levels are explained further below.

#### Direct Program Admits

For direct admission to one of the College of Engineering degree programs (excluding Information Technology), the applicant must meet the qualifications listed below.

- ACT-Math of at least 26 AND
- ACT-Composite of at least 26 OR High school class rank in the top 25 percent

Students pursuing Information Technology must meet MU's General Admission Standard to be considered Direct Admits.

#### Pre-Engineering Program

Freshmen who do not meet the criteria for Direct Program admit are admitted into the Pre-Engineering Program. Pre-Engineering students will utilize additional support systems; such as transition and onboarding programming for entering students, major and career exploration programming and advising, tutoring support, and early alert outreach.

Pre-Engineering students will be admitted to desired departments when they meet the following requirements:

Electrical Engineering, Computer Engineering, or Computer Science: C- or better in Math 1500, C or better in Comp Sci 1050

Chemical Engineering: C or better in Math 1500 and Chem 1320, 2.5 GPA based on grades taken at Mizzou.

Biological Engineering, Biomedical Engineering, Civil and Environmental Engineering, Industrial and Manufacturing Systems Engineering, Mechanical and Aerospace Engineering: C or better in Math 1500, Math 1700, Chem 1320, Phys 2750.

#### Transfer Students

Students wishing to transfer to MU from an accredited college or university are subject to University regulations described in this catalog. The MU College of Engineering cooperates with many colleges through articulation agreements that help students transfer to MU with maximum ease and minimum loss of credits. A student may contact the College of Engineering Admissions Office to determine if their home institution participates in an agreement with the College of Engineering. Students who have completed all courses specified in the articulation agreement will be admitted into their desired degree program. All other transfer students are admitted on program discretion. Typically, transfer students with freshmen status must satisfy same requirements as pre-engineering students. Other students are admitted only after review of transcript.

To be recommended for the BS degree from the College of Engineering, a student transferring from an accredited institution must complete at least 30 upper-level credits in the degree program at a UM System campus. At least 21 of the 30 credits must be upper-level engineering courses approved by the department awarding the degree.

A student transferring with senior standing from another UM System campus must complete the last 15 credits in residence on the campus where the degree program is located. Twelve of these 15 credits must be in engineering and approved by the department awarding the degree.

Any student whose enrollment in any college-level academic program resulted in dismissal, departure or who are on probation will not be admitted to the College of Engineering.

### International Admission

Admission of international students is determined on an individual basis by a committee of representatives from the Admissions Office and the College of Engineering.

Before registering for classes at the University, international students must take the MU English Language Test, developed for international students. Students passing the test are eligible to take ENGLSH 1000 and any other required English courses.

International students whose test scores indicate that additional English training is needed, including those with transferred English credit, are required to register for English-language support courses. The course, developed for international students, should be taken during the first semester of enrollment. These courses do not count toward graduation credit, but regular attendance is required and failure to attend may result in dismissal. The English-language support course taken must be satisfactorily completed before the student can enroll in ENGLSH 1000 or transfer any course equivalent to English 1000 from another institution. Students not satisfactorily completing the course in the first semester of enrollment must re-enroll in the second semester. If the student does not satisfactorily complete the English-language support class in the second term of enrollment, the student may not be permitted to re-enroll in the College of Engineering.

### Graduation Requirements

The curriculum provides a solid foundation of mathematics and physical sciences followed by the application of these sciences in engineering specialties. The balance of the curriculum encompasses communication skills, English, social sciences and humanities courses.

Students should access the engineering web site (<http://engineering.missouri.edu>) for details regarding social and behavioral sciences and humanities and fine arts requirements.

In addition to the University's general education and graduation requirements, the departments in the College of Engineering may require further specific courses to better equip students to perform in their chosen fields of study.

While many students complete the BS degree program in four years, some may find it advisable to extend the curriculum in order to carry lighter semester loads, add preparatory courses or compensate for part-time work.

### GPA Requirements for Graduation from the College of Engineering

- GPA of record of at least 2.0
- GPA of at least 2.0 in all engineering courses offered by one of the four campuses of the UM System. 'Engineering courses' include all courses that are offered through the College of Engineering or its equivalent on the four campuses, or that have 'Engineering' in the curricular designator. Only the last grade in a repeated course will be used in the calculation.

### Academic Regulations

#### Degree with Honors Requirements

A student must have earned 60 hours on this campus to be eligible for Latin Honors, which will be determined by the MU grade point average. Latin Honors are granted to students who meet the following cumulative GPA requirements:

Latin Honor	GPA
summa cum laude	3.9
magna cum laude	3.7
cum laude	3.5

### Departmental Honors

The college maintains an undergraduate honors program to further challenge those who have established a minimum GPA of 3.0 at the beginning of the junior year. A comparable grade point average is required of transfer students. The program leads to an undergraduate honors thesis on a research or advanced design project, provides for additional curricula flexibility and contains features that ease the transition to graduate school.

Opportunities available to honors students include:

- More personal attention from an honors advisor
- Independent study or undergraduate research with a senior faculty member whose specialty interests the honors candidate

A student who successfully completes the engineering honors program, including the independent project, will be designated an "Honors Scholar in Engineering." Interested students should contact their departmental office.

Qualified engineering students are also welcome to join the programs of the Honors College and may enroll in various honors courses and honors sections of regular courses.

### Courses in Basic Skills

No basic skills courses may be taken to fulfill graduation requirements.

### Curriculum of Record

The curriculum of record is the curriculum a student must satisfy to meet graduation requirements. For students who maintain continuous, full-time enrollment, the curriculum of record is the one approved by the College of Engineering at the time the student achieves upper-division status in the discipline of choice. For others, the curriculum of record is decided by the department faculty.



## Academic Probation and Dismissal

1. A student whose term and cumulative UM GPA are 2.0 or higher is in good academic standing. A “term” is defined as a semester or summer session.
2. A student will be placed on academic probation if while in good academic standing the student has a term GPA less than 2.0 but equal to or greater than 1.0.
  - While on academic probation, a student must enroll in and complete each semester at MU at least 12 credits of course work necessary for the degree. Courses taken through MU’s Mizzou Online (self-paced) count as part of these 12 credits. Part-time students must enroll in at least as many credits each semester as the college rules governing part time enrollment.
  - A student will be removed from probation at the end of the term when the term and cumulative GPA are 2.0 or higher, provided the student completed 12 or more hours applicable toward the degree. Students who work part time may also be removed from probation with fewer completed hours. (9 credit hours completed if over 20 work hours per week, 6 credit hours if over 30 hours per week. Must provide proof.)
  - A student will be continued on probation if while on probation the student has a term GPA greater than or equal to 2.0, but whose cumulative GPA is below 2.0.
3. A student will be dismissed from the College of Engineering if the student:
  - Receives a term GPA of less than 1.0.
  - Receives a term GPA of less than 2.0 while on probation.
4. Readmission:
  - Students who are dismissed from the College of Engineering and who wish to appeal their case for continuation must write an appeal letter and submit it to the academic appeals committee.
  - If the appeals committee allows a student to re-enroll on final probation, it may set conditions such as courses to be taken, minimum grades, total hours, etc to which the student must adhere.
  - A student who has been dismissed for academic reasons may be readmitted upon a successful appeal to the academic appeals committee of the College of Engineering.
  - Similarly, students who wish to re-enroll in the college of Engineering after having been out of school as a result of a dismissal must write a letter of appeal to the College of Engineering academic appeals committee requesting readmission.
  - Letter of appeal may be addressed to: Engineering Academic Appeals Committee, W1025 Lafferre Hall, University of Missouri, Columbia, MO 65211. A personal visit with the director of undergraduate studies of the students’ department and advisor before appealing by letter is recommended and often helpful, both to the student and to the committee.
  - One of the primary objectives of the appeals committee is evaluate indicators of the likelihood of future success of the student. Accordingly, any appeal letter should include an explanation for past poor performance and reason for expecting better outcomes in the future.
5. A student who is dismissed while on final probation will normally be ineligible for readmission.

## Satisfactory/Unsatisfactory Grading Option

Under Satisfactory/Unsatisfactory (S/U) grading, an S is assigned for a grade in the A, B or C range, and a U is assigned for a grade in the D range or for an F. Neither an S nor a U will be calculated into a student’s grade point average. A student enrolled in the College of Engineering may not take any math, science or engineering course that counts toward degree requirements under the S/U grading option, unless the course is only offered S/U. In addition, any course specifically required (by course number) in the curriculum may not be taken S/U. This includes ENGLSH 1000 or ENGLSH 1000H. The 18 credits taken to fulfill the University general education distribution requirement may be taken S/U.

## Restrictions

- First-semester freshmen are ineligible to take any course S/U unless it is only offered S/U.
- Only one course per semester may be taken S/U.
- Students on academic probation are not allowed to take any course S/U.
- To be eligible for the Dean’s List each term, a student must complete 12 graded credits (S/U courses are not considered “graded”).

## Student Services

### Advising

Each student in the College of Engineering is assigned an advisor from the College of Engineering Advising Office who assists the student in reaching academic and professional goals, as well as assist students with time management and academic success strategies. Students are encouraged to meet with their advisors as often as needed. Engineering students have advising holds placed on their accounts each semester and will work with their advisor to verify enrollment and degree progress before enrolling for the following semester.

### Diversity and Outreach Initiatives

At Mizzou Engineering we honor our values by insuring a diverse and inclusive college. The College of Engineering Office of Diversity and Outreach Initiatives facilitates the outreach, recruitment, retention, and overall success of all members of our community, especially those from backgrounds traditionally underrepresented in engineering. The Office of Diversity and Outreach Initiatives provides professional development programming surrounding inclusion, equity, and diversity for all of our undergraduate and graduate students, staff, and faculty. The Office houses many programs including:

- The Inclusivity Center which provides a physical space where everyone is welcome as well as a venue for our events and activities.
- The Women in Engineering Program which focuses on all activities that support and recruit women students.
- The Multi-cultural Engineering Program which fosters a support network between students, faculty, and staff to ensure academic success by providing structured progress checks, professional development trainings, early research experience, counseling, academic enrichment, mentoring and information about graduate study for the Engineering Diversity Scholarship recipients.
- The Office of Diversity and Outreach Initiatives serves as a resource for the College of Engineering student organizations to further engage them in diversity and inclusion efforts.

## Study Abroad

College of Engineering and STEM students have opportunities to pursue academic, leadership, and service opportunities around the world. Students can participate in short-term study abroad programs in Europe, Asia, and Latin America and earn college credit towards general education requirements, core engineering requirements, and engineering technical electives to complete graduation requirements. Students can also participate in semester long programs.

## Professional Engineering Registration

The revised statutes of Missouri (Section 327.221) require that each applicant for registration as a professional engineer in Missouri must be a graduate of and hold a degree in engineering in a curriculum accredited by the Accreditation Board for Engineering and Technology. The MU undergraduate programs in biological engineering, chemical engineering, civil engineering, computer engineering, electrical engineering, industrial engineering, mechanical engineering, and computer science are so accredited.

Senior students are strongly encouraged to take the Fundamentals of Engineering Exam leading to the Fundamentals in Engineering (FE) status as a first step toward registration.

The MU undergraduate programs in bioengineering, chemical, civil, computer engineering, electrical, industrial and mechanical engineering are accredited by the Engineering Accreditation Commission of ABET and computer science is accredited by the Computing Accreditation Commission of ABET [www.abet.org](http://www.abet.org) (<http://www.abet.org>).

## Naval Reserve Officers Training Corps (NROTC)

NROTC was established in 1926 to offer college students the necessary naval science courses to qualify for commissions in the Navy or Marine Corps Reserve. Today, NROTC is one of the primary accession sources of officers for the Navy and Marine Corps. MU represent one of 77 host colleges across the country with an NROTC program.

Navy students should major in a technical course of study while Marine students may major in any course of study leading to a baccalaureate degree. Academic credit for naval science courses is accepted toward a baccalaureate degree by most MU schools and colleges. Midshipmen take one naval science course for credit each semester, which provides education and training in various aspects of the Navy or Marine Corps. These courses are available to any student at MU, who can earn a Minor in Naval Science (p. 601). Associated with each course is a leadership laboratory for program students. NROTC activities include water survival, self-defense, physical fitness, orienteering, aviation, nuclear power indoctrination, pistol/rifle marksmanship and a variety of field trips.

Scholarship NROTC midshipmen incur no military obligation during their freshman year. This allows students to get a better understanding and appreciation of the life of a Navy or Marine Corps officer before committing. Navy NROTC graduates incur a minimum five years military obligation. Marine NROTC graduates incur a minimum four year military obligation. Upon graduation, midshipmen who successfully complete the program are commissioned as Ensigns in the Navy or Second Lieutenants in the Marine Corps.

For additional information, contact:

Department of Naval Science  
105 Crowder Hall

(573) 882-6693 or 888-MU-NROTC  
NROTCMU@missouri.edu  
<http://nrotc.missouri.edu/>

## Graduate

The College of Engineering graduate programs at the University of Missouri promotes technology, innovation and entrepreneurship with abundant interdisciplinary opportunities in research and education. MU Engineering sustains a variety of research centers, programs, groups and facilities along with other departmental groups that are designated as areas of exemplary expertise and success. The college contributes significantly to MU's overall annual research and development spending. The College also offers exceptional business opportunities to corporations, small businesses and start-ups.

MU graduate students have gone on to become faculty at world-class academic institutions in the U.S. and around the world, have created start-up companies as successful entrepreneurs and have secured jobs with leading Fortune 500 companies and National Laboratories.

Graduate engineering programs include

- Biological Engineering
- Biomedical Engineering
- Chemical Engineering
- Civil & Environmental Engineering
- Computer Science
- Electrical & Computer Engineering
- Industrial Manufacturing & Systems Engineering
- Mechanical & Aerospace Engineering
- MU Informatics Institute

Note: Prospective graduate students must be accepted to both the degree program of interest and to the MU Graduate School. In most cases, the entire application process may be completed online. Find admission and application details by selecting the degree program of interest on the graduate admissions page.

## Biological Engineering

Kevin Gillis, Interim Chair  
College of Engineering  
College of Agriculture, Food and Natural Resources  
222B Dalton Cardiovascular Research Center  
(573) 884-8805  
[gillisk@missouri.edu](mailto:gillisk@missouri.edu)

Recognizing the immense promise of biological engineering and the unique position of Mizzou for a strong biological engineering program, the College of Agriculture, Food and Natural Resources (CAFNR) and the College of Engineering (CoE) joined forces.

The Department of Biomedical, Biological & Chemical Engineering unites existing faculty and infrastructure from both colleges. CoE contributes biomedical engineering capabilities while CAFNR brings strengths in bioprocess and bioenvironmental engineering.

## Faculty

### Primary Faculty

**Professors** S. Ding\*\*, K. D. Gillis\*\*, S. A. Grant\*\*, L. Gu\*\*, E. Lobo\*, J. Tan\*\*, A. L. Thompson\*\*, G. Yao\*\*

**Associate Professors** S. C. Borgelt\*, D. Gil Pages\*, H. Hunt\*\*, W. A. Jacoby\*\*, R. Kannan\*\*, A. Schrum\*, S. Sengupta\*\*

**Assistant Professors** N. Aloysius\*, D. Hall\*, S. Jana\*, K. Krishnaswamy\*, I. Ozden\*, F. M. Pfeiffer\*\*, R. Thomen\*, C. Wan\*\*

**Professor Emeritus** F. H. Hsieh

### Affiliated Faculty

**Professors** D. Brune\*\*, D. Burke\*\*, M. Davis\*\*, D. Duan\*\*, S. Gangopadhyay\*\*, M. Hill\*\*, T. Hwang\*\*, K. V. Katti\*\*, M. L. Katz\*, J. W. Kwon\*, H. Li\*, L. A. Martinez-Lemus\*\*, A. McClellan\*\*, S. Nair\*\*, L. G. Schumacher\*, S. Segal\*, P. Yu\*\*

**Associate Professors** D. E. Baker\*, P. V. Cornish\*\*, T. M. Guess\*\*, T. T. Lim\*, M. Maschmann\*\*, L. Polo-Parada\*\*

**Assistant Professors** C. Costello\*\*, S. Rajendran\*, J. Zulovich\*

**Adjunct Professors** T. Rahhal, E. J. Sadler\*\*, K. A. Sudduth\*\*, E. Vories

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BSBE in Biological Engineering (p. 539)

### Advising and Scholarship Contacts

Charles Darr, Director of Undergraduate Studies  
DarrCM@missouri.edu

Jean Gruenewald, Academic Advisor  
W1006 Lafferre Hall  
(573) 882-4659  
gruenewaldj@missouri.edu

Biological engineering is a science-based engineering discipline that integrates engineering and biological sciences in one curriculum. The MU biological engineering program is a broadly-based curriculum that prepares students for careers in three areas:

- Biomedical engineering (including pre-medicine)
- Bioprocess engineering
- Bioenvironmental engineering

Biological engineering graduates are hired by biotechnology, medical, pharmaceutical, food and agricultural companies, and by government agencies. Some attend graduate and medical schools. Graduates are well prepared to take the Fundamentals of Engineering exam during their senior year, which is the first step toward obtaining a Professional Engineer license.

The Bachelor of Science with a major in Biological Engineering (BS BE) program at MU is accredited by the Engineering Accreditation Commission of ABET, [www.abet.org](http://www.abet.org) (<http://www.abet.org>). The biological engineering curriculum was developed to meet the mission, program objectives and student outcomes described below.

## Mission and Objectives

The department mission is to educate biological engineers to integrate engineering and biological sciences in the contexts of health, sustainability and environmental stewardship, thus preparing them for productive careers characterized by continual professional growth.

### Program Educational Objectives:

The undergraduate programs lead to a Bachelor of Science degree in Biological Engineering (BE), producing graduates who will, within 3-5 years:

- Show proficiency in quantitative analysis, engineering design and development
- Interact effectively with life science, regulatory, and other professionals
- Leverage principles of biological and engineering sciences for the design and development of innovative systems, including interactions between living and non-living systems
- Demonstrate leadership and professionalism as they continually add value to their chosen field of endeavor and to society
- Adopt and integrate rapidly evolving new developments in life sciences and engineering through continuing education and/or advanced study in engineering, medicine or other fields

### Student Outcomes:

Students from the BE program will attain (by the time of graduation):

1. An ability to identify, formulate, and solve engineering programs by applying principles of engineering, science, and mathematics
2. An ability to apply both analysis and synthesis in the engineering design process, resulting in designs that meet desired needs
3. An ability to communicate effectively with a range of audiences
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies
8. An ability to integrate engineering and biological sciences for the modeling and development of systems and processes to realize improvements in health, bio-resource use, environmental protection, and/or other fields

## Graduate

- MS in Biological Engineering (p. 541)
- PhD in Biological Engineering (p. 542)

Department of Bioengineering  
254 Agricultural Engineering Building  
Columbia, MO 65211-5160  
(573) 882-7044  
<http://bioengineering.missouri.edu/>

**Director of Graduate Studies:** Gang (Gary) Yao

**About Biological Engineering**

Biological engineering (BE) or bioengineering is a science-based engineering discipline that integrates engineering with biological sciences in one curriculum. Bioengineers apply scientific and engineering principles of design and analysis to develop products, systems, and/or processes for improving human and animal health, bio-resource utilization, and environment protection.

The BE Graduate Program awards PhD (p. 542) and MS (p. 541) degrees in Biological Engineering with three emphasis areas: biomedical engineering, bioprocess engineering, and bioenvironmental engineering. We also administer the Master of Engineering (ME (p. 581)) degree offered by the College of Engineering with a focus in Biological Engineering.

BE graduate faculty members conduct interdisciplinary research and have close collaborations with other faculty across the campus. Such a diverse yet synergetic faculty body is unique at University of Missouri and provides an excellent environment to educate and train the next generation engineers and scientists with knowledge and skills crossing traditional boundaries.

**Facilities and Resources**

BE faculty members maintain state-of-the-art laboratory facilities in their research areas. Laboratories are well equipped for research in biomaterials, biomechanics, biophotonics & imaging, biosensors, electrophysiology, nanoengineering, neural engineering, bioprocessing, environmental engineering, hydrology and renewable energy, precision agriculture, properties of biological and food materials, soil physics. The department has access to the University of Missouri System computing network and maintains its own computing laboratory for student use.

**Financial Aid**

Admission decisions to the BE graduate programs are made independent of a student's financial need. Once admitted, a qualified student will be considered for funding support in forms of fellowships, graduate research assistantships (GRAs), and graduate teaching assistantships (GTAs). Nominations for college- and campus-wide fellowship competitions are initiated by the department. GRAs and GTAs are awarded by individual faculty members or course instructors upon approval from the department. Applicants who are interested in funding support should submit the graduate admission application by the "priority" deadlines as indicated on the graduate admission page (<https://gradschool.missouri.edu/degrecategory/bioengineering/>).

## **BSBE in Biological Engineering**

### **Degree Program Description**

Biological Engineering is a science-based engineering curriculum that integrates engineering and biological sciences in the areas of health, sustainability and environmental stewardship. Students are prepared in three engineering areas: biomedical, bioprocess, and bioenvironmental engineering. In addition to the core program courses, the program includes courses in basic sciences; social, behavioral and engineering sciences; and humanities and fine arts. In a capstone design course, each student completes a design project under the direction of a faculty advisor. Graduates are hired by biotechnology, medical, pharmaceutical, food and agricultural companies and government agencies, or opt to further their education in graduate, medical or veterinary medical school.

Graduates are well prepared to take the Fundamentals of Engineering exam during their senior year, which is the first step toward obtaining a Professional Engineer license. The BSBE in biological engineering is accredited by the Engineering Accreditation Commission of ABET.

### **Major Program Requirements**

The curriculum encompasses basic sciences, social and behavioral sciences, humanities and fine arts, engineering sciences and topics, and program core courses. The core courses cover topics of biological engineering principles and design. In a capstone design course, each student completes a design project under the direction of a faculty advisor. Technical electives allow students to place emphasis on biomedical, bioprocess or bioenvironmental engineering. The requirements listed below are in addition to University general education (p. 36) requirements. All pre-requisites required for Basic Engineering, Biological Engineering, and Technical Elective courses must be completed with a grade of C- or better.

### **Major Core Requirements**

<b>Math and Statistics</b>		<b>19</b>
MATH 1500	Analytic Geometry and Calculus I	5
MATH 1700	Calculus II	5
MATH 2300	Calculus III	3
MATH 4100	Differential Equations	3
Statistics (from approved list)		3
<b>Basic sciences</b>		<b>28</b>
PHYSCS 2750	University Physics I	5
PHYSCS 2760	University Physics II	5
CHEM 1320	College Chemistry I	4
CHEM 2100	Organic Chemistry I	3
BIO_SC 1500	Introduction to Biological Systems with Laboratory	5
Biology and related science (from approved list)		6
<b>Basic Engineering</b>		<b>14</b>
Humanities		3
ENGINR 1100	Engineering Graphics Fundamentals	2
ENGINR 1200	Statics and Elementary Strength of Materials	3
ENGINR 2200	Intermediate Strength of Materials	3
Fluid Mechanics (from approved list)		3
Thermodynamics (from approved list)		3
<b>Biological Engineering</b>		<b>18</b>
BIOL_EN 2000	Professional Development in Engineering	2
BIOL_EN 2080	Introduction to Programming for Engineers	3
BIOL_EN 2180	Engineering Analysis of Bioprocesses	3
BIOL_EN 3180	Heat and Mass Transfer in Biological Systems	3
BIOL_EN 4380	Applied Electronic Instrumentation	4
BIOL_EN 4980	Bioengineering Design I	3
<b>Technical electives</b>		<b>24</b>
Upper-level engineering courses, with 15 credit hours in approved courses, of which 12 credit hours in a track (listed below) are recommended.		24

## Biological Engineering Tracks

### Bioenvironmental Track

ENGINR 2100	Circuit Theory for Engineers	3
CV_ENG 3050	Introduction to Geographic Information Systems GIS	3
CV_ENG 3200	Fundamentals of Environmental Engineering	4
CV_ENG 3400	Fundamentals of Geotechnical Engineering	4
CV_ENG 3702	Hydrology	4
BIOL_EN 4001	Topics in Biological Engineering (Observing Earth from Space)	3-9
BIOL_EN 4001	Topics in Biological Engineering (Environmental Hydrology)	3
IMSE 4001	Topics in Industrial and Manufacturing Systems Engineering (Sustainability in Engineered Systems)	3
BIOL_EN 4150	Soil and Water Conservation Engineering	3
CV_ENG 4230	Introduction to Water Quality	3
CV_ENG 4240	Water Quality Analysis	3
BIOL_EN 4250	Irrigation and Drainage Engineering	3
CV_ENG 4250	Environmental Regulatory Compliance	3
CH_ENG 4285	Pollution Prevention	3
CH_ENG 4312	Air Pollution Control	3
BIOL_EN 4350	Watershed Modeling Using GIS	3
ECE 4640	MEMS Laboratory	4
ECE 4670	Microelectronic Fabrication	4
IMSE 4720	Introduction to Life Cycle Analysis	3
BIOL_EN 4940	Engineering Internship	1-3
GEOG 4940	Advanced Geographic Information Systems (GIS II)	3
BIOL_EN 4985	Bioengineering Design II	1-3
BIOL_EN 4990	Undergraduate Research in Biological Engineering	1-5
BIOL_EN 4995H	Undergraduate Honors Research in Biological Engineering	1-5

### Bioprocessing Track

ENGINR 2100	Circuit Theory for Engineers	3
BIOL_EN 3075	Introduction to Materials Engineering	3
BIOL_EN 3170	Biomaterials	3
CH_ENG 3235	Separation Processes	3
CH_ENG 3262	Chemical Engineering Thermodynamics II	3
IMSE 4001	Topics in Industrial and Manufacturing Systems Engineering (Sustainability in Engineered Systems)	3
BIOL_EN 4160	Food Process Engineering	3
BIOL_EN 4231	Transport Phenomena in Materials Processing	3
BIOL_EN 4310	Feedback Control Systems	3
BIOL_EN 4315	Principles of Biochemical Engineering	3
CH_ENG 4315	Principles of Biochemical Engineering	3
BIOL_EN 4316	Biomass Refinery Operations	3
CH_ENG 4316	Biomass Refinery Operations	3
CH_ENG 4319	Introduction to Polymers	3
BIOL_EN 4360	Biomufacturing Technologies	3

CH_ENG 4363	Chemical Reaction Engineering and Technology	3
BIOL_EN 4480	Physics and Chemistry of Materials	3
ECE 4640	MEMS Laboratory	4
ECE 4670	Microelectronic Fabrication	4
IMSE 4720	Introduction to Life Cycle Analysis	3
BIOL_EN 4940	Engineering Internship	1-3
BIOL_EN 4985	Bioengineering Design II	1-3
BIOL_EN 4990	Undergraduate Research in Biological Engineering	1-5
BIOL_EN 4995	Undergraduate Honors Research in Biological Engineering	1-5
BIOL_EN 4995H	Undergraduate Honors Research in Biological Engineering	1-5

### Biomedical Engineering Track

ENGINR 2100	Circuit Theory for Engineers	3
ENGINR 2100H	Circuit Theory for Engineers - Honors	3
BIOL_EN 3075	Introduction to Materials Engineering	3
BIOL_EN 3170	Biomaterials	3
BIOL_EN 4001	Topics in Biological Engineering (Brain Signals and Brain Machine Interfaces)	3
BIOL_EN 4001	Topics in Biological Engineering (Quantitative Analysis of Physiological Processes)	3-9
BIOL_EN 4001	Topics in Biological Engineering (Wearable Devices)	3-9
BIOL_EN 4001	Topics in Biological Engineering (Nuclear Magnetic Resonance and Magnetic Resonance Imaging)	3
BME 4003	Design and Development of Biomedical Innovation	3
BIOL_EN 4070	Bioelectricity	3
BIOL_EN 4170	Biomaterials Interfaces of Implantable Devices	3
BIOL_EN 4231	Transport Phenomena in Materials Processing	3
BIOL_EN 4315	Principles of Biochemical Engineering	3
CH_ENG 4319	Introduction to Polymers	3
BIOL_EN 4360	Biomufacturing Technologies	3
CH_ENG 4363	Chemical Reaction Engineering and Technology	3
BIOL_EN 4370	Orthopaedic Biomechanics	3
BIOL_EN 4420	Introduction to Biomedical Imaging	3
BIOL_EN 4470	Biomolecular Engineering and Nanobiotechnology	3
BIOL_EN 4480	Physics and Chemistry of Materials	3
BIOL_EN 4570	Fluorescent Imaging	3
BIOL_EN 4590	Computational Neuroscience	4
ECE 4640	MEMS Laboratory	4
ECE 4655	Digital image Processing	3
ECE 4670	Microelectronic Fabrication	4
BIOL_EN 4770	Biomedical Optics	3
BIOL_EN 4940	Engineering Internship	1-3
BIOL_EN 4985	Bioengineering Design II	1-3
BIOL_EN 4990	Undergraduate Research in Biological Engineering	1-5

BIOL_EN 4995	Undergraduate Honors Research in Biological Engineering	1-5
BIOL_EN 4995H	Undergraduate Honors Research in Biological Engineering	1-5

## Approved Electives

### Statistics approved list:

STAT 4710	Introduction to Mathematical Statistics	3
IMSE 2110	Probability and Statistics for Engineers	3
BIOL_EN 4270	Design of Experiments and Statistical Quality Control for Process Engineers	3

### Biological Science Electives approved list:

AN_SCI 3254	Physiology of Domestic Animals	5
BIO_SC 2200	General Genetics	4
BIO_SC 2300	Introduction to Cell Biology	4
BIO_SC 3700	Animal Physiology	5
BIO_SC 4976	Molecular Biology	3
BIO_SC 4990	Vertebrate Histology and Microscopic Anatomy	5
BIOCHM 3630	General Biochemistry	3
BIOCHM 4270	Biochemistry	3
BIOL_EN 4001	Topics in Biological Engineering	3
DMU 4200	Principles of Diagnostic Medical Ultrasound	3
F_S 2172	Elements of Food Microbiology	3
F_S 4310	Food Chemistry and Analysis	4
F_S 4370	Food Microbiology	3
MPP 3202	Elements of Physiology	5
NUCMED 4327	Nuclear Medicine Instrumentation	3
PHYSCS 4110	Light and Modern Optics	4
PHYSCS 4310	Physics in Cell and Developmental Biology	3
PLNT_S 2110	Plants and their Cultivation	3
PLNT_S 3213	Genetics of Agricultural Plants and Animals	3
PLNT_S 4313	Soil Fertility and Plant Nutrition	3
PLNT_S 4315	Crop Physiology	3
PLNT_S 4320	Molecular Plant Physiology	3
SOIL 2100	Introduction to Soils	3
SOIL 2106	Soil Science Laboratory	2
SOIL 3290	Soils and the Environment	3
SOIL 3290W	Soils and the Environment - Writing Intensive	3
SOIL 4312	Environmental Soil Microbiology	3
SOIL 4318	Environmental Soil Chemistry	3

### Fluid Mechanics approved list:

MAE 3400	Fluid Mechanics	3
BIOL_EN 3070	Biological Fluid Mechanics	3
CV_ENG 3700	Fluid Mechanics	3

### Thermodynamics approved list:

ENGINR 2300	Engineering Thermodynamics	3
CH_ENG 3261	Chemical Engineering Thermodynamics I	3

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
MATH 1500		5 MATH 1700	5
CHEM 1320		4 PHYSCS 2750	5
ENGINR 1100		2 BIO_SC 1500	5
ENGLSH 1000		3 ENGINR 1110	1
ENGINR 1000		1	
			16

Second Year			
Fall	CR	Spring	CR
BIOL_EN 2080		3 BIOL_EN 2000	2
MATH 2300		3 MATH 4100	3
PHYSCS 2760		5 BIOL_EN 2180	3
ENGINR 1200		3 ENGINR 2200	3
CHEM 2100		3 ENGINR 2300	3
		BIO_SCI Elective	3
			17

Third Year			
Fall	CR	Spring	CR
BIO_SCI Elective		3 Humanities or Fine Arts Elective	3
ENGINR 2100		3 BIOL_EN 4380	4
Fluid Mechanics (from approved list)		3 BIOL_EN 3180	3
Statistics (from approved list)		3 BIOL_EN Tech Elective	3
Humanities or Fine Arts Elective		3 BS/SS ECON 1014/1015	3
			16

Fourth Year			
Fall	CR	Spring	CR
BIOL_EN 4980W		3 Technical Elective	3
Technical Elective		3 Technical Elective	3
Technical Elective		3 Technical Elective	3
Humanities or Fine Arts Elective		3 Technical Elective	3
BS/SS Elective (American Government or History)		3 BS/SS Elective	3
			15

Total Credits: 126

## MS in Biological Engineering

### About

Bioengineering or biological engineering is a science-based engineering discipline that integrates engineering and biological sciences in one curriculum. Bioengineers apply scientific and engineering principles to develop products, systems, and/or processes to improve human and animal health, bio-resource utilization, and environment protection.

The Department of Biomedical, Biological and Chemical Engineering offers both thesis and non-thesis based Master of Science (MS) degrees in Biological Engineering. Our MS degree programs have three emphasis areas: biomedical engineering, bioprocess engineering and bioenvironmental engineering.

The department also offers a 100% online, non-thesis Master's degree (<https://online.missouri.edu/degreeprograms/engineering/biological/masters/>) in Biological Engineering with a focus in biomedical engineering. In addition, the department administers the Master of Engineering (ME) (<http://catalog.missouri.edu/undergraduategraduate/collegeofengineering/engineering/me-engineering/>) degree with a focus in Biological Engineering that is offered by the College of Engineering.

## Degree Requirements

- The **MS thesis (MST)** degree requires a minimum of 30 semester hours beyond the baccalaureate degree. The Program of Study for **MST** should include the following:

BIOL_EN 8402	Research Methods	2
BIOL_EN 8087	Seminar in Biological Engineering	1
BIOL_EN 8180	Numerical Methods in Engineering Research	3
BIOL_EN 8990	Masters Thesis Research in Biological Engineering	6-12

A graduate level Statistics course	3
Two additional Bioengineering 8000 level courses (excluding Problems or Thesis Research)	6-9

Additional graduate level courses to fulfill the requirement of a minimum of 30 semester hours.

A M.S. thesis and a scholarly manuscript are required.

- The **MS non-thesis (MSNT)** degree requires a minimum of 30 semester hours (a minimum of 15 hours at 8000 level and above) beyond the baccalaureate degree. We offer both on campus and online MSNT. The detailed requirements for the **100% online, non-thesis MS degree** in Biological Engineering can be found on the degree website from Mizzou Online (<https://online.missouri.edu/degreeprograms/engineering/biological/masters/>). The Program of Study for **MSNT** should include the following:

BIOL_EN 8180	Numerical Methods in Engineering Research	3
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A graduate level Statistics course	3
Three additional Bioengineering 8000 level courses (excluding Problems or Research)	9

Additional graduate level courses to fulfill the requirement of a minimum of 30 semester hours. The combined hours of Research (8990) and Problems (8085) cannot be more than 3 hours.

A project/independent study report is required.

- The **ME** degree requires a minimum of 36 semester hours beyond the baccalaureate degree. A minimum of 15 hours must be at 8000 level and above and a minimum of 21 hours must be from engineering. The Program of Study for **ME** should include the following:

BIOL_EN 8087	Seminar in Biological Engineering	1
BIOL_EN 8000	Scientific Discovery Leading to Life Science Innovations	3
BIOL_EN 8180	Numerical Methods in Engineering Research	3

A graduate level Statistics course	3
Two additional Bioengineering 8000 level courses (excluding Problems or Research)	6

Additional graduate level courses to fulfill the requirement of a minimum of 36 semester hours. The combined hours of Research (8990) and Problems (8085) cannot be more than 3 hours.

- If approved by the student's Master's Program Committee, the MS program of study may include up to six hours of graduate credits transferred from another university or from another campus of the MU system. Graduate students are required to demonstrate proficiency in at least two of the technical proficiency areas listed in the current bioengineering graduate student handbook (<https://engineering.missouri.edu/academics/bbce/bbce-degrees/>).

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the [requirements of the biological engineering degree program](https://gradschool.missouri.edu/degreecategory/bioengineering/) (<https://gradschool.missouri.edu/degreecategory/bioengineering/>) and the [minimum requirements of the graduate faculty](https://gradstudies.missouri.edu/admissions/eligibility-process/) (<https://gradstudies.missouri.edu/admissions/eligibility-process/>), enforced by the Graduate School. Because requirements vary, you must refer to a degree program's graduate admission page (<https://gradschool.missouri.edu/degreecategory/bioengineering/>) to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admission to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

For inquiries about the MS degrees in biological engineering, please visit the corresponding degree program's [graduate admission page](https://gradschool.missouri.edu/degreecategory/bioengineering/) (<https://gradschool.missouri.edu/degreecategory/bioengineering/>) for detailed contact information.

## PhD in Biological Engineering

### About

Bioengineering or biological engineering is a science-based engineering discipline that integrates engineering and biological sciences in one curriculum. Bioengineers apply scientific and engineering principles to develop products, systems, and/or processes to improve human and animal health, bio-resource utilization, and environment protection.

The Department of Biomedical, Biological and Chemical Engineering offers the PhD degree in Biological Engineering in three emphasis areas: biomedical engineering, bioprocess engineering and bioenvironmental engineering.

### Degree Requirements

The PhD degree requires a minimum of 72 semester hours beyond the baccalaureate degree. If approved by the student's doctoral committee, the PhD program of study may include up to 30 hours of graduate credits transferred from another university or from another campus of the MU system. The plan of study must include a minimum of 15 credit hours of MU coursework at the 8000/9000 level (exclusive of research, problems, or any independent study experiences). Graduate students are required to demonstrate proficiency in at least two of the technical proficiency areas listed in the current bioengineering graduate student handbook (<http://bioengineering.missouri.edu/graduate/>).

The Plan of Study must be approved by the doctoral program committee and should include the following:

BIOL_EN 8402	Research Methods	2
BIOL_EN 8087	Seminar in Biological Engineering	1
BIOL_EN 8180	Numerical Methods in Engineering Research	3

A graduate level Statistics course	3
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Two additional Bioengineering 8000 level courses (excluding Problems or Thesis Research) 6

BIOL_EN 9990	Doctoral Dissertation Research in Biological Engineering	0-28
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Additional graduate level courses to fulfill the requirement of a minimum of 30 semester hours.

## Qualifying Process

Within 18-month in the program, each PhD student must pass a qualifying examination before continuing enrollment. The exam is designed to test the student's ability to undertake advanced learning and carry out independent research. In general, the qualifying examination will have both a written part and an oral part in the format determined by the student's doctoral committee.

## Comprehensive Examination Process

The comprehensive examination must be completed within 5-year from the student's starting date as a Ph.D. student. Prior to the comprehensive examination, students must have completed the majority of the course work in the Plan of Study, carried out the initial work of their projected research, and demonstrated that they will be able to complete all the remaining requirements for the doctoral degree. The comprehensive examination shall in general include both a written and an oral section. These two sections must be completed within one month. The doctoral committee chair shall work with other committee members to decide on the specific format of the examination.

## Dissertation Defense

A dissertation based on the original research completed by the doctoral student constitutes the written part of the final dissertation defense. An oral dissertation defense will be conducted after the dissertation has been completed and submitted to the doctoral committee. The dissertation defense must be conducted at least 7-month after the completion of the comprehensive examination.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the [requirements of the biological engineering degree program](https://gradschool.missouri.edu/degrecategory/bioengineering/) (<https://gradschool.missouri.edu/degrecategory/bioengineering/>) and the [minimum requirements of the graduate faculty](https://gradstudies.missouri.edu/admissions/eligibility-process/) (<https://gradstudies.missouri.edu/admissions/eligibility-process/>), enforced by the Graduate School. Because requirements vary, you must refer to a degree program's graduate admission page (<https://gradschool.missouri.edu/degrecategory/bioengineering/>) to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admission to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

For inquiries about the PhD degree in biological engineering, please visit the degree program's [graduate admission page](https://gradschool.missouri.edu/degrecategory/bioengineering/) (<https://gradschool.missouri.edu/degrecategory/bioengineering/>) for detailed contact information.

## Biomedical Engineering

Kevin Gillis, Interim Chair  
College of Engineering  
College of Agriculture, Food and Natural Resources

222B Dalton Cardiovascular Research Center  
(573) 884-8805

[gillisk@missouri.edu](mailto:gillisk@missouri.edu)

The Department of Biomedical, Biological & Chemical Engineering, which is home to the undergraduate biomedical and biological engineering degree programs, seeks to educate the next generation of bioengineering leaders who integrate engineering and biological sciences in the contexts of health, sustainability, and environmental stewardship, thus preparing them for productive careers characterized by continual professional growth. Our undergraduates are part of a diverse and vibrant department with over one hundred years of excellence in engineering education. We provide a supportive and stimulating environment that combines talented students, a diverse faculty body, and excellent teaching and research facilities. Biomedical, Biological & Chemical Engineering uniquely positions graduates to pursue careers in traditional engineering as well as medicine, veterinary medicine, law, health care, policy, and academics.

Our award-winning faculty offer exceptional classes and research experiences for our students, and our flexible, tracked curriculum integrates easily with the pre-medicine and Honors Certificate programs, as well as a number of integrated, 5 –year, bachelor plus master degree programs at MU.

## Faculty

### Primary Faculty:

**Professors** S. Ding\*\*, K. D. Gillis\*\*, S. A. Grant\*\*, L. Gu\*\*, J. Tan\*\*, A. L. Thompson\*\*, G. Yao\*\*

**Associate Professors** S. C. Borgelt\*, D. Gil Pages\*, H. Hunt\*\*, W. A. Jacoby\*\*, R. Kannan\*\*, A. Schrum\*, S. Sengupta\*\*

**Assistant Professors** N. Aloysius\*, D. Hall\*, K. Krishnaswamy\*, I. Ozden\*, F. M. Pfeiffer\*\*, R. Thomen\*, C. Wan\*\*

**Professor Emeritus** F. H. Hsieh

### Affiliated Faculty:

**Professors** D. Burke\*\*, D. Brune\*\*, C. S. Cutler\*, M. Davis\*\*, M. W. Downs\*, D. Duan\*\*, G. Forgacs\*, S. Gangopadhyay\*\*, M. Hill\*\*, T. Hwang\*\*, K. V. Katti\*\*, M. L. Katz\*, A. McClellan\*\*, G. Meininger\*\*, S. Nair\*\*, L. G. Schumacher\*, S. Segal\*, P. Yu\*\*

**Associate Professors** D. E. Baker\*, P. V. Cornish\*\*, T. M. Guess\*\*, J. W. Kwon\*, H. Li\*, T. T. Lim\*

**Assistant Professors** L. A. Martinez-Lemus\*\*, L. Polo-Parada\*\*, R. A. White\*, J. Zulovich\*

**Adjunct Professors** T. Rahhal, E. J. Sadler\*, K. A. Sudduth\*\*, E. Vories

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BS in Biomedical Engineering (p. 544)

### Advising and Scholarship Contacts

Charles Darr, Undergraduate Director  
[DarrCM@missouri.edu](mailto:DarrCM@missouri.edu)

Jean Gruenewald, Academic Advisor



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(573) 882-4659  
gruenewaldj@missouri.edu

Biomedical engineering is a science-based engineering discipline that integrates engineering and biological sciences in one curriculum. The MU biomedical engineering program is a broad-based curriculum that prepares students for careers in traditional engineering as well as medicine, veterinary medicine, law, health care, policy, and academics. Biomedical engineering graduates are hired by biotechnology, medical, and pharmaceutical companies, as well as by government agencies and major research laboratories. Many of our undergraduate students attend graduate, medical, or law schools post-graduation. Graduates are well-prepared to take the Fundamentals of Engineering exam during their senior year, which is the first step toward obtaining a Professional Engineer license; many additionally take the MCAT, the LSAT, and the GRE in preparation for their graduate or professional studies.

The Bachelor of Science with a major in Biomedical Engineering (B.S. B.M.E.) program at MU was developed to meet the mission, program objectives and student outcomes described below.

#### **Program Educational Objectives:**

The undergraduate programs lead to a Bachelor of Science degree in Biomedical Engineering (BME), producing graduates who will, within 3-5 years:

- Show proficiency in quantitative analysis, engineering design and development
- Interact effectively with life science, regulatory, and other professionals
- Leverage principles of biological and engineering sciences for the design and development of innovative systems, including interactions between living and non-living systems
- Demonstrate leadership and professionalism as they continually add value to their chosen field of endeavor and to society
- Adopt and integrate rapidly evolving new developments in life sciences and engineering through continuing education and/or advanced study in engineering, medicine or other fields

#### **Student Outcomes:**

Students from the BME program will attain (by the time of graduation):

1. An ability to identify, formulate, and solve engineering programs by applying principles of engineering, science, and mathematics
2. An ability to apply both analysis and synthesis in the engineering design process, resulting in designs that meet desired needs
3. An ability to communicate effectively with a range of audiences
4. An ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. An ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. An ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. An ability to acquire and apply new knowledge as needed, using appropriate learning strategies

8. An ability to integrate engineering and biological sciences for the modeling and development of systems and processes to realize improvements in health, bio-resource use, environmental protection, and/or other fields

## **Graduate**

A graduate degree in Biomedical Engineering is not currently offered. Please see Biological Engineering (p. 537) for similar graduate degree programs.

## **BS in Biomedical Engineering**

### **Degree Program Description**

The Biomedical Engineering undergraduate degree program offers four tracks from which our students can develop their primary expertise: biomaterials, biomechanics, biomedical imaging and instrumentation, and bioinformatics. In collaboration with colleagues from the School of Medicine, the College of Veterinary Medicine, the School of Health Professions, the Sinclair School of Nursing, the Honors College, and the College of Engineering, we develop students into engineering leaders with skills in creative and critical thinking, problem-solving, innovation, engineering design, communication, entrepreneurship, and team-building. Our award-winning faculty offer exceptional classes and research experiences for our students, and our flexible, tracked curriculum integrates easily with the pre-medicine and Honors Certificate programs, as well as a number of accelerated plans to earn a bachelor's plus a master's degrees at MU.

Biomedical engineering is a science-based engineering discipline that integrates engineering and biological sciences in one curriculum. The MU biomedical engineering program is a broad-based curriculum that prepares students for careers in traditional engineering as well as medicine, veterinary medicine, law, health care, policy, and academics. Biomedical engineering graduates are hired by biotechnology, medical, and pharmaceutical companies, as well as by government agencies and major research laboratories. Many of our undergraduate students attend graduate, medical, or law schools post-graduation. Graduates are well-prepared to take the Fundamentals of Engineering exam during their senior year, which is the first step toward obtaining a Professional Engineer license; many additionally take the MCAT, the LSAT, and the GRE in preparation for their graduate or professional studies.

### **Major Program Requirements**

The curriculum encompasses basic sciences, social and behavioral sciences, humanities and fine arts, engineering sciences and topics, and program core courses. The core courses cover topics of biomedical engineering principles and design. In a capstone design course sequence, each student completes a design project under the direction of a faculty mentor. Technical electives allow students to place emphasis on biomaterials, biomechanics, bioinformatics, and biomedical imaging and instrumentation.

Students earning a Bachelor of Science in Biomedical Engineering are required to complete all University general education (p. 36), University undergraduate requirements (p. 35), degree, and major requirements, including selected foundational courses, which may fulfill some University general education requirements. All pre-requisites required for Basic Engineering, Biological Engineering, and Technical Elective courses must be completed with a grade of C- or better. Courses designated a core

biomedical engineering course must be completed with a grade of C or better.

## Major Core Requirements

<b>Foundation Courses</b>		<b>6</b>
ECONOM 1014	Principles of Microeconomics	3
or ECONOM 1015	Principles of Macroeconomics	
or ECONOM 1000	General Economics for Journalists	
or ECONOM 1051H	General Economics - Honors	
or ABM 1041	Applied Microeconomics	
or ABM 1042	Applied Macroeconomics	
or IMSE 2710	Engineering Economic Analysis	
PHIL 1150	Introductory Bioethics	3
or PHIL 2440	Medical Ethics	
or CDS 4480	Clinical Ethics	
<b>Math and Statistics</b>		<b>19</b>
MATH 1500	Analytic Geometry and Calculus I	5
MATH 1700	Calculus II	5
MATH 2300	Calculus III	3
MATH 4100	Differential Equations	3
STAT 4710	Introduction to Mathematical Statistics	3
<b>Basic sciences</b>		<b>28</b>
PHYSICS 2750	University Physics I	5
PHYSICS 2760	University Physics II	5
CHEM 1320	College Chemistry I	4
CHEM 2100	Organic Chemistry I	3
BIO_SC 2200	General Genetics	4
BIO_SC 2300	Introduction to Cell Biology	4
Physiology (from approved list)		5
<b>Basic Engineering</b>		<b>14</b>
Engineering Graphics (from approved list)		3
ENGINR 1200	Statics and Elementary Strength of Materials	3
ENGINR 2200	Intermediate Strength of Materials	3
Fluid Mechanics (from approved list)		3
Thermodynamics (from approved list)		3
<b>Biological Engineering</b>		<b>18</b>
BME 2000	Professional Development in Engineering	2
BME 2080	Introduction to Programming for Engineers (only Bioinformatics Track can count CMP_SC 1050)	3
or CMP_SC 1050	Algorithm Design and Programming I	
BME 2180	Engineering Analysis of Bioprocesses	3
BME 3180	Heat and Mass Transfer in Biological Systems	3
BME 4380	Applied Electronic Instrumentation	4
BME 4980W	Biomedical Engineering Design - Writing Intensive	3
<b>Technical electives</b>		<b>24</b>
Upper-level engineering courses, with 24 credit hours in a single track		24

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## Biomedical Engineering Tracks

<b>Bioinformatics Track (3 Requisites, 5 Electives)</b>		<b>24</b>
ENGINR 2100	Circuit Theory for Engineers (Elective)	3

BME 4001	Topics in Biomedical Engineering (Brain Signals and Brain Machines- Elective)	3-9
BME 4003	Design and Development of Biomedical Innovation (Elective)	3
BME 4470	Biomolecular Engineering and Nanobiotechnology (Elective)	3
BME 4590	Computational Neuroscience (Elective)	4
ECE 4655	Digital image Processing (Elective)	3
BME 4940	Engineering Internship (Elective)	1-3
BME 4985	Bioengineering Design II (Elective)	1-5
BME 4990	Undergraduate Research in Biomedical Engineering (Elective)	1-6
BME 4995H	Undergraduate Honors Research in Biomedical Engineering (Elective)	1-5

<b>CS-Drive Informatics Path</b>		
CMP_SC 2050	Algorithm Design and Programming II	4
CMP_SC 3380	Database Applications and Information Systems	3
CMP_SC 7010	Computational Methods in Bioinformatics	3

<b>IT-Drive (Big Data) Path</b>		
INFOTC 2040	Programming Languages and Paradigms	3
HMI 4420	Fundamentals of Bioinformatics	3
HMI 4440	Health Information Technology	3

<b>Biomedical Imaging &amp; Instrumentation Track (4 Requisites, 4 Electives)</b>		<b>24</b>
ENGINR 2100	Circuit Theory for Engineers	3
BME 4420	Introduction to Biomedical Imaging	3
BME 4570	Fluorescent Imaging	3
BIOL_EN 4770	Biomedical Optics	3

<b>Track Electives</b>		
ECE 3810	Circuit Theory II	4
ECE 3830	Signals and Linear Systems	3
BME 4001	Topics in Biomedical Engineering (Brain Signals and Brain Machines)	3-9
BME 4001	Topics in Biomedical Engineering (Wearable Devices)	3-9
BME 4003	Design and Development of Biomedical Innovation	3
BIOL_EN 4070	Bioelectricity	3
BME 4470	Biomolecular Engineering and Nanobiotechnology	3
BME 4590	Computational Neuroscience	4
ECE 4640	MEMS Laboratory	4
ECE 4655	Digital image Processing	3
ECE 4670	Microelectronic Fabrication	4
BME 4940	Engineering Internship	1-3
BME 4970	Nuclear Magnetic Resonance and Magnetic Resonance Imaging	3
BME 4985	Bioengineering Design II	1-5
BME 4990	Undergraduate Research in Biomedical Engineering	1-6
BME 4995H	Undergraduate Honors Research in Biomedical Engineering	1-5

<b>Biomechanics Track (5 Requisites, 3 Electives)</b>		<b>24</b>
MAE 2600	Dynamics	3
BME 3075	Introduction to Materials Engineering	3
BME 3170	Biomaterials	3

MATH 4300	Numerical Analysis	3
BME 4370	Orthopaedic Biomechanics	3
<b>Track Electives</b>		
BME 4001	Topics in Biomedical Engineering (Quantitative Analysis of Physiological Processes)	3
BME 4003	Design and Development of Biomedical Innovation	3
BIOL_EN 4070	Bioelectricity	3
BME 4170	Biomaterials Interfaces of Implantable Devices	3
BME 4470H	Biomolecular Engineering and Nanobiotechnology - Honors	3
BME 4480	Physics and Chemistry of Materials	3
BME 4940	Engineering Internship	1-3
BME 4970	Nuclear Magnetic Resonance and Magnetic Resonance Imaging	3
BME 4985	Bioengineering Design II	1-5
BME 4990	Undergraduate Research in Biomedical Engineering	1-6
BME 4995H	Undergraduate Honors Research in Biomedical Engineering	1-5
<b>Biomaterials Track (3 Requisites, 5 Electives)</b>		<b>24</b>
BME 3075	Introduction to Materials Engineering	3
BME 3170	Biomaterials	3
BME 4480	Physics and Chemistry of Materials	3
<b>Track Electives</b>		
CH_ENG 3262	Chemical Engineering Thermodynamics II	3
BME 4001	Topics in Biomedical Engineering (Brain Signals and Brain Machine Interfaces)	3
BIOL_EN 4001	Topics in Biological Engineering (Quantitative Analysis of Physiological Processes)	3
BIOL_EN 4001	Topics in Biological Engineering (Wearable Devices)	3-9
or BME 4001	Topics in Biomedical Engineering	
BME 4003	Design and Development of Biomedical Innovation	3
BME 4170	Biomaterials Interfaces of Implantable Devices	3
BME 4370	Orthopaedic Biomechanics	3
BME 4470H	Biomolecular Engineering and Nanobiotechnology - Honors	3
BIOL_EN 4070	Bioelectricity	3
BIOL_EN 4231	Transport Phenomena in Materials Processing	3
CH_ENG 4319	Introduction to Polymers	3
BIOL_EN 4360	Biomanufacturing Technologies	3
BIOL_EN 4770	Biomedical Optics	3
BME 4970	Nuclear Magnetic Resonance and Magnetic Resonance Imaging	3
BME 4985	Bioengineering Design II	1-5
BME 4990	Undergraduate Research in Biomedical Engineering	1-6
BME 4995H	Undergraduate Honors Research in Biomedical Engineering	1-5

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
MATH 1500		5 MATH 1700	5
CHEM 1320		4 PHYSCS 2750	5
MAE 1100		3 CHEM 2100	3
ENGLSH 1000		3 BS / SS Economics Elective	3
			15
			16

Second Year			
Fall	CR	Spring	CR
BIOL_EN 2080		3 BIOL_EN 2000	2
MATH 2300		3 MATH 4100	3
PHYSCS 2760		5 BIOL_EN 2180	3
BIO_SC 2200		4 BIO_SC 2300	4
			ENGINR 1200
			3
			15
			15

Third Year			
Fall	CR	Spring	CR
ENGINR 2300		3 STAT 4710	3
ENGINR 2200		3 Physiology (from approved list)	5
ENGINR 2100		3 BIOL_EN 3180	3
Fluid Mechanics (from approved list)		3 BIOL_EN 4380	4
			Humanities or Fine Arts Elective (Ethics from Approved List)
			3
			12
			18

Fourth Year			
Fall	CR	Spring	CR
BIOL_EN 4980W		3 Track Requisite or Elective	3
Track Requisite or Elective		3 Track Requisite or Elective	3
Track Requisite or Elective		3 Track Requisite or Elective	3
Track Requisite or Elective		3 Track Requisite or Elective	3
BS/SS Elective (American Government or History)		3 BS/SS Elective	3
Humanities or Fine Arts Elective		3 H/FA Elective	3
			18
			18

Total Credits: 127

## Chemical Engineering

Kevin Gillis, Interim Chair  
 Department of Biomedical, Biological, & Chemical Engineering  
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<https://engineering.missouri.edu/academics/bbce/>

Chemical Engineering at the University of Missouri focuses on education and research involving industrial chemicals, materials, environmental, and life-science processes. We aim to be a reservoir of talent for the research, design, and management of complex process challenges. The Department strives to provide its faculty and students with an environment for research, learning, and professional growth.

The faculty of the MU Department of Chemical Engineering prepares its students for careers in a broad range of fields and to assume leadership roles in society through a well-rounded general and rigorous technical education. The technical curriculum challenges students with a broad education in Chemical Engineering theory and practice, and to improve their skills in problem solving, critical thinking, and appreciation of the relationship between technology and society. Innovative development and use of technology facilitates both research and teaching, creating a diverse, learning environment.

MU Chemical Engineering program aims to develop versatile professionals who can excel in a variety of career environments. Our curriculum is focused on the basic sciences, engineering topics, and problem solving and design. A flexible program offering environmental, material, and biochemical options allows our graduates to move into non-traditional careers as well as traditional chemical engineering. Additionally, we build teamwork and design skills by integrating team design projects, laboratories, and reports into our curriculum.

## Faculty

**Professor** P. J. Pinhero\*\*, Y. Xing\*\*

**Associate Professor** R.E. Rogers\*\*

**Assistant Professor** K. D. Hammond\*\*, B. D. Ulery\*\*, M.J. Young\*\*, Z. Yan\*\*

**Associate Teaching Professor** M. A. Myers\*, J. Park\*

**Assistant Teaching Professor** S.P. Christensen, V. K. Gupta

**Professor Emeritus** R. K. Bajpai\*, P. C. H. Chan\*, M. deChazal\*, T. K. Ghosh\*, R. H. Luecke\*, D. G. Retzlaff\*, D. S. Viswanath\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BSChE in Chemical Engineering (p. 548)
  - with emphasis in Biochemical (p. 549)
  - with emphasis in Environmental (p. 550)
  - with emphasis in Materials (p. 550)

### Advising and Scholarship Information Contact

Mary Myers (Director of Undergraduate Studies)  
W2010 Lafferre Hall  
(573) 882-1332

Teresa Pinhero  
W1025 Lafferre Hall  
(573) 882-2684

The educational objectives of the Chemical Engineering program at the University of Missouri are:

- Graduates will meet the expectations of employers of chemical engineers.
- Graduates will pursue advanced study if desired.
- Graduates will pursue leadership positions in their profession and/or communities.

## Exploratory Course

A student wanting to explore chemical engineering as a major should take CH\_ENG 1000 Introduction to Chemical Engineering.

## Graduate

- MS in Chemical Engineering (p. 551)
- PhD in Chemical Engineering (p. 552)

### Admissions and Advising Contacts:

Department of Chemical Engineering  
Reginald E. Rogers, Jr. (Director of Graduate Studies)  
E2404B Lafferre Hall  
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(573) 882-2684

## About Chemical Engineering

Established in 1906, MU Chemical Engineering has a long standing commitment to provide quality undergraduate and graduate education. Our department serves the discipline well by providing state of the art research in many cutting edge fields including batteries, biochemical engineering, biomaterials, carbon, ceramics, catalysis, corrosion, electrochemistry, environmental sciences, ionic liquids, materials science, computational modeling & simulation, nanomaterials, nuclear materials, polymers, separations, solar energy, and surface science.

## Faculty Research

Currently active research areas include batteries, biochemical engineering, biomaterials, carbon, ceramics, catalysis, corrosion, electrochemistry, environmental sciences, ionic liquids, materials science, computational modeling and simulation, nanomaterials, nuclear materials, polymers, separations, solar energy, and surface science.

## Facilities and Resources

There are excellent facilities for research students, including electron microscopy, ultra-high vacuum (UHV surface science, atomic force microscopy, a heterogeneous catalysis and reaction kinetics laboratory, a heat and mass transport laboratory, an air pollution monitoring and control laboratory, a biochemical engineering laboratory, a computational laboratory, and a transport properties phenomena laboratory. Excellent library facilities provide the latest domestic and international journals specific to chemical engineering and physical sciences research.

## Internal Funding

Research and teaching assistantships are available to qualified students for the entire year. The yearly stipend for graduate students ranges from \$17,500 to \$20,000, depending on the student's terminal degree. Assistantships also include a tuition waiver and health insurance. Academically qualified students may receive additional scholarship awards. Grant research assistantships and some industrial and Graduate School fellowships may also be available. Extremely well-qualified students may be eligible for the Robert and Dorcas Holtzsmith Graduate Fellowship.

RA and TA appointments allow for 12 credit hours of advanced study each semester. The applicant's academic record and research potential determine the financial assistance offered. Students who receive financial

assistance are expected to continue their appointment during the summer session as well, as these appointments are year long positions.

## BScE in Chemical Engineering

### Degree Program Description

The curriculum provides a well-rounded general and rigorous technical education in order to hone an appreciation of the relationship between technology and society. The technical curriculum focuses on the basic sciences, as well as Chemical Engineering theory and practice. Throughout the curriculum, problem solving, design, critical thinking and teamwork skills are built by integrating team-based design projects, laboratories, and reports. Our graduates work in traditional chemical engineering areas such as the petroleum and chemical industries, as well as microelectronics, pharmaceuticals, materials, polymers, environmental protection, consumer products and engineering consulting. Our graduates also pursue careers in business management or government as well as advanced studies in medicine, law, business, basic sciences and other engineering disciplines.

### Major Program Requirements

Each graduate must complete the required curriculum designed to demonstrate knowledge and integration of chemical engineering science and practice using analytical, computational, and experimental techniques. In addition, each graduate must have a comprehensive background in advanced chemistry. Graduates have a detailed working knowledge of the entire spectrum of chemical engineering activities.

All requirements listed below are in addition to University graduation requirements, including University general education (p. 36) and College of Engineering requirements. Students may also add an emphasis in the Biochemical (p. 549), Environmental (p. 550), or Materials (p. 550) areas by completing that emphasis area's requirements.

### Major core requirements

#### Required entry-level courses

MATH 1500	Analytic Geometry and Calculus I	5
MATH 1700	Calculus II	5
MATH 2300	Calculus III	3
MATH 4100	Differential Equations	3
PHYSICS 2750	University Physics I	5
PHYSICS 2760	University Physics II	5
CHEM 1320	College Chemistry I	4
CHEM 1330	College Chemistry II	4
CHEM 2100	Organic Chemistry I	3
CHEM 2110	Organic Chemistry II	3
CHEM 2130	Organic Laboratory I	2
STAT 4710	Introduction to Mathematical Statistics	3

#### Chemical engineering core

CH_ENG 1000	Introduction to Chemical Engineering	2
CH_ENG 2225	Mass and Energy Balance	3
CH_ENG 2226	Engineering Process Computations	3
CH_ENG 3233	Chemical Engineering Fluid Dynamics	3
CH_ENG 3234	Momentum, Heat, and Mass Transfer	4
CH_ENG 3235	Separation Processes	3
CH_ENG 3243	Chemical Engineering Laboratory I <sup>a</sup>	3
CH_ENG 3261	Chemical Engineering Thermodynamics I	3

CH_ENG 3262	Chemical Engineering Thermodynamics II	3
CH_ENG 4363	Chemical Reaction Engineering and Technology	3
CH_ENG 4370	Process Control	3
CH_ENG 4385	Chemical Engineering Design I	3
CH_ENG 4980	Process Synthesis and Design <sup>a, b</sup>	3

#### Additional requirements

Chemical engineering electives	9
Engineering technical elective	3
Humanities	9
Social/behavioral sciences	6
2000 level or greater course in humanities or social/behavioral sciences as part of 18 CR of humanities and social sciences	
Economics elective from approved list	3
Chemistry elective from approved list	3
One technical elective	3
One general elective	3

a Writing-intensive

b Satisfies capstone requirement

#### Approved Economics Electives

ABM 1041	Applied Microeconomics	3
ABM 1042	Applied Macroeconomics	3
ECONOM 1014	Principles of Microeconomics	3
ECONOM 1015	Principles of Macroeconomics	3

#### Approved Chemistry Electives

BIOCHM 3630	General Biochemistry	3
BIOCHM 4270	Biochemistry (I)	3
BIOCHM 4272	Biochemistry (II)	3
CHEM 3200	Quantitative Methods of Analysis with Lab	4
CHEM 4330	Physical Chemistry II	3
CHEM 4340	Physical Chemistry Laboratory	3
CHEM 4010	Advanced Chemistry Laboratory	3
CHEM 4200	Instrumental Methods of Analysis with Lab	3
CHEM 4160	Intermediate Organic Chemistry	3
CHEM 4170	Medicinal Chemistry	3
CHEM 4280	Environmental Chemistry	3
CHEM 4400	Inorganic Chemistry <sup>a</sup>	3
CHEM 4490	Physics and Chemistry of Materials <sup>b</sup>	3
CHEM 4600	Introduction to Radiochemistry with Lab	3

a CH\_ENG 3261 and CH\_ENG 3262 satisfy the semester physical chemistry prerequisite.

b CHEM 4490 is the same as BIOL\_EN 4480, BME 4480, NU\_ENG 4319, and PHYSICS 4190.

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
MATH 1500		5 MATH 1700	5
CHEM 1320		4 CHEM 1330	4
CH_ENG 1000		2 PHYSCS 2750	5
ENGLSH 1000		3 CH_ENG 2225	3
Approved history/poli. sci. elective		3	
		17	17

Second Year			
Fall	CR	Spring	CR
MATH 2300		3 MATH 4100	3
CHEM 2100		3 CHEM 2110	3
PHYSCS 2760		5 CHEM 2130	2
CH_ENG 2226		3 CH_ENG 3262	3
CH_ENG 3261		3 Humanities or social/behavioral sciences	3
		17	14

Third Year			
Fall	CR	Spring	CR
CH_ENG 3233		3 CH_ENG 3234	3
CH_ENG 3235		3 CH_ENG 4370	3
STAT 4710		3 Chemistry elective	3
Economics elective		3 Engineering technical elective	3
Technical elective		3 Humanities or social/behavioral sciences	3
		15	15

Fourth Year			
Fall	CR	Spring	CR
CH_ENG 3243		3 CH_ENG 4980	3
CH_ENG 4363		3 Chemical engineering elective	3
CH_ENG 4385		3 Chemical engineering elective	3
Chemical engineering elective		3 General elective	3
Humanities or social/behavioral sciences		3 Humanities or social/behavioral sciences	3
		15	15

Total Credits: 125

## BSCHE in Chemical Engineering with Emphasis in Biochemical

### Degree Program Description

The biochemical emphasis builds on the core Chemical Engineering curriculum (p. 548) to create expertise in chemical reactions associated with biological processes. Students achieving this emphasis area will be exposed to basic concepts of living systems, metabolism, biological polymers, hormones, and basic genetics through courses in biology and biochemistry, as well as biomass, enzyme, yeast, and other biochemical processes, including the associated industrial operations. Students completing this emphasis will be well-poised for careers in biomedical engineering, human or veterinary medicine, pharmaceuticals, and agricultural/food engineering. Students will also be in a strong position to pursue graduate degrees in biological or biomedical engineering, dentistry, or human or veterinary medicine.

### Major Program Requirements

Students must complete all BSChE requirements (p. 548), including the emphasis area requirements below.

#### Emphasis Area Requirements

BIO_SC 1500	Introduction to Biological Systems with Laboratory	5
BIOCHM 4270	Biochemistry (I) <sup>a</sup>	3
BIOCHM 4272	Biochemistry (II)	3
CH_ENG 4315	Principles of Biochemical Engineering	3
CH_ENG 4316	Biomass Refinery Operations	3

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
MATH 1500		5 MATH 1700	5
CHEM 1320		4 CHEM 1330	4
CH_ENG 1000		2 PHYSCS 2750	5
ENGLSH 1000		3 CH_ENG 2225	3
Approved history/poli. sci. elective		3	
		17	17

Second Year			
Fall	CR	Spring	CR
MATH 2300		3 MATH 4100	3
CHEM 2100		3 CHEM 2110	3
PHYSCS 2760		5 CHEM 2130	2
CH_ENG 2226		3 CH_ENG 3262	3
CH_ENG 3261		3 Humanities or social/behavioral sciences	3
		17	14

Third Year			
Fall	CR	Spring	CR
STAT 4710		3 CH_ENG 3234	4
CH_ENG 3233		3 CH_ENG 4370	3
CH_ENG 3235		3 BIOCHM 4272	3
BIO_SC 1500		5 Economics elective	3
BIOCHM 4270		3 Humanities or social/behavioral sciences	3
		17	16

Fourth Year			
Fall	CR	Spring	CR
CH_ENG 3243		3 CH_ENG 4315	3
CH_ENG 4316		3 CH_ENG 4980	3
CH_ENG 4363		3 Chemical engineering elective	3
CH_ENG 4385		3 Engineering technical elective	3
Humanities or social/behavioral sciences		3 Humanities or social/behavioral sciences	3
		15	15

Total Credits: 128

## BSCHE in Chemical Engineering with Emphasis in Environmental

### Degree Program Description

The environmental emphasis builds on the core Chemical Engineering curriculum (p. 548) to provide students an opportunity to explore courses centered around environmental engineering, wastewater treatment, and environmental regulation. A major focus of this emphasis is to prepare students for careers in policy, industry, or research. A student who completes this emphasis will also be in a position to pursue a graduate degree in programs focused on environmental science and engineering.

### Major Program Requirements

Students must complete all BSChE requirements (p. 548), including the emphasis area requirements below.

#### Emphasis Area Requirements

CV_ENG 3200	Fundamentals of Environmental Engineering	4
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#### Five courses from the following list

BIOL_EN 4150	Soil and Water Conservation Engineering	3
CHEM 4280	Environmental Chemistry <sup>a</sup>	3
CH_ENG 4220	Hazardous Waste Management	3
CH_ENG 4285	Pollution Prevention	3
CH_ENG 4311	Chemodynamics	3
CH_ENG 4312	Air Pollution Control	3
CV_ENG 3250	Pollutant Fate and Transport	3
CV_ENG 4250	Environmental Regulatory Compliance	3
ENV_SC 3290	Soils and the Environment	3
LAW 5545	Environmental Law	3
NU_ENG 4315	Energy Systems and Resources	3

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
MATH 1500		5 MATH 1700	5
CHEM 1320		4 CHEM 1330	4
CH_ENG 1000		2 PHYSCS 2750	5
ENGLSH 1000		3 CH_ENG 2225	3
Approved history/poli. sci. elective		3	
		17	17

Second Year			
Fall	CR	Spring	CR
MATH 2300		3 MATH 4100	3
CHEM 2100		3 CHEM 2110	3
PHYSCS 2760		5 CHEM 2130	2
CH_ENG 2226		3 CH_ENG 3262	3
CH_ENG 3261		3 Humanities or social/behavioral sciences	3
		17	14

Third Year			
Fall	CR	Spring	CR
STAT 4710		3 CH_ENG 3234	3
CH_ENG 3233		3 CH_ENG 4370	3
CH_ENG 3235		3 CV_ENG 3200	4
Chemistry elective		3 Humanities or social/behavioral sciences	3
Economics elective		3 Humanities or social/behavioral sciences	3
		15	16

Fourth Year			
Fall	CR	Spring	CR
CH_ENG 3243		3 CH_ENG 4220	3
CH_ENG 4312		3 CH_ENG 4980	3
CH_ENG 4363		3 Environmental sci./eng. elective	3
CH_ENG 4385		3 Environmental sci./eng. elective	3
CV_ENG 4250		3 Humanities or social/behavioral sciences	3
		15	15

Total Credits: 126

## BSCHE in Chemical Engineering with Emphasis in Materials

### Degree Program Description

The materials emphasis builds on the core Chemical Engineering curriculum (p. 548) to include courses of interest to students who wish to pursue careers and/or interests in materials science and solid-state physics. The emphasis area requirements cover basic topics in materials science, after which the student is asked to choose at least one course covering a more specific area of materials: ceramics, polymers, biological materials, or composites. Students are then free to choose electives in other areas, including optical materials, semiconductors, advanced materials, structural materials, and materials characterization. Students selecting the materials emphasis have all the advantages of an education in chemical engineering along with specialized knowledge of materials, giving them a valuable base from which to build a career.

### Major Program Requirements

Students must complete all BSChE requirements (p. 548), including the emphasis area requirements below.

#### Emphasis Area Requirements

ENGINR 1200	Statics and Elementary Strength of Materials	3
ENGINR 2200	Intermediate Strength of Materials	3
CH_ENG 3075	Introduction to Materials Engineering	3
Chose one course from List A		3
Choose two courses from List A or List B		6

#### List A

CH_ENG 4232	Ceramic Materials and Processing
CH_ENG 4319	Introduction to Polymers
BIOL_EN 3170	Biomaterials
MAE 4250	Composite Materials

#### List B

BIOL_EN 4170	Biomaterials Interfaces of Implantable Devices
BIOL_EN 4231	Transport Phenomena in Materials Processing
BIOL_EN 4480	Physics and Chemistry of Materials <sup>a</sup>
CH_ENG 4317	Chemical Processing in Semiconductor Device
CV_ENG 4104	Pavement Materials and Design
CV_ENG 4300	Advanced Structural Steel Design
ECE 3610	Semiconductors and Devices
ECE 4630	Introduction to Optical Electronics
ECE 4880	Micro/Nano Systems
IMSE 4560	Introduction to Rapid Prototyping
MAE 2200	Engineering Materials
MAE 4220	Materials Selection
MAE 4230	Nanomaterials
MAE 4270	Nondestructive Evaluation of Materials
MAE 4600	Advanced Mechanics of Materials
PHYSICS 4230	Scanning and Transmission Electron Microscopy and Microanalysis
PHYSICS 4620	Introduction to Materials Science
PHYSICS 4650	Modern Condensed Matter Physics

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
MATH 1500		5 MATH 1700	5
CHEM 1320		4 CHEM 1330	4
CH_ENG 1000		2 PHYSICS 2750	5
ENGLSH 1000		3 CH_ENG 2225	3
Approved history/poli. sci. elective		3	
		17	17

Second Year			
Fall	CR	Spring	CR
MATH 2300		3 MATH 4100	3
CHEM 2100		3 CHEM 2110	3
PHYSICS 2760		5 CHEM 2130	2
CH_ENG 2226		3 CH_ENG 3262	3
CH_ENG 3261		3 Humanities or social/behavioral sciences	3
		17	14

Third Year			
Fall	CR	Spring	CR
STAT 4710		3 CH_ENG 3075	3
CH_ENG 3233		3 CH_ENG 3234	4
CH_ENG 3235		3 CH_ENG 4370	3
ENGINR 1200		3 ENGINR 2200	3
Economics elective		3 Humanities or social/behavioral sciences	3
		15	16

Fourth Year			
Fall	CR	Spring	CR
CH_ENG 3243		3 CH_ENG 4980	3
CH_ENG 4363		3 Materials elective	3
CH_ENG 4385		3 Materials elective	3
Chemistry elective		3 Humanities or social/behavioral sciences	3
Materials elective		3 Humanities or social/behavioral sciences	3
		15	15

Total Credits: 126

## MS in Chemical Engineering

### Degree Requirements

- The student's program must include a minimum of 30 hours of graduate credit beyond the bachelor's degree (or its equivalent).
- At least 3 credits must be in 8000+ level courses, not including special readings, seminar, or research; and no more than 40% of the total can be research-based.
- The candidate must have completed all graduate work attempted at MU with a GPA of 3.0 or better.
- Each candidate must pass a final examination to demonstrate mastery of the fundamental principles of Chemical Engineering.
- Students must present a thesis.
- Students must be enrolled.

Core Coursework			12
CH_ENG 8336	Advanced Heat and Momentum Transfer		3
CH_ENG 8337	Advanced Mass Transfer		3
CH_ENG 8451	Advanced Chemical Engineering Thermodynamics I		3
CH_ENG 8463	Chemical Reaction Engineering Science		3
Elective Coursework			9
7000+	CH_ENG, other Engineering, Hard or Biological Sciences*		>=6
MATH 7000+ or CH_ENG 7226	Not undergraduate level content		>=3
Additional Requirements			9
CH_ENG 8087	Seminar in Chemical Engineering		1
CH_ENG 8990	Research-Masters Thesis in Chemical Engineering		8
Total Credit Hours			30

\* Electives must be approved by student's advisor and Graduate Committee to complement their research.

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission consideration: the requirements of the M.S. in Chemical Engineering program (<https://gradschool.missouri.edu/degreecategory/chemical-engineering/>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/apply/>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, eligibility and application process. Before official admissions to the University of



Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

#### Application Deadlines

- Fall Deadline: March 15
- With change of degree within MU: May 15
- Spring Deadline: October 15
- With change of degree within MU: November 1

#### Required Application Materials

##### Chemical Engineering Program

- Résumé
- Transcript
- Statement of Purpose
- 3 Letters of Reference
- GRE scores (School Code: 6875; Dept. Code: 1001)
- TOEFL (if you are an international student)
- Any additional documents requested by the Graduate School

## PhD in Chemical Engineering

- Degree Requirements (p. 552)
- Admissions (p. 552)

### Degree Requirements

- The student's program must include a minimum of 72 hours of graduate credit beyond the bachelor's degree (or its equivalent).
- At least 15 credits must be in 8000+ level courses, not including special readings, seminar, or research; and no more than 4-% of the total can be research-based.
- The candidate must have completed all graduate work attempted at MU with a GPA of 3.0 or better.
- Each candidate must pass a final examination to demonstrate mastery of the fundamental principles of Chemical Engineering.
- Students must present a dissertation
- Students must be enrolled.

<b>Core Coursework</b>	<b>12</b>
CH_ENG 8336	Advanced Heat and Momentum Transfer 3
CH_ENG 8337	Advanced Mass Transfer 3
CH_ENG 8451	Advanced Chemical Engineering Thermodynamics I 3
CH_ENG 8463	Chemical Reaction Engineering Science 3
<b>Elective Coursework</b>	<b>15</b>
7000+ CH_ENG, Other Engineering, Physical, Chemical, or Biological Sciences. <small>Electives must be approved by student's thesis advisor and thesis committee.</small>	9
8000+ CH_ENG, Other Engineering, Physical, Chemical, or Biological Sciences. <small>Electives must be approved by student's thesis advisor and thesis committee.</small>	6
<b>Additional Requirements</b>	<b>45</b>
CH_ENG 8087	Seminar in Chemical Engineering 1
CH_ENG 9990	Research-Doctoral Dissertation in Chemical Engineering 44
<b>Total Credit Hours</b>	<b>72</b>

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission consideration: the requirements of the PhD. in Chemical Engineering program (<https://gradschool.missouri.edu/degrecategory/chemical-engineering/>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/apply/>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

#### Application Deadlines

- Fall Deadline: March 15
- With change of degree within MU: May 15
- Spring Deadline: October 15
- With change of degree within MU: November 1

#### Required Application Materials

##### Chemical Engineering Program

- Résumé
- Transcript
- Statement of Purpose
- 3 Letters of Reference
- GRE scores (School Code: 6875; Dept. Code: 1001)
- TOEFL (if you are an international student)
- Any additional documents requested by the Graduate School

## Civil Engineering

Praveen Edara, Chair  
 Department of Civil & Environmental Engineering  
 E2509 Lafferre Hall  
 (573) 882-1900  
<http://engineering.missouri.edu/civil/>

Civil engineers are responsible for planning, design, construction, and operation of public and private facilities essential to modern life; including infrastructure for transportation of people and goods, water supply and water treatment, waste disposal, communications, and energy. Civil engineers are problem solvers, meeting societal challenges pertaining to infrastructure, the environment, drinking water supply, energy, resilience, national security, traffic congestion, smart cities, urban redevelopment, and sustainable community planning.

### Faculty

**Professor** J. J. Bowders Jr\*\*, P.E., W. G. Buttler\*, Z. Chen\*\*, P.E., B. Deng\*\*, V. S. Gopalaratnam\*, P.E., Z. Hu\*\*, P.E., H. A. Salim\*\*, P.E., C. C. Sun\*\*, P.E., Esq., G. Washer\*\*, P.E., P. K. Edara\*\*, P.E.

**Associate Professor** M. M. Fidalgo\*\*, T. C. Matisziw\*\*, S. L. Orton\*\*, P.E., B. L. Rosenblad\*\*, P.E., K. M. Trauth\*\*, P.E.

**Assistant Professor** Y. Adu-Gyamfi\*, S. Anowar\*, B. Wang\*

**Adjunct Faculty** H. Brown\*, P.E., A. Elsisi\*, C. J. Nemmers\*, P.E., A. Saucier\*

**Courtesy Faculty** R. Rogers\*, N. Aloysius\*

**Professor Emeritus** T. E. Clevenger\*, S. A. Kiger\*, P.E., M. R. Virkler\*, P.E., S. Banerji\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BSCiE in Civil Engineering (p. 554)

The Department of Civil and Environmental Engineering offers a Bachelor of Science in Civil Engineering (BSCiE). Most graduates take the Fundamentals of Engineering Exam. Graduates are encouraged to become registered professional engineers and to continue their education throughout their careers.

## Departmental Honors

Students who will graduate with a 3.0 GPA or higher are eligible for the College of Engineering honors program. Interested students should ask their advisor for details about this highly rewarding program that can include earning a salary for research performed under the guidance of a faculty member, and eligibility for dual enrollment in graduate classes.

## Educational Mission

The educational objectives of the Bachelor of Science in Civil Engineering describe the expected accomplishments of graduates after graduation. It is expected that nearly all students completing the requirements of the Bachelor of Science in Civil Engineering will engage in the life-long learning necessary to advance professionally in the field of civil engineering and contribute to society and the profession through involvement in professional or other service activities.

It is expected that most graduates will

1. Enter the profession of civil engineering with proficiency in environmental engineering, geotechnical engineering, structural engineering, transportation engineering and water resources engineering. In doing so, these students will
  - a. Take and pass the Fundamentals of Engineering exam
  - b. Gain employment as an engineer-in-training
  - c. Take and pass the Professional Engineers Exam, and
  - d. Be licensed to practice engineering in one or more states

It is expected that some graduates will

1. Begin careers in civil engineering-related industries, especially construction and other careers not requiring professional licensure
2. Begin and complete graduate study in civil engineering at MU or other Carnegie doctoral extensive universities, and
3. Begin and complete graduate/professional study in other associated fields

The following list of outcomes describes what graduates are expected to know and to be able to do when they complete the program. At graduation, graduates will have:

- Ability to apply knowledge of mathematics through differential equations, calculus-based physics, chemistry and at least one additional area of basic science
- Ability to conduct laboratory experiments and to critically analyze and interpret experimental data

- Ability to perform civil engineering design by means of design experiences integrated throughout the professional component of the curriculum
- Ability to function on teams that must integrate contributions from different areas of civil engineering toward the solution of multidisciplinary projects
- Ability to identify, formulate and solve civil engineering problems
- Understanding of professional practice issues in civil engineering including professional and ethical responsibility
- Ability to communicate effectively
- The broad education necessary to understand the impact of civil engineering solutions in a global economic, environmental, and societal context
- Recognition of the need for, and an ability to engage in, life-long learning
- Knowledge of contemporary issues as they relate to civil engineering problems and solutions
- Ability to use the techniques, skills and modern engineering tools necessary for civil engineering practice, particularly in areas of environmental/water resources, geotechnical, structural and transportation engineering

## Graduate

- MS in Civil Engineering (p. 556)
- PhD in Civil Engineering (p. 556)

<http://engineering.missouri.edu/civil/>

**Director of Graduate Studies:** Praveen Edara

## About the Program

Civil engineering education at MU began in 1856. Graduate programs offered by the department prepare students for leadership positions in academia, research and advanced practice engineering careers. Major program areas include: structural mechanics, structural engineering and materials, transportation engineering, geotechnical and geoenvironmental engineering, environmental engineering, hydrology and water resources engineering.

## Areas of Study

**Structural Mechanics, Structural Engineering and Materials.** Study areas: fracture and failure of composites, model-based simulation, inelastic response of materials and structures, bridge engineering, linear and nonlinear structural dynamics, explosion resistant structural design, timber engineering, microstructure of porous materials, concrete and aggregate durability, advanced fiber reinforced composites for construction and nondestructive structural health evaluation

**Environmental Engineering.** Study areas: water and air pollution control, water purification, wastewater treatment, environmental remediation, hazardous and solid waste treatment and management, membrane processes, implication and application of environmental nanotechnology and renewable energy issues. Other areas of research include the application of physical, chemical and biological principles to design of water supply systems, pollution control facilities and fate and transport of contaminants in soils and groundwater.

**Geotechnical and Geoenvironmental.** Study areas: strength, deformation and flow properties of earthen materials and application of this understanding to foundation engineering, slope stability analyses,

earth structures design, pavement design and performance, and geoenvironmental challenges. Research areas include: unsaturated soil mechanics, soil improvement techniques, geosynthetics, landfills and waste containment, stabilization and maintenance of earth slopes, in situ soil cleanup technologies, geotechnical earthquake engineering, nondestructive geophysical technologies for subsurface applications, satellite – and ground-based remote sensing risk analysis and reliability-based design.

**Transportation Engineering.** Study areas: traffic engineering, intelligent transportation systems, highway safety, network modeling and simulation, geographic information systems, security and evacuations, transportation planning, traffic flow theory, highway design, intersection operations, bicycle and pedestrian facilities, infrastructure management, driver behavior, airport engineering, transportation legal issues, artificial intelligence and advanced computing applications in transportation.

**Water Resources Engineering.** Study areas: hydrologic, hydraulic, regulatory/public policy and geographic information system applications for transportation, surface water quality and storm water management and decision making.

## Facilities and Resources

The department has laboratories for experimental research in structural engineering, materials, geotechnical and geoenvironmental engineering, environmental engineering, and transportation engineering.

**Structural Testing.** Several computer-controlled electrohydraulic testing machines and associated instrumentation are available in the high-bay structural engineering and materials engineering laboratories. The laboratories are serviced by a 5-ton overhead crane. An additional structural testing facility located south of the campus houses a 100-foot by 20-foot structural floor with anchor points on a 4-foot-square grid. This high-bay facility is serviced by a 10-ton overhead crane. There is also a materials laboratory for concrete mix design and evaluation.

**Geotechnical Testing.** The laboratories house state-of-the-art permeability, consolidation, triaxial, geosynthetics, soil dynamics and unsaturated soil mechanics testing equipment and is home to the Missouri Soil Characterization Laboratory. Additional laboratories include facilities and equipment for large-scale model testing of slopes, piles and other geotechnical systems, including a 10-acre geotechnical experiment site.

**Environmental Labs.** The laboratories are supplied with analytical equipment for the complete physical, chemical and microbiological analysis of environmental samples. Additional capacities include membrane fabrication and characterization facilities, and chemical reactors and bioreactors for contaminant removal and/or degradation.

**Transportation Laboratory.** The laboratories include capabilities in advanced surveillance and video image processing, transportation modeling and simulation, Geographical Information Systems, traffic management and control, driver behavior, and safety, and ZouSim (bicycle, wheelchair, and driving simulator).

**Missouri Asphalt Pavement and Innovation Laboratory (MAPIL).** Advanced asphalt binder and mixture tests, including bending beam rheometer, dynamic shear rheometers (2), extraction and recovery apparatus, mixture creep, fatigue, rutting and fracture tests, compaction and fabrication equipment, advanced numerical modeling workstations and software, and an innovation center focusing on sustainable and

resilient infrastructure development and intelligent infrastructure sensing and data analytics.

## Funding

In addition to assistantships sponsored by the National Science Foundation (NSF), the US Environmental Protection Agency, Federal Highway Administration and other governmental agencies, several graduate assistantships are available each year. The assistantships are primarily research appointments; however, the Department does make a limited number of teaching assistantship appointments. Most assistantships offer tuition waivers and health insurance.

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## BSCiE in Civil Engineering

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### Degree Program Description

Civil engineers are responsible for design, construction, and operation of our public and private infrastructure, for protecting our natural resources, and for preserving the health and safety of the general public. Civil engineers are vital to our nation's economic vitality as they provide infrastructure for safe, efficient, and sustainable transportation of people and goods. The curriculum includes fundamental coursework in math and basic sciences, specialized coursework covering the subdisciplines of structural engineering, transportation engineering, geotechnical engineering, environmental engineering, and water resources engineering, as well as general education courses in the humanities and social sciences. Graduates are well prepared to become licensed Professional Engineers. The BS degree in civil engineering is accredited by the Engineering Commission of ABET. Graduates are commonly employed by private firms that provide design and consulting services, by construction contractors that build our infrastructure, and by government agencies responsible for specific components of the nation's infrastructure. Some graduates opt to further specialize within the civil engineering profession by pursuing graduate degrees.

### Major Program Requirements

Engineering topics start with basic computer and graphics courses. These are followed with basic engineering science courses, which ground the students in the fundamentals necessary for future course work and a sophomore design experience.

Engineering topics courses in the junior year provide students with the basic fundamentals in the areas of environmental engineering, geotechnical engineering, hydrology/water resources, structural engineering, and transportation/traffic engineering. Many of these courses contain elements of civil engineering design. Elective courses in the senior year enable students to either begin to specialize within or to maintain a broad educational background across the civil engineering discipline.

Design and communication skills are integrated throughout the curriculum culminating in a capstone design project, which is usually supplied by consultants or governmental agencies. This 'final' course requires working in teams, making oral and written presentations, and completing a final design report. Oversight, interaction, and evaluation are provided by practicing engineers from industry and governmental organizations.

Students earning a Bachelor of Science in Civil Engineering are required to complete all University general education (<http://catalog.missouri.edu/academicdegreerequirements/generaleducationrequirements/>), University undergraduate requirements (<http://catalog.missouri.edu/>)

academic degree requirements/university requirements/), degree, and major requirements, including selected foundational courses, which may fulfill some University general education requirements. Approximately one-third of the course work for the degree is completed in engineering or professionally related courses.

## Major Core Requirements

<b>Math</b>		<b>16</b>
MATH 1500	Analytic Geometry and Calculus I	5
MATH 1700	Calculus II	5
MATH 2300	Calculus III	3
MATH 4100	Differential Equations	3
<b>Basic Sciences</b>		<b>17-18</b>
CHEM 1320	College Chemistry I	4
PHYSICS 2750	University Physics I	5
PHYSICS 2760	University Physics II	5-6
or CHEM 1330 & CHEM 2100	College Chemistry II and Organic Chemistry I	
Basic Science Elective		3
<b>Engineering Topics-General</b>		<b>17</b>
INFOTC 1040	Introduction to Problem Solving and Programming	3
ENGINR 1100	Engineering Graphics Fundamentals	2
ENGINR 1200	Statics and Elementary Strength of Materials	3
ENGINR 2200	Intermediate Strength of Materials	3
Engineering topics elective		6
Select two of the following:		
(a)		
ENGINR 2100	Circuit Theory for Engineers	3-4
or BIOL_EN 4380	Applied Electronic Instrumentation	
(b)		
ENGINR 2300	Engineering Thermodynamics	3
or CH_ENG 3261	Chemical Engineering Thermodynamics I	
(c)		
CV_ENG 2080	Introduction to Dynamics	3
or MAE 2600	Dynamics	
<b>Civil Engineering Topics</b>		
CV_ENG 3010	Decision Methods for Civil Engineering Design	3
CV_ENG 3100	Fundamentals of Transportation Engineering	4
CV_ENG 3200	Fundamentals of Environmental Engineering	4
CV_ENG 3300	Structural Analysis I	4
CV_ENG 3312	Reinforced Concrete Design	3
or CV_ENG 3313	Structural Steel Design	
CV_ENG 3400	Fundamentals of Geotechnical Engineering	4
CV_ENG 3600	Civil Engineering Materials	4
CV_ENG 3700	Fluid Mechanics	3
CV_ENG 3702	Hydrology	4
CV_ENG 4980	Civil Engineering Systems Design	3
CV_ENG Electives		15
<b>Advisor-approved electives</b>		<b>3</b>

## Accelerated BSCiE to MS

Students pursuing a degree in BSCiE in Civil Engineering have the option of accelerating into the MS in Civil Engineering. This will give students the opportunity to complete the BS and MS degree within a shorter amount of time versus completing each degree separately.

Students in the MS program, traditional or accelerated, are required to take a minimum of 30 hours (transportation area) or 31 hours of graduate credit beyond the bachelor's degree; in the accelerated program, up to 12 credit hours can be taken as part of their undergraduate degree and also counted towards the MS, requiring only an additional 18 or 19 credit hours after the bachelor's degree.

The requirements for the MS degree are the same as the traditional MS degree program (p. 556).

### Program structure

Total Credits Required for Graduation

- Total Undergraduate Credits: 125
- Total of Dual Credits: 12
- Total Graduate Credits: 30-31

Residency Requirements: one academic year as full time graduate student.

Core Courses required to complete MS (at least 15 must be 8000 level or above).

### Admissions

The application deadline for the MS accelerated program will be March 1st for fall admission and October 1st for spring admission. Undergraduate seniors will be considered for the program, but depending on the number and level of courses taken, the length of their program may be extended. An individual plan of study will be developed for students applying later than the second semester of their junior year.

In order for a student to participate in the accelerated program they must:

- Have completed at least 90 credit hours towards a bachelor's degree.
- Maintain a minimum GPA of 3.0 by the end of their junior year.
- Identify a faculty member in the area of interest that can serve as graduate advisor.
- Meet admission criteria for the MS set by each program area within the department.

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
MATH 1500		5 MATH 1700	5
CHEM 1320		4 PHYSICS 2750	5
ENGINR 1100		2 S BS or HS FA**	3
ENGLSH 1000		3 Basic science elective	3
S BS or HS FA**		3	
		17	16
Second Year			
Fall	CR	Spring	CR
MATH 2300		3 MATH 4100	3

ENGINR 1200	3	PHYSICS 2760	5
CV_ENG 3010	3	ENGINR 2200	3
CV_ENG 3200	4	CV_ENG 3100	4
S BS or HS FA**	3		
16		15	

Third Year			
Fall	CR	Spring	CR
CV_ENG 3300	4	INFOTC 1040	3
CV_ENG 3400	4	CV_ENG 3702	4
CV_ENG 3600	4	CV_ENG 3312 or 3313	3
CV_ENG 3700	3	Civil Engineering Elective	3
undefined		S BS or HS FA**	3
15		16	

Fourth Year			
Fall	CR	Spring	CR
Engineering Topics Elective	3	CV_ENG 4980	3
Engineering Topics Elective	3	S BS or HS FA**	3
Civil Engineering Elective	6	Civil Engineering Electives	6
S BS or HS FA**	3	Advisor Approved Elective	3
15		15	

Total Credits: 125

\* Denotes General Education Requirements

\*\* S BS = Social Behavior Science; HS FA = Humanities Studies/Fine Arts

## MS in Civil Engineering

### Degree Requirements

A student's program must include a minimum of 30 hours (transportation area) or 31 hours of graduate credit beyond the bachelor's degree (or its equivalent). A total of 15 hours of the 30-hour minimum must be selected from courses at the 8000 or 9000 level. No more than 40 percent of the 30-hour credit requirement can be satisfied by a combination of special investigations, research (CV\_ENG 8990), readings and/or problems courses. The student's GPA must be 3.0 or greater. Students should consult with their academic advisor to ensure all requirements are satisfied.

- 8 or more courses (3 credit hours each) at the appropriate level
- Up to 6 hours of research (CV\_ENG 8990)
- One or more 1-hour seminars associated with your specialty area (seminar is not required in all areas; see your academic advisor for details).

### Thesis/Non-Thesis Requirements

All candidates for the Master of Science degree are required to complete a substantial independent effort reflecting some measure of creativity and/or originality and to produce evidence of such effort. A final oral examination is required of all master's candidates. Approximately two weeks before this examination, a candidate must submit to an examining committee a thesis, a formal report or a design of professional quality applying the knowledge gained in course work to the solution of an engineering problem. Students who receive research appointments or traineeships are required to submit a thesis. Formal or design report is at the discretion of the advisor.

Academic credit allowed for this portion of a student's program of study shall be for 3 credit hours for a report and 6 credit hours for a thesis.

## Admissions

Priority admission and funding consideration are given to applications received by February 15/September 15. Applications submitted after February 15/September 15 will be considered, with preference going to those received by May 1/December 1. Prospective students applying after May 1/December 1 will be considered for fall/spring admission on a case by case basis.

### Admission Criteria

- Minimum GPA: 3.0 in last 2 years of coursework. Note: Lower than 3.0 GPA requires special action and substantiation such as good test scores on the GRE or other recognized examinations.
- BS in engineering. Applicants with BS degrees in related fields may be considered for admission. If admitted, non-engineers are required to complete remedial courses as determined by their advisor and advisory committee.
- GRE test is required but no minimum score set. Typical acceptance scores: around 300 for Verbal + Quantitative and 3.0 for Analytical.
- Minimum TOEFL and IELTS scores for international students: See language requirements set by the Graduate School.

### Required Application Materials

Upload to the G (<https://applygrad.missouri.edu/apply/>) *raduate School*:

- All required Graduate Admissions documents
- 3 Letters of Recommendation (at least two from faculty members who have taught or advised you)
- GRE scores
- Résumé
- Statement of Purpose

### Financial Aid from the Program

If you wish to be considered for financial aid, please complete the financial aid section of the departmental application.

## PhD in Civil Engineering

### Degree Requirements

PhD programs are committee administered and tailored to fit the needs of each individual student. A minimum of 72 credit hours, including the credit hours taken during the MS program beyond the bachelor's degree, are required. Students who received the MS degree from other than MU may transfer up to 30 hours of credit from their MS degree. The candidate must pass a comprehensive examination and submit and defend a dissertation at a final oral examination.

### Residency Requirement

A student must complete at least two nine-hour semesters or three six-hour semesters in an 18-month period at MU. All courses taken to satisfy the residency requirement must be approved by the student's doctoral program committee. Correspondence and off-campus courses may not be counted toward the residency requirements.

## Qualifying for Candidacy

Students are accepted for advisement upon CE Graduate Admissions Committee review. Formal acceptance to the PhD program is based on a qualifying examination during the first year of post-master's work.

The *Qualifying Examination* is required to determine the formal acceptance to candidacy for the PhD. degree and is based on a written and/or oral examination administered by faculty members in the student's area of concentration. The student, upon passing this examination, will be advised on the program of coursework that should be taken to prepare for the PhD. degree.

## Comprehensive Examination Process

Candidacy for a doctoral degree is established by passing the comprehensive examination. The comprehensive examination includes written and oral sections and is completed as the candidate is completing the prescribed coursework to determine if the PhD. candidate is adequately prepared to conduct the doctoral research. This examination will focus on the coursework and/or research/proposal writing. The student may be advised to take some additional coursework. A written proposal of the research must be distributed to the student's doctoral committee for review after which an oral presentation and examination on the proposed work will be administered.

## Dissertation Requirements

The third examination, called the *Defense of the Doctoral Dissertation*, is required to determine if the PhD. degree should be awarded on the basis of the research that is presented. The student must submit the written dissertation to the committee members at least two weeks prior to the exam. This is an oral examination that is administered by the Doctoral Committee.

Graduate students are required to submit one copy of their dissertation or thesis to the Graduate School, 210 Jesse Hall on a CD.

## Admissions

### Application Deadlines

Priority admission and funding consideration are given to applications received by February 15/September 15. Applications submitted after February 15/September 15 will be considered, with preference going to those received by May 1/December 1. Prospective students applying after May 1/December 1 will be considered for fall/spring admission on a case by case basis.

### Admission Criteria

- Minimum GPA: 3.0 in last 2 years of coursework. Note: Lower than 3.0 GPA requires special action and substantiation such as good test scores on the GRE or other recognized examinations.
- BS in engineering. Applicants with BS degrees in related fields may be considered for admission. If admitted, non-engineers are required to complete remedial courses as determined by their advisor and advisory committee.
- GRE test is required but no minimum score set. Typical acceptance scores: around 300 for Verbal + Quantitative and 3.0 for Analytical.
- Minimum TOEFL and IELTS scores for international students: See language requirements set by the Graduate School.

### Required Application Materials

- All required Graduate Admissions documents (<https://applygrad.missouri.edu/apply/>)
- 3 Letters of Recommendations (at least two from faculty members who have taught or advised you)
- GRE scores
- Résumé
- Statement of Purpose

### Financial Aid from the Program

If you wish to be considered for financial aid, please complete the financial section of the departmental application.

## Computer Engineering

Dr. Kamrul Islam, Department Chair  
College of Engineering  
201 Naka Hall  
(573) 882-3843  
Islams@missouri.edu  
<https://engineering.missouri.edu/academics/eecs/>

## Introduction

The Department of Electrical Engineering & Computer Science is one of the academic departments within the College of Engineering at the University of Missouri. It manages two sets of Programs: the Computer Science Program (CSP) and the Electrical & Computer Engineering Program (ECEP). At the undergraduate level, the EECS Department grants three distinct BS degrees including Computer Science (CS), Computer Engineering (CoE) and Electrical Engineering (EE). The CS undergraduate program is accredited by the Computing Accreditation Commission of ABET, while the CoE and EE undergraduate programs are accredited by the Engineering Accreditation Commission of ABET, <http://www.abet.org> (<http://www.abet.org/>). At the graduate level, the EECS Department offers MS and ME degrees in CS, CoE and EE, and PhD degrees in CS and Electrical & Computer Engineering (ECE). EECS is undergoing a new wave of innovation broadly referred to as Internet of Things (IoT) or Internet of Everything (IoE) and cyber-physical systems from wearable biocompatible sensors, low power flexible integrated circuits, hybrid multicore computer architectures and hardware level security to new cryptographic protocols, mobile apps, cloud computing, deep learning, robotics, autonomous systems and smart cities. The four year undergraduate degree program prepares students for rewarding careers in hardware and software systems and lays the foundation for graduate study in the next wave of technological innovation.

The department was established in 1885 as the first Electrical Engineering department in the nation, after Thomas Edison helped generate interest in electrical engineering by presenting an electrical dynamo and some incandescent lamps to the University of Missouri in 1882. The EECS department is now home to more than 600 undergraduate students and over 300 graduate students in CS, CoE, EE and ECE, with more than 50 faculty members.

## About Electrical and Computer Engineering Program

The Electrical and Computer Engineering Program (ECEP) in the Electrical Engineering and Computer Science (EECS) Department is the most research-active program among all other programs and units in the College of Engineering at the University of Missouri, with over \$5 million

in externally funded research. The ECE Program offers a comprehensive undergraduate curriculum culminating in a capstone project that provides a solid foundation for undergraduate students to pursue rewarding careers in computer and electrical engineering. Students seeking either one of the two undergraduate degrees offered -- Bachelor of Science in Computer Engineering (BS CoE) (<https://engineering.missouri.edu/departments/electrical-engineering-computer-science/bachelor-science-computer-engineering-bs/>) and Bachelor of Science in Electrical Engineering (BS EE) (<https://engineering.missouri.edu/academics/eecs/eecs-degrees/bachelor-science-electrical-engineering/>) -- are able to pursue dual degrees in related fields including information technology and computer science, as well as in the other degree of the ECEP, i.e. BS EE and BS CoE, respectively. Not to mention majors and minors in other colleges. Students have opportunities to gain in-depth hands-on knowledge in specialized areas through undergraduate research experiences working with faculty. The faculty research areas covers both well established and emerging fields including mobile video communication; wireless and digital communications; satellite remote sensing; geospatial image and video processing; computational neuroscience; systems biology; eldercare technology; computational intelligence, machine learning, pattern recognition, deep networks, fuzzy systems; computer vision; robotic vision; robotic assistive technology; human/robot interaction; landmine detection; pulsed power and plasmatechnology; nuclear and renewable energy systems; semiconductor devices; photonics; accelerators and beams; antennas and radar systems; nano and microelectromechanical systems; bioMEMS; heterostructures, microfabrication; feedback and control systems; parallel processing; computer architecture; autonomous systems; real-time embedded architectures; high performance computing; sensor networks; and human-computer interfaces.

The ECEP in EECS also offers a Dual Bachelor of Science in Electrical Engineering & Physics (<https://engineering.missouri.edu/academics/eecs/eecs-degrees/dual-bachelor-science-electrical-engineering-physics/>).

At the MS and PhD levels, the ECEP offers the following graduate degrees:

- Master of Science in Computer Engineering (<https://engineering.missouri.edu/academics/eecs/eecs-degrees/master-science-computer-engineering/>)
- Master of Science in Electrical Engineering (<https://engineering.missouri.edu/academics/eecs/eecs-degrees/master-science-electrical-engineering/>)
- Doctoral Degree in Electrical and Computer Engineering (<https://engineering.missouri.edu/academics/eecs/eecs-degrees/phd-electrical-computer-engineering/>)

with options for dual masters and Masters in Engineering (ME) -- i.e. coursework only, without thesis. The graduate degree programs prepare graduates of four-year BS degrees in Computer Engineering, Electrical Engineering, Computer Science or closely related areas for further study at the doctoral level or for successful careers as specialized CoE and EE professionals in emerging fields. The PhD program is a professional research degree designed to prepare students for advanced professional careers, including college teaching and research, as well as research and development in industrial, government, and nonprofit organizations. Specialized training, state-of-the-art technology, innovation and entrepreneurship experience is available through close interaction with the faculty in their respective fields of research expertise.

The faculty members in the ECE Program participate in the full spectrum of undergraduate and graduate education. Graduate education has a strong innovation component with faculty initiated research projects funded by the federal government, state government and industry, that is often multidisciplinary in nature, spanning interdepartmental and cross-college research. The aim is to produce professionals who can function well as part of interdisciplinary research and development as well as product teams. Close integration of research with education is a constant goal in the department's graduate programs. It emphasizes in-depth studies that can also be tailored to fit graduate students' individual interests. Additionally, members of the ECEP are among the leading faculty in University's Research Revenue, with major research projects funded by both federal agencies and industry including the National Science Foundation (NSF), National Institute of Health (NIH), National Geospatial-Intelligence Agency (NGA), Department of Energy (DoE), and Department of Defense (DoD) as well as Microsoft, Honeywell and Monsanto, to cite just a few.

Research facilities are well established around faculty expertise in the broad emphasis areas of Communications and Signal Processing (SP), Intelligent Systems and Robotics (ISR), Physical and Power Electronics (PPE), Applied Physics (AP), Systems Modeling and Control (SMC), Computer Architecture and Systems (CAS), Nano/Micro Technology (NMT). Faculty in the Electrical and Computer Engineering Program work closely with faculty in the Computer Science Program within the EECS Department.

For highly motivated undergraduate students a fast-track five year program of study leading to the BS plus MS degrees in CoE or EE is available.

Teaching assistantships with the EECS Department and research assistantships with faculty are available to fund graduate study especially at the PhD level.

## Summary

The ECE Program offers undergrad degrees:

- Bachelor of Science in Computer Engineering (BS CoE) (<https://engineering.missouri.edu/departments/electrical-engineering-computer-science/bachelor-science-computer-engineering-bs/>)
- Bachelor of Science in Electrical Engineering (BS EE) (<https://engineering.missouri.edu/academics/eecs/eecs-degrees/bachelor-science-electrical-engineering/>)
- Dual Bachelor of Science in Electrical Engineering & Physics (<https://engineering.missouri.edu/departments/electrical-engineering-computer-science/dual-bachelor-science-electrical-engineering-physics/>)

with many more options for dual degrees within the EECS department and outside.

Graduates with BS degrees in CoE, EE, CS or closely related areas can choose to pursue advanced study towards the following degrees:

- Master of Science in Computer Engineering (MS) (<https://engineering.missouri.edu/academics/eecs/eecs-degrees/master-science-computer-engineering/>)
- Master of Science in Electrical Engineering (MS) (<https://engineering.missouri.edu/academics/eecs/eecs-degrees/master-science-electrical-engineering/>)

- Doctoral Degree in Electrical and Computer Engineering (PhD) (<https://engineering.missouri.edu/academics/eecs/eecs-degrees/phd-electrical-computer-engineering/>)

The MS and PhD are professional research degrees designed to prepare students for advanced professional careers, including teaching and research at university level, as well as research and development in industrial, government, and nonprofit organizations.

The ECE Program offers learning and research opportunities for both undergraduate and graduate students in the areas of:

- mobile video communication;
- wireless and digital communications;
- satellite remote sensing;
- geospatial image and video processing;
- computational neuroscience;
- systems biology;
- eldercare technology;
- computational intelligence, including machine learning, pattern recognition, deep networks, fuzzy systems;
- computer vision;
- robotic vision;
- robotic assistive technology;
- human/robot interaction;
- landmine detection;
- pulsed power and plasmatechnology;
- nuclear and renewable energy systems;
- semiconductor devices;
- photonics;
- accelerators and beams;
- antennas and radar systems;
- nano and microelectromechanical systems;
- bioMEMS;
- heterostructure and microfabrication;
- feedback and control systems;
- parallel processing;
- computer architecture;
- autonomous systems;
- real-time embedded architectures;
- high performance computing;
- sensor networks; and
- human-computer interfaces.

## Research

The ECEP in EECS is the most research-active program among all other programs and units in the College of Engineering at the University of Missouri, with over \$5 million in externally funded research with faculty conducting research in the broad emphasis areas of:

- Communications and Signal Processing (CSP)
- Intelligent Systems and Robotics (ISR)
- Physical and Power Electronics (PPE)
- Applied Physics (AP)
- Systems Modeling and Control (SMC)

- Computer Architecture and Systems (CAS)
- Nano/Micro Technology (NMT)

## Faculty

**Professor** J. Cheng\*\*, R. Curry\*\*, C. Davis\*\*, J. Gahl\*\*, S.

Gangopadhyay\*\*, G. Guidoboni\*\*, Z. He\*\*, D. Ho\*\*, K. Islam\*\*, N.

Islam\*\*, S. Kovaleski\*\*, J. Kwon\*\*, S. Nair\*\*, K. Palaniappan\*\*, Y.

Shang\*\*, C. R. Shyu\*\*, M. Skubic\*\*, D. Xu\*\*, Y. Zhao\*\*

**Associate Professor** M. Almasri\*\*, D. Anderson\*\*, P. Calyam\*\*, R.

Chadha\*\*, G. DeSouza\*\*, Y. Duan\*\*, T. Engel\*\*, S. Goggins\*\*, W.

Jiang\*\*, M. Jurczyk\*\*, T. Kazic\*\*, J. Legarsky\*\*, D. Lin\*\*, P. Rao, Y.

Saab\*\*, J. Uhlmann\*\*, X. Wan, D. Xu\*\*, Y. Zhao\*\*

**Assistant Professor** I. Akturk\*\*, G. Bana\*, K. Anuarul Hoque\*\* T. Joshi\*,

G. Scott\*, P. Valettas\*

**Assistant Research Professor** H. Aliakbarpour\*, A. Buck, F. Bunyak\*\*

**Associate Teaching Professor** D. Musser\*

**Assistant Teaching Professor** F. Wang\*

**Associate Professor of Practice** J. Fischer

**Assistant Professor of Practice** J. Ries, N. Wergeles\*

**Professor Emeritus** M. Devaney, J. Keller\*\*, R. McLaren\*\*, R.

O'Connell\*\*, M. Prelas\*\*, G. K. Springer\*\*, H. Tyrer\*, X. Zhuang\*\*

**Adjunct** M. Becchi, D. Heise, G. K. Hubler, F. Esposito, K.

Gangopadhyay, W. Harrison\*\*, V. Korampally, D. Korkin\*\*, J. Lin\*, A.

Mosa, G. Seetharaman\*, A. Zare W. Zeng\*\*, Y. S. Zeng,

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BSCoE in Computer Engineering (p. 560)

### Advising and Scholarship Contact

Tami Beatty

Undergraduate Program Office

W1002 Thomas & Nell Lafferre Hall

(573) 882-2648

beattyt@missouri.edu

The Department of Electrical Engineering and Computer Science (EECS) offers both the Bachelor of Science with a major in Electrical Engineering and the Bachelor of Science with a major in Computer Engineering. The undergraduate program in both degrees at the University of Missouri provides students with the requisite fundamentals in either discipline and prepares them for beginning practice in both the traditional and emerging fields of these disciplines. The degree programs are flexible 126-credit structures that provide the fundamentals of engineering, in addition to a thorough coverage of the major specialties within their respective fields. In addition, technical electives allow concentration in selected areas.

The EECS department emphasizes close interaction with industry. Industry engineers visit regularly and industry-sponsored student projects are provided to give extra dimension to the program.

Many students in the EECS department combine the electrical engineering major with the computer engineering major in a special 142-credit program. These students receive both the BS EE and BS CpE degrees.



Students interested in interdisciplinary studies may use some electives to study business, premedicine, prelaw, and other areas. Students are able to choose from a wide variety of courses offered by other departments in the College of Engineering, as well as from other MU colleges, taking advantage of the multidisciplinary nature of the campus.

The current educational objectives of the electrical engineering program are:

- Graduates will meet or exceed the expectations of their employers
- Qualified graduates will pursue advanced study if desired
- Graduates will pursue leadership positions in their profession and/or communities

The current educational objectives of the computer engineering program are:

- Graduates will meet or exceed the expectations of their employers
- Qualified graduates will pursue advanced study if desired
- Graduates will pursue leadership positions in their profession and/or communities

Both the Bachelor of Science in Electrical Engineering (BS EE) and the Bachelor of Science in Computer Engineering (BS CoE) require that students earn a 2.0 GPA or better in all courses that have an MU engineering prefix. All ECE courses require a grade of C or better in ECE prerequisites.

Engineering design in both the electrical engineering and computer engineering programs is provided through an integrated laboratory structure. Beginning with the first laboratory course in the fourth semester of each program, students have a significant design and laboratory experience in each semester of their respective programs.

In addition to the major core requirements, students must complete all University graduation requirements (p. 35) including University general education (p. 36), as well as all degree and college or school requirements.

## Electrical and Computer Engineering (ECE) Honors Program

The ECE Honors Program follows the general rules and philosophy of the College of Engineering Honors Program. Students may enter the program from the beginning of the junior year and must have a GPA of 3.0/4.0 at the start. Eligible students participate in the program by enrolling in ECE 4995 Undergraduate Honors Research in Electrical Computer Engineering for one to three credit hours, which replaces an equivalent number of hours of ECE technical electives.

The heart of the program is a research or advanced design project culminating in an undergraduate honors thesis. The project is conducted under the supervision of the honors advisor, who is an ECE faculty member selected by mutual agreement between the student and the professor. Satisfactory completion of the project requires approval (signatures) of the honors thesis by both the honors advisor and an additional faculty member, who serves as second reader of the thesis. Students who complete the program and graduate with a GPA of a least 3.0 receive the designation "Honors Scholar in Engineering" at graduation and on their diploma.

Another valuable feature of the Honors Program is that participants may reduce the number of credit hours required for degree completion to the University minimum of 120 by substituting up to six hours of credit from graduate courses through dual (undergraduate/graduate) enrollment

during the last four semesters of the undergraduate program and after completion of the honors project.

## Graduate

- MS in Computer Engineering (p. 562)

The Department of Electrical Engineering and Computer Science (EECS) offers both the Master of Science with a major in Electrical Engineering and the Master of Science with a major in Computer Engineering, as well as a Doctor of Philosophy Degree in Electrical and Computer Engineering. The graduate programs in both at the University of Missouri provides students with the requisite fundamentals in either discipline and prepares them for beginning practice in both the traditional and emerging fields of these disciplines. The degree programs are flexible 126-credit structures that provide the fundamentals of engineering, in addition to a thorough coverage of the major specialties within their respective fields. In addition, technical electives allow concentration in selected areas.

## BSCoE in Computer Engineering

### Degree Program Description

The computer engineering degree offers a balanced approach to both hardware and software, as well as other areas of engineering. Focused areas of work in additional hardware or software, communications, discrete and integrated electronics, and robotics are offered by the department.

### Major Program Requirements

The computer engineering degree offers a balanced approach to both hardware and software, as well as other areas of engineering. Focused areas of work in additional hardware or software, communications, discrete and integrated electronics, and robotics are offered by the department. (Focus areas are not listed on transcripts or diplomas.)

Students must complete all university requirements (p. 35), including general education (p. 36), and Department Level Requirements (p. 559), in addition to the degree requirements below.

#### Major core requirements

##### Constitutional Elective

Select one of the following:	3
HIST 1100	Survey of American History to 1865 3
HIST 1200	Survey of American History Since 1865 3
HIST 1400	American History 5
HIST 2210	Twentieth Century America 3
HIST 2440	History of Missouri 3
HIST 4000	Age of Jefferson 3
HIST 4220	U.S. Society Between the Wars 1918-1945 3
HIST 4230	Our Times: United States Since 1945 3
POL_SC 1100	American Government 3
POL_SC 2100	State Government 3
Humanities/Fine Arts courses	9
Social Science/Behavioral Science courses	6

##### Other major core requirement courses:

MATH 1500	Analytic Geometry and Calculus I 5
MATH 1700	Calculus II 5
MATH 2300	Calculus III 3

MATH 2320	Discrete Mathematical Structures	3
MATH 4100	Differential Equations	3
STAT 4710	Introduction to Mathematical Statistics	3
PHYSICS 2750	University Physics I	5
PHYSICS 2760	University Physics II	5
CHEM 1320	College Chemistry I	4
ENGLISH 1000	Exposition and Argumentation	3
ENGINR 1200	Statics and Elementary Strength of Materials	3
or ENGINR 2300	Engineering Thermodynamics	
or IMSE 2710	Engineering Economic Analysis	
ENGINR 1000	Introduction to Engineering	1
CMP_SC 1050	Algorithm Design and Programming I	4
CMP_SC 2050	Algorithm Design and Programming II	4
ECE 2100	Circuit Theory I	4
ECE 2210	Introduction to Logic Systems	3
ECE 3280	Computer Organization and Assembly Language	3
ECE 3810	Circuit Theory II	4
ECE 3830	Signals and Linear Systems	3
ECE 3410	Electronic Circuits and Signals I	4
ECE 3220	Software Design in C and C++	3
ECE 4220	Real Time Embedded Computing	3
ECE 4250	VHDL and Programmable Logic Devices	4
ECE 4270	Computer Architecture	4
ECE 3840	Measurement and Instrumentation	3
ECE 4960W	Senior Capstone Design I - Writing Intensive	3
ECE 4980	Senior Capstone Design II (Senior Capstone Design II)	3
<b>Electives</b>		
2000+ ECE or CMP_SC Elective		6
ECE 4000+ Technical Elective		6
Any Elective		1

\* ENGINR 1000 waiver: Students with 60 or more credits have completed the ENGINR 1000 requirement.

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
CMP_SC 1050		4 ECE 2210	3
CHEM 1320		4 CMP_SC 2050	4
ENGINR 1000		1 ENGLISH 1000	3
MATH 1500		5 MATH 1700	5
Humanities/Fine Arts Elective		3	
			17
Second Year			
Fall	CR	Spring	CR
ECE 2100		4 ECE 3810	4
ECE 3280		3 MATH 4100	3
MATH 2300		3 PHYSICS 2760	5

PHYSICS 2750	5 Constitutional Requirement	3
		15
		15

Third Year			
Fall	CR	Spring	CR
ECE 3220		3 ECE 4250	4
ECE 3410		4 ENGINR 1200, 2300, or IMSE 2710	3
ECE 3830		3 ECE 4220	3
STAT 4710		3 Flexible Technical Elective	3
MATH 2320		3 Social/Behavioral Elective	3
			16
			16

Fourth Year				
Fall	CR	Spring	CR	
ECE 3840		3 ECE 4980 (Senior Capstone Design II)	3	
ECE 4270		4 4000+ Technical Elective	3	
ECE 4960W		3 Flexible Technical Elective	3	
ECE 4000+ Technical Elective		3 Humanities /Fine Arts Elective	3	
Social/Behavioral Science Elective		3 Humanities/Fine Arts Elective	3	
			Free Elective	1
			16	16

Total Credits: 126

## Double Major

### Electrical Engineering and Computer Engineering

Many students in the EECS department combine the BS in Electrical Engineering with the BS in Computer Engineering in a special 138-credit program. These students receive both the BS EE and BS CoE degrees.

## Major Program Requirements

### Constitutional Elective

Select one of the following:		3
HIST 1100	Survey of American History to 1865	3
HIST 1200	Survey of American History Since 1865	3
HIST 1400	American History	5
HIST 2210	Twentieth Century America	3
HIST 2440	History of Missouri	3
HIST 4000	Age of Jefferson	3
HIST 4220	U.S. Society Between the Wars 1918-1945	3
HIST 4230	Our Times: United States Since 1945	3
POL_SC 1100	American Government	3
POL_SC 2100	State Government	3
Humanities/Fine Arts courses		9
Social Science/Behavioral Science courses		3
Select two of the following:		6
ENGINR 1200	Statics and Elementary Strength of Materials	3
ENGINR 2300	Engineering Thermodynamics	3
IMSE 2710	Engineering Economic Analysis	3
<b>Other major core requirement courses:</b>		
MATH 1500	Analytic Geometry and Calculus I	5
MATH 1700	Calculus II	5

MATH 2300	Calculus III	3
MATH 2320	Discrete Mathematical Structures	3
MATH 4100	Differential Equations	3
STAT 4710	Introduction to Mathematical Statistics	3
PHYSICS 2750	University Physics I	5
PHYSICS 2760	University Physics II	5
CHEM 1320	College Chemistry I	4
ENGLISH 1000	Exposition and Argumentation	3
ECONOM 1014	Principles of Microeconomics	3
or ECONOM 1015	Principles of Macroeconomics	3
CMP_SC 1050	Algorithm Design and Programming I	4
CMP_SC 2050	Algorithm Design and Programming II	4
ECE 1000	Introduction to Electrical and Computer Engineering	2
ECE 2210	Introduction to Logic Systems	3
ECE 2100	Circuit Theory I	4
ECE 3210	Microprocessor Engineering for Electrical Engineers	4
ECE 3810	Circuit Theory II	4
ECE 3220	Software Design in C and C++	3
ECE 3830	Signals and Linear Systems	3
ECE 3510	Electromagnetic Fields	3
ECE 3410	Electronic Circuits and Signals I	4
ECE 3610	Semiconductors and Devices	3
ECE 4220	Real Time Embedded Computing	3
ECE 4250	VHDL and Programmable Logic Devices	4
ECE 4270	Computer Architecture	4
ECE 3840	Measurement and Instrumentation	3
ECE 4960W	Senior Capstone Design I - Writing Intensive	3
ECE 4980	Senior Capstone Design II	3

**Electives**

2000+ ECE or CMP_SC Elective	9
ECE 4000+ Technical Elective	6
ECE 4000-level Senior Lecture/Lab	4
Any Elective	1

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
CMP_SC 1050		4 ECE 2210	3
CHEM 1320		4 CMP_SC 2050	4
MATH 1500		5 MATH 1700	5
ENGINR 1000		1 ENGLISH 1000	3
Constitutional Requirement		3	
			15

Second Year			
Fall	CR	Spring	CR
ECE 2100		4 ECE 3810	4
ECE 3210		4 MATH 4100	3
MATH 2300		3 PHYSICS 2760	5
PHYSICS 2750		5 Humanities/Fine Arts Elective	3
			15

Third Year			
Fall	CR	Spring	CR
ECE 3410		4 ECE 3610	3
ECE 3220		3 ECE 4250	4
ECE 3510		3 MATH 2320	3
ECE 3830		3 ECE 4000+ Technical Elective	3
STAT 4710		3 Flexible Technical Elective	3
			16

Fourth Year			
Fall	CR	Spring	CR
ECE 4220		3 ECE 3840	3
ECE 4270		4 ECE 4960W	3
ENGINR 1200, 2300, or IMSE 2710		3 ENGINR 1200, 2300, or IMSE 2710	3
Flexible Technical Elective		3 ECE 4000+ Technical Elective	3
Social/Behavioral Science Elective		3 Humanities/Fine Arts Elective	3
			16

Fifth Year			
Fall	CR	Spring	CR
ECE 4980 (Senior Capstone Design II)		3	
ECE 4000-level Senior Lecture/Lab		4	
Flexible Technical Elective		3	
Humanities/Fine Arts Elective		3	
Economics Elective		3	
			16

Total Credits: 142

## MS in Computer Engineering

### Degree Requirements

To fulfill the requirements for the MS degree, the following course requirements are required:

- A candidate must complete 30 hours, including at least 12 hours of 8000-level graded course work (exclusive of ECE 8990 or ECE 8085 or ECE 8010 hours).
- At least six of these graded 8000 level course hours need to come from ECE.
- At least 15 hours of graded course work (total combination of 7000 and 8000 level courses, exclusive of ECE 8990, ECE 8085, or ECE 8010 hours) must be taken from the Electrical and Computer Engineering Department course offerings.
- A maximum of six hours of graduate credit may be transferred from another campus in the University of Missouri System or other university, while a maximum of eight hours of graduate credit may be used from a previous MU master's degree.
- At most, three hours of course work in supervised study (ECE 8010) may be taken during the MS program and they will be graded on an S/U basis.
- A minimum of 3 hours to a maximum of 6 hours of research (ECE 8990) or problems (ECE 8085) are required, based on whether the student writes a master's thesis or a master's Report.
- The student's cumulative GPA must be at least 3.0 to graduate.

- The student must attend at least 10 seminars given by the department during their course of study.

The requirements for the MS degree must be met within an eight year period. Each candidate must pass a final oral examination to demonstrate mastery of the work included in the thesis or in a substantial independent project.

## Academic Probation

A student whose GPA drops below 3.0 is automatically placed on academic probation. In such a case, the student has one semester to raise his or her cumulative GPA to 3.0. Failure to do so will result in expulsion from the program. Additionally, a student who receives the grade of "C" in 9 hours of coursework will be expelled. As with acceptance, students here also have a right to the same formal appeal process described above.

## Selection of an Advisor

Students must choose an academic advisor who will then provide guidance for the selection of coursework, and in the choice and execution of a research question. The student's academic advisor and the Director of Graduate Studies must approve all coursework used to satisfy the credit hour requirements for this degree. After performing satisfactorily for a minimum of one semester, the student, with the advisor's assistance, completes the Program of Study form that outlines the plan of study for the student's graduate program. M1 - Program of Study form.

The form is forwarded through the DGS to the Graduate School for approval. In the event that an advisor retires or leaves MU, he/she may continue to serve as the student's main advisor unless there is written academic program policy prohibiting such an arrangement. If an advisor is unable or unwilling to continue to serve, the academic program, with the leadership of the DGS, will assist the student to ensure that a replacement is found.

## Thesis Option

For students under the thesis option of the MS degree, i.e., students enrolling for ECE 8990, an M-2 Request for Thesis Committee form is required to be submitted for approval by the department DGS and the Graduate School by the end of the student's second semester.

A thesis committee is composed of three members of the MU faculty: a major advisor from the academic program, a second reader from the academic program, and an outside reader who is a member of the graduate faculty from a different MU graduate program. Upon approval of the department DGS, the student may petition the Graduate School to allow a person who is not a member of the MU graduate faculty to serve as the third reader. The petition should include a written justification for such a request and a copy of the person's curriculum vitae. The Graduate School maintains copies of curriculum vitae previously received and approved, and if such a request is anticipated, the student should contact the Graduate School to see if the curriculum vita of a particular person is already on file. Students need to supply committee members with copies for review/evaluation at least one week prior to the defense date.

Information about submitting the thesis can be found in the Thesis and Dissertation Guidelines.

## Non-Thesis Option

For students who enroll in ECE 8085 (Problems), a problem report rather than a thesis is required. The student is not required to submit

the M-2 form (request for a thesis committee). Instead, the student must have the report approved by his or her advisor and two other members of the graduate faculty, forming the student's Problem Committee. It is not required that a member outside of EECS be included, although it is permissible for such a member of the MU graduate faculty to be appointed. At least one of the three members must have a primary academic appointment in EECS. Students need to supply committee members with copies for review/evaluation at least one week prior to the defense date. At that time, an announcement is to be made to the department faculty and graduate students to allow them to attend the defense. The student must defend the problem report to the committee, and make any needed adjustments in format and corrections/clarifications based on input from the committee.

## Report of the Master's Examining Committee

The purpose of the M-3 Report of the Master's Examining Committee Form is to have an official record of the final examining process, whether it is a thesis defense or presentation of a report. The student's committee will indicate on this form if the student has passed the final exam. This form must be submitted to the Graduate School by a deadline for the semester in which the students plan to graduate. The form is due in the Graduate School two weeks prior to graduation.

## Computer Science

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## Introduction

The Department of Electrical Engineering & Computer Science is one of the academic departments within the College of Engineering at the University of Missouri. It manages two sets of Programs: the Computer Science Program (CSP) and the Electrical & Computer Engineering Program (ECEP). At the undergraduate level, the EECS Department grants three distinct BS degrees including Computer Science (CS), Computer Engineering (CoE) and Electrical Engineering (EE). The CS undergraduate program is accredited by the Computing Accreditation Commission of ABET, while the CoE and EE undergraduate programs are accredited by the Engineering Accreditation Commission of ABET, <http://www.abet.org> (<http://www.abet.org/>). At the graduate level, the EECS Department offers MS and ME degrees in CS, CoE and EE, and PhD degrees in CS and Electrical & Computer Engineering (ECE). EECS is undergoing a new wave of innovation broadly referred to as Internet of Things (IoT) or Internet of Everything (IoE) and cyber-physical systems from wearable biocompatible sensors, low power flexible integrated circuits, hybrid multicore computer architectures and hardware level security to new cryptographic protocols, mobile apps, cloud computing, deep learning, robotics, autonomous systems and smart cities. The four year undergraduate CS degree program prepares students for rewarding careers in software systems and computing technologies and lays the foundation for graduate study in the next wave of technological innovation.

The department was established in 1885 as the first Electrical Engineering department in the nation, after Thomas Edison helped

generate interest in electrical engineering by presenting an electrical dynamo and some incandescent lamps to the University of Missouri in 1882. The EECS department is now home to more than 600 undergraduate students and over 300 graduate students in CS, CoE, EE and ECE, with 35 faculty members (<https://engineering.missouri.edu/academics/eecs/eecs-faculty/>), not including instructors, teaching professors, and emeriti.

## About Computer Science Programs

The Computer Science Program (CSP) in the Electrical Engineering and Computer Science (EECS) Department continues to be a dynamic, rapidly evolving and research-active unit at the University of Missouri. The Computer Science Program offers a comprehensive curriculum culminating in a capstone project that provides a solid foundation for undergraduate students to pursue rewarding careers in computing and information technology. Students are able to pursue dual degrees in related fields including information technology, computer engineering and electrical engineering as well as minors in other colleges. Students have opportunities to gain in-depth hands-on knowledge in specialized areas through undergraduate research experiences working with faculty. The faculty lead computer science activities on campus and their research covers both well established and emerging fields including big data analytics, machine learning, cloud computing, cyber-physical, Internet of Things, artificial intelligence, computer vision, robotics, autonomous systems, embedded architectures, high performance computing, computational biology and bioinformatics, biomedical and geospatial informatics, cyber-security, distributed and mobile computing, learning systems, multimedia communications, data visualization, information fusion, sensor networks, spoken language processing, human-computer interfaces, virtual and augmented reality.

The CSP offers graduate programs in masters, dual masters, and doctoral degrees. The graduate degree programs prepare graduates of four-year BS degrees in Computer Science or closely related areas for further study at the doctoral level or for successful careers as specialized computer professionals in emerging fields. The PhD program is a professional research degree designed to prepare students for advanced professional careers, including college teaching and research, as well as research and development in industrial, government, and nonprofit organizations. Specialized training, state-of-the-art technology, innovation and entrepreneurship experience is available through close interaction with the faculty in their respective fields of research expertise.

The faculty members in the Computer Science Program participate in the full spectrum of undergraduate and graduate education. Graduate education, has a strong innovation component with faculty initiated research projects funded by the federal government, state government and industry, and is often multidisciplinary in nature spanning interdepartmental and cross-college research. The aim is to produce computer scientists who can function well as part of interdisciplinary research teams. Close integration of research with education is a constant goal in the department's graduate programs. It emphasizes in-depth studies that can also be tailored to fit graduate students' individual interests. Additionally, members of the CSP lead the University's institutional efforts in developing infrastructure for bioinformatics, computational biology, and high-performance computing and networking. Our major research projects are funded by both federal agencies and industry including the National Science Foundation (NSF), National Institute of Health (NIH), National Geospatial-Intelligence Agency (NGA), Department of Energy (DoE), and Department of Defense (DoD) which

are examples of federal funding, Microsoft, Honeywell and Monsanto are representative of industrial funding.

Research facilities are well established around faculty expertise in cloud computing, bioinformatics and computational biology, biological and biomedical image analysis, graphics, visualization and virtual reality, mobile computing, artificial intelligence, multimedia, networking, human-computer interaction, information web services, and computer science foundations. These facilities are clustered in core laboratories for bioinformatics, multimedia and visualization, video processing, spoken-language processing, mobile networking and communications, wireless sensor networks, high-performance computing, cyber security, and medical informatics. Faculty in the Computer Science Program work closely with faculty in the Computer Engineering and Electrical Engineering Programs within the EECS Department.

## Careers and Graduate study

The Computer Science curriculum prepares graduates of four-year B.S. degrees in Computer Science for successful careers as computer and information technology professionals in industry as part of the rapidly expanding and pervasive information economy. Graduates with B.S. degrees in Computer Science or closely related areas can choose to pursue advanced study at the masters and doctoral level under the mentorship of a faculty in specialized research fields within the broad discipline of computing with engaging opportunities in multidisciplinary collaborative research across departments and colleges.

The M.S. and Ph.D. programs are a professional research degree designed to prepare students for advanced professional careers, including college teaching and research, as well as research and development in industrial, government, and nonprofit organizations. Specialized training is available through close interaction with faculty mentors in their active research fields. For highly motivated undergraduate students a fast-track five year program of study leading to the BS plus MS degrees in Computer Science is available. Teaching assistantships with the EECS Department and research assistantships with faculty are available to fund graduate study especially at the PhD level.

With foundations in undergraduate courses covering algorithms, compilers, software engineering, web technologies, database, networking, operating systems, programming languages, artificial intelligence and computational complexity, the graduate programs are integrated over many application areas and multidisciplinary fields such as:

- cyber-security
- social multimedia and databases
- big data analytics
- web services and content delivery networks
- wearable and embedded devices, architectures and systems
- smartphone applications
- video games, film and entertainment
- mobile and sensor networks
- personalized learning systems
- high performance computing and networking
- information search, discovery and retrieval systems
- smart communities and smart grid energy systems
- robotics and industrial automation systems

- bioinformatics and computational biology
- biomedical image analysis
- medical informatics and healthcare
- human and animal medicine
- space, defense and security imaging systems
- precision agriculture and food security
- management information systems and business analytics
- journalism and the media of the future

## Research

This CSP is the hub of computer science research activities on campus that involve theoretical, experimental, computational and applied research areas in:

- cloud computing and high performance computing
- big data science and machine learning
- bioinformatics and computational biology
- bioimaging and phenomics
- graphics, visualization, virtual and augmented reality
- computer vision and image processing
- geospatial information mining and retrieval
- biomedical image analysis
- satellite and aerial imaging
- information fusion & filtering
- cyber-security and cryptography
- cyber-physical and IoT
- multimedia communications and databases
- ambient intelligence and sensor networks
- mobile, distributed and pervasive computing
- spoken language processing
- gesture and human-computer interfaces, etc.

Additionally, members of the CSP lead the University's institutional efforts in developing infrastructure for cloud computing, bioinformatics, computational biology, visualization and high-performance computing and networking.

## Faculty

**Professor** J. Cheng\*\*, R. Curry\*\*, C. Davis\*\*, J. Gahl\*\*, S. Gangopadhyay\*\*, G. Guidoboni\*\*, Z. He\*\*, D. Ho\*\*, K. Islam\*\*, N. Islam\*\*, S. Kovaleski\*\*, J. Kwon\*\*, S. Nair\*\*, K. Palaniappan\*\*, Y. Shang\*\*, C. R. Shyu\*\*, M. Skubic\*\*, D. Xu\*\*, Y. Zhao\*\*

**Associate Professor** M. Almasri\*\*, D. Anderson\*\*, P. Calyam\*\*, R. Chadha\*\*, G. DeSouza\*\*, Y. Duan\*\*, T. Engel\*\*, S. Goggins\*\*, W. Jiang\*\*, M. Jurczyk\*\*, T. Kazic\*\*, J. Legarsky\*\*, D. Lin\*\*, P. Rao, Y. Saab\*\*, J. Uhlmann\*\*, X. Wan, D. Xu\*\*, Y. Zhao\*\*

**Assistant Professor** I. Akturk\*\*, G. Bana\*, K. Anuarul Hoque\*\* T. Joshi\*, G. Scott\*, P. Valettas\*

**Assistant Research Professor** H. Aliakbarpour\*, A. Buck, F. Bunyak\*\*

**Associate Teaching Professor** D. Musser\*

**Assistant Teaching Professor** F. Wang\*

**Associate Professor of Practice** J. Fischer

**Assistant Professor of Practice** J. Ries, N. Wergeles\*

**Professor Emeritus** M. Devaney, J. Keller\*\*, R. McLaren\*\*, R. O'Connell\*\*, M. Prelas\*\*, G. K. Springer\*\*, H. Tyrer\*, X. Zhuang\*\*

**Adjunct** M. Becchi, D. Heise, G. K. Hubler, F. Esposito, K. Gangopadhyay, W. Harrison\*\*, V. Korampally, D. Korkin\*\*, J. Lin\*, A. Mosa, G. Seetharaman\*, A. Zare W. Zeng\*\*, Y. S. Zeng,

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BS in Computer Science (p. 566)
- Minor in Computer Science (p. 569)

### Advising Contact

Ashley Parkinson  
W1006 Lafferre Hall  
(573) 884-6961  
ajpdbt@missouri.edu

### Scholarship Information Contact

Dr. Rohit Chadha  
111 Naka Hall  
(573) 882-4899  
chadhar@missouri.edu

The Computer Science Program (CSP) in the Electrical Engineering and Computer Science (EECS) Department offers a broad curriculum that spans the theory, design and applications of computing. The Bachelor of Science degree in Computer Science includes a strong component of mathematics and sciences along with more theoretical courses in computer science. A Computer Science minor is available.

## Graduate

- MS in Computer Science (p. 569)
- PhD in Computer Science (p. 569)

Graduate Admissions Advisor

JoAnna Chandler  
Electrical Engineering & Computer Science

201 Naka Hall  
University of Missouri  
Columbia, MO 65211  
<https://engineering.missouri.edu/academics/eecs/>

The EECS graduate programs lead to the degrees of Master of Science in Computer Science (MS CS), Computer Engineering (MS CE) and Electrical Engineering (MS EE), Master of Engineering (ME), and Doctor of Philosophy in Computer Science (PhD CS) and Doctor of Philosophy in Electrical and Computer Engineering (PhD ECE). The EECS graduate degree programs prepare prior recipients of four-year BS degrees in Computer Science, Computer Engineering, Electrical Engineering or closely related areas for further study at the doctoral level or for successful careers as specialized computer professionals. The Ph.D. program is a research degree designed to prepare students for various advanced professional careers, including college teaching and research, as well as research and development in leading industrial and government R&D facilities.

The ME degree is designed for entering master students interested in a terminal master's degree, who have a demonstrated need for a

professional, non-research degree in engineering, and have an academic interest in the department.

## Application Procedures for CS MS and PhD Programs

In order to be considered for admission in a particular semester we must receive all required paperwork by these deadlines:

**Fall admission:** Applications and all paperwork must be received by March 1st. NOTE: If applying for financial assistance in the department, applications and all paperwork must be received by January 15th.

**Spring admission:** Applications and all paperwork must be received by October 1st.

Application for admission involves submitting a formal application through the online application system. An application must be accompanied by an application fee. In addition, the applicant must have the following original paperwork sent directly from the originating institutions to the Graduate School:

- Official transcripts from ALL institutions attended
- Official GRE score report from Educational Testing Service in New Jersey (and TOEFL or IELTS scores for international applicants)

The following supplemental materials must be uploaded in the online application:

- Your résumé
- A personal goal statement indicating why you feel prepared to pursue the degree program and why you want to pursue this degree
- Three letters of recommendation from professors who know your abilities that must address your ability and readiness to pursue a graduate program in computer science (submitted by your references directly to your online application)
- Copies (unofficial) of all transcripts
- Copies of GRE results (and TOEFL or IELTS, if applicable).

Note: Copies of the required documents (transcripts, GRE scores, etc.) cannot be accepted in lieu of the official reports from the originating institutions. Copies of these records should be submitted for evaluation, but any decision on admission is non-binding until the official records have been received.

**Current/Former MU students:** All current and former MU students must meet the same requirements as external students *and* file one of the following forms (in lieu of an MU Application Form):

- Current Non-Degree Graduate Students: Change of Division, Degree, Program, Emphasis, or Advisor form,
- Current graduate students in another department: Change of Division, Degree, Program, Emphasis, or Advisor form (same as 1)
- Previous graduate students returning to same program: Re-Activation form.

### Degree Completion Requirements

Use the links at the top of the page to direct you to details on the requirements that must be completed in order to earn the respective graduate degrees. The Master of Science degree program has both a thesis and a non-thesis option, which can be chosen by the student after consultation with their selected advisor.

## Credit toward a Second Master's Degree

A student who has completed one Master's degree at MU or elsewhere may present, upon the recommendation of the student's advisor and approval by the Director of Graduate Studies and the Graduate School, a maximum of six hours of credit earned in the previous program toward a second Master's degree.

## Fast Tracking

In an effort to streamline and accelerate the student acquisition of graduate degrees, we establish fast-tracking options for our current undergraduate students. This option allows students who have completed 75 hours of undergraduate coursework, and maintained a 3.0 or better GPA to apply to the Masters Program, become integrated in the research environment of the EECS Department, and earn between 6 and 12 hours of graduate credit during their undergraduate studies. The program allows students to complete both a BS and MS in as few as five years, and the application process is much easier than the formal application process; a GRE score is not required, there is no application fee, and Fast Track students are given higher priority for teaching assistant positions. Please see the link below for the application.

<https://engineering.missouri.edu/academics/eecs/eecs-degrees/bachelor-master-computer-science-engineering/dual-degree-bs-ms-application-form/>

## Internal Funding

### Teaching Assistantships

Teaching assistantships are normally awarded to qualified graduate students with appropriate communication skills who assist faculty members in various phases of instruction. International students may not be appointed to teaching assistantships in their first semester on campus. International students must pass a language screening test at a proper level to be eligible for the TA positions available.

### Research Assistantships

Research assistantships are granted to students qualified for working with professors on particular research projects. The research assistants are selected by faculty members who have research funds to support graduate students. Therefore, students should contact the faculty members directly for the RA possibility.

### Fellowships

The department faculty actively pursue funding for selected research fellowships. Available fellowship opportunities can be found by contacting the ECE Graduate Office. Additionally, a limited number of "Teaching Fellows" are awarded annually to outstanding PhD students, particularly for those preparing for academic careers. Details can be obtained from the ECE Graduate Office.

## BS in Computer Science

### Degree Program Description

Computer Science emphasizes the study of algorithms, programming methodology, software systems, computational theories and algorithms, computer organization, networking, computer graphics, cyber-security, machine learning, artificial intelligence, high performance computing, and database. In the two-semester capstone design courses, students complete design projects that serve as a culminating academic

experience. Internships with companies for real-world experience and undergraduate research opportunities with faculty are abundant and encouraged. The BS CS degree is accredited by the Computing Accreditation Commission of ABET, <http://www.abet.org>. Students who complete the BS in Computer Science can work for government agencies, academic institutions, or private industry creating and applying new technologies to solve complex problems, or attend graduate schools.

## Major Program Requirements

The Bachelor of Science with a major in Computer Science emphasizes the study of software systems, computational theories and algorithms, computer organization, networking, and programming methodology. Students who complete the BS in Computer Science can work for government agencies, academic institutions, or private industry creating and applying new technologies to solve complex problems.

The BS degree requires the completion of the three-semester calculus sequence plus discrete math and statistics. A student who selects an appropriate additional math course as a technical elective and has at least 9 credits in math with appropriate grades at MU can earn a math minor.

The BS degree requires the completion of 126 credits. Computer Science students must pass all CS core courses that are prerequisites for other CS core courses that the student takes with a C- or better grade. All other CS core courses must be passed with a C- grade or better. To graduate, a student must earn an overall GPA of 2.0 or better and a 2.0 GPA or better in all CS or IT courses.

The Engineering Leadership, Engagement & Career Development Academy, W1025 Laffer Hall, can assist students in searching for employment opportunities upon graduation and for internship/co-op positions.

Course requirements listed here apply to students beginning as regular college freshmen in Fall 2019 or after. A student who started college before Fall 2019 and who has been continuously enrolled as a full-time student may be pursuing the previous program and should contact the department for information on these degree requirements.

In addition to the major core requirements, students must complete all University graduation requirements (p. 35) including University general education (p. 36), as well as all degree and college or school requirements.

## Major Core Requirements

Computer Science Core Courses		42
CMP_SC 1000	Introduction to Computer Science **	1
CMP_SC 1050	Algorithm Design and Programming I	4
CMP_SC 2050	Algorithm Design and Programming II	4
CMP_SC 2270	Introduction to Logic Systems	3
CMP_SC 3050	Advanced Algorithm Design	3
CMP_SC 3280	Computer Organization and Assembly Language	3
CMP_SC 3330	Object Oriented Programming	3
CMP_SC 3380	Database Applications and Information Systems	3
CMP_SC 4050	Design and Analysis of Algorithms I	3
CMP_SC 4320	Software Engineering I	3
CMP_SC 4520	Operating Systems I	3
CMP_SC 4850	Computer Networks I	3

CMP_SC 4970	Senior Capstone Design I	3
CMP_SC 4980	Senior Capstone Design II	3

\*\*Course is recommended but is not required after 60 credits have been completed.

### Computer Science Electives 24

At least 18 credit hours of computer science electives must be numbered above 4000; one of the 4000-level courses must be CMP\_SC 4410 or CMP\_SC 4450. A maximum of 6 hours of 3000/4000-level IT courses (excluding INFOTC 4400 and INFOTC 4500) can be taken as CS electives but are counted as lower level (below 4000) CMP\_SC courses. INFOTC 4400, INFOTC 4500, ECE 3220, and ECE 4220 are counted as CS 4000 level courses. Students may also take up to six hours of problems or research courses, and up to three hours of CMP\_SC 3940 internship credit.

CMP_SC 2010	Intellectual Property for Engineers	3
CMP_SC 2830	Web Application Development I	3
CMP_SC 3530	UNIX Operating System	3
CMP_SC 3940	Internship in Computer Science	1-3
CMP_SC 4001	Topics in Computer Science	1-99
CMP_SC 4060	String Algorithms	3
CMP_SC 4070	Numerical Methods for Science and Engineering	3
CMP_SC 4080	Parallel Programming for High Performance Computing	3
CMP_SC 4085	Problems in Computer Science	1-6
CMP_SC 4270	Computer Architecture	4
CMP_SC 4280	Network Systems Architecture	4
CMP_SC 4330	Object Oriented Design I	3
CMP_SC 4350	Big Data Analytics	3
CMP_SC 4380	Database Management Systems I	3
CMP_SC 4405	iOS App Development I	3
CMP_SC 4410	Theory of Computation I	3
CMP_SC 4430	Compilers I	3
CMP_SC 4440	Malware Analysis and Defense	3
CMP_SC 4450	Principles of Programming Languages	3
CMP_SC 4460	Introduction to Cryptography	3
CMP_SC 4530	Cloud Computing	3
CMP_SC 4540	Neural Models and Machine Learning	3
CMP_SC 4610	Computer Graphics I	3
CMP_SC 4620	Physically Based Modeling and Animation	3
CMP_SC 4630	Game Development	3
CMP_SC 4650	Digital Image Processing	3
CMP_SC 4670	Digital Image Compression	3
CMP_SC 4720	Introduction to Machine Learning and Pattern Recognition	3
CMP_SC 4730	Building Intelligent Robots	4
CMP_SC 4740	Interdisciplinary Introduction to NLP	3
CMP_SC 4750	Artificial Intelligence I	3
CMP_SC 4770	Introduction to Computational Intelligence	3
CMP_SC 4830	Web Application Development II	3
CMP_SC 4910	Digital Forensics	3
CMP_SC 4990	Undergraduate Research in Computer Science	0-6
CMP_SC 4995	Undergraduate Research in Computer Science - Honors	1-6
INFOTC 4400	C#/.NET Development	3



INFOTC 4500	Team-Based Mobile Device Application Development	3
ECE 3220	Software Design in C and C++	3
ECE 4220	Real Time Embedded Computing	3
<b>Math Courses</b>		<b>19</b>
MATH 1500	Analytic Geometry and Calculus I	5
MATH 1700	Calculus II	5
MATH 2300	Calculus III	3
MATH 2320	Discrete Mathematical Structures	3
STAT 4710	Introduction to Mathematical Statistics	3
<b>Technical Electives</b>		<b>9</b>
<p>Technical electives can be 2000 level and above CS or IT courses, 4000 level Math courses, 2000 level and above Engineering courses, IS_LT 4099, MANGMT 3000, MRKTNG 3000, FINANC 3000, and other courses that meet the prior approval of the student's CS advisor. All technical electives taken outside the CS Department must meet the prior approval of the student's CS advisor.</p>		
<b>Science Courses</b>		<b>minimum 7</b>
<p>One of the following 2-semester sequences has to be taken (at least one of the courses must include a lab). Labs listed separately are not considered a 2nd science course (for example, Bio 1010 and 1020 count as one science course).</p>		
<b>Physics sequence:</b>		
(credit not given for both PHYSCS 1210 and PHYSCS 2750, or PHYSCS 1220 and PHYSCS 2760)		
PHYSICS 1210 & PHYSICS 1220	College Physics I and College Physics II	8
OR		
PHYSICS 2750 & PHYSICS 2760	University Physics I and University Physics II	10
<b>Chemistry sequence:</b>		
CHEM 1320	College Chemistry I	4
CHEM 1330	College Chemistry II	4
<b>Biology sequence:</b>		
BIO_SC 1010	General Principles and Concepts of Biology	3
BIO_SC 1020	General Biology Laboratory	2
Select one of the following:		
BIO_SC 1200	General Botany with Laboratory	5
BIO_SC 2100	Infectious Diseases	3
BIO_SC 2150	Genetic Diseases	3
BIO_SC 3050	Genetics and Society	3
BIO_SC 3210	Plant Systematics	4
BIOCHM 2110	The Living World: Molecular Scale	3
BIOCHM 2112	Biotechnology in Society	3
ANTHRO 2051 & ANTHRO 2052 or ANTHRO 2050	Introduction to Biological Anthropology and Biological Anthropology Laboratory Introduction to Biological Anthropology with Laboratory	5
<b>Geology sequence:</b>		
GEOL 1100 or GEOL 1200	Principles of Geology with Laboratory Environmental Geology with Laboratory	4
Select one of the following:		
GEOL 2150	The Age of the Dinosaurs	3
GEOL 2300	Earth Systems and Global Change	3
GEOL 2350	Historical Geology	3
GEOL 2400	Surficial Earth Processes and Products with Laboratory	4

GEOL 2450	Global Water Cycle	3
GEOL 2600	Mineral and Energy Resources of the Earth	3

- General Requirements**
- English 1000 - Exposition and Argumentation - 3 hours 'C' range grade is required
  - Complete at least 9 hours in each of the following categories. One course in one of the categories must be numbered 2000 or higher. A list of MU courses that count for social sciences, behavioral sciences, and humanities can be found at: <http://generaleducation.missouri.edu/courses/>.
    - (1) Humanities/Fine Arts - Must include COMMUN 1200 Public Speaking and courses from at least two different departments
    - (2) Social/Behavioral Sciences - Must include courses from at least two different departments and fulfill the Missouri Constitutional Requirement.
  - Complete enough elective hours to bring the total credit hours that count towards the degree to 126. The electives may not include remedial courses (i.e., MATH 1100, MATH 1160).
  - Two courses must be designated "Writing Intensive." A C-range grade in English 1000 is a prerequisite for all WI courses. A C-range grade is required in the WI courses. The required course CMP\_SC 4970 (Senior Capstone Design I) is writing intensive and counts as one of these courses. For more information on WI guidelines and courses, visit <https://cwp.missouri.edu/>.

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
CMP_SC 1000		1 CMP_SC 2050	4
CMP_SC 1050		4 CMP_SC 2270	3
MATH 1500		5 MATH 1700	5
Constitutional/State Law Elective		3 ENGLISH 1000*	3
COMMUN 1200*		3 Non-Science Elective	1
		16	16

Second Year			
Fall	CR	Spring	CR
CMP_SC 3050		3 CMP SC Elective 2000/3000 level	3
CMP SC Elective 2000/3000 level		3 CMP_SC 3330	3
MATH 2300		3 MATH 2320	3
Science Sequence		5 Science Sequence	5
Humanities/Fine Art (writing intensive)*		3 Behavioral Science*	3
		17	17

Third Year			
Fall	CR	Spring	CR
CMP_SC 3280		3 CMP_SC 4320	3
CMP_SC 3380		3 CMP_SC 4850	3
CMP_SC 4050		3 CMP SC Elective 4000 level	3
STAT 4710		3 CMP SC Elective 4000 level	3

Social/Behavioral Science 2000 level <sup>1</sup>	3 Technical Elective	3
		15

Fourth Year			
Fall	CR	Spring	CR
CMP_SC 4520		3 CMP_SC 4980	3
CMP_SC 4970 (writing intensive)		3 Technical Elective	3
CMP_SC 4410 or 4450		3 CMP SC Elective 4000-level	3
Technical Elective		3 CMP SC elective 4000-level	3
Humanities/Fine Arts *		3 CMP SC elective 4000-level	3
		15	15

Total Credits: 126

\* Denotes General Education Requirements

## Minor in Computer Science

A minor in computer science is offered through the College of Engineering.

### Requirements

To obtain a minor, a student must complete 20 hours of courses approved by the Department of Electrical Engineering and Computer Science. The student must earn a grade of C or better in CMP\_SC 1050, CMP\_SC 2050, and CMP\_SC 2270/ECE 2210. The student must earn a grade of C- or better in the three additional department-approved CMP\_SC courses with at least one numbered above 3000 counting toward the minor (except when the prerequisite for the course is C) and have a 2.0 GPA in all courses counting toward the minor. At least 9 hours must be taken in residence. The following courses are required.

CMP_SC 1050	Algorithm Design and Programming I	4
CMP_SC 2050	Algorithm Design and Programming II	4
CMP_SC 2270/ECE 2210	Introduction to Logic Systems	3
Three additional department-approved CMP SC courses with at least one numbered above 3000		9
Total Credits		20

## MS in Computer Science

### Degree Requirements

All students completing a master's degree must fulfill the following minimum requirements:

The student must earn a minimum of 30 credit hours of computer science (CS) course work approved by the EECS Department. This course work must include at least 15 credit hours of computer science course work numbered 8000 or above (CMP\_SC 8990 Research-Masters Thesis Computer Science credit is counted in the required 15 credit hours, but CMP\_SC 8980 is not).

The overall GPA of course work taken as an enrolled graduate student must be at least 3.0 (out of 4.0).

### Thesis/Non-Thesis Requirements

#### Non-Thesis Option

In order to complete the non-thesis option, the student must complete an independent project under a faculty advisor approved by the department.

This project is carried out by enrolling in CMP\_SC 8980 (Non-Thesis Research) for at least one hour of credit. This project is documented and presented to a faculty committee of at least three graduate faculty members and defended in a public defense as part of a final oral examination. The CMP\_SC 8980 course grade is assigned by the student's faculty advisor upon the conclusion of the oral examination. This course is graded on an S/U basis and cannot be used to increase the student's overall GPA in graduate work. In this option, at most 3 credit hours of Research, Reading, and/or Problem courses (such as CMP\_SC 8980, CMP\_SC 8990, CMP\_SC 8085) can be counted toward the 30-hour MS graduate requirements.

### Thesis Option

In order to complete the thesis option, the student must complete an independent project under a faculty advisor approved by the department. This project is carried out by enrolling in CMP\_SC 8990 (Thesis Research) for at least three hours of credit. A maximum of six credit hours of CMP\_SC 8990 can be counted toward the required 30 credit hours for the MS degree program. The thesis project is documented in a formal thesis, presented to a faculty committee of at least three graduate faculty members (one of whom is a faculty member from another department) and defended in a public defense as part of a final oral examination. The CMP\_SC 8990 course grade(s) is/are assigned by the student's faculty advisor upon the conclusion of the oral examination. CMP\_SC 8990 is graded on an S/U basis and cannot be used to increase the student's overall GPA in graduate work. In this option, at most 9 credit hours of Research, Reading, and/or Problem courses (such as CMP\_SC 8980, CMP\_SC 8990, CMP\_SC 8085) can be counted toward the 30-hour MS graduate requirements.

### Seminar Attendance

The approval of the M3 form is tied to the attendance records for the department's seminar series. MS and ME students are required to attend a total of at least ten EECS seminars during the course of their Master's program. PhD students are required to attend a total of at least twenty EECS seminars during the course of their PhD program. Master's students who add the PhD program can apply their seminar attendance as part of their Master's program toward the attendance requirement for PhD students.

### M Forms

By the end of the second semester in the program, the M1 Plan of Study form should be prepared and submitted, with the aid of a faculty advisor in the department. A faculty advisor should be selected during the student's first year. If a thesis option is chosen, the student must form a thesis committee and submit the M2 Request for Thesis Committee form. The M3 Report of Master's Examining Committee form is submitted after the thesis or project defense during the final semester.

## PhD in Computer Science

### Degree Requirements

All students completing a PhD degree must fulfill the following minimum requirements:

Complete all of the computer science (CS) course work requirements of the Master's degree in CS or have an MS degree in CS from another institution. The required 15 hours at the 8000-level must be regular CS courses, excluding Research or Problems courses. The student must

maintain an overall GPA of at least 3.4/4.0 in their graduate level course work (excluding Research and Problems courses). Earn a minimum of 72 credit hours of course work and research past the student's Bachelor's degree.

## Qualifying and Comprehensive Examination Process

Students will need to pass a qualifying examination to be admitted to candidacy in the CS PhD program within three years of program enrollment and will need to pass a comprehensive examination covering their areas of expertise within five years of program enrollment.

Students will complete a doctoral dissertation on a topic approved by the candidate's advisory committee and defend the dissertation in a final oral examination.

Students will have at least one journal paper submitted, accepted or published, as approved by the advisor.

Students will present on a research topic as part of the CS Seminar Series at some point between passing the qualifying exam and the dissertation defense. This policy is effective for entering PhD students in Spring 2013 and after.

## Seminar Attendance

The approval of the D4 form is tied to the attendance records for the department's seminar series. PhD students are required to attend a total of at least twenty EECS Seminar Series presentations. Master's students who add the PhD program can apply their seminar attendance as part of their Master's program toward the attendance requirement for doctoral students.

## D Forms

# Electrical and Computer Engineering

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Dr. Kamrul Islam, Department Chair  
201 Naka Hall  
(573) 882-9139  
Islams@missouri.edu

## Introduction

The Department of Electrical Engineering & Computer Science is one of the academic departments within the College of Engineering at the University of Missouri. It manages two sets of Programs: the Computer Science Program (CSP) and the Electrical & Computer Engineering Program (ECEP). At the undergraduate level, the EECS Department grants three distinct BS degrees including Computer Science (CS), Computer Engineering (CoE) and Electrical Engineering (EE). The CS undergraduate program is accredited by the Computing Accreditation Commission of ABET, while the CoE and EE undergraduate programs are accredited by the Engineering Accreditation Commission of ABET, <http://www.abet.org> (<http://www.abet.org/>). At the graduate level, the EECS Department offers MS degrees in CS, CoE and EE, and PhD degrees in CS and Electrical & Computer Engineering (ECE). EECS is undergoing a new wave of innovation broadly referred to as Internet of Things (IoT) or Internet of Everything (IoE) and cyber-physical systems from wearable biocompatible sensors, low power flexible integrated circuits, hybrid multicore computer architectures and hardware level

security to new cryptographic protocols, mobile apps, cloud computing, deep learning, robotics, autonomous systems and smart cities. The four year undergraduate degree program prepares students for rewarding careers in hardware and software systems and lays the foundation for graduate study in the next wave of technological innovation.

The department was established in 1885 as the first Electrical Engineering department in the nation, after Thomas Edison helped generate interest in electrical engineering by presenting an electrical dynamo and some incandescent lamps to the University of Missouri in 1882. The EECS department is now home to more than 600 undergraduate students and over 300 graduate students in CS, CoE, EE and ECE, with more than 50 faculty members.

## About Electrical and Computer Engineering Program

The Electrical and Computer Engineering Program (ECEP) in the Electrical Engineering and Computer Science (EECS) Department is the most research-active program among all other programs and units in the College of Engineering at the University of Missouri, with over \$5 million in externally funded research. The ECE Program offers a comprehensive undergraduate curriculum culminating in a capstone project that provides a solid foundation for undergraduate students to pursue rewarding careers in computer and electrical engineering. Students seeking either one of the two undergraduate degrees offered -- Bachelor of Science in Computer Engineering (BS CoE) (<https://engineering.missouri.edu/departments/electrical-engineering-computer-science/bachelor-science-computer-engineering-bs/>) and Bachelor of Science in Electrical Engineering (BS EE) (<https://engineering.missouri.edu/academics/eecs/eecs-degrees/bachelor-science-electrical-engineering/>) -- are able to pursue dual degrees in related fields including information technology and computer science, as well as in the other degree of the ECEP, i.e. BS EE and BS CoE, respectively. Not to mention majors and minors in other colleges. Students have opportunities to gain in-depth hands-on knowledge in specialized areas through undergraduate research experiences working with faculty. The faculty research areas covers both well established and emerging fields including mobile video communication; wireless and digital communications; satellite remote sensing; geospatial image and video processing; computational neuroscience; systems biology; eldercare technology; computational intelligence, machine learning, pattern recognition, deep networks, fuzzy systems; computer vision; robotic vision; robotic assistive technology; human/robot interaction; landmine detection; pulsed power and plasmatechnology; nuclear and renewable energy systems; semiconductor devices; photonics; accelerators and beams; antennas and radar systems; nano and microelectromechanical systems; bioMEMS; heterostructures, microfabrication; feedback and control systems; parallel processing; computer architecture; autonomous systems; real-time embedded architectures; high performance computing; sensor networks; and human-computer interfaces.

The ECEP in EECS also offers a Dual Bachelor of Science in Electrical Engineering & Physics (<https://engineering.missouri.edu/academics/eecs/eecs-degrees/dual-bachelor-science-electrical-engineering-physics/>).

At the MS and PhD levels, the ECEP offers the following graduate degrees:

- Master of Science in Computer Engineering (<https://engineering.missouri.edu/departments/electrical-engineering-computer-science/master-science-computer-engineering/>)

- Master of Science in Electrical Engineering (<https://engineering.missouri.edu/departments/electrical-engineering-computer-science/master-science-electrical-engineering/>)
- Doctoral Degree in Electrical and Computer Engineering (<https://engineering.missouri.edu/departments/electrical-engineering-computer-science/phd-electrical-computer-engineering/>)

with options for dual masters and Masters in Engineering (ME) -- i.e. coursework only, without thesis. The graduate degree programs prepare graduates of four-year BS degrees in Computer Engineering, Electrical Engineering, Computer Science or closely related areas for further study at the doctoral level or for successful careers as specialized CoE and EE professionals in emerging fields. The PhD program is a professional research degree designed to prepare students for advanced professional careers, including college teaching and research, as well as research and development in industrial, government, and nonprofit organizations. Specialized training, state-of-the-art technology, innovation and entrepreneurship experience is available through close interaction with the faculty in their respective fields of research expertise.

The faculty members in the ECE Program participate in the full spectrum of undergraduate and graduate education. Graduate education, has a strong innovation component with faculty initiated research projects funded by the federal government, state government and industry, and is often multidisciplinary in nature spanning interdepartmental and cross-college research. The aim is to produce professionals who can function well as part of interdisciplinary research teams. Close integration of research with education is a constant goal in the department's graduate programs. It emphasizes in-depth studies that can also be tailored to fit graduate students' individual interests. Additionally, members of the ECEP are among the leading faculty in University's Research Revenue, with major research projects funded by both federal agencies and industry including the National Science Foundation (NSF), National Institute of Health (NIH), National Geospatial-Intelligence Agency (NGA), Department of Energy (DoE), and Department of Defense (DoD) as well as Microsoft, Honeywell and Monsanto, to cite just a few.

Research facilities are well established around faculty expertise in the broad emphasis areas of Communications and Signal Processing (SP), Intelligent Systems and Robotics (ISR), Physical and Power Electronics (PPE), Applied Physics (AP), Systems Modeling and Control (SMC), Computer Architecture and Systems (CAS), Nano/Micro Technology (NMT). Faculty in the Electrical and Computer Engineering Program work closely with faculty in the Computer Science Program within the EECS Department.

For highly motivated undergraduate students a fast-track five year program of study leading to the BS plus MS degrees in CoE or EE is available.

Teaching assistantships with the EECS Department and research assistantships with faculty are available to fund graduate study especially at the PhD level.

## Summary

The ECE Program offers undergrad degrees:

- Bachelor of Science in Computer Engineering (BS CoE) (<https://engineering.missouri.edu/departments/electrical-engineering-computer-science/bachelor-science-computer-engineering-bs/>)

- Bachelor of Science in Electrical Engineering (BS EE) (<https://engineering.missouri.edu/academics/eecs/eecs-degrees/bachelor-science-electrical-engineering/>)
- Dual Bachelor of Science in Electrical Engineering & Physics (<https://engineering.missouri.edu/departments/electrical-engineering-computer-science/dual-bachelor-science-electrical-engineering-physics/>)

with many more options for dual degrees within the EECS department and outside.

Graduates with BS degrees in CE, EE, CS or closely related areas can choose to pursue advanced study towards the following degrees:

- Master of Science in Computer Engineering (MS) (<https://engineering.missouri.edu/departments/electrical-engineering-computer-science/master-science-computer-engineering/>)
- Master of Science in Electrical Engineering (MS) (<https://engineering.missouri.edu/departments/electrical-engineering-computer-science/master-science-electrical-engineering/>)
- Doctoral Degree in Electrical and Computer Engineering (PhD) (<https://engineering.missouri.edu/departments/electrical-engineering-computer-science/phd-electrical-computer-engineering/>)

The MS and PhD are professional research degrees designed to prepare students for advanced professional careers, including teaching and research at university level, as well as research and development in industrial, government, and nonprofit organizations.

The ECE Program offers learning and research opportunities for both undergraduate and graduate students in the areas of:

- mobile video communication;
- wireless and digital communications;
- satellite remote sensing;
- geospatial image and video processing;
- computational neuroscience;
- systems biology;
- eldercare technology;
- computational intelligence, including machine learning, pattern recognition, deep learning, fuzzy systems;
- computer vision;
- robotic vision;
- robotic assistive technology;
- human/robot interaction;
- landmine detection;
- pulsed power and plasma technology;
- nuclear and renewable energy systems;
- semiconductor devices;
- photonics;
- accelerators and beams;
- antennas and radar systems;
- nano and microelectromechanical systems;
- bioMEMS;
- heterostructure and microfabrication;
- feedback and control systems;
- parallel processing;
- computer architecture;

- autonomous systems;
- real-time embedded architectures;
- high performance computing;
- sensor networks; and
- human-computer interfaces.

## Research

The ECEP in EECS is the most research-active program among all other programs and units in the College of Engineering at the University of Missouri, with over \$5 million in externally funded research with faculty conducting research in the broad emphasis areas of:

- Communications and Signal Processing (CSP)
- Intelligent Systems and Robotics (ISR)
- Physical and Power Electronics (PPE)
- Applied Physics (AP)
- Systems Modeling and Control (SMC)
- Computer Architecture and Systems (CAS)
- Nano/Micro Technology (NMT)

## Faculty

**Professor** J. Cheng\*\*, R. Curry\*\*, C. Davis\*\*, J. Gahl\*\*, S. Gangopadhyay\*\*, G. Guidoboni\*\*, Z. He\*\*, D. Ho\*\*, K. Islam\*\*, N. Islam\*\*, S. Kovaleski\*\*, J. Kwon\*\*, S. Nair\*\*, K. Palaniappan\*\*, Y. Shang\*\*, C. R. Shyu\*\*, M. Skubic\*\*, D. Xu\*\*, Y. Zhao\*\*  
**Associate Professor** M. Almasri\*\*, D. Anderson\*\*, P. Calyam\*\*, R. Chadha\*\*, G. DeSouza\*\*, Y. Duan\*\*, T. Engel\*\*, S. Goggins\*\*, W. Jiang\*\*, M. Jurczyk\*\*, T. Kazic\*\*, J. Legarsky\*\*, D. Lin\*\*, P. Rao, Y. Saab\*\*, J. Uhlmann\*\*, X. Wan, D. Xu\*\*, Y. Zhao\*\*  
**Assistant Professor** I. Akturk\*\*, G. Bana\*, K. Anuarul Hoque\*\* T. Joshi\*, G. Scott\*, P. Valettas\*  
**Assistant Research Professor** H. Aliakbarpour\*, A. Buck, F. Bunyak\*\*  
**Associate Teaching Professor** D. Musser\*  
**Assistant Teaching Professor** F. Wang\*  
**Associate Professor of Practice** J. Fischer  
**Assistant Professor of Practice** J. Ries, N. Wergeles\*  
**Professor Emeritus** M. Devaney, J. Keller\*\*, R. McLaren\*\*, R. O'Connell\*\*, M. Prelas\*\*, G. K. Springer\*\*, H. Tyrer\*, X. Zhuang\*\*  
**Adjunct** M. Becchi, D. Heise, G. K. Hubler, F. Esposito, K. Gangopadhyay, W. Harrison\*\*, V. Korampally, D. Korkin\*\*, J. Lin\*, A. Mosa, G. Seetharaman\*, A. Zare W. Zeng\*\*, Y. S. Zeng,

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

The Department of Electrical Engineering and Computer Science (EECS) offers both the Bachelor of Science with a major in Electrical Engineering and the Bachelor of Science with a major in Computer Engineering. The undergraduate program in both degrees at the University of Missouri provides students with the requisite fundamentals in either discipline and prepares them for beginning practice in both the traditional and emerging fields of these disciplines. The degree programs are flexible 126-credit structures that provide the fundamentals of engineering, in addition to a

thorough coverage of the major specialties within their respective fields. In addition, technical electives allow concentration in selected areas.

See Electrical Engineering (p. 576) and Computer Engineering (p. 559) for details on the undergraduate degree programs.

### Advising and Scholarship Contact

Tami Beatty  
 Undergraduate Program Office  
 W1002 Thomas & Nell Lafferre Hall  
 (573) 882-2648  
 beattyt@missouri.edu

## Graduate

- PhD in Electrical and Computer Engineering (p. 573)

## Graduate Admissions Advisor

JoAnna Chandler  
 201 Naka Hall  
 University of Missouri 65211  
 573-882-0692  
 muengrgraduatesep1@missouri.edu

## Research Areas

The ECE Program in EECS is the most research-active program among all other programs and units in the College of Engineering at the University of Missouri, with over \$5 million in expenditures with faculty conducting research in the broad emphasis areas of:

- Applied Physics
- Communications, Signal Processing
- Computer Architectures, Cyber-Physical Systems
- Nano/Micro Technology
- Neuroscience, Neural Engineering
- Physical and Power Electronics
- System Modeling, Control, Robotics

## Application Procedures for PhD Programs

In order to be considered for admission in a particular semester we must receive all required paperwork by these deadlines:

**Fall admission:** Applications and all paperwork must be received by March 1st. NOTE: If applying for financial assistance in the department, applications and all paperwork must be received by January 15th.

**Spring admission:** Applications and all paperwork must be received by October 1st.

Application for admission involves submitting a formal application through the online application system. An application must be accompanied by an application fee. In addition, the applicant must have the following original paperwork sent directly from the originating institutions to the Graduate School:

- Official transcripts from ALL institutions attended
- Official GRE score report from Educational Testing Service in New Jersey (and TOEFL or IELTS scores for international applicants)

The following supplemental materials must be uploaded in the online application:

- Your résumé
- A personal goal statement indicating why you feel prepared to pursue the degree program and why you want to pursue this degree
- Three letters of recommendation from professors who know your abilities that must address your ability and readiness to pursue a graduate program in computer science (submitted by your references directly to your online application)
- Copies (unofficial) of all transcripts
- Copies of GRE results (and TOEFL or IELTS, if applicable).

Note: Copies of the required documents (transcripts, GRE scores, etc.) cannot be accepted in lieu of the official reports from the originating institutions. Copies of these records should be submitted for evaluation, but any decision on admission is non-binding until the official records have been received.

**Current/Former MU students:** All current and former MU students must meet the same requirements as external students *and* file one of the following forms (in lieu of an MU Application Form):

- Current Non-Degree Graduate Students: Change of Division, Degree, Program, Emphasis, or Advisor form,
- Current graduate students in another department: Change of Division, Degree, Program, Emphasis, or Advisor form (same as 1)
- Previous graduate students returning to same program: Re-Activation form.

### Degree Completion Requirements

Use the links at the top of the page to direct you to details on the requirements that must be completed in order to earn the respective graduate degrees.

#### Financial Aid

Teaching and research assistantships are available on a competitive basis for qualified students in the graduate programs. International students who have not completed a MS or UG courses at an American University are not eligible for Teaching assistantships during their first semester of study.

Teaching assistantships and research assistantships are available with tuition waivers in the Department. Once an applicant is accepted into the program, their application materials are shared with faculty for review. Individual faculty are responsible for hiring their own assistants, and will choose from the pool of applicants.

### Teaching Assistantships

Teaching assistantships are normally awarded to qualified graduate students with appropriate communication skills who assist faculty members in various phases of instruction. International students may not be appointed to teaching assistantships in their first semester on campus. International students must pass a language screening test at a proper level to be eligible for the TA positions available.

### Research Assistantships

Research assistantships are granted to students qualified for working with professors on particular research projects. The research assistants are selected by faculty members who have research funds to support graduate students. Therefore, students should contact the faculty members directly for the RA possibility.

### Fellowships

The department faculty actively pursue funding for selected research fellowships. Available fellowship opportunities can be found by contacting the ECE Graduate Office. Additionally, a limited number of "Teaching Fellows" are awarded annually to outstanding PhD students, particularly for those preparing for academic careers. Details can be obtained from the ECE Graduate Office.

## PhD in Electrical and Computer Engineering

### Degree Requirements

The student must be qualified to be a PhD candidate. Students admitted with an MS degree must prove competency in the PhD Qualifying Exam Process. Students admitted directly from a BS degree program must complete the 24 hours of graded coursework requirements of the MS degree during the first two years of their program. This will prepare them for the PhD Qualifying Exam Process, and will allow them to obtain an MS degree if a thesis or project report is completed and defended, consistent with MS requirements, or to obtain an ME degree once the course work requirement has been satisfied. A student may petition the faculty for an extension of the two year requirement.

A minimum of 72 semester hours beyond the BS are required by the Graduate School; the student's doctoral program committee sets the total number of credit hours and specific courses to be completed as part of his/her PhD program. However, the Graduate School requires a minimum of 15 hours of 8000/9000 level classes to be taken at MU exclusive of research, problems, and supervised study.

The candidate must pass a written and oral comprehensive examination.

The student must complete a doctoral dissertation on a topic approved by his or her Doctoral Committee and defend the dissertation in an oral final examination.

The student must attend a minimum of 20 EECS seminars given by the department during the course of their PhD program.

The student must present on a research topic as part of the EECS seminars between the qualifying process being met and the dissertation defense. This policy is effective for ECE PhD students entering in Spring 2020 and after.

### Selection of an Advisor

The student selects an advisor or co-advisors, by mutual consent, from doctoral faculty members in the department. In the event that an advisor retires or leaves MU, he/she may continue to serve as a student's advisor unless there is written academic program policy prohibiting such an arrangement. If an advisor is unable or unwilling to continue to serve, the academic program, with the leadership of the director of graduate studies, will assist to ensure that a replacement is found.

### Doctoral Degree Forms

By the end of the second semester of study at MU, a student should begin submitting degree program forms which will aid the academic program and the Graduate School in tracking the student's progress toward degree completion. These forms include the following:

- D1 Qualifying Exam Results & Doctoral Committee Approval (<http://gradstudies.missouri.edu/forms-downloads/repository/d1.pdf>)

Submitted after passing qualifying process

- D2 Plan of Study Form (<http://gradstudies.missouri.edu/forms-downloads/repository/d2.pdf>)  
Submitted after passing qualifying process
- D3 Result of the Comprehensive Examination (<http://gradstudies.missouri.edu/forms-downloads/repository/d3.pdf>)  
Submitted to the Graduate School within one month of exam completion
- D4 Report of the Doctoral Dissertation Defense (<http://gradstudies.missouri.edu/forms-downloads/repository/d4.pdf>)  
Submitted by the Graduate School deadline for the semester in which the students plan to graduate.
- Change of Committee (<http://gradstudies.missouri.edu/forms-downloads/repository/cocform.pdf>)
- Plan of Study Course Substitution Form (<http://gradstudies.missouri.edu/forms-downloads/repository/subform.pdf>)

## PhD Qualifying Process

To be eligible to take the PhD Qualifying Process, graduate students must be accepted for advisement in the ECE PhD program. The process must be completed before the end of his or her second year of advisement as a Ph.D. student.

- Within 2 years in the ECE PhD program, a student must complete at least 3 8000-level ECE regular courses, excluding research, problems, and special topic courses. The GPA of three of these courses with the highest grades must be at least 3.4, and overall GPA of all 8000-level courses must be 3.0 or higher. If the student cannot meet the requirements within the two year time limit, the student can file an appeal to the Director of Graduate Studies.

## Appeal Process for the Qualifying Process Result

## Electrical Engineering

Dr. Kamrul Islam, Department Chair  
College of Engineering  
201 Naka Hall  
(573) 882-9139  
[islams@missouri.edu](mailto:islams@missouri.edu)  
<https://engineering.missouri.edu/academics/eecs/>

## Introduction

The Department of Electrical Engineering & Computer Science is one of the academic departments within the College of Engineering at the University of Missouri. It manages two sets of Programs: the Computer Science Program (CSP) and the Electrical & Computer Engineering Program (ECEP). At the undergraduate level, the EECS Department grants three distinct BS degrees including Computer Science (CS), Computer Engineering (CoE) and Electrical Engineering (EE). The CS undergraduate program is accredited by the Computing Accreditation Commission of ABET, while the CoE and EE undergraduate programs are accredited by the Engineering Accreditation Commission of ABET, <http://www.abet.org> (<http://www.abet.org/>). At the graduate level, the EECS Department offers MS degrees in CS, CoE and EE, and PhD degrees in CS and Electrical & Computer Engineering (ECE). EECS is undergoing a new wave of innovation broadly referred to as Internet of Things (IoT) or Internet of Everything (IoE) and cyber-physical systems

from wearable biocompatible sensors, low power flexible integrated circuits, hybrid multicore computer architectures and hardware level security to new cryptographic protocols, mobile apps, cloud computing, deep learning, robotics, autonomous systems and smart cities. The four year undergraduate degree program prepares students for rewarding careers in hardware and software systems and lays the foundation for graduate study in the next wave of technological innovation.

The department was established in 1885 as the first Electrical Engineering department in the nation, after Thomas Edison helped generate interest in electrical engineering by presenting an electrical dynamo and some incandescent lamps to the University of Missouri in 1882. The EECS department is now home to more than 600 undergraduate students and over 300 graduate students in CS, CoE, EE and ECE, with more than 50 faculty members (<https://engineering.missouri.edu/academics/eecs/eecs-faculty/>).

## About the Electrical and Computer Engineering Program

The Electrical and Computer Engineering Program (ECEP) in the Electrical Engineering and Computer Science (EECS) Department is the most research-active program among all other programs and units in the College of Engineering at the University of Missouri, with over \$5 million in externally funded research. The ECE Program offers a comprehensive undergraduate curriculum culminating in a capstone project that provides a solid foundation for undergraduate students to pursue rewarding careers in electrical and computer engineering. Students seeking either one of the two undergraduate degrees offered -- Bachelor of Science in Computer Engineering (BS CoE) (<https://engineering.missouri.edu/departments/electrical-engineering-computer-science/bachelor-science-computer-engineering-bs/>) and Bachelor of Science in Electrical Engineering (BS EE) (<https://engineering.missouri.edu/academics/eecs/eecs-degrees/bachelor-science-electrical-engineering/>) -- are able to pursue dual degrees in related fields including information technology and computer science, as well as in the other degree of the ECEP, i.e. BS EE and BS CoE, respectively, along with majors and minors in other Colleges. Students have opportunities to gain in-depth hands-on knowledge in specialized areas through undergraduate research experience working with faculty. Faculty research areas cover both well established and emerging fields including mobile video communication; wireless and digital communications; satellite remote sensing; geospatial image and video processing; computational neuroscience; systems biology; eldercare technology; computational intelligence, machine learning, pattern recognition, deep learning, fuzzy systems; computer vision; robotic vision; robotic assistive technology; human/robot interaction; landmine detection; pulsed power and plasma technology; nuclear and renewable energy systems; semiconductor devices; photonics; accelerators and beams; antennas and radar systems; nano and microelectromechanical systems; bioMEMS; heterostructures, microfabrication; feedback and control systems; parallel processing; computer architecture; autonomous systems; real-time embedded architectures; high performance computing; sensor networks; and human-computer interfaces.

The ECEP in EECS also offers a Dual Bachelor of Science in Electrical Engineering & Physics (<https://engineering.missouri.edu/academics/eecs/eecs-degrees/dual-bachelor-science-electrical-engineering-physics/>).

At the MS and PhD levels, the ECEP offers the following graduate degrees:

- Master of Science in Computer Engineering (<https://engineering.missouri.edu/departments/electrical-engineering-computer-science/master-science-computer-engineering/>)
- Master of Science in Electrical Engineering (<https://engineering.missouri.edu/departments/electrical-engineering-computer-science/master-science-electrical-engineering/>)
- Doctoral Degree in Electrical and Computer Engineering (<https://engineering.missouri.edu/departments/electrical-engineering-computer-science/phd-electrical-computer-engineering/>)

with options for dual Masters and the Masters in Engineering (ME) which is coursework only, without thesis. The graduate degree programs prepare graduates of four-year BS degrees in Electrical Engineering, Computer Engineering, and Computer Science or closely allied fields for further study at the doctoral level or for successful careers as specialized EE and CoE professionals in emerging fields. The PhD program is a professional research degree designed to prepare students for advanced professional careers, including college teaching and research, as well as research and development in industrial, government, and nonprofit organizations. Specialized training, state-of-the-art technology, innovation and entrepreneurship experience is available through close interaction with faculty in their respective fields of research expertise.

The faculty members in the ECE Program participate in the full spectrum of undergraduate and graduate education. Graduate education, has a strong innovation component with faculty initiated research projects funded by the federal government, state government and industry, and is often multidisciplinary in nature spanning interdepartmental and cross-college research. The aim is to produce professionals who can function well as part of interdisciplinary research teams. Close integration of research with education is a constant goal in the department's graduate programs. It emphasizes in-depth studies that can also be tailored to fit graduate students' individual interests. Additionally, members of the ECEP are among the leading faculty in University's Research Revenue, with major research projects funded by both federal agencies and industry including the National Science Foundation (NSF), National Institute of Health (NIH), National Geospatial-Intelligence Agency (NGA), Department of Energy (DoE), and Department of Defense (DoD) as well as Microsoft, Honeywell and Monsanto, to cite just a few.

Research facilities are well established around faculty expertise in the broad emphasis areas of Communications and Signal Processing (SP), Intelligent Systems and Robotics (ISR), Physical and Power Electronics (PPE), Applied Physics (AP), Systems Modeling and Control (SMC), Computer Architecture and Systems (CAS), Nano/Micro Technology (NMT). Faculty in the Electrical and Computer Engineering Program work closely with faculty in the Computer Science Program within the EECS Department.

For highly motivated undergraduate students a fast-track five year program of study leading to the BS plus MS degrees in CoE or EE is available.

Teaching assistantships with the EECS Department and research assistantships with faculty are available to fund graduate study especially at the PhD level.

## Summary

The ECE Program offers undergrad degrees:

- Bachelor of Science in Computer Engineering (BS CoE) (<https://engineering.missouri.edu/departments/electrical-engineering-computer-science/bachelor-science-computer-engineering-bs/>)
- Bachelor of Science in Electrical Engineering (BS EE) (<https://engineering.missouri.edu/academics/eecs/eecs-degrees/bachelor-science-electrical-engineering/>)
- Dual Bachelor of Science in Electrical Engineering & Physics (<https://engineering.missouri.edu/academics/eecs/eecs-degrees/dual-bachelor-science-electrical-engineering-physics/>)

with many more options for dual degrees within the EECS department and outside.

Graduates with BS degrees in CoE, EE, CS or closely related areas can choose to pursue advanced study towards the following degrees:

- Master of Science in Computer Engineering (MS) (<https://engineering.missouri.edu/departments/electrical-engineering-computer-science/master-science-computer-engineering/>)
- Master of Science in Electrical Engineering (MS) (<https://engineering.missouri.edu/departments/electrical-engineering-computer-science/master-science-electrical-engineering/>)
- Doctoral Degree in Electrical and Computer Engineering (PhD) (<https://engineering.missouri.edu/departments/electrical-engineering-computer-science/phd-electrical-computer-engineering/>)

The MS and PhD are professional research degrees designed to prepare students for advanced professional careers, including teaching and research at university level, as well as research and development in industrial, government, and nonprofit organizations.

The ECE Program offers learning and research opportunities for both undergraduate and graduate students in the areas of:

- mobile video communication;
- wireless and digital communications;
- satellite remote sensing;
- geospatial image and video processing;
- computational neuroscience;
- systems biology;
- eldercare technology;
- computational intelligence, including machine learning, pattern recognition, deep learning, fuzzy systems;
- computer vision;
- robotic vision;
- robotic assistive technology;
- human/robot interaction;
- landmine detection;
- pulsed power and plasma technology;
- nuclear and renewable energy systems;
- semiconductor devices;
- photonics;
- accelerators and beams;
- antennas and radar systems;
- nano and microelectromechanical systems;
- bioMEMS;
- heterostructure and microfabrication;
- feedback and control systems;



- parallel processing;
- computer architecture;
- autonomous systems;
- real-time embedded architectures;
- high performance computing;
- sensor networks; and
- human-computer interfaces.

## Research

The ECEP in EECS is the most research-active program among all programs and units in the College of Engineering at the University of Missouri, with over \$5 million in expenditures with faculty conducting research in the broad emphasis areas of:

- Communications and Signal Processing (CSP)
- Intelligent Systems and Robotics (ISR)
- Physical and Power Electronics (PPE)
- Applied Physics (AP)
- Systems Modeling and Control (SMC)
- Computer Architecture and Systems (CAS)
- Nano/Micro Technology (NMT)

## Faculty

**Professor** J. Cheng\*\*, R. Curry\*\*, C. Davis\*\*, J. Gahl\*\*, S. Gangopadhyay\*\*, G. Guidoboni\*\*, Z. He\*\*, D. Ho\*\*, K. Islam\*\*, N. Islam\*\*, S. Kovaleski\*\*, J. Kwon\*\*, S. Nair\*\*, K. Palaniappan\*\*, Y. Shang\*\*, C. R. Shyu\*\*, M. Skubic\*\*, D. Xu\*\*, Y. Zhao\*\*

**Associate Professor** M. Almasri\*\*, D. Anderson\*\*, P. Calyam\*\*, R. Chadha\*\*, G. DeSouza\*\*, Y. Duan\*\*, T. Engel\*\*, S. Goggins\*\*, W. Jiang\*\*, M. Jurczyk\*\*, T. Kazic\*\*, J. Legarsky\*\*, D. Lin\*\*, P. Rao, Y. Saab\*\*, J. Uhlmann\*\*, X. Wan, D. Xu\*\*, Y. Zhao\*\*

**Assistant Professor** I. Akturk\*\*, G. Bana\*, K. Anuarul Hoque\*\* T. Joshi\*, G. Scott\*, P. Valettas\*

**Assistant Research Professor** H. Aliakbarpour\*, A. Buck, F. Bunyak\*\*

**Associate Teaching Professor** D. Musser\*

**Assistant Teaching Professor** F. Wang\*

**Associate Professor of Practice** J. Fischer

**Assistant Professor of Practice** J. Ries, N. Wergeles\*

**Professor Emeritus** M. Devaney, J. Keller\*\*, R. McLaren\*\*, R. O'Connell\*\*, M. Prelas\*\*, G. K. Springer\*\*, H. Tyrer\*, X. Zhuang\*\*

**Adjunct** M. Becchi, D. Heise, G. K. Hubler, F. Esposito, K. Gangopadhyay, W. Harrison\*\*, V. Korampally, D. Korkin\*\*, J. Lin\*, A. Mosa, G. Seetharaman\*, A. Zare W. Zeng\*\*, Y. S. Zeng,

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BSEE in Electrical Engineering (p. 577)

### Advising and Scholarship Contact

Tami Beatty  
Undergraduate Program Office  
W1002 Thomas & Nell Lafferre Hall

(573) 882-2648

beattyt@missouri.edu

The Department of Electrical Engineering and Computer Science (EECS) offers both the Bachelor of Science with a major in Electrical Engineering and the Bachelor of Science with a major in Computer Engineering. The undergraduate program in both degrees at the University of Missouri provides students with the requisite fundamentals in either discipline and prepares them for beginning practice in both the traditional and emerging fields of these disciplines. The degree programs are flexible 126-credit structures that provide the fundamentals of engineering, in addition to a thorough coverage of the major specialties within their respective fields. In addition, technical electives allow concentration in selected areas.

The EECS department emphasizes close interaction with industry. Industry engineers visit regularly and industry-sponsored student projects are provided to give extra dimension to the program.

Many students in the EECS department combine the electrical engineering major with the computer engineering major in a special 142-credit program. These students receive both the BS EE and BS CoE degrees.

Students interested in interdisciplinary studies may use some electives to study business, premedicine, prelaw, and other areas. Students are able to choose from a wide variety of courses offered by other departments in the College of Engineering, as well as from other MU colleges, taking advantage of the multidisciplinary nature of the campus.

The current educational objectives of the electrical engineering program are:

- Graduates will meet or exceed the expectations of their employers
- Qualified graduates will pursue advanced study if desired
- Graduates will pursue leadership positions in their profession and/or communities

The current educational objectives of the computer engineering program are:

- Graduates will meet or exceed the expectations of their employers
- Qualified graduates will pursue advanced study if desired
- Graduates will pursue leadership positions in their profession and/or communities

Both the Bachelor of Science in Electrical Engineering (BS EE) and the Bachelor of Science in Computer Engineering (BS CoE) require that students earn a 2.0 GPA or better in all courses that have an MU engineering prefix. All ECE courses require a grade of C or better in ECE prerequisites.

Engineering design in both the electrical engineering and computer engineering programs is provided through an integrated laboratory structure. Beginning with the first laboratory course in the fourth semester of each program, students have a significant design and laboratory experience in each semester of their respective programs.

In addition to the major core requirements, students must complete all University graduation requirements including University general education, as well as all degree and college or school requirements.

## Electrical and Computer Engineering (ECE) Honors Program

The ECE Honors Program follows the general rules and philosophy of the College of Engineering Honors Program. Students may enter the program

from the beginning of the junior year and must have a GPA of 3.0/4.0 at the start. Eligible students participate in the program by enrolling in ECE 4995 Undergraduate Honors Research in Electrical Computer Engineering for one to three credit hours, which replaces an equivalent number of hours of ECE technical electives.

The heart of the program is a research or advanced design project culminating in an undergraduate honors thesis. The project is conducted under the supervision of the honors advisor, who is an ECE faculty member selected by mutual agreement between the student and the professor. Satisfactory completion of the project requires approval (signatures) of the honors thesis by both the honors advisor and an additional faculty member, who serves as second reader of the thesis. Students who complete the program and graduate with a GPA of a least 3.0 receive the designation "Honors Scholar in Engineering" at graduation and on their diploma.

Another valuable feature of the Honors Program is that participants may reduce the number of credit hours required for degree completion to the University minimum of 120 by substituting up to six hours of credit from graduate courses through dual (undergraduate/graduate) enrollment during the last four semesters of the undergraduate program and after completion of the honors project.

## Graduate

- MS in Electrical Engineering (p. 579)

The Department of Electrical Engineering and Computer Science (EECS) offers both the Master of Science with a major in Electrical Engineering and the Master of Science with a major in Computer Engineering, as well as a Doctor of Philosophy Degree in Electrical and Computer Engineering. The graduate program in both degrees at the University of Missouri provides students with the requisite fundamentals in either discipline and prepares them for beginning practice in both the traditional and emerging fields of these disciplines. The degree programs are flexible 126-credit structures that provide the fundamentals of engineering, in addition to a thorough coverage of the major specialties within their respective fields. In addition, technical electives allow concentration in selected areas.

## BSEE in Electrical Engineering

### Degree Program Description

The Bachelor of Science in Electrical Engineering allows student to learn about electrical power generation, communication systems, instrumentation, circuit design and microprocessor design. Students have the opportunity to gain hands on experience as well as research experience and the opportunity to develop new products.

### Major Program Requirements

The electrical engineering degree offers course work in all traditional areas of the electrical engineering field. Focused areas of work are offered in the areas of communications, digital systems, discrete and integrated electronics, electromagnetics, energy systems and power electronics, robotics and system control. (Focus areas are not listed on transcripts or diplomas).

Students must complete all university requirements (p. 35), including general education (p. 36), and degree requirements below.

### Major core requirements

MATH 1500	Analytic Geometry and Calculus I	5
MATH 1700	Calculus II	5
MATH 2300	Calculus III	3
MATH 4100	Differential Equations	3
STAT 4710	Introduction to Mathematical Statistics	3
PHYSICS 2750	University Physics I	5
PHYSICS 2760	University Physics II	5
CHEM 1320	College Chemistry I	4
ENGLSH 1000	Exposition and Argumentation	3
Select two of the following:		
ENGINR 1200	Statics and Elementary Strength of Materials	3
ENGINR 2300	Engineering Thermodynamics	3
IMSE 2710	Engineering Economic Analysis	3

### Economics Elective

Select one of the following:		
ECONOM 1014	Principles of Microeconomics	3
ECONOM 1015	Principles of Macroeconomics	3

### Constitutional Elective

Select one of the following:		
HIST 1100	Survey of American History to 1865	3
HIST 1200	Survey of American History Since 1865	3
HIST 1400	American History	5
HIST 2210	Twentieth Century America	3
HIST 2440	History of Missouri	3
HIST 4000	Age of Jefferson	3
HIST 4220	U.S. Society Between the Wars 1918-1945	3
HIST 4230	Our Times: United States Since 1945	3
POL_SC 1100	American Government	3
POL_SC 2100	State Government	3
Humanities/Fine Arts courses		
Social Science/Behavioral Science courses		

### Other major core requirement courses:

ENGINR 1000	Introduction to Engineering	1
CMP_SC 1050	Algorithm Design and Programming I	4
ECE 2100	Circuit Theory I	4
ECE 2210	Introduction to Logic Systems	3
ECE 3210	Microprocessor Engineering for Electrical Engineers	4
ECE 3810	Circuit Theory II	4
ECE 3830	Signals and Linear Systems	3
ECE 3410	Electronic Circuits and Signals I	4
ECE 3510	Electromagnetic Fields	3
ECE 3610	Semiconductors and Devices	3
ECE 3840	Measurement and Instrumentation	3
ECE 4960W	Senior Capstone Design I - Writing Intensive	3
ECE 4980	Senior Capstone Design II (Senior Capstone Design II)	3

### Electives

ECE or CMP_SC 2000+ Elective		9
ECE 4000+ Technical Elective		9

ECE 4000+ Senior Lecture/Lab	4
Any Elective	2

\* ENGINR 1000 waiver: Students with 60 or more credits have completed the ENGINR 1000 requirement.

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
CMP_SC 1050		4 ECE 2210	3
CHEM 1320		4 ENGLISH 1000	3
MATH 1500		5 MATH 1700	5
ENGINR 1000		1 Constitutional Elective	3
Economics Elective		3 Humanities/Fine Arts Elective	3
		17	17

Second Year			
Fall	CR	Spring	CR
ECE 2100		4 ECE 3810	4
ECE 3210		4 MATH 4100	3
MATH 2300		3 PHYSCS 2760	5
PHYSCS 2750		5 Humanities/Fine Arts Elective	3
		16	15

Third Year			
Fall	CR	Spring	CR
ECE 3410		4 ECE 3610	3
ECE 3510		3 ENGINR 1200, 2300, or IMSE 2710	3
ECE 3830		3 Flexible Technical Elective	3
STAT 4710		3 Flexible Technical Elective	3
Social/Behavioral Science Elective		3 Humanities/Fine Arts Elective	3
		16	15

Fourth Year			
Fall	CR	Spring	CR
ECE 4960W		3 ECE 4980 (Senior Capstone Design II)	3
ECE 3840		3 ENGINR 1200, 2300, or IMSE 2710	3
ECE 4000+ Technical Elective		3 Flexible Technical Elective	3
ECE 4000+ Technical Elective		3 ECE 4000+ Senior Lecture/Lab	4
Free Elective		2 ECE 4000+ Technical Elective	3
		14	16

Total Credits: 126

## Double Major

### Electrical Engineering and Computer Engineering

Many students in the EECS department combine the BS in Electrical Engineering with the BS in Computer Engineering in a special 138-credit program. These students receive both the BS EE and BS CoE degrees.

## Major Program Requirements

### Constitutional Elective

Select one of the following:		3
HIST 1100	Survey of American History to 1865	3
HIST 1200	Survey of American History Since 1865	3
HIST 1400	American History	5
HIST 2210	Twentieth Century America	3
HIST 2440	History of Missouri	3
HIST 4000	Age of Jefferson	3
HIST 4220	U.S. Society Between the Wars 1918-1945	3

HIST 4230	Our Times: United States Since 1945	3
POL_SC 1100	American Government	3
POL_SC 2100	State Government	3

Humanities/Fine Arts courses	9
Social Science/Behavioral Science courses	3

Select two of the following:		6
ENGINR 1200	Statics and Elementary Strength of Materials	3
ENGINR 2300	Engineering Thermodynamics	3
IMSE 2710	Engineering Economic Analysis	3

### Other major core requirement courses:

MATH 1500	Analytic Geometry and Calculus I	5
MATH 1700	Calculus II	5
MATH 2300	Calculus III	3
MATH 2320	Discrete Mathematical Structures	3
MATH 4100	Differential Equations	3
STAT 4710	Introduction to Mathematical Statistics	3
PHYSCS 2750	University Physics I	5
PHYSCS 2760	University Physics II	5
CHEM 1320	College Chemistry I	4
ENGLISH 1000	Exposition and Argumentation	3
ECONOM 1014	Principles of Microeconomics	3
or ECONOM 1015	Principles of Macroeconomics	
CMP_SC 1050	Algorithm Design and Programming I	4
CMP_SC 2050	Algorithm Design and Programming II	4
ECE 1000	Introduction to Electrical and Computer Engineering	2
ECE 2100	Circuit Theory I	4
ECE 2210	Introduction to Logic Systems	3
ECE 3210	Microprocessor Engineering for Electrical Engineers	4
ECE 3220	Software Design in C and C++	3
ECE 3410	Electronic Circuits and Signals I	4
ECE 3510	Electromagnetic Fields	3
ECE 3610	Semiconductors and Devices	3
ECE 3810	Circuit Theory II	4
ECE 3830	Signals and Linear Systems	3
ECE 4220	Real Time Embedded Computing	3
ECE 4250	VHDL and Programmable Logic Devices	4
ECE 4270	Computer Architecture	4
ECE 3840	Measurement and Instrumentation	3
ECE 4960W	Senior Capstone Design I - Writing Intensive	3
ECE 4980	Senior Capstone Design II (Senior Capstone Design II)	3

**Electives**

2000+ ECE or CMP_SC Elective	9
ECE 4000+ Technical Elective	6
ECE 4000-level Senior Lecture/Lab	4
Any Elective	1

**Semester Plan**

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
CMP_SC 1050		4 ECE 2210	3
CHEM 1320		4 CMP_SC 2050	4
MATH 1500		5 MATH 1700	5
ENGINR 1000		1 ENGLSH 1000	3
Constitutional Requirement	3		
			15

Second Year			
Fall	CR	Spring	CR
ECE 2100		4 ECE 3810	4
ECE 3210		4 MATH 4100	3
MATH 2300		3 PHYSCS 2760	5
PHYSCS 2750		5 Humanities/Fine Arts Elective	3
			15
			16

Third Year			
Fall	CR	Spring	CR
ECE 3410		4 ECE 3610	3
ECE 3220		3 ECE 4250	4
ECE 3510		3 MATH 2320	3
ECE 3830		3 ECE 4000-level Technical Elective	3
STAT 4710		3 Flexible Technical Elective	3
			16

Fourth Year			
Fall	CR	Spring	CR
ECE 4220		3 ECE 3840	3
ECE 4270		4 ECE 4960W	3
ENGINR 1200, 2300, or IMSE 2710		3 ENGINR 1200, 2300, or IMSE 2710	3
Flexible Technical Elective	3	ECE 4000+ Technical Elective	3
Social/Behavioral Science Elective	3	Humanities/Fine Arts Elective	3
			15
			16

Fifth Year	
Fall	CR
ECE 4980 (Senior Capstone Design II)	3
ECE 4000-level Sr Lec/Lab	4
Flexible Technical Elective	3
Humanities/Fine Arts Elective	3
Economics Elective	3
16	

Total Credits: 142

**MS in Electrical Engineering**

**Degree Requirements**

To fulfill the requirements for the MS degree, the following course requirements are required:

- A candidate must complete 30 hours, including at least 12 hours of 8000-level graded course work (exclusive of ECE 8990 or ECE 8085 or ECE 8010 hours).
- At least six of these graded 8000 level course hours need to come from ECE.
- At least 15 hours of graded course work (total combination of 7000 and 8000 level courses, exclusive of ECE 8990, ECE 8085, or ECE 8010 hours) must be taken from the ECE course offerings.
- A maximum of six hours of graduate credit may be transferred from another campus in the University of Missouri System or other university, while a maximum of eight hours of graduate credit may be used from a previous MU master's degree.
- At most, three hours of course work in supervised study (ECE 8010) may be taken during the MS program and they will be graded on an S/U basis.
- A minimum of 3 hours to a maximum of 6 hours of research (ECE 8990) or problems (ECE 8085) are required, based on whether the student writes a master's thesis or a master's Report.
- The student's cumulative GPA must be at least 3.0 to graduate.
- The student must attend at least 10 seminars given by the EECS department during the course of study.

**Academic Probation**

A student whose GPA drops below 3.0 is automatically placed on academic probation. In such a case, the student has one semester to raise his or her cumulative GPA to 3.0. Failure to do so will result in expulsion from the program. Additionally, a student who receives the grade of "C" in 9 hours of coursework will be expelled. As with acceptance, students here also have a right to the same formal appeal process described above.

**Selection of an Advisor**

Students must choose an academic advisor who will then provide guidance for the selection of coursework, and in the choice and execution of a research question. The student's academic advisor and the Director of Graduate Studies must approve all coursework used to satisfy the credit hour requirements for this degree. After performing satisfactorily for a minimum of one semester, the student, with the advisor's assistance, completes the Program of Study form that outlines the plan of study for the student's graduate program. M1 - Program of Study form

The form is forwarded through the DGS to the Graduate School for approval. In the event that an advisor retires or leaves MU, he/she may continue to serve as the student's main advisor unless there is written academic program policy prohibiting such an arrangement. If an advisor is unable or unwilling to continue to serve, the academic program, with the leadership of the DGS, will assist the student to ensure that a replacement is found.

## Thesis/Non-Thesis Requirements

### Thesis Option

For students under the thesis option of the MS degree, i.e., students enrolling for ECE 8990, an M-2 Request for Thesis Committee form is required to be submitted for approval by the department DGS and the Graduate School by the end of the student's second semester.

A thesis committee is composed of three members of the MU faculty: a major advisor from the academic program, a second reader from the academic program, and an outside reader who is a member of the graduate faculty from a different MU graduate program. Upon approval of the department DGS, the student may petition the Graduate School to allow a person who is not a member of the MU graduate faculty to serve as the third reader. The petition should include a written justification for such a request and a copy of the person's curriculum vitae. The Graduate School maintains copies of curriculum vitae previously received and approved, and if such a request is anticipated, the student should contact the Graduate School to see if the curriculum vita of a particular person is already on file. Students need to supply committee members with copies for review/evaluation at least one week prior to the defense date.

Information about submitting the thesis can be found in the Thesis and Dissertation Guidelines.

### Non-Thesis Option

For students who enroll in ECE 8085 (Problems), a problem report rather than a thesis is required. The student is not required to submit the M-2 form (request for a thesis committee). Instead, the student must have the report approved by his or her advisor and two other members of the graduate faculty, forming the student's Problem Committee. It is not required that a member outside of EECS be included, although it is permissible for such a member of the MU graduate faculty to be appointed. At least one of the three members must have a primary academic appointment in EECS. Students need to supply committee members with copies for review /evaluation at least one week prior to the defense date. At that time, an announcement is to be made to the department faculty and graduate students to allow them to attend the defense. The student must defend the problem report to the committee, and make any needed adjustments in format and corrections/clarifications based on input from the committee.

### Report of the Master's Examining Committee

The purpose of the M-3 Report of the Master's Examining Committee Form is to have an official record of the final examining process, whether it is a thesis defense or presentation of a report. The student's committee will indicate on this form if the student has passed the final exam. This form must be submitted to the Graduate School by a deadline for the semester in which the students plan to graduate. The form is due in the Graduate School two weeks prior to graduation.

## Engineering

Programs in Engineering are multi-department programs, and administered by the College of Engineering. Requirements are determined based on the specific area of interest. Options include a minor at the undergraduate level, and a master's degree at the graduate level.

College of Engineering  
W1024 Lafferre Hall

Columbia, MO 65211  
<http://engineering.missouri.edu>

## Faculty

Please see the appropriate degree program pages for faculty information.

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- Minor in Engineering (p. 580)

## Graduate

- ME in Engineering (p. 581)

The College of Engineering offers the Master of Engineering degree for graduate students interested in a terminal master's degree, who have a demonstrated need for a professional, non-research degree in engineering, and have an academic interest in a specific focus area within engineering.

Several departments in the College of Engineering administers an ME degree focusing in that area.

**Note:** A focus area is not listed on the MU transcript. Hence the transcript and the diploma for any student completing an ME degree will only indicate Master of Engineering, with no designation of any specific department.

## Minor in Engineering

The minor in engineering is designed for students majoring in disciplines such as physics, math, chemistry and computer science, but it is available to students in all disciplines. It consists of 18 or 20 hours of engineering courses as listed below.

### Requirements

#### Required Courses

ENGINR 1000	Introduction to Engineering	1
ENGINR 1100	Engineering Graphics Fundamentals	2
ENGINR 1200	Statics and Elementary Strength of Materials	3
ENGINR 2100	Circuit Theory for Engineers	3
ENGINR 2300	Engineering Thermodynamics	3
INFOTC 1040	Introduction to Problem Solving and Programming	3-4
or CMP_SC 1050	Algorithm Design and Programming I	
<b>Engineering Elective - choose from the list below:</b>		<b>3-4</b>
BIOL_EN 2180	Engineering Analysis of Bioprocesses	
CH_ENG 2225	Mass and Energy Balance	
CV_ENG 3100	Fundamentals of Transportation Engineering	
CV_ENG 3200	Fundamentals of Environmental Engineering	
CV_ENG 3700	Fluid Mechanics	
CV_ENG 4250	Environmental Regulatory Compliance	

CV_ENG 4500	Introduction to Construction Management
ENGINR 2200	Intermediate Strength of Materials
ECE 2210	Introduction to Logic Systems
IMSE 2030	Fundamentals of Systems Design and Analysis
IMSE 2110	Probability and Statistics for Engineers
IMSE 2210	Linear Algebra for Engineers
IMSE 2710	Engineering Economic Analysis
MAE 2600	Dynamics
Total Credits 18-20	

## ME in Engineering

The Master of Engineering degree is offered in several focus areas: Biological Engineering, Electrical Engineering, Computer Engineering, Industrial and Manufacturing Systems Engineering, or Mechanical and Aerospace Engineering. Note that the focus areas do not appear on diplomas or transcripts.

### Degree Requirements

An ME student must complete a minimum of 36 credit hours of graduate course work. At least 15 hours must be in 8000+ level courses and a minimum of 21 hours must be from the College of Engineering. The student must maintain at least a 3.0 cumulative gpa and complete the program in eight years. A project may be required by the advisor. For additional degree requirements based on the focus area, students should consult with the specific College of Engineering Department.

### ME with a focus in Biological Engineering

Consult with the department of Biological, Biomedical, and Chemical Engineering for details.

### ME with a focus in either Electrical or Computer Engineering

The entrance requirements for the ME degree/Electrical and Computer Engineering Focus are the same as for the MS in Electrical Engineering and MS in Computer Engineering. Note: When registering for the GRE and TOEFL exams, be sure to designate the University of Missouri-Columbia and your program of interest as locations to receive the scores. MU's Institutional Code for the GRE and TOEFL is: 6875. Consult with the department of Electrical Engineering and Computer Science.

### ME with a focus in Industrial and Manufacturing Systems Engineering

Of the 36 required credit hours, 21 must be at the 8000 level and the rest at 7000 or above level. Consult with the department of Industrial and Manufacturing Systems Engineering for additional details.

### ME with a focus in Mechanical and Aerospace Engineering

Of the 36 hours required for the ME degree with focus in mechanical and aerospace engineering:

- A minimum of 18 hours must be 8000 level coursework
- A minimum of 18 hours of coursework must be in the MAE department
- A minimum of 18 hours must be taken at the University of Missouri-Columbia

- A maximum of 18 hours may be transferred from another school with the UM system
- A maximum of 6 hours may be transferred from a school external to the UM system
- A maximum of 6 hours of problems in MAE (MAE 8085) may be counted

## ME Entrance requirements

- GPA of 3.0 on 4.0 scale in the last 60 hours of the BS program
- Minimum GRE scores may vary according to area.

When did you take the GRE?	Verbal	Quantitative	Analytical
Prior to August 1, 2011	will be considered	80th percentile	will be considered
On or After August 1, 2011	will be considered	80th percentile	will be considered

- Minimum TOEFL scores (international applicants only):

Internet-based test (iBT)	Paper-based test (PBT)
80	550

- Minimum Academic IELTS scores 6.5 with no section below 6.0

Item	Score
Listening	6.0
Reading	6.0
Writing	6.0
Speaking	6.0

- 3 letters of recommendation
- statement of purpose
- transcripts

When registering for the GRE and TOEFL exams, be sure to designate the University of Missouri - Columbia and your program of interest as locations to receive the scores. MU's institutional code for the GRE and TOEFL is 6875.

## How to Apply

Applicants must concurrently apply to the MU Office of Graduate School and the engineering department offering the focus area interest.

## Industrial Engineering

James S. Noble, Chair and Director of Undergraduate Studies  
 College of Engineering  
 E3437 Lafferre Hall  
 (573) 882-2691  
<https://engineering.missouri.edu/academics/imse/>

Industrial and Manufacturing Systems Engineering builds on a foundation of science, mathematics, computing and data analytics in order to address a wide range of issues in the socio-technical system (complex combinations of people and technology) and environmental (sustainability) domains. With this unique blend of skills, industrial engineering bring optimization-based approaches to a variety of problems in manufacturing, healthcare, supply chain / logistics, sustainability and service organizations.

Industrial engineers in manufacturing organizations address many issues including designing workplaces, considering both the capabilities of machines and humans. They may design computer-integrated manufacturing systems that include automation and robotics. They may also control production, optimize inventory, design quality systems, evaluate new product proposals and build new or improved production facilities.

Industrial engineers working in the supply chain / logistics domain address issues ranging from supplier selection, demand forecasting, inventory systems, facility location, distribution network design, and transportation.

Industrial engineers are also involved in sustainable systems design where they seek to minimize environmental impact while cost-effectively delivering the goods and services demanded by humanity. Issues addressed range from optimizing the environmental performance of an individual product to quantitatively assessing the performance of energy systems.

Industrial engineering skills are used to design better healthcare delivery where they increase the efficiency of the healthcare system. They also work to reduce errors in a wide range of human-centered systems with expertise from data-driven science and ergonomics.

Finally, industrial engineering skills can help facilitate the judicial process, provide faster and more accurate mail distribution, and optimize airline routing and reservation methods. In summary, the industrial engineer may be involved in the design and operation of a range of systems that provide services at a cost that society can afford at the quality that is required.

The MU IMSE department offers the ABET-accredited Bachelor of Science degree with a major in Industrial Engineering (BSIE), and 5 year Industrial Engineering BSIE/MS and BSIE/MBA programs. At the graduate level, the department offers the Master of Science in Industrial Engineering (MSIE) and the Doctor of Philosophy in Industrial Engineering (PhD IE) degrees. The department also offers students the opportunity to obtain Lean Six Sigma Green Belt certification and/or an interdisciplinary Global Supply Chain Management certification.

## Faculty

**Professor** C. M. Klein\*\*, J. S. Noble\*\*, B. Wu\*\*

**Associate Professor** R. G. McGarvey\*\*, L. G. Occeña\*\*

**Assistant Professor** J. H. Kim\*\*, S. Rajendran\*, K. Seo\*, S. Srinivas\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BSIE in Industrial Engineering (p. 584)

### Advising Contact

James S. Noble, Chair and Director of Undergraduate Studies

### Scholarship Information Contact

Luis G. Occeña

Industrial engineering undergraduates complete a core engineering curriculum during the first two years. The objective of this curriculum is to

give the student a rigorous foundation in mathematics, natural sciences, basic engineering sciences, applied probability, and computer science, as well as a complementary and meaningful exposure to the humanities and social sciences.

Building on the core courses, students gain knowledge of optimization methodologies, human factors, data analytics and systems modeling. They also learn to model and evaluate integrated systems of people, technology and information in the areas of production and service system design, supply chain design and management, control systems, quality systems, sustainability, data engineering, product and process design.

These fundamental skills provide the foundation from which students learn to develop systematic, integrated, and optimal solution approaches to large-scale enterprise problems. In order to be successful as they begin their careers (or graduate study) students learn to communicate effectively in both oral and written forms, and become proficient in working in diverse teams of individuals. Lastly, the curriculum introduces the student to ethical and professional issues in engineering practice.

Industrial engineering design experiences are integrated throughout the curriculum, most often in a team-based environment. Industrial engineering design is the process of developing and improving integrated systems that include people, materials, information, equipment and energy.

## Admission Requirements

- All incoming freshmen with ACT math score of at least 26, and ACT composite of at least 26 or a class rank in the upper 25 percent are directly admitted into the program.
- All other incoming freshmen will be admitted when they have passed, with a C or better grade in Math 1500 (or equivalent) Math 1700 (or equivalent), Physics 2750 (or equivalent) and Chem 1320 (or equivalent), and if they are in good academic standing.
- Students transferring from other institutions (not having a MU GPA) will be admitted after a review of their transcript if they have passing grade in an equivalent of Math 1500, Math 1700, Physics 2750 and Chem 1320 and satisfactory overall prior academic performance.

## Program Educational Objectives

The IE Program educational objectives have been developed to address the needs of our constituencies and to be consistent with the University of Missouri mission. Within 3-5 years of graduation from the industrial engineering program in the Industrial and Manufacturing Systems Engineering Department at the University of Missouri:

- Graduates will create value for their employers, demonstrating entrepreneurial initiative, and make contributions that benefit society.
- Graduates will expand their capabilities through professional development and advanced education.
- Graduates will provide leadership and be agents of change in their profession and/or communities.

The objectives are based on a few key concepts: value, entrepreneurial initiative, expanding capability, leadership, and being agents of change.

'Value' creation is defined as what a graduate's employer requires in order to achieve its stated objectives. The IMSE graduate adds value to the organization by taking entrepreneurial initiative that contributes to the greater good of society. Graduates face an environment where technology is advancing at an ever increasing pace, therefore, they will need to expand their knowledge and capabilities through professional

development and advanced education. Due to their systems view of the enterprise, industrial engineers are often called upon to provide leadership within an enterprise and, as such, are required to manage the change that is inherent in today's dynamic environment.

## Student Outcomes

Student Outcomes (SO) are defined as the abilities the department's BSIE graduates will have upon graduation that will enable them to achieve the program's educational objectives. The student objectives reflect the assimilation of what has been taught in the curriculum upon completion of the undergraduate education.

All MU BSIE graduates should have:

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. an ability to communicate effectively with a range of audiences
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

In summary, graduates of the Department of Industrial and Manufacturing Systems Engineering (IMSE) will possess a strong foundation upon which they can grow professionally, and continue to build a focused set of fundamental and engineering knowledge and skills that are integrated and applicable to real-world problems in any enterprise setting.

## Accreditation

The University of Missouri program in industrial engineering is accredited by the Engineering Accreditation Commission (EAC) of ABET.

## IMSE Honors Program

The IMSE Honors Program follows the regulations and philosophy of the College of Engineering Honors Program, and as such is intended to encourage, facilitate and reward independent study by high-ability undergraduate students.

The heart of the program is an undergraduate honors project, undertaken and completed by the time of graduation while enrolling in 3 to 6 credits of IMSE 4995 (<http://catalog.missouri.edu/search/?P=IMSE%204995>) Undergraduate Research Industrial Engineering - Honors. The academic credit for the honors project (3-6 credits in IMSE 4995 (<http://catalog.missouri.edu/search/?P=IMSE%204995>)) replaces an equivalent number of credits of IMSE or Technical electives. The project is conducted under the direction of an IMSE professor (honors advisor) who is selected by the student, with agreement by the professor. The

project culminates in an honors thesis, which is read and approved by the honors advisor and a second reader. A finished copy of the honors thesis, signed by the honors advisor and second reader, is required for satisfactory completion of the project.

### Academic Qualifications for the Honors Program

Honors students must maintain and graduate with a 3.0 overall GPA. In the case of a transfer student, their transferred credit plus their MU credit will average 3.0/4.0. Students must have a minimum of 60 credit hours.

The successful honors scholar has a degree of flexibility in their program of study. Honors scholars may reduce the credits required for degree completion to the University minimum (i.e., 120 credits) by substituting graduate course credits through dual enrollment (undergraduate/graduate at MU) during the last two semesters of the undergraduate program. Any 8000 level course may be substituted, but only courses at the 7000 level that are not required for the BSIE degree at the 4000 level (eg. IMSE elective courses, technical electives) may be substituted.

## Lean Six Sigma Green Belt Certification

IMSE students have the opportunity to obtain a Lean Six Sigma Green Belt certification either during their degree program or after. Certification requires students to obtain a GPA average of 2.5 or better in IMSE 4110 (<http://catalog.missouri.edu/search/?P=IMSE%204110>), IMSE 4310 (<http://catalog.missouri.edu/search/?P=IMSE%204310>), and IMSE 4610 (<http://catalog.missouri.edu/search/?P=IMSE%204610>), then they must successfully complete IMSE 4385 (<http://catalog.missouri.edu/search/?P=IMSE%204385>) - Lean Six Sigma Green Belt Project (a 1 credit hour course where DMAIC is used to improve a process within an organization).

## Global Supply Chain Management Certificate

IMSE students have the opportunity to obtain an interdisciplinary undergraduate Certificate in Global Supply Chain Management (GSCM) which is jointly offered by the Department of Management and the Department of Industrial and Manufacturing Systems Engineering. Certification requires students to complete 15 credit hours with a 3.0 GPA. There are nine required credit hours (MGMT 4070, IMSE 4350 and IMSE 4910), plus six elective hours from a list of courses.

## Graduate

- MS in Industrial Engineering (p. 585)
- PhD in Industrial Engineering (p. 586)

Industrial & Manufacturing Systems Engineering Graduate Programs  
College of Engineering  
E3437 Lafferre Hall  
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<http://engineering.missouri.edu/imse/>

**Interim Director of Graduate Studies:** Luis G. Occeña

## About IMSE

The graduate program in industrial engineering provides a scholarly environment in which highly qualified, creative students may obtain the knowledge and develop the skills necessary to solve complex industrial, governmental and societal system design problems. These systems are required to operate within increasingly complex constraints, thus requiring the use of sophisticated and creative designs. The industrial engineer responsible for such designs must be capable of applying a



broad spectrum of scientific tools if the most effective systems are to be obtained.

Our master of science program is designed to provide a basic understanding of these tools and experience in the application of these tools in the design process. The doctor of philosophy program is designed to provide the specialized knowledge and skills necessary to develop new tools or methods for solving complex systems design problems. Graduate students are able to obtain an interdisciplinary Global Supply Chain Management certificate as part of their academic program.

## General Admission Guidelines

Acceptance for advisement in the department's graduate programs is available to students with an ABET accredited undergraduate engineering degree. Engineering graduates who have not taken linear programming, linear algebra, statistical quality control or engineering economic analysis must complete 12 hours of additional course work before graduation.

Students with baccalaureate degrees in mathematics, physics, chemistry or computer science may be accepted if they have completed 13 hours of calculus, three hours of differential equations and six hours of calculus-based probability and statistics. Several factors are considered in evaluating an applicant's capability, such as overall GPA, grade trends and major area grades. In addition, each applicant is required to take the general test of the GRE and international students must take the TOEFL and TWE, or IELTS.

## Facilities and Resources

Laboratory facilities in several major application areas, both within the department and in the college, support the academic program. Neighboring industries, city, county and state government agencies, local hospitals and nearby large metropolitan centers provide a reservoir of research and design opportunities.

## Computing and Reference Materials

The department has access to the University of Missouri System computing network and maintains its own computing facilities for student use. Besides Ellis Library facilities, an excellent collection of mathematical, statistical and engineering books and reference materials are housed in the engineering library and the industrial and manufacturing systems engineering departmental library.

## Funding

Fellowships, scholarships and teaching and research assistantships are available to qualified graduate students. These forms of financial assistance are supported by funds made available through state, federal and industrial graduate support programs and through research grants from various industrial and governmental agencies

# BSIE in Industrial Engineering

## Degree Program Description

The Bachelor of Science in Industrial Engineering has a core engineering curriculum during the first two years. The objective of this curriculum is to give the student a rigorous foundation in mathematics, natural sciences, basic engineering sciences, applied probability, and computer science, as

well as a complementary and meaningful exposure to the humanities and social sciences.

Building on the core courses, students gain knowledge of optimization methodologies, human factors, data analytics and systems modeling. They also learn to model and evaluate integrated systems of people, technology and information in the areas of production and service system design, supply chain design and management, control systems, quality systems, sustainability, data engineering, product and process design. Students have the opportunity to obtain Lean Six Sigma Green Belt certification and/or an interdisciplinary Global Supply Chain Management (p. 807) certificate while completing the program requirements.

## Major Program Requirements

Students earning a Bachelor of Science in Industrial Engineering are required to complete all University general education (<http://catalog.missouri.edu/academicdegreerequirements/generaleducationrequirements/>), University undergraduate requirements (<http://catalog.missouri.edu/academicdegreerequirements/universityrequirements/>), degree, and major requirements, including selected foundational courses, which may fulfill some University general education requirements. Over half of the course work for the degree is completed in ENGR/IMSE or professionally related courses.

## Major Core Requirements

ECONOM 1014	Principles of Microeconomics	3
or ECONOM 1014H	Principles of Microeconomics-Honors	
MATH 1500	Analytic Geometry and Calculus I	5
MATH 1700	Calculus II	5
MATH 2300	Calculus III	3
MATH 4100	Differential Equations	3
CHEM 1320	College Chemistry I	4
PHYSICS 2750	University Physics I	5
PHYSICS 2760	University Physics II	5
CMP_SC 1050	Algorithm Design and Programming I	4
ENGINR 1100	Engineering Graphics Fundamentals	2
ENGINR 1200	Statics and Elementary Strength of Materials	3
ENGINR 2200	Intermediate Strength of Materials	3
IMSE 1000	Introduction to Industrial Engineering	1
IMSE 2030	Fundamentals of Systems Design and Analysis	3
IMSE 2210	Linear Algebra for Engineers	3
IMSE 2710	Engineering Economic Analysis	3
IMSE 3110	Probability Models for Engineers	3
IMSE 3810W	Ergonomics and Workstation Design - Writing Intensive	3
IMSE 4110	Engineering Statistics	3
IMSE 4210	Linear Optimization	3
IMSE 4230	Operations Research Models	3
IMSE 4280	Systems Simulation	3
IMSE 4310	Integrated Production Systems Design	3
IMSE 4350	Production and Operations Analysis	3
IMSE 4410	Data Engineering and Predictive Modeling	3
IMSE 4550	Computer Aided Design and Manufacturing	4
IMSE 4610	Engineering Quality Control	3

IMSE 4970W	Capstone Design I - Writing Intensive	1
IMSE 4980W	Capstone Design II - Writing Intensive	3
<b>IMSE electives</b>		<b>6</b>
Choose from the following:		
IMSE 3030	Manufacturing and Supply Systems	3
IMSE 4001	Topics in Industrial and Manufacturing Systems Engineering	3
IMSE 4085	Problems in Industrial Engineering	1-3
IMSE 4220	Optimization Modeling and Computational Methods	3
IMSE 4330	Material Flow and Logistics System Design	3
IMSE 4360	Supply Chain Engineering	3
IMSE 4370	Service Systems Engineering and Management	3
IMSE 4380	Six Sigma Methodology	3
IMSE 4420	Web-Based Information Systems	3
IMSE 4560	Introduction to Rapid Prototyping	3
IMSE 4570	Computer Integrated Manufacturing Control	3
IMSE 4580	Industrial Energy Efficiency and Management	3
IMSE 4720	Introduction to Life Cycle Analysis	3
IMSE 4750	Entrepreneurial Innovation Management: Enterprise Conception	3
IMSE 4810	Cognitive Ergonomics	3
IMSE 4910	Industrial Engineering Internship	3
IMSE 4920	Industrial Engineering COOP	3
IMSE 4990	Undergraduate Research in Industrial Engineering	1-3
IMSE 4995	Undergraduate Research Industrial Engineering - Honors	1-3
<b>Engineering elective</b>		<b>3</b>
Choose from the following:		
ENGINR 2100	Circuit Theory for Engineers	3
ENGINR 2300	Engineering Thermodynamics	3
<b>Technical electives</b>		<b>6</b>

A technical elective is defined as any course relevant to the degree program but not required, such as Computer Science, Engineering, Mathematics, Science courses that are at a level beyond courses required in the IE curriculum, and select business (Economics, Finance, Management, Marketing) courses above 3000 and Accounting courses beyond 2000.

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
MATH 1500		5 ENGLISH 1000	3
CHEM 1320		4 PHYSICS 2750	5
IMSE 1000		1 MATH 1700	5
ECONOM 1014		3 IMSE 2030	3
Constitutional Requirement (Social Science Elective)	3		
		16	16

Second Year			
Fall	CR	Spring	CR
PHYSICS 2760		5 ENGINR 1200	3
MATH 2300		3 MATH 4100	3
ENGINR 1100		2 IMSE 4110	3
IMSE 3110		3 CMP_SC 1050	4
IMSE 2710		3 IMSE 2210	3
		16	16

Third Year			
Fall	CR	Spring	CR
ENGINR 2200		3 Humanities/Social Science Elective	3
IMSE 3810		3 IMSE 4550	4
IMSE 4280		3 IMSE 4610	3
IMSE 4210		3 IMSE 4310	3
IMSE 4230		3 IMSE 4350	3
		15	16

Fourth Year			
Fall	CR	Spring	CR
IMSE 4410		3 IMSE 4980	3
IMSE 4970		1 IMSE Elective	3
ENGR Elective		3 Technical Elective	3
IMSE Elective		3 Humanities/Social Science Elective	3
Technical Elective		3 Humanities/Social Science Elective	3
Humanities/Social Science Elective	3		
		16	15

Total Credits: 126

## MS in Industrial Engineering

Master of Science of Industrial Engineering Online: Preparing Professionals to Face the Challenges and Take Advantage of the Opportunities of the Fourth Industrial Revolution

As we enter the Fourth Industrial Revolution, a period of time when emerging technological breakthroughs are rapidly creating new challenges as well as opportunities, we are focused on providing an up-to-date education that is relevant and useful for our students' future work and career. Having established two national-level centers of research and education in the department, the faculty's collective expertise provides our students with multidisciplinary skills to take advantage of the opportunities related to the design, operation and management of the next generation of smart industrial, service and healthcare systems.

The program aims to provide the students with the necessary concepts and tools — such as those in the architecture of smart industrial and service systems, analytical and simulation modeling, big data analytics and smart devices, energy and environmental management — that will put our students on a fast-track career in the new technological and business environment.

## Degree Requirements

The Master of Science in Industrial Engineering (MS) degree consists of two options: a 30-credit hour research oriented program requiring a thesis or a 30-credit hour application oriented program requiring a project report. The MS Industrial Engineering thesis option curriculum is built

upon the choice of a concentration area around which students can mold their overall academic effort including six hours of research. The current focus areas are Data Analytics and Operations Research, Manufacturing and Production Systems, Sustainable Systems Engineering, Service and Supply Chain Systems, and Healthcare and Human-centered Systems. The MS Industrial Engineering project option requires three hours of an approved project advised by a faculty member in lieu of a thesis, and one more course.

**Required Courses (12 credit hours)**

IMSE 8030	Advanced Manufacturing and Supply Systems	3
IMSE 8110	Design and Analysis of Engineering Experiments	3
IMSE 8410	Advanced Computational Systems and Data Engineering	3
IMSE 8085	Problems in Industrial and Manufacturing Systems Engineering	1-99

**Electives (18 credit hours)**

IMSE 7220	Optimization Modeling and Computational Methods	3
IMSE 7350	Production and Operations Analysis	3
IMSE 7370	Service Systems Engineering and Management	3
IMSE 7580	Industrial Energy Efficiency and Management	3
IMSE 8310	Advanced Integrated Production Systems	3
IMSE 8370	Supply Chain Modeling and Analysis	3
IMSE 8850	Health Care Systems Design and Analysis	

**Admissions**

For more information regarding the program and application, please see: <https://online.missouri.edu/degreeprograms/engineering/industrial/masters/>

You can also contact the Program Director, Dr. Bin Wu, directly at: [wubi@missouri.edu](mailto:wubi@missouri.edu).

**Application Deadlines**

Applications accepted throughout the year.  
 Fall application deadline: March 1 (Priority deadline: January 1)  
 Spring application deadline: September 15

**Minimum Admission Criteria**

- Minimum GPA: 3.0/4.0
- Test of Written English: (TWE) of 4.0 (international applicants only)
- Minimum Academic IELTS OVERALL score: 6.0; or Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
80	550

- Minimum GRE scores:

When did you take the GRE?	Verbal	Quantitative
Prior to August 1, 2011	350	700
On or After August 1, 2011	143	155

- Foreign Language: No foreign language is required in either program.

**Required Application Materials**

*To the Graduate School:*

- All required Graduate School documents

*To the IMSE Graduate Program:*

- 3 letters of recommendation
- Statement of Purpose
- Curriculum Vitae (CV)
- GRE scores (Note: GRE is waived for applicants who have graduated from an ABET-accredited institution.)

**Admission Contact Information**

Luis G. Occeña, Interim Director of Graduate Studies  
 E3437 Thomas and Nell Lafferre Hall  
 Columbia, MO 65211  
 (573) 882-2691

**TA/RA Hiring**

This academic department does **not** have any function of financial Aid. Rather, IMSE hires TA/RA automatically based on the department needs. No separate application or contacts are necessary; all top ranked applicants will be considered.

**PhD in Industrial Engineering**

**About the Doctoral Degree**

Programs are individually tailored to meet students' objectives and to culminate in an original research dissertation. The PhD builds upon the graduate MS and fundamental BS programmatic areas. The current focus areas are Data Analytics and Operations Research, Manufacturing and Production Systems, Sustainable Systems Engineering, Service and Supply Chain Systems, and Healthcare and Human-centered Systems. Fundamental IE knowledge in each is expected. The basic goals of the PhD program are to provide students with a solid understanding of the theoretical bases for the latest tools and techniques of systems analysis and design, an extensive experience in applying these analyses and design tools and techniques, and research experience in the development of new tools or applications of existing techniques to design or analyze problems.

**Degree Requirements**

The PhD program is a 72 credit hour program beyond the bachelor's degree. Only 12 hours of research will count towards the 72 hours. A minimum of 24 hours of 8000-level work at MU, other than research hours, independent study hours, and problems hours is required. Students must earn a B+ or above for all core courses.

Transfer credits (up to a maximum of 30) may be accepted and will be determined by the student's doctoral committee. Once the committee has approved of the courses to be transferred, the Graduate School must make the final review of the transfer request to determine if the credit meets the minimum guidelines.

IMSE 8110	Design and Analysis of Engineering Experiments	3
IMSE 8000 level or higher		12
8000 level or higher	IMSE or other departments	9
7000/8000 level	IMSE or other departments	36

IMSE 9990	Research-Doctoral Dissertation in Industrial Engineering	12
Total Credits		72

## Graduation Requirements

The granting of a PhD requires completion of five major requirements:

1. A qualifying examination (D1 form).
2. A course of study (Study Plan, D2 form).
3. Comprehensive examination, and
4. Acceptance of dissertation proposal (D3 form)
5. Final defense and submission of completed dissertation (D4 form).

## Admission to Candidacy

Admission to candidacy for the PhD degree requires three steps:

1. Passing the qualifying examination,
2. Selecting and advisory committee, and
3. Filing the Qualifying Examination Results and Doctoral Committee Approval Form (D-1).

All three steps must be completed by the end of the second semester of enrollment.

## Qualifying Process

### Qualifying exam requirements:

A doctoral student must take and pass the Ph.D. qualifying examination in order to be a Ph.D. candidate in the department. The qualifying exam will be offered twice a year, in fall and spring semesters.

The qualifying exam can be taken only after completing IMSE 8110 and the other four IMSE 8000 level courses. The format is as follows:

**In-class written exam:** Doctoral faculty members from the IMSE department will develop the in-class exam. The written exam will focus on both methodology knowledge and its application. It will be an open-book, open-notes exam. In total, there will be five questions and the student can choose to answer three out of the five questions. Students will take the exam in-class and each faculty member will grade the student's answers. One of the following outcomes will be the result of this evaluation for each student:

1) If the student passes all three questions, they pass the test and can further work toward their research. 2) If the student passes two out of three questions, they conditionally pass and the student's doctoral committee will decide on what is to be done next. 3) If the student passes one or none of the questions, then they fail the written exam and the faculty will provide feedback on the student's performance. If the student fails the exam for a second time, then they must leave the program.

A student cannot take the qualifying exam unless an advisor has been identified. However, there is no need to re-take qualifying exam if the student's advisor is changed.

A student can take a maximum of two attempts to pass the qualifying exam.

## Doctoral Committee

The Doctoral Committee is composed of a minimum of four members of the MU graduate faculty and will include at least three members from the student's doctoral degree program and an outside member from a

different MU program. At least two of the doctoral committee members, including the student's adviser, must be MU doctoral faculty. Additional committee members with specialized expertise who do not meet the criteria for the MU graduate faculty or doctoral faculty may serve on a doctoral committee as a fifth or sixth member, with special permission of the Dean of the Graduate School.

## Program of Study

After successfully completing the Qualifying Process, the doctoral candidate, in conjunction with their advisor and the Director of Graduate Studies, will design a program of study that meets the needs of their emphasis area and the requirements of the Graduate School. The student's doctoral committee must approve this program of study. The total program of study must constitute a definite educational plan for research and scholarly investigation in their emphasis area. The Plan of Study for the Doctoral Degree (D-2) form should be submitted to the Graduate School by the end of the third semester. The purpose of this form is to plan the program of study that the student will follow and certify that all committee members approve the program, including the recommended hours of transfer credit. MU requires a minimum of seventy-two semester hours beyond the baccalaureate degree for the PhD. No more than twelve research hours may be included in this seventy-two hour requirement. At least 24 credit hours must be 8000-level regular courses (non-research or non-problems credits) from MU.

## Comprehensive Examination

In the Department of Industrial and Manufacturing Systems Engineering the doctoral comprehensive exam is held in conjunction with the student's dissertation proposal defense. This defense is of the proposed research that will be completed by the candidate in order to prepare their dissertation and constitutes the written part of the test. During the oral defense of the proposal, the faculty will also conduct the oral part of the comprehensive examination. Students must provide the committee members with a copy of their research proposal two weeks prior to the proposal defense.

For the comprehensive examination to be successfully completed, the doctoral program committee must vote to pass the student on the entire examination, both written and oral sections, with no more than one dissenting or abstaining vote. The Doctoral Comprehensive Examination Results (D-3) form, carrying the signatures of all members of the committee, must be sent to the Graduate School not less than two weeks after the comprehensive examination is conducted. If failure is reported, the committee recommends remedial measures.

The student who fails may not take a second comprehensive examination for at least twelve weeks. Failure to pass two comprehensive examinations automatically prevents candidacy.

After successful completion of the comprehensive exam, doctoral candidates need only enroll in the minimum research hours necessary to meet the current continuous enrollment requirements; they will be still considered as full-time for reporting purposes.

## Final Examination

During the process of developing and completing the research work, the student must submit at least **two articles, to advisor-approved refereed journals**. This requirement must be met prior to soliciting the Final Exam/Dissertation Defense. The submission of the student's journal article must be reported to the director of graduate studies and must include a copy of the paper and a letter from the journal confirming the review process. In

addition, copies of the paper should be submitted to the members of the doctoral committee.

After the PhD dissertation is completed, the candidate should submit a copy to each member of the Committee.

All students completing graduate degrees will be required to submit final dissertations to the Graduate School in the required electronic format. Hard copy dissertations will no longer be accepted. Please consult The Graduate School's Electronic Theses and Dissertation Guidelines.

At this time, the candidate is eligible to take the Final Examination. The PhD candidate is responsible for arranging the time and place of the Final Examination. An announcement must be sent to each member of the department faculty and publicly posted at least two weeks prior to the examination. Committee members should also be provided with a copy of the dissertation at this time.

Also, the candidate must make arrangements to present his/her dissertation at a departmental seminar, either in the IMSE 8087 seminar or a special seminar, during the month prior to the formal defense of the dissertation. It is the policy of the Department of Industrial and Manufacturing Systems Engineering to require the Final Examination be an oral defense of the work included in the dissertation and open to all members of the University graduate faculty.

The candidate must be enrolled at the time of this examination and the examination cannot be taken when MU is not officially in session. It is recommended that the Report of the Dissertation Defense (D-4) form be taken to the defense, along with the dissertation approval page so that committee members can sign both forms for students who successfully defend their dissertation. The purpose of this form is to record the official results of the dissertation defense.

## Admissions

### Admission Contact Information

Luis G. Ocoña, Interim Director of Graduate Studies  
E3437 Thomas and Nell Lafferre Hall  
Columbia, MO 65211  
(573) 882-2691

### Application Deadlines

Applications accepted throughout the year.  
Fall application deadlines: March 1 (Priority deadline: January 1)  
Spring application deadline: September 15

### Minimum Criteria to be Considered for Admission

- Minimum GPA: 3.5/4.0
- Demonstrated research experience
- Compatible research interests or capabilities with a member of the faculty
- Minimum OVERALL IELTS scores: 6.5; or Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
80	550

- Minimum GRE scores

When did you take the GRE?	Verbal	Quantitative
Prior to August 1, 2011	350	700
On or After August 1, 2011	143	155

**Note:** Only highly qualified students are accepted for advisement in the PhD program. The faculty looks for excellence in undergraduate and graduate work, high GRE scores, research experience, and strong indications of research potential.

### Admission Cycle

This department does not use "rolling admission." Applicants will be notified within a month after the application deadline.

### Required Application Materials

To the Graduate School (<https://applygrad.missouri.edu/apply/>):

- All required Graduate School documents

*To the IMSE Graduate Program:*

- 3 letters of recommendation
- Writing sample demonstrating research experience
- Statement of Purpose
- Curriculum Vitae (CV)
- GRE scores

### TA/RA Hiring

This academic department does **not** have any function of financial Aid. Rather, IMSE hires TA/RA automatically based on the department needs. No separate application or contacts are necessary; all top ranked applicants will be considered.

## Information Technology

Dong Xu, Director  
College of Engineering  
201 Naka Building  
(573) 882-2299  
<https://engineering.missouri.edu/academics/it/>

Welcome to the Information Technology (IT) Program at Mizzou! Established in 2005, the IT program is home to more than 300 students studying a spectrum of traditional and cutting-edge industry topics. The program has two emphasis areas: (1) Software Engineering and Computer Management (mobile application development, computer programming, web development, networks and database management, system administration, cyber-security, and project management). (2) Media Technology and Post Production (media design, color engineering, digital production systems, digital effects and animation, virtual reality and game design).

The IT graduates have a great outlook in the job market. According to the Bureau of Labor Statistic list of Computer Information Technology Occupations, the median salaries in 2017 are \$103,560 for Software Developers, \$95,510 for Information Security Analyst, \$88,270 for Computer Systems Analysts, \$81,100 for Network and Computer Systems Administrators, \$70,530 for Multimedia Artists and Animators, \$67,990 for Web Developers, and \$58,810 for Film and Video Post-Production specialists. Designed for the increasingly digital world, our IT program prepares students to pursue a variety of IT-related careers in programming, software engineering, database and system administration,

video and audio post-production, digital effects and virtual reality, web developers, IT implementation specialists, and business analysts, both in the public and private sector. Equipped with marketable skills, most graduates in our IT program achieved roles in companies with high-pay jobs, some of whom had six-figure starting salaries. Additionally, the program provides well-trained IT workforce for Missouri and beyond.

The IT program offers rich curricula and student learning experience. In order to both offer traditional Information Technology competencies as well as emerging technologies and techniques, our courses are evaluated and created by the faculty in response to the evolving trends of the industry. These frequent updates allow our program to reflect the state of art developments each year. Our program offers some course sequences that are established in media technology, software programming, and security, etc. Some courses targeting cutting-edge technologies, such as cloud computing, virtual reality, and mobile App development are also offered. Many courses are offered online and in the summer. The teaching style of the IT program is highly hands-on, using experiential learning and challenge-based learning. The IT program also has a study-abroad program, with activities in both the summer and winter breaks. Our program offers both in-seat and online options, catering to the student's need and availability. The BSIT is offered entirely online for those seeking a distanced education.

The IT program is suitable to students with a wide range of background, including those students seeking to transfer from other degree programs, or community colleges. The IT Program also offers flexibility in career design, as we require fewer core course requirements than other programs, allowing the student to pick and choose a personalized selection of courses to tailor their career goals and areas of interest. In addition, the program offers a spectrum of collaborations, including a fast-track IT-MBA program with the Business School and a co-sponsored annual Reynolds Journalism Institute student competition, as well as numerous academic and social events by student organizations. Abundantly available and encouraged, students may seek research opportunities with faculty, and participate in internships for credit towards the program. Finally, the IT Program offers a number of both internal and external certificates, in software engineering, cyber-security, and media technology.

The IT program has distinguished faculty, who are highly trained and experts in their teaching areas, achieving various awards throughout their careers. The program has a number of IT-specific labs and classrooms, including Media and Software Development Lab and Classroom, Software Engineering Classroom, Networks and Securities Lab, Virtual Reality Lab, VR and AR Capture Facility, and Audio Engineering Lab and Studio. The program provides the very best experience for the future IT Professional, preparing them for the ever-changing technology-fueled world and industry.

## Faculty

**Assistant Professor of Practice:** R. Bazan, C. Gubera, B. Maurer, N. Wergeles

**Associate Teaching Professor:** D. Musser\*

**Assistant Teaching Professor:** F. Wang

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BS in Information Technology (p. 589)
- Minor in Information Technology (p. 591)

### Advising Contact

Sandra Brown  
W1006 Lafferre Hall  
(573) 884-6961  
brownsan@missouri.edu

### Scholarship Information Contact

Heather Ralph  
(573) 882-4765  
ralphhm@missouri.edu

This degree program is offered by the College of Engineering. Career opportunities include database administration, web design, cyber security, game development, film production, and more.

## Graduate

While the College of Engineering does not offer a graduate degree specifically in Information Technology, it does offer a number of graduate degrees in closely related areas such as Computer Science (p. 565), and Computer Engineering (p. 560). There is a Master of Engineering degree through the department. The University also offers a number of information technology degrees in its other Colleges, and through interdisciplinary programs such as Health Informatics (p. 779), Health Administration (p. 776), Informatics (p. 785), or Information Science and Learning Technology (p. 464).

A joint degree program administered through the School of Engineering and the Crosby MBA Program is available for students who wish to earn a Bachelor of Science in Information Technology (BS IT) and a Master of Business Administration (MBA) (p. 388). Individuals interested in pursuing engineering and business will find that this program provides them with a valuable set of skills to excel in this rapidly growing field. If earned separately, the BS IT degree would take four years and the MBA degree would take two years. The dual degrees may be completed in five years assuming normal progress toward each degree.

Or you may browse a complete list of degree options (p. 20) at the University of Missouri.

## BS in Information Technology

### Degree Program Description

Information Technology (IT) students engage and collaborate with other disciplines to create software applications, design and manage technology-based infrastructures, manage database systems, develop web applications, build networks, implement cyber security, and use technology to solve a wide range of complex problems. This traditional IT core competencies are supplemented by a range of technical electives in a range of topics including virtual environments, augmented reality, digital media systems and post production processes, and 2D/3D animation. The program finishes with a one-semester highly collaborative capstone course, in which students complete design projects that serve as a culminating academic experience. As IT is a growing international field,

the IT Program proudly offers as often as possible international study abroad courses. Internships with companies for real-world experience and undergraduate research opportunities with faculty are abundant and encouraged. The MU Engineering Leadership, Engagement and Career Development Academy, W1025 Lafferre Hall, can assist students in searching for employment opportunities and for internship/co-op positions. Students are prepared to pursue a variety of IT related careers in today's evolving markets of programmer analyst, software engineer, web developers, database administration, digital media post production specialists, VR/AR environment designers, all within both public and private sectors. Our program is designed to cater to your interests, as well as the ever-changing high-demand industry our students enter upon graduation.

## Major Program Requirements

To receive the Bachelor of Science Degree in Information Technology, the candidate must successfully complete 126 semester hours of credit including the following distribution: 30 hours of INFOTC core courses, 24 hours of INFOTC technical electives or equivalent Computer Science (CMP\_SC) courses, 12 hours of related math and business courses, 10 hours of science, 15-22 hours of courses in a possible minor and any remaining hours for elective courses. General education courses include ENGLSH 1000, 9 hours of Social/Behavioral Sciences and 9 hours of Humanities/Fine Arts, with at least one course from Social/Behavioral/Humanities at the 2000 level or higher.

Information Technology students must earn a C-range grade or better in all INFOTC/CMP\_SC courses that are prerequisites for other INFOTC/CMP\_SC courses that the student takes. To graduate, a student must earn a cumulative UM grade point average of 2.0 or better and a 2.0 grade point average or better in all INFOTC/CMP\_SC courses.

In addition to the major core requirements, students must complete all University graduation requirements (p. 35) including University general education (p. 36), as well as all degree and college or school requirements. See course descriptions for prerequisites.

## Major Core Requirements

Information Technology Core Courses		30
INFOTC 1000	Introduction to Information Technology	3
INFOTC 1040	Introduction to Problem Solving and Programming	3
or CMP_SC 1050	Algorithm Design and Programming I	
INFOTC 1610	Introduction to Digital Media Design	3
INFOTC 2040	Programming Languages and Paradigms	3
or CMP_SC 2050	Algorithm Design and Programming II	
INFOTC 2810	Fundamentals of Network Technology	3
INFOTC 2830	Web Application Development I	3
INFOTC 2910	Cyber Security	3
INFOTC 3380	Database Systems and Applications	3
INFOTC 4320	Software Engineering	3
or INFOTC 3650	Project and Team Management	
INFOTC 4970W	Senior Capstone Design - Writing Intensive	3
or INFOTC 4610W	Advanced Multimedia Design and Technology - Writing Intensive	
Information Technology Technical Electives		24

Choose from below or other courses with advisor approval (minimum of 24 credit hours with 12 hours at 3000 level or above):

INFOTC 1600	Digital Systems	3
INFOTC 2001	Topics in Information Technology	3
CMP_SC 2010	Intellectual Property for Engineers	3
INFOTC 2610	Digital Media Design I	3
INFOTC 2615	Color Processing and Design	3
INFOTC 2620	Computer Modeling and Animation I	3
INFOTC 2630	Introduction to Game Theory and Design	3
INFOTC 3001	Topics in Information Technology	3
CMP_SC 3050	Advanced Algorithm Design	3
INFOTC 3330	Object Oriented Programming	3
or CMP_SC 3330	Object Oriented Programming	
INFOTC 3530	UNIX Operating System	3
or CMP_SC 3530	UNIX Operating System	
INFOTC 3600	User Experience Design I	3
INFOTC 3610	Digital Media Design II	3
INFOTC 3620	Computer Modeling and Animation II	3
INFOTC 3630	Introduction to Virtual Reality	3
INFOTC 3640	Motion Graphics and Visual Effects I	3
INFOTC 3650	Project and Team Management	3
INFOTC 3660	Audio Engineering	3
INFOTC 3810	Computer Network Security	3
INFOTC 3850	Computer System Administration	3
INFOTC 3910	Advanced Cyber Security	3
INFOTC 3940	Internship in Information Technology	1-6
INFOTC 4001	Topics in Information Technology	3
INFOTC 4085	Independent Projects	1-6
or CMP_SC 4085	Problems in Computer Science	
CMP_SC 4380	Database Management Systems I	3
INFOTC 4400	C#.NET Development	3
INFOTC 4405	iOS App Development I	3
INFOTC 4410	Android App Development I	3
INFOTC 4420	Android App Development II	3
INFOTC 4425	iOS App Development II	3
INFOTC 4440	Android App Development III	3
INFOTC 4445	iOS App Development III	3
CMP_SC 4530	Cloud Computing	3
INFOTC 4600	User Experience Design II	3
INFOTC 4610	Advanced Multimedia Design and Technology	3
INFOTC 4640	Motion Graphics and Visual Effects II	3
INFOTC 4830	Web Application Development II	3
INFOTC 4910	Digital Forensics	3
INFOTC 4990	Undergraduate Research in Information Technology	1-6
or CMP_SC 4990	Undergraduate Research in Computer Science	
INFOTC 4995	Undergraduate Research in Information Technology - Honors	1-6
or CMP_SC 4995	Undergraduate Research in Computer Science - Honors	
Mathematics and Business Courses		12
MATH 1300	Finite Mathematics	3
MATH 1400	Calculus for Social and Life Sciences I	3
STAT 2500	Introduction to Probability and Statistics I	3
MANGMT 3000	Principles of Management	3

or IMSE 4750	Entrepreneurial Innovation Management: Enterprise Conception
or MRKTNG 4650	e-Marketing

### Minor or Science Concentration

Ten hours in biological or physical science are required including one laboratory science. If student completes a minor by pursuing the formal course requirements for minors in a department outside Electrical Engineering & Computer Science, only 9 credit hours of science with one lab are required.

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available. Summer courses are available, as well as internship credit. These courses may help to reduce the two 18-credit semesters. 12 hours is the minimum amount of hours that can be enrolled in to qualify for full time.

First Year			
Fall	CR	Spring	CR
INFOTC 1000		3 INFOTC 2040 or CMP_SC 2050	3
INFOTC 1040 or CMP_SC 1050		3 INFOTC 1610	3
Social or Behavioral Science		3 MATH 1300	3
MATH 1400		3 Constitutional Requirement	3
ENGLSH 1000		3 Humanities or Fine Art	3
		15	15

Second Year			
Fall	CR	Spring	CR
INFOTC 2810		3 INFOTC 2830	3
STAT 2500		3 Humanity or Fine Art	3
Social or Behavioral Science		3 Science with Lab	3
Humanity or Fine Art		3 WI General Elective (INFOTC WI)	3
General Elective		3 INFOTC 2910	3
		Technical Elective	3
		15	18

Third Year			
Fall	CR	Spring	CR
Technical Elective		3 Technical Elective	3
INFOTC 3380		3 INFOTC 4320 or 3650	3
Science Elective		3 Technical Elective (3000 lvl or above)	3
MANGMT 3000		3 Science Elective	3
General Elective		3 General Elective	3
General Elective		3	3
		18	15

Fourth Year			
Fall	CR	Spring	CR
INFOTC 4970W or 4610W		3 Technical Elective (3000 lvl or above)	3
Technical Elective		3 Technical Elective (3000 lvl or above)	3
Technical Elective (3000 lvl or above)		3 General Elective	3
General Elective		3 General Elective	3

General Elective	3 General Elective	3
	15	15

Total Credits: 126

## Minor in Information Technology

A minor in Information Technology is offered through the College of Engineering. To obtain a minor, a student must complete the following requirements. The student must earn a 2.0 GPA in all courses that count towards the minor. No substitutions or courses taken outside the University of Missouri may be applied. After the necessary courses have been completed, please contact the IT Program's adviser to submit a request to minor in Information Technology.

### Requirements

- 15 hours of INFOTC courses are required
- At least 9 hours must be taken at the 3000 level
- One sequence of courses must be completed with a minimum of 2000 level or higher
  - INFOTC 1040 and INFOTC 2830 and INFOTC 4830
  - INFOTC 1610 and INFOTC 2610 and INFOTC 3610 OR INFOTC 4610
  - INFOTC 1040 and INFOTC 2910 and INFOTC 3910 OR INFOTC 4910
  - INFOTC 1610 and INFOTC 3640 and INFOTC 4640
  - INFOTC 1040 and INFOTC 4405 and INFOTC 4425
  - or similar

In some cases, other department core courses can qualify for prerequisites in our program. Please be sure to consult with the Director of Undergraduate Studies as well as the Advisor of Information Technology prior to beginning this process to ensure that the track you have chosen will qualify for the minor.

## Mechanical and Aerospace Engineering

Noah D. Manring, Chair and Glen A. Barton Professor  
 College of Engineering  
 E2412 Lafferre Hall  
 (573) 882-0693  
 ManringN@missouri.edu

The Department of Mechanical and Aerospace Engineering is an academic department within the College of Engineering at the University of Missouri.

Established in 1891, this ABET accredited program is home to many undergraduate and graduate students and faculty.

### Faculty

See web site for faculty listing: <https://engineering.missouri.edu/academics/mae/mae-faculty/>

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.



\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BSME in Mechanical Engineering (p. 594)g

Additional minors and certificates (p. 597) are offered through the College of Engineering, including the Aerospace Engineering Minor and the Energy Engineering Minor.

### Advising Contact

Justin Rich  
573-884-6961  
RichJ@missouri.edu

### Scholarship Contact

Craig Kluever, Undergraduate Director  
KlueverC@missouri.edu

The Department of Mechanical and Aerospace Engineering prepares students for productive careers in mechanical engineering related disciplines. The program focuses on instruction in the thermal and mechanical systems areas as defined by the Accreditation Board for Engineering and Technology (ABET). To support that mission, the Department has been divided into the focus areas of Design and Manufacturing, Dynamics and Control, Materials, and Thermal-Fluid Sciences. (NOTE: Focus areas are not listed on transcripts or diplomas.)

The department endeavors to present an experimental program through laboratory experiences. Students take three lab courses that focus on instrumentation and measurements, materials and manufacturing, and thermal-fluid systems.

The MU Mechanical Engineering program offers a Bachelor of Science in Mechanical Engineering (BSME) and prepares students for practice of the profession in industry or government or for further study toward other degrees such as the JD, MD, MS, and PhD.

## Mission Statement

The mission of the Mechanical and Aerospace Engineering Department is to:

Prepare our students for successful careers in the mechanical engineering profession, conduct high-quality and innovative research, and serve the community and industry providing educational and research resources.

## Program Educational Objectives

The educational objectives of the undergraduate program in Mechanical Engineering are to produce graduates who (within a few years of graduation):

1. successfully practice the mechanical engineering disciplines;
2. contribute to society and the engineering profession;
3. engage in life-long learning to advance professionally through continuing education and training;
4. succeed in graduate studies in mechanical engineering or a related field if pursued.

**ABET Definition for Program Educational Objectives:** Program Education Objectives are broad statements that describe what graduates are expected to attain within a few years of graduation. Program

Educational Objectives are based on the needs of the program's constituencies.

## Program Outcomes

Students from the Mechanical Engineering program will attain (by the time of graduation):

1. an ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors
3. an ability to communicate effectively with a range of audiences
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives
6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.

## Double Majors and Dual Degrees

Dual majors and dual degrees are possible at the undergraduate level. These could lead to degrees in the College of Engineering and the College of Arts and Sciences or the College of Agriculture. Dual enrollments could also lead to two engineering majors within the College of Engineering. Any of these dual enrollments would add to the traditional 126-credit undergraduate degree program. Consult with the directors of undergraduate studies of the departments involved for further information.

## MAE Honors Program

The MAE Honors Program follows the general rules, regulations and philosophy of the College of Engineering Honors Program, and as such is intended to encourage, facilitate and reward independent study by high-ability undergraduate students.

The heart of the program is an undergraduate honors project, undertaken and completed by the time of graduation while enrolling in 1 to 6 credits of MAE 4995 Undergraduate Honors Research Mechanical & Aerospace Engineering. The academic credit for the honors project (1-6 credits in MAE 4995 replaces an equivalent number of credits of technical or MAE elective. The project is conducted under the direction of an MAE professor (honors advisor) who is selected by the student, with agreement by the professor. The project culminates in an honors thesis, which is read and approved by the honors advisor and then approved by the chair of the MAE honors committee. A finished copy of the honors thesis, signed by the honors advisor and second reader, is required for satisfactory completion of the project.

## Academic Qualifications for the Honors Program

Honors students must maintain and graduate with an overall GPA of 3.0 or higher. In the case of a transfer student, the overall GPA computed from the transferred credit plus MU credit must be 3.0 or higher. A student is typically eligible for the honors program at the junior year of their undergraduate program.

The successful honors scholar is given a degree of flexibility in the program of study. Additionally, honors scholars may reduce the credits required for degree completion to the University minimum (i.e., 120 credits) by substituting graduate course credits through dual enrollment (undergraduate/graduate at MU) during the last two semesters of the undergraduate program.

## Graduate

- MS in Mechanical and Aerospace Engineering (p. 595)
- PhD in Mechanical and Aerospace Engineering (p. 596)

College of Engineering

E2413 Lafferre Hall

<https://engineering.missouri.edu/academics/mae/>

**Director of Graduate Studies:** Matthew Maschmann

## About Mechanical & Aerospace Engineering

Like markets merging together to create a global economy, this decade has approached the exciting frontier of joint research. The marriage of Mechanical Engineering to related fields has contributed to a new "Interdisciplinary Era". In meeting the challenges brought on by this co-operative approach to engineering, the Department of Mechanical & Aerospace Engineering (MAE) at the University of Missouri has broadened its scope in both education and research while maintaining strengths in the fundamental disciplines: Dynamics & Control, Design & Manufacturing, Materials & Solids and Thermal & Fluid Science Engineering. Such well-established academic traditions in the undergraduate and graduate curriculum as well as nationally renowned research programs are the basis for MAE having become the largest department in the College of Engineering at MU. An equally important aspect contributing to the quality of the MAE department is the aggressive pursuit of funding, by our faculty, to establish nationally recognized research programs. Well-earned support through sizable funding from both federal agencies and industry are valuable resources in the promotion of our graduate research and undergraduate teaching.

## Career Opportunities

Graduate programs are planned to prepare students for advanced professional engineering careers. In recognition of the broad nature of the field of mechanical and aerospace engineering, considerable latitude in programs is encouraged so students may prepare for employment in industry, education and government. The usual purpose of a PhD program is to prepare a person for a career in research or teaching. The program is oriented toward research culminating in a dissertation suitable for publication.

## Areas of Study

A student may pursue an area of concentration selected from AI/expert systems, automation, bioengineering, combustion, control, creep and plasticity, design optimization, numerical methods, computational fluid dynamics, fracture mechanics, heat transfer, interactive computer graphics, laser diagnostics, manufacturing systems, materials science,

mechanical syntheses, mechatronics, mechanics, parallel computation, residual stress, robotics, thermal systems design and management and ultrasonic nondestructive evaluation.

## Licensure

Information on degree requirements for engineering licensure is detailed under Professional Engineering Registration.

## Facilities and Equipment

The department has several specialized laboratories in aerosol mechanics, combustion, computer control, creep and fracture mechanics, fluid mechanics and heat transfer, manufacturing, materials science and structural dynamics.

Besides the modern instrumentation and equipment normally found in well-equipped mechanical and aerospace engineering laboratories, the department has, or has access to, such specialty items as MTS and Instron material and structural test equipment, wind tunnels, X-ray and a scanning electron microscope facility, computer control systems, a scanning laser vibrometer, a microscale heat transfer and electronic coding laboratory, an experimental stress laboratory, a fluid power laboratory and the university research reactor.

## Information Technology and Computing

A combination of the campus Division of Information Technology and the Engineering Technical Services (ETS) provided advanced engineering computation for College of Engineering faculty and students. CAD/CAM and graphics are the primary emphasis, although artificial intelligence, multiple high-level programming languages and computational and simulation libraries also are available.

The College of Engineering operates one high performance enterprise server, two super minicomputers and 17 HP workstations. The ETS also provides hardware/software support, locally, to nine College of Engineering departments and their affiliated research centers. These units are networked via Ethernet to the superminicomputers operated by the College of Engineering.

The Division of IT operates two remote terminal sites in the Engineering Buildings East. The University also supports an extensive computer system consisting of IBM mainframe computers, remote terminal sites, and PC and Macintosh labs throughout the campus.

## Financial Aid from the Program

Admission decisions to the graduate program are made without considerations of a student's financial need. Once admitted, a student may be considered for fellowships, research assistantships (RAs) and teaching assistantships (TAs). Awarding of fellowships is initiated by the department. RAs are awarded by individual faculty members. A student may apply by contacting faculty members directly. Application forms for TAs are available in the department office. International students are not eligible for TAs in their first semester of study. For specific departmental requirements, please refer to the MAE Graduate Handbook. Please see the department website for information on how to contact the professors individually about research assistantships offered.

# BSME in Mechanical Engineering

## Degree Program Description

The mechanical engineering curriculum provides students a foundation in mathematics, the basic sciences, and engineering. Students take core courses in the mechanical sciences (dynamics, engineering materials, manufacturing, dynamic systems and control, and machine element design) and the thermal-fluid sciences (thermodynamics, fluid mechanics, and heat transfer). In addition, students obtain laboratory experience through three lab courses focused on instrumentation and measurements, materials and manufacturing, and thermal-fluid systems.

The Bachelor of Science in Mechanical Engineering (BSME) prepares students for employment in industry or government or for further study toward other degrees such as the JD, MD, MS, and PhD.

## Major Program Requirements

The MAE curriculum allows students to transfer among departments during the first two years. Students concentrate on departmental requirements at the beginning of the junior year. The senior year includes five MAE electives that allow students to develop individual programs of study. This flexibility enables students to complete a traditional program or create their own with special emphasis on areas such as materials, manufacturing, thermal-fluid systems, dynamics and control, or aerospace.

Experience in design is distributed throughout the required courses in the curriculum and culminates in the senior capstone design course.

The capstone design experience integrates earlier technical work with economic, safety, ethical, and environmental considerations. The projects are primarily obtained from industrial or private business clients. The presentations of project results are made to a review panel consisting of members of the faculty, the MAE Industrial Advisory Council, and representatives of the client firms.

## Major Core Requirements

In addition to the University general education (p. 36) and graduation requirements (p. 35), the Department of Mechanical and Aerospace Engineering requires the following courses:

CHEM 1320	College Chemistry I	4
MATH 1500	Analytic Geometry and Calculus I	5
MATH 1700	Calculus II	5
MATH 2300	Calculus III	3
MATH 4100	Differential Equations	3
PHYSICS 2750	University Physics I	5
PHYSICS 2760	University Physics II	5
ENGINR 1200	Statics and Elementary Strength of Materials	3
ENGINR 2100	Circuit Theory for Engineers	3
ENGINR 2200	Intermediate Strength of Materials	3
ECONOM 2004	Undergraduate Topics in Economics - Social Science (Economic Decision Making)	3
STAT 4710 or IMSE 2110	Introduction to Mathematical Statistics Probability and Statistics for Engineers	3
MAE 1100	Introduction to Computer Aided Design	3
MAE 2100	Programming and Software Tools	3
MAE 2200	Engineering Materials	3

MAE 2300	Thermodynamics	3
MAE 2600	Dynamics	3
MAE 3100	Computational Methods for Engineering Design	3
MAE 3400	Fluid Mechanics	3
MAE 3500	Manufacturing Methods	3
MAE 3600	Dynamic Systems and Control	3
MAE 3800	Instrumentation and Measurements Laboratory	3
MAE 3910	Machine Element Design	3
MAE 4300	Heat Transfer	3
MAE 4825	Materials and Manufacturing Laboratory	3
MAE 4834	Thermal Fluids Laboratory	3
MAE 4980	Senior Capstone Design	3
<b>Electives</b>		
Technical elective in approved area of Engineering, Science, or Math, 3000-level or above		3
MAE 4000-level electives		15

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
ENGLSH 1000		3 MATH 1700	5
MATH 1500		5 PHYSICS 2750	5
CHEM 1320		4 Humanities/Fine Arts Elective	3
MAE 1100		3 US History/US Government	3
		15	16
Second Year			
Fall	CR	Spring	CR
MATH 2300		3 MATH 4100	3
PHYSICS 2760		5 MAE 2100	3
ENGINR 1200		3 MAE 2200	3
MAE 2300		3 MAE 2600	3
ECONOM 2004		3 ENGINR 2200	3
		Humanities/Fine Arts Elective	3
		17	18
Third Year			
Fall	CR	Spring	CR
MAE 3100		3 MAE 3600	3
MAE 3400		3 MAE 3800	3
MAE 3500		3 MAE 3910	3
ENGINR 2100		3 MAE 4300	3
STAT 4710 (or IMSE 2110)		3 Technical Elective	3
		15	15
Fourth Year			
Fall	CR	Spring	CR
MAE 4825		3 MAE 4834	3
MAE 4000+ Elective		3 MAE 4980	3
MAE 4000+ Elective		3 MAE 4000+ Elective	3
Humanities/Fine Arts Elective		3 MAE 4000+ Elective	3

Behavioral/Social Science Elective	3 MAE 4000+ Elective	3
15		15

Total Credits: 126

# MS in Mechanical and Aerospace Engineering

## Degree Requirements

The master's requires a minimum of 30 hours beyond the bachelor's degree, with a minimum of 18 hours at the 8000 level. Included within the 30 hours must be a special project report or thesis. A special project consists of three to five hours of MAE problems.

Alternatively, programs directed toward a thesis shall include three to eight hours of MAE 8990 (Research). A thesis or a report is approved by designated faculty committees and is deposited in the department libraries.

Passing the MS final committee fulfills the degree requirements.

## Core Course Requirements

Students must take two core courses from one of the four core subject areas listed below. A thesis committee may approve, by majority vote, that the core course requirement be waived for a M.S student's plan of study.

**Students in Dynamics and Control area must take at least two from the following:**

MAE 7660	Vibration Analysis	3
MAE 8001	Advanced Topics in Mechanical and Aerospace Engineering (Optimal Control)	3
MAE 8280	Finite Element Methods	3
MAE 8620	Advanced Dynamics	3
MAE 8750	Nonlinear Control	3
MAE 8320	Continuum Mechanics	3

**Students in Thermal/Fluids area must take at least two from the following:**

MAE 7310	Intermediate Heat Transfer	3
MAE 7320	Design of Thermal Systems	3
MAE 7420	Intermediate Fluid Mechanics	3
MAE 8300	Microscale Heat Transfer	3
MAE 8311	Heat Transfer-Convection	3
MAE 8420	Computational Heat Transfer and Fluid Dynamics	3
MAE 8430	Introduction to Two Phase Flow	3
MAE 7380	Intermediate Thermodynamics	3

**Students in Design and Manufacturing area must take at least two from the following:**

MAE 7290	Welding Engineering	3
MAE 7930	Applied Mechanical Optimization	3
MAE 8510	Manufacturing Design	3
MAE 8910	Modular Machine Tool Design	3
MAE 8930	Advanced Mechanical System Modeling and Optimization	3

**Students in Mechanics and Materials area must take at least two from the following:**

MAE 8360	Theory of Plasticity	3
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MAE 8330	Theory of Elasticity	3
MAE 8320	Continuum Mechanics	3
MAE 8240	Mechanical Behavior of Materials	3
MAE 8001	Advanced Topics in Mechanical and Aerospace Engineering (Materials Characterization)	3
MAE 8001	Advanced Topics in Mechanical and Aerospace Engineering (Wave Propagation)	3

## Plan of Study

A plan of study is developed by the student and the advisor, subject to approval.

## Thesis/Special Project Requirements

### Special Project

If the report option is chosen, a report must be prepared and submitted to the MAE Department. Reports follow the same manuscript guidelines as a thesis.

- Minimum 9 hrs of 8000 level MAE courses
- Maximum of 15 hrs 7000 level courses
- Maximum of 15 hrs 8000 level courses (excluding 1 hr seminar)
- 3-5 hrs of MAE problems
- 1 hr seminar

### Thesis

If the *thesis* option is chosen, a master's thesis must be prepared and submitted to the Graduate School as a PDF with required supplemental materials (<http://gradschool.missouri.edu/policies/thesis-dissertation/guidelines/checklist-ch2.php>). The students will be sent 'Guidelines for Preparing Theses and Dissertations (<http://gradschool.missouri.edu/policies/thesis-dissertation/guidelines/>)' from the Graduate School as soon as their Program of Study Form is submitted. See also: Thesis Process for Master's Students. (<http://gradschool.missouri.edu/academics/thesis-dissertation/process/>)

- Minimum 9 hrs of 8000 MAE courses
- Maximum of 12 hrs 7000 level courses
- Maximum of 12 hrs 8000 level courses (excluding 1 hr seminar)
- 3 hrs 7000 or 8000 math (except Mathematics History)
- Maximum of 8 hrs research
- 1 hr seminar

## Admissions

### Admission Contact Information

muengrgraduatesup1@missouri.edu

### Application Deadline for all applicants

Fall deadline: May 31 (priority deadline Jan. 1)  
 Spring deadline: October 31 (priority deadline Oct 1)  
 Summer deadline: April 30

### Admission Criteria

- BS in same or closely related field
- Minimum GPA: 3.0 during last 2 years

- Minimum GRE Score: 298 combined score on Verbal and Quantitative sections
- Minimum TOEFL score: 80
- Minimum academic IELTS overall score: 6.5
- Resume

**Note:** Lower GPAs require special action and substantiation, such as good test scores on the GRE or other recognized examinations.

## How to apply to the MAE master's program:

**Step 1:** All documents should be uploaded directly at <https://applygrad.missouri.edu/apply> (<https://applygrad.missouri.edu/apply/>).

**Step 2:** Required documents:

- Unofficial Transcripts (all Universities and Colleges attended) Uploaded in S (<http://gradstudies.missouri.edu/admissions/apply/>)late
- TOEFL/IELTS score - sent electronically to the University by ETS (Institution Code 6875 Department Code 1502)
- 3 letters of recommendation - uploaded in Slate by the recommenders. Letters must come from a school e-mail address, not personal accounts (like yahoo, gmail, etc).
- GRE score - sent electronically by ETS (Institution Code 6875 Department Code 1502)
- Statement of Objectives - one page letter telling about yourself and the area you will study if accepted (uploaded in Slate)
- CV/Résumé (Uploaded in Slate)

### Contact:

Mechanical & Aerospace Engineering, Graduate Admissions  
[muengrgraduatesup1@missouri.edu](mailto:muengrgraduatesup1@missouri.edu)

## PhD in Mechanical and Aerospace Engineering

### Degree Requirements

A minimum of 72 semester hours are required including the credit hours taken during the MS program. Students who received the MS degree from other than MU may transfer a maximum of 30 hours from their MS degree hours. The 72 hours must include at least 18 hours of coursework at the 8000 level excluding problems and research hours. All research credits on the Plan of Study form must be designated as MAE 9990 – Research.

### Plan of Study

The PhD candidate plans a plan of study and research under the immediate supervision of an advisor and in close cooperation with the doctoral program committee approved by the dean of the Graduate School upon the department's recommendation.

### Qualifying Examination

A qualifying examination is given twice each year. Successful completion of this examination is a prerequisite to formal acceptance into the PhD program. Students are allowed two attempts to pass the exam. The first attempt must be made within the student's first year of enrollment. The second attempt, if needed, must be made at the at the next scheduled exam date following the first attempt.

## Comprehensive Examination & Dissertation

A comprehensive examination is given after all course work requirements have been satisfied. Upon completion of the plan of study and research a final examination, essentially a defense of the dissertation, is administered.

### Admissions

#### Admission Contact Information

[muengrgraduatesup1@missouri.edu](mailto:muengrgraduatesup1@missouri.edu)

#### Application Deadlines for all Applicants

Fall deadline: May 31 (priority deadline Jan 1)

Spring deadline: October 31 (priority deadline Oct 1)

Summer deadline: April 30

#### Admission Criteria

- Minimum GPA: 3.0
- Minimum GRE score: 298 combined score on Verbal and Quantitative sections
- Minimum TOEFL score: 80
- Minimum Academic IELTS Overall score: 6.5

**Note:** Doctoral degree program applicants are closely and individually reviewed.

### How to apply to the MAE doctoral program:

**Step 1:** All documents should be uploaded directly in Slate: <https://gradstudies.missouri.edu/admissions/apply/>

**Step 2:** Required documents:

- Unofficial Transcripts (all Universities and Colleges attended) Uploaded in S ([https://app.applyyourself.com/AYApplicantLogin/fl\\_ApplicantConnectLogin.asp?id=umc-grad](https://app.applyyourself.com/AYApplicantLogin/fl_ApplicantConnectLogin.asp?id=umc-grad))late
- TOEFL/IELTS score - sent electronically to the University by ETS (Institution Code 6875 Department Code 1502)
- 3 letters of recommendation (preferably from MS advisor and 2 other letters) - uploaded in S ([https://app.applyyourself.com/AYApplicantLogin/fl\\_ApplicantConnectLogin.asp?id=umc-grad](https://app.applyyourself.com/AYApplicantLogin/fl_ApplicantConnectLogin.asp?id=umc-grad))late by the recommenders. Letters must come from a school e-mail address, not personal accounts (like yahoo, gmail, etc).
- GRE score - sent electronically by ETS (Institution Code 6875 Department Code 1502)
- Statement of Objectives - one page letter telling about yourself and the area you will study if accepted
- CV/Résumé

### Contact:

Mechanical & Aerospace Engineering, Graduate Admissions  
[muengrgraduatesup1@missouri.edu](mailto:muengrgraduatesup1@missouri.edu)

## Additional Minors and Certificates - Engineering

### Undergraduate Certificates

- Certificate in Biomaterials Engineering (p. 597)
- Certificate in Cyber Security (p. 597)
- Certificate in Neural Engineering-Signals (p. 598)
- Certificate in Neural Engineering-Systems (p. 598)

Industrial and Manufacturing Systems Engineering offers an interdisciplinary Undergraduate Certificate in Global Supply Chain Management (p. 807) with the College of Business.

### Undergraduate Minors

- Minor in Aerospace Engineering (p. 598)
- Minor in Computational Neuroscience (p. 599)
- Minor in Construction Management (p. 599)
- Minor in Energy Engineering (p. 600)
- Minor in Engineering Sustainability (p. 600)
- Minor in Medical/Health Physics (p. 601)
- Minor in Naval Science (p. 601)
- Minor in Nuclear Engineering (p. 601)
- Minor in Radioenvironmental Sciences (p. 601)

### Graduate Certificates

- Certificate in Aerospace Engineering (p. 602)
- Certificate in AI and Machine Learning (p. 602)
- Certificate in Construction Management (p. 603)
- Certificate in Sustainable Energy and Policy (p. 603)

Industrial and Manufacturing Systems Engineering offers an interdisciplinary Graduate Certificate in Global Supply Chain Management (p. 810) with the College of Business.

## Certificate in Biomaterials Engineering

The Certificate in Biomaterials Engineering will prepare engineering students to work in biomaterials related jobs and disciplines. Students will be provided the opportunity to pursue educational objectives beyond those normally associated with their academic major in engineering.

Certificate holders will be trained in various skills in order to design, synthesize, process, characterize, analyze, deploy, and select materials for bio-engineering applications ranging from tissue engineering to implantable devices to prosthetic devices.

### Requirements

The 12 credit hour Certificate in Biomaterials Engineering will be offered as a stand-alone certificate. Many of the courses offered for the certificate program can be counted towards engineering technical elective requirements for graduation within the students major.

#### Required Courses

BIOL_EN 3075	Introduction to Materials Engineering	3
or BME 3075	Introduction to Materials Engineering	
BIOL_EN 3170	Biomaterials	3

or BME 3170	Biomaterials	
BIOL_EN 4480	Physics and Chemistry of Materials	3
<b>Elective Courses</b>		
BIOL_EN 4170	Biomaterials Interfaces of Implantable Devices	3
or BME 4170	Biomaterials Interfaces of Implantable Devices	
BIOL_EN 4231	Transport Phenomena in Materials Processing	3
BIOL_EN 4360	Biomanufacturing Technologies	3
BIOL_EN 4370	Orthopaedic Biomechanics	3
or BME 4370	Orthopaedic Biomechanics	

### Contact

Charles Darr, PhD  
 Director of Undergraduate Studies  
 Department of Biomedical, Biological and Chemical Engineering (BBCE)  
 DarrCM@missouri.edu

## Certificate in Cyber Security

The Certificate in Cyber Security is an stand-alone online certificate program withing the College of Engineering. Students will have the flexibility to focus on the technical aspects of computer, software, network, and information security at different levels. They will achieve a foundation in information security, such as, securing and defending networks, recovering from security failures, use cases of computer forensics, and overall data security management. For more information regarding this certificate, please contact the Information Technology Program's advisor, or the Director of Undergraduate Studies for the IT Program.

### Requirements

A minimum GPA of 2.5 is required for admission. Prior background in information security is not required.

<b>Core Courses</b>		<b>12</b>
INFOTC 1040	Introduction to Problem Solving and Programming	3
INFOTC 2810	Fundamentals of Network Technology	3
INFOTC 2910	Cyber Security	3
INFOTC 3910	Advanced Cyber Security	3
<b>Elective Courses</b>		<b>3</b>
INFOTC 2830	Web Application Development I	3
or CMP_SC 2830	Web Application Development I	
INFOTC 3330	Object Oriented Programming	3
or CMP_SC 3330	Object Oriented Programming	
INFOTC 3530	UNIX Operating System	3
INFOTC 3810	Computer Network Security	3
INFOTC 3850	Computer System Administration	3
INFOTC 4830	Web Application Development II	3
or CMP_SC 4830	Web Application Development II	
INFOTC 4910	Digital Forensics	3

## Certificate in Neural Engineering-Signals

The Certificate in Neural Engineering-Signals will enable students to gain both fundamental and applied understanding of brain signals, a rapidly growing component of neural big-data research. The program includes the study of basic concepts related to brain waves, recording techniques and to types of noise. The student will also gain expertise in the usage of signal processing concepts in applications ranging from detecting the onset of epilepsy in LFP and EEG signals to the design of brain machine interfaces.

### Requirements

A total of 12 credit hours are required to obtain the certificate. At least one course must be neuro-related.

#### Core Courses (at least 6 credit hours)

ECE 2100	Circuit Theory I	4
or ECE 3830	Signals and Linear Systems	
BIOL_EN 4540	Neural Models and Machine Learning	3
or BME 4540	Neural Models and Machine Learning	
ECE 4830	Introduction to Digital Signal Processing	4

#### Support Courses (at least 6 credit hours)

Any of the three courses listed above not taken		
ECE 2001	Experimental Course	1
PSYCH 2210	Mind, Brain, and Behavior	3
MPP 3202	Elements of Physiology	5
ECE 4310	Feedback Control Systems	3
or BIOL_EN 4310	Feedback Control Systems	
or MAE 4750	Classical Control	
BIOL_EN 4075	Brain Signals and Brain Machine Interfaces	3
BIOL_EN 4070	Bioelectricity	3

## Certificate in Neural Engineering-Systems

The Certificate in Neural Engineering-Systems will enable students to gain both a fundamental and applied understanding of brain signals, a rapidly growing component of neural big-data research. The program includes the study of basic concepts related to modeling the nonlinear electrical circuits in the brain which use concepts from signal processing, modeling and control. Students will gain expertise in understanding the fundamentals required for the design of neural prostheses, and brain machine interfaces.

### Requirements

A total of 12 credit hours are required to obtain the certificate. At least one course must be neuro-related.

#### Core Courses (at least 6 credit hours)

BIOL_EN 4540	Neural Models and Machine Learning	3
or BME 4540	Neural Models and Machine Learning	
ECE 4310	Feedback Control Systems	3
or BIOL_EN 4310	Feedback Control Systems	
or MAE 4750	Classical Control	
ECE 4590	Computational Neuroscience <sup>required</sup>	4

or BIOL_EN 4590	Computational Neuroscience
or BIO_SC 4590	Computational Neuroscience
or BME 4590	Computational Neuroscience
or CMP_SC 4590	Computational Neuroscience

#### Support Courses (at least 6 credit hours)

Any of the three courses listed above not taken		
PSYCH 2210	Mind, Brain, and Behavior	3
MPP 3202	Elements of Physiology	5
ECE 4830	Introduction to Digital Signal Processing	4
BIOL_EN 4070	Bioelectricity	3
BIOL_EN 4075	Brain Signals and Brain Machine Interfaces	3

## Minor in Aerospace Engineering

### Purpose

- To provide a foundation in aerospace engineering
- To help students compete for positions in the aerospace industry

### Requirements

Students will take courses from the 4 fundamental areas of aerospace engineering for a total of 18 credit hours:

- Aerodynamics
- Aerospace structures
- Flight mechanics
- Propulsion

#### Must take both:

MAE 3400	Fluid Mechanics	3
MAE 3600	Dynamic Systems and Control	3

#### Select at least 2 from:

MAE 4001	Topics in Mechanical and Aerospace Engineering (Spacecraft Attitude Dynamics and Control)	3
MAE 4210	Aerospace Structures	3
MAE 4390	Aerospace Propulsion	3
MAE 4420	Intermediate Fluid Mechanics	3
MAE 4430	Introduction to Computational Fluid Dynamics and Heat Transfer	3
MAE 4440	Aerodynamics	3
MAE 4450	Gas Dynamics	3
MAE 4460	Microfluidics	3
MAE 4620	Aircraft Flight Performance	3
MAE 4630	Space Flight Mechanics	3
MAE 4690	Aircraft Flight Dynamics	3
MAE 4940	Aircraft Design	3

#### Auxiliary Courses

A maximum of 6 credit hours can be counted toward the minor		
MAE 4280	Introduction to Finite Element Methods	3
MAE 4320	Design of Thermal Systems	3
MAE 4380	Intermediate Thermodynamics	3
MAE 4600	Advanced Mechanics of Materials	3
MAE 4710	Hydraulic Control System	3
MAE 4720	Modern Control	3

MAE 4740	Digital Control	3
PHYSICS 3200	Physics of Space Explorations	3

### Process

- Meet with your advisor during your sophomore/junior year to plan minor courses into your schedule.
- Submit the application form (list of completed/planned aerospace courses) in the semester before you graduate.
- When completed, the Aerospace Minor will appear on your transcripts.

### Contact

Craig Kluever  
 KlueverC@missouri.edu  
 phone: 573-882-6764

## Minor in Computational Neuroscience

Computational neuroscience is becoming an important tool for neuroscientists to understand how complex brain circuits work, for example, what causes post-traumatic stress disorder. This intersection of engineering and neuroscience is allowing great advances in health care, manufacturing and communication.

### Requirements

**Required Core** 4

ECE/BIO_SC 4590	Computational Neuroscience	4
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**Biology Core for Engineering/Physics/Math Students** 6

Take 6 credit hours from the following list:

BIO_SC 1010 & BIO_SC 1020	General Principles and Concepts of Biology and General Biology Laboratory	5
or F_W 1100	Introductory Zoology with Laboratory	
or BIO_SC 1500	Introduction to Biological Systems with Laboratory	
or BIO_SC 2300	Introduction to Cell Biology	
PSYCH 2210	Mind, Brain, and Behavior	3
or PSYCH 4210	Physiological Psychology	
ECE 2007	World of Neuroscience	1
or BIO_SC 2007	Topics in Biological Sciences- Physical Sciences	
or CMP_SC 2007	World of Neuroscience	

**Engineering/Physics/Math Core for Biology/Psychology Students** 6

Take 6 credit hours from the followig list:

PHYSICS 1220	College Physics II	4-5
or PHYSICS 2760	University Physics II	
INFOTC 1040	Introduction to Problem Solving and Programming	3
BIOL_EN 2080	Introduction to Programming for Engineers	3
ECE 2007	World of Neuroscience	1
or BIO_SC 2007	Topics in Biological Sciences- Physical Sciences	
or CMP_SC 2007	World of Neuroscience	

Higher Level BIOL\_EN or CMP\_SC courses with approval

**All students must select two courses from the following list:** 6+

Biological Science Courses:		
MPP 3202	Elements of Physiology	5
BIO_SC 3700	Animal Physiology	5

BIO_SC 4500	Neurobiology	3
BIO_SC 4560	Sensory Physiology and Behavior	3
BIO_SC 4986	Neurology of Motor Systems	3
BIO_SC 4988	Nerve Cells and Behavior	3
ECE 2007	World of Neuroscience	1
or BIO_SC 2007	Topics in Biological Sciences- Physical Sciences	
or CMP_SC 2007	World of Neuroscience	

Engineering or Physics Courses:

BIOL_EN 4070	Bioelectricity	3
ECE 4310	Feedback Control Systems	3
ECE 4830	Introduction to Digital Signal Processing	4
PHYSICS 4310	Physics in Cell and Developmental Biology	3
PHYSICS 4500	Computational Biological Physics	3
BIOL_EN 4075	Brain Signals and Brain Machine Interfaces	3
or BME 4075	Brain Signals and Brain Machine Interfaces	
BIOL_EN 4540	Neural Models and Machine Learning	3
or BME 4540	Neural Models and Machine Learning	
ECE 2007	World of Neuroscience	1
or BIO_SC 2007	Topics in Biological Sciences- Physical Sciences	
or CMP_SC 2007	World of Neuroscience	

## Minor in Construction Management

The Minor in Construction Management requires a minimum of 15 credits of course work, consisting of a minimum of six credit hours of core courses and a minimum of nine credit hours from the list of approved emphasis area courses.

### Requirements

**Required Core Courses**

CV_ENG 4500	Introduction to Construction Management	3
CV_ENG 4145	Civil and Environmental Engineering Legal Issues	3

\* CV\_ENG 4125 can also be used, but only one of the two courses can be taken to satisfy the 15 credit hours requirement.

**Approved Emphasis Area Courses (select minimum of 9 credit hours)**

ARCHST 2310	Building Systems	3
ARCHST 2323	Sustainable Building Design Fundamentals	3
ARCHST 4320	Materials, Methods and Products	3
ARCHST 4323	Sustainable Technologies and Systems	3
ARCHST 4333	Compliance and Specifications	3
ARCHST 4815	Construction Documents and Building Information Modeling Studio	4
CV_ENG 3313	Structural Steel Design	3
CV_ENG 3312	Reinforced Concrete Design	3
CV_ENG 4104	Pavement Materials and Design	3
CV_ENG 4120	Airport Engineering	3
CV_ENG 4125	Transportation Legal Issues	3
CV_ENG 4130	Transportation Safety	3
CV_ENG 4145	Civil and Environmental Engineering Legal Issues	3



CV_ENG 4185	Location Analysis/Site Selection	3
CV_ENG 4190	Infrastructure Project Development	3
CV_ENG 4250	Environmental Regulatory Compliance	3
CV_ENG 4300	Advanced Structural Steel Design	3
CV_ENG 4302	Prestressed/Advanced Reinforced Concrete	3
CV_ENG 4360	Bridge Engineering	3
CV_ENG 4404	Geotechnical Earthquake Engineering	3
CV_ENG 4410	Foundation Engineering	3
CV_ENG 4412	Applied Geotechnical Engineering	3
CV_ENG 5448	* To be course-shared with Missouri S&T	3
CV_ENG 5449	* To be course-shared with Missouri S&T	3
<b>Only one course can be selected from the list below, but it is not required.</b>		
FINANC 1000	Principles of Finance	3
FINANC 3000	Corporate Finance	3
FINANC 4010	Financial Management	3
FINANC 4500	Principles of Real Estate	3
FINANC 4630	Introduction to Risk Management and Insurance	3
ECONOM 1014	Principles of Microeconomics	3
ECONOM 3229	Money, Banking and Financial Markets	3
ECONOM 3251	Managerial Economics	3
ECONOM 4355	Industrial Organization and Competitive Strategy	3
MANGMT 3000	Principles of Management	3
MANGMT 4030	Organizational Behavior	3
MANGMT 4060	Project Management Fundamentals	3
MANGMT 4350	Leadership Development	3
MANGMT 4970	Strategic Management	3

Contact:  
 Dr. Carlos Sun  
 Minor Coordinator  
 E2505 Lafferre Hall

## Minor in Energy Engineering

Energy engineering requires many different types of engineers, and this minor lets you choose from several different tracks to fit your career interests.

### Requirements

The minor requires completion of 18 credit hours between the core and the tracks.

#### Required Core Courses:

ECE 4020	Energy Systems and Resources	3
ENGINR 2100	Circuit Theory for Engineers	3
or ECE 2100	Circuit Theory I	
MAE 2300	Thermodynamics	3
or CH_ENG 3261	Chemical Engineering Thermodynamics I	
IMSE 2710	Engineering Economic Analysis	3

#### Electric Utility Generation Track

ECE 4410	Power Electronics I	4
ECE 4460	Energy and Machines	3
ECE 3510	Electromagnetic Fields	3

MAE 4320	Design of Thermal Systems	3
<b>Electric Utility Transmission &amp; Distribution Track</b>		
ECE 3510	Electromagnetic Fields	3
ECE 4410	Power Electronics I	4
<b>Energy Infrastructure and Efficiency Track</b>		
MAE 4320	Design of Thermal Systems	3
MAE 4340	Heating and Air Conditioning	3
MAE 4380	Intermediate Thermodynamics	3
<b>Renewable Energy and Sustainability</b>		
ARCHST 4323	Sustainable Technologies and Systems	3
ARCHST 4325	Energy-Efficient Building Design	3
CV_ENG 4232	Water and Wastewater Treatment Facilities	3
CV_ENG 4250	Environmental Regulatory Compliance	3
ECE 4410	Power Electronics I	4
ECE 4440	Power Systems Analysis	3
IMSE 4720	Introduction to Life Cycle Analysis	3

## Minor in Engineering Sustainability

### Requirements

The Sustainability minor requires a minimum of 15 credits of course work, consisting of a minimum of six credit hours of core courses and a minimum of nine credit hours from the list of approved emphasis area courses.

#### Required Core Courses

Intro to Engineering Sustainability	3
Experiential Project	3

#### Approved Emphasis Area Courses

ARCHST 2323	Sustainable Building Design Fundamentals	3
ARCHST 4323	Sustainable Technologies and Systems	3
ARCHST 4325	Energy-Efficient Building Design	3
BIOL_EN 4150	Soil and Water Conservation Engineering	3
or CV_ENG 4710	Soil and Water Conservation Engineering	
BIOL_EN 4160	Food Process Engineering	3
BIOL_EN 4250	Irrigation and Drainage Engineering	3
BIOL_EN 4315	Principles of Biochemical Engineering	3
or CH_ENG 4315	Principles of Biochemical Engineering	
BIOL_EN 4316	Biomass Refinery Operations	3
or CH_ENG 4316	Biomass Refinery Operations	
BIOL_EN 4350	Watershed Modeling Using GIS	3
or CV_ENG 4720	Watershed Modeling Using GIS	
CH_ENG 4220	Hazardous Waste Management	3
CH_ENG 4285	Pollution Prevention	3
CH_ENG 4311	Chemodynamics	3
CH_ENG 4312	Air Pollution Control	3
CH_ENG 4318	Energy Technology and Sustainability	3
CV_ENG 3200	Fundamentals of Environmental Engineering	4
CV_ENG 3600	Civil Engineering Materials	4
CV_ENG 4130	Transportation Safety	3
CV_ENG 4145	Civil and Environmental Engineering Legal Issues	3

CV_ENG 4230	Introduction to Water Quality	3
CV_ENG 4250	Environmental Regulatory Compliance	3
CV_ENG 4286	Environmental Sustainability	3
CV_ENG 4406	Geotechnics of Landfill Design	3
ENV_SC 2600	Sustainability Foundations: An Introduction to Sustainability	3
IMSE 4001	Topics in Industrial and Manufacturing Systems Engineering	3
IMSE 4580	Industrial Energy Efficiency and Management	3
IMSE 4720	Introduction to Life Cycle Analysis	3

Contact:

Prof. Vellore S. Gopalaratnam

Minor Coordinator

E2501 Lafferre Hall

## Minor in Medical/Health Physics

The Minor in Medical/Health Physics is one of three minors offered within the Nuclear Engineering academic curriculum to provide students the opportunity to obtain education and training in the nuclear sciences. It is designed for students from Biology, Chemistry, Engineering, Physics or related discipline who are interested in the biological effects of radiation in medical utilization and in occupational health and safety.

### Requirements

The minor requires a minimum of 15 credits of course work. As background preparation, the student must have had the prerequisites of a minimum of college algebra and two semesters of college physics.

#### Required courses:

NU_ENG 4303	Radiation Safety	3
NU_ENG 4328	Introductory Radiation Biology	3
NU_ENG 4391	Nuclear Radiation Detection	3
or CHEM 4600	Introduction to Radiochemistry with Lab	

#### Select additional courses from the below options:

NU_ENG 2201	Topics in Nuclear Engineering	3
NUCMED 3256	Clinical Nuclear Medicine I	2
CHEM 4170	Medicinal Chemistry	3
NU_ENG 4319	Physics and Chemistry of Materials	3
NUCMED 4329	Radiopharmaceuticals in Nuclear Medicine	3
BIOL_EN 4570	Fluorescent Imaging	3
BIOCHM 3630	General Biochemistry	3

## Minor in Naval Science

The minor in Naval Science is designed for students in the Naval ROTC program but is available to students in all disciplines. This minor lets you choose from several different tracks to fit your career interests.

### Requirements

Completion of 18 credit hours between the core and area tracks is required.

#### Required Core Courses:

NAVY 1100	Introduction to Naval Science	3
NAVY 1200	Seapower and Maritime Affairs	3
NAVY 3140	Leadership and Management	3

NAVY 4940	Leadership and Ethics	3
<b>Naval Operations Track:</b>		
NAVY 3120	Marine Navigation	3
NAVY 3220	Naval Operations	3
<b>Naval Ship Systems Track:</b>		
NAVY 2110	Naval Ship Systems I	3
NAVY 2210	Naval Ship Systems II	3
<b>Marine Corps Track:</b>		
NAVY 2130	Evolution of Warfare	3
NAVY 3230	Fundamentals of Maneuver Warfare	3

## Minor in Nuclear Engineering

The Minor in Nuclear Engineering is one of three minors offered within the Nuclear Engineering academic curriculum to provide students the opportunity to obtain education and training in nuclear sciences. It is designed for students from Biology, Chemistry, Engineering, Physics or related disciplines who are interested in nuclear power.

### Requirements

The minor requires a minimum of 15 credits of course work. As background preparation, the minor requires math through differential equations and two semesters of calculus-based physics.

#### Required courses:

ENGINR 2300	Engineering Thermodynamics	3
NU_ENG 4315	Energy Systems and Resources	3
NU_ENG 4346	Introduction to Nuclear Reactor Engineering I	3
NU_ENG 4391	Nuclear Radiation Detection	3
or CHEM 4600	Introduction to Radiochemistry with Lab	

#### Select one additional course from the list below:

NU_ENG 2201	Topics in Nuclear Engineering	3
NU_ENG 4303	Radiation Safety	3
NU_ENG 4330	Science and Technology of Terrorism and Counter Terrorism	3
ECE 7550	Introduction to Plasmas	3
NU_ENG 2303	Harnessing the Atoms in Everyday Life: Fulfill M Curie's Dream	3

## Minor in Radioenvironmental Sciences

The Minor in Radioenvironmental Sciences is one of three minors offered within the Nuclear Engineering academic curriculum to provide students the opportunity to obtain education and training in the nuclear sciences. It is designed for students from Biology, Chemistry, Engineering, Physics or related discipline who are interested in the environmental aspects of radiation and radioactive materials.

### Requirements

The minor requires a minimum of 15 credits of course work. As background preparation, the student must have had the prerequisites of a minimum of college algebra and two semesters of college physics.

#### Required courses:

NU_ENG 4303	Radiation Safety	3
NU_ENG 4328	Introductory Radiation Biology	3

NU_ENG 4391 or CHEM 4600	Nuclear Radiation Detection Introduction to Radiochemistry with Lab	3
<b>Select two additional courses form the list below:</b>		
NU_ENG 2201	Topics in Nuclear Engineering	3
NU_ENG 4330	Science and Technology of Terrorism and Counter Terrorism	3
CHEM 3300	Fundamentals of Physical Chemistry	3
CHEM 4280	Environmental Chemistry	3
CV_ENG 3200	Fundamentals of Environmental Engineering	4
CV_ENG 4220	Hazardous Waste Management	3
CV_ENG 4250	Environmental Regulatory Compliance	3

## Graduate Certificate in Aerospace Engineering

Students who pursue a Graduate Certificate in Aerospace Engineering will achieve the following educational objectives:

1. The ability to apply the fundamentals of both incompressible and compressible flows, wing and airfoil theory, and fluid kinematics and dynamics.
2. How to analyze aircraft engines and spacecraft propulsion systems.
3. The mechanics and design issues associated with aerospace structures; including the analysis of thin skins with stiffeners for external surfaces, bulkheads and frames for shape support, and fasteners for holding components together.
4. How to analyze the flight mechanics of aircraft and spacecraft, including flight performance, flight dynamics and stability, orbital maneuvers, and flight control.

### Requirements

The certificate will be both a stand-alone and for degree seeking students. It is comprised of 12 hours of graduate study at the 7000 level, requiring 4 courses to be taken, one from each core area within our aerospace curriculum.

**Choose one 3 credit hour course from each of the following areas:**

<b>Aerospace Fluid Mechanics</b>		
MAE 7420	Intermediate Fluid Mechanics	3
MAE 7430	Introduction to Computational Fluid Dynamics and Heat Transfer	3
MAE 7440	Aerodynamics	3
MAE 7450	Gas Dynamics	3
<b>Aerospace Propulsion</b>		
MAE 7390	Aerospace Propulsion	3
<b>Aerospace Structures</b>		
MAE 7210	Aerospace Structures	3
MAE 7600	Advanced Mechanics of Materials	3
MAE 7940	Aircraft Design	3
<b>Aerospace Flight Mechanics</b>		
MAE 7620	Aircraft Flight Performance	3
MAE 7630	Space Flight Mechanics	3
MAE 7635	Spacecraft Attitude Dynamics and Control	3
MAE 7690	Aircraft Flight Dynamics	3

## Graduate Certificate in AI and Machine Learning

The recent advancement in AI and Machine Learning has made significant impact in a wide range of research fields and industries.

The purpose of the graduate certificate is to prepare students and professionals to understand the foundation and advanced skills in AI and machine learning and to handle the growing demands in applying cutting-edge AI techniques.

### Requirements

The 15 credit hours Graduate Certificate will be offered as a stand-alone certificate. Students will need to have a 3.00 GPA to complete the program.

**Required (6 credit hours)**

CMP_SC 7720 or ECE 7720	Introduction to Machine Learning and Pattern Recognition Introduction to Machine Learning and Pattern Recognition	3
CMP_SC 8725 or ECE 8725	Supervised Learning Supervised Learning	3

**Electives (select three courses from the following)**

Foundations of AI		
CMP_SC 7750	Artificial Intelligence I	3
CMP_SC 7770 or ECE 7870	Introduction to Computational Intelligence Introduction to Computational Intelligence	3
CMP_SC 8370	Data Mining and Knowledge Discovery	3
CMP_SC 8750	Artificial Intelligence II	3
CMP_SC 8780 or ECE 8875	Advanced Topics in Computational Intelligence Advanced Topics in Computational Intelligence	3
Machine Learning		
CMP_SC 8180	Machine Learning Methods for Biomedical Informatics	3
CMP_SC 8735 or ECE 8735	Unsupervised Learning Unsupervised Learning	3
CMP_SC 8770 or ECE 8890	Neural Networks Neural Networks	3
Robotics		
ECE 7320	Architectural Robotics	4
CMP_SC 7730 or ECE 7340	Building Intelligent Robots Building Intelligent Robots	4
Computer Vision		
CMP_SC 7650 or ECE 7655	Digital Image Processing Digital Image Processing	3
CMP_SC 8690	Computer Vision	3
Natural Language Processing		
CMP_SC 7740	Interdisciplinary Introduction to Natural Language Processing	3
CMP_SC 8740	Advanced Natural Language Processing	3

## Graduate Certificate in Construction Management

The Graduate Certificate in Construction Management prepares students and professionals to succeed in the construction industry. The construction industry builds the basic infrastructure necessary to sustain modern cities and communities. The successful delivery of such infrastructure requires skillful project managers to navigate the various steps of the project delivery process. Certificate holders will acquire experience in various aspects of construction management such as planning, environmental compliance, design, right-of-way acquisition, estimation, resource management, financing and scheduling.

### Requirements

The 12-credit hour Graduate Certificate in Construction Management will be offered as both part of a graduate program and as a stand alone certificate. The following is a partial list of course offerings which can be used to complete the certificate program. Other classes could also be used as part of the certificate.

ARCHST 7323	Sustainable Technologies and Systems	3
ARCHST 7325	Energy-Efficient Building Design	3
ACCTCY 7310	Accounting for Managers	3
CV_ENG 7106	Intelligent Transportation Systems	3
CV_ENG 7120	Airport Engineering	3
CV_ENG 7125	Transportation Legal Issues	3
CV_ENG 7130	Transportation Safety	3
CV_ENG 7500	Introduction to Construction Management	3
CV_ENG 8150	Transportation Networks	3
CV_ENG 8107	Transportation Safety Modeling	3
FINANC 7210	Microeconomics for Business	1-3
FINANC 7410	Managerial Finance I	1-3
MANGMT 7390	Organizational Behavior and Management: Dyadic, Group and Organizational Processes	1.5
MANGMT 7970	Introduction to Strategic Management	1.5
MANGMT 8510	Project Management	1-3

\* Courses are taught by S&T instructors as part of the UM Course Sharing program.

## Graduate Certificate in Sustainable Energy and Policy

To achieve the goal of reliable and sustainable energy, we need to educate engineers in basics of energy with emphasis on renewable energy, sustainable practices in manufacturing that are informed by new technology, and impact of energy usage on society, economy and the environment. The goal of the Graduate Certificate in Sustainable Energy and Policy is to give students a broad view of energy engineering, energy economics and policy, and sustainability. The certificate is a stand-alone certificate open to both degree seeking and non-degree seeking students.

### Requirements

As of this edition of the catalog, the program and the courses in the program are still being built and not yet ready for students.

Below is a partial list of future requirements, once program is finalized

Required Course		
MAE 7355	Industrial Energy Analysis	3
Electives:		
PUB_AF 8177	Energy Economics	3
PUB_AF 8178	Sustainable Energy Policy	3
<b>Total Credits</b>		<b>12</b>

Contact for additional information:  
 Dr. Sanjeev Khanna  
 Mechanical & Aerospace Engineering  
 573-884-9109  
 khannas@missouri.edu

# School of Health Professions

## Administration

Kristofer J. Hagglund, Dean  
 Stephanie A. Reid-Arndt, Associate Dean, Academic Affairs  
 Judith C. Goodman, Associate Dean, Research  
 510 Lewis Hall  
 (573) 884-6705  
 haydenrm@health.missouri.edu

### Advising and Scholarship Contact

SHP Student Services Office  
 101 Lewis Hall  
 (573) 882-8011  
 mushpadvising@missouri.edu

The School of Health Professions is Missouri's only state-supported health professions school on a campus with an academic health center. It is uniquely positioned to educate highly qualified health care professionals committed to fulfilling the mission of improving the health and well-being of individuals and communities. Its seven departments and eleven accredited academic programs have long and distinguished histories. Graduates of the School of Health Professions are nationally recognized leaders in their fields.

The school offers undergraduate degrees with majors in Communication Science and Disorders, Diagnostic Medical Ultrasound, Health Sciences, Public Health, Respiratory Therapy, Radiologic Sciences with emphasis in Radiography or Nuclear Medicine Technology, and Clinical Laboratory Sciences with an emphasis in Medical Technology. The school offers graduate degrees in Athletic Training (beginning in 2020), Communication Science and Disorders with an emphasis in Speech-Language Pathology, Occupational Therapy, Physical Therapy and Public Health.

Students gain valuable experience by participating in nationally recognized service centers including PhysZou, Tiger OT, The Adult Day Connection, the MU Speech and Hearing Clinic, Robert G. Comb's Language Preschool, MU Thompson Center for Autism and Neurodevelopmental Disorders, and more than eight hundred fieldwork sites.

## Undergraduate

- Admissions (p. 604)
- Exploratory Courses (p. 604)
- Required Entry Level Courses (p. 604)
- International Admissions (p. 605)
- Academic Regulations (p. 605)
- Enrolling in Other Institutions Simultaneously (p. 605)
- Advising (p. 605)
- Career Development (p. 605)

## Admissions

Undergraduate students enrolled in the School of Health Professions work with a professional academic advisor to ensure timely completion of degree program requirements, as well as developing a personalized plan for achieving academic success. Students admitted to a clinical program may be advised by a professional advisor in Student Services or a faculty advisor in the major.

Admission to the University and to the School of Health Professions as a pre-health professions student does not guarantee admission for most Bachelor of Health Science degree programs. Application deadlines and requirements vary for each program (the health science major does not require an application). Students are strongly encouraged to seek advising to ensure they are making satisfactory progress towards pre-requisites, MU General Education (p. 36), and program requirements.

## Exploratory Courses

The School of Health Professions offers introductory courses and experiences to provide information about career opportunities in these areas. These courses are listed below:

HLTH_SCI 1000	Introduction to the Health Professions	3
NUCMED 1000	Introduction to Nuclear Medicine	1
OC_THR 1000	Introduction to Occupational Therapy	1
PH_THR 1000	Introduction to Physical Therapy	1
RS_THR 1000	Introduction to Respiratory Therapy	1
DMU 1000	Introduction to Diagnostic Medical Ultrasound	1
CL_L_S 1000	Orientation to Clinical Laboratory Science	1
P_HLTH 1000	Introduction to Public Health	1

## Required Entry-level Courses

All students in the School of Health Professions must complete College Algebra (MATH 1100 or equivalent) and Exposition and Argumentation (ENGLSH 1000) upon completing 60 university-level credit hours, including transfer and MU credit. In addition, the School of Health Professions requires students who are declaring a 'pre-Health Professions' or 'Undeclared' major to meet the minimum GPA requirement for that program of interest. All undergraduate students are required to declare a plan upon completion of 60 university-level credit hours.

In addition to academic record, attributes such as interpersonal skills, motivation, attitude, interest, commitment and knowledge of the field are considered in selecting students to participate in the professional phase of any program. Applicants may also be evaluated on school and college aptitude tests, pattern of academic achievement, verbal expression, extracurricular activities and motivation demonstrated by employment and volunteer activities.

The application deadlines for the professional component of each program are shown below.

Professional Program	Application Deadline	Classes Begin
Athletic Training	senior year (check web site for application deadline)	Summer
Communication Science and Disorders	Feb. 1, sophomore	Fall
Radiography	Feb. 1, sophomore	Summer
Physical Therapy	Sept. 30, junior or senior	Summer
Nuclear Medicine	Feb. 1, sophomore	Summer
Respiratory Therapy	Feb. 1, sophomore	Summer
Diagnostic Medical Ultrasound	Feb. 1, sophomore	Summer

Clinical Laboratory Science	Nov. 1, junior	Summer
Health Sciences	N/A, freshman	Fall/Spring
Public Health	Feb. 1. sophomore, may be rolling	Fall

## International Admissions

Students whose native language is not English should contact the School of Health Professions for requirements.

## Prerequisite Curriculum Requirements

See the degree requirements in the following pages for specific course requirements in the various programs. The student is responsible for meeting graduation requirements for the program and the University. Academic advisors in the School of Health Professions assist students with understanding degree requirements and progress towards degree completion.

## Graduation Requirements

In addition to degree and major requirements, students must complete university graduation requirements (p. 35), which include university general education (p. 36) requirements.

## Degree Core Requirements

The Bachelor of Health Science degree is granted to candidates who have successfully fulfilled all didactic and clinical requirements of the program as described for each area, in addition to all University requirements (p. 35), including University general education (p. 36) requirements.

In addition to the academic and clinical education requirements of a program, students must possess and exhibit those personal qualities and characteristics that are associated with patient welfare and professional trust. These elements are a part of the overall evaluation process for the professional phase of each program. Should it be determined that these qualities are not present in sufficient degree or that a student does not demonstrate satisfactory growth and progress in these areas, the student is subject to dismissal from the program.

## Degree with Honors Requirements

Information about specific requirements for students to graduate with latin honors is available at <http://healthprofessions.missouri.edu>.

## Academic Regulations

### Time Limits on Credits Earned

Contact each department for information on time limits.

### Credits by Examination

Students with previous training or experience may be allowed to earn advanced-standing credit through challenge or equivalency evaluation in certain programs. Contact the Health Professions advising office for information pertaining to the awarding of credit for these exams.

### Maximum Credits Enrolled

A student may not enroll for more than 18 credits in a fall or spring term and 9 in a summer term without permission from the advising office; students should contact their advisor for more information.

## Independent Study

Students must receive prior approval before enrolling in independent study courses.

## Satisfactory/Unsatisfactory Grades

A student wishing to enroll in a course on an S/U basis must receive permission from the advising office.

## Enrolling in Other Institutions Simultaneously

Students should consult with their advisor before enrolling in another institution while being enrolled at the University of Missouri.

## Advising

All undergraduate students are assigned a professional academic advisor in the School of Health Professions.

## Career Development

The Office of Career Services in the School of Health Professions offers career advising, résumé, cover letter and personal statement review, mock interviews, LinkedIn consultation, job search strategies, and workshops to enhance students' career development. In addition, the SHP Office of Career Services offers a bi-annual Career and Opportunities Fair, which allows SHP students to connect with employers, graduate and professional programs, internships, and experiential learning opportunities. Students are encouraged to seek out and use SHP Career Services early in their undergraduate career to connect with shadowing opportunities, find part-time employment, and explore clinical and non-clinical career paths.

## Graduate

The School of Health Professions offers a wide variety of programs of study for students interested in careers in healthcare. At the graduate level, we offer degrees in

- Athletic Training
- Communication Science and Disorders, with an emphasis in Speech-Language Pathology
- Occupational Therapy
- Physical Therapy
- Public Health, with a dual degree option with Social Work, emphasis areas in Health Promotion and Policy and Veterinary Public Health, and graduate certificates in Public Health, Global Public Health, and Epidemiology

**Note:** Prospective graduate students must apply to *both* the degree program of interest and to the MU Graduate School. In most cases, the entire application process may be completed online. Find admission and application details by selecting the degree program of interest in the left navigation column.

## Clinical and Diagnostic Sciences

### Clinical & Diagnostic Sciences Contacts

605 Lewis Hall, Columbia, MO 65211  
 umhsshpcds@health.missouri.edu

**Clinical Laboratory Science**, Director: Steven Starr  
StarrST@health.missouri.edu

**Diagnostic Medical Ultrasound**, Director: Dr. Moses Hdeib  
umhsshpdmu@health.missouri.edu

**Nuclear Medicine**, Director: Jeff Galen  
umhsshpnucmed@health.missouri.edu

**Radiography**, Director: Dr. Carla Allen  
umcshpradsci@missouri.edu

**Respiratory Therapy**, Director: Monica Schibig  
breathe@missouri.edu

**Department Chair**: Dr. Kathy Moss  
MossK@health.missouri.edu

**Student Support Staff**: Adria Koehn (573)  
882-8034 umhsshpcds@health.missouri.edu

**Undergraduate Advisor**: Cason Jones  
<https://healthprofessions.missouri.edu/student-services/make-an-appointment/>

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## Department Overview

The Department of Clinical and Diagnostic Sciences is the academic home of programs in the following cardiopulmonary and diagnostic science professions. Our on-campus undergraduate programs prepare students for entry-to-practice careers. Our online undergraduate, certificate, and graduate programs prepare credentialed professionals to advance their practice in clinical leadership and clinical specialist positions. Employment opportunities for all of these professions are projected to grow much faster than average.

**Clinical Laboratory Science** (also known as Medical Laboratory Science) includes the theoretical and practical aspects of clinical laboratory medicine – chemistry, hematology, microbiology, immunology, molecular pathology, blood banking, serology, immunology, and molecular pathology. Clinical Laboratory Scientists perform chemical, biological, and other analytical procedures used by physicians to diagnose and monitor the treatment of disease. These professionals work in hospitals, clinics, laboratories, and research centers.

**Diagnostic Medical Ultrasound** uses high-frequency sound waves to produce dynamic visual images capturing size, function, and structure of organs, tissues or blood flow with real time tomographic images in two, three, and four dimensions. Sonographers function with a high degree of independence, to gather and analyze data and to prepare reports of their findings for interpretation and diagnosis by a physician. These professionals work in hospitals, clinics, private physician offices, and other medical facilities performing examinations in their areas of specialization.

**Nuclear Medicine** utilizes radionuclides to produce functional, molecular images that demonstrate physiologic processes. Nuclear Medicine technologists administer extremely small amounts of radioactive compounds used for cancer treatment or to produce images used in diagnosing many diseases. These professionals work in hospitals, imaging and research centers, commercial radiopharmacies, and nuclear research reactors.

**Radiography** employs ionizing radiation (X-ray, computed tomography or CT, fluoroscopy, mammography, bone densitometry) and strong magnetic fields (magnetic resonance or MRI) to image anatomy. Radiologic technologists work closely with physicians to assist with medical interventions such as angioplasty and stent insertion used to diagnose, monitor, and treat disease. These professionals work in

hospitals, clinics, imaging centers, mobile services, research centers, and industry.

**Respiratory Therapy** (also known as Respiratory Care) uses positive pressure, gases (oxygen, helium, nitric oxide) and aerosolized medication to diagnose and treat cardiovascular and pulmonary disorders. Respiratory therapists work under the direct or indirect supervision of physicians to manage ventilators (respirators) and artificial airways, perform pulmonary function testing, and analyze arterial blood specimens. These professionals work in hospitals, intensive care units, emergency rooms, air and ambulance transport, neonatal and pediatric units, patient homes, sleep laboratories, and in the medical device industry.

## Faculty

### Clinical Laboratory Science Program

**Assistant Clinical Professor** S. Starr\*

### Diagnostic Medical Ultrasound Program

**Clinical Professor** M. M. Hdeib\*, D. W. Clem\*

**Associate Clinical Professor** S. Anderson\*

**Assistant Clinical Professor** J. Stormo\*

### Nuclear Medicine Program

**Associate Teaching Professor** J. A. Galen\*

**Assistant Clinical Professor** J. Gladson\*

**Assistant Clinical Professor Adjunct** M. Feldman\*

### Radiography Program

**Associate Teaching Professor** C. Allen\*

**Assistant Clinical Professor** P. Tew\*

**Assistant Clinical Professor Emerita** M. Sebacher\*

### Respiratory Therapy

**Clinical Professor** K.S. Moss\*

**Associate Clinical Professor** M. A. Schibig\*, J. L. Keely\*, L. M. Lair\*

**Assistant Clinical Professor** S. W. Parker\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BHS in Clinical and Diagnostic Sciences (p. 607)
  - with emphasis in Clinical Laboratory Science (p. 607)
  - with emphasis in Diagnostic Medical Ultrasound (p. 609)
  - with emphasis in Nuclear Medicine (p. 610)
  - with emphasis in Radiography (p. 611)
  - with emphasis in Respiratory Therapy (p. 613)

## Graduate

- MHS in Clinical and Diagnostic Sciences (p. 614)
  - with emphasis in Clinical Laboratory Science (p. 615)
  - with emphasis in Imaging Sciences (p. 615) (Diagnostic Medical Ultrasound, Nuclear Medicine, Radiography)
  - with emphasis in Respiratory Therapy (p. 616)

### Clinical and Diagnostic Sciences

School of Health Professions

Director of Graduate Studies: Moses Hdeib

405 Lewis Hall

(573) 884-2994

MHS CDS Program Director: Kathy Moss

The Master of Health Science in Clinical and Diagnostic Science (MHS CDS) includes three emphasis areas from which students may choose: MHS CDS-Clinical Laboratory Science, MHS CDS-Imaging Sciences and MHS CDS-Respiratory Therapy.

Prospective students for the MHS CDS program will most commonly be credentialed in Clinical Laboratory Science, Diagnostic Medical Ultrasound, Nuclear Medicine Technology, Radiography or Respiratory Therapy. Our program aligns well with health care providers who have a goal to build advanced, profession-specific competencies while also fostering beliefs and choices essential to the development of safe and effective interprofessional health care teams.

The MHS CDS program is a 30-credit, online program designed to be completed part-time by practicing health care professionals who are employed full time.

The curriculum is organized into three parts with integrated opportunities to achieve stackable credentials. Interprofessional core courses (9 credits) offer practical preparation for effective team functioning. Leadership electives (minimum 12 credits) offer preparation for one of three career paths: Health care facilities (hospitals, clinics); Higher education programs preparing entry-to-practice health care professionals (colleges, universities); or Health care industry (medical equipment or pharmaceutical sales and customer support). Emphasis area electives (minimum 6 credits) prepare students for one or more advanced professional credentials. The program culminates in a capstone project centered on a topic of personal or professional interest that is tailored to the student's goals (3 credits).

The program is facilitated by nationally recognized faculty and content experts. Students benefit from high quality, well-resourced distance learning support. Admission may be granted at any time to qualified candidates.

### Future Certification and Careers

Students may earn graduate certificates and prepare for advanced professional certifications and credentials, consistent with their elective course choices. The program is designed to prepare credentialed professionals in Clinical Laboratory Science, Diagnostic Medical Ultrasound, Nuclear Medicine, Radiography, and Respiratory Therapy for careers as clinical specialists, educators, and leaders.

## BHS in Clinical and Diagnostic Sciences

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### Degree Program Description

For this degree program, students must choose an emphasis area: Clinical Laboratory Science, Diagnostic Medical Ultrasound, Nuclear Medicine, Radiography, or Respiratory Therapy. Each emphasis area prepares graduates for critical diagnostic and disease management roles that are highly technical and primarily situated in acute care environments. These nationally accredited entry-to-professional practice programs emphasize experiential learning in a wide variety of clinical sites that are highly relevant to current workforce demands. Refer to the degree program descriptions for the emphasis areas for more details.

### Major Program Requirements

Please refer to the emphasis area pages for degree requirements: Clinical Laboratory Science (p. 607), Diagnostic Medical Ultrasound (p. 609), Nuclear Medicine (p. 610), Radiography (p. 611), Respiratory Therapy (p. 613).

### Semester Plan

Please refer to the emphasis area pages for semester plans: Clinical Laboratory Science (p. 607), Diagnostic Medical Ultrasound (p. 609), Nuclear Medicine (p. 610), Radiography (p. 611), Respiratory Therapy (p. 613).

## BHS in Clinical and Diagnostic Sciences with Emphasis in Clinical Laboratory Science

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### Degree Program Description

Clinical laboratory Scientists are skilled, certified professionals trained in the theoretical and practical aspects of clinical laboratory medicine – chemistry, hematology, microbiology, immunology, molecular pathology, and blood banking. Clinical Laboratory Scientists have various levels of responsibility – as staff technologists, research technologists, supervisors, managers, or educators – and can work in a variety of settings, including hospitals, clinics, laboratories, and research centers. Approximately 60 to 70 percent of all medical decisions regarding a patient's diagnosis and treatment, as well as their hospital admission and discharge, are based upon laboratory test results obtained by Clinical Laboratory Scientists. The Clinical Laboratory Science (CLS) program at MU is a unique collaboration with the University of Nebraska Medical Center in Omaha. The CLS program includes three years of pre-requisite coursework, and 11 months of clinical coursework. The clinical year begins during the third week of May, with 13 weeks of coursework and clinical lab rotations in a dedicated summer student lab facility at the University of Nebraska's Medical Center in Omaha. After the initial 13 weeks in the program, CLS students return to Columbia and complete their clinical laboratory rotations at one of three local clinical sites. Students graduate with a Bachelor of Health Science (BHS) degree in Clinical and Diagnostic Sciences with an emphasis in Clinical Laboratory Science from the University of Missouri with a Certificate in Medical Technology from the University of Nebraska Medical Center. Upon completion of the program, students are eligible to challenge the Medical



Technology credentialing examination administered by the American Society for Clinical Pathology (ASCP). The CLS program is accredited by the National Accrediting Agency for Clinical Laboratory Sciences (NAACLS) via its partnership with the NAACLS-accredited Clinical Laboratory science program of the University of Nebraska Medical Center.

## Major Program Requirements

Students must complete the courses below with a grade of C- or higher to earn the BHS in Clinical and Diagnostic Sciences with an emphasis in Clinical Laboratory Science degree. In addition, students must meet degree and University requirements (p. 35), including University general education (p. 36). In addition to the degree requirements below, the CLS program requires an application, including an interview, and students are encouraged to work with an advisor in order to best structure the pre-requisites and prepare for the program application. The application process is competitive, and meeting minimum criteria does not guarantee admission. There are a limited number of clinical positions available. A minimum 2.5 cumulative in addition to a math/science course GPA are required to be considered for acceptance.

<b>Program Pre-requisites</b>		<b>45</b>
MATH 1100	College Algebra	3
ENGLSH 1000	Exposition and Argumentation	3
or ENGLSH 1000H	Honors Exposition English	
PSYCH 1000	General Psychology	3
or PSYCH 1000H	General Psychology - Honors	
STAT 1200	Introductory Statistical Reasoning	3
or STAT 1300	Elementary Statistics	
or ESC_PS 4170	Introduction to Applied Statistics	
HLTH_SCI 3900W	Introduction to The Research Process and Evidence Base - Writing Intensive	3
or HLTH_SCI 3900HW	Introduction to The Research Process and Evidence Base - Honors/Writing Intensive	
<b>Biological sciences elective (at least 16 hours of Biological Science, including the following)</b>		
BIO_SC 1500	Introduction to Biological Systems with Laboratory	5
or BIO_SC 1500H	Introduction to Biological Systems with Laboratory Honors	
BIO_SC 2200	General Genetics	4
or BIO_SC 2200H	General Genetics - Honors	
MICROB 3200	Medical Microbiology and Immunology	4
or BIO_SC 3750	General Microbiology	
V_PBio 3551	Introduction to Immunology I	3
or MICROB 4304	Immunology	
<b>Physical sciences requirement (at least 14 hours of Chemistry, including the following)</b>		
CHEM 1320	College Chemistry I	4
or CHEM 1320H	College Chemistry I - Honors	
CHEM 1330	College Chemistry II	4
or CHEM 1330H	College Chemistry II- Honors	
CHEM 2100	Organic Chemistry I	3
2000-level or higher Chemistry or Biochemistry course from approved course list		3
<b>Major Core Requirements</b>		<b>51-90</b>
CL_L_S 4407	Clinical Laboratory Operations	1-4
CL_L_S 4408	Introduction to Clinical Hematology	1-4

CL_L_S 4409	Introduction to Clinical Microbiology	1-4
CL_L_S 4410	Introduction to Clinical Chemistry and Urinalysis	1-4
CL_L_S 4411	Introduction to Clinical Immunohematology	1-4
CL_L_S 4412	Clinical Laboratory Science Theory, Application and Correlation	5
CL_L_S 4413	Clinical Endocrinology and Toxicology	1-4
CL_L_S 4414	Clinical Chemistry and Urinalysis I	4
CL_L_S 4415	Clinical Chemistry and Urinalysis II	3
CL_L_S 4416	Clinical Hematology I	4
CL_L_S 4417	Clinical Hematology II	3
CL_L_S 4418	Clinical Microbiology I	4
CL_L_S 4419	Clinical Microbiology II	3
CL_L_S 4420	Clinical Immunology and Molecular Diagnostics	1-4
CL_L_S 4422	Immunohematology I	3
CL_L_S 4423	Clinical Immunohematology II	2
CL_L_S 4442	Clinical Immunohematology Laboratory Practicum I	1-4
CL_L_S 4443	Clinical Immunohematology Laboratory Practicum II	1-4
CL_L_S 4444	Clinical Core Laboratory Practicum	1-4
CL_L_S 4445	Clinical Core Laboratory Practicum II	1-4
CL_L_S 4448	Clinical Microbiology Laboratory Practicum I	1-4
CL_L_S 4449	Clinical Microbiology Laboratory Practicum II	1-4
CL_L_S 4970	Clinical Laboratory Management I	2
CL_L_S 4980W	Clinical Lab Management II - Writing Intensive	3

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year					
Fall	CR	Spring	CR		
HLTH_SCI 1000	3	CHEM 1320	4		
MATH 1100	3	ENGLSH 1000	3		
PSYCH 1000	3	SOCIOL 1000	3		
BIO_SC 1500	5	Elective	3		
			14	13	
Second Year					
Fall	CR	Spring	CR		
CHEM 1330	4	MICROB 3200	4		
BIO_SC 2200	4	CHEM 2100	3		
Humanities	3	HIST 1100, 1200, or POL_SC 1100	3		
Elective	3	Elective	2		
			14	12	
Third Year					
Fall	CR	Spring	CR	Summer	CR
MICROB 4304	3	HLTH_SCI 3900W	3	CL_L_S 4407	2

STAT 1200, 1300, or ESC_PS 4170	3 2000-level or higher Chemistry or Biochemistry course from approved course list	3 CL_L_S 4408	2
PHIL 2440	3 Humanities	3 CL_L_S 4409	2
Elective	3 Elective	3 CL_L_S 4410	1
		CL_L_S 4411	1
		12	12
			8

Fourth Year			
Fall	CR	Spring	CR
CL_L_S 4413	1	CL_L_S 4412	5
CL_L_S 4414	2	CL_L_S 4415	2
CL_L_S 4416	2	CL_L_S 4417	2
CL_L_S 4418	2	CL_L_S 4419	2
CL_L_S 4420	2	CL_L_S 4423	2
CL_L_S 4422	2	CL_L_S 4443	1
CL_L_S 4442	1	CL_L_S 4445	1
CL_L_S 4444	1	CL_L_S 4449	1
CL_L_S 4448	1	CL_L_S 4980W	3
CL_L_S 4970	2		
		16	19

Total Credits: 120

**NOTE:** Third Year - Summer to be completed in Omaha.

# BHS in Clinical and Diagnostic Sciences with Emphasis in Diagnostic Medical Ultrasound

## Degree Program Description

Sonographers (Ultrasound technologists) use high-frequency sound waves to produce dynamic visual images of organs, tissues, or blood flow in two, three, and four dimensions. Sonographers work in hospitals, clinics, private physician offices and other medical facilities performing examinations in their areas of specialization. Areas of specialization include: Abdomen, Obstetrics/Gynecology, Echocardiography, and Vascular technology. Sonographers function with a high degree of independence, using skill, judgment and knowledge to gather data required to reach a diagnosis. The DMU program includes two years of pre-requisite coursework and two years of professional coursework. Students graduate with a Bachelor of Health Science (BHS) degree in Clinical and Diagnostic Sciences with an emphasis in Diagnostic Medical Ultrasound from the University of Missouri. Graduates of the program are eligible to challenge the credentialing examination administered by the American Registry for Diagnostic Medical Sonography (ARDMS). The program is accredited by the Commission on Accreditation of Allied Health Education.

## Major Program Requirements

Students must complete Program Pre-requisite courses below with a grade of C- or higher to be eligible to apply to the BHS in Clinical and Diagnostic Sciences with an emphasis in Diagnostic Medical Ultrasound major. Major Core Requirements must be completed with a grade of C (2.0) or higher within the program, unless otherwise noted. Students must also meet degree and University requirements (<http://catalog.missouri.edu/academicdegreerequirements/>), including University general education

(<http://catalog.missouri.edu/academicdegreerequirements/generaleducationrequirements/>) requirements. In addition to the degree requirements below, the Diagnostic Medical Ultrasound program requires an application, including an interview, and students are encouraged to work with an advisor in order to best structure the pre-requisites and prepare for the program application.

Program Pre-requisite		48
ENGLISH 1000	Exposition and Argumentation	3
or ENGLISH 1000H	Honors Exposition English	
MATH 1100	College Algebra	3
PSYCH 1000	General Psychology	3
or PSYCH 1000H	General Psychology - Honors	
COMMUN 1200	Public Speaking	3
or COMMUN 1200H	Public Speaking - Honors	
BIO_SC 1010 & BIO_SC 1020	General Principles and Concepts of Biology and General Biology Laboratory	5
or BIO_SC 1500	Introduction to Biological Systems with Laboratory	
or BIO_SC 1500H	Introduction to Biological Systems with Laboratory Honors	
CHEM 1320	College Chemistry I	4
or CHEM 1320H	College Chemistry I - Honors	
PHYSICS 1210	College Physics I	4
CDS 2190	Medical Terminology	3
PHIL 2440	Medical Ethics	3
or HLTH_SCI 4480	Clinical Ethics	
or HLTH_SCI 4480W	Clinical Ethics - Writing Intensive	
or CDS 4480	Clinical Ethics	
PTH_AS 2201 & PTH_AS 2203	Human Anatomy Lecture and Human Anatomy Laboratory	5
MPP 3202	Elements of Physiology	5
STAT 1200	Introductory Statistical Reasoning	3
or STAT 1300	Elementary Statistics	
or ESC_PS 4170	Introduction to Applied Statistics	
HLTH_SCI 3900W	Introduction to The Research Process and Evidence Base - Writing Intensive	3
or HLTH_SCI 3900HW	Introduction to The Research Process and Evidence Base - Honors/Writing Intensive	
DMU 1000	Introduction to Diagnostic Medical Ultrasound	1
Major Core Requirements		80
DMU 3309	Normal Ultrasound Clinical	5
DMU 3212	Sectional Anatomy	3
DMU 3313	Ultrasound Physics (In Summer 2019, DMU 3313 will be offered as DMU 4313)	3
DMU 3315	Ultrasound Instrumentation	3
DMU 3322	Superficial Organs Ultrasound	3
DMU 4001	Topics in Diagnostic Medical Ultrasound	3
DMU 4085W	Problems in Diagnostic Medical Ultrasound - Writing Intensive	3
DMU 4234	Clinical Pathophysiology	3
DMU 4314	Abdominal Ultrasound	5
DMU 4318	Gynecology Ultrasound	3
DMU 4320	Obstetrics Ultrasound	3
DMU 4325	Ultrasound Clinical Pharmacology and Contrast Agents	3

DMU 4326	Vascular Ultrasound Physics, Instrumentation and Hemodynamics	3
DMU 4332	Vascular Ultrasound	4
DMU 4941	Ultrasound Clinical I *	7
DMU 4342	Adult Cardiac Ultrasound	5
DMU 4944	Vascular Ultrasound Clinical IV *	7
DMU 4945	Cardiac Ultrasound Clinical V *	6
DMU 4993	Ultrasound Clinical II *	8

\*Denotes courses in which a grade of B (3.0) or higher is required.

### Professional Certification

Upon successfully completing the requirements of the program, graduates are eligible to apply to the American Registry of Diagnostic Medical Sonographers (ARDMS) for certification in Abdomen, Obstetrics and Gynecology and Vascular Technology.

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year				
Fall	CR	Spring	CR	
PSYCH 1000	3	DMU 1000	1	
MATH 1100	3	ENGLISH 1000	3	
HIST 1100, 1200, or POL_SC 1100	3	SOCIOL 1000	3	
BIO_SC 1010 & BIO_SC 1020	5	Humanities	3	
		CHEM 1320	4	
	14		14	

Second Year					
Fall	CR	Spring	CR	Summer	CR
COMMUN 1200	3	CDS 2190	3	DMU 3212	3
PHYSICS 1210	4	MPP 3202	5	DMU 3313	3
PTH_AS 2201 & PTH_AS 2203	5	HLTH_SCI 3900W	3	DMU 4085 (Writing Intensive Course)	1
PHIL 2440	3	ESC_PS 4170 or STAT 1200	3		
	15		14		7

Third Year					
Fall	CR	Spring	CR	Summer	CR
DMU 3309	5	DMU 4085W	1	DMU 4941	7
DMU 3315	3	DMU 4314	5		
DMU 3322	3	DMU 4318	3		
DMU 4085W	1	DMU 4320	3		
DMU 4234	3	DMU 4325	3		
	15		15		7

Fourth Year					
Fall	CR	Spring	CR	Summer	CR
DMU 4326	3	DMU 4001	3	DMU 4945	6
DMU 4332	4	DMU 4342	5		
DMU 4993	8	DMU 4944	7		
	15		15		6

Total Credits: 137

\*\* DMU 1000 Introduction to Diagnostic Medical Ultrasound is required for application to the DMU Program. Prospective students may enroll in the fall semester or the spring semester.

## BHS in Clinical and Diagnostic Sciences with Emphasis in Nuclear Medicine

### Degree Program Description

Nuclear medicine (NM) technologists use radioactive compounds to produce functional, molecular images as well as to treat many cancers. They work in a variety of settings, including hospitals, imaging and research centers, commercial radiopharmacies, and nuclear research reactors. Nuclear medicine procedures are used to diagnose and treat diseases as well as tailor treatment regimens. The NM program includes two years of pre-requisite coursework and two years of professional coursework. Students graduate with a Bachelor of Health Science (BHS) degree in Clinical and Diagnostic Sciences with an emphasis in Nuclear Medicine. Graduates of the program are eligible to challenge the nuclear medicine technology credentialing examinations administered by the Nuclear Medicine Technology Certification Board and the American Registry of Radiologic Technologists. The program is accredited by the Joint Review Committee on Educational Programs in Nuclear Medicine Technology.

### Major Program Requirements

Students must complete the Program Pre-requisite courses below with a grade of C- or higher. All Major Core Requirements require a grade of C (2.0) or higher, unless otherwise noted. Students must also meet degree and University requirements (<http://catalog.missouri.edu/academicdegreerequirements/universityrequirements/>), including University general education (<http://catalog.missouri.edu/academicdegreerequirements/generaleducationrequirements/>) requirements. In addition to the degree requirements below, the Nuclear Medicine program requires an application, including an interview. Students are encouraged to work with an advisor in order to best structure the pre-requisites and prepare for the program application.

Program Pre-Requisites		48
MATH 1100	College Algebra	3
or MATH 1400	Calculus for Social and Life Sciences I	
ENGLISH 1000	Exposition and Argumentation	3
or ENGLISH 1000H	Honors Exposition English	
COMMUN 1200	Public Speaking	3
or COMMUN 1200H	Public Speaking - Honors	
BIO_SC 1010 & BIO_SC 1020	General Principles and Concepts of Biology and General Biology Laboratory	5
or BIO_SC 1500	Introduction to Biological Systems with Laboratory	
or BIO_SC 1500H	Introduction to Biological Systems with Laboratory Honors	
STAT 1200	Introductory Statistical Reasoning	3
or STAT 1300	Elementary Statistics	
or ESC_PS 4170	Introduction to Applied Statistics	
CHEM 1320	College Chemistry I	4
or CHEM 1320H	College Chemistry I - Honors	
CHEM 1330	College Chemistry II	4

or CHEM 1330H	College Chemistry II- Honors	
PHYSICS 1210	College Physics I	4
PTH_AS 2201 & PTH_AS 2203	Human Anatomy Lecture and Human Anatomy Laboratory	5
MPP 3202	Elements of Physiology	5
CDS 2190	Medical Terminology	3
HLTH_SCI 3900W	Introduction to The Research Process and Evidence Base - Writing Intensive	3
or HLTH_SCI 3900HW	Introduction to The Research Process and Evidence Base - Honors/Writing Intensive	
2000-level or higher Approved Nuclear Medicine Elective		3
<b>Major Core Requirements</b>		<b>68</b>
NUCMED 3255	Orientation to Clinical Practice	2
NUCMED 3256	Clinical Nuclear Medicine I	2
NUCMED 3263	Morphological Correlations in Nuclear Medicine I	3
NUCMED 4232	Clinical In Vitro	3
NUCMED 4268W	Clinical Nuclear Medicine II - Writing Intensive	3
NUCMED 4269	Clinical Nuclear Medicine III	1
NUCMED 4299	Morphological Correlations in Nuclear Medicine II	3
NUCMED 4330	PET in Nuclear Medicine	3
NUCMED 4327	Nuclear Medicine Instrumentation	3
NUCMED 4329	Radiopharmaceuticals in Nuclear Medicine	3
NUCMED 4939	Nuclear Clinical Internship I	2
NUCMED 4940	Nuclear Clinical Internship II	6
NUCMED 4941	Nuclear Clinical Internship III	7
RA_SCI 3160	Radiologic Physics	3
RA_SCI 4110	Sectional Anatomy	3
RA_SCI 4150	Computed Tomography: Physics and Procedures	5
CDS 3460	Cardiovascular and Pulmonary Diagnostic Applications I	3
CDS 4328	Radiation Safety and Biology	4
CDS 4460	Cardiovascular and Pulmonary Diagnostic Applications II	3
CDS 4480	Clinical Ethics	3
or PHIL 2440	Medical Ethics	
or HLTH_SCI 4480	Clinical Ethics	
or HLTH_SCI 4480W	Clinical Ethics - Writing Intensive	
CDS 4985	Healthcare Organization and Leadership	3

\* Denotes courses in which a grade of C- is accepted.

### Professional Certification

Upon completion of the program, students are eligible to take the national certifying examinations given by the Nuclear Medicine Technology Certification Board. Students may also pursue credentials offered through the American Registry of Radiologic Technologists.

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
PSYCH 1000	3	ENGLSH 1000	3
MATH 1100 or 1400	3	COMMUN 1200	3
BIO_SC 1010 & BIO_SC 1020	5	CHEM 1320	4
Humanities	3	PTH_AS 2201 & PTH_AS 2203	5
14		15	

Second Year			
Fall	CR	Spring	CR
STAT 1200, 1300, or ESC_PS 4170	3	HIST 1100, 1200, or POL_SC 1100	3
PHYSICS 1210	4	MPP 3202	5
CHEM 1330	4	2000-level or higher Approved Nuclear Medicine Elective	3
CDS 2190	3	Behavioral/Social Science	3
HLTH_SCI 3900W	3	Humanities	3
17		17	

Third Year					
Fall	CR	Spring	CR	Summer	CR
CDS 4328	4	CDS 3460	3	CDS 4460	3
NUCMED 3255	2	CDS 4480	3	NUCMED 4232	3
NUCMED 3263	3	NUCMED 3256	2	NUCMED 4939	2
NUCMED 4327	3	NUCMED 4299	3		
RA_SCI 3160	3	NUCMED 4329	3		
15		14		8	

Fourth Year			
Fall	CR	Spring	CR
CDS 4985	3	NUCMED 4269	1
NUCMED 4268W	3	NUCMED 4330	3
NUCMED 4940	6	NUCMED 4941	7
RA_SCI 4110	3	RA_SCI 4150	5
15		16	

Total Credits: 131

## BHS in Clinical and Diagnostic Sciences with Emphasis in Radiography

### Degree Program Description

Radiographers employ ionizing radiation (x-rays) and strong magnetic fields to image anatomy and aid in the diagnosis of injury and disease. Radiographers work closely with radiologists and other physicians to provide patient services such as general x-ray, magnetic resonance imaging (MRI), computed tomography (CT), cardiac and vascular interventional procedures, mammography, and bone densitometry. Radiographers work in a variety of settings including hospitals, clinics, imaging centers, mobile services, research centers, and industry. The Radiography program includes two years of pre-requisite coursework and six semesters of professional coursework, including clinical experiences at several local facilities. The program includes advanced didactic training in MRI or CT. Graduates of the program may elect to enroll in the

advanced imaging clinical externship to complete clinical requirements in the semesters following graduation. Students graduate with a Bachelor of Health Science (BHS) degree in Clinical and Diagnostic Sciences with an emphasis in Radiography. Graduates of the program are eligible to challenge credentialing examinations administered by the American Registry of Radiologic Technologists. Accreditation of the program is granted by:

The Joint Review Committee on Education in Radiologic Technology  
 20 North Wacker Drive, Suite 2850  
 Chicago, Illinois 60606-3182  
 (312) 704-5300  
 mail@jrcert.org

## Major Program Requirements

Students must complete all Program Pre-Requisite courses below with a grade of C- or higher for admission to the BHS in Clinical and Diagnostic Sciences with an emphasis in Radiography program. Once admitted to the program, all Major Core Requirements must be completed with a grade of C (2.0) or higher, and students must maintain a 2.5 or higher GPA each semester while in the program. In addition, students must meet degree and University requirements (<http://catalog.missouri.edu/academicdegreerequirements/universityrequirements/>), including University general education (<http://catalog.missouri.edu/academicdegreerequirements/generaleducationrequirements/>) requirements. A separate application is required for admission to the program. Students are encouraged to work with an advisor and the Radiography Program Director in order to best structure the pre-requisites and prepare for the program application. Students transferring from other institutions should contact the program director and work with an advisor to evaluate coursework and ensure they will meet the program's pre-requisite requirements.

<b>Program Pre-Requisites</b>		<b>37</b>
MATH 1100	College Algebra	3
ENGLSH 1000	Exposition and Argumentation	3
or ENGLSH 1000H	Honors Exposition English	
PSYCH 1000	General Psychology	3
or PSYCH 1000H	General Psychology - Honors	
COMMUN 1200	Public Speaking	3
or COMMUN 1200H	Public Speaking - Honors	
BIO_SC 1010 & BIO_SC 1020	General Principles and Concepts of Biology and General Biology Laboratory	5
or BIO_SC 1500	Introduction to Biological Systems with Laboratory	
or BIO_SC 1500H	Introduction to Biological Systems with Laboratory Honors	
CHEM 1320	College Chemistry I	4
or CHEM 1320H	College Chemistry I - Honors	
PTH_AS 2201 & PTH_AS 2203	Human Anatomy Lecture and Human Anatomy Laboratory	5
MPP 3202	Elements of Physiology	5
STAT 1200	Introductory Statistical Reasoning	3
or STAT 1300	Elementary Statistics	
or ESC_PS 4170	Introduction to Applied Statistics	
CDS 2190	Medical Terminology	3
<b>Major Core Requirements</b>		<b>68</b>
RA_SCI 3110	Radiography Procedures I	2
RA_SCI 3120	Fundamentals of Radiography	3

RA_SCI 3130	Basic Radiographic Skills	2
RA_SCI 3140	Principles in Radiographic Exposure I	3
RA_SCI 3150	Radiologic Pharmacology	3
RA_SCI 3160	Radiologic Physics	3
RA_SCI 3170	Imaging Modalities	2
RA_SCI 3180	Radiography Procedures II	2
RA_SCI 3190	Radiography Procedures III	3
RA_SCI 4110	Sectional Anatomy	3
RA_SCI 4140	Magnetic Resonance Imaging: Physics and Procedures	5
or RA_SCI 4150	Computed Tomography: Physics and Procedures	
RA_SCI 4947	Radiography Overview	3
RA_SCI 3941	Clinical Education I	3
RA_SCI 3942	Clinical Education II	3
RA_SCI 4943	Clinical Education III	3
RA_SCI 4944	Clinical Education IV	3
RA_SCI 4945	Clinical Education V	3
RA_SCI 4980	Imaging Pathology	3
CDS 3460W	Cardiovascular and Pulmonary Diagnostic Applications I - Writing Intensive	3
CDS 4328	Radiation Safety and Biology	4
CDS 4440	Organization and Administration	3
CDS 4460	Cardiovascular and Pulmonary Diagnostic Applications II	3
HLTH_SCI 3900W	Introduction to The Research Process and Evidence Base - Writing Intensive	3
or HLTH_SCI 3900HW	Introduction to The Research Process and Evidence Base - Honors/Writing Intensive	

## Professional Certification

Upon completion of the program, students are eligible to sit for the national certifying exam given by the American Registry of Radiologic Technologists.

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

<b>First Year</b>					
<b>Fall</b>	<b>CR</b>	<b>Spring</b>	<b>CR</b>		
BIO_SC 1010 & BIO_SC 1020	5	CHEM 1320	4		
Elective	1	COMMUN 1200	3		
Humanities	3	ENGLSH 1000	3		
MATH 1100	3	PSYCH 1000	3		
			12	13	
<b>Second Year</b>					
<b>Fall</b>	<b>CR</b>	<b>Spring</b>	<b>CR</b>	<b>Summer</b>	<b>CR</b>
CDS 2190	3	Beh/Social Science	3	RA_SCI 3110	2
HIST 1100, 1200, or POL_SC 1100	3	MPP 3202	5	RA_SCI 3120	3
Humanities	3	STAT 1200, 1300, or ESC_PS 4170	3	RA_SCI 3130	2
PTH_AS 2201 & PTH_AS 2203	5	Elective	2		
			14	13	7

Third Year					
Fall	CR	Spring	CR	Summer	CR
RA_SCI 3140		3 CDS 3460W		3 CDS 4460	3
RA_SCI 3150		3 RA_SCI 3170		2 RA_SCI 4943	3
RA_SCI 3160		3 RA_SCI 3190		3	
RA_SCI 3180		2 RA_SCI 3942		3	
RA_SCI 3941		3 RA_SCI 4110		3	
		14			6

Fourth Year			
Fall	CR	Spring	CR
RA_SCI 4944		3 RA_SCI 4140 or 4150 <sup>+</sup>	5
CDS 4328		4 RA_SCI 4945	3
CDS 4440		3 RA_SCI 4947	3
HLTH_SCI 3900W		3 RA_SCI 4980	3
		13	14

Total Credits: 120

+ Course is taught solely on the internet.

## BHS in Clinical and Diagnostic Sciences with Emphasis in Respiratory Therapy

### Degree Program Description

Respiratory therapists assess and treat dysfunction involving the heart and lungs. Respiratory therapists work in hospitals, intensive care units, emergency rooms, air and ambulance transport, neonatal and pediatric units, patient homes, sleep laboratories, skilled nursing facilities, and in the medical device industry. They work closely with physicians to manage ventilators and artificial airways, administer prescribed inhaled medications, perform pulmonary function testing, and analyze arterial blood specimens. The Respiratory Therapy program at MU includes two years of pre-requisite coursework and two years (including summer semesters) of professional coursework, which can be completed in Columbia or at the program's satellite campus at Mercy Hospital in St. Louis. Students graduate with the Bachelor of Health Science (BHS) degree in Clinical and Diagnostic Sciences with an emphasis in Respiratory Therapy. Graduates of the program are eligible to challenge credentialing examinations administered by the National Board for Respiratory Care (NBRC <https://www.nbrc.org>) (<https://www.nbrc.org/>). An online degree advancement program is available for credentialed respiratory therapists who seek the bachelor's degree. For additional information on the profession of Respiratory Care, please visit; <https://be-an-rt.org/>.

### Major Program Requirements

Students must complete the courses below with a grade of C (2.0) or higher to earn the BHS in Clinical and Diagnostic Sciences with an emphasis in Respiratory Therapy degree. In addition, students must meet degree and University requirements (p. 35), including University general education (p. 36) requirements. A separate application is required for admission to the program. Students are encouraged to work with an advisor in order to best structure the pre-requisites and prepare for the program application.

Program Pre-requisites		45
MATH 1100	College Algebra	3
ENGLISH 1000	Exposition and Argumentation	3
or ENGLISH 1000H	Honors Exposition English	
PSYCH 1000	General Psychology	3
or PSYCH 1000H	General Psychology - Honors	
COMMUN 1200	Public Speaking	3
or COMMUN 1200H	Public Speaking - Honors	
BIO_SC 1010 & BIO_SC 1020	General Principles and Concepts of Biology and General Biology Laboratory	5
or BIO_SC 1500	Introduction to Biological Systems with Laboratory	
or BIO_SC 1500H	Introduction to Biological Systems with Laboratory Honors	
CHEM 1320	College Chemistry I	4
or CHEM 1320H	College Chemistry I - Honors	
CDS 2190	Medical Terminology	3
PTH_AS 2201 & PTH_AS 2203	Human Anatomy Lecture and Human Anatomy Laboratory	5
MICROB 2800	Microbiology for Nursing and Health Professions	4
or MICROB 3200	Medical Microbiology and Immunology	
MPP 3202	Elements of Physiology	5
STAT 1200	Introductory Statistical Reasoning	3
or STAT 1300	Elementary Statistics	
or ESC_PS 4170	Introduction to Applied Statistics	
HLTH_SCI 3900W	Introduction to The Research Process and Evidence Base - Writing Intensive	3
or HLTH_SCI 3900HW	Introduction to The Research Process and Evidence Base - Honors/Writing Intensive	
RS_THR 1000	Introduction to Respiratory Therapy (Optional)	1
<b>Major Core requirements</b>		<b>72</b>
CDS 3460	Cardiovascular and Pulmonary Diagnostic Applications I	3
CDS 4440	Organization and Administration	3
CDS 4460	Cardiovascular and Pulmonary Diagnostic Applications II	3
CDS 4500	Emergency and Disaster Management in Healthcare	1
RS_THR 3000	Fundamentals of Respiratory Care	1
RS_THR 3220	Equipment and Therapeutics	3
RS_THR 3240	Assessment and Therapeutics Lab	3
RS_THR 3290	Cardiopulmonary Pharmacology	3
RS_THR 3420W	Principles of Mechanical Ventilation - Writing Intensive	3
RS_THR 3440	Mechanical Ventilation Lab	3
RS_THR 3941	Clinical Practice I	2
RS_THR 3942	Clinical Practice II	4
RS_THR 3943	Clinical Practice III	2
RS_THR 4020	Perinatal/Neonatal Respiratory Care	3
RS_THR 4040	Respiratory Pathophysiology	5
RS_THR 4220	Community and Patient Education I	1
RS_THR 4240	Pulmonary Rehabilitation	3
RS_THR 4420	Pediatric Respiratory Care	3
RS_THR 4620	Pulmonary Function Technologies	2
RS_THR 4930	Current Issues in Respiratory Care	3

RS_THR 4940	Clinical Practice IV	5
RS_THR 4973	Clinical Practice V	4
RS_THR 4983	Clinical Practice VI	4
RS_THR 4993	Clinical Practice VII	5

### Professional Credentialing/Licensure

After graduation, students are eligible to take the credentialing exams offered by the National Board for Respiratory Care (NBRC) (<https://www.nbrc.org/>).

Graduates will also be required to apply for licensing in the state in which they choose to work.

### Accreditation

The University of Missouri Respiratory Therapy Program's Bachelor of Health Science in Clinical & Diagnostic Sciences with an emphasis in Respiratory Therapy, CoARC # 200033, in Columbia, MO is accredited by the Commission on Accreditation for Respiratory Care ([www.coarc.com](http://www.coarc.com) (<http://www.coarc.com>)).

The University of Missouri at Mercy Hospital Respiratory Therapy Program's Bachelor of Health Science in Clinical & Diagnostic Sciences with an emphasis in Respiratory Therapy, CoARC # 300006, in St. Louis, MO is accredited by the Commission on Accreditation for Respiratory Care ([www.coarc.com](http://www.coarc.com) (<http://www.coarc.com>)).

Programmatic outcomes data (<https://www.coarc.com/Students/Programmatic-Outcome-Data.aspx>) is available to the public on the CoARC website.

Commission on Accreditation for Respiratory Care

264 Precision Blvd  
 Telford, TN 37690  
 817-283-2835  
[www.coarc.com](http://www.coarc.com) (<http://www.coarc.com>)

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year					
Fall	CR	Spring	CR		
MATH 1100	3	CHEM 1320	4		
PSYCH 1000	3	ENGLISH 1000	3		
BIO_SC 1010 & BIO_SC 1020	5	ESC_PS 4170 or STAT 1200	3		
Humanities	3	COMMUN 1200	3		
		14	13		
Second Year					
Fall	CR	Spring	CR	Summer	CR
CDS 2190	3	MPP 3202	5	RS_THR 3000 (online)	1
RS_THR 1000	1	SOCIOL 1000 <sup>OR</sup> another behavioral / social science)	3		
HLTH_SCI 3900W	3	MICROB 2800 or 3200	4		
PTH_AS 2201 & PTH_AS 2203	5	Humanities Course (level 2000 or higher)	3		

HIST 1100, 1200, or POL_SC 1100	3			15	15	1
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Third Year					
Fall	CR	Spring	CR	Summer	CR
RS_THR 3220	3	CDS 3460	3	CDS 4460	3
RS_THR 3240	3	RS_THR 3420	3	RS_THR 3943	2
RS_THR 3290	3	RS_THR 3440	3	RS_THR 4220	1
RS_THR 3941	2	RS_THR 3942	4	RS_THR 4240	3
RS_THR 4040	5	RS_THR 4020	3		
		16	16	9	

Fourth Year			
Fall	CR	Spring	CR
CDS 4440	3	RS_THR 4930	3
CDS 4500	1	RS_THR 4973	4
RS_THR 4420	3	RS_THR 4983	4
RS_THR 4620	2	RS_THR 4993	5
RS_THR 4940	5		
		14	16

Total Credits: 129

## MHS in Clinical and Diagnostic Sciences

The MHS CDS program prepares clinical professionals for leadership in three distinct contexts: Health care facilities, higher education programs preparing entry-to-practice health care professionals, and health care industry. Students will build on their unique disciplinary knowledge and expand their foundation as leaders while tailoring a program specific to their individual career aspirations. The MHS CDS offers three emphasis areas: Clinical Laboratory Science, Imaging Sciences, and Respiratory Therapy.

Prospective students for the MHS CDS program will most commonly be credentialed in Clinical Laboratory Science, Diagnostic Medical Ultrasound, Nuclear Medicine Technology, Radiography or Respiratory Therapy. Our program aligns well with health care providers who have a goal to build advanced, profession-specific competencies while also fostering beliefs and choices essential to the development of safe and effective interprofessional health care teams.

The program is facilitated by nationally recognized faculty and content experts. Students benefit from high quality, well-resourced distance learning support. Admission may be granted at any time to qualified candidates.

### Degree Requirements

The Master of Health Science in Clinical and Diagnostic Science is a 30 credit-credit hour (minimum) online, graduate program designed to be completed part-time by practicing health care professionals who are employed full time.

The program curriculum is organized into three parts, with integrated opportunities to achieve stackable credentials. Interprofessional core courses (9 credit hours) offer practical preparation for effective team functioning. Leadership electives (minimum 12 credit hours) offer preparation for one of three career paths: Health care facilities (hospitals, clinics); higher education programs preparing entry-to-practice health care professionals (colleges, universities); or health care

industry (medical equipment or pharmaceutical sales and customer support). Emphasis area electives (minimum 6 credit hours) prepare students for one or more advanced professional credentials. All students will complete a personalized experiential capstone project tailored to their goals in clinical leadership (3 credit hours). At least 15 credit hours must be 8000 or 9000 level courses. Students may have the ability to earn a graduate certificate while completing the masters degree requirements, depending on their choice of leadership elective courses. Please refer to the specific emphasis area page for complete degree requirements: Clinical Laboratory Science, Imaging Sciences, and Respiratory Therapy.

## For More Information

### Clinical and Diagnostic Sciences

School of Health Professions  
605 Lewis Hall  
(573) 882-8034

## MHS in Clinical and Diagnostic Sciences with Emphasis in Clinical Laboratory Science

The Master of Health Science in Clinical and Diagnostic Science with emphasis in Clinical Laboratory Science is an interprofessional program that will prepare students from diverse health professions for leadership positions in health care facilities, higher education programs preparing entry-to-practice health care professionals, and the medical equipment and pharmaceutical industries. Students will build on their unique disciplinary knowledge to expand their foundation as leaders and prepare to achieve their academic and career goals.

Upon completion of the program students will be able to:

- Implement evidence-based clinical systems in ways that optimize patient outcomes using analytic techniques
- Reflect on the impact of leadership decisions and incorporate current trends into clinical practice
- Provide leadership in regulatory compliance, risk management, fiscal responsibility and strategic planning
- Build interprofessional team competence, assess clinical performance, and implement professional development activities
- Integrate advanced clinical specializations to provide stackable skills that meet the changing needs of evolving disciplines

Graduates of this program will merge their discipline-specific knowledge and experience with new leadership skills, advanced professional competencies, and interprofessional collaborative practice experiences to lead the delivery of the highest quality care.

## Degree Requirements

The Master of Health Science in Clinical and Diagnostic Science with emphasis in Clinical Laboratory Science is a 30 credit-credit hour (minimum) graduate degree program.

The program curriculum is organized into three categories: interprofessional core courses (9 credit hours), leadership electives (minimum 12 credit hours), and emphasis area electives (minimum 6 credit hours). All students will complete a personalized experiential capstone project tailored to their goals in clinical leadership (3 credit hours). At least 15 credit hours must be 8000 or 9000 level courses.

Students may earn a graduate certificate while completing the MHS CDS requirements, depending on their chosen leadership elective courses.

Interprofessional Core		9
CDS 8410	Clinical Analytics	3
CDS 8420	Clinical Management	3
CDS 8430	Clinical Leadership	2
CDS 8990	Clinical Capstone	3
HTH_PR 7100	Introduction to Interprofessional Practice	1

Note: Courses may be added as options to take not currently listed. Some courses may only be offered once a year or on a rotation basis.

## For More Information

### Clinical and Diagnostic Sciences

School of Health Professions  
605 Lewis Hall  
(573) 882-8034

## MHS in Clinical and Diagnostic Sciences with Emphasis in Imaging Sciences

The Master of Health Science in Clinical and Diagnostic Science with emphasis in Imaging Sciences is an interprofessional program that will prepare students from diverse health professions for leadership positions in health care facilities, higher education programs preparing entry-to-practice health care professionals, and the medical equipment and pharmaceutical industries. Students will build on their unique disciplinary knowledge to expand their foundation as leaders and prepare to achieve their academic and career goals.

Upon completion of the program students will be able to:

- Implement evidence-based clinical systems in ways that optimize patient outcomes using analytic techniques
- Reflect on the impact of leadership decisions and incorporate current trends into clinical practice
- Provide leadership in regulatory compliance, risk management, fiscal responsibility and strategic planning
- Build interprofessional team competence, assess clinical performance, and implement professional development activities
- Integrate advanced clinical specializations to provide stackable skills that meet the changing needs of evolving disciplines

Graduates of this program will merge their discipline-specific knowledge and experience with new leadership skills, advanced professional competencies, and interprofessional collaborative practice experiences to lead the delivery of the highest quality care.

## Degree Requirements

The Master of Health Science in Clinical and Diagnostic Science with emphasis in Imaging Sciences is a 30 credit-credit hour graduate degree program.

The program curriculum is organized into three categories: interprofessional core courses (9 credit hours), leadership electives (minimum 12 credit hours), and emphasis area electives (minimum 6 credit hours). All students will complete a personalized experiential capstone project tailored to their goals in clinical leadership (3 credit



hours). At least 15 credit hours must be 8000 or 9000 level courses. Students may earn a graduate certificate while completing MHS CDS requirements, depending on their chosen leadership elective courses.

Total credit hours to completion may vary depending on selection of emphasis area and certificate program.

Interprofessional Core		9
CDS 8410	Clinical Analytics	3
CDS 8420	Clinical Management	3
CDS 8430	Clinical Leadership	2
CDS 8990	Clinical Capstone	3
HTH_PR 7100	Introduction to Interprofessional Practice	1

Note: Elective courses must be approved by the program director. Courses are offered every two years on a rotating basis.

## For More Information

### Clinical and Diagnostic Sciences

School of Health Professions  
605 Lewis Hall  
(573) 882-8034

## MHS in Clinical and Diagnostic Sciences with Emphasis in Respiratory Therapy

The Master of Health Science in Clinical and Diagnostic Science with emphasis in Respiratory Therapy is an interprofessional program that will prepare students from diverse health professions for leadership positions in health care facilities, higher education programs preparing entry-to-practice health care professionals, and the medical equipment and pharmaceutical industries. Students will build on their unique disciplinary knowledge to expand their foundation as leaders and prepare to achieve their academic and career goals.

Upon completion of the program students will be able to:

- Implement evidence-based clinical systems in ways that optimize patient outcomes using analytic techniques
- Reflect on the impact of leadership decisions and incorporate current trends into clinical practice
- Provide leadership in regulatory compliance, risk management, fiscal responsibility and strategic planning
- Build interprofessional team competence, assess clinical performance, and implement professional development activities
- Integrate advanced clinical specializations to provide stack-able skills that meet the changing needs of evolving disciplines

Graduates of this program will merge their discipline-specific knowledge and experience with new leadership skills, advanced professional competencies, and interprofessional collaborative practice experiences to lead the delivery of the highest quality care.

## Degree Requirements

The Master of Health Science in Clinical and Diagnostic Science with emphasis in Respiratory Therapy is a 30 credit-credit hour graduate degree program.

The program curriculum is organized into three categories: interprofessional core courses (9 credit hours), leadership electives

(minimum 12 credit hours), and emphasis area electives (minimum 6 credit hours). All students will complete a personalized experiential capstone project tailored to their goals in clinical leadership (3 credit hours). At least 15 credit hours must be 8000 or 9000 level courses. Students may earn a graduate certificate while completing MHS CDS requirements, depending on their chosen leadership elective courses.

Total credit hours to completion may vary depending on selection of elective courses.

Interprofessional Core		9
CDS 8410	Clinical Analytics	3
CDS 8420	Clinical Management	3
CDS 8430	Clinical Leadership	2
CDS 8990	Clinical Capstone	3
HTH_PR 7100	Introduction to Interprofessional Practice	1

Note: Elective courses must be approved by the program director. Courses are offered every two years on a rotating basis.

## For More Information

### Clinical and Diagnostic Sciences

School of Health Professions  
617 Lewis Hall  
(573) 882-9722

## Health and Rehabilitation Science

School of Health Professions  
510 Lewis Hall  
701 S. 5th St.  
Columbia, MO 65211

## Faculty

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

While MU does not offer undergraduate degrees specifically in health and rehabilitation science, the University does offer baccalaureate opportunities in a number of related areas, both within the School of Health Professions, and in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 20).

## Graduate

- PhD in Health and Rehabilitation Science (p. 616)

## PhD in Health and Rehabilitation Science

The Ph. D. in Health and Rehabilitation Science is an interdisciplinary research-focused doctoral program that will prepare students for high-impact careers in research, post-secondary education, and organizational leadership in the health disciplines (including physical therapy,

occupational therapy, speech-language pathology and public health). Students will be prepared to serve as faculty in health professions schools and colleges, and will have a range of other opportunities including working in non-governmental organizations and government agencies addressing community health problems and contributing to product development in rehabilitation/health care industries.

The program curriculum is based on a mentorship-model of graduate education. Students who are accepted to the program will work with a specific faculty mentor or mentors. Coursework will be tailored to ensure breadth and depth of didactic learning that will provide the foundation for development of an independent research program.

## Degree Requirements

Students are required to complete 72 credit hours of post-baccalaureate study. Curriculum will include foundational course work in Health and Rehabilitation Science, and core courses focused on statistics and research methodology. Students will complete additional graduate coursework that advances their line of research and is approved by their faculty mentor(s). Students will complete at least 15 credit hours of 8000-9000 level coursework in their research area, along with an additional 11+ mentor-directed learning credit hours in readings, problems or research. Up to 28 credit hours of research credits may be counted towards the 72 hours minimum required, though students may take more than 28 credit hours of research to complete their research and defend their dissertation.

Students will collaborate with their faculty mentor to create a plan of study for their doctoral degree by the end of their first semester in the program. The program will consist of core courses and additional coursework decided upon with their mentor. Students will be expected to take courses from academic programs outside of their faculty mentor's home department to allow for interdisciplinary research.

### Required Core Courses

Health and Rehabilitation Science (3-6 credit hours)		
HR_SCI 8440	Health and Rehabilitation Science I	2-3
HR_SCI 8442	Health and Rehabilitation Science II	2-3
Research Methodology and Statistics (12 credit hours)		
ESC_PS 7170	Introduction to Applied Statistics (or other approved course)	3
ESC_PS 8850	Quantitative Foundations in Educational Research (or other approved course)	3
Research methodology and statistics electives		6

### Other Course Requirements

Research Area Courses		15
To include courses from within SHP and across campus, approved by faculty mentor.		
Research Area Directed Study		
HR_SCI 8001	Topics in Health and Rehabilitation Science	1-3
HTH_PR 8001	Topics in Health Professions	1-3
HR_SCI 8085	Problems in Health and Rehabilitation Science	1-3
HTH_PR 8085	Problems in Health Professions	1-3
Thesis/Dissertation Courses (up to 28 credit hours)		
HR_SCI 8090	Research in Health and Rehabilitation Science <small>Pending approval</small>	1-99
HR_SCI 9090	Doctoral Dissertation Research in Health and Rehabilitation Science <small>Pending approval</small>	1-99

## Qualifying Process

### Comprehensive Examination Process

All students will complete a comprehensive examination at the end of required coursework that will include written and oral sections.

### Dissertation Requirements

All students will complete a minimum of two independent research projects, including their dissertation research. Students will write a dissertation proposal that must be reviewed and approved by the student's doctoral committee and must successfully complete a doctoral dissertation focused on original research.

## Admissions

Admissions procedures will follow those specified by the MU Graduate School (<https://gradschool.missouri.edu/admissions/>). Candidates will be asked to specify faculty member(s) they would prefer to work with. Students will be selected for admission based on recommendations by the program faculty and with final approval by the Program Director.

## Health Science

J. Goodman, R. Hogan, Interim Co-Chairs  
 B. Blackburn, Program Director  
 School of Health Professions

501 Clark Hall  
 (573) 882-8422  
[hoganr@health.missouri.edu](mailto:hoganr@health.missouri.edu)

The Department of Health Sciences (DHS) is part of the School of Health Professions (SHP), which serves the citizens of Missouri through its outstanding research, community service clinics, and the education of students in the areas of health literacy and health promotion. Faculty in DHS teach courses for the health science program and are actively involved in a wide range of interdisciplinary research. Our faculty provide expertise in several domains including public health, psychology, sociology, medical anthropology, education, and social work. Faculty research covers a wide range of topics including health promotion, health communication, decision support, health disparities for disadvantaged groups, and access to healthcare. Our research also spans a number of substantive areas including Autism Spectrum Disorders, breast cancer, HIV/AIDS, aging, and adolescent health.

Students can only earn the BHS in Health Science concurrently with the Doctor of Physical Therapy (p. 833) if they have been admitted through the Department of Physical Therapy's early admission program option. Students who choose to pursue this option are strongly encouraged to work with their advisor to ensure completion of degree requirements.

## Faculty

**Associate Professor** N. Cheak-Zamora\*\*, A. Frech\*\*, W. Majee\*\*  
**Associate Teaching Professor** B. Blackburn, K. Flynn Peters, M. Kuhnert, C. Orbann, D. Ruggeri  
**Assistant Professor** C. Allen, C. Altman\*\*, L. Bauerband, H. Choi\*\*,  
**Assistant Teaching Professor** G. Cox, B. Ramirez, M. Vetter-Smith, J. Wintemberg

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BHS in Health Science (p. 618)
  - with emphasis in Health & Wellness Services (p. 620)
  - with emphasis in Leadership & Policy (p. 621)
  - with emphasis in Pre-Professional (p. 622)
  - with emphasis in Rehabilitation Sciences (p. 623)

The Department of Health Sciences' BHS in Health Science degree program is for students who wish to enter non-clinical health careers such as medical case management, corporate wellness, human services, medical sales, pharmaceutical manufacturing and distribution, and more. Graduates of the Health Science degree program may also be qualified to enter either graduate or professional health science programs such as Occupational Therapy, Physical Therapy, Health Administration and Public Health. The Health Science program requires physical, biological, behavioral and social sciences to provide students with an education in foundational sciences, human function, health research, service and policy.

The department offers the Bachelor of Health Science in Health Science (BHS). Students who start at the University of Missouri or declare the health science degree in Fall 2016 or later must declare an emphasis area upon declaring the major. Students in the Mizzou Online program will not be required to declare an emphasis area, though declaring an emphasis area may be an option depending on the student's interests and background.

## Departmental Requirements

Courses may be delivered using traditional or distance delivery methods. The Health Science degree program credits must include a minimum of 120 university-level credit hours, including: general education (p. 36) coursework, core required courses that comprise a minimum of 20 credit hours, professional emphasis requirements, 18 hours of approved, required electives that complement the student's intended pathway.

Students are required to file a graduation plan for the Health Science degree by the time they have completed 60 university-level credit hours, including all MU and transfer credits. Students should meet with their academic advisor to discuss the graduation plan, and then file their plan prior to early registration for the fall and spring semesters. Students who transfer from another institution or another school/college at MU with 60 or more hours must file their graduation plan within the first semester of enrollment in the Health Science program.

## Residency Requirement

There is a residency requirement for Health Science majors. Students must complete, at minimum, their last 30 hours of coursework for the degree as declared Health Science majors in the School of Health Professions. The 30 hour residency requirement applies to students who wish to declare an emphasis area, as well. Students must be in the Health Science major at the beginning of a semester to include the hours in the residency requirement. Residency requirement hours for students transferring into the major during the semester will begin the following semester.

## Admission to the BHS in Health Science

The BHS in Health Science Program does not require an application. Students may declare the major, and emphasis area, by indicating it on the MU admission application (for new students), completing a transfer of division form (for current MU students), or notifying their academic advisor of their intention to declare a Health Science major (for current SHP students). There is a 2.0 MU, cumulative and term GPA requirement to declare a major in Health Science. The cumulative GPA is calculated using all MU and transfer coursework. Students must maintain the 2.0 GPA, term and cumulative, to remain in the Health Science program. Students who do not maintain the required 2.0 term and cumulative GPA will receive communication regarding probation or ineligible to re-enroll status. Students who fail to achieve the GPA requirement may continue in the program for two probationary semesters.

## Graduate

While MU does not offer graduate degrees specifically in health sciences, the University does offer post-baccalaureate opportunities in a number of related areas, both within the School of Health Professions, and in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 20).

## BHS in Health Science

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### Degree Program Description

A Health Science major is for students who are interested in non-clinical health careers and for those interested in graduate or professional health science programs. Non-clinical health career options include medical case management, corporate wellness, human services, medical sales, pharmaceutical manufacturing and distribution, and more. Graduates holding the BHS in Health Sciences may also be qualified to enter either graduate or professional health science programs, such as physical therapy, public health, chiropractic medicine, health informatics and hospital administration. On-campus, Health Science majors choose one of four sub-plans. These sub-plans include: Rehabilitation Sciences, for students pursuing physical therapy, occupational therapy, chiropractic, orthotics/prosthetics, and similar degrees; Pre-Professional, for students who are pre-medicine, dentistry, pharmacy, physician assistant studies, optometry and related graduate/professional programs that require an undergraduate degree; Leadership and Policy, for students who are interested in pursuing non-clinical pathways after graduation, through graduate programs in health administration or working in areas such as health informatics, sales, program coordination and support areas in healthcare; and Health and Wellness Services, for students who wish to pursue health promotion, wellness programming, non-profit work, applied behavioral analysis, as well as students who wish to pursue accelerated nursing after graduation with the health science degree. The health sciences curriculum includes courses in public health, health literacy, healthcare leadership and management, healthcare policy and funding, and clinical ethics. The capstone course sequence includes a required internship experience appropriate for the chosen sub-plan. Students may choose a health sciences study abroad experience approved by the Office of Experiential Learning to meet the internship requirement.

### Major Program Requirements

- Students must have a 2.0 GPA, most recent fall or spring term, cumulative including all transfer credit, and MU GPA to declare the Health Science major.

- All required core and elective coursework for the BHS in Health Science program, including emphasis and approved health science elective courses, must be completed with a grade of C- or higher.
- If a student earns a deficient grade in a core required course for the Health Science major, they may repeat a core required course one time. If the second attempt is not a C- or higher, students are required to transition out of the major.
- Students must complete all university requirements, including general education (p. 36), and Departmental Requirements (p. 618), in addition the degree requirements below.

### Capstone Requirement

The BHS in Health Science capstone is comprised of two courses: HLTH\_SCI 4975 and HLTH\_SCI 4985. HLTH\_SCI 4975 is an internship that is approved by the Department of Health Sciences' Office of Experiential Learning. Students may find their own internship experience or work with the course instructor/internship advisor to identify an appropriate placement given interests and goals.

Students may choose from:

- an internship at an agency, company, or corporation of their choice. For an internship to be approved as a capstone experience, it must help students solidify and explore areas of concentration. Internships must have prior approval from the Health Sciences Internship advisor;
- service learning project which allows a student to serve approximately 50 clock hours in an organization. This can be arranged with the Internship advisor or through the Office of Service Learning on campus, and
- an approved study abroad program

In addition to University of Missouri requirements, including University general education, the Health Science degree requires the following, each of which must be completed with a grade of C- or higher:

#### Program Requirements

ENGLISH 1000	Exposition and Argumentation (or equivalent)	3
or ENGLISH 1000H	Honors Exposition English	
MATH 1100	College Algebra	3-5
or MATH 1160	Precalculus Mathematics	
BIO_SC 1010 & BIO_SC 1020	General Principles and Concepts of Biology and General Biology Laboratory	5
or BIO_SC 1500	Introduction to Biological Systems with Laboratory	
or BIO_SC 1500H	Introduction to Biological Systems with Laboratory Honors	
Physical Science course		1+
Behavioral Science course		1+
STAT 1200	Introductory Statistical Reasoning	3
or STAT 1300	Elementary Statistics	
or ESC_PS 4170	Introduction to Applied Statistics	

#### Major Core Requirements

HLTH_SCI 1000	Introduction to the Health Professions (Honors students may add HLTH_SCI 1000H discussion)	3
or HLTH_SCI 1000H	Introduction to the Health Professions - Honors	
HLTH_SCI 2100	Health Sciences Seminar	1

HLTH_SCI 3300	Public Health Principles, Practice, and Education	3
or HLTH_SCI 3300H	Public Health Principles, Practice, & Education - Honors	
or HLTH_SCI 3300W	Public Health Principles, Practice, and Education - Writing Intensive	
HLTH_SCI 3900W	Introduction to The Research Process and Evidence Base - Writing Intensive	3
or HLTH_SCI 3900HW	Introduction to The Research Process and Evidence Base - Honors/Writing Intensive	
HLTH_SCI 4300	Health Care in the United States	3
or HLTH_SCI 4300H	Health Care in the United States - Honors	
HLTH_SCI 4480	Clinical Ethics	3
or HLTH_SCI 4480W	Clinical Ethics - Writing Intensive	
HLTH_SCI 4975	Internship in Health Sciences	1, 3 or 6
HLTH_SCI 4985	Healthcare Organization and Leadership	3

#### Health Science Electives

18

Students must complete 18 hours of approved elective coursework. At least 9 credit hours must be taken as 3000/4000 level courses. Students must complete coursework in at least two out of the following three thematic areas: Social/Behavioral; Medical/Biological; Administrative/Leadership. Transfer courses taken at the freshman-sophomore level and accepted as equivalent to a 3000/4000 level course at the University may not count towards the 9 hour upper-level Health Science Elective requirement for the Health Science degree.

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
BIO_SC 1010		3 ENGLISH 1000	3
BIO_SC 1020		2 HLTH_SCI 1000	3
MATH 1100		3 Humanities course	3
Behavioral Science course		3 MO State Law Requirement	3
Humanities course		3 Elective	3
Elective		1	
			15
			15

Second Year			
Fall	CR	Spring	CR
HLTH_SCI 3300		3 HLTH_SCI 4300	3
STAT 1200		3 2000+ level Humanities course	3
Physical Science course		3 Writing Intensive course	3
Elective		3 Elective	3
Elective		3 Elective	3
			15
			15

Third Year			
Fall	CR	Spring	CR
HLTH_SCI 2100		1 HLTH_SCI 3900W	3
HLTH_SCI 4480		3 2000+ level Approved Health Science Elective	3
2000+ level Approved Health Science Elective		3 3000+ level Approved Health Science Elective	3
Elective		3 Elective	3
Elective		3 Elective	3

Elective		2		
			15	15
<b>Fourth Year</b>				
<b>Fall</b>	<b>CR</b>	<b>Spring</b>		<b>CR</b>
HLTH_SCI 4975		3 HLTH_SCI 4985		3
3000+ level Approved Health Science Elective		3 2000+ level Approved Health Science Elective		3
Elective		3 3000+ level Approved Health Science Elective		3
Elective		3 Elective		3
Elective		3 Elective		3
			15	15

Total Credits: 120

## BHS in Health Science with Emphasis in Health & Wellness Services

### Degree Program Description

The health and wellness services emphasis will prepare students for application to clinical or graduate programs in fields such as accelerated nursing, applied behavior analysis, or health education and promotion. The health and wellness services emphasis may also prepare students who have appropriate work experience as an undergraduate to work in fields such as health and human services, non-profit organizations, and corporate health promotion, and wellness programming. The health and wellness emphasis services area includes 20 hours of core required courses, professional emphasis requirements and required health science electives that complement the student's pathway. In addition, the health science program requires an internship that is appropriate for a student's career goals. Examples of internships for the health and wellness services emphasis include: approved study abroad, health promotion, physical fitness and nutritional services through WELLAWARE at Boone Hospital Center, Safe Kids Columbia, and Case Management at Lutheran Family and Children's Services. OK!

### Major Program Requirements

In addition to University of Missouri requirements, including University general education, the Health Science degree with a Health and Wellness Services emphasis requires the following, each of which must be completed with a grade of C- or higher:

#### Program Requirements

ENGLISH 1000	Exposition and Argumentation	3
or ENGLISH 1000H	Honors Exposition English	
MATH 1100	College Algebra	3-5
or MATH 1160	Precalculus Mathematics	
Physical Science course		1+

#### Major Core Requirements

HLTH_SCI 1000	Introduction to the Health Professions	3
or HLTH_SCI 1000H	Introduction to the Health Professions - Honors	
HLTH_SCI 2100	Health Sciences Seminar	1
HLTH_SCI 3300	Public Health Principles, Practice, and Education	3
or HLTH_SCI 3300H	Public Health Principles, Practice, & Education - Honors	

or HLTH_SCI 3300W	Public Health Principles, Practice, and Education - Writing Intensive	
HLTH_SCI 3900W	Introduction to The Research Process and Evidence Base - Writing Intensive	3
or HLTH_SCI 3900HW	Introduction to The Research Process and Evidence Base - Honors/Writing Intensive	
HLTH_SCI 4300	Health Care in the United States	3
or HLTH_SCI 4300H	Health Care in the United States - Honors	
HLTH_SCI 4480	Clinical Ethics	3
or HLTH_SCI 4480W	Clinical Ethics - Writing Intensive	
HLTH_SCI 4975	Internship in Health Sciences	1, 3 or 6
HLTH_SCI 4985	Healthcare Organization and Leadership	3

#### Health and Wellness Services Emphasis Requirements

BIO_SC 1010 & BIO_SC 1020	General Principles and Concepts of Biology and General Biology Laboratory	5
or BIO_SC 1500	Introduction to Biological Systems with Laboratory	
or BIO_SC 1500H	Introduction to Biological Systems with Laboratory Honors	
CDS 2190	Medical Terminology	3
COMMUN 1200	Public Speaking	3
or COMMUN 1200H	Public Speaking - Honors	
H_D_FS 2400	Principles of Human Development	3-4
or H_D_FS 2400H	Principles of Human Development - Honors	
or H_D_FS 2400HW	Principles of Human Development - Honors/Writing Intensive	
or H_D_FS 2400W	Principles of Human Development - Writing Intensive	
HLTH_SCI 3400	Global Public Health and Health Care Systems	3
STAT 1200	Introductory Statistical Reasoning	3
or STAT 1300	Elementary Statistics	
or ESC_PS 4170	Introduction to Applied Statistics	
Select one of the following:		3-5
BIO_SC 2100	Infectious Diseases	
PTH_AS 2201	Human Anatomy Lecture	
NEP 2380	Diet Therapy for Health Professionals	
MICROB 2800	Microbiology for Nursing and Health Professions	
or MICROB 3200	Medical Microbiology and Immunology	
MPP 3202	Elements of Physiology	
Select one of the following:		3
HLTH_SCI 4400	Culture and Health Literacy for the Health Professions	
HLTH_SCI 4410	Humanism and Health Literacy	
HLTH_SCI 4420	Health Literacy and Behavioral Compliance	

#### Health Science Electives

18

Students must complete 18 hours of approved elective coursework. At least 9 credit hours must be taken as 3000/4000 level courses. Transfer courses taken at the freshman-sophomore level and accepted as equivalent to a 3000/4000 level course at the University may not count towards the 9 hour upper-level Health Science Elective requirement for the Health Science degree.

## Semester Plan

Students are strongly encouraged to work with an academic advisor in the School of Health Professions to develop an individualized eight-semester plan based on strengths, interests and career goals.

First Year			
Fall	CR	Spring	CR
BIO_SC 1010		3 ENGLISH 1000	3
BIO_SC 1020		2 HLTH_SCI 1000	3
MATH 1100		3 MO State Law Requirement	3
Humanities course		3 Elective	3
Elective		3 Elective	3
Elective		1	
		15	15
Second Year			
Fall	CR	Spring	CR
COMMUN 1200		3 HLTH_SCI 4300	3
HLTH_SCI 3300		3 CDS 2190	3
STAT 1200		3 2000+ level Humanities course	3
Physical Science course		3 Writing Intensive course	3
Elective		3 Elective	3
		15	15
Third Year			
Fall	CR	Spring	CR
HLTH_SCI 2100		1 HLTH_SCI 3900W	3
HLTH_SCI 4480		3 NEP 2380	3
H_D_FS 2400		3 2000+ level Approved Health Science Elective	3
2000+ level Approved Health Science Elective		3 3000+ level Approved Health Science Elective	3
Elective		3 Elective	3
Elective		2	
		15	15
Fourth Year			
Fall	CR	Spring	CR
HLTH_SCI 3400		3 HLTH_SCI 4985	3
HLTH_SCI 4400		3 2000+ level Approved Health Science Elective	3
HLTH_SCI 4975		3 3000+ level Approved Health Science Elective	3
3000+ level Approved Health Science Elective		3 Elective	3
Elective		3 Elective	3
		15	15

Total Credits: 120

## BHS in Health Science with Emphasis in Leadership & Policy

### Degree Program Description

The leadership and policy emphasis in the health science major prepares students to enter careers in health administration, informatics, or sales. The leadership and policy emphasis may also prepare students for graduate studies in health administration, informatics, public health, policy or law. The leadership and policy emphasis area includes 20 hours

of core required courses, general education, professional emphasis requirements and required electives that complement the student's pathway. In addition, the health science program requires an internship that is appropriate for a student's career goals. Examples of internships include health administration, health consultant, clinical analysis and strategic planning at RehabCare, Health Literacy Missouri, Institute for People, Place and Possibility, Tiger Institute and Cerner Corporation.

## Major Program Requirements

In addition to University of Missouri requirements, including University general education, the Health Science degree with a Leadership and Policy emphasis requires the following, each of which must be completed with a grade of C- or higher:

### Program Requirements

ENGLISH 1000 or ENGLISH 1000H	Exposition and Argumentation Honors Exposition English	3
MATH 1100 or MATH 1160	College Algebra Precalculus Mathematics	3-5
Behavioral Science course		1+
Major Core Requirements		
HLTH_SCI 1000 or HLTH_SCI 1000H	Introduction to the Health Professions Introduction to the Health Professions - Honors	3
HLTH_SCI 2100	Health Sciences Seminar	1
HLTH_SCI 3300 or HLTH_SCI 3300H or HLTH_SCI 3300W	Public Health Principles, Practice, and Education Public Health Principles, Practice, & Education - Honors Public Health Principles, Practice, and Education - Writing Intensive	3
HLTH_SCI 3900W or HLTH_SCI 3900HW	Introduction to The Research Process and Evidence Base - Writing Intensive Introduction to The Research Process and Evidence Base - Honors/Writing Intensive	3
HLTH_SCI 4300 or HLTH_SCI 4300H	Health Care in the United States Health Care in the United States - Honors	3
HLTH_SCI 4480 or HLTH_SCI 4480W	Clinical Ethics Clinical Ethics - Writing Intensive	3
HLTH_SCI 4975	Internship in Health Sciences	1, 3 or 6
HLTH_SCI 4985	Healthcare Organization and Leadership	3

### Leadership and Policy Emphasis Requirements

BIO_SC 1010 & BIO_SC 1020 or BIO_SC 1500 or BIO_SC 1500H	General Principles and Concepts of Biology and General Biology Laboratory Introduction to Biological Systems with Laboratory Introduction to Biological Systems with Laboratory Honors	5
CDS 2190	Medical Terminology	3
CHEM 1100 or CHEM 1320	Atoms and Molecules with Lab College Chemistry I	3-4
COMMUN 1200 or COMMUN 1200H	Public Speaking Public Speaking - Honors	3
ECONOM 1014 or ECONOM 1014H or ABM 1041 or ECONOM 1051H	Principles of Microeconomics Principles of Microeconomics-Honors Applied Microeconomics General Economics - Honors	3
HLTH_SCI 3400	Global Public Health and Health Care Systems	3

HLTH_SCI 4400	Culture and Health Literacy for the Health Professions	3
HLTH_SCI 4500	Health Care Management	3
HLTH_SCI 4510	Essential Tools for the Health Care Leader: A Problem-Based Approach	3
STAT 1200 or STAT 1300 or ESC_PS 4170	Introductory Statistical Reasoning Elementary Statistics Introduction to Applied Statistics	3
Select one of the following:		3-5
BIO_SC 2100	Infectious Diseases	
PTH_AS 2201	Human Anatomy Lecture	
MICROB 2800 or MICROB 3200	Microbiology for Nursing and Health Professions Medical Microbiology and Immunology	
MPP 3202	Elements of Physiology	
NEP 2380	Diet Therapy for Health Professionals	

**Health Science Electives 18**

Students must complete 18 hours of approved elective coursework. At least 9 credit hours must be taken as 3000/4000 level courses. Transfer courses taken at the freshman-sophomore level and accepted as equivalent to a 3000/4000 level course at the University may not count towards the 9 hour upper-level Health Science Elective requirement for the Health Science degree.

### Semester Plan

Students are strongly encouraged to work with an academic advisor in the School of Health Professions to develop an individualized eight-semester plan based on strengths, interests and career goals.

First Year			
Fall	CR	Spring	CR
BIO_SC 1010		3 CHEM 1100	3
BIO_SC 1020		2 ENGLISH 1000	3
MATH 1100		3 HLTH_SCI 1000	3
Humanities course		3 MO State Law Requirement	3
Elective		3 Elective	3
Elective		1	
			15

Second Year			
Fall	CR	Spring	CR
COMMUN 1200		3 HLTH_SCI 4300	3
HLTH_SCI 3300		3 CDS 2190	3
STAT 1200		3 2000+ level Humanities course	3
Behavioral Science course		3 Writing Intensive course	3
Elective		3 Elective	3
			15

Third Year			
Fall	CR	Spring	CR
ECONOM 1014		3 HLTH_SCI 3900W	3
HLTH_SCI 2100		1 NEP 2380	3
HLTH_SCI 4480		3 2000+ level Approved Health Science Elective	3
2000+ level Approved Health Science Elective		3 3000+ level Approved Health Science Elective	3
Elective		3 Elective	3
Elective		2	
			15

Fourth Year			
Fall	CR	Spring	CR
HLTH_SCI 3400		3 HLTH_SCI 4510	3
HLTH_SCI 4400		3 HLTH_SCI 4985	3
HLTH_SCI 4500		3 2000+ level Approved Health Science Elective	3
HLTH_SCI 4975		3 3000+ level Approved Health Science Elective	3
3000+ level Approved Health Science Elective		3 Elective	3
			15

Total Credits: 120

## BHS in Health Science with Emphasis in Pre-Professional

### Degree Program Description

The pre-professional emphasis in the health science major prepares students to apply for graduate and professional programs in medicine, dentistry, pharmacy, physician assistant studies, optometry and related areas. The pre-professional emphasis may also prepare students who have appropriate work experience as an undergraduate to work for clinical research companies, medical or pharmaceutical sales or other non-clinical health careers that require a background in science and knowledge of health care. The pre-professional emphasis area includes 20 hours of core required courses, general education, professional emphasis requirements and required electives that complement the student's pathway. In addition, the health science program requires an internship that is appropriate for a student's career goals. Examples of internships for the pre-professional emphasis include: Missouri Telehealth Network, MedZou Community Health Center, PhysAssist, and Scribe America.

### Major Program Requirements

In addition to University of Missouri requirements, including University general education, the Health Science degree with a Pre-Professional emphasis requires the following, each of which must be completed with a grade of C- or higher:

Program Requirements		
ENGLISH 1000	Exposition and Argumentation	3
or ENGLISH 1000H	Honors Exposition English	
MATH 1100	College Algebra	3-5
or MATH 1160	Precalculus Mathematics	
Major Core Requirements		
HLTH_SCI 1000	Introduction to the Health Professions	3
or HLTH_SCI 1000H	Introduction to the Health Professions - Honors	
HLTH_SCI 2100	Health Sciences Seminar	1
HLTH_SCI 3300	Public Health Principles, Practice, and Education	3
or HLTH_SCI 3300H	Public Health Principles, Practice, & Education - Honors	
or HLTH_SCI 3300W	Public Health Principles, Practice, and Education - Writing Intensive	
HLTH_SCI 3900W	Introduction to The Research Process and Evidence Base - Writing Intensive	3

or HLTH_SCI 3900HW	Introduction to The Research Process and Evidence Base - Honors/Writing Intensive	
HLTH_SCI 4300	Health Care in the United States	3
or HLTH_SCI 4300H	Health Care in the United States - Honors	
HLTH_SCI 4480	Clinical Ethics	3
or HLTH_SCI 4480W	Clinical Ethics - Writing Intensive	
HLTH_SCI 4975	Internship in Health Sciences	1, 3 or 6
HLTH_SCI 4985	Healthcare Organization and Leadership	3
<b>Pre-Professional Emphasis Requirements</b>		
BIO_SC 1500	Introduction to Biological Systems with Laboratory	5
or BIO_SC 1500H	Introduction to Biological Systems with Laboratory Honors	
BIO_SC 2200	General Genetics	4
or BIO_SC 2200H	General Genetics - Honors	
CHEM 1320	College Chemistry I	4
or CHEM 1320H	College Chemistry I - Honors	
CHEM 1330	College Chemistry II	4
or CHEM 1330H	College Chemistry II- Honors	
CHEM 2100	Organic Chemistry I	3
or CHEM 2030	Survey of Organic Chemistry	
MPP 3202	Elements of Physiology	5
or BIO_SC 3700	Animal Physiology	
PHIL 2440	Medical Ethics	3
PHYSCS 1210	College Physics I	4
PSYCH 1000	General Psychology	3
or PSYCH 1000H	General Psychology - Honors	
PTH_AS 2201 & PTH_AS 2203	Human Anatomy Lecture and Human Anatomy Laboratory	5
STAT 1200	Introductory Statistical Reasoning	3
or STAT 1300	Elementary Statistics	
or ESC_PS 4170	Introduction to Applied Statistics	

**Health Science Electives 18**

Students must complete 18 hours of approved elective coursework. At least 9 credit hours must be taken as 3000/4000 level courses. Transfer courses taken at the freshman-sophomore level and accepted as equivalent to a 3000/4000 level course at the University may not count towards the 9 hour upper-level Health Science Elective requirement for the Health Science degree.

### Semester Plan

Students should meet with an academic advisor in the School of Health Professions to discuss an individualized 8-semester plan based on their career goals, strengths and interests.

First Year			
Fall	CR	Spring	CR
BIO_SC 1500		5 BIO_SC 2200	4
HLTH_SCI 1000		3 CHEM 1320	4
MATH 1100		3 ENGLSH 1000	3
PSYCH 1000		3 Humanities course	3
Elective		1 Elective	1
		15	15
Second Year			
Fall	CR	Spring	CR
CHEM 1330		4 CHEM 2100	3
HLTH_SCI 3300		3 HLTH_SCI 4300	3

STAT 1200	3 Writing Intensive course	3
MO State Law Requirement	3 PHYSCS 1210	4
Elective	2 Elective	2
		15
		15

Third Year			
Fall	CR	Spring	CR
HLTH_SCI 2100		1 HLTH_SCI 3900W	3
2000+ level Approved Health Science Elective		3 HLTH_SCI 4480	3
Elective		3 2000+ level Approved Health Science Elective	3
BIO_SC 3700		5 3000+ level Approved Health Science Elective	3
Humanities course		3 Elective	3
		15	15

Fourth Year			
Fall	CR	Spring	CR
HLTH_SCI 4975		3 HLTH_SCI 4985	3
PTH_AS 2201		3 2000+ level Approved Health Science Elective	3
PTH_AS 2203		2 3000+ level Approved Health Science Elective	3
PHIL 2440		3 Elective	3
3000+ level Approved Health Science Elective		3 Elective	3
Elective		1	
		15	15

Total Credits: 120

## BHS in Health Science with Emphasis in Rehabilitation Sciences

### Degree Program Description

The rehabilitation science emphasis prepares students for application to graduate programs in fields such as occupational therapy, physical therapy, chiropractic, orthotics/prosthetics and similar degrees. The rehabilitation science emphasis may also prepare students who have appropriate work experience as an undergraduate to work as coaches for alternative community training organizations. The rehabilitation science emphasis area includes 20 hours of core required courses, general education, professional emphasis requirements and required electives that complement the student's pathway. In addition, the health science program requires an internship that is appropriate for a student's career goals. Examples of internships for the rehabilitation science emphasis include: Therapeutic Equine Center, MU Adaptive Gymnastics, MU Thompson Center for Autism and Neurodevelopmental Disorders, Mizzou Therapy Services, Wonderland Camp.

### Major Program Requirements

In addition to University of Missouri requirements, including University general education, the Health Science degree with a Rehabilitation Sciences emphasis requires the following, each of which must be completed with a grade of C- or higher:



**Program Requirements**

ENGLISH 1000	Exposition and Argumentation	3
or ENGLISH 1000H	Honors Exposition English	
MATH 1100	College Algebra	3-5
or MATH 1160	Precalculus Mathematics	

**Major Core Requirements**

HLTH_SCI 1000	Introduction to the Health Professions	3
or HLTH_SCI 1000H	Introduction to the Health Professions - Honors	
HLTH_SCI 2100	Health Sciences Seminar	1
HLTH_SCI 3300	Public Health Principles, Practice, and Education	3
or HLTH_SCI 3300H	Public Health Principles, Practice, & Education - Honors	
or HLTH_SCI 3300W	Public Health Principles, Practice, and Education - Writing Intensive	
HLTH_SCI 3900W	Introduction to The Research Process and Evidence Base - Writing Intensive	3
or HLTH_SCI 3900HW	Introduction to The Research Process and Evidence Base - Honors/Writing Intensive	
HLTH_SCI 4300	Health Care in the United States	3
or HLTH_SCI 4300H	Health Care in the United States - Honors	
HLTH_SCI 4480	Clinical Ethics	3
or HLTH_SCI 4480W	Clinical Ethics - Writing Intensive	
HLTH_SCI 4975	Internship in Health Sciences	1, 3 or 6
HLTH_SCI 4985	Healthcare Organization and Leadership	3

**Rehabilitation Science Emphasis Requirements**

BIO_SC 1010 & BIO_SC 1020	General Principles and Concepts of Biology and General Biology Laboratory	5
or BIO_SC 1500	Introduction to Biological Systems with Laboratory	
or BIO_SC 1500H	Introduction to Biological Systems with Laboratory Honors	
CDS 2190	Medical Terminology	3
CHEM 1320	College Chemistry I	4
or CHEM 1320H	College Chemistry I - Honors	
COMMUN 1200	Public Speaking	3
or COMMUN 1200H	Public Speaking - Honors	
H_D_FS 2400	Principles of Human Development	3
or H_D_FS 2400H	Principles of Human Development - Honors	
or H_D_FS 2400HW	Principles of Human Development - Honors/Writing Intensive	
or H_D_FS 2400W	Principles of Human Development - Writing Intensive	
MPP 3202	Elements of Physiology	5
PHYSICS 1210	College Physics I	4
PSYCH 1000	General Psychology	3
or PSYCH 1000H	General Psychology - Honors	
PSYCH 2510	Survey of Abnormal Psychology	3
PTH_AS 2201 & PTH_AS 2203	Human Anatomy Lecture and Human Anatomy Laboratory	5
STAT 1200	Introductory Statistical Reasoning	3
or STAT 1300	Elementary Statistics	
or ESC_PS 4170	Introduction to Applied Statistics	

**Health Science Electives**

18

Students must complete 18 hours of approved elective coursework. At least 9 credit hours must be taken as 3000/4000 level courses. Transfer courses taken at the freshman-sophomore level and accepted as equivalent to a 3000/4000 level course at the University may not count towards the 9 hour upper-level Health Science Elective requirement for the Health Science degree.

**Semester Plan**

Students should meet with an academic advisor in the School of Health Professions to discuss an individualized 8-semester plan based on their career goals, strengths and interests.

First Year			
Fall	CR	Spring	CR
ENGLISH 1000		3 BIO_SC 1010	3
PSYCH 1000		3 BIO_SC 1020	2
Humanities course		3 HLTH_SCI 1000	3
MO State Law Requirement		3 MATH 1100	3
Elective		3 PSYCH 2510	3
		Elective	1
			15
			15

Second Year			
Fall	CR	Spring	CR
CHEM 1320		4 CDS 2190	3
COMMUN 1200		3 HLTH_SCI 4300	3
HLTH_SCI 3300		3 H_D_FS 2400	3
STAT 1200		3 2000+ level Humanities course	3
Elective		2 Writing Intensive course	3
			15
			15

Third Year			
Fall	CR	Spring	CR
HLTH_SCI 2100		1 HLTH_SCI 3900W	3
HLTH_SCI 4480		3 MPP 3202	5
PTH_AS 2201		3 2000+ level Approved Health Science Elective	3
PTH_AS 2203		2 3000+ level Approved Health Science Elective	3
2000+ level Approved Health Science Elective		3 Elective	1
Elective		3	
			15
			15

Fourth Year			
Fall	CR	Spring	CR
HLTH_SCI 4975		1 HLTH_SCI 4985	3
PHYSICS 1210		4 2000+ level Approved Health Science Elective	3
3000+ level Approved Health Science Elective		3 3000+ level Approved Health Science Elective	3
Elective		3 Elective	3
Elective		3 Elective	3
Elective		1	
			15
			15

Total Credits: 120

**Occupational Therapy Assistant**

Department of Occupational Therapy  
School of Health Professions

801B Clark Hall  
Columbia, Missouri 65211  
(573) 882-3988

## Advising Contact

MUOT@health.missouri.edu

## Scholarship Information Contact

<https://healthprofessions.missouri.edu/student-services/scholarships/>

Occupational therapy is a health profession that uses a holistic approach to help people across the lifespan do the things they want and need to do through the therapeutic use of daily activities (occupations). There are two levels of entry into the occupational therapy profession, either as an occupational therapist (OT) or as an occupational therapy assistant (OTA). Occupational therapy assistants are skilled health professionals who provide services to individuals across the lifespan maximize their independence in meaningful everyday activities. OTAs use research, scientific evidence, and a holistic approach to incorporate an individual's valued occupations into the intervention process.

The mission of the Department of Occupational Therapy is to improve the health and well-being of society by assisting people to optimize their participation in everyday life occupations.

We achieve this mission through the integration of our:

- Professional education of clinically innovative occupational therapists prepared to meet the dynamic occupational needs of people and communities across the lifespan;
- Steadfast commitment to service to our community and our profession;
- Evidence-based practice; and
- Commitment to scholarship, discovery and clinical research to advance our profession.

## Accreditation and Certification

The baccalaureate-degree-level occupational therapy assistant program has applied for accreditation by the Accreditation Council for Occupational Therapy Education (ACOTE) of the American Occupational Therapy Association (AOTA), located at 6116 Executive Boulevard, Suite 200, North Bethesda, MD 20852-4929. ACOTE's telephone number c/o AOTA is (301) 652-AOTA and its Web address is [www.acoteonline.org](http://www.acoteonline.org) (<http://www.acoteonline.org>). The program must be granted Candidacy Status, have a preaccreditation review, complete an on-site evaluation, and be granted Accreditation Status before its graduates will be eligible to sit for the national certification examination for the occupational therapy assistant administered by the National Board for Certification in Occupational Therapy (NBCOT), located at One Bank Street, Suite 300, Gaithersburg, MD 20878. NBCOT's telephone number is (301) 990-7979 and its Web address is [www.nbcot.org](http://www.nbcot.org) (<http://www.nbcot.org>). After successful completion of this exam, the individual will be a Certified Occupational Therapy Assistant (COTA). In addition, all states require licensure in order to practice; however, state licenses are usually based on the results of the NBCOT Certification Examination. Note that a felony conviction may affect a graduate's ability to sit for the NBCOT certification examination or attain state licensure.

Students must complete 16 weeks of Level II fieldwork as well as a baccalaureate project within 24 months following the completion of the didactic portion of the program.

## Faculty

**Assistant Clinical Professor** S. Allen, T. Bolton\*, G. Pifer\*

**Assistant Professor** A. Boone\*\*, R. Proffitt\*\*

**Assistant Research Professor** W. Janes\*\*

**Associate Clinical Professor** W. Henderson\*

**Associate Professor** T. Wolf\*\*

**Clinical Professor** L. Lowery\*\*

**Teaching Professor** C. Gateley\*\*

**Distinguished Professor** W. Dunn\*\*

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BHS in Occupational Therapy Assistant (p. 625)

## Graduate

Occupational Therapy Assistant does not have a graduate program. For a related degree please see Occupational Therapy MOT. (p. 829)

## BHS in Occupational Therapy Assistant

Admittance to the program will begin Summer 2021.

## Degree Program Description

The Bachelor of Health Science in Occupational Therapy Assistant (BHS-OTA) Program will prepare students to practice as occupational therapy assistants who will then work under the supervision of occupational therapists in their career. Occupational therapy assistants are skilled health professionals who provide services to individuals across the lifespan maximize their independence in meaningful everyday activities. OTAs use research, scientific evidence, and a holistic approach to incorporate an individual's valued occupations into the intervention process. The BHS-OTA degree provides an additional degree option for students who wish to complete an undergraduate degree that allows for immediate employment in a health profession with high employment and entry-level salaries. In addition, graduates of the BHS-OTA program will have the opportunity to continue their education by pursuing a clinical doctorate degree in occupational therapy should they wish to practice at a higher practitioner level as an occupational therapist, and/or the option of completing a PhD to pursue a career in rehabilitation science, all while being able to work as a licensed OTA.

The BHS-OTA will prepare students for entry-level practice in diverse practice settings including hospitals, schools, long-term care facilities, outpatient clinics, home health agencies, early intervention programs, mental health programs, community agencies, and emerging areas of practice. At the completion of their education, students will:

- Utilize and integrate evidence into professional practice to ensure high quality health care services and use of scientifically supported interventions.

- Demonstrate entry-level clinical competence to meet the demands of an ever-changing practice environment in rural and metropolitan areas and with a variety of client populations.
- Address the occupational needs of individuals and communities to improve community health outcomes.
- Engage in lifelong learning behaviors reflective of professionalism as expected in the healthcare environment.
- Develop a professional identity through a baccalaureate project in the area of clinical practice, administration, leadership, advocacy, or education.

## Major Program Requirements

### Courses Required Pre-BHS-OTA:

Prior to acceptance to the BHS-OTA program, students must complete a minimum of 52 credit hours which includes foundational and pre-requisite content for the professional component of the curriculum. Students will be required to earn a grade of 'C-' or higher in each pre-requisite course and complete all science courses within four years of their application to the program. These 52 hours must include the courses listed below. A student must complete all general education requirements (p. 36) and BHS-OTA prerequisites prior to starting the professional coursework in the BHS-OTA program.

#### Statistics

STAT 1200	Introductory Statistical Reasoning	3
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#### Science

BIO_SC 1010 & BIO_SC 1020	General Principles and Concepts of Biology and General Biology Laboratory	5
or BIO_SC 1500	Introduction to Biological Systems with Laboratory	
PTH_AS 2201 & PTH_AS 2203	Human Anatomy Lecture and Human Anatomy Laboratory	5
MPP 3333	Fundamentals of Human Physiology	3

#### Behavioral and Social Sciences

PSYCH 2510	Survey of Abnormal Psychology	3
SOCIOLOG 1000	Introduction to Sociology <sup>or higher</sup>	3

#### Other

H_D_FS 2400	Principles of Human Development <sup>MU</sup> specific prerequisite	3
CDS 2190	Medical Terminology	3

1. One Writing Intensive course is included in the BHS-OTA professional coursework that will qualify as the one writing intensive course required in your major to meet these general education requirements.

A minimum CUM GPA of 3.0 on a 4.0 scale, including all undergraduate completed coursework, is required.

### Courses Required within BHS-OTA:

An additional 74 credit hours of Occupational Therapy Assistant curriculum will be required.

- OC\_THR 3010: OTA Practice Fundamentals (3 credit hours)
- OC\_THR 3020: Theory & Practice for OTA's (3 credit hours)
- OC\_THR 3110: Fundamentals of Evidence-Based Practice (3 credit hours)
- OC\_THR 3120: Medical & Psychosocial Conditions in OT (3 credit hours)
- OC\_THR 3130: Fundamentals of Activity Analysis (WI) (3 credit hours)
- OC\_THR 3140: Professional Documentation (2 credit hours)

- OC\_THR 3150: Measuring Functional Movement (3 credit hours)
- OC\_THR 3160: Fieldwork Level 1 A (2 credit hours)
- OC\_THR 3210: Ethics in OT (3 credit hours)
- OC\_THR 3220: OTA Practice in Physical Rehabilitation/Lab (3 credit hours)
- OC\_THR 3230: Assistive Technology & Adaptations (2 credit hours)
- OC\_THR 3240: OTA Practice with Infants & Adaptations (2 credit hours)
- OC\_THR 3250: Fieldwork Level 1 B (2 credit hours)
- OC\_THR 3260: Intro to Bacc Project: Choose Focus (1 credit hour)
- OC\_THR 4120: OTA Practice with Older Adults (3 credit hours)
- OC\_THR 4130: Psychosocial Practice (3 credit hours)
- OC\_THR 4140: OTA Practice with School-Aged Children (3 credit hours)
- OC\_THR 4150: OTA Practice in the Community (3 credit hours)
- OC\_THR 4160: Fieldwork Level 1 C (2 credit hours)
- OC\_THR 4180: Baccalaureate Project 1 (3 credit hours)
- OC\_THR 4210: OT Advocacy & Scholarship (2 credit hours)
- OC\_THR 4230: OTA Management & Leadership (3 credit hours)
- OC\_THR 4250: Professionalism & Specialization for OTA's (3 credit hours)
- OC\_THR 4260: Fieldwork Level 1 D (3 credit hours)
- OC\_THR 4280: Baccalaureate Project 2 (3 credit hours)
- OC\_THR 4320: Fieldwork Level 2 A (4 credit hours)
- OC\_THR 4340: Fieldwork Level 2 B (4 credit hours)

## Semester Plan

Below is a sample plan of study, semester by semester, for the courses within the BHS OTA. Coursework is subject to minor changes as the program makes occasional curricular revisions to meet accreditation requirements and to reflect contemporary occupational therapy practice.

Third Year					
Fall	CR	Spring	CR	Summer	CR
OC_THR 3010	3	OC_THR 3150	3	OC_THR 3140	2
OC_THR 3020	3	OC_THR 3220	3	OC_THR 3210	3
OC_THR 3110	3	OC_THR 3230	2		
OC_THR 3120	3	OC_THR 3240	3		
OC_THR 3130	3	OC_THR 3250	2		
OC_THR 3160	2	OC_THR 3260	1		
			17	14	5

Fourth Year					
Fall	CR	Spring	CR	Summer	CR
OC_THR 4120	3	OC_THR 4210	2	OC_THR 4320	4
OC_THR 4130	3	OC_THR 4230	3	OC_THR 4340	4
OC_THR 4140	3	OC_THR 4250	3		
OC_THR 4150	3	OC_THR 4260	2		
OC_THR 4160	2	OC_THR 4280	3		
OC_THR 4180	3				
			17	13	8

Total Credits: 74

## Physical Therapy

K. Gibson, Chair  
 Department of Physical Therapy  
 School of Health Professions  
 801 Clark Hall  
 (573) 882-7103  
 Fax: (573) 884-8369

<https://healthprofessions.missouri.edu/physical-therapy/>

Physical Therapy involves the evaluation and treatment of physical disability and pain that may result from injury, disease or developmental disability. Prevention of disability and public education are also roles of the physical therapist. Physical therapists use tests and measurements to assess body system dysfunction and determine diagnosis and treatment. Daily living skills, including work, are also addressed.

## Faculty

**Emeritus Professor** M. Brown\*, M. A. Minor\*

**Teaching Professor** T. Briedwell\*, K. Gibson\*

**Clinical Professor** C. C. Abbott\*

**Associate Professor** E. A. Dannecker\*\*, T. M. Guess\*\*, S. P. Sayers\*\*

**Associate Teaching Professor** D.E. Martin\*, E. Prost\*, K. Stephens\*

**Associate Clinical Professor** M. S. Hargrove\*

**Assistant Professor** J. Craggs\*

**Assistant Teaching Professor** R. Bliss\*, C. Blow\*, J. Bridges\*, A. Campbell\*, J. Hall\*, B. Willis\*

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BHS in Pre-Professional Physical Therapy (p. 627)

## Graduate

The Department of Physical Therapy does not offer any graduate-level degrees. We do offer Doctor of Physical Therapy at the professional level. Please see the Professional Physical Therapy section (p. 833) in the catalog for more information.

# BHS in Pre-Professional Physical Therapy

## Degree Program Description

Physical Therapy involves the evaluation and treatment of physical disability and pain that may result from injury, disease or developmental disability. Prevention of disability and public education are also roles of the physical therapist. Physical therapists use tests and measurements to assess body system dysfunction and determine diagnosis and treatment. Daily living skills, including work, are also addressed. The University of Missouri offers a Doctor of Physical Therapy degree. This degree is granted to some students who gain Advanced Admission to the Doctor of Physical Therapy program. Students may not major in the BHS in Preprofessional Physical Therapy unless they have applied and been accepted for Advanced Admission to the Doctor of Physical Therapy program.

## Major Program Requirements

Advanced Admission grants students the opportunity to apply to the DPT program during the junior year and enter the DPT program after completing 90 credit hours of college level coursework. Students who seek to gain early admission to the DPT program must complete a

minimum of three years (six fall/spring semesters or 12 quarters of full-time enrollment) of residential coursework on a college campus prior to starting the DPT program. To be eligible to apply for advanced admission, students must have a 3.5 cumulative GPA. Students accepted for the early admission program must complete 90 credit hours, including University of Missouri requirements, University general education, and pre-requisite coursework prior to beginning the professional phase of the program. At the time of application, students may have up to three of the following courses to be completed, with no more than two planned for the spring semester: Statistics, Chemistry, Physics 1, Physics 2, Biology, Physiology, Medical Terminology and Anatomy\*.

### Pre-requisite Courses

ENGLISH 1000	Exposition and Argumentation <sup>^</sup>	3
or ENGLISH 1000H	Honors Exposition English	
MATH 1100	College Algebra <sup>^</sup>	3-5
or MATH 1160	Precalculus Mathematics	
HLTH_SCI 3900W	Introduction to The Research Process and Evidence Base - Writing Intensive <sup>^</sup>	3

Students must complete departmental requirements, including at least 6-8 hours of 3000/4000-level coursework in one of the following content areas: a) Biological/Physical Science, b) Social/Behavioral Science. (See suggested courses below.) <sup>#</sup>

Suggested Biological/Physical Science Courses: <sup>~</sup>		
BIOCHM 3630	General Biochemistry	
BIO_SC 3750	General Microbiology	
CHEM 3200	Quantitative Methods of Analysis with Lab	
MPP 4204	Medical Pharmacology	
MICROB 3200	Medical Microbiology and Immunology	
MICROB 4304	Immunology	
NEP 3850	Physiology of Exercise	
NEP 4860	Exercise Prescription	
Suggested Social/Behavioral Science Courses:		
HLTH_SCI 3300	Public Health Principles, Practice, and Education	
HLTH_SCI 4300	Health Care in the United States	
PSYCH 3140	Cognitive Psychology	
PSYCH 3150	Human Memory	
PSYCH 3830	Health Psychology	
PSYCH 4210	Physiological Psychology	
SOCIOL 3430	The Sociology of Sport	
SOCIOL 3440	Sociology of Health	
SOCIOL 4210	Aging and the Life Course	
STAT 1200	Introductory Statistical Reasoning (a grade of C or better is required) <sup>#</sup>	3
or STAT 1300	Elementary Statistics	
or ESC_PS 4170	Introduction to Applied Statistics	
CHEM 1320	College Chemistry I <sup>#</sup>	4
or CHEM 1320H	College Chemistry I - Honors	
PHYSICS 1210	College Physics I <sup>#</sup>	4
PHYSICS 1220	College Physics II <sup>#</sup>	4
BIO_SC 1010 & BIO_SC 1020	General Principles and Concepts of Biology and General Biology Laboratory <sup>#</sup>	5
or BIO_SC 1500	Introduction to Biological Systems with Laboratory	
or BIO_SC 1500H	Introduction to Biological Systems with Laboratory Honors	

MPP 3202	Elements of Physiology #	5
CDS 2190	Medical Terminology #	3
PTH_AS 2201	Human Anatomy Lecture #*	3
PTH_AS 2203	Human Anatomy Laboratory #*	2
<b>Major Core Requirements</b>		
PTH_AS 7222	Gross Human Anatomy (The Health Professions) #	7
PH_THR 5110	Fundamentals of Physical Therapy #	1
PH_THR 5210	Applied Neurophysiology for Allied Health Students #	3
PH_THR 5220	Biophysical Agents #	3
PH_THR 5230	Clinical Evaluation and Procedures #	4
PH_THR 5240	Foundations of Therapeutic Exercise #	3
PH_THR 5250	Human Kinesiology #	3
PH_THR 5260	Introduction to Clinical Education and PhysZOU I #	1
Applied Therapeutic Exercise (PH_THR 5310) #		3
Clinical Kinesiology (PH_THR 5320) #		3
Clinical Pathophysiology (PH_THR 5330) #		3
Clinical Education and PhysZOU II (PH_THR 5340) #		1
Intro to Orthopedics (PH_THR 5350) #		3
Pharmacology in Rehabilitation (PH_THR 5360) #		2

~ MPP 3202 may meet the Physiology requirement and count toward the Biological/Physical Science category.

^ Courses in which a grade of C- or higher is required

# Courses in which a grade of C or higher is required

\* The Anatomy lecture and lab pre-requisites will be effective for applications in Fall 2020 and beyond.

## Semester Plan

First Year			
Fall	CR	Spring	CR
MATH 1100	3	CHEM 1320	4
PSYCH 1000	3	MO State Law Requirement	2
Humanities Course	3	HLTH_SCI 1000	3
BIO_SC 1010	3	ENGLISH 1000	3
BIO_SC 1020	2	PSYCH 2510	3
PH_THR 1000	1		
		15	15

Second Year			
Fall	CR	Spring	CR
PHYSICS 1210	4	CDS 2190	3
COMMUN 1200	3	HLTH_SCI 4300	3
HLTH_SCI 3300	3	H_D_FS 2400W	4
STAT 1200	3	PHYSICS 1220	4
PSYCH 2410	3		
		16	14

Third Year					
Fall	CR	Spring	CR	Summer	CR
HLTH_SCI 2100	1	HLTH_SCI 3900W	3	PTH_AS 7222	7
HLTH_SCI 4480	3	MPP 3202	5	PH_THR 5110	1
PTH_AS 2201	3	Humanities Course	3		
PTH_AS 2203	2	SOCIOL 3430	3		
NEP 2380	3	Elective	1		

H_D_FS 2300	3		
		15	15
			8

Fourth Year			
Fall	CR	Spring	CR
PH_THR 5210	3	PH_THR 5310	3
PH_THR 5220	3	PH_THR 5320	3
PH_THR 5230	4	PH_THR 5330	3
PH_THR 5240	3	PH_THR 5340	1
PH_THR 5250	3	PH_THR 5350	3
PH_THR 5260	1	PH_THR 5360	2
		17	15

Total Credits: 130

## Public Health

E. Schatz, Chair

M. Teti, Associate Chair

Public health is an exciting field of work dedicated to protecting and improving the health and well-being of communities, particularly those seen as the most vulnerable. While a doctor treats people who are sick, public health practitioners try to *prevent* people from getting sick or hurt in the first place and promote wellness by encouraging healthy behaviors. Examples of public health and an effective public health system surround us every day. Public Health graduates will contribute to an increasingly needed skilled public health workforce that will work on protecting our current and future public health. Public Health graduates can work in numerous sub-disciplines such as epidemiology or disease tracking, biostatistics, health education, environmental health, health policy, or disaster preparedness. For example, graduates may develop health education materials or health education curricula for communities, hospitals, or health agencies. In positions at local health departments, graduates may work in teams to track emerging diseases, develop and administer HIV testing programs, or identify and address health disparities. They also may work in industry or academia researching public health problems and solutions. Graduates also may help develop policy briefs for public health agencies, assist in the development and implementation of disaster management policies and plans, or track and address environmental public health concerns. The opportunities for rewarding careers in public health are as diverse as public health itself.

## Faculty

**Professor** B. Beernsten\*, M. Hosokawa\*

**Associate Professor** T. Evans\*\*, B. Houston\*, J. McElroy\*, E. Schatz\*\*, J. Stemmler\*, M. Teti\*\*, M. Yu\*\*

**Assistant Professor** K. Lewis, R. Raghavan\*, W. Majee\*,

**Associate Teaching Professor** S. Lee\*, L. Saffran\*, L. Schultz\*

**Assistant Teaching Professor** L. Phillips\*, M. Vetter\*, N. Yazdani

**Associate Research Professor** L. Tenkku-Lepper\*

**Assistant Adjunct Professor** T. Rose\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BHS in Public Health (p. 629)

The mission of the Bachelor of Health Science in Public Health is to teach students to advance public health knowledge, promote healthy behaviors and environments, address and eliminate health disparities, and prevent disease. We value:

- Health as a right, and strive to reduce or eliminate inequity and injustice that affects the health and dignity of all people;
- Diversity as a strength in our education, research, and work as the right thing to do and the best strategy to engage and help the communities we care about;
- Interdisciplinary collaboration as the key to creatively solving today's challenging health issues;
- Critical thinking to forge new solutions.

All students enrolled in the Bachelor of Health Science in Public Health (abbreviated as BHS in Pub\_Hlth) Program are subject to the general regulations of the University. Students seeking admission to the BHS in Pub\_Hlth Program must be admitted to the University. In addition to meeting minimum standards established by the University of Missouri, students must also comply with the rules and regulations set forth in this policy statement. Students should be aware that this degree program requires a high degree of individual research, planning, and self-motivation to be successful. Questions or concerns should be directed to the BHS in Pub\_Hlth Program Director, or an academic advisor. Rules and regulations governing students at the University of Missouri can be found in the undergraduate catalog and the University's collected rules and regulations.

For more information please email [MUBPHProgram@health.missouri.edu](mailto:MUBPHProgram@health.missouri.edu) ([DHSPublicHealth@health.missouri.edu](mailto:DHSPublicHealth@health.missouri.edu)) or contact Dr. Michelle Teti ([tetim@health.missouri.edu](mailto:tetim@health.missouri.edu)), Associate Chair of the Dept. of Public Health, with questions.

## Graduate

- MPH in Public Health (p. 631)
  - with emphasis in Health Promotion and Policy (p. 633)
  - with emphasis in Veterinary Public Health (p. 633)
- Graduate Certificate in Public Health (p. 634)

**Program Director:** Lise Saffran

The MPH Program has two emphasis areas, Health Promotion and Policy or Veterinary Public Health; dual degrees with Public Affairs, Journalism, Social Work, and Veterinary Medicine; and graduate certificates in Public Health, Global Health, and Epidemiology. This public health coursework reflects the University of Missouri's strength in the health professions, social work, nursing, medicine, veterinary medicine, and arts and sciences. The MPH is appropriate for students with a wide variety of undergraduate degrees including social work, political science, biology, communication, and related fields.

802 Lewis Hall  
573-884-6844  
<http://publichealth.missouri.edu/>

## BHS in Public Health

### Degree Program Description

Public health includes activities needed to promote and protect the health of people and the communities that they live in. While doctors treat people who are sick, the field of public health is organized around trying to prevent illness and injuries in the first place; and promote healthy behavior. People in the field of public health work to assure the conditions in which people can be healthy by tracking disease and outbreaks, preventing injuries, and studying how and why some people are more likely to suffer from poor health and health inequities than others. The many facets of public health include speaking out for laws or policies that promote smoke-free indoor air, school nutrition, and seat belts; collecting and disseminating education about how to stay healthy, and offering science-based solutions to health problems - among others.

The Bachelor of Health Science in Public Health degree prepares students for introductory careers in all core areas of public health, such as health education, epidemiology, health policy, and environmental health. The courses introduce students to key concepts, theories, problems, and solutions in public health, and also focus on the links between public health and social justice and human rights.

### Major Program Requirements

All students enrolled in the Bachelor of Health Science in Public Health (abbreviated as BHS in Pub\_Hlth) Program are subject to the general regulations of the University. Students seeking admission to the BHS in Pub\_Hlth Program must be admitted to the University. In addition to meeting minimum standards established by the University of Missouri, students must also comply with the rules and regulations set forth in the BHS in Pub\_HLTH policy document. Students should be aware that this degree program requires a high degree of individual research, planning, and self-motivation to be successful. Questions or concerns should be directed to the BHS in Pub\_Hlth Program Director, or an academic advisor. Rules and regulations governing students at the University of Missouri can be found in the undergraduate catalog and the University's collected rules and regulations.

All students with a 2.75 GPA of Record and students in their first semester who do not yet have an established GPA of Record may declare the Public Health major. The Bachelor of Health Science in Public Health program is interested in students with a wide range of life experiences and skills. Students who do not meet the 2.75 GPA of Record may petition the Associate Chair of the Department of Public Health. In addition to meeting University of Missouri and School of Health Professions requirements, students in the BHS in Public Health program must:

- Adhere to all University of Missouri guidelines and policies for admission and continued enrollment at the University as an undergraduate student.
- Maintain a 2.75 term GPA and GPA of Record (cumulative GPA listed in MyZou). Students may petition this requirement and handled on a case by case basis.
- Complete all Public Health core courses with a grade of C (2.0 on a 4.0 scale) or higher, except P\_HLTH 2200 (or equivalent, i.e. HLTH\_SCI 3300), which requires a grade of B- or higher.

- Complete BIO\_SC 1010/1020 or 1500, a physical science course, PSYCH 1000, and SOCIOL 1000 or RU\_SOC 1000 with a grade of C- or higher.
- Complete 12 approved diversity credit hours, including at least 6 hours of Public Health Electives with a grade of C (2.0 on a 4.0 scale) or higher.
- Earn a minimum of 30 credit hours taken at the 3000/4000 (junior/senior) level. Lower-division transfer courses accepted as upper-division courses at MU cannot be used to fulfill this requirement.

Students who fail to comply with the BHS in Pub\_Hlth policies or do not maintain a 2.75 term GPA and GPA of Record will receive communication regarding program probation from the BHS in Pub\_Hlth Program. Students who fail to achieve the term GPA and GPA of Record requirement will be given two semesters to bring their term GPA and GPA of Record up to the 2.75 requirement, provided they meet the University's standards for continued enrollment. Students who do not meet the 2.75 GPA of Record may petition the Associate Chair of the Department of Public Health and will be handled on a case by case basis.

Students are encouraged to talk with their instructors and use the support of their advisors if they struggle with coursework. If a student is dismissed from the BHS in Public Health program, and they want to petition to stay in the program, they must submit a petition in writing to the Associate Chair of the Department of Public Health, who in collaboration with the Department of Public Health Chair will make a decision. Further appeals can be made to the School of Health Professions Senior Associate Dean.

Note: Credit accepted by the University will be accepted without limitation towards this degree. Students must Complete 30 of the last 36 credits with MU authored courses.

In addition to University of Missouri requirements, including University general education, the Bachelor of Health Science in Public Health degree requires the following:

**Program Requirements**

ENGLISH 1000 or ENGLISH 1000H	Exposition and Argumentation ^ Honors Exposition English	3
MATH 1100 or MATH 1160	College Algebra ^ Precalculus Mathematics	3-5
BIO_SC 1010 & BIO_SC 1020 or BIO_SC 1500 or BIO_SC 1500H	General Principles and Concepts of Biology and General Biology Laboratory ^ Introduction to Biological Systems with Laboratory Introduction to Biological Systems with Laboratory Honors	5
Physical Science course ^		1+
PSYCH 1000 or PSYCH 1000H	General Psychology ^ General Psychology - Honors	3
RU_SOC 1000 or SOCIOL 1000 or SOCIOL 1000H	Rural Sociology ^ Introduction to Sociology Introduction to Sociology Honors	3
STAT 1200 or STAT 1400 or ESC_PS 4170	Introductory Statistical Reasoning (a grade of C or higher is required) Elementary Statistics for Life Sciences Introduction to Applied Statistics	3

**Major Core Requirements**

P_HLTH 2200 or P_HLTH 3300 or HLTH_SCI 3300	Introduction to Public Health and Health Promotion (a grade of B- or higher is required, P_HLTH 2200 is preferred but P_HLTH 3300 OR HLTH_SCI 3300 will be accepted.) ~ Public Health Principles, Practice, and Education Public Health Principles, Practice, and Education	3
P_HLTH 3310	Social and Behavioral Health Theory and Practice ~	3
P_HLTH 3400	Global Public Health and Health Care Systems ~	3
P_HLTH 3450	Introduction to Epidemiology ~	3
P_HLTH 3460	Introduction to Public Health and Emergency Preparedness ~	3
P_HLTH 3900W	Introduction to The Research Process and Evidence Base - Writing Intensive ~	3
P_HLTH 4001	Topics in Public Health (Starting Fall 2020, P_HLTH 3600 and P_HLTH 3610 are being replace by P_HLTH Topics 4001: Public Health Programs. Students must also take a 3 credit hour BHS in Public Health Elective in addition to this course) ~	3
P_HLTH 4350	Principles of Environmental Health for Public Health ~	3
P_HLTH 4485	Ethics in Public Health ~	3
P_HLTH 4970 or P_HLTH 4975	Public Health Capstone: Digital Storytelling (Grade of C- or higher in P_HLTH 4970 or P_HLTH 4975) ~ Public Health Capstone: Emerging Issues in Public Health	3
P_HLTH 4975	Public Health Capstone: Emerging Issues in Public Health (Course may be taken as an elective or as a capstone. Course may be taken up to two times with different subject matter.) ~	3
or P_HLTH 4970	Public Health Capstone: Digital Storytelling	

In addition to the courses listed above, students must take 12 diversity credits, six of which must be BHS Pub\_Hlth electives (Grade of C (2.0 on a 4.0 scale) or higher is required.) ~

**Recommended Electives**

P_HLTH 1000	Introduction to Public Health	1
P_HLTH 2050	Gender and Public Health	3
P_HLTH 3560	Public Health and Environmental Justice	3
P_HLTH 3660	Chronic Disease and Public Health Approaches	3
P_HLTH 3760	Infectious Disease and Public Health Approaches	3
P_HLTH 3860	Autism Spectrum Disorder and Public Health	3
P_HLTH 3960	Public Health, Drugs and Policy	3
P_HLTH 3965	Strategies for Effective Peer Education in Public Health	1
P_HLTH 4002	Public Health Study Abroad	1-6
P_HLTH 4960	Qualitative Approaches to Understanding Public Health Problems	3

^ Program Requirements require grades of C- or higher.

~ Major Core Requirements require grades of C or higher.

## Semester Plan

Below is a sample plan of study for the BHS in Public Health.

First Year			
Fall	CR	Spring	CR
ENGLSH 1000		3 MATH 1100	3
PSYCH 1000		3 RU_SOC 1000	3
General Education/Electives (6 credits)		6 BIO_SC 1010	3
Approved Diversity Course (3 credits)		3 BIO_SC 1020	2
		General Education/Electives (4 credits)	4
			15
Second Year			
Fall	CR	Spring	CR
STAT 1200 (MRP)		3 P_HLTH 2200 or 3300	3
Physical Science Course (1+ credits)	1+	General Education/Electives (12 credits)	12
General Education/Electives (9 credits)	9		
Public Health Elective as an approved Diversity Course Option (3 credits)	3		
			15-16
Third Year			
Fall	CR	Spring	CR
HLTH_SCI 3310		3 P_HLTH 3400	3
HLTH_SCI 4300		3 P_HLTH 4001 (Public Health Programs, students must also take 1 additional Public Health Elective )	3
P_HLTH 3450		3 Additional BHS in Public Health Elective take with P_HLTH 4001	3
Public Health Elective as an approved Diversity Course Option (3 credits)	3	P_HLTH 3900W	3
Elective (3 credits)	3	Elective (3 credits)	3
			15
Fourth Year			
Fall	CR	Spring	CR
P_HLTH 3460		3 P_HLTH 4970 or 4975	3
P_HLTH 4350		3 Approved Diversity Coursework	3
P_HLTH 4485		3 Elective (9 credits)	9
Electives (6 credits)	6		
			15

Total Credits: 120-121

## MPH in Public Health

The Master of Public Health (MPH) is the standard professional degree recognized throughout the world for public health practice. The MPH program at the University of Missouri trains practitioners, teachers, researchers, and administrators to plan, implement, and evaluate programs aimed at enhancing health in human populations through organized effort on the local, state, and national level.

## Degree Requirements

Students in the MPH must select an emphasis area from the two available options: Health Promotion and Policy and Veterinary Public Health. Requirements are determined by the emphasis area chosen. All public health students are educated in the core domains of public health and participate in a supervised internship in a public health agency. The combination of course work and practical experience produces individuals who are highly qualified to enter the public health workforce. The MPH curriculum is drawn from a variety of collaborating academic programs and units. Public health coursework reflects the University of Missouri's strength in the health professions, social work, journalism, public affairs, nursing, medicine, veterinary medicine, and arts and sciences.

## Dual Degree Options

### DVM in Veterinary Medicine/MPH in Public Health

For students who are admitted to the Master of Public Health and Doctor of Veterinary Medicine, they will need to take 44 credit hours of public health coursework (22 credit hours of this coursework is with the College of Veterinary Medicine). The Doctor of Veterinary Medicine curriculum, they will need to take 147.5 credit hours of College of Veterinary Medicine courses, for a total of 191.5 credit hours.

A dual degree candidate who subsequently decides to pursue only one of these degrees must complete degree requirements subject to the same rules as a student not pursuing the dual degree.

Dual degree candidates must enroll in the Master of Public Health Program prior to the start of their third semester in the Doctor of Veterinary Medicine program. Likewise, Master of Public Health students who gain admission to the Doctor of Veterinary Medicine curriculum while enrolled as Master of Public Health students must enroll in the Doctor of Veterinary Medicine program prior to the start of their third semester in the Master of Public Health Program for consideration as dual degree students.

There will be a separate advisor and graduate committee for the Master of Public Health degree program. Committee structure and governance will be based upon standards defined for the Master of Public Health Program. Governance and administration of the Doctor of Veterinary Medicine component of the dual degree will remain unchanged.

There will be two separate diplomas awarded upon completion of all degree program requirements.

The Master of Public Health Program and the College of Veterinary Medicine reserve the right to limit participation in the program, including dismissal. Those interested in pursuing the dual degree program are encouraged to discuss the possibility with advisors in both units and to submit applications for admission at the earliest possible time.

### MA in Journalism/MPH in Public Health

The School of Journalism and the program in Public Health have created a dual degree option that allows students to earn a journalism degree in reporting or strategic communication with an emphasis in public health. Students complete a block of courses in public health, as well as in journalism, and complete the dual degree with a public health internship and capstone, in which the focus is on journalism or strategic communication.



## MPA in Public Affairs/MPH in Public Health

The Master in Public Affairs dual-degree with Master in Public Health is a 54 credit hour program comprised of 18 hours of public affairs coursework, 18 hours of public health coursework, and 18 hours of shared coursework between both programs.

<b>Public Health *</b>		<b>18</b>
P_HLTH 7150	Principles of Public Health	3
or P_HLTH 7160	Interdisciplinary Perspectives in Global Health	
P_HLTH 8150	Human Health and the Environment	3
P_HLTH 8420	Principles of Epidemiology	3
P_HLTH 8920	Social and Behavioral Sciences in Public Health	3
STAT 7020	Statistical Methods in the Health Sciences	3
<b>Public Affairs *</b>		<b>18</b>
PUB_AF 8110	Introduction to Public and Nonprofit Management	3
PUB_AF 8180	Research Methods and Inquiry in Public Affairs I	3
PUB_AF 8210	Public Service and Democracy	3
<b>Shared Courses</b>		<b>18</b>
P_HLTH 8300	Health Care in the United States	3
PUB_AF 8181	Research Methods and Inquiry in Public Affairs II	3
PUB_AF 8170	Public Policy Processes and Strategies	3
P_HLTH 8980	Public Health Internship	1-99
P_HLTH 8970	Public Health Capstone	3

\* Students who select a track in Public Health, or are working on a specialization in Public Affairs, will have additional coursework they can take to complete the dual-degree. Please speak with an advisor.

## MSW in Social Work/MPH in Public Health with emphasis in Health Promotion and Policy

The dual degree program in Social Work and Public Health is a combination of the MSW in Social Work and the MPH in Public Health.

Students can earn a Master of Social Work (<http://ssw.missouri.edu/msw.html>) (MSW) and a Master of Public Health (<http://publichealth.missouri.edu/>) (MPH) with an emphasis in Health Promotion and Policy. Graduates of the dual degree will be well-positioned to find employment as a health policy advocate, health agency administrator or in an integrated behavioral health setting as a care managers, health coach, patient advocate, counselor, or team leader. Students pursuing dual degrees must be independently admitted to each program. Only Regular Standing ([http://ssw.missouri.edu/msw\\_options.html](http://ssw.missouri.edu/msw_options.html)) (RS), full-time MSW students (both clinical or PP&A concentration) will be admitted to the program.

The dual degree reduces total student credit hours by 24-27 credits and reduces the length of study by one academic year. If completed separately, students would be required to complete 105 credit hours (60 credit hours for RS MSW; 45 credit hours for MPH) Students completing both degrees will be required to complete 78-81 credit hours, with 51-54 of those being discipline specific (18 MPH and 33 [PP&A]- 36 [Clinical] MSW) and 27 credits shared between the two programs. Students

will complete the both degree programs in 7 semesters, including one summer session.

Credit requirements, shared hours, and curriculum focus conform to the requirements of the MU Graduate School, the national accrediting body for graduate education in public health (CEPH), and the national accrediting body for graduate education in social work (CSWE). The capstone and internship will satisfy the requirements of both programs and will focus on the intersection of subject matter between social work and public health.

P_HLTH 8150	Human Health and the Environment	3
P_HLTH 8420	Principles of Epidemiology	3
P_HLTH 8920	Social and Behavioral Sciences in Public Health	3
P_HLTH 7150	Principles of Public Health	3
P_HLTH 8971	Veterinary Public Health Capstone	1-99
P_HLTH 8980	Public Health Internship	1-99
STAT 7020	Statistical Methods in the Health Sciences	3
P_HLTH 8120	Applied Epidemiology in Community Assessment	3
HTH_PR 7300	Health Care in the United States	3
SOC_WK 7740	Large Group Theory	2
SOC_WK 7952	Research Methods in Social Work	3
SOC_WK 8953	Evaluative Research in Social Work	3
SOC_WK 7710	Social Policy and Service Delivery in Social Work	3
SOC_WK 7720	Foundations of Human Behavior	3
SOC_WK 7730	Social Work Skills	3
SOC_WK 7760	Social Justice Seminar	2
SOC_WK 7820	DSM V and Psychopathology: A Social Work Perspective	3
or SOC_WK 7920	Advanced Foundations of Human Behavior for Administrators	
SOC_WK 7770	Strategies of Clinical Social Work Intervention	3
or SOC_WK 7780	Fundamentals of Social Work Administration	
SOC_WK 8350	Management of a Social Agency	3
SOC_WK 8952	Evaluative Research in Clinical Social Work Practice	3
SOC_WK 8971	Graduate Field Practicum II	1-13
Approved Public Health elective		3

## Admissions

### Application Deadlines

- Fall semester: June 1
- Spring semester: October 1
- Summer semester: April 1
- International students\*: May 1 (fall semester)

\* International applicants will only be accepted for Fall Semester admission, unless the applicant is currently a University of Missouri (MU) student enrolled in another full-time program.

### Admission Criteria

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
80	550

- Minimum Academic IELTS overall score: 6.0
- Minimum GRE score: not set
- Minimum GPA: 3.0 in last 60 hours of undergraduate coursework

## Required Application Materials

For more information to apply click here (<https://healthprofessions.missouri.edu/mph/about/admission/>).

## Admissions for MSW/MPH Dual Degree

Students will apply separately to each program and be admitted to both programs before they are accepted as a dual degree student. Students may apply at any point before beginning graduate school or during the first year of either program. Once accepted into both programs, the student must complete the Intent to Complete MSW/MPH Dual Degree form (<http://ssw.missouri.edu/docs/msw/dualDegree.pdf>).

## MPH Application and Admission Information

Admission Contact Information  
 MPH Program ([mumphprogram@missouri.edu](mailto:mumphprogram@missouri.edu))  
 802 Lewis Hall  
 Columbia, MO 65211  
 573-884-6844

<https://healthprofessions.missouri.edu/mph/>

## MPH in Public Health with Emphasis in Health Promotion and Policy

This program combines a thorough knowledge of behavior change theory and program planning and evaluation with valuable knowledge of how policy decisions are influenced and made. Particularly attractive to students with undergraduate degrees in psychology, social work, political science, communications and other related fields. For more information about this program, please visit: <http://healthprofessions.missouri.edu/mph/mph-degree/emphasis-areas/>.

## Degree Requirements

### Required Courses

P_HLTH 7150 or P_HLTH 7160	Principles of Public Health Interdisciplinary Perspectives in Global Health	3
P_HLTH 7952	Research Methods in Public Health	3
P_HLTH 8120	Applied Epidemiology in Community Assessment	3
P_HLTH 8150	Human Health and the Environment	3
PUB_AF 8170	Public Policy Processes and Strategies	3
P_HLTH 8300	Health Care in the United States	3
P_HLTH 8420	Principles of Epidemiology	3
P_HLTH 8920	Social and Behavioral Sciences in Public Health	3
P_HLTH 8953 or NURSE 8930	Evaluating Global Public Health Programs Health Program Design and Management	3
P_HLTH 8970	Public Health Capstone	3
P_HLTH 8980	Public Health Internship	1-99

STAT 7020	Statistical Methods in the Health Sciences	3
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Health Communication elective (choose at least one)		
COMMUN 9610	Seminar in Disaster, Crisis, and Risk	
P_HLTH 8270	Storytelling in Public Health and Public Policy	
P_HLTH 8675	Strategic Health Communication	

## Admissions

For admission requirements, refer to the Graduate School's website for the minimum qualifications for the degree program (<http://gradschool.missouri.edu/academics/programs/>) and the Graduate School (<https://gradschool.missouri.edu/admissions/eligibility-process/>).

Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility, and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

## MPH in Public Health with Emphasis in Veterinary Public Health

Students in this emphasis area receive training in zoonotic disease prevention, food safety and other emerging issues in animal and human health. An ideal complement for an undergraduate degree in animal science, biology or related fields. For more information about this program please visit: <https://healthprofessions.missouri.edu/mph/mph-degree/emphasis-areas/>

## Degree Requirements

### Required Courses

P_HLTH 7150 or P_HLTH 7160	Principles of Public Health Interdisciplinary Perspectives in Global Health	3
P_HLTH 8001	Topics in Public Health	1-3
P_HLTH 8150	Human Health and the Environment	3
P_HLTH 8260	Emergency Preparedness	3
P_HLTH 8620	Emerging Zoonoses Diseases	3
P_HLTH 8920	Social and Behavioral Sciences in Public Health	3
P_HLTH 8120 or P_HLTH 8953 or NURSE 8930	Applied Epidemiology in Community Assessment Evaluating Global Public Health Programs Health Program Design and Management	3
P_HLTH 8971	Veterinary Public Health Capstone	1-99
P_HLTH 8980	Public Health Internship	1-99
STAT 7020	Statistical Methods in the Health Sciences	3
V_M_S 8431	Research Methods and Data Analysis	2
V_PBio 8455	Epidemiology and Biostatistics	2
V_PBio 8458	Veterinary Public Health	2
Elective (choose at least one)		
P_HLTH 8001	Topics in Public Health (Introduction to Food Safety in Public Health)	
P_HLTH 8767	Epidemiology of Vaccine-Preventable Diseases	

F_S 7370	Food Microbiology
GEOG 7840	Geographic Information Systems I
MICROB 7303	Fundamental Virology
MICROB 7304	Immunology
V_PBio 7120	Principles of Toxicology

## Admissions

For admission requirements, refer to the Graduate School website for the minimum qualifications for the degree program (<http://gradschool.missouri.edu/academics/programs/>) and the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility, and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

## Graduate Certificate in Public Health

### Requirements

This 12-credit-hour program provides students with the core public health education that they need to enhance their professional knowledge. The certificate program includes the following courses:

P_HLTH 7150	Principles of Public Health	3
P_HLTH 8150	Human Health and the Environment	3
or P_HLTH 8920	Social and Behavioral Sciences in Public Health	
or P_HLTH 8420	Principles of Epidemiology	
STAT 7020	Statistical Methods in the Health Sciences	3

One approved elective

### Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

### Admission

Students wishing to pursue a Graduate Certificate in Public Health should complete the Graduate School's online application (standardized test scores are not required). Certificate candidates must provide the MPH Program's Personal Data Sheet and official transcripts to the MPH Program.

### Applying to the Graduate Certificate Program

Students who complete the Graduate Certificate in Public Health with a minimum grade of B in each of the four courses will be recommended for admission to the Master of Public Health (MPH) program should they wish to continue their studies. The course credits earned for the graduate certificate will be credited toward the MPH degree. To apply click here (<https://healthprofessions.missouri.edu/mph/about/admission/>). (<https://healthprofessions.missouri.edu/mph/about/admission/>)

## Speech, Language and Hearing Sciences

Stacy Wagovich, Chair  
 School of Health Professions  
 301 Lewis Hall  
 (573) 884-2940  
[mucsd@health.missouri.edu](mailto:mucsd@health.missouri.edu)

Undergraduate Advising Contacts:  
 Lindsey Hagglund (last names A-L)  
 (573) 882-8011

Jill S. Diener (last names M-Z)  
 (573) 882-8011

Includes the study of normal language, speech, and hearing across the life span, as well as communication disorders that result from biological, environmental, and behavioral factors. Speech, Language and Hearing Sciences includes the professions of speech-language pathology and audiology.

Speech-language pathologists evaluate the speech and language of children and adults to determine whether problems exist in such areas as voice, articulation, fluency, and receptive or expressive language. They also plan and carry out programs for the treatment of these problems. Audiologists evaluate hearing, identify hearing loss, and participate in the rehabilitation of persons with hearing impairments.

The professions of speech-language pathology and audiology require master's or doctoral degrees. Acceptance to an undergraduate program does not guarantee acceptance to a graduate program. Refer to the Graduate Catalog for information about the MHS degree (p. 636).

### Faculty

**Associate Professor** M. Dietrich\*\*, J. C. Goodman\*\*, S. A. Wagovich\*\*  
**Assistant Professor** R. Botezatu\*\*, E. S. Kelley\*\*, M. Kuruvilla-Dugdale\*\*, N. A. Smith\*\*  
**Clinical Professor** D. R. Fritz\*  
**Associate Clinical Professor** L. B. Lawrence\*, B. A. McLay\*  
**Assistant Clinical Professor** C. Baker  
**Research Associate Professor Emerita** L. S. Day\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

### Undergraduate

- BHS in Speech, Language and Hearing Sciences (p. 635)

### Graduate

- MHS in Speech, Language and Hearing Sciences (p. 636)
  - with emphasis in Speech-Language Pathology (p. 637)

Kelsey Pritchett  
 301 Lewis Hall  
 (573) 884-6085

<https://healthprofessions.missouri.edu/speech-language-and-hearing-sciences/>

## About Speech, Language and Hearing Sciences

The field of Speech, Language and Hearing Sciences encompasses the related but distinct disciplines of speech-language pathology (SLP), audiology, and speech, language, and hearing sciences (SLHS). Speech-language pathologists and audiologists are professionals educated in human communication and its disorders. Speech-language pathologists diagnose and treat disorders such as delayed language development, stuttering, articulation, and voice problems. Audiologists specialize in the prevention, identification, assessment, and rehabilitation of hearing disorders. Speech, language, and hearing scientists are professionals concerned with exploring trends in the communication sciences, as well as developing strategies for improving or adding to the knowledge base within the fields of speech-language pathology and audiology.

MU established its first independent master's and doctoral programs in speech-language pathology and audiology in the 1940s. The MU master's degree program in speech-language pathology has been continuously accredited by the Council on Academic Accreditation in Audiology and Speech-Language Pathology since 1966. An active local chapter of the National Student Speech Language Hearing Association is sponsored by the program.

The master's degree prepares students for national certification in speech-language pathology and for professional clinical practice in both health care and educational settings. The doctoral degree involves a program of research and advanced study beyond the clinical master's degree in preparation for a career in research and college teaching or administration.

## Career Opportunities

A wide variety of work settings are available to speech-language pathologists and audiologists. Possibilities range from hospitals, clinics, and rehabilitation centers to schools, colleges and universities, government agencies, and private practice. Speech, language, and hearing scientists work primarily in colleges and universities, research labs and government agencies. Professional certification in speech-language pathology and audiology is awarded by the American Speech-Language-Hearing Association (ASHA). The master's degree, which is the entry-level degree for speech-language pathologists, typically takes two years beyond the undergraduate degree. Additional prerequisite coursework is required for students with undergraduate degrees outside the field. Students wishing to pursue a career in audiology will need to attend a program that offers a clinical doctorate in audiology (AuD), the entry-level degree for audiologists.

## Facilities and Resources

The department uses many cooperative facilities in Columbia, both on and off the MU campus, as clinical and scientific resources. Among these are the University Hospitals and Clinics, Rusk Rehabilitation Center, Ellis Fischel Cancer Center, Truman Memorial Veterans Hospital, Adult Day Connection, Assistive Technology Evaluation Center, Thompson Center for Autism and Neurodevelopmental Disorders, and Columbia Public Schools.

Other cooperative facilities are available both within and outside the State. The department operates the MU Speech and Hearing Clinic, a

diagnostic and treatment center serving individuals with communication disorders from the campus and the community, the MU Robert G. Combs Language Preschool, and the Accent Modification and Pronunciation Program. In addition, there are many research opportunities for students in the laboratories of individual faculty where they may gain experience with sophisticated equipment for research and clinical evaluation in normal and disordered speech, language, and hearing. A master's thesis option is available to students interested in conducting research.

## Funding

All graduate students are considered for available scholarships, fellowships, work-study grants, traineeships and graduate teaching and research assistantships.

## BHS in Speech, Language and Hearing Sciences

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### Degree Program Description

Speech, Language and Hearing Sciences (SLHS) includes the study of normal language, speech and hearing across the life span, as well as communication disorders that result from biological, environmental, and behavioral factors. The SLHS major is the first step in preparing for careers in the professions of speech-language pathology and audiology. Speech-language pathologists evaluate the speech and language of children and adults to determine whether problems exist in such areas as voice, articulation, fluency, and receptive or expressive language, and they plan and carry out the treatment of these problems. Audiologists evaluate hearing, identify hearing loss, and participate in the rehabilitation of persons with hearing impairments. The SLHS undergraduate curriculum fully prepares students for graduate study in either of these fields. (The professions of speech-language pathology and audiology require masters or doctoral degrees). The SLHS undergraduate coursework provides students with a broad understanding of the scientific bases of speech, language, and hearing, the different types of communication disorders, and the types of diagnostic and therapeutic methods utilized in the field. Undergraduate students in the SLHS department at MU benefit from a low student-faculty ratio, practical clinical experience in our language preschool, our accent modification program, and our research labs led by outstanding faculty, and a well-established student organization.

### Major Program Requirements

Students are required to apply to the Speech, Language and Hearing Sciences major. Applications for admission into the BHS program are considered once a year, and they must be submitted by February 1 of the student's sophomore year. (Note: Later applications will be considered if open seats remain in the upcoming junior class). In most cases, applicants will have completed at least 42 hours of college credit before applying, and students who are admitted will have completed 60 hours of college credit before beginning coursework as Speech, Language and Hearing Sciences majors. A minimum GPA of 2.75 on a four-point scale and a composite score of 22 or above on the ACT are strongly recommended. However, meeting the minimum criteria and declaring a major of pre-Speech, Language and Hearing Sciences do not guarantee acceptance into the program. A grade of C- or higher is required in the program and major core requirements.

Students must complete the following course requirements, as well as university (p. 35) and general education requirements (p. 36)

for graduation with a bachelor's degree from the School of Health Professions and the University of Missouri:

**Program Requirements**

COMMUN 1200	Public Speaking	3
ENGLISH 1000	Exposition and Argumentation	3
or ENGLISH 1000H	Honors Exposition English	
PSYCH 1000	General Psychology	3
PSYCH 2410	Developmental Psychology	3
MATH 1100	College Algebra	3-5
or MATH 1160	Precalculus Mathematics	
STAT 1200	Introductory Statistical Reasoning	3
or STAT 1300	Elementary Statistics	
or ESC_PS 4170	Introduction to Applied Statistics	

**Biological Science Requirement**

Select one of the following:

BIO_SC 1010	General Principles and Concepts of Biology	
BIO_SC 1500	Introduction to Biological Systems with Laboratory	

**Physical Science Requirement**

Select one of the following:

CHEM 1100	Atoms and Molecules with Lab	
CHEM 1320	College Chemistry I	
PHYSICS 1150	Concepts in Physics	
PHYSICS 1210	College Physics I	

At least one lab associated with above courses in biology, chemistry, or physics is required, e.g., BIO\_SC 1020 is required with BIO\_SC 1010 if no lab is taken with physical science course options. 0-2 additional hours

**Major Core Requirements**

SLHS 1060	Human Language	3
SLHS 2120	Survey of Communication Disorders	3
SLHS 3010	American Phonetics	3
SLHS 3020	Normal Language Development	3
SLHS 3210	Anatomy and Physiology of the Speech Mechanism	3
SLHS 3220	Speech Acoustics	2
SLHS 3230	Hearing Science	3
SLHS 4020	Language Disorders in Children	3
SLHS 4030	Language Disorders of Adults	2
SLHS 4210	Fluency Disorders	2
SLHS 4220	Voice Disorders	1
SLHS 4320	Disorders of Phonology and Articulation	3
SLHS 4330	Introduction to Audiology	3
SLHS 4340	Aural Rehabilitation	3
SLHS 4430	Neurophysiology for Speech, Language, and Hearing	3
SLHS 4900	Clinical Observation in Communication Disorders	2

**Semester Plan**

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
BIO_SC 1010		3 CHEM 1100	3
ENGLISH 1000		3 COMMUN 1200	3
PSYCH 1000		3 MATH 1100	3
Humanities		3 MO State Law Requirement	3
Elective		3 Elective	3
		15	15

Second Year			
Fall	CR	Spring	CR
SLHS 1060		3 SLHS 2120	3
PSYCH 2410		3 STAT 1200	3
Humanities		3 Elective	3
Elective		3 Elective	3
Elective		3 Elective	3
		15	15

Third Year			
Fall	CR	Spring	CR
SLHS 3050		3 SLHS 3010	3
SLHS 3210		3 SLHS 3020W	3
SLHS 3220		2 SLHS 3230	3
SLHS 4430		3 SLHS 4950	2
SLHS 4950		2 Elective	3
Elective		2 Elective	1
		15	15

Fourth Year			
Fall	CR	Spring	CR
SLHS 4020W		3 SLHS 4030	2
SLHS 4320		3 SLHS 4210	2
SLHS 4330		3 SLHS 4220	1
SLHS 4950		2 SLHS 4340	3
Elective		3 SLHS 4900	2
Elective		1 SLHS 4945	3
		Elective	2
		15	15

Total Credits: 120

**MHS in Speech, Language and Hearing Sciences**

The Master of Health Science (MHS) in Speech, Language and Hearing Sciences provides students with a background in speech, language and hearing sciences. Students in this program receive a strong academic background in current theory and application from faculty who are committed to excellence in teaching and who are involved in clinical and basic research. Students in this program are often looking to focus on research and possibly continue on to a PhD program within the discipline.

**Degree Requirements**

MHS candidates are required to complete a minimum of 48 semester credit hours in graduate-level courses with grades of B- or higher. No fewer than 24 credit hours must be earned in 8000/9000-level course work offered by the program. This program does not include an emphasis in speech-language pathology; therefore, additional credit hours are

required beyond the MHS to meet clinical practicum requirements for certification and licensure in the field. A thesis is required.

**Required Courses**

SLHS 8020	Developmental Language Disorders	3
SLHS 8030	Acquired Language Disorders	3
SLHS 8200	Motor Speech Disorders	3
SLHS 8210	Disorders of Fluency	3
SLHS 8225	Voice Science and Voice Disorders	3
SLHS 8300	Neurological Bases of Speech and Language	2

**Courses not required but may be appropriate electives for some students**

SLHS 8230	Dysphagia	3
SLHS 8240	Cleft Palate/Craniofacial Disorders	1
SLHS 8320	Speech Sound Disorders	2
SLHS 8430	Augmentative and Alternative Communication	2
SLHS 8600	Clinical Language Analysis	3

**Research training 6-9**

SLHS 8960	Directed Reading in Speech, Language and Hearing Science	1-3
SLHS 8090	Research in Speech, Language and Hearing Science	1-99

The thesis is prepared under the supervision of a SLHS faculty member. A thesis committee of three faculty members must be formed during the student's second semester in the program. In addition to the Departmental guidelines, students should review the MU Graduate School's Thesis Process for Master's Students (<http://gradstudies.missouri.edu/academics/thesis-dissertation/process/>). During the Fall semester of year one, students will work with their thesis advisor to make progress on their project.

The MHS degree in Speech, Language and Hearing Sciences typically takes students two full years to complete if their baccalaureate degree is in speech, language and hearing sciences. If their undergraduate study was in another field, the degree program requires a series of prerequisite courses that may be completed through any college or university that offers an undergraduate degree in SLHS. All students must have successfully completed a baccalaureate degree (in some field) before beginning the MHS program in Speech, Language and Hearing Sciences. For more information, contact the Department at [mucsd@health.missouri.edu](mailto:mucsd@health.missouri.edu).

**Admissions**

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MHS in Speech, Language and Hearing Sciences and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admission to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you have applied.

The SLHS MHS program at MU is relatively small and selective. Students benefit from a low student-faculty ratio, close academic and research supervision, and a challenging yet supportive learning environment.

Faculty in SLHS are easily accessible, and strong student-faculty relationships are easily developed.

The SLHS department welcomes all visitors interested in meeting our faculty and students and touring our facilities. If you would like to visit, we recommend that you schedule an appointment by e-mailing us at [mucsd@health.missouri.edu](mailto:mucsd@health.missouri.edu).

**MHS in Speech, Language and Hearing Sciences with Emphasis in Speech-Language Pathology**

The Master of Health Science (MHS) in Speech, Language and Hearing Sciences (SLHS) with an Emphasis in Speech-Language Pathology prepares students for professional practice in speech-language pathology. Students in this program receive a strong academic and clinical background in current theory and application in the field of communication disorders from faculty who are committed to excellence in teaching and who are involved in clinical and basic research.

**Degree Requirements**

MHS candidates are required to complete a minimum of 48 semester credit hours in graduate-level courses with grades of B- or higher. No fewer than 24 credit hours must be earned in 8000/9000-level course work offered by the program. A maximum of 9 credit hours in clinical practicum courses may be counted toward the 48-hour requirement. Additionally, a minimum of 375 hours of clinical practicum that is supervised by certified clinical faculty are required to meet clinical practicum requirements for certification and licensure in the field. In addition to the MU Speech and Hearing Clinic, the city of Columbia and surrounding communities in mid-Missouri provide for a wide range of clinical practicum opportunities as well as a diverse client population. Students who wish to also may pursue clinical practicum experiences in other geographical locations during their final semester in the program. A thesis option also is available for students interested in research and/or further study toward the Doctor of Philosophy (PhD) degree.

**Required Courses**

SLHS 8020	Developmental Language Disorders	3
SLHS 8030	Acquired Language Disorders	3
SLHS 8200	Motor Speech Disorders	3
SLHS 8210	Disorders of Fluency	3
SLHS 8225	Voice Science and Voice Disorders	3
SLHS 8230	Dysphagia	3
SLHS 8240	Cleft Palate/Craniofacial Disorders	1
SLHS 8250	Clinical Methods in Speech-Language Pathology	3
SLHS 8260	Diagnosis in Speech-Language Pathology	3
SLHS 8300	Neurological Bases of Speech and Language	2
SLHS 8320	Speech Sound Disorders	2
SLHS 8430	Augmentative and Alternative Communication	2
SLHS 8500	Issues in Professional Practice	2
SLHS 8600	Clinical Language Analysis	3
SLHS 8935	Clinical Practice in Audiology	1

SLHS 8945

Clinical Practice in Speech-Language Pathology

1-10

The MHS degree in Speech, Language and Hearing Sciences typically takes students two full years to complete if their baccalaureate degree is in SLHS. If their undergraduate study was in another field, the degree program requires at a minimum 30 additional credit/semester hours of prerequisite coursework. This coursework may be completed through any college or university that offers an undergraduate degree in SLHS and must include courses in both basic communication sciences and some communication disorders. It is recommended that the student have their prerequisite coursework approved by the Department's graduate program director prior to application to the MHS degree program. Applicants do not have to complete all prerequisite coursework before applying to, or beginning, the MHS program; however, they must be, at a minimum, in the process of doing so. All students must have successfully completed a baccalaureate degree (in some field) before beginning the MHS program in Speech, Language and Hearing Sciences. For more information, contact the Department at [mucsd@health.missouri.edu](mailto:mucsd@health.missouri.edu).

MHS graduates are required to meet all academic and clinical requirements for the Certificate of Clinical Competence (CCC) awarded by the American Speech-Language Hearing Association (ASHA). A passing score of 162 on the PRAXIS II Speech-Language Pathology examination is required for graduation from the MHS program in SLHS. In addition to serving as the comprehensive examination for masters candidates in SLHS, the PRAXIS II also is required for the Certificate of Clinical Competence, for Missouri professional licensure, and for employment as a speech language pathologist in Missouri public schools. For well over 20 years, 100% of all graduates from MU's SLHS program have passed this national exam and our mean and median scores are significantly higher than the national averages. In addition, graduates of the program have enjoyed excellent job opportunities upon graduation, with many having more than one job offer before finishing their masters program.

## Thesis Option

The student may choose the thesis option for the master's degree; work toward the thesis may count for up to six semester hours of credit.

## Prerequisite Coursework

All applicants to the MHS program in Speech, Language and Hearing Sciences with an emphasis in Speech-Language Pathology must have completed, or be in the process of completing, standard prerequisite course work in SLHS. Any prospective applicant with an undergraduate degree in a major field other than Speech, Language and Hearing Sciences should contact the Department prior to submitting an application to the MHS program. Prerequisite course work must be approved by the SLHS Director of Graduate Studies prior to application.

Many options exist for completing prerequisite course work nationwide. Please contact the Department for more information.

## Examination

During the final semester of course work, we expect master's degree candidates to achieve a passing score on the PRAXIS II Examination in Speech-Language Pathology. This exam serves as the comprehensive examination for the degree. See the program's online MHS Student Handbook for additional information.

## Admission Contact Information

Kelsey Pritchett [mucsd@missouri.edu](mailto:mucsd@missouri.edu)  
 301 Lewis Hall; Columbia, MO 65211  
 (573) 884-6085

## Admission Criteria

Deadline for Summer entrance (required for all applicants): February 1

- Minimum Undergraduate GPA: 3.0 (on last 60 credit hours of course work)
- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
100*	600

\* Minimum TOEFL (iBT) score of 100, with minimum score of 28 on speaking

- Minimum GRE scores:

When did you take the GRE?	Verbal + Quantitative	Analytical
Prior to August 1, 2011	1000 (preferred)	
On or After August 1, 2011	300 (preferred)	

## Required Application Materials

All applicants to the MHS program in Speech, Language and Hearing Sciences with an emphasis in Speech-Language Pathology must apply through the Communication Sciences and Disorders Centralized Application Service (CSDCAS) Application (<https://csdcas.liaisoncas.com/applicant-ux/#/login>). The Applicant Portal Link will open on July 15, 2020 to begin accepting applications for the 2020-21 academic year.

Additional information about the application process may be found on the Speech, Language and Hearing MHS Application (<https://healthprofessions.missouri.edu/communication-science-and-disorders/degrees/master-of-health-science-csd/#application-process>) web page, which includes the correct institution code for submitting GRE scores.

A personal online video interview is required.

Students who are accepted into the MHS program and commit to attending the University of Missouri will be required to complete the MU Graduate School's online application which includes an additional fee. Information will be provided when admission is offered.

## Admission Process

The current graduate admission process in Speech-Language Pathology is highly competitive nationwide. All MHS admission decisions are made by the Departmental Graduate Admissions Committee.

## Financial Aid from the Program

All applicants accepted for admission to the MHS program will be considered for departmental financial aid.

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## **Additional Minors and Certificates - Health Professions**

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### **Graduate Certificates**

- Certificate in Epidemiology (p. 640)
- Certificate in Global Public Health (p. 640)



## Graduate Certificate in Epidemiology

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The certificate will allow prospective and current students to become competent in advanced aspects of epidemiological analysis such as assessing population groups and determining their priority health problems, empowering and mobilizing populations in a collaborative public health effort. Prerequisite courses: STAT 7020 and P\_HLTH 7952.

### Requirements

#### Core Courses

P_HLTH 8120	Applied Epidemiology in Community Assessment	3
P_HLTH 8420 or V_PPIO 8455	Principles of Epidemiology Epidemiology and Biostatistics	3
NURSE 8020 or NURSE 8425	Intermediate Statistical Methods for Health Researchers Participatory Approaches for Health and Health Systems	3

#### Elective - choose one

P_HLTH 8620	Emerging Zoonoses Diseases	3
P_HLTH 8767	Epidemiology of Vaccine-Preventable Diseases	3

## Graduate Certificate in Global Public Health

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### Requirements

The Graduate Certificate in Global Public Health includes 15 credit hours of course work and a required international public health experience. This certificate may be taken independently or combined with an MPH. Course credits earned for the Graduate Certificate may also be credited toward the MPH degree. It is recommended that Graduate Certificate students start with Interdisciplinary Perspectives in Global Health.

#### Required Courses:

P_HLTH 7160	Interdisciplinary Perspectives in Global Health	3
STAT 7020	Statistical Methods in the Health Sciences	3
P_HLTH 8420	Principles of Epidemiology	3
P_HLTH 8953	Evaluating Global Public Health Programs	3

Elective		3
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International public health experience

### For more information:

mumphprogram@missouri.edu  
573-884-6844

# College of Human Environmental Sciences

## Administration

James 'Sandy' Rikoon, Dean  
 Jo Britt-Rankin, Associate Dean for Human Environmental Sciences Outreach and Extension  
 Jung Ha-Brookshire, Associate Dean for Research and Graduate Studies  
 Catherine A. Peterson, Associate Dean for Undergraduate Academic Programs

## Office of Undergraduate Academic Programs and Student Success

106 Gwynn Hall  
 (573) 882-6424  
 HESStudentSuccess@missouri.edu  
<http://hes.missouri.edu> (<http://hes.missouri.edu>)

- Carla Jerome Beckmann, Student Success Coordinator
- Alex Embree, Student Success Coordinator

### School of Social Work Advising Contact

Tammy Freelin  
 722 Clark Hall  
 (573) 882-1656  
 Freelint@missouri.edu  
<http://ssw.missouri.edu> (<http://hes.missouri.edu>)

### Scholarship Information Contact

Liz Townsend Bird  
 Office of Advancement  
 121 Gwynn Hall  
 (573) 882-7514  
 umchesdevelopment@missouri.edu

## HES Unit Chairs/Heads

Bimal Balakrishnan, Architectural Studies  
 Brenda Lohman, Human Development and Family Science  
 Chris Hardin, Nutrition and Exercise Physiology  
 Frances Lawrence, Personal Financial Planning  
 Dale Fitch, Director, School of Social Work  
 Jung Ha-Brookshire, Textile and Apparel Management

## About the College

The College of Human Environmental Sciences (HES) has never been more ready to impact the lives of the citizens of Missouri, the United States, and the world. The college continues to make a difference in the things most basic to people's lives – nutrition, clothing, shelter, finances, family and community. The only human sciences unit in Missouri, MU HES houses an array of teaching, research, and extension activities, including exceptional undergraduate and graduate programs. In both 2019 and 2020, the College was ranked #4 in the nation for its academic programs.

A window to the world for more than 120 years and deeply rooted in the land-grant mission, the College has award winning faculty renowned throughout the state, nation and the world for their expertise. We connect our students and faculty to the ever-changing and challenging world

around us. Each and every day we strive to live our mission of making a difference in the lives of others – developing and nurturing human potential.

Our alumni and friends and industry partners are instrumental in strengthening our ability to provide outstanding on-campus, experiential and study abroad experiences in each of our academic units. HES faculty have received many grants and contracts for research that strengthens families, provides access to healthy food, and, participate in collaborative and community-oriented, outreach. HES is a magnet for those who want to meet the challenges of an ever-challenging world. We make a difference!

## Undergraduate

- College Requirements (p. 641)
- Academic Standing (p. 642)

## Contact Information

### HES Office of Undergraduate Academic Programs and Student Success

Carla Jerome Beckmann • Alex Embree  
 106 Gwynn Hall  
 573-882-6424  
 HESStudentSuccess@missouri.edu

### Social Work Student Services

Tammy Freelin, MSW  
 722 Clark Hall  
 (573) 882-1656  
 freelint@missouri.edu

## College Level Requirements

Freshmen and transfer students entering the College of Human Environmental Sciences are *recommended* to enroll in GN\_HES 1100 Introduction to Human Environmental Sciences; freshman Social Work students are *required* to enroll in SOC\_WK 1110 Introduction to the Social Work Major. These courses provide an orientation to the campus and the College, as well as skills for student success, and career decision-making. In addition, the College recommends all HES students enroll in GN\_HES 1234, Successful Adulting, which is a course designed to empower students to overcome challenges in the transition from student to adulthood.

### Architectural Studies

ARCHST 1600W	Fundamentals of Environmental Design - Writing Intensive	3
ARCHST 2100	Understanding Architecture and the American City	3
ARCHST 2323	Sustainable Building Design Fundamentals	3
ARCHST 2620	People, Places and Design	3
ARCHST 4323	Sustainable Technologies and Systems	3
ARCHST 4430	Guiding Design with Historic Preservation	3

### Personal Financial Planning

FINPLN 2183	Personal and Family Finance	3
FINPLN 4380W	Assessing the American Dream - Writing Intensive	3

### Human Development and Family Science

H_D_FS 1600	Foundations of Family Science	3
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H_D_FS 1610	Intimate Relationships and Marriage	3
H_D_FS 2400	Principles of Human Development	3
H_D_FS 2400W	Principles of Human Development - Writing Intensive	4

#### Nutrition and Exercise Physiology

NEP 1034	Introduction to Human Nutrition	3
NEP 1340	Introduction to Exercise and Fitness	3
NEP 2222	Landscape of Obesity	3
NEP 2380	Diet Therapy for Health Professionals	3

#### Social Work

SOC_WK 1115	Social Welfare and Social Work	3
SOC_WK 2000W	Exploration in Social and Economic Justice - Writing Intensive	3
SOC_WK 2000	Exploration in Social and Economic Justice	3

#### Textile and Apparel Management

T_A_M 1200	Basic Concepts of Apparel Design and Production	3
T_A_M 1300	Softgoods Retailing	3
T_A_M 2200	Science of Textiles	3
T_A_M 2400	Global Consumers	3
T_A_M 2500W	Social Appearance in Time and Space - Writing Intensive	3
T_A_M 3800	Retail Entrepreneurship	3

Students also must fulfill a **communications requirement** by completing 3 credit hours of either COMMUN 1200, COMMUN 3571, COMMUN 3575, or a course designated within the department.

## Academic Standing

A student whose term and cumulative grade point averages are 2.0 or higher is considered to be in Good Standing. (Note: The word "term" in these Regulations applies to semester, summer session, or intersession.)

A student in Good Standing whose term grade point average falls below 2.0 is placed on scholastic probation. Any beginning student admitted to the University of Missouri who does not meet the minimum entrance standards as specified in Article II, Admissions, Advanced Standing, and Classification will enter on Scholastic Probation. A student on Scholastic Probation must establish a 2.0 cumulative grade point average within two successive terms: otherwise, he/she is Ineligible to Enroll. A student whose term grade point average falls below 1.0 is Ineligible to Enroll. A student who has been Ineligible to Enroll for a period of one year may apply to be readmitted by writing a letter to the HES Status and Appeals Committee.

## Graduate

### Associate Dean - Research & Graduate Studies

Dr. Jung Ha-Brookshire  
137 Stanley Hall  
(573) 882-6316  
mailto:habrookshirej@missouri.edu

### Departmental Contacts

Architectural Studies: Dr. Bimal Balakrishnan  
(balakrishnanb@missouri.edu), 573-882-3169  
Human Development & Family Science: Dr. Ashlie Lester  
(lestera@missouri.edu), 573-882-1301

Nutrition & Exercise Physiology: Dr. Jill Kanaley  
(kanaleyj@missouri.edu), 573-882-2519 OR Dr. Pam Bruzina  
(bruzinap@missouri.edu), 573-882-4137  
Personal Financial Planning: Dr. Rui Yao (yaor@missouri.edu),  
573-882-9343  
Textile & Apparel Management: Dr. Jung Ha-Brookshire  
(habrookshirej@missouri.edu), 573-882-6316  
Social Work: Crystall Null (nullc@missouri.edu), 573-884-9385

## Programs

The College of Human Environmental Sciences (HES) addresses human needs and enhances individual and family life in a diverse and global society by conducting advanced research. HES faculty have earned national and international research reputations while building programs that are valued by private citizens, government, business and industry, and human services agencies. The College has more than 400 graduate students enrolled in a variety of master's and doctoral degrees. Graduate certificates and online study are other academic options in several disciplinary areas.

- Architectural Studies
- Human Development & Family Science
- Nutrition & Exercise Physiology
- Personal Financial Planning
- Textile & Apparel Management
- Social Work

The School of Social Work (<http://ssw.missouri.edu/>), housed within the College, offers a CSWE accredited Master of Social Work (MSW) Program that prepares competent, effective and ethical social work professional leaders for social change. The PhD program prepares students as educators and researchers with knowledge and skills to inform policy making, program development and evaluation, and research on clinical practice issues.

**Note:** Prospective graduate students must apply to *both* the degree program of interest and to the Graduate School. In most cases, the entire application process may be completed online. Find admission and application details by selecting the degree program of interest in the left navigation column. For a look at the College's online graduate degree programs, see Mizzou Online (<http://online.missouri.edu/>).

## Architectural Studies

### Department Chair

Bimal Balakrishnan  
137 Stanley Hall  
(573) 882-7224  
<http://arch.missouri.edu>

### Undergraduate Academic Advising Contact

undergradarchst@missouri.edu

### Graduate Academic Advising Contact

gradarchst@missouri.edu

## College of Human Environmental Sciences Advising Contact

Office of Student Services  
106 Gwynn Hall  
(573) 882-6424  
HESStudentSuccess@missouri.edu  
<http://hes.missouri.edu/>

## Scholarship Information Contact

Office of Advancement  
122 Gwynn Hall  
(573) 882-7514  
hesdevelopment@missouri.edu

## Faculty

**Associate Professor** B. Balakrishnan\*\*  
**Assistant Professor** S. Bae, L. Cole\*\*, J.B. Kim\*  
**Associate Teaching Professor** M. Goldschmidt\*  
**Assistant Teaching Professor** L. Bartlett, R. Walsh\*  
**Professor Emeritus** R. Helmick\*, B. Schwarz\*\*, R. B. Tofle\*\*  
**Associate Professor Emeritus** G. Hennigh, R. G. Phillips  
**Assistant Professor Emerita** P. Hildebrand

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BS in Architectural Studies (p. 645)
  - with emphasis in Architectural Studies (p. 645)
  - with emphasis in Interior Design (p. 647)
- Minor in Architectural Studies (p. 648)

## The Program

Our mission is to develop the next generation of leaders in the design professions, advance research to enhance the design of built environment and provide service to improve quality of life for people. Our work prepares graduates to become designers of the built environment.

Through teaching, research, and service, faculty and students conduct systematic inquiry into 1) the design process, 2) sustainable products and practices, 3) the interaction between people and the built environment, and 4) the implications of digital technologies for the above. The program highlights the interdisciplinary interaction between interior design, architecture, the human sciences and aesthetics to improve quality of life for the public good.

For professional development and career information see Careers in Interior Design ([http://arch.missouri.edu/resources\\_pd.html](http://arch.missouri.edu/resources_pd.html)) and Careers in Architectural Studies ([http://arch.missouri.edu/resources\\_arch.html](http://arch.missouri.edu/resources_arch.html)).

## Coursework

Coursework includes design studios as well as lecture classes and online learning opportunities centering on the synthesis of functional, technological, aesthetic and symbolic attributes of interior design and

architecture emphasizing physical environments that support human needs and aspirations.

## Minors & Certificates

Students who are non-majors may receive a **Minor in Architectural Studies** with 15 credits.

In partnership with the College of Engineering, Architectural Studies students may receive a minor in Sustainability with required courses in Architectural Studies, and an additional 6 credits of specified Engineering coursework. Minor in Sustainability (<https://engineering.missouri.edu/academics/engineering-minors/sustainability-minor/>)

In partnership with the College of Engineering, Architectural Studies students may receive a minor in Construction Management with required courses in Architectural Studies, and an additional 6 credits of specified Engineering coursework. Minor in Construction Management (<https://engineering.missouri.edu/academics/engineering-minors/construction-management-minor/>)

In partnership with the Trulaske School of Business, Architectural Studies students may receive a minor in Minor in Entrepreneurship and Innovation Management. (p. 412)

In partnership with the College of Agriculture, Food & Natural Resources, Architectural Studies students may receive a certificate in Sustainability with required courses in Architectural Studies, and an additional 3 credits of specified coursework. Certificate in Sustainability. (<https://snr.missouri.edu/undergrad-studies/sustainability-certificate/>)

## Admission to Professional Program Studio Sequence

Students apply for admission to the professional program studio sequence required for undergraduate majors. Portfolio review and applications are submitted in May of each year. In order to submit a portfolio for review, students must complete ARCHST 1100, ARCHST 1200, and ARTDR\_VS 1050 or ARTDR\_VS 1060. More information about portfolio review and the application process can be found at the department website ([http://arch.missouri.edu/academics\\_ugadmit.html](http://arch.missouri.edu/academics_ugadmit.html)).

## Laptop Computer Requirements

A laptop computer is required when admitted to the professional program studio sequence. See department website ([http://arch.missouri.edu/resources\\_computing.html](http://arch.missouri.edu/resources_computing.html)) for recommended specifications.

## Graduate

- MA in Architectural Studies (p. 648)
  - with emphasis in Design with Digital Media (p. 649)
  - with emphasis in Environment and Behavior (p. 650)
- MS in Architectural Studies (p. 650)
  - with emphasis in Design with Digital Media (p. 651)
  - with emphasis in Environment and Behavior (p. 652)

The College offers a PhD in Human Environmental Sciences with an emphasis in Architectural Studies (p. 670).

## Program Contact

Dr. Bimal Balakrishnan  
gradarchst@missouri.edu

137 Stanley Hall

Columbia, MO 65211  
573-882-3169  
<http://arch.missouri.edu/index.html> (<http://arch.missouri.edu/>)

## The Program

For both the MA and MS, the student's program of study must include a minimum of 30 hours of graduate credit beyond the bachelor's degree (or its equivalent). Fifteen of the 30-hour minimum must be selected from courses numbered at 8000 or 9000 level; no more than 40% of the 30-hour credit requirement can be satisfied by Research, Readings and Problems coursework.

The MA is a non-thesis option culminating in a creative project. The MS culminates in a thesis meeting University thesis requirements (<http://gradstudies.missouri.edu/academics/thesis-dissertation/process/>).

In consultation with one's graduate advisor, each student is required to enroll in selected "core" courses appropriate to her/his degree program. The academic program should be established in consultation with one's advisor.

## Professional Opportunities

Career opportunities for master's and doctoral graduates of the Department and College include leadership positions in design and consulting practices in industry, government and education; and academic and administrative positions in higher education and research.

The MA degree leads to career opportunities in design firms, computer graphics and design visualization, retail establishments, corporate institutions and consultancy. Graduates contribute their skill to design of commercial, institutional, corporate and health care facilities, as well as residential settings. They collaborate with related design professionals providing solutions to social and environmental problems.

Graduates of the MS and PhD degree programs pursue academic and professional careers integrating design theory with their research skills.

See Career Information for Graduate Students ([http://arch.missouri.edu/resources\\_careers.html](http://arch.missouri.edu/resources_careers.html)) and Spotlight on Alumni (<http://arch.missouri.edu/alumni.html>).

## Online Study

On-campus and distance-learners are taught by the same accomplished professors. This is a fully *integrated model* of online instruction with established quality. The Department of Architectural Studies offers 100% online graduate education:

- Master of Arts ([http://arch.missouri.edu/academics\\_masters.html#page\\_MA](http://arch.missouri.edu/academics_masters.html#page_MA)) in the emphasis areas of Environment and Behavior ([http://arch.missouri.edu/academics\\_ebs.html](http://arch.missouri.edu/academics_ebs.html)) and Design with Digital Media ([http://arch.missouri.edu/academics\\_ddm.html](http://arch.missouri.edu/academics_ddm.html)).
- Master of Science ([http://arch.missouri.edu/academics\\_masters.html#page\\_MS](http://arch.missouri.edu/academics_masters.html#page_MS)) in the emphasis areas of Environment and Behavior ([http://arch.missouri.edu/academics\\_ebs.html](http://arch.missouri.edu/academics_ebs.html)) and Design with Digital Media ([http://arch.missouri.edu/academics\\_ddm.html](http://arch.missouri.edu/academics_ddm.html)).
- Doctor of Philosophy ([http://arch.missouri.edu/academics\\_phd.html](http://arch.missouri.edu/academics_phd.html)) in Human Environmental Sciences and in the concentration\* areas of Environment and Behavior ([http://arch.missouri.edu/academics\\_ebs.html](http://arch.missouri.edu/academics_ebs.html)) and Design with Digital Media ([http://arch.missouri.edu/academics\\_ddm.html](http://arch.missouri.edu/academics_ddm.html)).

- Design Research Concentration ([http://arch.missouri.edu/academics\\_DesignResearch.html](http://arch.missouri.edu/academics_DesignResearch.html))\* as stand-alone coursework or as part of a masters or doctorate.
- Stand-alone courses for non-degree (<http://gradschool.missouri.edu/admissions/eligibility-process/non-degree-applicants/>) graduate students. Students select online courses from an extensive menu for professional advancement. Up to 12 credit hours of graduate credit taken as a non-degree graduate student may be applied to a graduate degree program upon approval of the academic program if the student is accepted.

\* concentrations will not appear on diplomas or transcripts

Graduate courses are delivered as:

- Asynchronous or Synchronous. Asynchronous coursework is completed independently according to the provided schedule. Synchronous courses will include real-time discussion during arranged weekly class periods via video conferencing technology.
- Semester-based or self-paced online.

See MizzouOnline (<http://online.missouri.edu/course-search/>) for online offerings open for registration.

## Architectural Studies Graduate Degrees

Graduate students select one of two areas of emphasis: 1) Environment and Behavior studies with a creative project leading to an MA degree and with research leading to the MS and PhD degrees OR 2) Design with Digital Media studies leading to the MA, MS and PhD degrees. The graduate program builds on Architectural Studies course work and a core of courses in design theory, research methods, graduate seminars, research and readings in digital media and environment and behavior.

## Design Research Concentration

The Design Research Concentration ([http://arch.missouri.edu/academics\\_DesignResearch.html](http://arch.missouri.edu/academics_DesignResearch.html)) is developed for

- Designers engaged in architecture, interior design, graphic, or interaction design who require applied research skills from companies/organizations.
- Researchers with a background in social sciences, anthropology etc. who conduct research for creative product development in industry - Healthcare IT companies, Product Design firms, corporate research labs etc.
- Business and market professionals to advance understanding of design research for marketing.

## Graduate Program Requirements

The academic program should be developed in consultation with an advisor. See the Graduate School (<http://gradstudies.missouri.edu/>) website for guidelines and requirements regarding course work and role of committee. Students are required to self-report academic performance, degree program milestones and related achievements in scholarship, research and creative work on an annual basis. Students complete an annual review. See department Graduate Handbook (<http://arch.missouri.edu/docs/academics/PhD/handbook.pdf>) for details.

## Financial Aid from the Program

Limited teaching and/or research assistantships and scholarships are available to graduate students. GTA appointments are available to resident graduate students and are based on the match between the

department's needs and candidate's background. See Financial FAQs ([http://arch.missouri.edu/academics\\_faqqrad.html](http://arch.missouri.edu/academics_faqqrad.html)) on department web site.

## BS in Architectural Studies

### Degree Program Description

Architectural Studies promotes connections between people and place, and between interior design and architecture with the intention of preparing graduates to become lifelong designers of the built environment. Students in this program conduct systematic inquiry into the design process, sustainable products and practices, the interaction between people and the built environment, and digital technologies. The program highlights research as it advances the interdisciplinary interaction between interior design, architecture, the human sciences and aesthetics to improve quality of life for the public good. Following the freshman year students must submit a portfolio of their work for acceptance into the professional phase of the program.

### Major Program Requirements

The BS in Architectural Studies connects interior design, architecture, the human sciences and aesthetics to improve quality of life. Students are engaged in the processes, procedures, observations, and techniques of design.

The BS is offered with two emphasis area options: Interior Design (p. 647) and Architectural Studies (p. 645). Both emphasis areas focus on the development of environmental designs for human living, work, and leisure. The Interior Design emphasis results in a terminal bachelor's degree accredited by the Council of Interior Design Accreditation (CIDA). The Architectural Studies emphasis is a pre-architecture bachelor's degree or pre-professional option and students continue their education with the M Arch to become practicing architects.

Some courses in the Professional Program area double count for General Education (p. 36) requirements. See degree information at the emphasis level.

### Semester Plan

The BS in Architectural Studies has emphasis areas in Architectural Studies (p. 645), and Interior Design (p. 647). Please see the individual emphasis area pages for degree requirements and admissions information.

### Major and Career Exploration

The University of Missouri has many resources to assist you in exploring majors and career possibilities. For guidance, visit the Majors and Careers (<https://career.missouri.edu/majors-careers/>) website or view specific resources below.

- If you are considering a change of major or are exploring multiple majors, schedule an appointment with an advisor in the Discovery Center (<https://discoverycenter.missouri.edu/>) by calling (573)884-9700 or through MU Connect (<https://mizzou.starfishsolutions.com/starfish-ops/dl/instructor/serviceCatalog.html?bookmark=service/3761489>) Discovery Center service in your success network.
- If you have decided on a major, visit an academic advisor in the School or College that you are interested in to discuss the process

of declaring the major (<https://advising.missouri.edu/majors-minors/changing-major/>).

- If you would like to learn more about your career interests, abilities, values and talents, visit the MU Career Center (<http://career.missouri.edu/connect/>). No Appointment is necessary to explore career options with one of our staff members.
- If you would like information about MU majors and degree programs, visit:
  - the Degrees, Majors (Degree Programs), Emphasis Areas, Minors and Certificates (p. 20) page in the catalog,
  - the MU Majors (<https://majors.missouri.edu>) website.

For additional major and career exploration resources, visit Major & Career Exploration (p. 34) in the catalog.

## BS in Architectural Studies with Emphasis in Architectural Studies

### Degree Program Description

The Architectural Studies emphasis is a four-year, professional baccalaureate program often referred to as a Pre-Architecture program. The architectural studies emphasis prepares students for success in entry-level jobs in the design and construction industry and also to prepare students for advanced study in architecture M. Arch. (Masters of Architecture) programs. See Opportunity for Employment ([http://arch.missouri.edu/academics\\_arch.html](http://arch.missouri.edu/academics_arch.html)), Careers in Architectural Studies ([http://arch.missouri.edu/resources\\_arch.html](http://arch.missouri.edu/resources_arch.html)), and Spotlight on Alumni (<http://arch.missouri.edu/alumni.html>). Students benefit from the enriched academic research environment and the emphasis on the thinking and making of physical environments that address the needs and aspirations of people. The program strives to blur the boundaries between architecture and interior design by stressing the experience of people in buildings. Students interested in becoming a licensed architect continue their education in graduate architectural programs that are accredited. Missouri residents may benefit from the Reciprocity Agreement with the University of Kansas which may waive out of state tuition for their M. Arch. degree. Alumni are admitted to many highly ranked graduate programs throughout the U.S. With coursework being part of a CIDA (<http://accredit-id.org/>) Accredited Interior Design Program, pre-architecture students may be eligible for the NCIDQ (<https://www.cidq.org/>) examination upon graduation. For more information see Careers in Interior Design ([http://arch.missouri.edu/resources\\_pd.html](http://arch.missouri.edu/resources_pd.html)) with links to professional organizations and regulations. See Architectural Studies web page for more highlights ([http://arch.missouri.edu/home\\_welcome.html](http://arch.missouri.edu/home_welcome.html)) of program.

### Major Program Requirements

#### Coursework

Students complete University of Missouri general education coursework that includes physics and calculus. Professional design coursework is in the following content areas: basic creative development, design planning and analysis, design communication, technical knowledge, history of art/architecture/interiors, business, and design theory.

#### Studio Description

It is the design studio setting where learning by doing is experienced and realized. The studio is a collaborative and cooperative learning

environment emphasizing personal intellectual development as well as content learning. Course work includes studios and coursework centering on the synthesis of functional, technological, social, aesthetic and symbolic attributes architecture that support human needs and their aspirations. See Studio Description ([http://arch.missouri.edu/academics\\_arch.html](http://arch.missouri.edu/academics_arch.html)) on the department website for more information.

**Application for the Professional Program**

After completing three required classes of Drafting (ARCHST 1200), Visual Design (ARCHST 1100), and Drawing (ARTDR\_VS 1050) during the first year, students apply for admission to the studio sequence. Applications are made at the end of the spring semester of the first year granting permission to enroll in Studio I. The application form is available at the department's web site. ([http://arch.missouri.edu/academics\\_ugadmit.html](http://arch.missouri.edu/academics_ugadmit.html)) Transfer Coursework is evaluated by faculty on a case by case basis. Please contact the Undergraduate Advisor for more information.

**Degree Requirements**

<b>Basic Creative Development</b>	<b>9</b>
ARCHST 1100 Visual Design	3
ARCHST 2315 Introduction to Building Systems Laboratory	1
ARCHST 2316 Advanced Building Systems Lab	2
ARCHST 3100 Color and Light	3
<b>Design Planning and Analysis</b>	<b>24</b>
ARCHST 2811 Studio I	4
ARCHST 3182 Studio II	4
ARCHST 4815 Construction Documents and Building Information Modeling Studio	4
ARCHST 4823 Architectural Studio III	4
ARCHST 4824 Architectural Studio IV	4
ARCHST 4990 Thesis Design Studio	4
<b>Design Communication</b>	<b>12</b>
ARTDR_VS 1050 Drawing: Materials and Methods	3
ARCHST 1200 Architectural Drafting and Working Drawings	3
ARCHST 2230 Design Communication I	3
ARCHST 3230 Advanced Design Communication Using BIM	3
<b>Technical Knowledge</b>	<b>25</b>
ARCHST 2220 Introduction to CAD	3
ARCHST 2310 Building Systems	3
ARCHST 2323 Sustainable Building Design Fundamentals	3
ARCHST 4320 Materials, Methods and Products	3
ARCHST 4323 Sustainable Technologies and Systems	3
ARCHST 4333 Compliance and Specifications	3
MATH 1400 Calculus for Social and Life Sciences I	3
PHYSICS 1210 College Physics I	4
<b>History of Art, Architecture and Interiors</b>	<b>9</b>
ARCHST 4430 Guiding Design with Historic Preservation	3
ARCHST 4435 History of the Designed Environment to 1750	3
ARCHST 4440 Design Precedents: Architecture, Interiors and Furniture since the Industrial Revolution	3

<b>Business</b>	<b>3</b>
ARCHST 4710 Design Business Practices	3
<b>Design Theory</b>	<b>12</b>
ARCHST 1600W Fundamentals of Environmental Design - Writing Intensive	3
ARCHST 2100 Understanding Architecture and the American City	3
ARCHST 2620 People, Places and Design	3
ARCHST 3860W Human Factors Programming - Writing Intensive	3
<b>Electives</b>	<b>26</b>

**Semester Plan**

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available. Also, view degree program requirements ([http://arch.missouri.edu/academics\\_arch.html](http://arch.missouri.edu/academics_arch.html)) at the department's web site.

First Year			
Fall	CR	Spring	CR
American History or Government (also Soc/Beh Science)	3	ARCHST 1600W	3
ARCHST 1100		3 ARCHST 2315	1
ARCHST 1200		3 ARCHST 2620	3
ARCHST 2100		3 ARTDR_VS 1050	3
ENGLISH 1000		3 MATH 1100	3
GN_HES 1100		1 HES Foundation	3
		16	16
Second Year			
Fall	CR	Spring	CR
ARCHST 2220		3 ARCHST 2230	3
ARCHST 2310		3 ARCHST 3100	3
ARCHST 2316		2 ARCHST 2323	3
ARCHST 2811		4 ARCHST 3182	4
ARCHST 4435		3 MATH 1400	3
		15	16
Third Year			
Fall	CR	Spring	CR
ARCHST 3230		3 ARCHST 3860W	3
ARCHST 4320		3 ARCHST 4323	3
ARCHST 4823		4 ARCHST 4333	3
PHYSICS 1210		4 ARCHST 4824	4
		14	13
Fourth Year			
Fall	CR	Spring	CR
ARCHST 4430		3 ARCHST 4440	3
ARCHST 4710		3 ARCHST 4815	4
ARCHST 4990		4 Electives	7
Electives		3	
HES Foundation		3	
		16	14

Total Credits: 120

**Grade requirements**

The University requires the following courses to have a grade of C- or above: ENGLISH 1000, ARCHST 4323 Sustainable Technologies, ARCHST 1600W Fundamentals of Environmental Design and

ARCHST 3600W Human Factors Programming meeting Writing Intensive requirements, and ARCHST 4815 Construction Documents and BIM satisfying the capstone experience.

## BS in Architectural Studies with Emphasis in Interior Design

### Degree Program Description

The Interior Design emphasis is a four-year, professional baccalaureate program accredited by the Council for Interior Design Accreditation (CIDA). The interior design program's mission is to prepare students for success in entry-level interior design practice and advanced study.

Core competencies protect human health, safety, and welfare through the design of interior environments. Our educational philosophy is grounded in the values of creating sustainable and meaningful interior spaces to integrate aesthetic quality and compassion for the human condition. The NCIDQ definition (<https://www.cidq.org/>) clarifies the scope of the services and tasks of the profession. Curriculum incorporates signature characteristics of interior design such as furniture, fixtures, and equipment, color, and interior materiality. The program benefits from its enriched academic research environment with outstanding faculty. Emphasizing the thinking and making of spaces, our interior design program stresses the inside of buildings and those experiences that help to create peoples' individual meaning in life. For more information on professional advancement and examples of opportunities see Careers in Interior Design ([http://arch.missouri.edu/resources\\_pd.html](http://arch.missouri.edu/resources_pd.html)) with links to professional organizations and regulations. Also see post-graduate placements at Spotlight on Alumni (<http://arch.missouri.edu/alumni.html>). See Architectural Studies web page for highlights ([http://arch.missouri.edu/home\\_welcome.html](http://arch.missouri.edu/home_welcome.html)) of program.

### Major Program Requirements

#### Coursework

Students complete University of Missouri general education coursework and professional interior design coursework in the following content areas: basic creative development, design planning and analysis, design communication, technical knowledge, history of art/architecture/interiors, business, and design theory.

#### Studio Description

It is the design studio setting where learning by doing is experienced and realized. The studio is a collaborative and cooperative learning environment emphasizing personal intellectual development as well as content learning. Course work includes studios and coursework centering on the synthesis of functional, technological, social, aesthetic and symbolic attributes of interior design that support human needs and their aspirations. See Studio Description ([http://arch.missouri.edu/academics\\_id.html](http://arch.missouri.edu/academics_id.html)) on the department website for more information.

#### Application for Professional Program

After completing the three required classes of Drafting (ARCHST 1200), Visual Design (ARCHST 1100), and Drawing (ARTDR\_VS 1050) during the first year, students apply for admission to the studio sequence and submit work from these classes in their design portfolio. Applications are made at the end of the spring semester granting permission to enroll in Studio I. The application form is available at the department's web site ([http://arch.missouri.edu/academics\\_ugadmit.html](http://arch.missouri.edu/academics_ugadmit.html)). Transfer coursework

is evaluated by faculty on a case by case basis. Please contact the Undergraduate Advisor for more information.

### Degree Requirements

<b>Basic Creative Development</b>		<b>9</b>
ARCHST 1100	Visual Design	3
ARCHST 2315	Introduction to Building Systems Laboratory	1
ARCHST 2316	Advanced Building Systems Lab	2
ARCHST 3100	Color and Light	3
<b>Design Planning and Analysis</b>		<b>24</b>
ARCHST 2811	Studio I	4
ARCHST 3182	Studio II	4
ARCHST 4813	Interiors Studio III	4
ARCHST 4814	Interiors Studio IV	4
ARCHST 4815	Construction Documents and Building Information Modeling Studio	4
ARCHST 4990	Thesis Design Studio	4
<b>Design Communication</b>		<b>12</b>
ARTDR_VS 1050	Drawing: Materials and Methods	3
ARCHST 1200	Architectural Drafting and Working Drawings	3
ARCHST 2230	Design Communication I	3
ARCHST 3230	Advanced Design Communication Using BIM	3
<b>Technical Knowledge</b>		<b>18</b>
ARCHST 2220	Introduction to CAD	3
ARCHST 2310	Building Systems	3
ARCHST 2323	Sustainable Building Design Fundamentals	3
ARCHST 4320	Materials, Methods and Products	3
ARCHST 4323	Sustainable Technologies and Systems	3
ARCHST 4333	Compliance and Specifications	3
<b>History of Art, Architecture and Interiors</b>		<b>9</b>
ARCHST 4430	Guiding Design with Historic Preservation	3
ARCHST 4435	History of the Designed Environment to 1750	3
ARCHST 4440	Design Precedents: Architecture, Interiors and Furniture since the Industrial Revolution	3
<b>Business</b>		<b>3</b>
ARCHST 4710	Design Business Practices	3
<b>Design Theory</b>		<b>12</b>
ARCHST 1600W	Fundamentals of Environmental Design - Writing Intensive	3
ARCHST 2100	Understanding Architecture and the American City	3
ARCHST 2620	People, Places and Design	3
ARCHST 3860W	Human Factors Programming - Writing Intensive	3
<b>Electives - to equal 120 credit minimum total for the program</b>		

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.



First Year			
Fall	CR	Spring	CR
GN_HES 1100		1 ARCHST 1600W	3
ARCHST 1100		3 ARCHST 2315	1
ARCHST 1200		3 ARCHST 2620	3
ARCHST 2100		3 ARTDR_VS 1050	3
ENGLISH 1000		3 MATH 1100	3
American History or Government (also Soc/Beh Sci)		3 Physical/Biological/Math Science	3
			16

Second Year			
Fall	CR	Spring	CR
ARCHST 2220		3 ARCHST 2230	3
ARCHST 2310		3 ARCHST 2323	3
ARCHST 2316		2 ARCHST 3100	3
ARCHST 2811		4 ARCHST 3182	4
ARCHST 4435		3 HES Foundation	3
			15

Third Year			
Fall	CR	Spring	CR
ARCHST 3230		3 ARCHST 3860W	3
ARCHST 4320		3 ARCHST 4323	3
ARCHST 4813		4 ARCHST 4333	3
ARCHST 4430		3 ARCHST 4814	4
		Electives	4
			13

Fourth Year			
Fall	CR	Spring	CR
ARCHST 4710		3 ARCHST 4440	3
ARCHST 4990		4 ARCHST 4815	4
HES Foundation		3 Electives	7
Electives		3	
			13

Total Credits: 120

The University requires the following courses to have a grade of C- or above: ENGLISH 1000, ARCHST 4323 Sustainable Technologies and Systems, ARCHST 1600W Fundamentals of Environmental Design - Writing Intensive and ARCHST 3860W Human Factors Programming - Writing Intensive; meeting Writing Intensive requirements, and ARCHST 4815 Construction Documents and Building Information Modeling Studio; satisfying the capstone experience.

## Minor in Architectural Studies

### Requirements

A Minor in Architectural Studies is comprised of 15 credit hours, including ARCHST 1600W Fundamentals of Environmental Design - Writing Intensive or ARCHST 2620 People, Places and Design and selection of additional coursework from the list below.

#### Required

ARCHST 1600W	Fundamentals of Environmental Design - Writing Intensive	3
or ARCHST 2620	People, Places and Design	
<b>Electives (select from the following)</b>		<b>12</b>
ARCHST 1100	Visual Design	3

ARCHST 1200	Architectural Drafting and Working Drawings	3
ARCHST 2100	Understanding Architecture and the American City	3
ARCHST 2220	Introduction to CAD	3
ARCHST 2310	Building Systems	3
ARCHST 2315	Introduction to Building Systems Laboratory	1
ARCHST 2316	Advanced Building Systems Lab	2
ARCHST 2323	Sustainable Building Design Fundamentals	3
ARCHST 2620	People, Places and Design	3
ARCHST 3100	Color and Light	3
ARCHST 4320	Materials, Methods and Products	3
ARCHST 4323	Sustainable Technologies and Systems	3
ARCHST 4411	Study Abroad in Architectural History	1-3
ARCHST 4430	Guiding Design with Historic Preservation	3
ARCHST 4435	History of the Designed Environment to 1750	3
ARCHST 4440	Design Precedents: Architecture, Interiors and Furniture since the Industrial Revolution	3
ARCHST 4630	Shaping Human Settlements	3
ARCHST 4700	Place-Making in Community Design	3
ARCHST 4961	Design Research and Service Design	3
ARCHST 4962	Information Visualization and Visual Analytics	3
ARCHST 4964	Design Thinking and Creative Process	3

For exceptional students, with consent of instructor and department approval, additional course work in the department may be selected.

### Application for Minor

Complete the Apply for HES Minor form ([http://arch.missouri.edu/academics\\_minor.html](http://arch.missouri.edu/academics_minor.html)).

#### Online Minor in Architectural Studies

See Online Study and Degrees ([http://arch.missouri.edu/academics\\_online.html](http://arch.missouri.edu/academics_online.html)) in Architectural Studies for a listing of online courses currently open for registration.

## MA in Architectural Studies

- Degree Requirements (p. 649)
- Non-Thesis Requirements (p. )
- Admissions (p. 649)

The creative, project-based MA plan of study is preparation for advanced careers in the design professions and higher education. The non-thesis project is conducted in one or two areas: (1) environment and behavior or (2) design with digital media. The MA project is an in-depth investigation of a design problem culminating in a design solution or visual research presentation.

Also see the Department web site for additional information: Masters Programs ([http://arch.missouri.edu/academics\\_masters.html](http://arch.missouri.edu/academics_masters.html)), Emphasis Areas (<http://arch.missouri.edu/graduate.html>), Online Study ([http://arch.missouri.edu/academics\\_online2.html](http://arch.missouri.edu/academics_online2.html)), and Architectural Studies

Graduate Handbook (<http://arch.missouri.edu/docs/academics/PhD/handbook.pdf>).

## Design Research Concentration

A Design Research concentration is offered for:

- Designers engaged in interior design, architecture, graphic or interaction design who would like to acquire applied research skills for companies or organizations.
- Researchers with a background in social sciences, anthropology, etc. who conduct research for creative product development in industries such as Healthcare, IT companies, Engineering, etc.
- Business and marketing professionals to advance understanding of design research for marketing.

The coursework for the concentration is applied to the program of study. For specifics, see Design Research Concentration ([http://arch.missouri.edu/academics\\_DesignResearch.html](http://arch.missouri.edu/academics_DesignResearch.html)) on the department web site. *Concentrations do not appear on diplomas or transcripts.*

## Degree Requirements

The MA degree must include a minimum of 30 hours of graduate credit beyond the bachelor's degree (or its equivalent). Fifteen of the 30-hour minimum must be selected from courses numbered at 8000 or 9000 level; no more than 40% of the 30-hour credit requirement can be satisfied by Independent Study style courses such as Research, Readings and Problems coursework.

In consultation with one's graduate advisor, you will enroll in "core" courses and additional courses appropriate to your degree program. The academic program should be established in consultation with your adviser at the end of the first full semester.

## Non-Thesis Requirements

The creative project-based MA plan of study is preparation for advanced careers in the design professions and higher education. The project (instead of a written thesis) is conducted in one or two areas: (1) environment and behavior or (2) design with digital media. The MA project is an in-depth investigation of a design problem culminating in a design solution or a visual research presentation.

## Admission Criteria

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the Architectural Studies Graduate Program (<http://arch.missouri.edu/graduate.html>) and the minimum requirements of the graduate faculty, enforced by the Graduate School (<https://gradschool.missouri.edu/admissions/eligibility-process/>).

Because requirements vary, you must refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admission to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

## Required Application Materials

See Application and Admission ([http://arch.missouri.edu/academics\\_gradadmit.html](http://arch.missouri.edu/academics_gradadmit.html)) for Department's graduate admission requirements.

Apply online to the Graduate School (<https://gradschool.missouri.edu/>).

## Admission Contact

137 Stanley Hall; Columbia, MO 65211

Tel: (573) 882-7224

[gradarchst@missouri.edu](mailto:gradarchst@missouri.edu) ([gradarchst@missouri.edu](mailto:gradarchst@missouri.edu))

<http://arch.missouri.edu>

## MA in Architectural Studies with Emphasis in Design with Digital Media

The Design with Digital Media program attracts a diverse group of talented, intellectually engaged graduate students for interdisciplinary and trans-disciplinary exploration in the digital arts. The curriculum enables students to investigate innovative approaches to contemporary theory and practice, and fosters both individual inquiry and high-level collaboration. The primary objective of the program is to prepare creative critical thinkers to become leaders in their fields.

Structured to promote thought and work that crosses traditional lines between disciplines, the digital media curriculum challenges students to consider non-standard approaches to the computer as a creative and expressive medium. Study of technology, art and design is balanced with inquiry grounded in conceptual, critical, social, cultural and historical considerations.

Design with Digital Media, as an integral part of the design process, focuses on graphic ideation and the application of computer technology for architecture, interior and related disciplines. This program of study has an emphasis on design with digital media leading to the MA degree. Applicants are strongly encouraged to review the research interests of program faculty (<http://arch.missouri.edu/people.html>) prior to applying.

**Current study areas in the digital media program include:**

- Design computing and cognition
- Design process using digital media and creativity research
- Virtual reality (VR) and augmented reality (AR) technologies for design visualization
- Advanced visualization technologies for environment-behavior simulation
- Building Information Modeling (BIM)
- Building Performance Simulation
- Human-computer interaction aspects of digital tools for design

See resources in our Immersive Visualization Lab (iLab web site). (<http://arch.missouri.edu/ilab/>)

The culmination of the degree is a written and/or visual project employing computer applications for design methods. Applicants interested in the Design with Digital Media option should contact the Director of Graduate Studies, for course content and research proposals. Also see the Department's website (<http://arch.missouri.edu/>) and the Architectural Studies Graduate Handbook (<http://arch.missouri.edu/docs/academics/PhD/handbook.pdf>).

## Degree Requirements

Successful completion requires a minimum of 30 credit hours beyond the baccalaureate degree. Required courses include:

ARCHST 8050	Research Methods in Environmental Design	3
ARCHST 8850	Seminar in Environmental Design	1
ARCHST 8633	Theoretical Perspectives of Design Computing	3
ARCHST 8820	Graduate Digital Design Studio	3

Remaining credits to meet degree requirements can be chosen from graduate courses (7000 level or above) listed on the Architectural Studies Graduate Course website ([http://arch.missouri.edu/academics\\_gradcourses.html](http://arch.missouri.edu/academics_gradcourses.html)). A minimum of 15 credit hours should be at the 8000 or 9000 level and no more than 40% of the 30-hour credit requirement can be satisfied by independent study style courses such as Readings, and Problems coursework.

## Admissions

Applicants are required to meet the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

## Program Contact

gradarchst@missouri.edu  
 137 Stanley Hall  
 Columbia, MO 65211  
 573-882-7224  
<http://arch.missouri.edu> (<http://arch.missouri.edu/>)

# MA in Architectural Studies with Emphasis in Environment and Behavior

The Environment and Behavior focus is on the multifaceted relationship between people and their physical, social and cultural environments. Environment-behavior research explores a variety of environments, linking them to a range of behavioral concerns. This program is suitable for persons who seek careers in research, consulting, and/or teaching in architecture, interior design, and other environmental design disciplines. A design project leads to the MA degree. Applicants are strongly encouraged to review the research interests of program faculty (<http://arch.missouri.edu/people.html>) prior to applying.

## Focus areas in environment and behavior include:

- Health and Well-Being
- Sustainable Design
- Design Education
- Social and Cultural Bases of Design
- Place Attachment
- Environments for Learning
- Inclusive Design/Accessibility
- Environment and Aging

- Housing and Neighborhood Design
- Programming, Design and Post-Occupancy Evaluation

The culmination of the degree is a written and/or visual project. Applicants interested in the Environment and Behavior option should contact the Director of Graduate Studies. Also see the Department web site (<http://arch.missouri.edu/>) and the Architectural Studies Graduate Handbook (<http://arch.missouri.edu/docs/academics/PhD/handbook.pdf>).

## Degree Requirements

Successful completion requires a minimum of 30 credit hours beyond the baccalaureate degree. Required courses include:

ARCHST 8050	Research Methods in Environmental Design	3
ARCHST 8850	Seminar in Environmental Design	1
ARCHST 8887	Environment and Behavior II	3
ARCHST 8840	Graduate Design Studio	3

Remaining credits to meet degree requirements can be chosen from graduate courses (7000 level or above) listed on the Architectural Studies Graduate Course website ([http://arch.missouri.edu/academics\\_gradcourses.html](http://arch.missouri.edu/academics_gradcourses.html)). A minimum of 15 credit hours should be at the 8000 or 9000 level and no more than 40% of the 30-hour credit requirement can be satisfied by independent study style courses such as Readings, and Problems coursework.

## Admissions

Applicants are required to meet the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

## Program Contact

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 Columbia, MO 65211  
 573-882-7224  
<http://arch.missouri.edu> (<http://arch.missouri.edu/>)

# MS in Architectural Studies

Research is conducted in one of two emphasis areas: (1) environment and behavior or (2) design with digital media. Within each of these emphasis areas, specific course work is chosen on the basis of subject matter and the type of research method selected: quantitative, qualitative or a combination of both. The MS may be a research-based study or a design and research-based design project. The MS culminates in a thesis meeting University thesis requirements. The MS plan of study is in preparation for advanced professional practice or preparation for the doctoral degree.

Also see the Department web site for additional information: Masters Programs ([http://arch.missouri.edu/academics\\_masters.html](http://arch.missouri.edu/academics_masters.html)), Emphasis Areas (<http://arch.missouri.edu/graduate.html>), Online Study ([http://arch.missouri.edu/academics\\_online2.html](http://arch.missouri.edu/academics_online2.html)), and Architectural Studies

Graduate Handbook (<http://arch.missouri.edu/docs/academics/PhD/handbook.pdf>).

## Design Research Concentration

The Design Research Concentration can be applied toward the program of study. The concentration is of interest to:

- Designers engaged in interior design, architecture, graphic or interaction design who wish to acquire applied research skills for companies/organizations.
- Researchers with a background in social sciences, anthropology, etc. who conduct research for creative product development in industries such as Healthcare, IT companies, Engineering etc.
- Business and marketing professionals to advance understanding of design research for marketing.

For more information, see Design Research Concentration ([http://arch.missouri.edu/academics\\_DesignResearch.html](http://arch.missouri.edu/academics_DesignResearch.html)) on the department's web site. *Concentrations do not appear on diplomas or transcripts.*

## Degree Requirements

The student's program for MS degree must include a minimum of 30 hours of graduate credit beyond the bachelor's degree (or its equivalent). Fifteen of the 30-hour minimum must be selected from courses numbered at 8000 or 9000 level; no more than 40% of the 30-hour credit requirement can be satisfied by Independent Study style courses such as Research, Readings, and Problems coursework.

## Thesis Requirements

Research is conducted in one of two emphasis areas: environment and behavior studies (see [http://arch.missouri.edu/academics\\_ebs.html](http://arch.missouri.edu/academics_ebs.html)) or design with digital media (see [http://arch.missouri.edu/academics\\_ddm.html](http://arch.missouri.edu/academics_ddm.html)). Within each of these emphasis areas, specific coursework is chosen based on subject matter and the type of research method selected: quantitative, qualitative, or a combination of both. The coursework lays the foundation for a research-based, written thesis investigating a theoretical or applied problem using appropriate research methods. The research-based MS study is often undertaken as preparation for the doctoral degree.

## Admission Criteria

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the Architectural Studies Graduate Program (<http://arch.missouri.edu/graduate.html>) and the minimum requirements of the graduate faculty, enforced by the Graduate School (<https://gradschool.missouri.edu/admissions/eligibility-process/>). Because requirements vary, you must refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admission to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

## Required Application Materials

See Application and Admission ([http://arch.missouri.edu/academics\\_gradadmit.html](http://arch.missouri.edu/academics_gradadmit.html)) for Department's graduate admission requirements.

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## MS in Architectural Studies with Emphasis in Design with Digital Media

The Design with Digital Media program attracts a diverse group of talented, intellectually engaged graduate students for interdisciplinary and trans-disciplinary exploration in the digital arts. The curriculum enables students to investigate innovative approaches to contemporary digital theory and practice, and fosters both individual inquiry and high-level collaboration. Structured to promote thought and work that crosses traditional lines between disciplines, the digital media curriculum challenges students to consider non-standard approaches to the computer as a creative and expressive medium for design. Study of technology, art and design is balanced with inquiry grounded in conceptual, critical, social, cultural and historical considerations. Design with digital media, as an integral part of the design process, focuses on graphic ideation and the application of computer technology for architecture, interior and related disciplines.

### Current study areas in the digital media program include:

- Design computing and cognition
- Design process using digital media and creativity research
- Virtual reality (VR) and augmented reality (AR) technologies for design visualization
- Advanced visualization technologies for environment-behavior simulation
- Building Information Modeling (BIM)
- Building Simulation
- Human-computer interaction aspects of digital tools for design

See resources in our immersive visualization lab, the ilab ([http://arch.missouri.edu/resources\\_ilab.html](http://arch.missouri.edu/resources_ilab.html)), and the ilab web site. (<http://arch.missouri.edu/ilab/>)

The culmination of the MS degree is a written thesis. Applicants interested in the Design with Digital Media option should contact the Director of Graduate Studies, for course content and research proposals. Also see the Department website (<http://arch.missouri.edu/>) and the Architectural Studies Graduate Handbook (<http://arch.missouri.edu/docs/academics/PhD/handbook.pdf>).

## Degree Requirements

Successful completion requires a minimum of 30 credit hours beyond the baccalaureate degree. Required courses include:

ARCHST 8050	Research Methods in Environmental Design	3
ARCHST 8850	Seminar in Environmental Design	1
ARCHST 8633	Theoretical Perspectives of Design Computing	3
ARCHST 8630	Philosophy of Environmental Design Research	3

Remaining credits to meet degree requirements can be chosen from graduate courses (7000 level or above) listed on the Architectural Studies Graduate Course website [http://arch.missouri.edu/academics\\_gradcourses.html](http://arch.missouri.edu/academics_gradcourses.html)). A minimum of 15 credit hours should be at the 8000 or 9000 level and no more than 40% of the 30-hour credit requirement can be satisfied by independent study style courses such as Readings, and Problems coursework.

## Admissions

Applicants must meet the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, please refer to the degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

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## MS in Architectural Studies with Emphasis in Environment and Behavior

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### Current study areas in environment and behavior include:

- Health and Well-Being
- Sustainable Design
- Design Education
- Social and Cultural Bases of Design
- Place Attachment
- Environments for Learning
- Inclusive Design/Accessibility
- Environment and Aging
- Housing and Neighborhood Design
- Programming and Post-Occupancy Evaluation

The culmination of the MS degree is a written thesis. Applicants interested in the Environment and Behavior option should contact the Director of Graduate Studies, for course content and research proposals. Also see the Department website (<http://arch.missouri.edu/>) and

the Architectural Studies Graduate Handbook (<http://arch.missouri.edu/docs/academics/PhD/handbook.pdf>).

## Degree Requirements

Successful completion requires a minimum of 30 credit hours beyond the baccalaureate degree. Required courses include:

ARCHST 8050	Research Methods in Environmental Design	3
ARCHST 8850	Seminar in Environmental Design	1
ARCHST 8887	Environment and Behavior II	3
ARCHST 8630	Philosophy of Environmental Design Research	3

## Admissions

Applicants are required to meet the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, please refer to the degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

### Program Contact

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 137 Stanley Hall  
 Columbia, MO 65211  
 573-882-7224  
<http://arch.missouri.edu> (<http://arch.missouri.edu>)

## Dietetics

### Department Chair

Christopher Hardin  
 204 Gwynn Hall  
 (573) 882-4288  
[hardinc@missouri.edu](mailto:hardinc@missouri.edu)  
<http://nep.missouri.edu> (<http://ns.missouri.edu>)

### Dietetics and Exercise Physiology Office

204 Gwynn Hall  
 (573) 882-4288  
 FAX: (573) 884-4885

### Advising/Admission Contact

Tammy Conrad  
 201 Gwynn Hall  
 (573) 882-1144  
[conradt@missouri.edu](mailto:conradt@missouri.edu)

A registered dietitian (RD) or registered dietitian nutritionist (RDN) has completed education and training established by the Accreditation Council for Education in Nutrition and Dietetics (ACEND) (<https://www.eatrightpro.org/acend/>). In order to be eligible to become a RD/RDN, one must complete required coursework and supervised practice from an ACEND accredited dietetics program and pass the national Registration Examination for Dietitians. The RD/RDN holds a minimum of a bachelors degree. In 2024 candidates must have a masters degree in order to take the national Registration Examination for Dietitians.

Students who complete the Coordinated Program in Dietetics at Mizzou will meet the requirement to take the national exam.

The department offers a Bachelor of Science in Nutrition and Exercise Physiology with an emphasis in Nutrition and Foods, followed by entry into the Masters of Science in Dietetics.

## Faculty

**Professor** S. Ball\*\*, K.L. Fritsche\*\*, C. D. Hardin\*\*, P. S. Hinton\*\*, J. A. Kanaley\*\*, E. J. Parks\*\*

**Associate Professor** S. Gable\*\*, J. Padilla\*\*, C. A. Peterson\*\*, R. S. Rector\*\*, V. Vieira-Potter\*\*

**Assistant Professor** J. Limberg\*, K. Anguah\*

**Teaching Associate Professor** J. Bean\*, D. Smith

**Teaching Assistant Professor** S. Buckallew\*, M. Raedeke\*,

**Adjunct Faculty** F. W. Booth\*, J. A. Ibdah\*\*, D. Lubahn\*\*, M. Milanick, F. Nassir\*\*, L. Pulakat\*\*, S. Sayers

**Adjunct Instructor** B. Baker, A. Bryant, S. Burcks, K. Eiffert, T. Roberts, M. Stevens

**Extension Faculty** J. Britt-Rankin\*, K. Keller, K. Miller, S. Mills-Gray, R. Mott, J. Tryfter, K. Weitzel, S. Wood

**Professor Emeritus** D. E. Brigham\*, R. P. Dowdy\*, L. Hillman\*, L. Hudson\*, P. M. Landhuis\*, M. McDonald, T. R. Thomas\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

The department of Nutrition and Exercise Physiology offers a BS in Nutrition and Exercise Physiology with Emphasis in Nutrition and Foods (p. 677). Only students who successfully complete prerequisites, have been admitted to the Coordinated Program (CP) and completed all undergraduate requirements for the Coordinated Program will receive this emphasis area for the bachelor's degree. The completion of this bachelor's degree only does not allow the student to be eligible to take the national Registration Examination for Dietitians. Furthermore, it is not a didactic program in dietetics. No verification statement is given after completion of only the bachelor's degree. Students who receive this degree emphasis and are in good academic standing will transition seamlessly to the Coordinated Program's fifth year master's program.

Application requirements to the CP are posted each year on the department's webpage at <http://ns.missouri.edu/>. Applications are due in January. To be eligible to apply, the applicants must have a minimum 3.2 GPA and have completed or be able to complete the first four semesters of courses listed under the course requirements for nutrition and foods (<http://nep.missouri.edu/dietetics.html>). The student must be enrolled in or already have completed NEP 2340 and BIOCHM 3630 (or equivalent transfer course approved by faculty) at the time the CP application is submitted. Students must achieve a final course grade of B- or better in both, as well as earn a minimum UM System GPA term of 3.0 for the semester they are accepted into the program. Failure to meet the criteria will result in forfeiture of their slot in the Coordinated Program. Accepted Students must also successfully pass background checks, a drug screen and submit the required health records prior to starting the program.

## Graduate

- MS in Dietetics (p. 653)

The Coordinated Program in Dietetics (<http://nep.missouri.edu/dietetics.html>) (CP) at the University of Missouri has a rich tradition. Established in 1972, it is among the oldest accredited coordinated programs in the United States. The program is accredited by the Accreditation Council for Education in Nutrition and Dietetics of the Academy of Nutrition and Dietetics and is approved for accreditation through 2024.

The Coordinated Program in Dietetics prepares students to become **Registered Dietitian/Nutritionists (RD/N)**. RDNs specialize in applied nutrition and work in a variety of practice settings, such as hospitals and clinics, schools, business and industry, private practice, and public health clinics. Upon completion of the program, students are eligible to take the national Registered Examination for Dietitians (RD Exam). The four-year pass rate for first-time test takers is 98%.

This degree is a non-thesis Master of Science Coordinated Program in Dietetics which offers a concentration in Medical Nutrition Therapy. In our coordinated program both the didactic coursework and field work/supervised practice experience are conducted simultaneously. It is a combined BS/MS program with application and acceptance occurring at the undergraduate level. It is not a stand-alone master's program, nor does it offer a didactic only program.

The master's degree is only for students who have been accepted into the Coordinated Program in Dietetics. See BS in Nutrition and Exercise Physiology with Emphasis in Nutrition and Foods (p. 677) for application information and criteria to apply.

After acceptance to the program, students must successfully complete 2 years of coursework at the undergraduate level, at that time they will receive their bachelor's degree in Nutrition and Exercise Physiology with an emphasis in Nutrition and Foods. If all requirements for the program are met, the student will transition seamlessly into the graduate program. Requirements for continuation during the master's year will be posted on the Nutrition and Exercise Physiology website (<http://ns.missouri.edu/>).

Upon completion of their final year in the program, students will receive a Masters in Dietetics. At that time, they will have completed all coursework and supervised practice within the Coordinated Program. Both are needed in order to receive their verification statement. In addition, both the BS and MS must be conferred as evidenced by their MU transcripts to be eligible to receive the verification statement. This statement is required for students to be eligible to take the National Registration Examination for Dietitians.

## MS in Dietetics

### Degree Requirements

The Coordinated Program in Dietetics requires a minimum of 30 hours of graduate courses in the program. Students must maintain a 3.0 GPA to remain in the program. This program is not a stand alone master's program, it is part of a BS + MS program. The first two years are prerequisites for admission and the last three years are in the Coordinated Program in Dietetics. Within the three years, students complete their BS in Nutrition and Exercise Physiology with an emphasis in Nutrition and Food, and then the final year earn a Masters in Dietetics.

Below are listed the graduate courses to complete the MS portion of the program.

All graduate level courses require a minimum grade of B.

HMI 7566	Health Informatics Ethics	3
P_HLTH 8300	Health Care in the United States	3
NEP 7380	Medical Nutrition Therapy II	3
NEP 7381	Nutrition Therapy II: Supervised Practice Experience	4
NEP 7385	Professional Development I	1
NEP 7390	Professional Development II	1
NEP 8340	Nutrition in Human Health	3
NEP 8380	Medical Nutrition Therapy III	2
NEP 8975	Dietetics Supervised Practice Experience	10

### Sample Plan of Study

The following courses are required for this degree. Changes in course requirements may occur, as the program is required to meet the accreditation standards.

First Year			
Fall	CR	Spring	CR
BIO_SC 1500 or 1010 <i>and</i> 1020	5	ENGLISH 1000	3
GN_HES 1100	1	CHEM 1320	4
MATH 1100	3	HLTH_SCI 1000	3
PSYCH 1000	3	Hist. or Pol Sc	3
HES Foundation Course (recommend HDFS 1600 or 1610 or 2400 or 2400W)	3	Humanities (recommend PHIL 1150 or PHIL 2440)	3
		15	16

Second Year			
Fall	CR	Spring	CR
CHEM 2030 or 2100	3	BIOCHM 3630 or 4270 (B- or better required)	3
CHEM 2130	2	CDS 2190	3
MPP 3202	5	COMMUN 1200	3
NEP 2380	3	NEP 1995	3
HES Foundation Course (recommend FINPLN 2183)	3	NEP 2340 (B- or better required)	3
		16	15

Third Year					
Fall	CR	Spring	CR	Summer	CR
F_S 4310	4	ESC_PS 4200 or PSYCH 3830	3	ESC_PS 4170	3
NEP 3360	2	MANGMT 3000	3	NEP 3400	1
NEP 4340	3	NEP 2450	3	NEP 3590	1
NEP 4360	3	NEP 3290	1		
NEP 4590	3	NEP 3390	2		
		NEP 4280	3		
		15	15		5

Fourth Year			
Fall	CR	Spring	CR
MPP 4204	4	PTH_AS 2201	3
NEP 4290	2	NEP 3370	3

NEP 4950	2	NEP 4370	3	
Professional Elective	3	NEP 4951	1	
Humanities (should be a WI course if not completed previously)	3	NEP 8340	3	
			General Elective	1
			14	14

Fifth Year			
Fall	CR	Spring	CR
HMI 7566	3	NEP 7390	1
P_HLTH 8300	3	NEP 8380	2
NEP 7380	3	NEP 8975	10
NEP 7381	4		
NEP 7385	1		
		14	13

Total Credits: 152

### Thesis/Non-Thesis Requirements

This is a professional program and will not require a Thesis, but will require a comprehensive exam.

### Admissions

This degree is only for students accepted into the Coordinated Program in Dietetics and who have completed their first two years in the actual program. These students will have earned a bachelors degree in Nutrition and Exercise Physiology with an emphasis in Nutrition and Foods. Application information and criteria on how to apply can be found at [http://nep.missouri.edu/nutrition\\_foods.html](http://nep.missouri.edu/nutrition_foods.html) (<http://nep.missouri.edu/dietetics.html>) for application information and criteria.

Requirements for program continuation during the master's year will be posted on the Nutrition and Exercise Physiology website (<http://ns.missouri.edu/>).

### Fitness Programming and Management

#### Department of Nutrition and Exercise Physiology

**Chair:** Christopher Hardin  
204 Gwynn Hall; Phone:(573) 882-4288  
[hardinc@missouri.edu](mailto:hardinc@missouri.edu)  
<http://nep.missouri.edu> (<http://ns.missouri.edu/>)

#### Fitness Programming and Management Program

**Coordinators:** Steve Ball and Dan Smith  
106 Mckee  
email: [ballsd@missouri.edu](mailto:ballsd@missouri.edu) Phone: (573) 882-2334  
email: [smithdanalan@missouri.edu](mailto:smithdanalan@missouri.edu) Phone: (573) 882-9827

#### Advising Contact

Tammy Conrad, Senior Academic Advisor  
201 Gwynn Hall; Phone:(573) 882-6424  
[conradt@missouri.edu](mailto:conradt@missouri.edu)

#### HES of Office Undergraduate Academic Programs and Student Success

Catherine Peterson, Associate Dean  
106 Gwynn Hall; Phone:(573) 882-6424  
[HESStudentSuccess@missouri.edu](mailto:HESStudentSuccess@missouri.edu)

<http://hes.missouri.edu>

## Faculty

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**Associate Teaching Professor** J. Bean\*, D. Smith

**Teaching Assistant Professor** S. Buckallew, M. Raedeke\*,

**Adjunct Faculty** F. W. Booth\*, J. A. Ibdah\*\*, D. Lubahn\*\*, F. Nassir\*\*, M. Milanick, L. Pulakat\*\*, S. Sayers

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\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BS in Fitness Programming and Management (p. 655)

### This program is scheduled to start in the Fall of 2021

This program is designed as a 100% online degree program leading to a BS in Fitness Programming and Management. This degree is designed for students who are interested in fitness and program management, but do not wish or are unable to be on campus. It is a good option for both traditional and non traditional students, including those in the military.

The program is housed within the Department of Nutrition and Exercise Physiology at the University of Missouri. The department's mission is to improve the health of Missourians and the larger population through research, teaching, and outreach related to nutrition and physical activity. We strive to be a diverse set of leaders, innovators, and educators who promote improved human health through our focus on nutrition and physical activity.

The Bachelor of Science in Fitness Programming and Management provides students with the knowledge and skills to assist individuals across the lifespan in adopting physical activity, exercise, and other healthy behaviors that lead to increased fitness, wellness and optimal health. Students are prepared to pursue national certifications provided by professional organizations in fields of study related to exercise, strength and conditioning, and sports medicine. Graduates will be experts at teaching exercise to most populations.

Upon completion of this academic program and as part of the student's capstone project, the student will be required to sit for, and pass, the ACSM Personal Training Certification. Additionally, a Minor in Business is built into the program, preparing students for a variety of jobs in the fitness industry and beyond.

## Graduate

Currently there is not a graduate degree in Fitness Programming and Management. Please see Nutrition and Exercise Physiology (p. 675) for similar degree programs.

## BS in Fitness Programming and Management

### Degree Program Description

The Bachelor of Science in Fitness Programming and Management provides students with the knowledge and skills to assist individuals across the lifespan in adopting physical activity, exercise, and other healthy behaviors that lead to increased fitness, wellness and optimal health. Students are prepared to pursue national certifications provided by professional organizations in fields of study related to exercise, strength and conditioning, and sports medicine. Graduates will be experts at teaching exercise to most populations. Additionally, students will complete the coursework needed to earn a Minor in Business preparing them for a variety of jobs in the fitness industry and beyond.

Information on the minor, courses, grades and other qualifications to earn the minor can be found at: <https://business.missouri.edu/programs-admissions/undergraduate/business-administration/minors-and-certificates/business-minor> (<https://business.missouri.edu/programs-admissions/undergraduate/business-administration/minors-and-certificates/business-minor/>)

Learning objectives:

- Skills in designing, implementing, administering and evaluating effective exercise/health promotion programs in private, work-site, community, health care, medical, and agency settings.
- Foundational knowledge in fitness, exercise, and physical activity.
- Methods for helping people make healthy behavior changes and lessen unhealthy behaviors.
- Competencies required to be qualified to take a national certification from the American College of Sports Medicine as a Certified Personal Trainer (ACSM-CPT) or Group Exercise Instructor (ACSM-GEI).

Students who earn a degree in Fitness Programming and Management often pursue careers in fitness centers, college and university wellness and health promotion, community health agencies, fitness manufacturing companies, hospitals and medical facilities, insurance companies, nonprofit disease prevention agencies, private health care organizations, schools, state and county health departments, wellness centers, and work-site wellness and health promotion.

### Major Program Requirements

This program is designed as a 100% online degree program leading to a BS in Fitness Programming and Management and requires a minimum of 120 total credit hours to complete. General Education requirements and approved courses from other institutions and entities may be transferred for credit, these will be evaluated by admissions and the department for equivalency. Upon completion of this academic program and as part of the student's capstone project, the student will be required to sit for, and pass, the ACSM Personal Training Certification.

Students must complete all university requirements (p. 35), including general education (p. 36), and those of the College of Human



Environmental Sciences (p. 641) in addition to the degree requirements below.

**Core Requirements**

ACCTCY 2010 or ACCTCY 2026	Introduction to Accounting Accounting I	3
ECONOM 1014 or ABM 1041	Principles of Microeconomics Applied Microeconomics	3
FINANC 2000 or FINANC 3000	Survey of Business Finance Corporate Finance	3
MANGMT 3000	Principles of Management	3
MRKTNG 3000	Principles of Marketing	3
NEP 1034	Introduction to Human Nutrition	3
NEP 1340	Introduction to Exercise and Fitness	3
NEP 1485	Career Exploration in Exercise Science	1
NEP 2140	Exercise Practicum I	3
NEP 2380	Diet Therapy for Health Professionals	3
NEP 2450	Nutrition Throughout the Life Span	3
NEP 3450	Activity Throughout the Lifespan	3
NEP 3550	Corporate, Community, and Personal Fitness	3
NEP 3820	Kinesiology	3
NEP 4200	Sports Performance and Conditioning	3
NEP 3XXX Eating to Win (pending course)		3
NEP 3XXX Exercise & Fitness II (pending course)		3
NEP 4XXX Capstone (pending course)		5
Business Course 3000-level or higher		3

**Supporting Coursework**

BIO_SC 1010	General Principles and Concepts of Biology	3
BIO_SC 1020	General Biology Laboratory	2
CHEM 1000	Introductory Chemistry	2
COMMUN 1200	Public Speaking	3
ESC_PS 4200	Positive Psychology	3
MPP 3500	Introduction to Human Physiology	3
PTH_AS 2201	Human Anatomy Lecture	3
PRST 2281	Business of Sport and Recreation	3
STAT 1200	Introductory Statistical Reasoning	3

Electives to reach 120 credits needed for graduation.

**Semester Plan**

**First Year**

Fall	CR	Spring	CR
BIO_SC 1010		3 POL_SC 1100	3
BIO_SC 1020		2 CHEM 1000	2
HES Foundation		3 ENGLSH 1000	3
MATH 1050 or 1100		3 NEP 1485	1
NEP 1340		3 NEP 1034	3
		Humanities	3
		14	15

**Second Year**

Fall	CR	Spring	CR
ECONOM 1014 or ABM 1041		3 ACCTCY 2010 or 2026	3
COMMUN 1200		3 MPP 3500	3
NEP 2380		3 NEP 2140	3
PTH_AS 2201		3 NEP 3450	3

Social/Behavioral Science WI	3 Social/Behavioral Science	3
		15

**Third Year**

Fall	CR	Spring	CR
HES Foundation		3 FINANC 2000 or 3000	3
Humanities		3 NEP 2450	3
MRKTNG 3000		3 NEP 4200	3
NEP 3550		3 NEP 3xxx being developed	3
STAT 1200		3 PRST 2281	3
		15	15

**Fourth Year**

Fall	CR	Spring	CR
NEP 3820		3 NEP 4xxx Capston being developed	5
NEP 4xxx being developed		3 Business 3000+ Course	3
ESC_PS 4200		3 NEP 3xxx being developed	3
MANGMT 3000		3 Electives	4
Electives		4	
		16	15

Total Credits: 120

**Human Development and Family Science**

**Department Chair**

**Professor**

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#### Initial Advising Contact

HES Student Services Office  
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hesstudentservices@missouri.edu  
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#### Scholarship Information Contact

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## Faculty

**Professor** - B. Lohman\*\*

**Associate Professor** - J. Benson\*\*, S. Killoren\*\*, A. Landor\*\*, L. Manfra\*\*, F. Palermo\*\*, C. Proulx\*\*, R. Ravert\*\*, D. Rudy\*\*

**Assistant Professor** - T. Bordere\*\*, C. Garneau-Rosner\*\*, J. K. Monk\*\*, R. Thibodeau-Nielsen\*\*

**Associate Teaching Professor** A. Lester\*, M. Mathews\*

**Assistant Research Professor** M. Herzog\*

**Instructor** - N. Hager\*, K. Warzinik

**Child Development Laboratory Instructor** - E. Geyer

**Child Development Teachers** - E. Angst, M. Ditto, L. Sapp

**Child Development Associate Sr.** - S. L. Garton, J. A. Moore, E. Morrow, C. Shanks, L. Ferguson

**Child Development Associate** - L. Hays, A. Lobb

**Child Development Assistant** - V. Davis

**Child Development Aide** - F. Geyer

**Adjunct Affiliated Faculty** A. Ball, L. Driskal-Hawxby, R. Feistman\*, C. Hollestelle, R. Horstmeier, R. Johnson, K. Wallace, S. Wright, L. Waint

**Chancellor's Professor Emeritus** L. Ganong\*

**Curators Professor Emerita** M. Coleman\*

**Professor Emerita** J.M. Ispa\*, K. Thornburg\*

**Professor Emeritus** S.R. Jorgensen\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BS in Human Development and Family Science (p. 658)
  - with emphasis in Child Development and Education (p. 658)
  - with emphasis in Child Life Specialist (p. 659)
  - with emphasis in Early Childhood Education in a Mobile Society (p. 661)
  - with emphasis in Family and Consumer Sciences Education (p. 662) (Not Accepting Applications)
  - with emphasis in Family and Lifespan Development (p. 662)
- Minor in Human Development and Family Science (p. 664)

The Department of Human Development and Family Science (HDFS) offers a BS in Human Development and Family Science, which combines basic understanding of human development with preparation for professional service to individuals and families. Career opportunities are primarily found in human service agencies serving children, adolescents,

older adults, parents and families. The human development and family science major also prepares the student for graduate study in HDFS and related fields. Students in the HDFS major must select one of the emphasis areas listed above. (Note: Emphasis areas appear on transcripts but not on diplomas.)

## Graduate

- MA in Human Development and Family Science (p. 665)
  - with emphasis in Family and Community Services (p. 666)
  - with emphasis in Gerontology (p. 667)
  - with emphasis in Youth Development (p. 667)
- MS in Human Development and Family Science (p. 668)

#### Director of Graduate Studies

Ashlie Lester

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The College of Human Environmental Sciences offers a PhD in Human Environmental Sciences with emphasis in Human Development and Family Studies (p. 671). They also offer Graduate Certificates in related areas: Youth Development Specialist (p. 710), Youth Development Program Management and Evaluation (p. 709), and [Gerontology](#).

Our department has nationally recognized faculty whose research productivity consistently has been ranked in the top 5% of the 235 family studies programs across the country. We actively prepare our students to become successful academic scholars both in terms of research and teaching. The range of careers for which we prepare our students is unparalleled. Our graduates have found success in academia (they are faculty at all ranks at all levels of institutions), administration, program evaluation, and program development. We have developed an outstanding reputation as a place to study individual and family diversity and multiculturalism across the life course. Because we define multiculturalism broadly, our focus is on the multitude of ways that individuals and families may differ, including but not limited to race, ethnicity, socioeconomic status, age, gender, family structure, nationality, geographic location, and sexual orientation.

#### Financial Aid from the Department

All applicants for the on-campus program are automatically considered for assistantships, fellowships, and other funding packages. Check the HDFS website or ask the program contact for additional details.

#### About the Master's Degrees

The Department of Human Development and Family Science (HDFS) offers Master of Arts (applied emphasis) and Master of Science (research emphasis; on-campus only) degrees. The MA and MS degrees prepare students for positions in junior college or college teaching and leadership in public and private human services institutions. The MS degree also provides research training toward the PhD degree.

#### Areas of Study

On-campus students create an individualized plan of study that includes theory, research methods, family diversity, and capstone courses. We also offer a dual-degree program in HDFS and the School of Law. Online students may select an MA specializing in family and community services

#### Master's Plan of Study Options

Programs are structures to provide students with an integration of theoretical perspectives, empirical research training, and practical experiences. The number of hours required for each master's degree is as follows:

Child Life: 30 (fast track) or 36 hours

Dual MS or MA and JD: approximately 113 hours

Family and Community Services: 36 hours

Gerontology: 36 hours

Human Development and Family Science: 36 hours

Youth Development: 36 hours

**About the Online Certificate Programs**

HDFS offers three online graduate certificates with specialization in youth development specialist (13 hours), youth development program management and evaluation (13 hours), and gerontology (15 hours).

## BS in Human Development and Family Science

### Degree Program Description

The Human Development and Family Science program is developed from a foundation of human development and family science courses. It is essential for the student working with children, adolescents or adults to understand and to be able to maximize the resources offered by the family. It is equally important for the student concerned with the quality of family life to recognize the intricate spiral of changing needs in the growing individual.

### Major Program Requirements

A students must choose an emphasis area and complete a minimum of 120 credit hours to receive the degree.

Majors in all of the emphasis areas in HDFS must complete the core courses below and additional course requirements (including General Education (p. 36) courses and Requirements in Related Areas) specific to each emphasis area. Requirements for each emphasis area are listed on their respective catalog pages: Child Development and Education (p. 658), Child Life Specialist (p. 659), Early Childhood Education in a Mobile Society (p. 661), Family and Consumer Sciences Education (p. 662), and Family and Lifespan Development (p. 662).

Students must achieve a grade of C (2.0) in all HDFS courses taken to meet degree requirements.

Major Program Requirements		16
H_D_FS 1600	Foundations of Family Science <sup>1</sup>	3
H_D_FS 2200	Research Methods in Human Development and Family Science <sup>2</sup>	3
H_D_FS 2300	Multicultural Study of Children and Families	3
H_D_FS 2400W	Principles of Human Development - Writing Intensive <sup>3</sup>	4
or H_D_FS 2400	Principles of Human Development	
H_D_FS 3150W	Child Development 4-8 (Early Childhood) - Writing Intensive	3

- <sup>1</sup> H\_D\_FS 1600 should be taken before H\_D\_FS 2300 and any 3000/4000-level H\_D\_FS course.
- <sup>2</sup> Statistics is recommended prior to H\_D\_FS 2200. Consult with advisor for appropriate course options.
- <sup>3</sup> Some HDFS students may be able to select H\_D\_FS 2400 (non-WI) Student should consult with academic advisor prior to course enrollment for appropriate course selection.

Child Development Laboratory Courses such as H\_D\_FS 3500, H\_D\_FS 3700, and H\_D\_FS 4971 have pre/co-requisites and require the consent of the instructor. Because enrollment may be limited, students must see the assigned HDFS academic advisor to be placed on an enrollment permission list. Students in the Family and Lifespan Development emphasis may substitute another practicum experience with consent of department advisor.

In addition to the required core courses listed above, the degree program is completed with courses selected from within the department, from other areas in the College of Human Environmental Sciences, and from the social sciences and allied professional fields such as education, recreation, business and health. For some students, courses in the arts, humanities, or biological sciences may be appropriate.

### Background Checks, Health Screenings and Other Required Elements:

It is essential that HDFS majors develop professional relationships with vulnerable populations, thus during the course of the degree program, and prior to beginning any practical or clinical education experience, students may be required to:

- pass multiple criminal background checks
- pass mandatory drug screens
- pass other qualification checks required by the practical or clinical education sites
- provide proof of health insurance coverage
- provide proof of required immunizations
- provide proof of student professional liability insurance coverage

The student is responsible for all costs incurred with these requirements. Failure to provide appropriate documentation, or pass required checks prior to the beginning of practical or clinical experiences may result in dismissal from the degree program in HDFS.

### Semester Plan

The BS in Human Development and Family Science has emphasis areas in Child Development and Education (p. 658), Child Life Specialist (p. 659), Early Childhood Education in a Mobile Society (p. 661), Family and Consumer Sciences Education (p. 662), and Family and Lifespan Development (p. 662). Please see the individual emphasis area pages for semester plans specific to the emphasis area.

## BS in Human Development and Family Science with Emphasis in Child Development and Education

### Degree Program Description

The Child Development and Education emphasis provides instruction and experiences to help students gain competence in understanding,

guiding, and teaching young children. Coursework includes hands-on learning through the Child Development Lab, a full-day, full-year teacher-training lab school located on the MU campus. Graduates are prepared for positions of responsibility and leadership in public and private nursery schools, child care centers, infant-care programs, after-school programs, and other educational and social service facilities for children. Additional job opportunities include group homes, shelters, child care and provider training agencies, Parents as Teachers, and YMCA/YWCA.

## Major Program Requirements

Students must complete all university requirements (p. 35), including general education (p. 36), in addition to the degree requirements below, and must achieve a grade of C (2.0) in all HDFFS courses taken to meet degree requirements. A minimum of 120 credit hours must be completed.

### A. Requirements in H D FS

H_D_FS 1600	Foundations of Family Science <sup>1</sup>	3
H_D_FS 2200	Research Methods in Human Development and Family Science <sup>2</sup>	3
H_D_FS 2300	Multicultural Study of Children and Families	3
H_D_FS 2400W	Principles of Human Development - Writing Intensive	4
H_D_FS 2510	Observation, Assessment, and Curriculum Planning	4
H_D_FS 3050	Child Development: Birth to 3 (Infant/Toddler)	3
H_D_FS 3150W	Child Development 4-8 (Early Childhood) - Writing Intensive	3
H_D_FS 3450	Health, Safety and Nutrition	3
H_D_FS 3500	Infant-Toddler Practicum	6
H_D_FS 3600	Partnering with Parents and Families	3
H_D_FS 3700	Preschool Practicum	6
H_D_FS 4420	Environmental Influences on Lifespan Cognition	3
H_D_FS 4570	Administration of Programs for Children and Families	3
H_D_FS 4610	Stress and Resilience in Families	3
or H_D_FS 4700	Children and Families in Poverty	
H_D_FS 4720	Child and Family Advocacy	3
H_D_FS 4971	Child Development and Education Capstone	9

### B. Requirements in Related Areas

FINPLN 2183	Personal and Family Finance	3
NEP 1034	Introduction to Human Nutrition	3
PSYCH 1000	General Psychology	3
SOCIOL 1000	Introduction to Sociology	3
SPC_ED 4300	Introduction to Special Education	3

### C. Supporting Coursework - Choose courses from HDFFS and related areas. See HDFFS academic advisor for list of appropriate supporting courses.

Supporting Coursework	3
Supporting Coursework	3
Supporting Coursework	3

### D. General Electives 4-6

<sup>1</sup> H\_D\_FS 1600 should be taken before H\_D\_FS 2300 AND any 3000/4000-level H\_D\_FS course.

<sup>2</sup> Statistics is *recommended* prior to H\_D\_FS 2200. Consult with advisor for appropriate course options.

## Semester Plan

A semester-by-semester sample plan of study is listed below. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
GN_HES 1100		1 Math Pathway	3
ENGLSH 1000		3 H_D_FS 2400W	4
H_D_FS 1600		3 Bio Science w/ lab	5
PSYCH 1000		3 SOCIOL 1000	3
Humanities		3	
General Elective		3	
		16	15

Second Year			
Fall	CR	Spring	CR
COMMUN 1200		3 H_D_FS 2200	3
H_D_FS 3050		3 H_D_FS 2300	3
H_D_FS 3450		3 H_D_FS 2510	4
Humanities		3 H_D_FS 3150W	3
Gen Ed PHYS or MATH Science		3 NEP 1034 or 2222	3
		15	16

Third Year			
Fall	CR	Spring	CR
H_D_FS 3500		6 General Elective	3
American History or Government		3 H_D_FS 4610 or 4700	3
H_D_FS 4420		3 H_D_FS 3700	6
Supporting Course		3 FINPLN 2183	3
		15	15

Fourth Year			
Fall	CR	Spring	CR
H_D_FS 3600		3 H_D_FS 4971	9
H_D_FS 4570		3 H_D_FS 4720	3
SPC_ED 4300		3 Science	1
Supporting Course		3	
Supporting Course		3	
		15	13

Total Credits: 120

## BS in Human Development and Family Science with Emphasis in Child Life Specialist

### Degree Program Description

The Child Life Specialist emphasis prepares students to support child development and family coping within the context of pediatric illness, injury, medical treatment, and grief in a variety of health care and community settings. Child life specialists use therapeutic play, psychological preparation, and coping skills interventions to help reduce the anxiety and stress related to illness, disability, hospitalization and medical procedures. Through a family-centered care approach, they provide parents and other family members reassurance and emotional

support, help them understand psychosocial needs, and provide tools to help them prevent or minimize psychological trauma. Courses focus on understanding normal and exceptional child and family development, effective methods of working with children and families, as well as integration of theory and research into hands-on clinical practice experiences. In addition to a 100-hour practicum experience (selection is on a competitive, space-available basis) at MU's Children's Hospital, the student's last semester is spent off-campus completing a 600-hour, unpaid clinical internship in a pediatric hospital setting. Students who successfully complete the degree program are eligible to take the Child Life Professional Certification Exam presented by the Child Life Certification Commission (CLCC).

## Major Program Requirements

This academic emphasis requires that students successfully complete child life volunteer, practicum, and clinical internship experiences to attain this degree, as well as be eligible to take the Child Life Professional Certification Examination to obtain the CCLS credential after graduation. Clinical education sites require that students provide proof of health insurance, up-to-date immunizations, and student professional liability insurance. Students must also pass mandatory drug screens, criminal background checks, and any other required qualification checks prior to beginning any clinical education experience in child life. **Failure to provide appropriate documentation, or pass drug screens and criminal background checks prior to the beginning of these experiences may necessitate dismissal from the child life emphasis in HDFS. The student is responsible for all costs incurred with these qualification checks.**

**Students must complete all university requirements (p. 35), including general education (p. 36), in addition to the degree requirements below, and must achieve a grade of C (2.0) in all HDFS courses taken to meet degree requirements.**

A. Requirements in HDFS		74-77
H_D_FS 1600	Foundations of Family Science <sup>1</sup>	3
H_D_FS 2200	Research Methods in Human Development and Family Science <sup>2</sup>	3
H_D_FS 2250	Child Life Volunteer Experience <sup>3</sup>	1
H_D_FS 2300	Multicultural Study of Children and Families	3
H_D_FS 2400W	Principles of Human Development - Writing Intensive	4
H_D_FS 3050	Child Development: Birth to 3 (Infant/Toddler)	3
H_D_FS 3150W	Child Development 4-8 (Early Childhood) - Writing Intensive	3
H_D_FS 3430	Adolescence and Young Adulthood	3
H_D_FS 3500	Infant-Toddler Practicum	6
H_D_FS 3600	Partnering with Parents and Families	3
H_D_FS 3700	Preschool Practicum	6
H_D_FS 3800	Children's Play	3
H_D_FS 4100	Children in Healthcare Settings	3
H_D_FS 4110	Child Life Theory and Practice	3
H_D_FS 4130	Child Life Practicum <sup>4</sup>	3
H_D_FS 4400	Childhood Death and Bereavement	3
H_D_FS 4700	Children and Families in Poverty	3
or H_D_FS 4720	Child and Family Advocacy	
Supporting Coursework - See advisor for list of course options		3-6

H_D_FS 4993	Internship in Human Development and Family Science <sup>5</sup>	15
<b>B. Requirements in Related Areas</b>		<b>15</b>
CDS 2190	Medical Terminology	3
COMMUN 1200	Public Speaking	3
or COMMUN 3571	Group Decision Making Processes	
or COMMUN 3575	Business and Professional Communication	
FINPLN 2183	Personal and Family Finance	3
NEP 1034	Introduction to Human Nutrition	3
PHIL 2440	Medical Ethics <sup>6</sup>	3
or PHIL 1150	Introductory Bioethics	
or PHIL 2400	Ethics and the Professions	
PSYCH 1000	General Psychology	3
PTH_AS 2201	Human Anatomy Lecture	3
PTH_AS 2203	Human Anatomy Laboratory	2
SOCIOL 1000	Introduction to Sociology	3

- H\_D\_FS 1600 should be taken before H\_D\_FS 2300 and any 3000/4000-level H\_D\_FS course.
- Statistics is *recommended* prior to H\_D\_FS 2200/H\_D\_FS 2200. Consult with advisor for appropriate course options.
- Should be completed no later than the 2nd semester of Sophomore year.
- Students are admitted to H\_D\_FS 4130 on a competitive, space-available basis.** Interview applications are considered the semester before the student wishes to take H\_D\_FS 4130. Student must have attained a 3.2 CUM GPA to be eligible to interview, in addition to completing coursework requirements. See the HDFS Child Life academic advisor for more information.
- Students are admitted to H\_D\_FS 4993 **only after successful completion of all other coursework including a grade of B (3.0) or higher in H\_D\_FS 4130.** Students must be selected by hospitals outside of Columbia through a student-initiated, competitive nationwide application process
- PHIL 2440 is preferred for child life certification eligibility purposes.

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
ENGLSH 1000		3 H_D_FS 2300	3
GN_HES 1100		1 H_D_FS 2400W	4
H_D_FS 1600		3 SOCIOL 1000	3
Math Pathway		3 History or Political Science	3
PSYCH 1000		3 Gen Ed PHYS or MATH Science	1-3
		13	14-16
Second Year			
Fall	CR	Spring	CR
COMMUN 1200		3 CDS 2190	3
H_D_FS 2250		1 H_D_FS 2200	3
H_D_FS 3050		3 H_D_FS 3150W	3
NEP 1034		3 H_D_FS 3500	6
PTH_AS 2201		3 PTH_AS 2203	2

Humanities	3	
	16	17

Third Year			
Fall	CR	Spring	CR
H_D_FS 3700		6 H_D_FS 3430	3
H_D_FS 3800		3 H_D_FS 4110	3
H_D_FS 4100		3 H_D_FS 4130	3
PHIL 2440		3 H_D_FS 4400	3
		H_D_FS 4700 or 4720	3
			15

Fourth Year			
Fall	CR	Spring	CR
FINPLN 2183		3 H_D_FS 4993	15
H_D_FS 3600		3	
Supporting Coursework		3	
Supporting Coursework		3	
Supporting Coursework/General Elective		1-3	
			13-15
			15

Total Credits: 118-122

# BS in Human Development and Family Science with Emphasis in Early Childhood Education in a Mobile Society

## Degree Program Description

This online bachelor's of science degree prepares students to work in the field of early childhood education. This program emphasizes the following areas: Child development, growth, and learning; Early education curricula and frameworks; Learning activities, technology use, and other experiences for young children; Family and community influences on children; Challenges facing families in today's world; Assessment of children and environments; Professional and ethical standards; Hands-on experiences and clinical practice. Upon completion of the program, students are qualified to work in various early education and care settings serving children from birth through eight years in a wide variety of community and military settings, including early education centers and preschools, family and home care settings, Head Start and Early Head Start programs, and before/after school programs.

## Major Program Requirements

The program is offered by Human Development and Family Science faculty in conjunction with other university partners as part of the Great Plains IDEA. Interested applicants will apply for admission to this program through the undergraduate admissions office at the University of Missouri and to the Department of Human Development and Family Science. Courses will be taught by University of Missouri faculty and by scholars from other Great Plains IDEA institutions, including Iowa State University, Michigan State University, Oklahoma State University, South Dakota State University, Texas Tech University, and University of Nebraska-Lincoln. Your degree will be awarded by the University of Missouri. Students in the Early Childhood Education in a Mobile Society program have amended College of Human Environmental Sciences course requirements due to the availability of online course options.

**Students must complete all university requirements (p. 35), including general education (p. 36), in addition to the degree requirements below, and must achieve a grade of C (2.0) in all HDFS courses taken to meet degree requirements.**

A. Requirements in HDFS		
H_D_FS 1600	Foundations of Family Science <sup>1</sup>	3
H_D_FS 2200	Research Methods in Human Development and Family Science <sup>2</sup>	3
H_D_FS 2300	Multicultural Study of Children and Families	3
H_D_FS 2400	Principles of Human Development	3
H_D_FS 3050	Child Development: Birth to 3 (Infant/Toddler)	3
H_D_FS 3150	Child Development 4-8 (Early Childhood)	3
H_D_FS 3250	Introduction to Early Childhood Education in a Mobile Society	3
H_D_FS 3350	Child Guidance and Classroom Environments	3
H_D_FS 3450	Health, Safety and Nutrition	3
H_D_FS 3550	Technology and Young Children	3
H_D_FS 3650	Diversity in the Lives of Young Children and Families	3
H_D_FS 3750	Working with Families	3
H_D_FS 3950	Practicum I: Child Observations in Classroom Environment	3
H_D_FS 4150	Development of Curriculum for Children Ages Birth to 3	3
H_D_FS 4250	Development of Curriculum for Children 4-8	3
H_D_FS 4350	Assessing Young Children and their Environments	3
H_D_FS 4450	Understanding and Adapting for Developmental Differences	3
H_D_FS 4550	Practicum II: Curriculum Development and Implementation	3
H_D_FS 4650	Administration/Supervision in Early Childhood Settings	3
H_D_FS 4750	Practicum III: Capstone Experience	6

B. Requirements in Related Areas		
FINPLN 2183	Personal and Family Finance	3
Upper-Level (3000+) Writing Intensive Course	- see HDFS advisor for list of approved courses	3

<sup>1</sup>H\_D\_FS 1600 should be taken before H\_D\_FS 2300 and any 3000/4000-level H\_D\_FS course.

<sup>2</sup>Statistics is recommended prior to H\_D\_FS 2200. Consult with advisor for appropriate course options.

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year					
Fall	CR	Spring	CR	Summer	CR
ENGLSH 1000 <sup>1</sup>		3 H_D_FS 2300		3 FINPLN 2183	3
H_D_FS 1600		3 Gen ED Science		3	
H_D_FS 2400		3 Humanities		3	

American History or Government	3	General Elective	3		
Math Pathway	3				
	15		12		3
<b>Second Year</b>					
<b>Fall</b>	<b>CR</b>	<b>Spring</b>	<b>CR</b>	<b>Summer</b>	<b>CR</b>
H_D_FS 2200	3	H_D_FS 3150	3	H_D_FS 3450	3
H_D_FS 3050	3	H_D_FS 3650	3	H_D_FS 3750	3
H_D_FS 3250	3	Humanities	3		
H_D_FS 3550	3	Humanities	3		
Lower Level Writing Intensive <sup>1</sup>	3	Gen Ed PHYS or MATH Science	3		
	15		15		6
<b>Third Year</b>					
<b>Fall</b>	<b>CR</b>	<b>Spring</b>	<b>CR</b>	<b>Summer</b>	<b>CR</b>
H_D_FS 3950	3	H_D_FS 3350	3	H_D_FS 4250	3
H_D_FS 4150	3	H_D_FS 4350	3	H_D_FS 4650	3
H_D_FS 4450	3	3000+ level Writing Intensive <sup>1</sup>	3		
Gen Ed BIO or PHYS Science w/ lab	3	General Elective	3		
	12		12		6
<b>Fourth Year</b>					
<b>Fall</b>	<b>CR</b>	<b>Spring</b>	<b>CR</b>		
H_D_FS 4550	3	H_D_FS 4750	6		
General Elective	3	General Elective	3		
General Elective	3	General Elective	3		
General Elective	3				
	12		12		

Total Credits: 120

## Applying

To be eligible for enrollment in the 3000-level program requirements, students must earn a 2.5 GPA in at least 30 credit hours and complete H\_D\_FS 2400 or an equivalent lifespan development course.

For information about applying to this program, visit Mizzou Online (<http://online.missouri.edu/degreeprograms/human-environmental-sciences/early-childhood-in-mobile-society/bachelors/>).

## Contact Information

Please contact the Human Environmental Sciences Student Services office at HESstudentservices@missouri.edu or Ehren Oncken, the undergraduate enrollment counselor at Mizzou Online, at (800) 609-3727, with questions about this program.

# BS in Human Development and Family Science with Emphasis in Family and Consumer Sciences Education

Our department is no longer admitting students to this emphasis area. We invite you to explore the other undergraduate degree options within Human Development and Family Science (p. 657).

## Degree Program Description

Family and Consumer Sciences Education emphasis, prepares students to teach family and consumer sciences from birth to grade 12 in public schools. Students take required coursework in nutrition, child development, interpersonal relationships, personal finance, interior design, consumer behavior and courses from the College of Education required to become a certified teacher for middle school or high school.

## Major Program Requirements

This academic emphasis requires that students successfully complete field experiences and a student teaching internship. Public schools require that students provide proof of up-to-date immunizations and professional liability insurance. Criminal background checks and other qualifications may be required depending on the school.

Due to changes from the Missouri Department of Elementary and Secondary Education (DESE) that affect certification beginning in 2017, new students are not being accepted into this program at this time.

## Semester Plan

There is not a semester plan built for this emphasis area.

# BS in Human Development and Family Science with Emphasis in Family and Lifespan Development

## Degree Program Description

In the Family and Lifespan Development emphasis, students become familiar with theory and research about families and individuals across the lifespan. Coursework focuses on bio-psycho-social development, family functioning, and interpersonal relationships in relevant settings such as at home, in child care, at school, and in the work place. Diversity is emphasized through examining multicultural families and diverse family structures and processes, and variations in individual development and relationships associated with such factors as gender, race, ethnicity, social class and health status. Opportunities are available for the practical application of theory and research in working with individuals, families, schools, and communities.

## Major Program Requirements

**Students must complete all university requirements (p. 35), including general education (p. 36), in addition to the degree requirements below, and must achieve a grade of C (2.0) in all HDFs courses taken to meet degree requirements.**

### A. Requirements in Related Areas

COMMUN 1200	Public Speaking	3
or COMMUN 3571	Group Decision Making Processes	
or COMMUN 3575	Business and Professional Communication	
FINPLN 2183	Personal and Family Finance	3
or FINPLN 4380W	Assessing the American Dream - Writing Intensive	
NEP 1034	Introduction to Human Nutrition	3
or SOC_WK 1115	Social Welfare and Social Work	
PHIL 1100	The Difference Between Right and Wrong: An Introduction to Ethics	3
or PHIL 1150	Introductory Bioethics	

or PHIL 2440	Medical Ethics	
PSYCH 1000	General Psychology	3
SOCIOL 1000	Introduction to Sociology	3
or RU_SOC 1000	Rural Sociology	
<b>B. Requirements in H D FS</b>		
H_D_FS 1600	Foundations of Family Science <sup>1</sup>	3
H_D_FS 2200	Research Methods in Human Development and Family Science <sup>2</sup>	3
H_D_FS 2300	Multicultural Study of Children and Families	3
H_D_FS 2400W	Principles of Human Development - Writing Intensive	3-4
or H_D_FS 2400	Principles of Human Development	
H_D_FS 2450	Human Sexuality Across the Life Span	3
H_D_FS 3050	Child Development: Birth to 3 (Infant/Toddler)	3
H_D_FS 3150W	Child Development 4-8 (Early Childhood) - Writing Intensive	3
H_D_FS 3430	Adolescence and Young Adulthood	3
H_D_FS 3440	Adulthood and Aging	3
H_D_FS 3500	Infant-Toddler Practicum	3-6
or H_D_FS 3700	Preschool Practicum	
or H_D_FS 3730	Field Training Practicum	
H_D_FS 4610	Stress and Resilience in Families	3
or H_D_FS 4700	Children and Families in Poverty	
H_D_FS 4620	Family Interaction	3
H_D_FS 4640	Interpersonal Relationships	3
H_D_FS 4970W	Families and Lifespan Development Capstone - Writing Intensive <sup>3</sup>	4
H_D_FS 4993	Internship in Human Development and Family Science	3-6
<b>C. HDFS Related Electives</b>		
Select 21 credits from the following:		21
H_D_FS 1610	Intimate Relationships and Marriage	3
H_D_FS 3085	Problems in Human Development and Family Science	1-3
or H_D_FS 4085	Problems in Human Development and Family Science	
H_D_FS 3090	Research Experience in Human Development and Family Science	1-6
H_D_FS 3500	Infant-Toddler Practicum (if not taken as a required course - see requirements in HDFS above)	6
H_D_FS 3600	Partnering with Parents and Families	3
H_D_FS 3700	Preschool Practicum (if not taken as a required course - see requirements in HDFS above)	6
H_D_FS 3730	Field Training Practicum (if not taken as a required course - see requirements in HDFS above)	3
H_D_FS 3800	Children's Play	3
H_D_FS 4001	Topics in Human Development and Family Science	1-6
H_D_FS 4090	Advanced Research in Human Development and Family Science	1-6
H_D_FS 4200	Latino/a Youth and Families	3
H_D_FS 4300	Black Families	3

H_D_FS 4420	Environmental Influences on Lifespan Cognition	3
H_D_FS 4610	Stress and Resilience in Families (if not taken as a required course - see requirements in HDFS above)	3
H_D_FS 4630	The Process of Divorce	3
H_D_FS 4680	Family Communication	3
H_D_FS 4700	Children and Families in Poverty (if not taken as a required course - see requirements in HDFS above)	3
H_D_FS 4720	Child and Family Advocacy	3
H_D_FS 4740	Parent-Child Relations Over the Life Course	3

In addition, students may select advisor-approved 3000+ level HDFS courses not listed above *and* not used elsewhere to meet degree requirements, to fulfill HDFS Related Electives requirements. Students may also select up to 6 hours of 3000+ level, advisor approved courses from *related disciplines* such as Anthropology, Black Studies, Communication Studies, Educational, School and Counseling Psychology, Psychology, Sociology, and Women's and Gender Studies (0-6 credits). **The student must obtain HDFS academic advisor approval prior to enrolling in these courses.**

Students may plan a program of study which will help prepare them for earning the **Certified Family Life Educator (CFLE)** credential from the National Council on Family Relations (NCFR). Consultation with the student's academic advisor is recommended to determine the current requirements for this credential.

- <sup>1</sup> H\_D\_FS 1600 should be taken before H\_D\_FS 2300 and any 3000/4000-level H\_D\_FS course.
- <sup>2</sup> Statistics is *recommended* prior to H\_D\_FS 2200. Consult with advisor for appropriate course options.
- <sup>3</sup> Cannot be completed until successful completion of H\_D\_FS core courses and H\_D\_FS 3430, H\_D\_FS 3440 and 12 credit hours from H\_D\_FS 4610, H\_D\_FS 4620, H\_D\_FS 4630, H\_D\_FS 4640 and H\_D\_FS 4700 or consent of instructor. Three (3) credit hours of these 3000/4000-level courses can be taken concurrently with H\_D\_FS 4970.

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
ENGLISH 1000		3 H_D_FS 2400W	4
GN_HES 1100		1 HDFS Related Elective	3
H_D_FS 1600		3 Humanities	3
NEP 1034		3 Math Pathway	3
PSYCH 1000		3 SOCIOL 1000	3
General Education Science	3		
		16	16
Second Year			
Fall	CR	Spring	CR
COMMUN 1200		3 H_D_FS 2200	3
H_D_FS 2300		3 H_D_FS 3150W	3
H_D_FS 3050		3 H_D_FS 3430	3



PHIL 1100 or 2440	3 HDFS Related Elective	3
General Elective	3 American History or Government	3
		15

Third Year			
Fall	CR	Spring	CR
H_D_FS 3440		3 H_D_FS 2450	3
H_D_FS 3730		3 H_D_FS 4610 or 4700	3
HDFS Related Elective		3 H D FS Related Elective	3
FINPLN 2183		3 HDFS Related Elective	3
General Elective		3 General Education Science	3-5
		15	15-17

Fourth Year			
Fall	CR	Spring	CR
H_D_FS 4620		3 H_D_FS 4970W	4
H_D_FS 4640		3 H D FS Related Elective	3
H_D_FS 4993		3-6 General Elective	3
H D FS Related Elective		3 General Elective	3
General Elective		3	
		15-18	13

Total Credits: 120-125

The University of Missouri has many resources to assist you in exploring majors and career possibilities. For guidance, visit the Majors and Careers (<https://career.missouri.edu/majors-careers/>) website or view specific resources below.

- If you are considering a change of major or are exploring multiple majors, schedule an appointment with an advisor in the Discovery Center (<https://discoverycenter.missouri.edu/>) by calling (573)884-9700 or through MU Connect (<https://mizzou.starfishsolutions.com/starfish-ops/dl/instructor/serviceCatalog.html?bookmark=service/3761489>) Discovery Center service in you success network.
- If you have decided on a major, visit an academic advisor in the School or College that you are interested in to discuss the process of declaring the major (<https://advising.missouri.edu/majors-minors/changing-major/>).
- If you would like to learn more about your career interests, abilities, values and talents, visit the MU Career Center (<http://career.missouri.edu/connect/>). No Appointment is necessary to explore career options with one of our staff members.
- If you would like information about MU majors and degree programs, visit:
  - the Degrees, Majors (Degree Programs), Emphasis Areas, Minors and Certificates (p. 20) page in the catalog,
  - the MU Majors (<https://majors.missouri.edu>) website.

For additional major and career exploration resources, visit Major & Career Exploration (p. 34) in the catalog.

## Minor in Human Development and Family Science

### Requirements

To earn a minor in HDFS, an undergraduate student must successfully complete 15-16 credit hours of coursework, as indicated in the two groups listed below. Students must earn a grade of C (2.0) in all HDFS

courses taken to meet the HDFS Minor requirements – no exceptions. Satisfactory/unsatisfactory (pass/fail) graded courses will not be accepted.

A total of 6 hours of transfer credit from other colleges or universities outside of the University of Missouri – Columbia will be accepted for the minor in HDFS, provided the transfer courses are a direct equivalent to MU HDFS courses.

A minor must be completed and awarded at the same time as the MU undergraduate degree (i.e., minors cannot be claimed after graduation). Once an HDFS minor is awarded, a student cannot return to MU to complete a second undergraduate major in HDFS.

Students cannot earn a major and a minor in HDFS.

### REQUIRED COURSES

H_D_FS 1600	Foundations of Family Science	3
H_D_FS 2300	Multicultural Study of Children and Families	3
H_D_FS 2400	Principles of Human Development <sup>1</sup>	3-4
or H_D_FS 2400H	Principles of Human Development - Honors	
or H_D_FS 2400HW	Principles of Human Development - Honors/Writing Intensive	
or H_D_FS 2400W	Principles of Human Development - Writing Intensive	

**Total Required Courses 9-10**

### ELECTIVES - choose two courses from the list below:

H_D_FS 1610	Intimate Relationships and Marriage	3
H_D_FS 3050	Child Development: Birth to 3 (Infant/Toddler)	3
H_D_FS 3150W	Child Development 4-8 (Early Childhood) - Writing Intensive	3
H_D_FS 3430	Adolescence and Young Adulthood	3
H_D_FS 3440	Adulthood and Aging	3
H_D_FS 4610	Stress and Resilience in Families	3
H_D_FS 4620	Family Interaction	3
H_D_FS 4630	The Process of Divorce	3
H_D_FS 4640	Interpersonal Relationships	3
H_D_FS 4700	Children and Families in Poverty	3
H_D_FS 4740	Parent-Child Relations Over the Life Course	3

**Total Elective Credits 6**

**TOTAL CREDITS FOR MINOR 15-16**

<sup>1</sup> H\_D\_FS 2400W is a 4 credit writing intensive course. Students may elect to take either H\_D\_FS 2400 (3 credits), or H\_D\_FS 2400W (4 credits) to satisfy this requirement for the Minor in HDFS.

Some courses on this list may require successful completion of specific prerequisite courses and/or instructor consent. Please see the Enrollment Information and Course Description in myZou for more information. Questions and enrollment permission requests should be directed to the HDFS Minor Advisor ([http://hdfs.missouri.edu/ug\\_minor.html](http://hdfs.missouri.edu/ug_minor.html)).

### Application for Minor

Undergraduate students interested in obtaining a minor in HDFS should fill out the **online application**, located on the College of Human Environmental Sciences website. This minor can be completed entirely online. Consult with the HDFS Minor advisor for appropriate course selections.

Students must meet the minor requirements in place at the time of application, thus the application should be submitted when they begin taking courses for the minor in HDFS, and before all of the required courses are complete.

## MA in Human Development and Family Science

Programs are structured to provide students with an integration of theoretical perspectives, empirical research training, and practical experiences.

### Degree Requirements

Students in the degree program must choose an emphasis area. Degree Requirements are specific to the emphasis and can be found on those catalog pages. The number of hours required for each emphasis is as follows:

- Family and Community Services: 36 hours
- Gerontology: 36 hours
- Youth Development: 36 hours
- Dual MSorMA/JD: approximately 113 hours Research

Courses are selected from the following:

<b>Statistics and Research Methods</b>		<b>6</b>
H_D_FS 8200	Research Methods in Human Development and Family Science	3
Any advisor-approved statistics course 7000 level or above		
<b>Theory</b>		<b>6</b>
H_D_FS 8210	Theories of Human Development	3
H_D_FS 8220	Family Theories	3
<b>Diversity (additional courses may be taken to fulfill electives requirement)</b>		<b>6</b>
H_D_FS 7200	Latino Families and Youth	3
H_D_FS 7300	Black Families	3
H_D_FS 7610	Stress and Resilience in Families	3
H_D_FS 8087	Seminar in Human Development and Family Science (Poverty)	1-99
H_D_FS 8300	Advanced Seminar on Multicultural Families	3
H_D_FS 8610	Remarriage & Stepfamilies: Development, Dynamics, & Intervention	3
H_D_FS 8630	Gendered Relations in Families	3
<b>Electives</b>		<b>12-15</b>
H_D_FS 7257	Aging and the Family	3
H_D_FS 7640	Interpersonal Relationships	3
H_D_FS 8012	Family Dynamics and Intervention	3
H_D_FS 8420	Cognitive Development	3
H_D_FS 8440	Social and Emotional Development	3
H_D_FS 8450	Adolescence and Emerging Adulthood	3
H_D_FS 8640	Family Interaction	3
Or any advisor-approved graduate level course		
<b>Independent Effort</b>		
H_D_FS 8090	Research in Human Development and Family Science	3-6
or H_D_FS 8972	Internship in Human Development and Family Science	

or

H\_D\_FS 8999: Exam (no course credit is assigned)

### Comprehensive Exam, Internship, or Project Options

Master of Arts students may complete a comprehensive exam, an internship, (H\_D\_FS 8972), for up to six credit hours, or, for on-campus students only, a project, (H\_D\_FS 8090), for up to six credit hours. The project option is no less scholarly than a thesis, but usually has an applied focus. For instance, a project may involve designing a program and developing curriculum materials (e.g., instructional videotapes, websites, resource manuals). Internships are often conducted off-campus and must be negotiated with the student's advisor and approved by the student's faculty committee. Students completing the comprehensive exam option must take additional elective course credit. For more detailed information, please refer to the HDFS Graduate Handbook found on the HDFS website (<http://hdfs.missouri.edu/>).

### Satisfactory Progress

Satisfactory progress is based on the student maintaining a sufficient GPA according to the student's program or funding guidelines and completing all degree forms and milestones according to departmental timelines. For a detailed description of the department's description of a satisfactory rate of academic progress, please refer to the HDFS Graduate Handbook found on the HDFS website (<http://hdfs.missouri.edu/>).

### Time Limits for Masters' Degree Completion

Students working toward the master's degree have 5 years from the semester the first course is taken in which to complete all degree requirements. Extensions for one additional year to complete the degree may be granted with submission of a detailed plan for completion, including a timetable. Students must be making progress toward completion when they apply for the extension. A maximum of two extensions may be granted.

### Background Checks, Health Screenings and Other Required Elements

It is essential that HDFS majors develop professional relationships with vulnerable populations, thus during the course of the degree program and prior to beginning any practical or clinical education experience, students are required to:

- pass multiple criminal background checks
- pass mandatory drug screens
- pass other qualification checks required by the practical or clinical education sites
- provide proof of health insurance coverage
- provide proof of required immunizations
- provide proof of student professional liability insurance coverage

The student is responsible for all costs incurred with these requirements. Failure to provide appropriate documentation, or pass required checks prior to the beginning of practical or clinical experiences may result in dismissal from the degree program in HDFS.

## Admission Criteria

### Admission for Campus Programs:

Fall deadline: December 15  
Spring deadline: November 1

Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
61	500
Effective July 1, 2015 must have score of 80	Effective July 1, 2015 must have score of 550

Minimum GRE scores:

When did you take the GRE?	Verbal	Quantitative	Analytical
Prior to August 1, 50th percentile 2011	50th percentile	50th percentile	50th percentile
On or After August 1, 2011	50th percentile	50th percentile	50th percentile

\*Some exceptions are made

- Minimum GPA: 3.0 for last 60 hours  
Required Application Materials for Campus Programs (submitted online via the online application system)
- Application form
- 3 letters of recommendation from people who can speak to applicant's potential to do graduate work (e.g., professors, advisors).
- GRE score (and TOEFL score for international applicants)
- Personal statement
- Résumé or Curriculum Vitae
- Official Transcripts

### Admission for Online Programs:

- No Admission Deadlines (We guarantee processing of complete applications received at least two months prior to the beginning of the expected term of admission. This will give admitted students adequate time to enroll in coursework.)
- Minimum GPA: 3.0 for last 60 hours

### Required Application Materials for Online Programs

submit online via the online application system (<https://applygrad.missouri.edu/apply/>)

- Application form
- 3 letters of recommendation from people who can speak to applicant's potential to do graduate work (e.g., professors, advisors).
- Personal statement
- Résumé or Curriculum Vitae
- Official Transcripts

### Admission Contact Information:

Ashlie Lester [lester@missouri.edu](mailto:lester@missouri.edu)  
411 Gentry; Columbia, MO 65211  
573-882-1301

## MA in Human Development and Family Science with Emphasis in Family and Community Services

The mission of the Human Development and Family Science Master's degree emphasis in Family and Community Sciences may be summed up in three words – **Understand, Deliver, Manage**. The goal of the Family and Community Services online MA option in Human Development and Family Science is to create alumni capable of **understanding family**, interpersonal, and community dynamics in order to help individuals and their families through education, resource management, and effective service **delivery**. In addition, graduates of this degree option will acquire knowledge and skills in program and agency **management**.

### Degree Requirements

The Family and Community Services MA emphasis consists of 36 credit hours, including the 10 core courses shown below. For the remaining 6 credits students may choose from: (a) 6 credits of electives and a capstone examination, (b) 3 credits of electives and a 3 credit internship, or (c) 6 credits of an internship. Elective courses will be offered annually. Exams and internships will include an independently produced paper and an oral examination by the student's MA committee.

#### Required Courses

H_D_FS 7600	Resilience in Families	3
H_D_FS 7640	Interpersonal Relationships	3
H_D_FS 7650	Family Crisis Intervention	3
H_D_FS 7690	Family Resource Management	3
H_D_FS 8012	Family Dynamics and Intervention	3
H_D_FS 8100	Foundations and Principles of Family and Community Services	3
H_D_FS 8510	Parenting Education	3
H_D_FS 8520	Lifespan Development	3
H_D_FS 8235	Administration and Program Management	3
H_D_FS 8238	Program Design, Implementation and Evaluation	3

#### Independent Effort

H_D_FS 8972	Internship in Human Development and Family Science	1-99
or Graduate Examination*		

#### Suggested Electives

H_D_FS 7233	Basic Grant Development and Management	3
H_D_FS 8087	Seminar in Human Development and Family Science (Families in Poverty)	1-99
H_D_FS 8234	Adolescents and their Families	3

\* No credit offered for the exam.

### Admissions

For admission requirements, refer to the Graduate School website for the minimum qualifications for the degree program (<https://gradschool.missouri.edu/degreecategory/human-development-family-science/>) and Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate

admission page to learn about specific admission criteria, application deadlines, eligibility, and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both Graduate School and the degree program to which you've applied.

## MA in Human Development and Family Science with Emphasis in Gerontology

This online-only Master's program is designed to prepare professionals who are either working directly with older people or are involved in education and research related to the elderly. Professionals offering direct services often are involved in health promotion programs; directing intergenerational activities; managing senior centers or retirement communities; counseling older people and their families; and helping people plan for retirement.

### Degree Requirements

#### Required Courses

H_D_FS 7252	Adult Development	3
H_D_FS 7255	Aging Policy	3
H_D_FS 7256	Environments and Aging	3
H_D_FS 7257	Aging and the Family	3
H_D_FS 8251	Perspectives in Gerontology	3
H_D_FS 8253	Physical Health in Aging	3
H_D_FS 8254	Gerontology Research Methods and Program Evaluation	3
H_D_FS 8258	Professional Seminar in Gerontology	3
Comprehensive Exam or		
H_D_FS 8972	Internship in Human Development and Family Science	1-99

#### Suggested Electives

H_D_FS 7259	Mental Health and Aging	3
H_D_FS 7260	Women and Aging	3
H_D_FS 7261	Biological Principles of Aging	3

or any advisor approved course

*NOTE: Up to 6 credits can be transferred from other graduate programs if the courses are deemed relevant by your advisor.*

### Admissions

For admission requirements, refer to the Graduate School website for the minimum qualifications for the degree program (<https://gradschool.missouri.edu/degreecategory/human-development-family-science/>) and the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility, and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

## MA in Human Development and Family Science with Emphasis in Youth Development

This online-only Master of Arts degree in Youth Development prepares graduates to focus on developing the strengths of youth in an estimated 17,000 organizations (e.g., 4-H, Boys and Girls Clubs, Boys Scouts and Girls Scouts) nation wide.

### Degree Requirements

The 36 credit master's degree program (MA) consists of 9 required core courses (25 credits), 5-11 credits of electives, and either a comprehensive exam or an internship experience totaling 2-6 credits. Core courses offered within the program include eight 3-credit courses and a 1-credit professional development seminar.

#### Required:

H_D_FS 7231	Foundations of Youth Development	1
H_D_FS 8234	Adolescents and their Families	3
H_D_FS 8235	Administration and Program Management	3
H_D_FS 8236	Federal and State Policies that Impact Youth Development	3
H_D_FS 8237	Youth Cultures and the Cultures of Youth	3
H_D_FS 8238	Program Design, Implementation and Evaluation	3

#### Comprehensive Exam

#### OR

H_D_FS 8972	Internship in Human Development and Family Science	2-6
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#### Suggested Electives\*:

H_D_FS 7001	Topics in Human Development and Family Science (Substance Use)	3
H_D_FS 7001	Topics in Human Development and Family Science (Global Perspectives)	3

\* Or Any Advisor-Approved Course

*NOTE: Up to 6 credits can be transferred from other graduate programs if the courses are deemed relevant by your advisor.*

### Admissions

For admission requirements, refer to the Graduate School website for the minimum qualifications for the degree program (<https://gradschool.missouri.edu/degreecategory/human-development-family-science/>) and Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility, and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

## MS in Human Development and Family Science

Programs are structured to provide students with an integration of theoretical perspectives, empirical research training, and practical experiences.

### Degree Requirements

Courses are selected from the following:

<b>Statistics and Research Methods</b>		<b>6</b>
H_D_FS 8200	Research Methods in Human Development and Family Science	3
Any advisor-approved statistics course 7000 level or above		
<b>Theory</b>		<b>6</b>
H_D_FS 8210	Theories of Human Development	3
H_D_FS 8220	Family Theories	3
<b>Diversity (additional courses may be taken to fulfill electives requirement)</b>		<b>6</b>
H_D_FS 7200	Latino Families and Youth	3
H_D_FS 7300	Black Families	3
H_D_FS 7610	Stress and Resilience in Families	3
H_D_FS 8087	Seminar in Human Development and Family Science (Poverty)	1-99
H_D_FS 8300	Advanced Seminar on Multicultural Families	3
H_D_FS 8610	Remarriage & Stepfamilies: Development, Dynamics, & Intervention	3
H_D_FS 8630	Gendered Relations in Families	3
<b>Electives</b>		<b>12-15</b>
H_D_FS 7257	Aging and the Family	3
H_D_FS 7640	Interpersonal Relationships	3
H_D_FS 8012	Family Dynamics and Intervention	3
H_D_FS 8420	Cognitive Development	3
H_D_FS 8440	Social and Emotional Development	3
H_D_FS 8450	Adolescence and Emerging Adulthood	3
H_D_FS 8640	Family Interaction	3
Or any advisor-approved graduate level course		
<b>Thesis</b>		<b>3-6</b>
H_D_FS 9090	Research in Human Development and Family Science	3-6

### Thesis

Master's of Science students must complete a thesis (H\_D\_FS 9090). Students who wish to pursue the thesis must petition the department's graduate faculty for approval. The thesis requires testing a hypothesis or exploring a research question. Student will submit and orally defend the thesis to their committee. For more detailed information, please refer to the HDFS Graduate Handbook found on the HDFS website (<http://hdfs.missouri.edu/>).

### Satisfactory Progress

Satisfactory progress is based on the student maintaining a sufficient GPA according to the student's program or funding guidelines and completing all degree forms and milestones according to departmental timelines. For a detailed description of the department's description of a satisfactory rate of academic progress, please refer to the

HDFS Graduate Handbook found on the HDFS website (<http://hdfs.missouri.edu/>).

### Time Limits for Masters' Degree Completion

Students working toward the master's degree have 5 years from the semester the first course is taken in which to complete all degree requirements. Extensions for one additional year to complete the degree may be granted with submission of a detailed plan for completion, including a timetable. Students must be making progress toward completion when they apply for the extension. A maximum of two extensions may be granted.

### Admission Criteria for Campus Programs

Fall deadline: December 15

Spring deadline: November 1

Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
61 Effective July 1, 2015 must have score of 80	500 Effective July 1, 2015 must have score of 550

- Minimum GRE scores:

When did you take the GRE?	Verbal + Quantitative	Analytical
Prior to August 1, 2011	50th percentile	50th percentile
On or After August 1, 2011	50th percentile	50th percentile

\*Some exceptions are made

- Minimum GPA: 3.0 for last 60 hours
- Required Application Materials for Campus Programs (submitted online via the online application system)
- Application form
- 3 letters of recommendation from people who can speak to applicant's potential to do graduate work (e.g., professors, advisors).
- GRE score (and TOEFL score for international applicants)
- Personal statement
- Résumé or Curriculum Vitae
- Official Transcripts

### Admission Contact Information

Ashlie Lester, [lestera@missouri.edu](mailto:lestera@missouri.edu)

411 Gentry; Columbia, MO 65211

573-882-1301

## Human Environmental Sciences

### Human Environmental Sciences Degree Programs

In addition to the undergraduate and graduate degree programs offered through the individual school/departments, the College offers a BS in Human Environmental Sciences and a PhD in Human Environmental Sciences.

### Faculty

**Millsap Professor** G. Carlo\*\*

**Associate Professor** B. Balakrishnan\*\*, S. Killoren\*\*, L. Manfra\*\*, C. Proulx\*\*, R. Ravert\*\*, D. Rudy\*\*, D. L. Sharpe\*\*, R. Yao\*

**Associate Teaching Professor** M. Goldschmidt\*,  
**Assistant Professor** F. Palermo\*  
**Assistant Research Professor** M. Herzog\*  
**Associate Extension Professor and State Specialist** B. Procter,  
**Assistant Extension Professor and State Specialist** G. McCaulley  
**Assistant Extension Professor and Associate State Specialist** A. Zumwalt  
**Professor Emeriti** L. Ganong\*\*, J. Ispa\*\*, B. Schwarz\*\*, R. B Tofle\*\*

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BS in Human Environmental Sciences (p. 669)
  - with emphasis in Family and Consumer Sciences (p. 669)

## Graduate

- PhD in Human Environmental Sciences (p. 670)
  - with emphasis in Architectural Studies (p. 670)
  - with emphasis in Human Development and Family Studies (p. 671)
  - with emphasis in Personal Financial Planning (p. 672)
  - with emphasis in Textile and Apparel Management (p. 673)

### Director of Graduate Studies:

Jung Ha-Brookshire  
 137 Stanley Hall  
 (573) 882-7224

# BS in Human Environmental Sciences

## Degree Program Description

The BS in Human Environmental Sciences deals with improving the quality of life for people wherever they live and work. Every department within the College of Human Environmental Sciences focuses on some aspect of this. This may be through improving the quality of the 'built environment' or through improving health and wellness, or expanding financial literacy, as well as other areas of interest. Students interested must complete the emphasis area in Family and Consumer Sciences. Please see the Emphasis in Family and Consumer Sciences (p. 669) for program information.

## Major Program Requirements

Program requirements are outlined on the Emphasis in Family and Consumer Sciences. (p. 669) These include the General Education (p. 36) requirements, the University graduation requirements, the College of Human Environmental Sciences requirements for Intro to HES, Public Speaking, Statistics and three areas of concentration. A student must complete 120 credit hours to earn the degree.

## Semester Plan

Please see the Emphasis in Family and Consumer Sciences (p. 669) page for a semester plan.

# BS in Human Environmental Sciences with Emphasis in Family and Consumer Sciences

## Degree Program Description

Students may tailor a plan of study using the BS in Human Environmental Sciences with Emphasis in Family and Consumer Sciences. The options vary widely as students have many choices to meet their interests and career goals. Every department within the College of Human Environmental Sciences focuses on aspects of improving the quality of life for people wherever they live and work. This may be through improving the quality of the 'built environment' or through improving health and wellness, or expanding financial literacy, as well as other areas of interest.

Students interested in a BS in Human Environmental Sciences with Emphasis in Family and Consumer Sciences will map out a plan of study and explore the career paths connected to that plan in concert with the advisor. An important part of the advising process in the beginning will be to identify the goals and interests of the student to build a plan focused on the career path expectations. The various certifications or credentials connected to the career path will guide the course selections for the emphasis. A few possible certifications include Certified Family Life Educator (National Council for Family Relations) <https://www.ncfr.org/cfle-certification/what-family-life-education> (<https://www.ncfr.org/cfle-certification/what-family-life-education/>); AFC (Accredited Financial Counselor) <https://www.afcpe.org/>; or Certified Life Coach (CLC) <https://coachfederation.org/>.

## Major Program Requirements

Program requirements include the General Education (p. 36) requirements, the University graduation requirements, the College of Human Environmental Sciences requirements for Intro to HES, Public Speaking, Statistics and three areas of concentration.

The primary area of concentration must include courses from within one HES unit, and requires 18 hours, with six hours at the 3000-level or higher. The second area of concentration must be chosen from other HES units and will require 15-18 hours, with six hours at the 3000-level or higher. This area of study should complement the primary area and provide support for practical knowledge base. The third area of concentration can include courses from HES, or from any other unit on campus that forms a cohesive and logical area of study to meet the student's academic and career interests, with six hours at the 3000-level or higher. The remaining general electives will be chosen to complete the minimum 120 hours required for the degree, (30 of the last 36 hours must be from MU courses).

<b>General Education</b>	<b>42</b>
<b>Major Requirements</b>	<b>49</b>
GN_HES 1100 Introduction to Human Environmental Sciences	1
Primary Concentration in HES (6 hrs must be 3000-4000 level)	18
Secondary Concentration in HES (6 hrs must be 3000-4000 level)	15-18

Supporting Area (6 hrs must be 3000-4000 level) 12-15  
**Electives** 29

Students will complete an internship or service learning experience for the capstone requirement. Students must maintain a term and cum GPA of at least 2.0, and may complete the program in 120 credit hours.

## Semester Plan

First Year			
Fall	CR	Spring	CR
ENGLISH 1000		3 Math Pathway	3
Humanities/Fine Arts		3 Humanities/Fine Arts	3
GN_HES 1100		1 Writing Intensive (lower division)	3
Primary Area		3 Primary Area	3
Secondary Area		3 Supporting Area	3
General Elective/Minor		2	
		15	15
Second Year			
Fall	CR	Spring	CR
Social Science (MO State Govt)		3 Humanities/Fine Arts	3
BIO/Math/Physical Science		3 Social Science	3
Primary Area		3 Primary Area	3
Secondary Area		3 Supporting Area	3
Supporting Area		3 Statistics	3
		15	15
Third Year			
Fall	CR	Spring	CR
Social Science		3 BIO/Math/Physical Science	3
COMMUN 1200		3 Secondary Area (3000+)	3
Primary Area (3000+)		3 Supporting Area (3000+)	3
Secondary Area		3 General Elective/Minor	3
General Elective/Minor		3 General Elective/Minor	3
		15	15
Fourth Year			
Fall	CR	Spring	CR
Science with Lab		3 Capstone	3
Primary Area (3000+)		3 Secondary Area (3000+)	3
Supporting Area (3000+)		3 General Elective/Minor	3
General Electives/Minor		3 General Elective/Minor	3
General Electives/Minor		3 General Elective/Minor	3
		15	15

Total Credits: 120

# PhD in Human Environmental Sciences

## Degree Requirements

The PhD requires a minimum of 72 credit hours beyond the baccalaureate degree. Students are required to pick an emphasis area to obtain the PhD in Human Environmental Sciences. Degree requirements are specific to the emphasis area. Please see the individual emphasis degree requirement pages (p. 669) for more information.

# PhD in Human Environmental Sciences with Emphasis in Architectural Studies

## The Program

Our program is designed for individuals who are interested in acquiring the knowledge and skills needed to conduct substantive, and original research that contributes to the theoretical and methodological foundation of architecture, interior design, and related disciplines. Curriculum emphasizes research and expands knowledge in the “major” areas of either environment and behavior or design with digital media. The major area is defined as that area of specialization in the doctoral program within which the student is expected to write his/her dissertation. Students will choose a “supportive cognate area” and courses in this area are selected from a broad spectrum of disciplines providing students with the opportunity to design an individualized program of study that capitalizes on their unique interests and talents. Also see the Department website for additional information on the two major areas of faculty expertise (Environment and Behavior ([http://arch.missouri.edu/academics\\_ebs.html](http://arch.missouri.edu/academics_ebs.html)), & Design with Digital Media ([http://arch.missouri.edu/academics\\_ddm.html](http://arch.missouri.edu/academics_ddm.html))) Online Study ([http://arch.missouri.edu/academics\\_online2.html](http://arch.missouri.edu/academics_online2.html)), Architectural Studies Graduate Handbook (<http://arch.missouri.edu/docs/academics/PhD/handbook.pdf>) and Spotlight on Alumni (<http://arch.missouri.edu/alumni.html>).

## Degree Requirements

The University of Missouri requires a minimum of 72 semester hours beyond the baccalaureate degree for the PhD. The doctoral program committee provides departmental approval of the student’s plan of study (Form D-2), a list of the courses and the credit to be earned in each of them, which will, when completed:

- Prepare the student for research or scholarly investigation in the chosen field of study.
- Satisfy the credit-hour and residency requirement of the department.
- Satisfy any special requirements (collateral field, other special research skills) imposed by the department.
- Satisfy the Graduate School’s requirement for a minimum of 15 hours of course work at the 8000/9000 level (exclusive of research, problems and independent study experiences).

The committee also recommends as part of the plan of study, any request for transfer of graduate credit. The student must substantially complete the course work outlined in the plan of study to the satisfaction of the doctoral program committee and the Graduate School before being declared ready for the comprehensive examination. Details regarding the qualifying process, comprehensive examination and dissertation requirements are detailed below. See Architectural Studies Graduate Handbook (<http://arch.missouri.edu/docs/academics/PhD/handbook.pdf>) for more details on minimum course requirements.

## PhD Minimum Course Requirement Summary

Core Courses	13 credits minimum
ARCHST 8850	Seminar in Environmental Design 1

ARCHST 8630	Philosophy of Environmental Design Research	3
ARCHST 8887	Environment and Behavior II	3
ARCHST 8050	Research Methods in Environmental Design	3
ARCHST 8950	Qualitative Research Methods	3
<b>Coursework in Architectural Studies (choose 6 hrs from the following)</b>		<b>6</b>
ARCHST 8840	Graduate Design Studio	1-99
ARCHST 8960	Readings in Environmental Design	1-99
ARCHST 8001	Topics in Environmental Design	1-99
ARCHST 9555	Recent Trends in Environmental Design	1-99
<b>Supportive Cognate Area</b>		<b>9</b>
Advisors and committee members will help you identify appropriate cognate courses based on the area of interest.		
<b>Pilot Project for Dissertation</b>		<b>2</b>
ARCHST 9995	Pilot Project for Dissertation	2
<b>Dissertation Research</b>		<b>6</b>
ARCHST 9990	Dissertation Proposal	1
ARCHST 9090	Doctoral Research in Environmental Design	5

## Qualifying Process

The program considers the experience of original research with data collection, analysis, and report as the D1 Qualifying Exam. This could be satisfied with Masters research project or a dissertation pilot project. See Architectural Studies Graduate Handbook (<http://arch.missouri.edu/docs/academics/PhD/handbook.pdf>) for additional information on the qualifying examination process.

## Comprehensive Examination Process

Based on the pilot project for the dissertation, students write a "Proposal-in-Principle". Committee members set comprehensive exam questions in their area of expertise as it relates to the student's research as described in the Proposal-in-Principle. The student has two and one half weeks to complete the exam and submit the responses. The oral defense part of the comprehensive examination evaluates the ability to further discuss each of the questions and responses and clarify follow up questions from committee members. The written and the oral examination must be completed within one month. If successful, members sign the Form D-3 and it is submitted to the Graduate School. The student officially becomes a Doctoral Candidate. Students must maintain continuous enrollment during their candidacy (the period after successful completion of the comprehensive examination).

## Dissertation Requirements

Following the comprehensive exam, the student should develop the full Dissertation Research Proposal that is reviewed and approved by the committee through a formal proposal defense. A minimum of two weeks should be allowed for the committee members to review the proposal before the defense. The dissertation proposal approved by the committee sets the roadmap for dissertation research. The research-based plan of study leads to the written doctoral dissertation. PhD students must complete a final oral examination by an approved faculty committee. In order to pass the examination, and thus qualify as the basis for the award of the PhD degree, the dissertation should have the following attributes:

- It demonstrates authority in the candidate's field and shows evidence of command of knowledge in relevant fields;

- It shows that the candidate has a thorough grasp of the appropriate methodological techniques and an awareness of limitations;
- It makes a distinct contribution to knowledge because of the originality of the approach and/or interpretation of the findings and, in some cases, the discovery of new facts;
- It demonstrates an ability to communicate research findings effectively in the professional arena and in an international context;
- It is a careful, rigorous and sustained piece of work demonstrating that a research "apprenticeship" is complete and the holder should be admitted to the community of scholars in the discipline.

See Architectural Studies Graduate Handbook (<http://arch.missouri.edu/docs/academics/PhD/handbook.pdf>) for additional information regarding dissertation requirements including expectations, timelines and guidelines.

## Admissions

### Admission Requirements

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the Ph.D. program in Human Environmental Sciences with an emphasis in Architectural Studies ([http://arch.missouri.edu/academics\\_gradadmit.html](http://arch.missouri.edu/academics_gradadmit.html)) and the minimum requirements of the graduate faculty, enforced by the Graduate School (<https://gradschool.missouri.edu/admissions/eligibility-process/>). Because requirements vary, you must refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admission to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

### Admission Contact

137 Stanley Hall; Columbia, MO 65211  
Telephone: 573-882-7224

## PhD in Human Environmental Sciences with Emphasis in Human Development and Family Studies

The PhD in Human Environmental Sciences with emphasis in Human Development and Family Studies degree prepares students for careers in research, college or university teaching, or leadership positions in public and private human service institutions.

### Degree Requirements

Over the course of their degree program all doctoral students are required to enroll in six credit hours of research practicum, three credit hours of teaching practicum, and complete coursework in theory, research methods, statistics, and their collateral area. In addition, all doctoral students complete a minimum of 12 credit hours of research for their dissertation.

### Plan of Study

Students selecting the doctoral degree work with members of their doctoral committee to create an individualized plan of study tailored to



their specific research interests. A sample plan of study can be found on the HDFS website (<http://hdfs.missouri.edu/>).

## Qualifying Process for Doctoral Students

To be officially admitted to the HDFS doctoral program, students generally must have completed a master's degree in HDFS or a related field, although exceptions are granted.

## Satisfactory Progress

Satisfactory progress is based on the student maintaining a sufficient GPA according to the student's program or funding guidelines and completing all degree forms and milestones according to departmental timelines. For a detailed description of the department's description of a satisfactory rate of academic progress, please refer to the HDFS Graduate Handbook found on the HDFS website (<http://hdfs.missouri.edu/>).

## PHD Comprehensive Matriculation Exam

Students must complete a comprehensive exam prior to beginning their dissertation. For a detailed description of the comprehensive exam options, directions, and timeline, please refer to the Handbook found on the HDFS website (<http://hdfs.missouri.edu/>).

## Admission to Candidacy

After students pass the comprehensive examination, they complete the D3 form to apply to the Graduate School for admission to doctoral candidacy. Following admission to candidacy, students complete a dissertation proposal. The proposal includes a pertinent review of the literature, statement of the problem, the purpose of the proposed study, description of the research design, and discussion of the specific means by which the data will be analyzed. Subsequently, the dissertation committee will meet to evaluate, request revisions to, and approve the student's dissertation proposal. After the dissertation proposal is approved, the students completes and defends the dissertation.

## Time Limits on Degree Completion

A graduate degree represents current knowledge of the field as of the date the degree is granted. Limitations have therefore been set regarding the number of years to finish the degree. Doctoral students have 6 years in which to complete degree requirements. The clock starts the semester that the first class beyond the master's degree is taken. The comprehensive exam must be completed no later than by the end of the fourth year of study. HDFS doctoral students have only three years after passing the comprehensive examination to complete the doctoral degree.

## Petitions for Extension

On petition of the candidate, an extension of 1 year may be granted by the HDFS graduate faculty. The student may petition for no more than two one-year extensions. Therefore, a doctoral student may have no more than 5 years, including two one-year extensions, to complete the doctoral degree after passing the comprehensive exam. On petition of the candidate and the candidate's department, an extension of this time limit may be granted by the Graduate School.

## Admission Criteria

Fall deadline: December 15  
Spring deadline: November 1

Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
61 Effective July 1, 2015 must have score of 80	500 Effective July 1, 2015 must have score of 550

- Minimum GRE scores:

When did you take the GRE?	Verbal + Quantitative	Analytical
Prior to August 1, 2011	50th percentile	50th percentile
On or After August 1, 2011	50th percentile	50th percentile

- \* Some exceptions are made.
- Minimum GPA: 3.0 for last 60 hours

## Required Application Materials

Submit via the *apply yourself* system

- Application form
- 3 letters of recommendation from people who can speak to applicant's potential to do graduate work (e.g., professors, advisors)
- GRE score (and TOEFL score for international applicants)
- Personal statement
- Résumé or Curriculum Vitae
- Official Transcripts

Admission Contact Information  
Ashlie Lester ([lestera@missouri.edu](mailto:lestera@missouri.edu))  
411 Gentry  
Columbia, MO 65211  
573-882-1301

## PhD in Human Environmental Sciences with Emphasis in Personal Financial Planning

The doctoral program is designed to develop skill in the evaluation and generation of research that advances the disciplines engaged in Personal Financial Planning, such as Personal Finance, Family Economics, Consumer Economics, Corporate Finance, Law, among others. This program prepares students for careers in university research and teaching, government, Extension, or public policy evaluation.

## Degree Requirements

A minimum of 72 credit hours are required for the degree with at least 15 credit hours at the 8000 level or above exclusive of problems, readings and research. Students must complete a research dissertation. Up to 6 credit hours are earned for this portion of the degree by registering for FINPLN 9090 Doctoral Dissertation Research in Personal Financial Planning. The first six hours can be included in the required total of 72 hours.

### List of Potential Courses

THEORY COMPONENT		15
FINPLN 8483	Family Economics	3
FINPLN 8488	Household Financial Decision Making	3
ECONOM 8451	Microeconomic Theory	3
ECONOM 8453	Macroeconomic Theory	3

ECONOM 9451	Advanced Microeconomic Theory I	3
ECONOM 9453	Advanced Macroeconomic Theory I	3
ECONOM 9431	Central Banking Policies	3
Possible additions/substitutions		
AAE 9230	Welfare and Consumption Economics	3
AAE 8610	Economic and Sociological Approaches to Collective Action	3
ECONOM 7311	Labor Economics	3
ECONOM 7329	The Banking System and the Money Market	3
H_D_FS 8220	Family Theories	3

**PERSONAL FINANCIAL PLANNING COMPONENT**

Required CFP Education Courses for those wanting to sit for the CFP exam

FINPLN 7183	Fundamentals of Personal Financial Planning	3
FINPLN 7382	Financial Planning: Risk Management	3
FINPLN 7383	Financial Planning: Investment Management	3
FINPLN 7187	Financial Planning: Tax Planning	3
FINPLN 7386	Financial Planning: Employee Benefits and Retirement Planning	3
FINPLN 7393	Financial Planning: Estate and Gift Planning	3

Supporting Coursework

FINANC 7440	Managerial Finance	3
FINANC 7820	Investment Fund Management	1-3
Possible additions/substitutions		
FINANC 8320	Financial Markets	1-3
FINANC 8360	Equity Securities Analysis	1-3
FINANC 8370	Fixed-Income Securities Analysis	1-3
FINANC 8410	Advanced Financial Management	1-3
H_D_FS 7255	Aging Policy	3
H_D_FS 7257	Aging and the Family	3
PUB_AF 8170	Public Policy Processes and Strategies	3

**RESEARCH COMPONENT**

FINPLN 7087	Seminar in Household Economics and Finance	1
FINPLN 8450	Applied Research in Household Economics and Planning	1-99
ECONOM 9476	Advanced Topics in Econometrics II	3
FINANC 9100	Seminar in Corporate Finance	3
Possible additions/substitutions		
ECONOM 9472	Econometric Theory I	3
ECONOM 7371	Introductory Econometrics	3
ECONOM 8473	Applied Econometrics	3
H_D_FS 8200	Research Methods in Human Development and Family Science	3
H_D_FS 9200	Advanced Research Methods in Human Development and Family Science	3
SOCIOL 7120	Social Statistics	3
SOCIOL 8130	Advanced Social Statistics	3
STAT 7110	Statistical Software and Data Analysis	3
STAT 7510	Applied Statistical Models I	3
STAT 7520	Applied Statistical Models II	3
STAT 8310	Data Analysis I	3
STAT 8320	Data Analysis II	3

PUB_AF 8190	Economic Analysis for Public Affairs	3
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**SKILLS COMPONENT**

FINPLN 7282	Advanced Financial Counseling	3
FINPLN 7389	Financial Planning: Capstone	3
FINPLN 7993	Internship in Personal Financial Planning	

**DISSERTATION (6 hours minimum)**

FINPLN 9090	Doctoral Dissertation Research in Personal Financial Planning	1-99
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**Application Deadlines**

Fall deadline: February 1  
 Spring deadline: October 1

**Admission Criteria**

- Minimum TOEFL scores (for ESL applicants only):

Internet-based test (iBT)	Paper-based test (PBT)
80	550

We also accept IELTS scores

Item	Score
International English Language Testing System (IELTS)	6.5

- Minimum GPA: 3.0 in last 60 hours

**Required Application Materials**

*To the Graduate School:*

- All required Graduate School documents
- 3 letters of recommendation
- GRE or GMAT scores
- Statement of Purpose
- Official transcripts

**Contact Information:**

College of Human Environmental Sciences  
 239 Stanley Hall  
 573-882-9343  
<http://pfp.missouri.edu/>

**PhD in Human Environmental Sciences with Emphasis in Textile and Apparel Management**

**Degree Requirements**

The degree requires a minimum of 78 credit hours beyond the bachelor's degree, with at least 15 credit hours at the 8000 level or above exclusive of research, problems and independent study. It is expected that students will have a minimum of 9 credits in Research/Qualitative/Quantitative methods, of which 3 credits will be Research Methods and 3 credits will be Statistics. Students are required to take T\_A\_M 8087 Seminar in Clothing and Textiles and T\_A\_M 9190 Theory Development and Evaluation in Textile and Apparel Research.

## Core Course Requirements

Textile and Apparel Management (focused group of courses)		minimum of 9 credit hours
Research Methods/Statistics		minimum of 9 credit hours
Supporting area (for broadening the theoretical base for the research project)		minimum 9 credit hours
T_A_M 9090	Research in Textiles and Apparel Management (including pre-proposal, proposal, job market research, and defense presentations)	minimum 12 credit hours
Coursework from Master's degree		maximum 30 credit hours

## Application Deadlines

Fall deadline: February 1 (January 15 for early financial support considerations)  
 Spring deadline: September 1

## Admission Criteria

- Minimum GPA: 3.0 in last 60 hours
- Bachelor's degree from an accredited college or university in textile and apparel management or related field. Those with unrelated majors will need to do make-up work
- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
79	550

- Recommended Minimum GRE scores:

When did you take the GRE?	Verbal + Quantitative	Analytical
Prior to August 1, 2011	500/500	160
On or After August 1, 2011	153/144	3.0

## Required Application Materials

To the Graduate School (<https://applygrad.missouri.edu/apply/>):

- All required Graduate School documents
- Statement of professional objectives (upload to application)
- Three letters of recommendation
- Official transcripts from every college or university you have attended
- Your official GRE scores (sent directly from the Educational Testing Service).
- Latest vitae or résumé
- A 2-minute video to show about who you are, why you want to pursue graduate degrees, and what your career goals are
- TOEFL scores or IELTS scores if international student
- A digital design portfolio if pursuing design research
- Writing samples optional

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding

packages. Check the program Web site or ask the program contact for details.

### Admission Contact Information

Leona Nichols ([nicholslm@missouri.edu](mailto:nicholslm@missouri.edu))  
 137 Stanley Hall; Columbia, MO 65211  
 573-882-7317

[http://tam.missouri.edu/grad\\_PhD.html](http://tam.missouri.edu/grad_PhD.html) ([http://tam.missouri.edu/grad\\_PhD.html](http://tam.missouri.edu/grad_PhD.html))

## Nutrition and Exercise Physiology

### Nutrition and Exercise Physiology

**Department Chair:** Christopher Hardin  
 204 Gwynn Hall; Phone:(573) 882-4288  
[hardinc@missouri.edu](mailto:hardinc@missouri.edu)  
<http://nep.missouri.edu> (<http://ns.missouri.edu/>)

### Human Physiology and Translational Sciences

Catherine Peterson  
 204 Gwynn Hall; Phone:(573) 882-4288  
[petersonca@missouri.edu](mailto:petersonca@missouri.edu)

### Nutrition and Foods/Dietetics

**Program Director/Director of Graduate Studies:** Nikki Raedeke  
 204 Gwynn Hall; Phone:(573) 884-1500  
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## Faculty

**Professor** S. Ball\*\*, K. L. Fritsche\*\*, C. D. Hardin\*\*, P. S. Bruzina\*\*, J. A. Kanaley\*\*, E. J. Parks\*\*

**Associate Professor** S. Gable\*\*, J. Padilla\*\*, C. A. Peterson\*\* , R. S. Rector\*\*, V. Vieira-Potter\*\*

**Assistant Professor** J. Limberg\*, K. Anguah\*

**Associate Teaching Professor** J. Bean\*, D. Smith

**Teaching Assistant Professor** S. Buckallew , M. Raedeke\*,

**Adjunct Faculty** F. W. Booth\*, J. A. Ibdah\*\*, D. Lubahn\*\*, F. Nassir\*\*, M. Milanick, L. Pulakat\*\*, S. Sayers

**Adjunct Instructor** B. Baker, A. Bryant, S. Burcks, K. Eiffert, T. Roberts, M. Stevens

**Extension Faculty** J. Britt-Rankin\*, S. Mills-Gray, K. Keller, K. Miller, R. Mott, J. Tryfter, K. Weitzel, S. Wood

**Professor Emeritus** D. E. Brigham\*, R. P. Dowdy\* , L. Hillman\*, L. Hudson\*, P. M. Landhuis\*, M. McDonald, T. R. Thomas\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BS in Nutrition and Exercise Physiology (p. 675)
  - with emphasis in Human Physiology and Translational Sciences (p. 676)
  - with emphasis in Nutrition and Foods (p. 677)
  - with emphasis in Physical Activity, Nutrition and Human Performance (p. 679)

The mission of the Department of Nutrition and Exercise Physiology at the University of Missouri is to improve the health of Missourians and the larger population through research, teaching, and outreach related to nutrition and physical activity. We strive to be a diverse set of leaders, innovators, and educators who promote improved human health through our focus on nutrition and physical activity.

The department has a long tradition of education excellence and is the only department on campus that spans three colleges (School of Medicine, College of Human Environmental Sciences, and College of Agriculture, Food, and Natural Resources). This unique configuration poises and challenges us to be a model of interdisciplinary research and education on campus. We hold the honor of being the longest standing Coordinated Programs in Dietetics in the country; it also holds the designation of the first combined 5 year bachelors and master's degree. We have recently been recognized as a partner with **Exercise is Medicine® on Campus** (EIM-OC), a global health initiative managed by the American College of Sports Medicine (ACSM) earning a silver medal for activities in our first year.

Our faculty is nationally-recognized for their contributions to the fields of nutrition and exercise. Students in our programs are prepared for a wide variety of career paths in the healthcare/medical fields, corporate and commercial industries, government and non-profit sectors, and graduate programs. Typical areas our students are found in, are: Medicine (allopathic and osteopathic), Dentistry and Pharmacy, Physicians Assistants, Registered Dietitian Nutritionists, Exercise Physiologist, Physical Therapy, Occupational Therapy, cardiac rehab, wellness resource centers, and community health programs. Students who major in Nutrition and Exercise Physiology may choose from three emphasis areas:

- Human Physiology and Translational Sciences
- Nutrition and Foods/Master's in Dietetics
- Physical Activity, Nutrition and Human Performance

Students majoring in NEP are exposed to a strong science base including biology, chemistry, biochemistry, physics, anatomy, physiology, kinesiology, exercise science/exercise physiology, and human nutrition. In addition, they must take a set of core courses for each emphasis area and complete the required general education requirements for the University of Missouri. Specific GPA requirements and/or grades are required in each area. This information can be found on our department website: <http://nep.missouri.edu>

Students who want to explore the major can take

- NEP 1034 Introduction to Human Nutrition
- NEP 1340 Introduction to Exercise and Fitness
- NEP 1485 Career Exploration in Exercise Science
- NEP 2380 Diet Therapy for Health Professionals.

Two minors are available:

- Nutritional Sciences (<http://ns.missouri.edu/minors.html>) (intended for students majoring in food science, biological sciences, biochemistry, health sciences, or related fields)
- Wellness (<http://ns.missouri.edu/minors.html>) (intended for both non-science and science students interested in coursework focused on empowering them to make informed decisions related to lifelong personal nutrition and exercise choices)

## Graduate

- MS in Nutrition and Exercise Physiology (p. 680)
  - with emphasis in Exercise Physiology (p. 681)
  - with emphasis in Nutritional Sciences (p. 682)
- PhD in Nutrition and Exercise Physiology (p. 683)
  - with emphasis in Exercise Physiology (p. 683)
  - with emphasis in Nutrition (p. 684)

## BS in Nutrition and Exercise Physiology

### Degree Program Description

The BS in Nutrition and Exercise Physiology offers three different paths, each with a different focus. All three areas use a science based approach; integrating human physiology, chemistry, biology, biochemistry, and social/psychological sciences to study the influences of nutrition and physical activity on human health and disease. All students within these areas are exposed to significant opportunities for undergraduate research, student organizations, study abroad, hands on internships and field work as well as interaction with nationally recognized faculty in their chosen fields. Students majoring in our emphasis areas will be well prepared for health-related careers in numerous fields such as: Registered Dietitian Nutritionist (RDN), medicine, dentistry, pharmacy, physician's assistant, physical therapy, occupational therapy, or for employment in fitness assessment, lifestyle intervention, cardiac rehab, education, health and wellness, exercise supervision and program administration and several different certifications. They are also prepared for graduate study in biomedical/translational sciences, exercise physiology and numerous other fields.

## Major Program Requirements

The BS in Nutrition and Exercise Physiology is offered with three emphasis options: Human Physiology and Translational Sciences (p. 676), Nutrition and Foods (p. 677), and Physical Activity, Nutrition and Human Performance (p. 679). All degree requirements are listed at the emphasis level. A student must choose an emphasis area for this degree.

## Semester Plan

The BS in Nutrition and Exercise Physiology is offered with three emphasis options: Human Physiology and Translational Sciences (p. 676), Nutrition and Foods (p. 677), and Physical Activity, Nutrition and Human Performance (p. 679). Please refer to the emphasis area for semester plans. A student must choose an emphasis area for this degree.

# BS in Nutrition and Exercise Physiology with Emphasis in Human Physiology and Translational Sciences

## Degree Program Description

This degree program is highly multidisciplinary, integrating human physiology, nutrition, pathophysiology, pharmacology, biochemistry, organic chemistry, biology, sociology/psychology, and related areas to gain both a broad and a deep understanding of the determinants of human health and disease. Due to the department's unique configuration (only department on campus that spans three colleges - School of Medicine, College of Human Environmental Sciences, and College of Agriculture, Food, and Natural Resources), students in this program have access to many researchers and resources represented from each unit. Students selecting this area of study will be well-prepared for health-related careers such as Medicine (allopathic and osteopathic), Dentistry, Pharmacy, Physician's Assistant, as well as for graduate study in Biomedical/Translational Sciences.

The department also offers significant opportunities for undergraduate research, including an opportunity to apply for paid undergraduate research internship ([http://ns.missouri.edu/ug\\_summerintern.html](http://ns.missouri.edu/ug_summerintern.html)) opportunities that span the academic year.

## Major Program Requirements

To transfer into the nutrition and exercise physiology program after their first semester on campus, students are required to have a minimum overall GPA of 2.65 and be enrolled in at least one required biology, chemistry, physics, or biochemistry course or one required NEP course. All NEP courses require a grade of C or higher.

Students must complete all university requirements (p. 35), including general education (p. 36), in addition to the degree requirements below.

### Science Foundation

BIO_SC 1500	Introduction to Biological Systems with Laboratory	5
CHEM 1320	College Chemistry I	4
CHEM 1330	College Chemistry II	4
CHEM 2100	Organic Chemistry I	3

CHEM 2110 & CHEM 2130	Organic Chemistry II and Organic Laboratory I	5
PHYSCS 1210 & PHYSCS 1220	College Physics I and College Physics II	8-10
or PHYSCS 2750 & PHYSCS 2760	University Physics I and University Physics II	
<b>Math and Statistics</b>		
MATH 1400	Calculus for Social and Life Sciences I	3-5
or MATH 1500	Analytic Geometry and Calculus I	
ESC_PS 4170	Introduction to Applied Statistics	
<b>Communications Requirement</b>		
COMMUN 1200	Public Speaking	3
<b>Core Curriculum</b>		
BIO_SC 2200	General Genetics	4
BIO_SC 2300	Introduction to Cell Biology	4
BIOCHM 4270	Biochemistry	3
BIOCHM 4272	Biochemistry	3
MPP 3202	Elements of Physiology	5
or BIO_SC 3700	Animal Physiology	
MPP 4204	Medical Pharmacology	4
NEP 2340	Human Nutrition I	3
NEP 2450	Nutrition Throughout the Life Span	3
NEP 4400	Pathophysiology of Diseases Affecting Metabolic Health	3
NEP 4950	Capstone: Research in Nutritional Sciences	2
NEP 4951W	Nutrition Research Communication - Writing Intensive	1
Select 1 option from the two below for your remaining classes		
<b>Option 1</b>		
NEP 4340	Human Nutrition II Lecture	3
NEP 4360	Nutritional Assessment	3
<b>Option 2</b>		
NEP 1340	Introduction to Exercise and Fitness	3
NEP 3450	Activity Throughout the Lifespan	3
NEP 3850W	Physiology of Exercise - Writing Intensive	3
<b>Professional Electives (a minimum of 10 credit hours)</b>		
BIOCHM 4974	Biochemistry Laboratory	5
BIO_SC 4976	Molecular Biology	3
CHEM 3200	Quantitative Methods of Analysis with Lab	4
F_S 4310	Food Chemistry and Analysis	4
F_S 4370	Food Microbiology	3
MATH 1700	Calculus II	5
or MATH 2100	Calculus for Social and Life Sciences II	
MICROB 3200	Medical Microbiology and Immunology	4
MPP 4202	Medical Physiology	4
NEP 2460	Eating Disorders	3
NEP 3131	International Nutrition and Exercise Physiology	0-6
NEP 4330	Human Nutrition II Laboratory	2
NEP 4370	Medical Nutrition Therapy I	3
NEP 4550	Exercise is Medicine	2
NEP 4590	Community Nutrition	3
PTH_AS 2201	Human Anatomy Lecture	3
<b>Electives to equal 120 credit minimum</b>		

Additional courses may be required to meet college requirements or career objectives. On-campus research internships are available and highly recommended.

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
GN_HES 1100		1 BIO_SC 1500	5
CHEM 1320		4 CHEM 1330	4
ENGLSH 1000		3 COMMUN 1200	3
Hist or Pol Sc		3 Social/Behavioral Science (Psychology class recommended)	3
MATH 1400 or 1500		3-5	
			15

Second Year			
Fall	CR	Spring	CR
BIO_SC 2200		4 BIO_SC 2300	4
CHEM 2100		3 CHEM 2110	3
NEP 1340 (or Elective)		3 CHEM 2130	2
HES Foundation Course (recommend selecting one that includes WI)		3 NEP 2340	3
Humanities (recommend PHIL 2440 Medical Ethics)		3 Social/Behavioral Science (Sociology course recommended)	3
			15

Third Year			
Fall	CR	Spring	CR
BIOCHM 4270		3 BIOCHM 4272	3
MPP 3202 or BIO_SC 3700		5 ESC_PS 4170	3
NEP 4360 or 3450		3 NEP 2450	3
PHYSCS 1210		4 PHYSCS 1220	4
		Professional Elective	3
			16

Fourth Year			
Fall	CR	Spring	CR
NEP 4340 or 3850W		3 NEP 4400	3
NEP 4950		2 NEP 4951W	1
MPP 4204		4 HES Foundation Course	3
Professional Electives		3 Professional Electives	4
Elective		3 Humanities	3
			14

Total Credits: 120-122

# BS in Nutrition and Exercise Physiology with Emphasis in Nutrition and Foods

## Degree Program Description

The emphasis in Nutrition and Foods prepares students to integrate and apply the principles of the biomedical sciences and food and nutrition

sciences to design and manage effective nutrition programs in a variety of settings. Nutrition and Exercise Physiology with emphasis in Nutrition and Foods is a five- year BS-MS program. Nutrition and Foods is the first step to acceptance into the Professional Coordinated Program in Dietetics (p. 653).

During the first two years of the curriculum, students develop a foundation in science and general education. This is followed by a three year course of study devoted to professional courses and supervised practice (fieldwork). The Dietetics program is a **five year program** where students complete:

- A Bachelor of Science (Nutrition and Foods)
- A Master of Science (Dietetics)
- All supervised practice (fieldwork) necessary to meet the requirements to take the Registration Examination for Dietitians (RD Exam)
- A verification statement providing proof of completion will be provided after the graduate degree is awarded

The completion of this bachelor's degree only, does not allow the student to be eligible to take the national Registration Examination for Dietitians. Furthermore, it is not a didactic program in dietetics. No verification state is given after completion of only the bachelor's degree.

## Major Program Requirements

This is a professional and competitive program that requires acceptance to the Coordinated Program in Dietetics to complete the degree.

Students who successfully complete prerequisites, have been admitted to the Coordinated Program in Dietetics and complete all university (p. 35) and College of Human Environmental Sciences requirements, including general education (p. 36) in addition to the degree requirements listed below will earn their degree in Nutrition and Exercise Physiology with emphasis in Nutrition and Foods.

Students who receive this degree emphasis, who are in good academic standing and meet program requirements, will transition seamlessly to the Coordinated Program's fifth year master's program (p. 653).

### Pre-Professional Requirements

BIO_SC 1010 & BIO_SC 1020 or BIO_SC 1500	General Principles and Concepts of Biology and General Biology Laboratory Introduction to Biological Systems with Laboratory	5
CHEM 1320	College Chemistry I	4
CHEM 2030 or CHEM 2100	Survey of Organic Chemistry Organic Chemistry I	3
CHEM 2130	Organic Laboratory I	2
BIOCHM 3630 or BIOCHM 4270	General Biochemistry (B- or better required) Biochemistry	3
CDS 2190	Medical Terminology	3
COMMUN 1200	Public Speaking	3
HLTH_SCI 1000	Introduction to the Health Professions	3
NEP 1995	Nutritional Food Science	3
MPP 3202	Elements of Physiology	5
NEP 2340	Human Nutrition I (B- or better required)	3
NEP 2380	Diet Therapy for Health Professionals	3
PSYCH 1000	General Psychology	3
MATH 1100	College Algebra (C- or higher required)	3

Area of Competence		
ESC_PS 4170	Introduction to Applied Statistics	3
ESC_PS 4200	Positive Psychology	3
or PSYCH 3830	Health Psychology	
F_S 4310	Food Chemistry and Analysis	4
MANGMT 3000	Principles of Management	3
MPP 4204	Medical Pharmacology	4
PTH_AS 2201	Human Anatomy Lecture	3
NEP 2450	Nutrition Throughout the Life Span	3
NEP 3290	Food Service I: Supervised Practice Experience	1
NEP 3360	Nutritional Assessment Supervised Practice Experience	2
NEP 3370	Medical Nutrition Therapy I: Supervised Practice Experience	3
NEP 3390	Teaching and Counseling Techniques in Nutrition	2
NEP 3400	Teaching & Counseling Techniques in Nutr. Supervised Practice Exp	1
NEP 3590	Community Nutrition Supervised Practice Experience	1
NEP 4290	Food Serv. II: Adv. Food Service Manage. Supervised Practice Exp	2
NEP 4280	Food Service Management	3
NEP 4340	Human Nutrition II Lecture	3
NEP 4360	Nutritional Assessment	3
NEP 4370	Medical Nutrition Therapy I	3
NEP 4590	Community Nutrition	3
NEP 4950	Capstone: Research in Nutritional Sciences	2
NEP 4951	Nutrition Research Communication	1
NEP 8340	Nutrition in Human Health	3
<b>Professional Electives (choose a minimum of 3 credit hours)</b>		<b>3</b>
If you are interested in a course not listed you must provide a syllabus for approval. The course must be 3000 level or higher and be relevant to you field. Approval is subject to faculty evaluation.		
AFNR 3215	Community Food Systems	3
BIO_SC 2200	General Genetics	4
BIO_SC 3750	General Microbiology	3
F_S 4370	Food Microbiology	3
F_S 4980	Food Quality Assurance	3
H_D_FS 3430	Adolescence and Young Adulthood	3
HLTH_SCI 3300	Public Health Principles, Practice, and Education	3
HLTH_SCI 4400	Culture and Health Literacy for the Health Professions	3
HLTH_SCI 4420	Health Literacy and Behavioral Compliance	3
MICROB 3200	Medical Microbiology and Immunology	4
MANGMT 4201	Topics in Management	3
MRKTNG 3000	Principles of Marketing	3
NEP 2460	Eating Disorders	3
NEP 3131	International Nutrition and Exercise Physiology	0-6
NEP 4970	PANHP Capstone: Sports Nutrition	2
PSYCH 3830	Health Psychology	3
RU_SOC 3310	Society, Agriculture and Natural Resources	3

RU_SOC 3325	Sociology of Food and Nutrition	3
SOCIOL 3430	The Sociology of Sport	3
SOCIOL 3440	Sociology of Health	3
STAT 3000-4000 level course		3
SOC_WK 4390	Helping Strategies With Children and Adolescents	3
SOC_WK 4395	Death, Grief and Loss	3
SOC_WK 4480	Helping Strategies with Older Persons	3

### Admission Requirements:

- Students must have applied and be admitted to the University of Missouri
- A CUM GPA of 3.2 or higher is required to apply (MU and transfer courses will be considered)
- Completed or enrolled in courses listed on the 1st 4 semesters of the sample plan
- Completed or enrolled in NEP 2340 and BIOCHM 3630 (or approved equivalent course) at time of application. Grade of B- or higher is required to remain in the program.
- A minimum UM System term GPA of 3.0 or higher for the semester in which the student is accepted to the Coordinated Program is required to remain in the program.
- If admitted, student must successfully pass all background checks, drug screening, and required health records prior to start of program
- Submit an application (due in January), required application materials are posted each year on the department's webpage (<http://ns.missouri.edu>).
- Participate in an interview with admissions committee

Note: Admission is limited to a maximum of 20 students per year.

### Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

Note: Changes in course requirements may occur, as the program is required to meet accreditation standards.

First Year			
Fall	CR	Spring	CR
GN_HES 1100	1	CHEM 1320	4
HES Foundation Course (HDFS 1600, 1610, 2400 or 2400W recommended)	3	ENGLSH 1000	3
PSYCH 1000	3	HLTH_SCI 1000	3
BIO_SC 1500 or 1010 <b>and</b> 1020	5	Humanities (PHIL 1150 or PHIL 2440 recommended)	3
MATH 1100	3	HIST or POL_SC course	3
		15	16
Second Year			
Fall	CR	Spring	CR
CHEM 2030	3	BIOCHM 3630	3
CHEM 2130	2	CDS 2190	3
MPP 3202	5	COMMUN 1200	3

NEP 2380	3 NEP 1995	3
HES Foundation Course (FINPLN 2183 is recommended)	3 NEP 2340	3

16 15

Third Year					
Fall	CR	Spring	CR	Summer	CR
F_S 4310	4	ESC_PS 4200 or PSYCH 3830	3	NEP 3400	1
NEP 3360	2	MANGMT 3000	3	NEP 3590	1
NEP 4340	3	NEP 2450	3	ESC_PS 4170	3
NEP 4360	3	NEP 3290	1		
NEP 4590	3	NEP 3390	2		
		NEP 4280	3		
		15	15	5	

Fourth Year			
Fall	CR	Spring	CR
MPP 4204	4	PTH_AS 2201	3
NEP 4290	2	NEP 3370	3
NEP 4950	2	NEP 4370	3
Humanities (WI)	3	NEP 4951	1
Professional Elective	3	NEP 8340	3
		General Elective	3
		14	16

Fifth Year			
Fall	CR	Spring	CR
HMI 7566	3	NEP 7390	1
P_HLTH 8300	3	NEP 8380	2
NEP 7380	3	NEP 8975	10
NEP 7385	1		
NEP 7381	4		
		14	13

Total Credits: 154

# BS in Nutrition and Exercise Physiology with Emphasis in Physical Activity, Nutrition and Human Performance

## Degree Program Description

This program is for students with a passion for health and wellness, evidence-based science, helping other people, and learning how and why physical activity and nutrition impact human performance. Students earning this degree are well-prepared for employment opportunities that include fitness assessment, lifestyle intervention education, health and wellness, exercise supervision and program administration in schools, businesses and hospitals, health education, and promotion and entry-level positions in cardiac and pulmonary or spine rehab. This is a rapidly expanding area with opportunities in corporate and commercial industries, government, and non-profit sectors.

In addition to the job opportunities listed above, past graduates of this area have continued their studies in a variety of areas such as graduate school for Exercise Science/Physiology, Kinesiology, Athletic

Training, Physical Therapy, Occupational Therapy, Physician's Assistant, Chiropractic, Nursing, Public Health.

Graduates of this program are qualified to sit for the following certifications without any additional courses or education beyond our core requirements: ACSM Certified Exercise Physiologist (ACSM EP-C), ACSM Certified Personal Trainer (ACSM CPT), ACSM Certified Group Exercise Instructor (ACSM GEI), NSCA Certified Personal Trainer, NSCA Certified Strength & Conditioning Coach, ACE Certified Personal Trainer.

## Major Program Requirements

Nutrition and Exercise Physiology with emphasis in Physical Activity, Nutrition, and Human Performance does not require an application or have a pre-program status. Students may declare the major and emphasis area by indicating it when they apply to MU and transition directly into the program. After the first semester at MU, students must have a minimum of a 2.0 GPA (term and CUM) to declare the program. The student will need to complete a transfer of division form or if a current student in another program within the department or college of HES, notify their advisor and/or HES Student Services of their wishes. There are specific grade requirements for most courses within the emphasis, these are outlined on the degree requirement sheet and noted on the degree audit.

### Grade Requirements:

C or higher: BIO\_SC 1010/BIO\_SC 1020 or BIO\_SC 1500, MPP 3202 or BIO\_SC 3700, PTH\_AS 2201( or the equivalent). All NEP courses (unless noted below)

C- or higher: MATH 1100, CHEM 1320, CHEM 2030 or CHEM 2100, NEP 3850W

Students must complete all university requirements (p. 35), including general education (p. 36), in addition to the degree requirements below.

## Science Foundation

BIO_SC 1010 & BIO_SC 1020	General Principles and Concepts of Biology and General Biology Laboratory	5
or BIO_SC 1500	Introduction to Biological Systems with Laboratory	
BIOCHM 3630	General Biochemistry	3
or BIOCHM 4270	Biochemistry	
CHEM 1320	College Chemistry I	4
CHEM 2030	Survey of Organic Chemistry	3
or CHEM 2100	Organic Chemistry I	
CHEM 2130	Organic Laboratory I (recommended)	2
MPP 3202	Elements of Physiology	5
or BIO_SC 3700	Animal Physiology	
PTH_AS 2201	Human Anatomy Lecture	3
PTH_AS 2203	Human Anatomy Laboratory (recommended)	2

### Math and Statistics

MATH 1100	College Algebra (C- or better required)	3
or MATH 1160	Precalculus Mathematics	
STAT 1200	Introductory Statistical Reasoning	3
or ESC_PS 4170	Introduction to Applied Statistics	

### Communication

COMMUN 1200	Public Speaking	3
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## Emphasis Core Requirements

### Nutritional Sciences

NEP 2340	Human Nutrition I	3
NEP 2380	Diet Therapy for Health Professionals	3
NEP 2450	Nutrition Throughout the Life Span	3
NEP 4970	PANHP Capstone: Sports Nutrition	2

### Exercise Physiology

HTH_PR 4250	Human Kinesiology	3
NEP 1340	Introduction to Exercise and Fitness	3
NEP 1485	Career Exploration in Exercise Science	1
NEP 2140	Exercise Practicum I	3
NEP 3450	Activity Throughout the Lifespan	3
NEP 3550	Corporate, Community, and Personal Fitness	3
NEP 3850	Physiology of Exercise	3
NEP 4200	Sports Performance and Conditioning	3
NEP 4860	Exercise Prescription	3

### Supporting Electives

9 credit hours (only 1 course can be taken outside of NEP area).  
Select a minimum of 3 classes from the list below.

#### NEP:

NEP 3001 or NEP 4001	Topics in Nutritional Science Topics in Nutrition and Exercise Physiology	1-3
NEP 2460	Eating Disorders	3
NEP 3131	International Nutrition and Exercise Physiology (study Abroad; may double dip n Humanities)	3
NEP 3390	Teaching and Counseling Techniques in Nutrition	2
NEP 3420	Role of Inactivity in Chronic Diseases	3
NEP 4330	Human Nutrition II Laboratory	2
NEP 4340	Human Nutrition II Lecture	3
NEP 4360	Nutritional Assessment	3
NEP 4370	Medical Nutrition Therapy I	3
NEP 4480	Pediatric Exercise Physiology	3
NEP 4550	Exercise is Medicine	2
NEP 4590	Community Nutrition	3
NEP 4750	Cardiopulmonary Rehabilitation - A Multifactorial Process	3
NEP 4940	Internship in Nutritional Science and Exercise Physiology	1-6

#### Other Areas:

BIO_SC 2200	General Genetics	4
ESC_PS 4200	Positive Psychology	3
H_D_FS 3430	Adolescence and Young Adulthood	3
H_D_FS 3440	Adulthood and Aging	3
HLTH_SCI 3300	Public Health Principles, Practice, and Education	3
MICROB 3200	Medical Microbiology and Immunology	4
PHYSICS 1210 or PHYSICS 1220	College Physics I College Physics II	4
PSYCH 2210	Mind, Brain, and Behavior	3
PSYCH 3830	Health Psychology	3
SOCIOL 3310	Social Psychology	3
SOCIOL 3430	The Sociology of Sport	3

Electives to equal 120 credit minimum

Organic chem lab, anatomy lab and internships are available and highly recommended.

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
GN_HES 1100		1 ENGLISH 1000	3
BIO_SC 1500 or 1010 <i>and</i> 1020		5 CHEM 1320	4
MATH 1100		3 NEP 1485	1
NEP 1340		3 Hist or Pol Sc	3
HES Foundation Course		3 Humanities	3
		15	14

Second Year			
Fall	CR	Spring	CR
CHEM 2030 or 2100		3 BIOCHM 3630 or 4270	3
CHEM 2130 (recommended)		2 MPP 3202	5
COMMUN 1200		3 NEP 2340	3
PTH_AS 2203 (recommended)		2 Social/Behavioral (recommend Psych 1000)	3
PTH_AS 2201		3	
NEP 2140		3	
		16	14

Third Year			
Fall	CR	Spring	CR
NEP 2380		3 NEP 2450	3
NEP 3450		3 NEP 3550	3
NEP 3850		3 social/behavioral science (recommend NEP 2222)	3
Statistics Course		3 Supporting Area	3
Humanities		3 Elective	3
		15	15

Fourth Year			
Fall	CR	Spring	CR
HTH_PR 4250		3 NEP 4200	3
NEP 4970		2 NEP 4860	3
Supporting Area		3 Supporting Area	3
Electives		5 Electives	6
HES Foundation (recommend selecting one that includes WI)		3-4	
		16-17	15

Total Credits: 120-121

## MS in Nutrition and Exercise Physiology

The Nutritional Sciences Graduate Program (NSGP) provides world class training that can open the door to a wide variety of career opportunities in the life sciences. We offer outstanding training that will help you achieve your career goals. Our graduate program is part of a campus-wide network of research programs that provides integrative research in the biomedical sciences. The MS in Nutrition and Exercise Physiology is offered with two emphasis area options: Nutritional Sciences, and Exercise Physiology. These programs provide outstanding educational

and cutting edge research opportunities for our students in the areas of nutrition, physical activity, exercise, and its relationship to human health and disease. Our research programs are grant funded both nationally and locally and include research in:

- Human exercise physiology and metabolism
- Cardiovascular physiology
- Bone density and exercise
- Vitamin D and bone growth
- Lipid and carbohydrate metabolism
- Molecular mineral nutrition
- Obesity research.

## Degree Requirements

The MS in Nutrition and Exercise Physiology has two emphasis areas. Please see the emphasis area pages in Nutritional Sciences (p. 682) and in Exercise Physiology (p. 681) for degree information.

# MS in Nutrition and Exercise Physiology with Emphasis in Exercise Physiology

## About the Program

The graduate program in Nutrition and Exercise Physiology is designed to provide advanced training in both the basic and applied aspects of exercise, physical activity and physical inactivity. Currently, the research focus is to examine the mechanisms by which physical activity levels and/or exercise modulate risk and development of obesity, type 2 diabetes, and overall metabolic and cardiovascular diseases using both animal models and human subjects, and to be able to translate the findings into the clinical or applied setting. Graduate students will receive training in laboratory research, seminar preparation, scientific writing, problem solving and grant writing. Graduate studies at the University of Missouri offer the advantage of interdisciplinary exercise research that is facilitated by numerous collaborations at the many research centers at MU. The Exercise Physiology research program collaborates closely with other units on campus including the Department of Biomedical Sciences in the Vet School, and the Departments of Internal Medicine and Medical Pharmacology and Physiology in the School of Medicine among others.

Exercise physiology faculty seek to develop new knowledge in the area of exercise training, exercise metabolism, and obesity. The current focus of the program is physical inactivity, exercise and nutrition strategies for weight management and the prevention of lifestyle related diseases. The mission of the Exercise Physiology Graduate Program is to train graduate students who will provide professional leadership and research developments in areas of human health and sports conditioning.

The curriculum has a scientific basis with core courses in exercise physiology, nutrition, biochemistry, and physiology. Exercise physiology research emphasizes human studies, but other exercise models are available on campus, including the pig (Vet. Biomedical Sci.) and the rat (Medical School and VA).

## Degree Requirements

Master's students in Nutrition and Exercise Physiology emphasis will choose between two options for final completion: thesis or internship.

Students should indicate their preference on their application to the program. The course curriculum will be the same for both options, except

for the thesis or internship. Students will complete a minimum of 36 credits of graduate coursework beyond the bachelor's degree. For a full explanation of the thesis/non-thesis options, see section below on Thesis/Non-Thesis Requirements (p. 681) or view the information on the programs website: <http://ns.missouri.edu/expHYMA.html>.

Prerequisites courses for the program are a B or better in General Chemistry, Physiology, Human Anatomy and Physiology of Exercise. Biochemistry, Organic Chemistry and Nutrition are recommended.

### Required Graduate Courses

ESC_PS 7170	Introduction to Applied Statistics (or an equivalent statistics class)	3
NEP 7500	Research in Nutritional Sciences and Exercise Physiology ( mandatory for thesis track; optional for internship track)	3
NEP 8087	Masters Seminar in Nutritional Sciences and Exercise Physiology	1
NEP 8090	Masters Research in Nutritional Sciences and Exercise Physiology	4
or NEP 8095	Internship in Exercise Physiology	
NEP 8125	Preventive and Therapeutic Exercise Physiology	3
NEP 8127	Advanced Physiological Assessment and Exercise Prescription	3
NEP 8220	Cardiovascular Disease and Exercise	3
NEP 8850	Advanced Exercise Physiology	3
NEP 8860	Exercise Endocrinology	3
<b>Must take a minimum of 2 of the following courses:</b>		
NEP 7340	Human Nutrition II Lecture (biochem. prereq.)	3
NEP 7970	PANHP Capstone: Sports Nutrition	2
NEP 8030	Etiology of Obesity	3
NEP 8340	Nutrition in Human Health	3
<b>Suggested Electives (other classes may be accepted)</b>		
BIOCHM 7270	Biochemistry	3
NEP 7200	Sports Performance and Conditioning	3
NEP 7500	Research in Nutritional Sciences and Exercise Physiology	3
NEP 8870	Exercise Metabolism	3
V_BSCI 9435	Molecular Exercise Biology	3

A public health certificate can be obtained if the 4 electives are taken in Public Health (NEP 8340 counts as one of these courses). Other certificates could also possibly work with this masters program.

## Thesis/Non-Thesis Requirements

### 1. Internship Option

This option is oriented toward improving a practitioner's professional proficiency in the applied aspects of exercise physiology. The program of study will include courses and learning experiences that will develop the student's knowledge in the theoretical aspects of exercise physiology.

They will be required to complete an approved internship (300 hours minimum) which will provide them with experience in an applied or clinical setting. The student is responsible for identifying and securing the internship. Students selecting this option will graduate with the some preparation for credentialing from organizations including the American College of Sports Medicine (ACSM) and the National Strength and Conditioning Association (NSCA). Completion of this degree as well as obtaining certification will prepare students for careers such as registered

clinical exercise physiologists, strength and conditioning coaching, personal trainer or wellness coach, health/fitness instructor, as well as in other health professions. The program of study can be complimented with a certificate of public health: <https://healthprofessions.missouri.edu/mp/mph-degree/certificates/graduate-certificate-public-health/>

## 2. Thesis Option

This option is research-oriented, focusing on designing and conducting research in exercise physiology. The program of study will include courses and learning experiences that will maximize a student's progress in developing lab skills and critical thinking that will enable the student to continue his/her education in a research-oriented area. The thesis option requires a minimum of 36 hours of graduate credit. A written thesis, based upon original research, that is the student's own work and that demonstrates a capacity for research and independent thought is required. In addition, the graduate student must present their thesis research in a seminar that is open to the general faculty and successfully defend their thesis to their committee.

## Admissions

**Exercise Physiology Program Applicants** must have a 3.0 undergraduate GPA. TOEFL scores are required from international applicants. Entering MS students are expected to have a B or better in undergraduate training in biology, chemistry, anatomy/physiology, and exercise physiology. It is also advantageous to have nutrition, organic chemistry and biochemistry, as it helps students in their required coursework. Courses should be taken at an accredited institution.

Applications to our graduate programs should be **submitted by December 30th**. While applications received after that date will still be considered, there is no guarantee that we will have space for additional students. Admission at the beginning of spring semester is possible, but limited.

### Minimum TOEFL Scores

Internet-based test (iBT)	Paper-based test (PBT)
100	600

### Minimum GRE Scores - the department is no longer requiring the GRE

Complete instructions on the application process can be found on the programs website: [http://ns.missouri.edu/graduate\\_apply.html](http://ns.missouri.edu/graduate_apply.html)

## MS in Nutrition and Exercise Physiology with Emphasis in Nutritional Sciences

### About the Program

The Nutritional Sciences Graduate Program provides training in the distinct core nutrition knowledge described by the Graduate Nutrition Education Committee of the American Society for Nutrition: general research skills; structure and biochemical and metabolic functions of nutrients and other dietary constituents; food, diets, and supplements; nutritional status assessment; nutrition and disease; nutrition interventions and policies; and, analytical skills. Graduate students also receive training in laboratory research, seminar preparation and delivery, scientific writing, problem solving and research grant writing. Graduate study in Nutritional Sciences at the University of

Missouri offers the advantage of interdisciplinary nutrition research that is facilitated via the many research centers at MU, including Food for the 21st Century (F21C), the Botanical Center, the Life Sciences Center and MU Nutritional Center for Health (MUNCH). The graduate program is administered by the Department of Nutrition and Exercise Physiology in association with the College of Human Environmental Sciences, the College of Agriculture, Food and Natural Resources, and the School of Medicine.

## Degree Requirements

The program consists of a total of 30 hours of credit beyond the bachelor's degree, of which 15 credits must be at the 8000 or 9000 level; no more than 40 percent of the 30-hour credit requirement can be satisfied by a combination of special investigations, Research, Readings and/or Problems courses. The master of science degree is awarded in part for the completion of a thesis. The thesis is based upon original research, that is student's own work and that demonstrates a capacity for research and independent thought is required. In addition, the graduate student must present their thesis research in a seminar that is open to the general faculty and successfully defend their thesis to their committee.

The minimum department course requirements for the master of science degree are:

AN_SCI 9442	Vitamins and Minerals	4
BIOCHM 7270 & BIOCHM 7272	Biochemistry and Biochemistry	6
NEP 7340	Human Nutrition II Lecture	3
NEP 8087	Masters Seminar in Nutritional Sciences and Exercise Physiology	1
NEP 8090	Masters Research in Nutritional Sciences and Exercise Physiology	4
NEP 8310	Nutritional Biochemistry of Lipids	3
NEP 8340	Nutrition in Human Health	3
Statistics		6
Total Credits		30

## Thesis/Non-Thesis Requirements

The M.S. program in Nutritional Sciences only offers a thesis option.

Students earning this degree must provide a written thesis, based upon original research, that is student's own work and that demonstrates a capacity for research and independent thought. In addition, the graduate student must present their thesis research in a seminar that is open to the general faculty and successfully defend their thesis to their committee.

## Admissions

Complete instructions on the application process can be found on the programs website: [http://ns.missouri.edu/graduate\\_apply.html](http://ns.missouri.edu/graduate_apply.html)

### Minimum TOEFL Scores

Internet-based test (iBT)	Paper-based test (PBT)
100	600

## This program no longer requires GRE Scores

## PhD in Nutrition and Exercise Physiology

The PhD in Nutrition and Exercise Physiology is unique in providing foundational knowledge in both disciplines with a research focus in how nutrition and exercise impact chronic disease. This degree prepares students for careers in academia, industry or the public sector.

### Degree Requirements

The PhD in Nutrition and Exercise Physiology has two emphasis areas, Exercise Physiology (p. 683) and Nutrition (p. 684). A student must choose an emphasis area.

The **Exercise Physiology PhD Emphasis Area** is designed to provide advanced training in both the basic and applied aspects of exercise, physical activity and physical inactivity. The curriculum has a scientific basis with core courses in exercise physiology, nutrition, biochemistry, and physiology. Currently, the research focus is to examine the mechanisms by which physical activity levels and/or exercise modulate risk and development of obesity, type 2 diabetes, as well as metabolic and cardiovascular diseases using both animal models and human subjects, and to be able to translate the findings into the clinical or applied setting.

The **Nutrition PhD Emphasis Area** provides training in the distinct core nutrition knowledge described by the Graduate Nutrition Education Committee of the American Society for Nutrition: general research skills; structure and biochemical and metabolic functions of nutrients and other dietary constituents; food, diets, and supplements; nutritional status assessment; nutrition and disease; nutrition interventions and policies; and, analytical skills. Basic, translation and clinical research focuses on obesity and associated conditions such as fatty liver disease, diabetes and bone fragility.

Graduate students receive training in laboratory research, seminar preparation, scientific writing, problem solving and grant writing. Graduate studies in **Nutrition and Exercise Physiology** offer the advantage of interdisciplinary exercise research that is facilitated by numerous collaborations at the many research centers at MU. The MU Nutritional Center for Health (MUNCH), which is used for study meal preparation and feeding studies is housed in NEP. The Exercise Physiology and Nutrition research programs collaborate closely with other units on campus including the Department of Biomedical Sciences in the Vet School, and the Departments of Internal Medicine and Medical Pharmacology and Physiology in the School of Medicine among others. Interdisciplinary nutrition research that is facilitated via the many research centers including the Botanical Center and the Life Sciences Center.

Teaching and research assistantships are available on a competitive basis.

### Admissions

At this time, the program does not accept students into the doctoral program without a master's degree. A student without a master's degree who would like to pursue a doctoral degree must apply to the master's graduate program. Once accepted into the master's program it is possible to apply and transfer to the doctoral program after the first year of graduate study. Specified criteria must be met for the transfer to be approved by the Graduate Admissions Committee. Please contact the department for more information on this subject.

## PhD in Nutrition and Exercise Physiology with Emphasis in Exercise Physiology

### Degree Requirements

Students previous coursework must include biology, chemistry, anatomy, physiology and exercise physiology to be considered. It is also advantageous to have organic chemistry, biochemistry and some nutrition.

The PhD program in Exercise Physiology requires 75 hours beyond the bachelor's degree. A committee of 4 faculty members must approve all graduate courses, including those from other universities. The graduate course work includes coursework in exercise physiology, physiology, nutrition and biochemistry. Research requirements include NEP 7500 (9 hours of research projects) and NEP 9090 (12 hours dissertation). One semester of teaching experience is highly recommended, as is participation on an external grant proposal and co-authoring two manuscripts. NEP 8850 Advanced Exercise Physiology is used as your competency course a grade of B or better is required. If the student has a similar course in their transfer courses from a masters, then another course will be used - this must be approved by the graduate director and committee.

Note: Masters courses may be transferred from other institutions (30 hours maximum), and may count toward the doctoral program at the discretion of the student's committee (3 members in dept., 1 member outside).

#### Required Core Courses

NEP 7340	Human Nutrition II Lecture	3
NEP 8220	Cardiovascular Disease and Exercise	3
NEP 8501	Hot Topics in Nutrition, Exercise and Disease (minimum of 3 hrs.)	1
NEP 8850	Advanced Exercise Physiology	3
NEP 8860	Exercise Endocrinology	3
NEP 8870	Exercise Metabolism	3
NEP 9087	Doctorate Seminar in Nutritional Sciences and Exercise Physiology (minimum of 4 hrs.)	1
NEP 9090	Doctorate Research in Nutritional Sciences and Exercise Physiology	12
BIOCHM 7270 & BIOCHM 7272	Biochemistry and Biochemistry	6
Research Ethics (select 1-2 hrs.)		1-2
BIOCHM 8060	Ethical Conduct of Research	1
BIO_SC 8060	Ethical Conduct of Research	1
MPP 8415	Responsible Conduct of Research thru Engagement, Enactment and Empowerment NIH and other Federal Age	2
V_PPIO 8641	Introduction to Research Ethics	1
Statistics (pick two courses)		
ESC_PS 7170	Introduction to Applied Statistics	3
ESC_PS 8850	Quantitative Foundations in Educational Research	3
ESC_PS 9650	Application of Multivariate Analysis in Educational Research	3
STAT 7070	Statistical Methods for Research	3

STAT 7510	Applied Statistical Models I	3
STAT 7520	Applied Statistical Models II	3
STAT 7540	Experimental Design	3
Research Methods and Techniques (minimum of 2 hrs.)		
MPP 8417	Scientific Communication	2
MPP 8420	Skills in Biomedical Research	2
NEP 7500	Research in Nutritional Sciences and Exercise Physiology	1-99

**Suggested Electives**

NEP 7970	PANHP Capstone: Sports Nutrition	2
NEP 8030	Etiology of Obesity	3
NEP 8125	Preventive and Therapeutic Exercise Physiology	3
NEP 8127	Advanced Physiological Assessment and Exercise Prescription	3
NEP 8310	Nutritional Biochemistry of Lipids	3
NEP 8340	Nutrition in Human Health	3
V_BSCI 9435	Molecular Exercise Biology	3
NEP 8085	Problems in Nutritional Sciences and Exercise Physiology (independent study, can take more than one)	1-99
BIOCHM 8260	Macromolecular Systems Integration	4
MPP 7422	Medical Physiology	4
MPP 9426	Transmembrane Signaling	4
MPP 9434	Microvascular Circulatory Function	4
BIOCHM 9432	Molecular Biology II	4

### Sample Plan of Study

Because students in the PhD program are from a wide variety of disciplines, and pursue the PhD at different paces, a sample plan of study is not easily produced. Students are encouraged to work out their plan of study with their advisor.

### Qualifying Process

NEP 8850 Advanced Exercise Physiology is used as your competency course and the student must pass with the grade of B or better. If the student comes in with a master's course similar to NEP 8850, then another course can be used as the competency course and will be approved by the committee and graduate director (e.g. NEP 8870 Exercise Metabolism).

### Comprehensive Examination Process

Candidacy for a doctoral degree is established by passing the comprehensive examination. The comprehensive examination includes written and oral sections and is completed as the candidate is completing the prescribed coursework.

### Dissertation Requirements

The dissertation must be written on a subject approved by the candidates doctoral program committee, must embody the results of original and significant investigation and must be the candidates own work. All dissertation defenses shall be open to the general faculty. For the dissertation to be successfully defended, the student's doctoral committee must vote to pass the student on the defense with no more than one dissenting or abstaining vote.

## Admissions

**Deadline for Fall entrance: Dec 30**

### Minimum TOEFL Scores

Internet-based test (iBT)	Paper-based test (PBT)
100	600

### GRE Scores - this department no longer requires the GRE

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Exercise Physiology ([http://nep.missouri.edu/grad\\_admission.html](http://nep.missouri.edu/grad_admission.html)) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Before official admission to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you applied.

**Exercise and Physiology Program Applicants** must have a 3.00 undergraduate GPA and a 3.5 graduate GPA. TOEFL scores are required from international applicants. Specific information can be found on the department website:[http://ns.missouri.edu/grad\\_admission.html](http://ns.missouri.edu/grad_admission.html)

At this time, the program does not accept students into the doctoral program without a master's degree. A student without a master's degree who would like to pursue a doctoral degree must apply to the master's graduate program. Once accepted into the master's program it is possible to apply and transfer to the doctoral program after the first year of graduate study. Specified criteria must be met for the transfer to be approved by the Nutritional Sciences Graduate Admissions Committee. Please contact the department for more information on this subject.

**Deadline for Applications is December 30th.** While applications received after that date will still be considered, they will not be eligible for all fellowships.

Complete instructions for applying to the program can be found on the programs website: [http://ns.missouri.edu/graduate\\_apply.html](http://ns.missouri.edu/graduate_apply.html)

## PhD in Nutrition and Exercise Physiology with Emphasis in Nutrition

### About the Program

The PhD in Nutrition and Exercise Physiology with Emphasis in Nutrition provides training in the distinct core nutrition knowledge described by the Graduate Nutrition Education Committee of the American Society for Nutrition: general research skills; structure and biochemical and metabolic functions of nutrients and other dietary constituents; food, diets, and supplements; nutritional status assessment; nutrition and disease; nutrition interventions and policies; and, analytical skills. Graduate students also receive training in laboratory research, seminar preparation and delivery, scientific writing, problem solving and research grant writing. Graduate study in nutritional sciences at the University of Missouri offers the advantage of interdisciplinary nutrition research that is facilitated via the many research centers at MU, including Food for the

21st Century (F21C), the Botanical Center, the Life Sciences Center and the MU Nutritional Center for Health (MUNCH).

Nutrition is, by definition, an applied and multi-disciplinary science that integrates other disciplines such as biochemistry, physiology, biology, psychology, sociology, and economics. A primary research focus in the department of Nutrition and Exercise Physiology is the role of diet in the prevention and treatment of chronic diseases that are prevalent in the United States today: obesity, the metabolic syndrome, diabetes, immune disorders, neurodegenerative diseases, and osteoporosis. Specific dietary components being studied for their role in human health include protein, calcium, vitamin D, copper, iron, omega-3 fatty acids, and nutraceuticals. Another important research area is the determinants of eating behavior, including neuro-psychological, sociologic, and economic factors. Investigative approaches include epidemiology, clinical trials, human studies, experimental and transgenic animal models, and cultured cell models.

## Degree Requirements

A total of 75 hours beyond the bachelor's degree, including but not limited to courses from the emphasis areas are required; courses from the Masters degree may be counted at the discretion of the student's committee. At least 15 of the 75 hours must be at the 8000/9000 level (exclusive of research, problems and independent study experiences).

Graduate students may elect to take suggested courses from the following focus areas:

- Human/Clinical Nutrition
- Public Health Nutrition
- Behavioral Science
- Food Science
- Biochemistry/Cell Physiology

A list of possible courses that fall within these areas can be found on the department website: [http://ns.missouri.edu/graduate\\_phd.html](http://ns.missouri.edu/graduate_phd.html) ([http://ns.missouri.edu/graduate\\_phd.html](http://ns.missouri.edu/graduate_phd.html)).

### Required Core Courses

NEP 7330	Human Nutrition II Laboratory	2
NEP 7340	Human Nutrition II Lecture	3
NEP 8310	Nutritional Biochemistry of Lipids	3
NEP 8340	Nutrition in Human Health	3
NEP 8501	Hot Topics in Nutrition, Exercise and Disease (must earn a minimum of 3 credits)	1
NEP 8870	Exercise Metabolism	3
NEP 9087	Doctorate Seminar in Nutritional Sciences and Exercise Physiology (4 credits needed)	1
NEP 9090	Doctorate Research in Nutritional Sciences and Exercise Physiology	12
BIOCHM 7270 & BIOCHM 7272	Biochemistry and Biochemistry	6
Research Ethics (select 1-2 hours)		
BIOCHM 8060	Ethical Conduct of Research	1
BIO_SC 8060	Ethical Conduct of Research	1
MPP 8415	Responsible Conduct of Research thru Engagement, Enactment and Empowerment NIH and other Federal Age	2
V_PPIO 8641	Introduction to Research Ethics	1
Statistics (pick two courses)		

ESC_PS 7170	Introduction to Applied Statistics	3
ESC_PS 8850	Quantitative Foundations in Educational Research	3
ESC_PS 9650	Application of Multivariate Analysis in Educational Research	3
STAT 7070	Statistical Methods for Research	3
STAT 7510	Applied Statistical Models I	3
STAT 7520	Applied Statistical Models II	3
STAT 7540	Experimental Design	3
Research Methods and Techniques (pick one)		
MPP 8417	Scientific Communication	2
MPP 8420	Skills in Biomedical Research	2
NEP 7500	Research in Nutritional Sciences and Exercise Physiology	1-99

### Possible Electives

AN_SCI 8420	Endocrinology	3
BIOCHM 8432	Enzymology and Metabolic Regulation	3
F_C_MD 8420	Principles of Epidemiology	3
F_S 8440	Functional Foods and Nutraceuticals	3
NEP 7970	PANHP Capstone: Sports Nutrition	2
NEP 8030	Etiology of Obesity	3
SOC_WK 7330	Addiction Treatment and Prevention	3
V_PPIO 8451	Introduction to Immunology	3
V_PPIO 8455	Epidemiology and Biostatistics	3

## Sample Plan of Study

Because students in the PhD program are from a wide variety of circumstances, and pursue the PhD at different paces, a sample plan of study is not easily produced. Students are encouraged to work out their plan of study with their advisor.

## Qualifying Process

**Nutrition Applicants** must pass a Qualifying Exam before a student is officially admitted to the doctoral program. The Qualifying Exam should be completed by the end of the second semester (D1 form should be filed with the Graduate School). The Qualifying Exam consists of a knowledge-based written exam and an oral exam.

## Comprehensive Examination Process

A doctoral student must successfully complete the comprehensive examination within a period of three (3) years beginning with the first semester of enrollment as a PhD student. In addition, the program for the doctoral degree must be completed within three (3) years of passing the comprehensive examination. Time spent in the armed services will not count toward the six (6)-year limit (See Graduate School Active Duty Policy). For any extension of either of these time limitations, the student must petition their faculty advisor/mentor and the academic program's director of graduate studies in writing during the semester prior to reaching the time limitation. The director of graduate studies will notify the advisor in writing of the decision. The two sections of the examination must be completed within one month. A report of this decision (pdf) (<http://gradschool.missouri.edu/forms-downloads/repository/d3.pdf>), carrying the signatures of all members of the committee, must be sent to the Graduate School and the student no later than two weeks after the comprehensive examination is completed.

## Dissertation Requirements

The dissertation must be written on a subject approved by the candidate's doctoral program committee, must embody the results of original and significant investigation and must be the candidate's own work. All dissertation defenses shall be open to the general faculty. For the dissertation to be successfully defended, the student's doctoral committee must vote to pass the student on the defense with no more than one dissenting or abstaining vote.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the PhD in Nutritional Sciences ([http://nep.missouri.edu/graduate\\_phd.html](http://nep.missouri.edu/graduate_phd.html)) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Before official admission to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you applied. Specific information can be found on the department website: [http://ns.missouri.edu/grad\\_admission.html](http://ns.missouri.edu/grad_admission.html)

**Nutritional Program PhD Applicants** are expected to have undergraduate training (lecture and laboratory courses) in general and organic chemistry and biology, a two-semester course in biochemistry, and an upper-level human nutrition course. They must have an average of B or better in science courses (chemistry, biology, physics, biochemistry, mathematics, etc.) taken at an accredited institution and must provide GRE scores. TOEFL scores are required for all international applicants.

At this time, the program does not accept students into the doctoral program without a master's degree. A student without a master's degree who would like to pursue a doctoral degree must apply to the master's graduate program. Once accepted into the master's program it is possible to apply and transfer to the doctoral program after the first year of graduate study. Specified criteria must be met for the transfer to be approved by the Nutritional Sciences Graduate Admissions Committee. Please contact the department for more information on this subject.

**Deadline for Applications is December 30th.** While applications received after that date will still be considered, they will not be eligible for all fellowships.

## Minimum TOEFL Scores

Internet-based test (iBT)	Paper-based test (PBT)
100	600

## Minimum GRE Scores - the department is no longer requiring a GRE

Complete instructions for applying to the program can be found on the programs website: [http://ns.missouri.edu/graduate\\_apply.html](http://ns.missouri.edu/graduate_apply.html)

## Personal Financial Planning

### Department Chair

Frances C. Lawrence, PhD  
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<http://pfp.missouri.edu>

### Advising Contacts

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### Scholarship Information Contact

Liz Townsend Bird  
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(573) 882-7514  
[hesdevelopment@missouri.edu](mailto:hesdevelopment@missouri.edu)

The Department of Personal Financial Planning is nationally and internationally recognized for its premier education and research programs. Not only does the department have one of only four PhD financial planning degrees in the U.S., it offers undergraduate, graduate, and certificate CFP Board-Registered Programs that prepare students to meet the education requirement to sit for the CFP® certification examination. The award-winning faculty provide an ideal environment for student success. Students have excellent opportunities to intern at leading financial planning firms, to participate in peer financial coaching in our Office for Financial Success, and to conduct research with a purpose.

## Faculty

**Professor** F. Lawrence\*\*, R. Yao\*\*  
**Associate Professor** D. L. Sharpe\*\*  
**Assistant Professor** L. Fan\*, A. Rabbani\*  
**Teaching Assistant Professor** M. Dorn, J. Green\*  
**Extension Assistant Professor** G. McCaulley, A. Zumwalt  
**Emeritus Professor** P. Lieurance, R. O. Weagley

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BS in Personal Financial Planning (p. 688)
  - with emphasis in Financial Counseling (p. 688)
  - with emphasis in Personal Financial Management Services (p. 689)
  - with emphasis in Personal Financial Planning (p. 690)
- Certificate in Personal Financial Planning (p. 691)
- Minor in Personal Financial Management Services (p. 692)

The Department of Personal Financial Planning is nationally and internationally recognized for its premier education and research programs. Not only does the department have one of only four PhD financial planning degrees in the U.S., it offers undergraduate, graduate, and certificate CFP Board-Registered Programs that prepare students to meet the education requirement to sit for the CFP® certification

examination. The award-winning faculty provide an ideal environment for student success. Students have excellent opportunities to intern at leading financial planning firms, to participate in peer financial coaching in our Office for Financial Success, and to conduct research with a purpose.

The program leading to the BS in Personal Financial Planning offers designated emphasis areas in personal financial planning, personal financial management services, and financial counseling.

### **PERSONAL FINANCIAL PLANNING**

The PFP degree option enables graduates to meet the education requirements to sit for the comprehensive CFP® examination to earn the right to use the CFP® designation. Coursework includes principles of personal financial planning, investments, insurance, taxation, retirement planning, and estate planning, complemented by courses that develop an understanding of the economic and social contexts within which clients make financial decisions. Graduates excel in providing client-centered financial planning advice.

To be admitted to the Personal Financial Planning emphasis area, students must have a University of Missouri cumulative GPA of at least a 2.5, based on at least 50 credits attempted. Students who wish to pursue a Personal Financial Planning emphasis must earn a grade of B- (2.7) or better in FINPLN 2183 and a grade of C (2.0) or better in FINPLN 3283 to move to the professional program. A grade in the D range is allowed in only one course in the professional program (unless otherwise noted), regardless of emphasis area.

### **PERSONAL FINANCIAL MANAGEMENT SERVICES**

PFMS is a degree option that prepares students to work with individuals and families in a wide range of financial service occupations, from insurance, investments, or banking to financial counseling, education, or a social change occupation. This degree program gives graduates a broad understanding of household financial management. Many students choose to complement this degree with a minor in business, economics, social work, or other related program.

To be admitted to the Personal Financial Management Services emphasis area, students must have a University of Missouri cumulative GPA of at least a 2.0, based on at least 50 credits attempted. Students who wish to pursue a Personal Financial Management Services emphasis must earn at least a grade of C (2.0) or better in FINPLN 2183 and FINPLN 3283 to move to the professional program. A grade in the D range is allowed in only one course in the professional program (unless otherwise noted), regardless of emphasis area.

### **FINANCIAL COUNSELING**

Financial Counseling brings together a sound knowledge of personal finance with a solid background in counseling, utilizing the expertise of our colleagues in the School of Social Work and the Department of Human Development and Family Science. Besides preparing students to work with individuals and families in a wide range of financial service occupations, this emphasis area develops the tools a financial professional needs to help address the human issues often accompanying financial problems. In addition, graduates may take the exam that leads to earning the Accredited Financial Counselor (AFC®) designation, which is offered through the Association for Financial Counseling and Planning Education (<http://www.afcpe.org/>) (AFCPE®).

To be admitted to the Financial Counseling emphasis area, students must have a University of Missouri cumulative GPA of at least a 2.25, based on at least 50 credits attempted. Students who wish to pursue a Financial Counseling emphasis must earn at least a grade of C (2.0) or better in FINPLN 2183 and FINPLN 3283 to move to the professional

program. A grade in the D range is allowed in only one course in the professional program (unless otherwise noted), regardless of emphasis area.

### **MINOR**

The Minor in Personal Financial Management Services is intended for students interested in course work focused on empowering them to make more informed decisions related to lifelong personal finance choices.

### **UNDERGRADUATE CERTIFICATE PROGRAM**

An undergraduate certificate in Personal Financial Planning was approved by the Missouri Coordinating Board for Higher Education and the Certified Financial Planner Board of Standards, Inc. Those who complete the certificate are eligible to sit for the CERTIFIED FINANCIAL PLANNER™ certification exam, upon graduation with a bachelor's degree. This student must have an MU cumulative GPA of at least a 2.5 upon application.

Students who want to explore the major can take FINPLN 2083 Financial Planning Careers and FINPLN 2183 Personal and Family Finance.

## **Graduate**

- MS in Personal Financial Planning (p. 692)
  - with emphasis in Consumer and Family Economics (p. 692)
  - with emphasis in Personal Financial Planning (p. 693)
- Graduate Certificate in Personal Financial Planning (p. 694)

The College also offers a PhD in Human Environmental Sciences with an emphasis in Personal Financial Planning (p. 672).

### **Director of Graduate Studies and GPIDEA/Online Program**

Deanna L. Sharpe ([http://pfp.missouri.edu/faculty\\_sharpe.html](http://pfp.missouri.edu/faculty_sharpe.html)), PhD, CFP®, CRPC®, CRPS  
239C Stanley Hall  
Columbia, MO 65211  
573-882-9652  
<http://pfp.missouri.edu/>

### **Director CFP Board-Registered Program**

Frances C. Lawrence, PhD  
241 Stanley Hall  
(573) 882-9651  
<http://pfp.missouri.edu/> (<http://pfp.missouri.edu/>)

## **Program Information**

Individuals and families today bear an ever-growing responsibility for achieving and sustaining financial and economic success across their life span. Never has there been a greater need for well-trained professionals who can help individuals and families make informed and effective financial and economic decisions. In addition, research that helps to evaluate and recommend public policies that influence the economic opportunities and futures of individuals and families is in high demand.

Graduate course work in Personal Financial Planning at the University of Missouri analyzes household and consumer economic conditions and behavior, evaluating the interrelationships between households and markets with a focus on improving social policy. Students' programs are designed to develop professional competencies and interests. A resident doctoral and two masters programs are available. Online graduate offerings may be viewed at [http://pfp.missouri.edu/graduate\\_distance.html](http://pfp.missouri.edu/graduate_distance.html).



## Certification Information

Degrees registered with the Certified Financial Planner Board of Standards Inc. include: a graduate Certificate in Personal Financial Planning and an Applied Master's Degree.

Financial planning course work could also be completed as a doctoral program that is registered with the Certified Financial Planner Board of Standards Inc.

## Financial Aid

If you wish to be considered for internal assistantships, fellowships, or other funding packages, check the program website (<http://pfp.missouri.edu/>) or contact the Director of Graduate Studies, Rui Yao ([http://pfp.missouri.edu/faculty\\_yao.html](http://pfp.missouri.edu/faculty_yao.html)) for details.

## Faculty Areas of Study

We conduct research pertaining to financial issues of individuals, families and households. Our research is highly applied and provides practical implications to researchers, financial planning professionals and policy makers on helping individuals, families and households make better financial decisions, improve their financial well-being, and reach their financial goals. Specifically, our research focuses on the following areas:

- Behavioral finance
- Risk management
- Investment
- Retirement and later-life financial issues
- Financial literacy and education

## BS in Personal Financial Planning

### Degree Program Description

### Major Program Requirements

The BS in Personal Financial Planning offers three emphasis areas: Personal Financial Planning, Financial Counseling, and Personal Financial Management Services. Professional program requirements are listed at the emphasis level.

### Semester Plan

The BS in Personal Financial Planning has emphasis areas in Financial Counseling (p. 688), Personal Financial Management Services (p. 689), and Personal Financial Planning (p. 690). Please see the individual emphasis area pages for degree requirements and admissions information.

## BS in Personal Financial Planning with Emphasis in Financial Counseling

### Degree Program Description

The Financial Counseling emphasis brings together a sound knowledge of personal finance with a solid background in counseling. Courses cover personal finance, social work, and human development and family science. In addition to preparing students to work with individuals and families in a wide range of financial service occupations, this

emphasis area develops tools needed to help address the human issues often accompanying financial problems. Students may prepare for the Certified Retirement Counselor<sup>®</sup> (CRC<sup>®</sup>) or Certified Retirement Administrator<sup>®</sup> (CRA<sup>®</sup>) designation, or take the exam that leads to earning the Accredited Financial Counselor (<http://afcpe.org/>)<sup>®</sup> (AFC<sup>®</sup>) designation.

## Major Program Requirements

### Professional Program

The Professional Program is comprised of three areas listed below: departmental core requirements, supporting coursework, and professional specialization courses. To be admitted to the Financial Counseling emphasis area, students must have a University of Missouri cumulative GPA of at least a 2.25, based on at least 50 credits attempted. Students who wish to pursue a Financial Counseling emphasis must earn at least a grade of C (2.0) or better in FINPLN 2183 and FINPLN 3283 to move to the professional program. A grade in the D range is allowed in only one course in the professional program (unless otherwise noted), regardless of emphasis area.

### Departmental Core Requirements

FINPLN 2083	Financial Planning Careers	1
FINPLN 2183	Personal and Family Finance	3
FINPLN 3282	Financial Counseling	3
FINPLN 3283	Financial Planning: Computer Applications	3
FINPLN 4187	Tax Planning	3
FINPLN 4188	Community Agencies and Volunteerism	3
FINPLN 4380W	Assessing the American Dream - Writing Intensive	3
FINPLN 4382	Financial Planning: Risk Management	3
FINPLN 4383	Financial Planning: Investment Management	3
FINPLN 4387	Consumer and Household Economics	3
Total Credits		28

### Supporting Coursework

ECONOM 1014	Principles of Microeconomics	3
or ABM 1041	Applied Microeconomics	
ECONOM 1015	Principles of Macroeconomics	3
or ABM 1042	Applied Macroeconomics	
ECONOM 3229	Money, Banking and Financial Markets	3
MANGMT 3540	Introduction to Business Law	3
MATH 1400	Calculus for Social and Life Sciences I	3
PSYCH 1000	General Psychology	3
SOCIOL 1000	Introduction to Sociology	3
ACCTCY 2036	Accounting I	3
or ACCTCY 2010	Introduction to Accounting	
or ACCTCY 2026	Accounting I	
STAT 2500	Introduction to Probability and Statistics I	3
Total Credits		27

### Professional Specialization Requirements

FINPLN 4993	Internship in Personal Financial Planning	3
H_D_FS 4610	Stress and Resilience in Families	3
H_D_FS 4620	Family Interaction	3

H_D_FS 4630	The Process of Divorce	3
SOC_WK 2000	Exploration in Social and Economic Justice	3
or SOC_WK 2000W	Exploration in Social and Economic Justice - Writing Intensive	
SOC_WK 4710	Social Justice and Social Policy	3
Total Credits		18

\* Requires a grade of C (2.0) or higher.

## Semester Plan

First Year			
Fall	CR	Spring	CR
American History or Government	3	ECONOM 1015 or ABM 1042	3
GN_HES 1100	1	ENGLISH 1000	3
HES Foundation	3	FINPLN 2183	3
MATH 1100	3	MATH 1400	3
PSYCH 1000	3	SOCIOL 1000	3
Science w/ Lab	3		
		16	15

Second Year			
Fall	CR	Spring	CR
ECONOM 1014 or ABM 1041	3	ACCTCY 2036	3
Humanities	3	Communications	3
FINPLN 2083	1	ECONOM 3229	3
FINPLN 3283	3	FINPLN 3282	3
STAT 2500	3	H_D_FS 4610	3
General Elective	4		
		17	15

Third Year					
Fall	CR	Spring	CR	Summer	CR
H_D_FS 4620	3	FINPLN 4188	3	FINPLN 4993	3
FINPLN 4187	3	H_D_FS 4630	3		
FINPLN 4382	3	SOC_WK 2000	3		
HES Foundation (WI)	3-4	General Elective	6		
FINPLN 4383	3				
		15-16	15		3

Fourth Year			
Fall	CR	Spring	CR
FINPLN 4380W	3	FINPLN 4387	3
SOC_WK 4710	3	Humanities	3
Humanities	3	General Elective	6
MANGMT 3540	3		
		12	12

Total Credits: 120-121

# BS in Personal Financial Planning with Emphasis in Personal Financial Management Services

## Degree Program Description

Personal Financial Management Services prepares students to work with individuals and families in a wide range of financial service occupations from insurance, investments, or banking, to financial counseling, education, or a social change occupation. This degree program gives graduates a broad understanding of household financial management. Many students choose to complement this degree with a minor in business, economics, social work, or other related program. Students may prepare for the Certified Retirement Counselor<sup>®</sup> (CRC<sup>®</sup>) or Certified Retirement Administrator<sup>®</sup> (CRA<sup>®</sup>) designation, or take the exam that leads to earning the Accredited Financial Counselor (<http://afcpe.org/>)<sup>®</sup> (AFC<sup>®</sup>) designation.

## Major Program Requirements

### Professional Program

The Professional Program is comprised of three areas listed below: departmental core requirements, supporting coursework, and professional specialization courses. To be admitted to the Personal Financial Management Services emphasis area, students must have a University of Missouri cumulative GPA of at least a 2.0, based on at least 50 credits attempted. Students who wish to pursue a Personal Financial Management Services emphasis must earn at least a grade of C (2.0) or better in FINPLN 2183 and FINPLN 3283 to move to the professional program. A grade in the D range is allowed in only one course in the professional program (unless otherwise noted), regardless of emphasis area.

### Departmental Core Requirements

FINPLN 2083	Financial Planning Careers <sup>1</sup>	1
FINPLN 2183	Personal and Family Finance <sup>1</sup>	3
FINPLN 3282	Financial Counseling <sup>1</sup>	3
FINPLN 3283	Financial Planning: Computer Applications <sup>1</sup>	3
FINPLN 4187	Tax Planning <sup>3</sup>	3
FINPLN 4188	Community Agencies and Volunteerism <sup>3</sup>	3
FINPLN 4380W	Assessing the American Dream - Writing Intensive <sup>3</sup>	3
FINPLN 4382	Financial Planning: Risk Management <sup>3</sup>	3
FINPLN 4383	Financial Planning: Investment Management <sup>3</sup>	3
FINPLN 4387	Consumer and Household Economics <sup>3</sup>	3
Total Credits		28

### Supporting Coursework

ECONOM 1014	Principles of Microeconomics <sup>1</sup>	3
or ABM 1041	Applied Microeconomics	
ECONOM 1015	Principles of Macroeconomics <sup>1</sup>	3
or ABM 1042	Applied Macroeconomics	
ECONOM 3229	Money, Banking and Financial Markets <sup>3,4</sup>	3
MANGMT 3540	Introduction to Business Law <sup>3,4</sup>	3

MATH 1400	Calculus for Social and Life Sciences I <sup>3,4</sup>	3
PSYCH 1000	General Psychology	3
SOCIOL 1000	Introduction to Sociology	3
ACCTCY 2036 or ACCTCY 2010 or ACCTCY 2026	Accounting I <sup>3,4</sup> Introduction to Accounting Accounting I	3
STAT 2500	Introduction to Probability and Statistics I <sup>3,4</sup>	3
Total Credits		27

- <sup>1</sup> Requires a grade of C (2.0) or higher.
- <sup>2</sup> Requires a grade of B- (2.7) or higher.
- <sup>3</sup> Requires a grade of C- or higher.
- <sup>4</sup> One "D" range grade allowed.

### Professional Specialization Requirements

These courses are selected by students from a list of approved courses to complement their degree (courses can be found on our departmental website <http://pfp.missouri.edu> or your specific degree audit). At least nine hours of the Professional Specialization Electives must be at the 3000 level or higher. Contact the Student Services Office of the College of Human Environmental Sciences or your departmental advisor to focus your additional credits in a specific area.

Total Credits		18
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### Semester Plan

First Year			
Fall	CR	Spring	CR
American History or Government	3	ECONOM 1015 or ABM 1042	3
GN_HES 1100	1	ENGLISH 1000	3
HES Foundation	3	FINPLN 2183	3
MATH 1100	3	MATH 1400	3
PSYCH 1000	3	SOCIOL 1000	3
Science w/ Lab	3		
		16	15
Second Year			
Fall	CR	Spring	CR
ECONOM 1014 or ABM 1041	3	Communications	3
FINPLN 2083	1	ECONOM 3229	3
FINPLN 3283	3	FINPLN 3282	3
General Elective	3	ACCTCY 2010 or 2036	3
STAT 2500	3	Professional Elective	3
Humanities	3		
		16	15
Third Year			
Fall	CR	Spring	CR
FINPLN 4187	3	FINPLN 4188	3
FINPLN 4382	3	General Elective	6
FINPLN 4383	3	Professional Specialization Elective	6
HES Foundation (WI Recommended)	3-4		
Professional Elective	3		
		15-16	15

Fourth Year			
Fall	CR	Spring	CR
FINPLN 4380W	3	FINPLN 4387	3
General Elective	3	General Electives	3-6
MANGMT 3540	3	Professional Specialization Electives	3
Professional Specialization Elective	3	Humanities	3
Humanities	3		
		15	12-15

Total Credits: 119-123

## BS in Personal Financial Planning with Emphasis in Personal Financial Planning

### Degree Program Description

The Personal Financial Planning degree program is registered with the Certified Financial Planner Board of Standards, Inc. (<https://www.cfp.net/>) allowing graduates to sit for the comprehensive CFP® examination to earn the right to use the CFP® designation. Coursework includes principles of personal financial planning, investments, insurance, taxation, retirement planning, and estate planning, complemented by courses that develop an understanding of the economic and social contexts within which clients make financial decisions. Graduates excel in providing client-centered financial management advice. Students may prepare for the Certified Retirement Counselor® (CRC®) or Certified Retirement Administrator® (CRA®) designation, or take the exam that leads to earning the Accredited Financial Counselor® (AFC®) designation. Graduates are employed as financial planners, private wealth manager, investment strategist, employee benefits advisor, retirement benefits administrator, insurance specialist, financial counselor, compliance officer, client service manager, trust & estate administrator, Extension agents, and consultants or counselors in financial, social, educational, legal, and government agencies.

Graduates must complete education requirements, pass a national professional exam, obtain professional experience, and agree to adhere to the professional code of ethics before being able to use the CFP® marks.

### Major Program Requirements

#### Professional Program

The Professional Program is comprised of three areas listed below: departmental core requirements, supporting coursework, and professional specialization courses. To be admitted to the Personal Financial Planning emphasis area, students must have a University of Missouri cumulative GPA of at least a 2.5, based on at least 50 credits attempted. Students who wish to pursue a Personal Financial Planning emphasis must earn a grade of B- (2.7) or better, in FINPLN 2183 and a grade of C (2.0) or better in FINPLN 3283 to move to the professional program. A grade in the D range is allowed in only one course in the professional program (unless otherwise noted), regardless of emphasis area.

## Departmental Core Requirements

FINPLN 2083	Financial Planning Careers <sup>1</sup>	1
FINPLN 2183	Personal and Family Finance <sup>2</sup>	3
FINPLN 3282	Financial Counseling <sup>1</sup>	3
FINPLN 3283	Financial Planning: Computer Applications <sup>1</sup>	3
FINPLN 4187	Tax Planning <sup>1</sup>	3
FINPLN 4188	Community Agencies and Volunteerism <sup>3</sup>	3
FINPLN 4380W	Assessing the American Dream - Writing Intensive <sup>3</sup>	3
FINPLN 4382	Financial Planning: Risk Management <sup>1</sup>	3
FINPLN 4383	Financial Planning: Investment Management <sup>1</sup>	3
FINPLN 4387	Consumer and Household Economics <sup>3</sup>	3
Total Credits		28

## Supporting Coursework

ECONOM 1014 or ABM 1041	Principles of Microeconomics <sup>1</sup> Applied Microeconomics	3
ECONOM 1015 or ABM 1042	Principles of Macroeconomics <sup>1</sup> Applied Macroeconomics	3
ECONOM 3229	Money, Banking and Financial Markets <sup>3, 4</sup>	3
MANGMT 3540	Introduction to Business Law <sup>3, 4</sup>	3
MATH 1400	Calculus for Social and Life Sciences I <sup>3, 4</sup>	3
PSYCH 1000	General Psychology	3
SOCIOL 1000	Introduction to Sociology	3
ACCTCY 2036 or ACCTCY 2026	Accounting I <sup>3, 4</sup> Accounting I	3
STAT 2500	Introduction to Probability and Statistics I <sup>3, 4</sup>	3
Total Credits		27

## Professional Specialization Requirements

ACCTCY 2037 or ACCTCY 2027	Accounting II <sup>3, 4</sup> Accounting II	3
STAT 3500	Introduction to Probability and Statistics II <sup>3, 4</sup>	3
FINPLN 4386	Financial Planning: Employee Benefits and Retirement Planning <sup>1</sup>	3
FINPLN 4393	Financial Planning: Estate and Gift Planning <sup>1</sup>	3
FINPLN 4389	Financial Planning: Capstone <sup>1</sup>	3
FINPLN 4993	Internship in Personal Financial Planning <sup>3, 4</sup>	3
Total Credits		18

- <sup>1</sup> Requires a grade of C (2.0) or higher
- <sup>2</sup> Requires a grade of B- (2.7) or higher
- <sup>3</sup> Requires a grade of C- or higher
- <sup>4</sup> One "D" range grade allowed

## Semester Plan

First Year			
Fall	CR	Spring	CR
American History or Government	3	ECONOM 1015 or ABM 1042	3
GN_HES 1100	1	ENGLSH 1000	3
HES Foundation	3	FINPLN 2183	3
MATH 1100	3	MATH 1400	3
PSYCH 1000	3	SOCIOL 1000	3
Science w/ Lab	3		
		16	15

Second Year			
Fall	CR	Spring	CR
ECONOM 1014 or ABM 1041	3	ACCTCY 2036	3
FINPLN 2083	1	Communications	3
FINPLN 3283	3	ECONOM 3229	3
General Elective	3	FINPLN 3282	3
STAT 2500	3	STAT 3500	3
Humanities	3		
		16	15

Third Year					
Fall	CR	Spring	CR	Summer	CR
ACCTCY 2037	3	FINPLN 4188	3	FINPLN 4993	3
FINPLN 4187	3	FINPLN 4386	3		
FINPLN 4383	3	FINPLN 4393	3		
FINPLN 4382	3	General Elective	6		
HES Foundation (WI Recommended)	3-4				
		15-16	15		3

Fourth Year			
Fall	CR	Spring	CR
FINPLN 4380W	3	FINPLN 4387	3
MANGMT 3540	3	FINPLN 4389	3
General Electives	3	General Electives	3
Humanities	3	Humanities	3
		12	12

Total Credits: 119-120

## Certificate in Personal Financial Planning

### Requirements

All courses for the Certificate require a grade of C (2.0) or higher.

FINPLN 2083	Financial Planning Careers	1
FINPLN 2183	Personal and Family Finance (Optional)	3
FINPLN 4187	Tax Planning	3
FINPLN 4382	Financial Planning: Risk Management	3
FINPLN 4383	Financial Planning: Investment Management	3
FINPLN 4386	Financial Planning: Employee Benefits and Retirement Planning	3
FINPLN 4389	Financial Planning: Capstone	3

FINPLN 4393	Financial Planning: Estate and Gift Planning	3
Total Credits		22

The undergraduate certificate in Personal Financial Planning has been approved by both the Missouri Coordinating Board for Higher Education and the Certified Financial Planner Board of Standards, Inc. Those who complete the certificate are eligible to sit for the CERTIFIED FINANCIAL PLANNER™ certification examination upon graduation with a bachelor's degree. Students must have a University of Missouri cumulative GPA of at least a 2.5 upon application.

This certificate completes the education requirement to allow one to take the CFP® examination. For more information on the CFP® examination, please see <http://www.cfp.net/become-a-cfp-professional/cfp-certification-requirements/cfp-exam-requirement/about-cfp-exam> (<http://www.cfp.net/become-a-cfp-professional/cfp-certification-requirements/cfp-exam-requirement/about-cfp-exam/>).

## Minor in Personal Financial Management Services

### Requirements

The Personal Financial Management Services minor is available to undergraduate students. Students earning a BS in any Personal Financial Planning emphasis areas are not eligible for the Personal Financial Management Services minor. At least 7 of the 16 hours must be taken from the MU Personal Financial Planning department. FINPLN 2183 must be taken for Math Reasoning Proficiency credit.

#### Required Courses:

FINPLN 2083	Financial Planning Careers	1
FINPLN 2183	Personal and Family Finance	3
FINPLN 3283	Financial Planning: Computer Applications	3
FINPLN 4387	Consumer and Household Economics	3
<b>Choose at least two of the following:</b>		<b>6</b>
FINPLN 3282	Financial Counseling	3
FINPLN 4187	Tax Planning	3
FINPLN 4380	Assessing the American Dream	3
FINPLN 4382	Financial Planning: Risk Management	3
FINPLN 4383	Financial Planning: Investment Management	3
<b>Total Required Credits</b>		<b>16</b>

\* Requires a grade of C (2.0) or higher.

## MS in Personal Financial Planning

### Degree Requirements

The MS in Personal Financial Planning has two emphasis area options: A Resident Master of Science emphasis in Consumer and Family Economics (p. 692) (thesis option), or a resident or online Applied Master of Science emphasis in Personal Financial Planning (p. 693) (non-thesis option). Students must choose an emphasis area. Professional program requirements are listed at the emphasis level.

## MS in Personal Financial Planning with Emphasis in Consumer and Family Economics

The resident **Research and Policy Master of Science** track prepares students for college teaching, consumer research positions, social service agencies, extension or other adult education programs, financial services institutions, consumer journalism and other positions in business, the public sector and not-for-profit institutions. Studies culminate in a research-based thesis that may either have a theoretical or applied focus. This masters degree also prepares students for subsequent work on a doctoral degree. Course work focuses on critical analysis of the interaction of the household sector with the markets for labor, consumer goods and financial products. Emphasis is placed on developing analytical skills.

### Degree Requirements

The thesis-based Resident Master of Science program requires a minimum of 30 hours. Course work culminates in a master's thesis.

#### Core Requirements

Personal Financial Planning		12
FINPLN 7387	Consumer and Household Economics II	3
FINPLN 8087	Seminar in Household Economics and Finance	1-99
FINPLN 8483	Family Economics	3
FINPLN 8488	Household Financial Decision Making	3
Research Methods		3
SOCIOL 8120	The Logic of Social Research	3
<b>Economic Theory</b>		<b>3-6</b>
ECONOM 7351	Intermediate Microeconomics	3
ECONOM 7353	Intermediate Macroeconomics	3
<b>Statistics</b>		<b>6-9</b>
ECONOM 7370	Quantitative Economics	3
ECONOM 7371	Introductory Econometrics	3
ECONOM 8472	Econometric Methods I	3
ECONOM 8473	Applied Econometrics	3
FINPLN 8450	Applied Research in Household Economics and Planning	1-99
SOCIOL 7120	Social Statistics	3
SOCIOL 8130	Advanced Social Statistics	3
STAT 7510	Applied Statistical Models I	3
STAT 7520	Applied Statistical Models II	3
<b>Thesis Research</b>		<b>3-6</b>
FINPLN 8090	Master's Thesis Research in Personal Financial Planning	3-6

### Plan of Study

Each student's plan of study will vary to some degree, depending on the student's background, needs, and career plans.

Please review the following degree program handbooks for degree requirements and plan of study: **Resident Research and Policy Master's Degree Program Handbook**.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MS in Personal Financial Planning program (<https://gradstudies.missouri.edu/degrecategory/personal-financial-planning/>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

Acceptance to this program requires GRE or GMAT scores that meet department standards.

## Application Deadlines

Fall deadline: April 1st

Spring deadline: October 1st

\*Exceptions will be considered on a case by case basis

## Admission Criteria

- English Language Requirements (for ESL applicants only):

Internet-based test (iBT)	Paper-based test (PBT)
80	550

We also accept IELTS scores

Item	Score
International English Language Testing System (IELTS)	6.5

- Minimum GPA: 3.0 in last 60 hours

## Required Application Materials

To the Graduate School:

- All required Graduate Admissions
- 3 letters of recommendation
- GRE or GMAT scores
- Statement of Purpose
- Official transcripts
- Résumé

## MS in Personal Financial Planning With Emphasis in Personal Financial Planning

The resident **Applied Master of Science** is for students who view the MS as their terminal degree and plan to work as a financial services professional following graduation. The Applied MS focuses on understanding issues and solving practical problems in the financial services industry. An industry-relevant capstone research project, rather than a thesis, is required for graduation. The program is registered with the Certified Financial Planner Board of Standards, Inc. Course work is designed to complete the education required to sit for the national CERTIFIED FINANCIAL PLANNER™ (CFP®) exam and to broaden the practitioner's understanding of the various factors that can affect

and enhance a client's financial security and economic well-being. Coursework culminates in a creative component, providing students an opportunity to integrate theory and practice in exploring or resolving issues related to personal financial planning.

## Degree Requirements

The Applied Master of Science is a non-thesis 36-hour program.

- This degree is also available via distance education through the Great Plains IDEA group. Note, the Great Plains IDEA (<https://www.gpidea.org/program/family-financial-planning/>) degree option also requires 36 hours to complete. Please see [http://pfp.missouri.edu/graduate\\_distance.html](http://pfp.missouri.edu/graduate_distance.html) for more information.

Required CFP Education Courses		21
Core Requirements		
FINPLN 7183	Fundamentals of Personal Financial Planning	3
FINPLN 7382	Financial Planning: Risk Management	3
FINPLN 7383	Financial Planning: Investment Management	3
FINPLN 7187	Financial Planning: Tax Planning	3
FINPLN 7386	Financial Planning: Employee Benefits and Retirement Planning	3
FINPLN 7393	Financial Planning: Estate and Gift Planning	3
FINPLN 7389	Financial Planning: Capstone	3
Required Courses in Personal Financial Planning		9-12
FINPLN 8483	Family Economics	3
FINPLN 8488	Household Financial Decision Making	3
FINPLN 8500	Personal Financial Planning Capstone	3-6
Supporting Courses in Personal Financial Planning		
FINPLN 7993	Internship in Personal Financial Planning	3-6
FINPLN 8087	Seminar in Household Economics and Finance	1-3
FINPLN 8450	Applied Research in Household Economics and Planning	3
Other Supporting Courses		
ECONOM 7351	Intermediate Microeconomics	3
ECONOM 7353	Intermediate Macroeconomics	3
ECONOM 7370	Quantitative Economics	3
ECONOM 8370	Mathematics for Economics	3
ECONOM 8473	Applied Econometrics	3
STAT 7110	Statistical Software and Data Analysis	3
STAT 7510	Applied Statistical Models I	3
STAT 7520	Applied Statistical Models II	3
STAT 8310	Data Analysis I	3
STAT 8320	Data Analysis II	3
SOCIOL 7120	Social Statistics	3
SOCIOL 8130	Advanced Social Statistics	3
Potential Electives		
ACCTCY 7310	Accounting for Managers	3
FINANC 7820	Investment Fund Management	1-3
FINANC 8620	Investment Strategy of Warren Buffett	1-3
FINANC 8320	Financial Markets	1-3
Any MANGMT or MRKTNG course numbered 7000 and above		

## Plan of Study

Each student's plan of study will vary to some degree, depending on the student's background, needs, and career plans.

Please review the following degree program handbooks for degree requirements and plan of study: the **Resident Applied Master's Degree Program Handbook**.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MS in Personal Financial Planning program (<https://gradstudies.missouri.edu/degreecategory/personal-financial-planning/>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

## Application Deadlines

Fall deadline: April 1st

Spring deadline: October 1st

\*Exceptions will be considered on a case by case basis

## Admission Criteria

- English Language Requirements (for ESL applicants only):

Internet-based test (iBT)	Paper-based test (PBT)
80	550

We also accept IELTS scores

Item	Score
International English Language Testing System (IELTS)	6.5

- Minimum GPA: 3.0 in last 60 hours

## Required Application Materials

To the Graduate School:

- All required Graduate Admissions
- 3 letters of recommendation
- Statement of Purpose
- Official transcripts
- Résumé

## Graduate Certificate in Personal Financial Planning

The Personal Financial Planning Certificate is an 18 hour non-degree, post-baccalaureate program that will enable students to meet the education requirement for the CERTIFIED FINANCIAL PLANNER™ exam.

Program applicants must have completed a bachelor's degree. Completing the Personal Financial Planning Certificate satisfies the Certified Financial Planner Board of Standard's education requirement,

which is one of four requirements leading to approval to use the CFP® designation. The other three requirements are passing the national exam, meeting an experience requirement and agreeing to adhere to the CFP® code of ethics. The CERTIFIED FINANCIAL PLANNER™ designation is widely recognized as the premier professional designation in the personal financial management services industry. (This certificate is also available via distance education through the Great Plains IDEA group. Please see [http://pfp.missouri.edu/graduate\\_distance.html](http://pfp.missouri.edu/graduate_distance.html) for more information.)

## Requirements

Courses Required for the Applied Master's Degree and the Graduate Certificate in Personal Financial Planning:

FINPLN 7382	Financial Planning: Risk Management	3
FINPLN 7383	Financial Planning: Investment Management	3
FINPLN 7187	Financial Planning: Tax Planning	3
FINPLN 7386	Financial Planning: Employee Benefits and Retirement Planning	3
FINPLN 7393	Financial Planning: Estate and Gift Planning	3
FINPLN 7389	Financial Planning: Capstone	3
Total Credits		18

Since the Personal Financial Planning Certificate is a registered program under the oversight of a professional organization granting a professional designation, all courses are required.

## Contact:

Director of Graduate Studies  
 Rui Yao (yao@missouri.edu), PhD, CFP®  
 239A Stanley Hall  
 Columbia, MO 65211  
 573-882-9343  
<http://pfp.missouri.edu/>

## Social Work

School of Social Work (<http://ssw.missouri.edu/>)

Director of School of Social Work  
 Dale Fitch, Ph.D., MSSW  
 730 Clark Hall  
 (573) 884-7405  
[http://ssw.missouri.edu/faculty\\_fitch.html](http://ssw.missouri.edu/faculty_fitch.html)

Director of Undergraduate Studies-BSW  
 Christine Woods, MSW  
 711 Clark Hall  
 (573) 882-5102  
[http://ssw.missouri.edu/faculty\\_woods.html](http://ssw.missouri.edu/faculty_woods.html)

Director of Graduate Studies-MSW  
 Carol A. Snively, PhD, MSW, MA  
 702 Clark Hall  
 (573) 882-0675  
[http://ssw.missouri.edu/faculty\\_snively.html](http://ssw.missouri.edu/faculty_snively.html)

Director of Graduate Studies-PhD  
 Aaron Thompson, PhD, MSW  
 718 Clark Hall  
 (573) 882-0124

[http://ssw.missouri.edu/faculty\\_thompson.html](http://ssw.missouri.edu/faculty_thompson.html)

Student Services Coordinator and Advising Contact

Tammy Freelin, MSW

722 Clark Hall

(573) 882-1656

[http://ssw.missouri.edu/faculty\\_freelin.html](http://ssw.missouri.edu/faculty_freelin.html)

BSW Contact

Lindsay Hickman, Undergraduate Student Support Specialist

725 Clark Hall

(573) 884-8795

[hickmanli@missouri.edu](mailto:hickmanli@missouri.edu)

MSW Contact

Crystal Null, Graduate Student Program Specialist

723 Clark Hall

(573) 884-9385

[nulic@missouri.edu](mailto:nulic@missouri.edu)

PhD Contact

Shannon Mezzanotte, Office Support Staff IV

724 Clark Hall

(573) 884-1438

[mezzanottes@missouri.edu](mailto:mezzanottes@missouri.edu)

## Faculty

**Associate Professor** K. Canada\*\*, D. Fitch\*\*, C. Peters\*\*, A. Thompson\*\*, D. Yoon\*\*, M. Yu\*\*

**Assistant Professor** A. Givens\*, H. Hsu\*\*, K. Preble\*, V. Ramseyer Winter\*\*, E. Robinson\*\*

**Associate Teaching Professor** C. Snively\*

**Assistant Teaching Professor** T. Freelin\*, A. Lewis\*, S. Myers Tlapek\*, C. Woods\*

**Associate Clinical Professor** S. Cary\*

**Assistant Clinical Professor** A. Aderton\*, R. Bailey\*, O. Easter\*, L. Hilleman\*, J. Piester\*

**Clinical Instructor** K. Esser\*

**Assistant Professional Practice Professor** P. Mseba\*

**Research Associate** A. Jankku

**Emeriti Faculty** R. Boettcher\*\*, J. Burke\*\*, L. Cary\*\*, C. Cowger\*\*, D. Davenport\*\*, M. Kelly\*\*, D. Kroeker\*, J. Mermelstein\*\*, D. Orton\*\*, M. Sable\*\*, P. Sundet\*\*, L. Tenkku Lepper\*, J. W. Watt\*\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BSW in Social Work (p. 696)

**The Bachelor of Social Work (BSW) Program** is a professional program that prepares you for immediate entry into direct human service professional positions, graduate-level education, and life-long learning. BSW-level social workers assist individuals, families, small groups, organizations, and communities to effectively resolve problems, deal with their relationships, and function optimally within their environment. The

program provides an educational experience that prepares graduates for a diverse range of career choices and pathways.

The Bachelor of Social Work (BSW) professional program is built upon a rigorous liberal arts foundation that prepares students for general practice in social work. Within this framework, students are prepared to apply a configuration of knowledge, values and skill to a variety of individual, family and community problems to effect positive change.

The School of Social Work is accredited by, and a charter member of, the Council on Social Work Education. BSW students and graduates are eligible for membership in the National Association of Social Workers. BSW graduates are eligible for accelerated, Advanced Standing status in Master of Social Work degree programs.

## Departmental Honors

Candidates for Departmental Honors must be students who are admitted to the professional BSW program and members of the MU Honors College in good standing. Students must submit a proposal for approval for Social Work Honors and successfully complete SOC\_WK 4971H Advanced Study for Social Work Honors.

## Career Opportunities

Jobs in social work are expected to grow much faster over the next decade. Through social work's unique person-in-environment focus, BSW graduates are prepared to work effectively with individuals, families, small groups, communities and organizations.

Graduates are employed in many different settings, including nursing homes, hospices, hospitals, home care agencies, family service agencies, children and youth services, aging services, residential treatment programs, domestic violence shelters, criminal justice agencies, schools, and legal services agencies.

## Graduation Requirements

A minimum of 120 credits with a GPA of 2.5 is required for graduation. The requirements include liberal arts foundation courses, professional BSW core courses and general electives. Students are allowed only two grades of a C+ in the professional program.

The professional BSW core consists of 46 credits. BSW core courses are offered only once each year in sequence and require three semesters to complete. In the third semester of the BSW core, each student will complete a practicum in a social service agency that includes 400 hours of supervised field instruction.

## Admission to the School of Social Work

Students in good academic standing with fewer than 55 hours may declare a social work major. Students are required to complete a range of courses in liberal arts as foundation to the BSW professional program and as electives.

Admission to the BSW professional program is competitive. In the spring, students may apply for fall admission to the BSW professional program if they meet the following criteria:

1. Completion of at least 42 credits (second semester sophomore status) by the application deadline and
2. Completion of at least 55 credits completed before the beginning of the first semester (fall) of the BSW foundation curriculum
3. Minimum 2.5 cumulative GPA required



4. Completion of required liberal arts prerequisite courses with minimum grades in 'C' range or higher.
  - Anthropology (ANTHRO 1300, ANTHRO 1350, ANTHRO 2030 recommended)
  - BIO\_SC 1010
  - College Algebra
  - COMMUN 1200
  - Economics (macro or micro)
  - ENGLSH 1000
  - History (HIST 1100, HIST 1200, HIST 1400, HIST 2440, HIST 2210, HIST 4220, HIST 4230 HIST 4000) OR Political Science (POL\_SC 1100, POL\_SC 2100)
  - Philosophy (PHIL 1000, PHIL 1100, or PHIL 1200 recommended)
  - PSYCH 1000
  - SOCIOL 1000 or RU\_SOC 1000
5. Submission of BSW professional program application, including personal statement response to provided questions and 3 professional references (academic and work-related) is necessary for consideration by early deadline of February 15 or rolling admission deadline of May 15.

Students wanting to explore social work as a major may take the following exploratory courses:

SOC_WK 1110	Introduction to the Social Work Major	1
SOC_WK 1115	Social Welfare and Social Work (Highly Recommended)	3
SOC_WK 1200	Criminal Justice	3
SOC_WK 2000W	Exploration in Social and Economic Justice - Writing Intensive	3
SOC_WK 2220W	Human Behavior in the Social Environment - Writing Intensive	3

## Graduate

- MSW in Social Work (p. 698)
- PhD in Social Work (p. 700)

School of Social Work  
 724 Clark Hall  
 573-882-6206  
<http://ssw.missouri.edu/>

**PhD Director of Graduate Studies:** Aaron Thompson  
**MSW Director of Graduate Studies:** Carol Snively

## About the School of Social Work

For over ninety years, social work education has been offered to students at Missouri's premier public institution. The school is proud of its grass roots history: an early pioneer of social work education in 1906, a founding member of the original accrediting body for social work education in 1919, an institution advancing research and scholarship throughout the 20th century, and finally, to its role as an innovator in doctoral education, with a nationally distinctive PhD program emphasizing state social policy.

The mission of the MU School of Social Work is to promote leadership for social and economic justice by preparing students for professional excellence and leadership in practice, research, and policy. Within the context of a land grant institution, the mission of the School of Social

Work reflects the University of Missouri's tightly interlocked missions of teaching, research, outreach, and economic development.

## Careers

The nation faces a critical shortage of qualified personnel who possess the rigorous research skills needed to develop, plan, and evaluate social work interventions and the structure of social services. The Master of Social Work (MSW) Program prepares graduates for leadership in professional social work practice within the areas of Advanced Clinical Social Work Practice or Policy, Planning and Administration in Human Services. Doctoral programs in social work are the major resource for social work researchers and scholars. The rapid growth and development in new social work undergraduate and graduate programs throughout the country has also increased the demand for doctoral social work faculty. In recent years, there have been 400-500 doctoral faculty vacancies advertised annually in schools of social work, while the number of graduates has remained at 250-300 per year, with one hundred of those graduates seeking non-academic positions.

## BSW in Social Work

### Degree Program Description

The Bachelor of Social Work (BSW) Program is a professional program that prepares students for immediate entry into direct human service professional positions, graduate-level education, and life-long learning. BSW-level social workers assist individuals, families, small groups, organizations, and communities to effectively resolve problems, deal with their relationships, and function optimally within their environment. Graduates are employed in many different settings, including nursing homes, hospices, hospitals, home care agencies, family service agencies, children and youth services, aging services, residential treatment programs, domestic violence shelters, criminal justice agencies, schools, and legal services agencies.

### Major Program Requirements

Required Entry-Level Courses: Specific liberal arts requirements for graduation are listed below (\* denotes a prerequisite course to the BSW professional program that must be completed before beginning social work core courses).

Students must complete all university requirements (p. 35), including general education (p. 36), in addition to the degree requirements below. The minimum grade for all non-Social Work courses is a C-.

### Degree Core Requirements

#### English Composition

ENGLSH 1000	Exposition and Argumentation *	3
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#### Writing intensive classes <sup>1</sup>

#### Humanities

COMMUN 1200	Public Speaking *	3
Philosophy (student's choice) (Recommend PHIL 1000, PHIL 1100, PHIL 1200)		3
Additional humanities <sup>2</sup>		3

#### Science and Math Reasoning Proficiency

BIO_SC 1010	General Principles and Concepts of Biology *	3
or BIO_SC 1500	Introduction to Biological Systems with Laboratory Lab Science AND Physical or Mathematical Science	

BIO_SC 1020	General Biology Laboratory	2
SOC_WK 4310	Social Statistics	4
<b>College Algebra</b>		
MATH 1100	College Algebra (or equivalent) <sup>1,3</sup>	3
<b>Social Science</b>		
Economics (micro or macroeconomics) <sup>*</sup>		3
Anthropology (student's choice) (Recommend ANTHRO 1300, ANTHRO 1350, ANTHRO 2030) <sup>*</sup>		3
History		3
Political Science		3
One course from either history or political science must meet the state government requirement <sup>*</sup>		
<b>Behavioral Science</b>		
SOCIOL 1000	Introduction to Sociology <sup>*</sup>	3
PSYCH 1000	General Psychology <sup>*</sup>	3
SOCIOL 3310	Social Psychology	3
or PSYCH 2310	Social Psychology	
SOC_WK 3320	Understanding Personality in a Social Context	3
or PSYCH 2320	Introduction to Personality	
<b>Exploration of Power, Privilege, &amp; Oppression (6 hours) <sup>4</sup></b>		
SOC_WK 2000W	Exploration in Social and Economic Justice - Writing Intensive	3
Choose one additional course from the list of approved options on website.		3
<b>Electives to reach 120 credits <sup>5</sup></b>		<b>20</b>
<b>Social work requirements (Students must maintain a 2.5 overall cumulative and obtain no more than two grades of 'C+' in required foundation courses to graduate with a BSW Degree)</b>		
SOC_WK 2220W	Human Behavior in the Social Environment - Writing Intensive	3
SOC_WK 4710	Social Justice and Social Policy	3
SOC_WK 4711	Social Justice and Social Policy II	3
SOC_WK 4720	Variations in Human Behavior	3
SOC_WK 4730	Introduction to Social Work Practice	3
SOC_WK 4740	Introduction to Community and Organizational Processes	4
SOC_WK 4750	Interaction Skills Workshop	3
SOC_WK 4760	Theory and Practice of Social Group Work	3
SOC_WK 4770	Strategies of Direct Practice	3
SOC_WK 4951W	Research for Social Work Practice - Writing Intensive	3
SOC_WK 4952W	Research Methods for Social Work - Writing Intensive	3
SOC_WK 4970	Senior Professional Seminar	3
SOC_WK 4971	Undergraduate Field Practicum	6
Social work elective (4000-level) in a field of practice		3
<b>Total Credits</b>		<b>120</b>

<sup>1</sup> SOC\_WK 2000W, SOC\_WK 2220W, SOC\_WK 4951W, SOC\_WK 4952W, SOC\_WK 4770W are all required courses. No additional courses are required for the Writing Intensive (WI) requirement toward graduation.

- Humanities include art and music history and appreciation classes, classical studies courses, foreign civilization courses, literature courses in English or other languages and religious studies courses. Students should check the MU General Education website for a list of courses.
- One course in humanities or biological, physical or mathematical sciences must be at the 2000 level or higher. SOC\_WK 4310 meets the upper-level requirement in Mathematical Science.
- Exploration of Power, Privilege & Oppression: Social Work BSW majors are required to take SOC\_WK 2000W to count for three credit hours of the six credit hours requirement. Students should select one additional course that reflects the cultural diversity of our society; often selected from social work, sociology, anthropology, peace studies, English, religious studies, human development and family science, black studies, and women and gender studies. Students can find a complete list on the School of Social Work website.
- In addition to the above liberal arts requirements and the 50-credit Professional BSW Core (inclusive of SOC\_WK 2220W), students select elective courses to reach the total credit hour requirement. SOC\_WK 1115 Social Welfare and Social Work is strongly recommended.

## Capstone Requirements

All students accepted into the professional BSW program must take SOC\_WK 4971 Undergraduate Field Practicum and SOC\_WK 4970 Senior Professional Seminar to complete their capstone requirement. Please note: As a student, if you have acquired any criminal background history which includes misdemeanors or felony charges your choices of placements may be affected. In an effort to assist you we strongly encourage you to make an appointment with the Director of the Undergraduate Program to assist in facilitating options for your completion of educational requirements.

## Basic Skills Credit Limitations

No more than 4 credits may be taken from "skills" courses to count toward the required 120 credits. More skill classes may be taken, but will be in excess of the 120 credits. Examples of skills courses are applied art and music performance classes, computer skills, self-defense and first aid.

## Semester Plan

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

First Year			
Fall	CR	Spring	CR
ENGLSH 1000 <sup>*</sup>		3 MATH 1100 <sup>*</sup>	3
BIO_SC 1010 <sup>*</sup>		3 SOCIOL 1000 <sup>*</sup>	3
BIO_SC 1020		2 ANTHRO 1300 <sup>*</sup>	3
PSYCH 1000 <sup>*</sup>		3 COMMUN 1200 <sup>*</sup>	3
SOC_WK 1110 (Elective)		1 SOC_WK 1115 (Elective)	3
History (Constitution) <sup>*</sup>		3	
		15	15
Second Year			
Fall	CR	Spring	CR
PHIL 1100 <sup>*</sup>		3 ECONOM 1014 <sup>*</sup>	3

PSYCH 2310	3 Humanities	3
SOC_WK 2000W	3 SOC_WK 2220W	3
Political Science	3 SOC_WK 3320	3
Elective	3 Elective	3
		15

Third Year			
Fall	CR	Spring	CR
SOC_WK 4710	3	SOC_WK 4310	4
SOC_WK 4730	3	SOC_WK 4711	3
SOC_WK 4740	4	SOC_WK 4720	3
SOC_WK 4750	3	SOC_WK 4760	3
Field of Practice Elective	3	SOC_WK 4951W	3
		16	16

Fourth Year			
Fall	CR	Spring	CR
SOC_WK 4770W	3	Power Privilege & Oppression	3
SOC_WK 4952W	3	Elective	3
SOC_WK 4970	3	Elective	3
SOC_WK 4971	6	Elective	3
		Elective	1
		15	13

Total Credits: 120

## MSW in Social Work

The University of Missouri's Master of Social Work (MSW) Program prepares competent, effective and ethical social work professional leaders for social change. The MSW Program emphasizes a commitment to enhancing human well-being by alleviating social problems, embracing diversity and promoting social and economic justice with systems of all sizes through advanced clinical social work practice and policy planning and administration in human services. The MSW program prepares students to promote social and economic justice that responds to the broad economic, social, and cultural needs of the public and private. The MSW Program is fully accredited by the Council on Social Work Education, of which the School of Social Work is a charter member.

### Degree Requirements

Preparation for professional leadership encompasses two major components: Foundation and Concentrations.

#### Foundation

Develops knowledge and skills related to social interaction, human development, community dynamics, social policy and societal values applicable to generalist social work practice.

SOC_WK 7000	Professional Social Work Practice	1
SOC_WK 7710	Social Policy and Service Delivery in Social Work	3
SOC_WK 7720	Foundations of Human Behavior	3
SOC_WK 7730	Social Work Skills	3
SOC_WK 7740	Large Group Theory	2
SOC_WK 7760	Social Justice Seminar	2
SOC_WK 7952	Research Methods in Social Work	3
SOC_WK 7971	Graduate Field Practicum I	4

### Concentrations

The MSW program offers two concentrations: Advanced Clinical Practice and Policy, Planning and Administration (PP&A). Within these concentrations, students have the opportunity to create a plan of study based on their individual interests and professional goals. Decisions regarding their chosen concentration are made by students in consultation with faculty advisors. A brief description of the two concentrations is as follows:

**Advanced Clinical Social Work Practice:** includes strategies of clinical intervention with socially and economically disadvantaged individuals, families, and small groups in a variety of health, mental health, family and children services, and senior citizen agencies.

#### Clinical concentration courses

Advanced Clinical Selective (choose 1 from those offered) *	3	
Elective (must be graduate level) *	3	
Elective (must be graduate level) *	3	
Elective (must be graduate level) +	3	
SOC_WK 7770	Strategies of Clinical Social Work Intervention	3
SOC_WK 7820	DSM V and Psychopathology: A Social Work Perspective	3
SOC_WK 8953	Evaluative Research in Social Work	3
SOC_WK 8970	Professional Practice Seminar I	3
SOC_WK 8971	Graduate Field Practicum II	12

#### Required cross-over course

SOC_WK 7780	Fundamentals of Social Work Administration	3
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\* Elective and clinical selective courses offered will vary from year to year.

+ The third elective course is only required for regular standing students.

**Policy, Planning and Administration in Human Services:** includes intervention strategies that effect change at the organizational, interagency, community, and societal levels to advance social and economic justice for consumers of social and human services and to empower practitioners within those agencies.

#### Policy, Planning & Administration courses

Elective (must be graduate level) *	3	
Elective (must be graduate level) *	3	
Elective (must be graduate level) +	3	
SOC_WK 7780	Fundamentals of Social Work Administration	3
SOC_WK 7920	Advanced Foundations of Human Behavior for Administrators	3
SOC_WK 8350	Management of a Social Agency	3
SOC_WK 8953	Evaluative Research in Social Work	3
SOC_WK 8970	Professional Practice Seminar I	3
SOC_WK 8971	Graduate Field Practicum II	12

#### Required cross-over course

SOC_WK 7820	DSM V and Psychopathology: A Social Work Perspective	3
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\* Elective courses offered will vary from year to year.

+ The third elective course is only required for regular standing students.

## Course Format

On Campus MSW Program courses are primarily offered in-person. A few foundation, concentration and elective courses are offered online through Canvas, a learning management system licensed to the University of Missouri for online courses.

The Online MSW program is designed for part-time study with two courses, typically 6 credit hours of course work, per semester. All courses are offered online through Canvas with the exception of the practicum, which requires 680 hours of supervised work at an approved agency.

## Standing and Additional Information

### Regular Standing: Non-Social-Work Bachelor's

The regular 60-credit hour degree is appropriate for students who have undergraduate degrees other than accredited social work degrees. The school admits full-time (on-campus) and part-time (online) students to the regular 60-credit hour program.

### Advanced Standing: Bachelor's in Social Work (BSW)

Students who have graduated within the past seven years from a baccalaureate social work program accredited by the Council on Social Work Education may be eligible for the Advanced Standing Program, which is an accelerated 39-credit hour degree.

## Starting Dates

On-campus students admitted to the Regular Standing Program are admitted in fall semester (full-time). On-campus students admitted to the Advanced Standing Program are admitted in the fall or spring semester. Online students admitted to the Regular Standing program are admitted for the summer semester (part-time) and online students admitted to the Advanced Standing Program are admitted for fall semester (part-time).

## Length of Study & Satisfactory Progress

Full-time Regular Standing students take 15 credits each semester and graduate in two years (4 semesters of study). Full-time Advanced Standing students take 3-5 classes each semester (9-15 credits) and graduate in 12-17 months (3 semesters of study). Part-time Regular Standing students take 2-3 classes (6-9 credits) every semester, including summer, and graduate in three years (9 semesters of study). Part-time Advanced Standing students take 2-3 classes (6-9 credits) every semester, including summer, and graduate in two years (6 semesters of study). All students are full-time during their last semester while completing block placement. All students must complete at least eight hours per academic year to maintain a satisfactory rate of progress.

## Financial Aid from the Program

Scholarship opportunities are available for full-time and part-time program applicants who meet the early application deadline. A separate Scholarship Application is available on the department website. Submission of the Scholarship Application is due by early application deadline.

## Admission Criteria

### Application Deadlines

Summer/Fall deadline: January 15 (early priority), March 1 (final)

Spring deadline: September 15 (early priority), November 15 (final)

## Admission Criteria

- Minimum GPA: 3.0.
- Bachelor's degree from an accredited college or university with the applicant's undergraduate transcript reflecting a sound liberal arts foundation, including courses in the humanities, as well as in the social and behavioral sciences.
- All International students must submit Internet-based (iBT) TOEFL scores or IELTS scores. No waivers will be given.

### Minimum iBT TOEFL scores:

Test Portion	Total Minimum Score
Listening	22
Reading	21
Writing	23
Speaking	26

### Minimum IELTS scores:

Test Portion	Total Minimum Score
Listening	6.5
Reading	6.5
Writing	6
Speaking	8

## Prerequisites

All MSW applicants must complete an approved college level statistics course with a grade of C- or higher before they will be accepted to enroll in the MSW program. SOC\_WK 4310 is the recommended course for University of Missouri students. The following University of Missouri courses are also approved and may be taken in lieu of SOC\_WK 4310: STAT 1200, STAT 1400, STAT 2500, and ESC\_PS 4170. Statistics courses completed at other academic institutions may substitute for University of Missouri statistic courses, pending submission of official transcript and approval by the MSW Program Director. Completion of the statistics course prior to application submission is preferred and strongly recommended. If an applicant is enrolled in a statistics course at the time of application and accepted into the MSW Program, the acceptance will be "pending successful completion of the approved statistics class".

**Note:** Priority admission deadline for On-campus and Online, Regular Standing Applicants and Online, Advanced Standing Applicants: January 15. A student qualifies for Regular Standing Admission if s/he has an undergraduate degree in any field other than Social Work. An applicant qualifies for Advanced Standing admission if they have a bachelor's degree in Social Work earned within the last seven (7) years. Any applicant who applies after the priority deadline will be considered on the rolling admission cycle until March 1.

**Note:** Priority admission deadline for On-campus, Advanced Standing applicants: September 15. An applicant qualifies for Advanced Standing admission if they have a bachelor's degree in Social Work earned within the last seven (7) years. Any Advanced Standing applicant that applies after the priority deadline of September 15 for spring admission will be considered on a rolling admission cycle until November 15.

## Required Application Materials

To the Graduate School:

- All required Graduate School documents

To the MSW Program:

- Personal statement (see department instruction)
- Résumé/CV
- Three letters of professional reference from persons who can address the applicant's intellectual ability and interpersonal skills, potential for graduate education, and potential for professional social work practice through observation in an educational or work (paid or volunteer) setting. Letters of reference should not be submitted from friends or family
- Unofficial transcripts
- Advanced standing students only: the most recent copy of your field evaluation (see department instruction) or one of your three required references should be from your supervisor at your practicum site.

### Admission Contact Information

Crystal Null (nullc@missouri.edu)  
 723 Clark Hall; Columbia, MO 65211  
 573-884-9385  
<http://ssw.missouri.edu/msw.html>

## PhD in Social Work

### About the Program

The Doctor of Philosophy (PhD) program in social work focuses on research that informs social welfare policy and practice. It is designed to prepare scholars for research, teaching and program development positions in academic and professional social work practice and policy settings.

### Degree Requirements

The PhD program is available to both persons with a Masters of Social Work (MSW) degree and those with other master's degrees. The curriculum consists of a minimum of 55 post MSW semester credit hours or, for applicants without an MSW, 67 hours. The curriculum is divided among three distinct but highly interrelated elements designed to complement one another in assisting students to achieve the competencies expected of a graduate of this program. A core of social work courses provides the foundation in the traditions and knowledge in the profession and exposure to state-of-the-art research and techniques for the 21st century. Electives from the broad spectrum of social and behavioral sciences offering available through MU departments provide students with the opportunity to design an individualized plan of study that capitalizes on their unique interests and talents. A strong regimen of research methodology, theory, and policy analysis are designed to prepare students for use of both current and emerging methods of scientific inquiry.

#### Required Social Work Courses

SOC_WK 9100	Knowledge Building I	3
SOC_WK 9300	Research Methodology and Design Seminar	3
SOC_WK 9350	Research Methods & Design II	3
SOC_WK 9650	Pedagogical Methods in Social Work and Applied Professional Programs	1

SOC_WK 9090	Research in Social Work	1-12
SOC_WK 9850	Research Application II	1-3
SOC_WK 9800	Research Application I	3
SOC_WK 9350	Advanced Quantitative and Qualitative Methods in Social Research	3
SOC_WK 9890	Dissertation Seminar	3
Total Credits		21-34

### Sample Plan of Study (full-time student)

First Year					
Fall	CR	Spring	CR	Summer	CR
SOC_WK 9100	3	Advanced Stat	3	Elective	3
SOC_WK 9300	3	SOC_WK 9001 (Qualitative Methods)	3		
SOC_WK 9001 (Statistics Course)	3	Elective	3		
SOC_WK 9650	1	SOC_WK 9090	1		
		10			3
Total Credits: 10					
Second Year					
Fall	CR	Spring	CR	Summer	CR
SOC_WK 9800	3	SOC_WK 9890	3	Comprehensive Examination	
Elective	3	SOC_WK 9850	1		
Advanced Statistics	3	Elective	3		
SOC_WK 9001 (Social Measurement)	3	SOC_WK 9350::Research Methods and Design II	3		
Qualifying Exam at the end of the semester					
		12			0
Total Credits: 12					
Third Year					
Fall	CR	Spring	CR		
SOC_WK 9900	6	SOC_WK 9900	6		
		6			6
Total Credits: 57					

### Financial Aid from the Program

Scholarship opportunities are available for full-time program applicants who meet the application deadline. Graduate teaching and research assistantships are also often available. Some forms of support require additional forms from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program Web site or ask the program contact for details.

### Admission Criteria

Admission deadline: Midnight December 1

- Minimum GPA: 3.0; 3.5 in graduate study
- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
80	550

- An MSW or related master's is required. Applicants without the MSW must take a minimum of 12 credit hours of MSW course work. This

requirement may be waived for applicants with additional graduate work.

- Minimum of two years post-master's practice experience encouraged.

**Note:** These criteria are used flexibly to assess the applicant's potential for study and research in this program.

## Required Application Materials

To the Office of Graduate School:

- All required Office of Graduate School documents

To the Director of the Doctoral Program in Social Work (via the Graduate School's online application system):

- Three letters of recommendation
- CV
- Writing proficiency sample
- Personal statement
- A personal interview is required, and if possible, will be arranged at MU. A Skype interview may be utilized in some cases.

### Admission Contact Information

Program Contact: Shannon Mezzanotte ([mezzanottes@missouri.edu](mailto:mezzanottes@missouri.edu))  
724 Clark Hall; Columbia, MO 65211  
573-884-1438

PhD Program Director: Dr. Aaron Thompson ([thompsonaa@missouri.edu](mailto:thompsonaa@missouri.edu))  
([thompsonaa@missouri.edu](mailto:thompsonaa@missouri.edu))@missour ([yuma@missouri.edu](mailto:yuma@missouri.edu))  
([thompsonaa@missouri.edu](mailto:thompsonaa@missouri.edu)).edu ([yuma@missouri.edu](mailto:yuma@missouri.edu))  
717 Clark Hall; Columbia, MO 65211  
573-882-0124

PhD Program Website: <http://ssw.missouri.edu/phd.html>

## Textile and Apparel Management

Jung Ha-Brookshire, Department Chair and Professor  
137 Stanley Hall  
(573) 882-7317  
<http://tam.missouri.edu>

### Advising Contact

Jaime Mestres  
122 Stanley Hall  
(573) 882-6425  
[mestresj@missouri.edu](mailto:mestresj@missouri.edu)

### HES Student Services Office

106 Gwynn Hall  
(573) 882-6424  
[hesstudentservices@missouri.edu](mailto:hesstudentservices@missouri.edu)  
<http://hes.missouri.edu>

### Scholarship Contact

HES Development Office  
122 Gwynn Hall  
(573) 882-7514  
[hesdevelopment@missouri.edu](mailto:hesdevelopment@missouri.edu)

## Faculty

**Professor** J. Ha-Brookshire\*\*, J. Parsons\*\*

**Associate Professor**

**Assistant Professor** C. Kopot\*, S. Youn\*\*, L. Zhao\*\*,

**Instructor** N. Johnston, K. McBee-Black\*, J. Mestres\*

**Professor Emeritus** P. S. Norum\*\*, L. E. Wilson\*\*

**Associate Professor Emeritus** B. Dillard\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BS in Textile and Apparel Management (p. 702)
- Minor in Textile and Apparel Management (p. 704)

The Department of Textile and Apparel Management is a global leader focusing on the apparel and textile supply chain. TAM's award-winning faculty is internationally recognized. TAM prepares students for a wide variety of career options such as merchandising, buying, sourcing, product development, technical design, e-retailing or retail operations. The curriculum focuses on leadership, the global supply chain, sustainability, creativity/innovation and technology. Through coursework, field study experiences, internships, leadership conferences and student organizations, TAM students develop the skills they need for top industry positions.

Students who major in Textile and Apparel Management may choose from the following tracks:

- Apparel Retailing and Digital Merchandising
- Apparel Product Development

These tracks are designed to provide students with knowledge and skills necessary to function in the global textile and apparel industry. (Note: Tracks do not appear on transcripts or diplomas). Students majoring in Textile and Apparel Management are required to take a set of core courses. Students may not take departmental courses using the Pass/Fail grading option. In addition to college and department requirements, students must meet all University graduation requirements (p. 35) including University general education (p. 36).

Students who want to explore Textile and Apparel Management may take the following classes:

T_A_M 1200	Basic Concepts of Apparel Design and Production	3
T_A_M 1300	Softgoods Retailing	3
T_A_M 2200	Science of Textiles	3
T_A_M 2400	Global Consumers	3

## Graduate

- MA in Textile and Apparel Management (p. 704)
- MS in Textile and Apparel Management (p. 705)

The College also offers a PhD in Human Environmental Sciences with an emphasis Textile and Apparel Management (p. 673).

### Director of Graduate Studies

Dr. Jung Ha-Brookshire  
137 Stanley Hall  
Columbia, MO 65211  
573-882-7317  
<http://tam.missouri.edu/>

Graduate programs in textile and apparel management offer the following areas of study: apparel design; apparel product development; consumer behavior; global supply chain management; history; marketing; retailing; and merchandising.

### Careers

Career opportunities for graduates exist in many areas, such as higher education, industry, museums, product development, production management and cooperative extension.

### Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program Web site or ask the program contact for details.

## BS in Textile and Apparel Management

### Degree Program Description

Textile & Apparel Management (TAM) is a program which focuses on the apparel and textile supply chain. The curriculum emphasizes leadership, the global supply chain, sustainability, creativity/innovation and technology. Students have access to state-of-the-art design and apparel technology labs. The Apparel Retailing and Digital Merchandising track prepares students for careers in merchandising, buying, planning, allocation, e-retailing, and retail management. The Apparel Product Development track prepares students for careers in technical and creative design, sourcing, and product development. Through coursework, field study experiences, internships, leadership conferences and student organizations, TAM students develop the skills they need for top industry positions.

### Major Program Requirements

There are two tracks available in Textile and Apparel Management: Apparel Retailing and Digital Merchandising (ARDM), and Apparel Product Development (APD). The ARDM track provides students with an understanding of digital and brick-and-mortar retailing which emphasizes apparel merchandising within both formats. The APD track provides students with an understanding of the apparel design and product development process from conception to consumer. Students majoring in TAM may not take departmental courses using the Pass/Fail grading option. In addition to college requirements, students must meet all University graduation requirements (<http://catalog.missouri.edu/academicdegree/requirements/>) including University general education. Some courses in the Professional Program are allowed to double count for General Education requirements (<http://catalog.missouri.edu/academicdegree/requirements/generaleducation/requirements/>). This program can be completed in 120 hours. The following courses are required of all students majoring in Textile and Apparel Management (TAM). (NOTE: Tracks do not appear on transcripts or diplomas.)

### Core Requirements

T_A_M 1200	Basic Concepts of Apparel Design and Production	3
T_A_M 1300	Softgoods Retailing	3
T_A_M 2100	Introduction to Digital Presentation Techniques	3

T_A_M 2120	Professional Seminar	1
T_A_M 2200	Science of Textiles	3
T_A_M 2400	Global Consumers	3
T_A_M 2500	Social Appearance in Time and Space	3
T_A_M 3200	Softgoods Quality Evaluation	3
T_A_M 3520	19th and 20th Century Western Dress	3
T_A_M 4110	Global Sourcing	3
T_A_M 4400	The Clothing/Textile Consumer: Data Analytics	3

Total Credits 31

### Apparel Retailing & Digital Merchandising

T_A_M 2300	Retail Finance and Merchandise Control	3
T_A_M 3700	Omnichannel Retailing in the Digital World	3
or T_A_M 3300	Retail and Merchandising Analysis	
T_A_M 4600	Digital Merchandising	3
T_A_M 4990	Retail Marketing and Merchandising	3
TAM elective hours		9

#### Supporting Course Requirements

MATH 1100	College Algebra (or a higher level math course)	3
CHEM 1100	Atoms and Molecules with Lab (or a higher level chemistry course)	3
ECONOM 1014	Principles of Microeconomics *	3
or ABM 1041	Applied Microeconomics	
ECONOM 1015	Principles of Macroeconomics	3
or ABM 1042	Applied Macroeconomics	
ESC_PS 4170	Introduction to Applied Statistics (recommended)	3
or STAT 1200	Introductory Statistical Reasoning	
or STAT 2500	Introduction to Probability and Statistics I	
ACCTCY 2010	Introduction to Accounting *	3
or ACCTCY 2026	Accounting I	
or ACCTCY 2036	Accounting I	
FINANC 2000	Survey of Business Finance *	3
or FINANC 3000	Corporate Finance	
MANGMT 3000	Principles of Management *	3
MRKTNG 3000	Principles of Marketing *	3
Business Elective (3000 level course or higher) *		3
Total Credits		51

\* Courses required for the Business Minor (p. 385).

### Apparel Product Development

T_A_M 2280	Apparel Production	4
T_A_M 2380	Integrated Apparel Design and Production I	3
T_A_M 2480	Apparel and Textile Presentation Techniques	3
T_A_M 2580	Digital Textile and Apparel Applications	3
T_A_M 3380	Integrated Apparel Design and Production II	3
T_A_M 3480	Technical Design	3
T_A_M 4480	Creativity and Problem Solving	3
T_A_M 4980	Apparel Production Management	4

#### Supporting Course Requirements

ARTDR_VS 1050	Drawing: Materials and Methods	3
CHEM 1100	Atoms and Molecules with Lab (or a higher level chemistry course)	3
ECONOM 1014 or ABM 1041	Principles of Microeconomics * Applied Microeconomics	3
ESC_PS 4170	Introduction to Applied Statistics (recommended)	3
or STAT 1200	Introductory Statistical Reasoning	
or STAT 2500	Introduction to Probability and Statistics I	
MANGMT 3000	Principles of Management *	3
MRKTNG 3000	Principles of Marketing *	3
Six credit hours from the following list: TAM elective courses, Accounting 2010/2026/2036*, Finance 2000* and Business Elective (3000 level course or higher)*		6
<b>Total Credits</b>		<b>50</b>

\* Courses required for the Business Minor (p. 385).

### Semester Plans

Below is a sample plan of study, semester by semester. A student's actual plan may vary based on course choices where options are available.

### Bachelor of Science in Textile and Apparel Management with a track in Apparel Retailing and Digital Merchandising

First Year			
Fall	CR	Spring	CR
CHEM 1100		3 COMMUN 1200	3
ENGLSH 1000		3 HES Foundation	3
Humanities		3 MATH 1100	3
GN_HES 1100		1 T_A_M 2100	3
T_A_M 1200		3 T_A_M 2200	3
T_A_M 1300		3	
		<b>16</b>	<b>15</b>

Second Year			
Fall	CR	Spring	CR
ECONOM 1014 or ABM 1041		3 ECONOM 1015 or ABM 1042	3
HES Foundation		3 General Elective	4
Humanities		3 History or Government	3
T_A_M 2400		3 T_A_M 2300	3
T_A_M 2500		3 T_A_M 3520	3
		<b>15</b>	<b>16</b>

Third Year			
Fall	CR	Spring	CR
ACCTCY 2010, 2026, or 2036		3 MANGMT 3000	3
General Elective		3 General Elective	3
MRKTNG 3000		3 Statistics (Recommended ESC_PS 4170 for math science general education credit)	3
T_A_M 2120		1 T_A_M 3700 or 3300	3
T_A_M 3200		3 T_A_M 4110	3
TAM Elective		3	
		<b>16</b>	<b>15</b>

Fourth Year			
Fall	CR	Spring	CR
Business Elective (3000 level course or higher)		3 General Elective	3
FINANC 2000		3 T_A_M 4400	3
General Elective		3 T_A_M 4990	3
TAM Elective		3 TAM Elective	3
T_A_M 4600		3	
		<b>15</b>	<b>12</b>

Total Credits: 120

### Bachelor of Science in Textile and Apparel Management with a track in Apparel Product Development

First Year			
Fall	CR	Spring	CR
ARTDR_VS 1050		3 American History or Government	3
CHEM 1100		3 Math Pathways	3
ENGLSH 1000		3 T_A_M 2100	3
GN_HES 1100		1 T_A_M 2200	3
T_A_M 1200		3 T_A_M 2280	4
T_A_M 1300		3	
		<b>16</b>	<b>16</b>

Second Year			
Fall	CR	Spring	CR
COMMUN 1200		3 FINANC 2000	3
ECONOM 1014 or ABM 1041		3 HES Foundation	3
T_A_M 2400		3 Humanities	3
T_A_M 2480		3 T_A_M 2380	3
T_A_M 2500		3 T_A_M 3520	3
		<b>15</b>	<b>15</b>

Third Year			
Fall	CR	Spring	CR
HES Foundation		3 General Elective	3
MRKTNG 3000		3 MANGMT 3000	3
T_A_M 2120		1 Statistics (Recommended ESC_PS 4170 for math science general education credit)	3
T_A_M 2580		3 T_A_M 3480	3
T_A_M 3200		3 T_A_M 4110	3
T_A_M 3380		3	
		<b>16</b>	<b>15</b>

Fourth Year			
Fall	CR	Spring	CR
ACCTCY 2010		3 T_A_M 4400	3
Business Elective (3000 level course or higher)		3 T_A_M 4980	4
General Elective		5 General Elective	3
T_A_M 4480		3 General Elective	3
		<b>14</b>	<b>13</b>

Total Credits: 120



## Minor in Textile and Apparel Management

An undergraduate minor in Textile and Apparel Management is available for students pursuing a major in another department. Students who wish to complete a minor should declare the minor by completing the form at <https://hes.missouri.edu/academics/hes-minors-certificates/>.

### Requirements

A minimum of 18 credit hours is required with at least six hours at the 2000 level or above. At least 15 of the 18 total credit hours must be taken in residence at the University of Missouri. Prerequisites for all courses must be met, or the student must have the permission of the instructor.

#### Required Courses:

T_A_M 1200	Basic Concepts of Apparel Design and Production	3
or T_A_M 1300	Softgoods Retailing	
T_A_M 2200	Science of Textiles	3

#### Select 12 credits from any area listed below in consultation with a TAM Advisor. Credits may be taken in a variety of interest areas.

##### Apparel Industry Studies

T_A_M 2100	Introduction to Digital Presentation Techniques	3
T_A_M 2400	Global Consumers	3
T_A_M 3010	Think Global: Fundamentals of Globalization and Digital Technologies	3
T_A_M 3200	Softgoods Quality Evaluation	3
T_A_M 4110	Global Sourcing	3
T_A_M 4400	The Clothing/Textile Consumer: Data Analytics	3
T_A_M 4549	International Experiential Learning in Textiles and Apparel	1-3
T_A_M 4810	Case Studies in an Inter/Multicultural World	3
T_A_M 4949	Field Training in Textiles and Apparel Management	1-3
T_A_M 4998	Experiential Learning in Textiles and Apparel	1-3

##### Historical/Behavioral Studies in Dress

T_A_M 2500	Social Appearance in Time and Space	3
T_A_M 2520	History of Western Dress	3
T_A_M 3520	19th and 20th Century Western Dress	3

##### Apparel Retailing & Digital Merchandising

T_A_M 2300	Retail Finance and Merchandise Control	3
T_A_M 3300	Retail and Merchandising Analysis	3
T_A_M 3700	Omnichannel Retailing in the Digital World	3
T_A_M 3800	Retail Entrepreneurship	3
T_A_M 4000	Digital Marketing Strategies for Fashion	3
T_A_M 4300	Softgoods Brand Management and Promotion	3
T_A_M 4600	Digital Merchandising	3
T_A_M 4990	Retail Marketing and Merchandising	3

##### Apparel Product Development

T_A_M 2280	Apparel Production	4
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T_A_M 2380	Integrated Apparel Design and Production I	3
T_A_M 2480	Apparel and Textile Presentation Techniques	3
T_A_M 2580	Digital Textile and Apparel Applications	3

## MA in Textile and Apparel Management

### Degree Requirements

A minimum of 30 credit hours at the 7000 level or above is required for the degree, with at least 15 credit hours at the 8000 level or above. A minimum of 9 credits in Research/Qualitative/Quantitative methods is expected, of which 3 credits are Research Methods and 3 credits Statistics. A project is required for the degree. The examples of the project include teaching, outreach, exhibit, or public presentation with clear statements of backgrounds, methods or approaches, and outcomes of the project. Six credit hours can be earned for the completion of the project. A maximum of 6 credit hours in problems and/or readings may be counted toward the required 30 credit hours.

#### Core Course Requirements

Textile and Apparel Management	minimum 9 credit hours
focused group of courses	
Research Methods/Statistics	minimum 9 credit hours

#### Supporting areas **minimum 6 credit hours**

for broadening the theoretical or practical base for the project	
Project in Clothing and Textiles	minimum 6 credit hours

### Admission Criteria

Fall deadline: January 15 for financial support considerations

- Minimum GPA: 3.0 in last 60 hours
- Bachelor's degree from an accredited college or university in textile and apparel management or related field. Those with unrelated majors will need to do make-up work
- Minimum TOEFL or IELTS scores:

Internet-based test (iBT)	Paper-based test (PBT)
80	550
IELTS	
6.5	

- Recommended Minimum GRE scores:

When did you take the GRE?	Verbal + Quantitative	Analytical
On or After August 1, 2011	153/144	3.0

### Required Application Materials

To the Graduate School:

- All required Graduate School documents
- Statement of professional objectives (upload to application)

- Official transcripts from every college or university you have attended
- Three letters of recommendation
- GRE Scores
- Latest vitae or résumé
- A 2 minute video about the applicant's career goals
- TOEFL or IELTS scores if international student
- Others; such as writing examples or design portfolio if design student

**Admission Contact Information**

Leona Nichols (nicholslm@missouri.edu)  
 137 Stanley Hall; Columbia, MO 65211  
 573-882-7317  
[http://tam.missouri.edu/grad\\_MS.html](http://tam.missouri.edu/grad_MS.html)

## MS in Textile and Apparel Management

### Degree Requirements

A minimum of 30 credit hours at the 7000 level or above is required for the degree, with at least 15 credit hours at the 8000 level or above. A minimum of 9 credits in Research/Qualitative/Quantitative methods is expected, of which 3 credits are Research Methods and 3 credits Statistics. A research thesis is required. Six credit hours can be earned for the thesis. A maximum of 6 credit hours in problems and/or readings may be counted toward the required 30 credit hours.

**Core Course Requirements**

Textile and Apparel Management	minimum 9 credit hours
focused group of courses	

Research Methods/Statistics	minimum 9 credit hours
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<b>Supporting areas</b>	<b>minimum 6 credit hours</b>
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for broadening the theoretical base for the research project		
T_A_M 8090	Research in Clothing and Textiles	minimum 6 credit hours

including pre-proposal, proposal, job market research, and defense presentations		
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### Admission Criteria

Fall deadline: January 15 for financial support considerations

- Minimum GPA: 3.0 in last 60 hours
- Bachelor's degree from an accredited college or university in textile and apparel management or related field. Those with unrelated majors will need to do make-up work
- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
80	550
IELTS	
6.5	

- Recommended Minimum GRE scores:

When did you take the GRE?	Verbal + Quantitative	Analytical
On or After August 1, 2011	153 / 144	3.0

### Required Application Materials

To the Graduate School:

- All required Graduate School documents
- Statement of professional objectives (upload to application)
- Official transcripts from every college or university you have attended
- Three letters of recommendation
- Latest vitae or résumé
- a 2 minute video about the applicant's career goals
- GRE Scores
- TOEFL or IELTS scores if international student
- Others; such as writing examples or design portfolio if design student

**Admission Contact Information**

Leona Nichols (nicholslm@missouri.edu)  
 137 Stanley Hall; Columbia, MO 65211  
 573-882-7317  
[http://tam.missouri.edu/grad\\_MS.html](http://tam.missouri.edu/grad_MS.html)

## Additional Minors and Certificates - HES

### Undergraduate Certificates

- Certificate in Digital Merchandising (p. 705)

### Undergraduate Minors

- Minor in Criminology/Criminal and Juvenile Justice (p. 706)
- Minor in Financial Literacy for Helping Professionals (p. 706)
- Minor in Nutritional Sciences (p. 707)
- Minor in Social Justice (p. 707)
- Minor in Social Work-Gerontology (p. 707)
- Minor in Wellness (p. 708)

### Graduate Certificates

- Certificate in Financial and Housing Counseling (p. 708)
- Certificate in Geriatric Care Management (p. 708)
- Certificate in Gerontology (p. 708)
- Certificate in Gerontological Social Work (p. 709)
- Certificate in Youth Development Program Management and Evaluation (p. 709)
- Certificate in Youth Development Specialist (p. 710)

## Certificate in Digital Merchandising

The Certificate in Digital Merchandising prepares undergraduate students for careers in the rapidly growing and dynamic field of digital merchandising. Students who finish the 15 credit-hour curriculum will receive the the Certificate of Digital Merchandising upon completion of their bachelor's degree. The certificate will prepare students for positions

where an understanding of apparel merchandising, marketing and consumer analytics in an online environment.

## Requirements

Students who wish to complete this certificate should declare the certificate by completing the form at [https://missouri.qualtrics.com/jfe/form/SV\\_belieXPZ1v3WIER](https://missouri.qualtrics.com/jfe/form/SV_belieXPZ1v3WIER) ([https://missouri.qualtrics.com/jfe/form/SV\\_belieXPZ1v3WIER/](https://missouri.qualtrics.com/jfe/form/SV_belieXPZ1v3WIER/)). At least 15 of the 18 total credit hours must be taken in residence at the University of Missouri. Prerequisites for all courses must be met, or the student must have the permission of the instructor.

### Required Courses

T_A_M 2100	Introduction to Digital Presentation Techniques	3
T_A_M 2300	Retail Finance and Merchandise Control	3
T_A_M 3700	Omnichannel Retailing in the Digital World	3
T_A_M 4000	Digital Marketing Strategies for Fashion	3
T_A_M 4400	The Clothing/Textile Consumer: Data Analytics	3
T_A_M 4600	Digital Merchandising	3
Total Credits		18

## Minor in Criminology/Criminal and Juvenile Justice

The Criminology/Criminal and Juvenile Justice minor is available for ALL students, regardless of major. The courses aim to have students develop an understanding of the criminal and juvenile justice system and criminal behaviors through a social justice lens. This lens allows students to recognize the impact of the justice system on vulnerable and marginalized populations and offers a critical reflection of the ways in which evidence-based intervention and sensible social policy can reduce criminal justice involvement. The School of Social Work and Arts and Science will offer experiential learning opportunities to apply skills within criminal and juvenile justice settings, with adviser approval, which will count towards the minor requirements.

## Requirements

A minimum of 18 hours, comprised of the courses below, is required to complete the minor. Students must have a 2.5 minimum GPA to apply for and earn the minor. Note that students must earn a grade of C- or higher in all courses and a maximum of 6 credit hours from transfer institutions may be applied toward the minor.

### Required Courses

SOC_WK 2000	Exploration in Social and Economic Justice	3
or SOC_WK 2000W	Exploration in Social and Economic Justice - Writing Intensive	
SOCIOL 3600	Criminology	3
<b>Electives</b>		
SOC_WK 1200	Criminal Justice	3
SOC_WK 4370	Delinquency, Corrections and Social Treatment	3
SOC_WK 4400	Domestic Violence	3
SOC_WK 4410	Law and Social Work Practice	3
POL_SC 2100	State Government	3

POL_SC 2200	The Judicial Process	3
SOCIOL 1650	Social Deviance	3
SOCIOL 2200	Social Inequalities	3
WGST 3260	Gender, Law and Justice	3
PSYCH 3860	Law and Psychological Science	3
PTH_AS 4220	Forensic Pathology and Death Investigation	2
BL_STU 4303	Black Studies in Race, Class, Gender, and U.S. Policy, Black Studies in Race, Class, Gender and U.S. Policy	3
HIST 4415	African Americans and American Justice	3

For additional information see: <http://ssw.missouri.edu/minor> ([http://ssw.missouri.edu/minor\\_cj.html](http://ssw.missouri.edu/minor_cj.html)).

## Minor in Financial Literacy for Helping Professionals

Individuals who struggle to meet their financial needs may have problems with their credit history or lack of experience with mainstream financial institutions and the language they speak. It is easy for someone who lives in or near poverty to fall prey to unscrupulous lenders, who take advantage of unstable situations. This program will prepare professionals to help clients avoid predatory lending practices, as well as access programs designed to supplement income for the impoverished. Education on available resources, in addition to engaging in dialogue and identifying accessibility with families, will be emphasized.

The School of Social Work, in collaboration with the Department of Personal Financial Planning in the College of Human Environmental Sciences at MU, has developed a minor that will prepare students to work with vulnerable clients who are in need of financial counseling and education. Coursework includes classes in personal and family finance, financial counseling, tax planning, economics, community agencies, social policy, and exploration in social and economic justice.

## Requirements

The minor requires completion of 15 credit hours as defined below, with a grade of C- or above. Also required in the student's major curriculum is Microeconomics and College Algebra. A student must be admitted to the University of Missouri with a declared academic major. The student must have an overall GPA requirement of a 2.5 to apply for and earn the minor. This minor is available to students regardless of academic major. The non-academic certificate and training program include a financial simulation activity and related coursework.

FINPLN 2183	Personal and Family Finance	3
FINPLN 3282	Financial Counseling	3
FINPLN 4188	Community Agencies and Volunteerism (taught in spring semester only; students will need to attend a workshop in order to certify for IRS compliance)	3
SOC_WK 2000	Exploration in Social and Economic Justice	3
or SOC_WK 2000W	Exploration in Social and Economic Justice - Writing Intensive	
SOC_WK 4390	Helping Strategies With Children and Adolescents	3
Total Credits		15

\* Successful completion of coursework allows students to sit for the Accredited Financial Counselor Exam.

## Minor in Nutritional Sciences

The minor in nutritional sciences is intended for students majoring in food science, biological sciences, biochemistry, health and exercise sciences or related fields. This minor would be a good choice for students looking at pre-med, pre-dental or Physician's Assistant programs.

### Requirements

Minor core requirements consist of a minimum of 15 hours of nutrition (not exercise/fitness) courses, including NEP 2340: Human Nutrition I, plus 12 hours from the list of approved nutrition courses. Prerequisites apply to some classes and will be enforced.

Minor core requirements		
NEP 2340	Human Nutrition I (spring only)	3
Plus 1 course from the following list of approved nutrition courses:		3
NEP 1310	Food and Cultures of the World	
NEP 2222	Landscape of Obesity (spring only)	
NEP 4360	Nutritional Assessment (fall only)	
Plus 2 courses selected from the following list of approved nutrition courses:		6
NEP 2380	Diet Therapy for Health Professionals	
NEP 4340	Human Nutrition II Lecture (fall only)	
NEP 4370	Medical Nutrition Therapy I (spring only)	
Plus 1 course selected from the following list of approved nutrition courses:		3
NEP 2450	Nutrition Throughout the Life Span (spring, summer)	
NEP 4590	Community Nutrition (fall only)	
<b>Total Credits</b>		<b>15</b>

## Minor in Social Justice

The social justice minor is designed to give non-social work majors the opportunity to develop knowledge and understanding about social justice in the person-environment context. Social justice involves the idea that in a perfect world all citizens would have identical social benefits, protections and opportunities regardless of their backgrounds and membership in diverse groups. Recognizing that the world is not perfect, the primary goals for the minor in social justice are to enhance sensitivity to vulnerable and at-risk populations, to provide opportunity for critical review of social policies and the allocation of societal resources and to stimulate interest in advocacy and the planned change process.

In accordance with RSMO 337.600 regarding title protection, students who complete the Social Justice minor are not considered professional social workers and may not refer to themselves as BSW level social workers upon graduation.

### Requirements

A minimum of 15 hours, comprised of the courses below, is required to complete the Social Justice minor. Students must have a 2.5 minimum GPA to apply for and earn the minor. Note that students must earn a grade of C- or higher in all courses and a maximum of 6 credit hours from transfer institutions may be applied toward the Social Justice minor.

### Minor core requirements

SOC_WK 1115	Social Welfare and Social Work	3
SOC_WK 2000W	Exploration in Social and Economic Justice - Writing Intensive	3
or SOC_WK 2000	Exploration in Social and Economic Justice	
SOC_WK 2220W	Human Behavior in the Social Environment - Writing Intensive	3
or SOC_WK 2220	Human Behavior in the Social Environment	
Social Work electives		
Select two of the following:		6
SOC_WK 4101	Topics in Social Work	
SOC_WK 4330	Addiction Treatment and Prevention	
SOC_WK 4370	Delinquency, Corrections and Social Treatment	
SOC_WK 4390	Helping Strategies With Children and Adolescents	
SOC_WK 4395	Death, Grief and Loss	
SOC_WK 4400	Domestic Violence	
SOC_WK 4410	Law and Social Work Practice	
SOC_WK 4450	Professional Perspectives on Child Welfare Services in the 21st Century	
SOC_WK 4480	Helping Strategies with Older Persons	
<b>Total Credits</b>		<b>15</b>

## Minor in Social Work-Gerontology

The Undergraduate Gerontology Minor is designed to provide students with basic knowledge about older adults and the aging process, and applied skills for aging-related practice. Students who complete the Gerontology Minor come from a variety of undergraduate programs, in order to augment their studies with an in-depth focus on older adults. The field of Gerontology is interdisciplinary by nature and rapidly expanding, therefore jobs are available in just about every sector of our economy. The Gerontology Minor compliments this diversity, by offering coursework from several academic units on campus.

Students enrolled in the Gerontology Minor will:

- Build a firm understanding of the aging process, including biological, cognitive, psychological, and social processes that occur across late adulthood.
- Be able to critically analyze social problems that exist, which affect older adults in today's society.
- Gain knowledge of the U.S. healthcare system, with emphasis on health policy affecting older adults.
- Develop assessment and intervention skills to work with older adults and their families in interdisciplinary settings.

Students who complete the Gerontology Minor are uniquely positioned for employment opportunities in the aging field after graduation.

### Requirements

To obtain the Gerontology Minor, a student must complete the minimum 15 credit hours as outlined above. A minimum grade of 'C-' in all coursework is needed to qualify for the minor.

Required Courses		
H_D_FS 3440	Adulthood and Aging	3
SOC_WK 4395	Death, Grief and Loss	3

SOC_WK 4480	Helping Strategies with Older Persons	3
Choose two of the following:		
SOCIOL 4210	Aging and the Life Course	3
HLTH_SCI 4300	Health Care in the United States	3
HLTH_SCI 4420	Health Literacy and Behavioral Compliance	3

### Admission Requirements:

A student must be admitted to the University of Missouri with a declared academic major. Students must have a 2.5 minimum GPA to apply for and earn the minor.

## Minor in Wellness

The Wellness Minor is intended for both non-science and science students interested in coursework focused on empowering them to make informed decisions related to lifelong personal nutrition and exercise choices.

### Requirements

Core requirements consist of a minimum of 15 hours of nutrition and exercise/fitness courses.

#### Required Courses

NEP 1034	Introduction to Human Nutrition	3
or NEP 2340	Human Nutrition I	
NEP 1340	Introduction to Exercise and Fitness	3
NEP 2450	Nutrition Throughout the Life Span (check prerequisites)	3
NEP 3450	Activity Throughout the Lifespan	3

#### Choose at least one of the following (to complete a total of 15 hours)

NEP 2222	Landscape of Obesity	3
NEP 2380	Diet Therapy for Health Professionals	3
NEP 2460	Eating Disorders	3
NEP 3131	International Nutrition and Exercise Physiology	0-6
NEP 3550	Corporate, Community, and Personal Fitness	3

To apply for the Wellness Minor, use the online application form ([http://hes.missouri.edu/students\\_minorapp.php](http://hes.missouri.edu/students_minorapp.php)) available on the Human Environmental Sciences Student Services website.

## Graduate Certificate in Financial and Housing Counseling

The purpose of the Financial and Housing Counseling Certificate is to develop a student's financial counseling skills and to prepare a student to sit for the Accredited Financial Counselor (AFC®) exam offered through the national Association for Financial Counseling and Planning Education (AFCPE®). Students with this background would be equipped to provide professional assistance in debt counseling, financial management, and housing finance to those in need. Typical clients would include those with low levels of income and resources, disaster recovery, and military personnel dealing with financial and housing issues related to deployment, relocation.

This certificate is offered as part of the Family Financial Planning programs in the Great Plains Interactive Distance Education Alliance. More information is available at <https://www.gpidea.org/course-planner/family-financial-planning/financial-and-housing-counseling> (<https://www.gpidea.org/course-planner/family-financial-planning/financial-and-housing-counseling/>).

### Requirements

The certificate program requires the completion of 18 credit hours. Courses are taught online.

#### Required Courses (12 credit hours)

Financial Counseling	3
Financial Theory & Research I	3
Housing/Real Estate	3
Fundamentals for Family Financial Planning	3

#### Elective Courses (6 credit hours)

Retirement Planning, Employee Benefits, and the Family	3
Personal Income Taxation	3
Insurance Planning for Families	3
Estate Planning for Families	3
Investing for the Family's Future	3
Military Personal Finance	3
Financial Theory & Research II	3
Family Financial Planning - Practicum	3

### Contact information:

Dr. Deanna L. Sharpe  
239 Stanley Hall  
Columbia, MO 65211  
[sharped@missouri.edu](mailto:sharped@missouri.edu)  
573-882-9652

## Graduate Certificate in Geriatric Care Management

The Geriatric Care Management certificate is a web-based, four course certificate designed for those who provide independent case management services to elder Americans or who wish to do so in the future. The certificate provides an educational credential in addition to preparing students to sit for certification examinations given by national credentialing organizations.

## Graduate Certificate in Gerontology

A certificate in gerontology (21 credit hours) is ideal for professionals in a variety of aging-related fields. Areas include senior-services organizations like centers on aging; senior centers; nursing homes; assisted, independent, and aging-in-place living facilities; non-profit organizations; faith-based groups; and extension educators.

Certificate web site: [http://hdfs.missouri.edu/grad\\_gerontologycertificate.html](http://hdfs.missouri.edu/grad_gerontologycertificate.html)

### Requirements

#### Required (6 credits)

H_D_FS 7252	Adult Development	3
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H_D_FS 8251	Perspectives in Gerontology	3
<b>Suggested Electives (9 credits)</b>		
H_D_FS 7233	Basic Grant Development and Management	3
H_D_FS 7255	Aging Policy	3
H_D_FS 7256	Environments and Aging	3
H_D_FS 7257	Aging and the Family	3
H_D_FS 7259	Mental Health and Aging	3
H_D_FS 7262	Long-Term Care Administration	3
H_D_FS 8001	Topics in Human Development and Family Science	1-99
H_D_FS 8238	Program Design, Implementation and Evaluation	3
H_D_FS 8253	Physical Health in Aging	3
H_D_FS 8254	Gerontology Research Methods and Program Evaluation	3

For information about this certificate, contact:  
 Department of Human Development and Family Science  
 314 Gentry Hall  
 University of Missouri  
 Columbia, MO 65211  
 hdfsgard@missouri.edu (colemanma@missouri.edu)  
 573-882-4035

## Graduate Certificate Gerontological Social Work

The University of Missouri Graduate Certificate in Gerontological Social Work is open to MSW students from any social work program nationwide, as well as currently practicing social workers with a BSW or MSW degree. The University of Missouri School of Social Work has a long history of training gerontological social workers and conducting research in the field of aging.

### Training Social Workers to Respond to a Growing Need

Gerontological social work is one of the fastest growing fields within the profession, with a 25-34% job growth in the past decade. Therefore, the demand for social workers who have specialized training in working with older adults is very high. This certificate program is designed to help train the next generation of geriatric social work practitioners. Individuals enrolled in this certificate program will build knowledge and expertise in working with older adults and their families in a variety of settings that serve the aging population. This program offers an interdisciplinary emphasis, as social workers often work on large, interdisciplinary teams on behalf of their older clients. In addition, this program also focuses on building awareness of aging policies and services, as well as advocacy of older adults.

As a result of earning this Graduate Certificate in Gerontological Social Work, students enrolled in an MSW program as well as practicing social workers who hold a BSW or MSW degree can expect enhanced employability in the field.

### Graduate Certificate in Gerontological Social Work Curricula

Courses are available online, and some are available in-seat as well. If you would like to propose a substitution for one of these courses, please contact the Director with the course number, course name, and the

course description. These requests will be taken into consideration and you will be notified with a decision of your request.

Please note that the semester in which courses are offered and the method of delivery (i.e. class type) can frequently change. Please consult the current degree offerings at MU to verify that a particular course will be offered when you aim to enroll. You may also contact the Director of the certificate program if you have questions about course offerings.

## Requirements

This certificate program consists of 12 credit hours.

<b>Required Courses (take both courses):</b>		<b>6</b>
SOC_WK 7480	Helping Strategies with Older Persons	
SOC_WK 8240	Social Policy for Older Adults	
<b>Choose one elective course:</b>		<b>3</b>
SOC_WK 7395	Death, Grief and Loss	
SOC_WK 8210	Disability Rights Advocacy	
<b>Choose one interdisciplinary course:</b>		<b>3</b>
H_D_FS 7255	Aging Policy	
H_D_FS 7256	Environments and Aging	
H_D_FS 7257	Aging and the Family	
H_D_FS 7259	Mental Health and Aging	
H_D_FS 7260	Women and Aging	
H_D_FS 7261	Biological Principles of Aging	
H_D_FS 8221	Gerontechnology	
H_D_FS 8222	Creativity and Aging	
H_D_FS 8251	Perspectives in Gerontology	
H_D_FS 8253	Physical Health in Aging	
H_D_FS 8254	Gerontology Research Methods and Program Evaluation	
H_D_FS 8258	Professional Seminar in Gerontology	

### Contact Information:

For additional information about the Graduate Certificate in Gerontological Social Work, please contact Dr. Erin Robinson at [robinsonel@missouri.edu](mailto:robinsonel@missouri.edu).

## Graduate Certificate in Youth Development Program Management and Evaluation

A certificate in Youth Development Program Management and Evaluation is ideal for professionals in a variety of youth-related fields. Areas include youth-serving organizations like 4-H; Boys and Girls Club; non-profit organizations; faith-based groups; community recreation facilities; correctional professions; elementary, middle and high school educators; and extension educators.

Certificate web site: [http://hdfs.missouri.edu/grad\\_youthprogram.html](http://hdfs.missouri.edu/grad_youthprogram.html)

## Requirements

A total of 13 credit hours is required.

<b>Required</b>		
H_D_FS 7231	Foundations of Youth Development	1
<b>Elective (select 4 of the following for 12 credits)</b>		
H_D_FS 8235	Administration and Program Management	3

H_D_FS 8232	Youth Professionals as Consumers of Research	3
H_D_FS 8238	Program Design, Implementation and Evaluation	3
H_D_FS 8236	Federal and State Policies that Impact Youth Development	3
H_D_FS 7001	Topics in Human Development and Family Science (Contemporary Youth Issues)	3

**For information about this certificate, contact:**

Department of Human Development and Family Science  
 314 Gentry Hall  
 Columbia, MO 65211  
 hdfsggrad@missouri.edu  
 573-882-4035

## Graduate Certificate in Youth Development Specialist

A youth development specialist graduate certificate is ideal for professionals in a variety of youth-related fields. Areas include youth-serving organizations like 4-H; Boys and Girls Club; non-profit organizations; faith-based groups; community recreation facilities; correctional professions; elementary, middle and high school educators; and extension educators.

Certificate web site: [http://hdfs.missouri.edu/grad\\_youthspecialist.html](http://hdfs.missouri.edu/grad_youthspecialist.html)

### Requirements

Total of 13 credit hours required.

**Required**

H_D_FS 7231	Foundations of Youth Development	1
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**Elective (select 4 of the following for 12 credits)**

H_D_FS 8234	Adolescents and their Families	3
H_D_FS 8236	Federal and State Policies that Impact Youth Development	3
H_D_FS 8237	Youth Cultures and the Cultures of Youth	3
H_D_FS 8239	Community Youth Development	3
H_D_FS 8240	Youth Development	3
H_D_FS 7001	Topics in Human Development and Family Science (Contemporary Youth Issues)	3

**For information about this certificate, contact:**

Department of Human Development and Family Science  
 314 Gentry Hall  
 Columbia, MO 65211  
 hdfsggrad@missouri.edu  
 573-882-4035

## School of Journalism

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### Administration

David D. Kurpius, Dean  
Earnest Perry, Associate Dean for Graduate Studies  
Lynda Kraxberger, Associate Dean for Undergraduate Studies and Administration  
Fritz Cropp, Associate Dean for Global Programs

### Contact Information

Administration, 120 Neff Hall  
(573) 882-4821

Undergraduate Student Services, 76 Gannett Hall  
(573) 882-1045

JournalismStudentServices@missouri.edu

Graduate Advising, 181 Gannett Hall  
(573) 882-4852

jourgraduatestudies@missouri.edu

### About the School

The Missouri School of Journalism was established in 1908 to strengthen the effectiveness of public communication in a democratic society. The school awarded the world's first undergraduate degree in journalism (1909), master's degree in journalism (1921) and doctorate in journalism (1934).

The school emphasizes hands-on learning-by-doing, a philosophy that began with the publication of a community newspaper in 1908 and continues today through its public-facing professional newsrooms and agencies. Known as the "Missouri Method" this approach allows students to prepare for careers in journalism and strategic communication.

Students gain experience at an NBC affiliate television station, NPR-member station, a digital-first community newspaper, monthly arts and culture magazine and at niche media outlets focused on current issues in business or international affairs. Students learn about advertising and public relations work through two strategic communication agencies creating campaigns for local, regional and national paying clients.

The faculty is committed to educating students in the responsibilities and skills of the professional journalist and strategic communication practitioner. Faculty members work to consistently improve a dynamic array of course offerings that lead the way in journalism education and research. Faculty also have a broader commitment to advance the profession of journalism through scholarly research, analysis and criticism and through special programs to serve practitioners.

Through the Reynolds Journalism Institute and the Novak Leadership Institute, the school creates entrepreneurial and innovative methods to build future leaders and to sustain the flow of news and information for the betterment of society. At the Murray Center for Documentary Journalism, students create films with journalism's strong tradition of accuracy and fact-finding.

The school has 25 study away programs in 18 countries – where students earn credit and gain work experience. The school maintains year-round offices in Barcelona, Brussels, New York and Washington, D.C. and provides strategic communication programs in Hong Kong, Prague and Tokyo.

Graduates are assured of a well-rounded liberal arts education, plus a balance of theory and hands-on courses. Employers routinely report Missouri School of Journalism students are ready for the workforce, from day one.

The school has maintained continuous accreditation from the Accrediting Council on Education in Journalism and Mass Communication since the accrediting process began in 1949, with the most recent re-accreditation in 2017.

### Undergraduate

- Admissions (p. 711)
- Special Programs (p. 713)
- Advising (p. 711)
- Senior Assessment Program (p. 712)
- Opportunities for Graduate Study on MU Campus (p. 712)

### Admissions

First-time college students admitted to the University of Missouri are eligible to pursue a Bachelor of Journalism degree.

As a worldwide leader in journalism and strategic communication, the Missouri School of Journalism directly admits students who have met high academic standards in their high schools or based on their aptitude as evidenced by their performance on standardized college admission tests (ACT or SAT). The School also welcomes students as pre-journalism majors who will demonstrate through college coursework their readiness for the School's rigorous academic program.

### Admission to the Major

Both directly admitted and pre-journalism students take prerequisite courses designed to acquaint them with career options in the field while building a foundation in core skills.

Following the successful completion of select prerequisite courses and achievement of a minimum GPA of 3.0, both directly admitted and pre-journalism students transition into the major. Students continue in the major coursework as long as they continue to meet academic standards.

### Advising

Students are expected to seek the advice of an academic advisor in the selection of courses and semester planning. Students are encouraged to seek advice from the faculty and career services for career counseling and specific journalism and strategic communication-related issues.

The university provides degree audits for students to track the completion of degree requirements. Students are responsible for enrolling in an appropriate schedule of courses each semester; however, students are highly encouraged to consult with their advisor when necessary. The responsibility for meeting admission and graduation requirements rests with the student.

### Dual-Degrees

To receive two bachelor's degrees, a student must complete a minimum of 132 credits and complete all of the specific requirements for both degrees. Normally, a minimum of one additional semester is required for both degrees. Each candidate for a dual degree is assigned an advisor in the School of Journalism and in the additional academic unit.



## Ethics of Journalism

The School of Journalism is committed to the highest standards of academic and professional ethics and expects its students to adhere to those standards. Students should be familiar with the Code of Ethics of the Society of Professional Journalists and adhere to its restrictions. Students are expected to observe strict honesty in academic programs and as representatives of school-related media. Should any student be guilty of plagiarism, falsification, misrepresentation or other forms of dishonesty in any assigned work, that student may be subject to a failing grade from the instructor and such disciplinary action as may be necessary under university regulations.

## Independent Study

Mizzou Online offers a variety of online courses that can be taken self-paced. Many of the courses can be used to satisfy degree requirements. Students may enroll themselves for as many as 4 credit hours per semester of online self-paced courses. Enrolling in more than 4 credit hours per semester requires approval from an academic advisor.

Students can also work under the supervision from journalism faculty to provide special opportunities to work outside of the classroom to receive journalism course credit.

## International Students

In addition to meeting the standards for admission to the university, international students must meet the following English-language proficiency standards:

- **Pre-Journalism:** Minimum Test of English as a Foreign Language (TOEFL) paper-based score of 550 or minimum TOEFL electronic score of 80 or International English Language Testing System (IELTS) band score of 6.5 with minimum section scores of 6.
- **Direct Admission:** Minimum Test of English as a Foreign Language (TOEFL) paper-based score of 600 or TOEFL electronic score of 100 or International English Language Testing System (IELTS) band score of 7 with minimum section scores of 6.

## Opportunities for Graduate Study on MU Campus

The accelerated bachelor/master degree program was designed for students in the Missouri School of Journalism to attain a graduate education. The program allows students to apply and begin their master's program during the senior year of the undergraduate program. Students in the program complete requirements as outlined for the Bachelor of Journalism degree and then spend one more year (approximately 12 months) to earn a master's degree. The program requires students to carry 9-12 credits each semester. Course work in the program builds on the undergraduate program and enhances student's skills and understanding of the chosen area of journalism.

At the present time, areas include broadcast management, computer-assisted reporting, convergence, magazine editing, magazine writing, photojournalism, public affairs reporting, publication design, reviewing and reporting on arts and entertainment, strategic communication, and visual editing.

## Senior Assessment Program

In compliance with the standards set forth by the Accrediting Council on Education in Journalism and Mass Communication (ACEJMC) and

guidelines established by the University of Missouri, the Missouri School of Journalism regularly conducts an assessment of student learning.

The school uses both direct and indirect measures to provide faculty and administrators with information to improve student learning. A key component of student assessment is feedback from external reviewers who have substantial experience in the areas being evaluated. The professionals conduct one-on-one interviews with students, critique portfolios and evaluate other relevant evidence of student learning and preparation for their chosen fields. The school also routinely solicits feedback from visiting alumni and industry professionals. The assessment information is regularly used to guide curriculum decisions and inform teaching and learning practices. The school has provided continuous assessment of graduating students since 1994.

### Learning Outcomes:

The School strongly adheres to the learning competencies and values defined by the **Accrediting Council on Education in Journalism and Mass Communication (ACEJMC)** which states that irrespective of a student's particular specialization all graduates should be able to:

- understand and apply the principles and laws of freedom of speech and press for the country in which the institution that invites ACEJMC is located, as well as receive instruction in and understand the range of systems of freedom of expression around the world, including the right to dissent, to monitor and criticize power, and to assemble and petition for redress of grievances;
- demonstrate an understanding of the history and role of professionals and institutions in shaping communications;
- demonstrate an understanding of gender, race ethnicity, sexual orientation and, as appropriate, other forms of diversity in domestic society in relation to mass communications;
- demonstrate an understanding of the diversity of peoples and cultures and of the significance and impact of mass communications in a global society;
- understand concepts and apply theories in the use and presentation of images and information;
- demonstrate an understanding of professional ethical principles and work ethically in pursuit of truth, accuracy, fairness, and diversity;
- think critically, creatively and independently;
- conduct research and evaluate information by methods appropriate to the communications professions in which they work;
- write correctly and clearly in forms and styles appropriate for the communications professions, audiences, and purposes they serve;
- critically evaluate their own work and that of others for accuracy and fairness, clarity, appropriate style, and grammatical correctness;
- apply basic numerical and statistical concepts;
- apply current tools and technologies appropriate for the communications professions in which they work, and to understand the digital world.

## Standards for Academic Performance

### Academic Actions

The School of Journalism is a challenging and rigorous environment in which students are expected to maintain high standards of academic achievement. ***The faculty expects each student to maintain a minimum GPA of 3.0 to be considered in good standing.***

Probation and dismissal are the two potential academic actions for students who are not meeting the standards for academic performance.

### **Probation**

Probation indicates a student is struggling to meet academic expectations.

Students placed on probation are required to meet with their advisor frequently during the subsequent semester. During these meetings, students will be assessed to determine which types of intervention are needed to return to good academic standing.

Removal from probation occurs when the student meets satisfactory academic standards.

### **Ineligible**

Students who are ineligible are having significant challenges in meeting academic expectations. Students are encouraged to seek admission to another academic college at the University at Missouri to regain eligibility for course enrollment.

Students can appeal to return to the School of Journalism when the student meets satisfactory academic standards.

## **Categories**

Each category ensures students are making progress toward achieving a 3.0 GPA. The standards for academic performance are applied based on the following two categories:

### **First Semester Freshmen and Transfer Students**

#### **Probation: GPA is between 0.50 – 2.50**

First-semester freshman and transfer journalism students are placed on probation when their first semester GPA is between 0.50 and 2.50. They are removed from probation when the student meets satisfactory academic standards.

#### **Ineligible: GPA is below 0.50**

First-semester freshman and transfer journalism students become ineligible to enroll for a minimum of one semester when their first semester GPA is below 0.50.

### **Students Who Have Completed One Semester at MU**

The credit hour classifications include University of Missouri courses, transfer courses, advanced placement credit, and other credits by examination. While the credit hours from all of these sources are included in the following categories, only the grades in courses completed in the University of Missouri system will be computed for GPA purposes.

Students who have completed one semester at MU who do not meet the following standards will be ineligible to enroll in the School of Journalism and will not be permitted to re-enroll for a minimum of one semester:

#### **0-29 credit hours**

Students must maintain a minimum cumulative MU GPA of 2.5.

#### **30-59 credit hours**

Students must maintain a minimum cumulative MU GPA of 2.75.

#### **60 or more credit hours**

Students with 60 or more credit hours who have not been admitted to their major area.

## **Readmission**

A student who has been dismissed and declared ineligible to enroll may be readmitted only on the approval of the dean of the school or college in which the student desires to enroll. As a condition of readmission, the dean may set forth stipulations with regard to minimum standards of academic work that must be maintained by the student. If the student, after readmission, again becomes ineligible to re-enroll, their ineligibility normally is considered permanent.

### **Minimum Grade in Journalism Courses**

Students must repeat any required journalism course in which they do not earn a grade of C- or higher. A student who fails to achieve a C- or better during the second attempt will be dismissed from the School of Journalism for lack of acceptable progress.

Students may be readmitted only with the consent of the faculty chair of the student's major area and the associate dean for undergraduate studies. Before recommending approval for the student to re-enroll, the faculty chair will consult with the instructor or instructors of record in the required course to determine the likelihood of that student passing the course on the third attempt. The faculty chair will make a recommendation to the associate dean, who shall make the final decision to readmit or deny admission to the School of Journalism.

## **Excessive Incomplete Grades**

A student may be placed on probation or dismissed for excessive incompletes at the discretion of the associate dean for undergraduate studies. In such cases, the associate dean shall set a time limit for successful completion of all the courses in which the student has an incomplete. The time limit will not exceed one calendar year from the scheduled completion of the course and may be of shorter duration. The associate dean also may place limitations on the number of additional credits hours in which the student may enroll until the incomplete grades are resolved. If the student fails to finish the required courses within the time limit set by the associate dean, the student is subject to dismissal.

## **Transfer Credit**

The Office of Undergraduate Admissions, 230 Jesse Hall, determines transfer equivalencies for the University, including the School of Journalism. Transfer students from other accredited schools and colleges in Missouri should check the MU website to see how coursework will transfer to MU or contact the Office of Admissions. Students can also contact the Journalism Student Services office to see how these courses could apply toward the degree. The School of Journalism can accept courses from other accredited journalism programs or from Missouri colleges with which the School of Journalism has working agreements.

Current MU journalism students may not transfer journalism major courses from other institutions.

## **Walter Williams Scholars Program**

The School of Journalism attracts some of the best students at MU. The School encourages high-achieving students to enroll in the MU Honors College (<http://honors.missouri.edu>) and take honors courses whenever possible. Such courses are taught by some of MU's best professors. The School recognizes incoming high-ability students with a special designation and the following benefits:

Those students who have first been admitted to the Honors College may be invited by the School of Journalism to receive additional benefits through the Walter Williams Scholars program. The program is designed for the top tier of an already exceptional group.

**Qualifications:** To be invited into the exclusive circle of top Walter Williams Scholars, incoming freshmen must first apply and be accepted to the MU Honors College (<https://honors.missouri.edu/>).

Additionally, applicants must:

- Earn an ACT composite score of 33 **or** a combined SAT score of 1450 **and**
- Rank in the top 20 percent of the high school class (if the school ranks) **or** have a weighted Core GPA of 3.5 or higher.

*Admission is by invitation only.*

**Benefits:**

- Additional renewable scholarship funds directly from the School of Journalism.
- Placement in a special Freshman Interest Group, space permitting.
- Assigned individual faculty mentors.
- A \$1,000 scholarship that can be used for School of Journalism global programs (<http://www.mujournalismabroad.com/>), including our New York or Washington programs. The scholarship can be used at any time before graduation.
- Automatic admission to the one-year BJ/MA program at the School of Journalism, which allows students to complete their graduate degrees in one year rather than two. Admission is contingent upon the following criteria:
  - Maintenance of a 3.25 GPA in your journalism coursework and for your cumulative average, throughout your undergraduate career;
  - Submission of a complete MA application, including payment of the application fee, and with two (out of three) of your letters of recommendation from journalism faculty. You do not need to take the GRE.

To make the most of the program, the School encourages high-ability students to apply to the MU Honors College (<http://honors.missouri.edu>) and take honors courses whenever possible.

## Graduate

### About Our Graduate Programs

The University of Missouri's School of Journalism is the recognized leader for graduate study in journalism and strategic communication, having awarded the first master's and doctoral degrees in journalism in 1921 and 1934, respectively.

The Missouri Method is the time-honored process of journalism and strategic communication education: Graduate students gain valuable research-based, managerial experience while honing tactical skills. We operate the only network affiliate (NBC) television station in the country used to train journalism students. We publish a community daily newspaper (not a campus paper), and we operate four major web sites, a local magazine and an international magazine. Students also may train at our campus-based NPR affiliate. Our strategic communication students design media campaigns for local and national clients. Examples: Our students have created advertising and public relations campaigns for Nokia, Apple, Dr Pepper, Anheuser-Busch, Duncan Hines, DuPont, Dow Chemical, Kinko's, Eastman Kodak and many other leading international

brands. Graduate studies in CAFNR are taking an innovative, high-tech approach to traditional agriculture, food and natural resources. Our students are highly engaged with expert faculty mentors who are impacting the future with findings on health breakthroughs, sustainable agriculture techniques and food safety. Prospective students are able to choose from a range of academic programs consistently recognized for excellence.

Note: Prospective graduate students must apply to both the degree program of interest and to the MU Graduate School. In most cases, the entire application process may be completed online. Find admission and application details by selecting the degree program of interest in the left navigation column.

We operate educational programs in Washington, D.C., New York, and Brussels where many of our students carry out their capstone projects or do research. We also partner with educational programs around the world.

Our 80+ faculty members have earned impressive credentials from years of working in journalism and strategic communication. School resources include an extensive journalism library and Freedom of Information Center, Center for Advanced Social Research, and the Stephenson Research Center, named for the late William Stephenson, known globally as the inventor of Q-methodology.

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## Journalism

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The world's first School of Journalism was established in 1908 at the University of Missouri to strengthen the effectiveness of public communication in a democratic society. The school's first dean, Walter Williams (who went on to become president of the University in 1930) wrote the Journalist's Creed, which stresses the profession's rights and responsibilities as a public trust.

The faculty is committed to educating students in the responsibilities and skills of the professional journalist. It also has a broader commitment to advance the profession of journalism through scholarly research, analysis and criticism and through special programs to serve practitioners. The school also prepares students for careers in corporate communication through its strategic communication emphasis area. Students in that area typically pursue careers in advertising or public relations or in strategic communication.

The Missouri Method assures a journalism student will graduate with a broad, liberal education essential for a journalist whose work may span many segments of today's complex society. In addition to a liberal arts education, students complete practical laboratory work in a variety of settings, including a public radio station, a commercial daily newspaper and a network-affiliated television station. The school offers the Bachelor of Journalism, Master of Arts and Doctor of Philosophy degrees, along with cooperative programs with other divisions in the University. It was the first school in the world to offer all three of those degrees.

The Accrediting Council on Education in Journalism and Mass Communication has accredited the undergraduate program and a professional master's degree.

### Administration

David D. Kurpius, Dean  
Earnest Perry, Associate Dean for Graduate Studies  
Lynda Kraxberger, Associate Dean for Undergraduate Studies and Administration

Fritz Cropp, Associate Dean for Global Programs

Administration, 120 Neff Hall  
(573) 882-4821

Undergraduate Student Services, 76 Gannett Hall  
(573) 882-1045  
journalismstudentservices@missouri.edu

Graduate Studies, 181 Gannett Hall  
(573) 882-4852  
jourgraduatestudies@missouri.edu

## Faculty

### Journalism Studies Faculty

**Professor** D. Kurpius, S. Zhou

**Professor (Professional Practice)** M. M. Steffens

**Associate Professor** F. Cropp, K. Greenwood, A. Hinnant, F. B. Hudson, E. L. Perry Jr., R. Thomas, Y. Volz

**Associate Professor (Professional Practice)** R. Kelley, A. Heiss, A. Simons

**Assistant Professor** B. Johnson, M. Kearney, C. Mislán,

**Assistant Professor (Professional Practice)** B. Horvit

### Journalism Professions Faculty

**Professor** D. Kiesow

**Professor (Professional Practice)** R. Bailey, D. L. Herzog, M. M.

Jenner, K. Kiely, L. S. Kraxberger, R. Smith, S. Woelfel

**Associate Professor** T. Warhover

**Associate Professor (Professional Practice)** J. Abbott, J. S. Bell, E. K. Brixey, L. Bruzzese, R. Famuliner, E. Frogge, L. Hammock, S. S.

Hiles, M. Hinojosa, M. Horvit, L. Johnston, H. Lamb, J. D. Nevalga, E.

Reed, K. Reed, R. A. Reeves, J. L. Rowe, R. Stodghill, S. C. Swafford

**Assistant Professor (Professional Practice)** K. Bilal, R. Greene, M.

Knisley, B. Kratzer, R. Takeo Morimura, K. Stanfield, E.C. Stephens

### Strategic Communication Faculty

**Professor** G. T. Cameron, M. E. Duffy, C. M. Frisby, S. Heiman, S. L. Rodgers

**Professor (Professional Practice)** S. T. Heiman

**Associate Professor (Professional Practice)** B. Best, F. Corridori, J. B.

Flink, H. Higginbotham, J. Stemmle, M. Swanson

**Assistant Professor** H. Akin, S. Lee, M. Luisi, J. Porter

**Assistant Professor (Professional Practice)** J. D. Flink

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BJ in Journalism (p. 716)
  - with an emphasis in Strategic Communication (p. 718)
- Minor in Journalism (p. 719)

### Undergraduate Programs

Undergraduate students in the School of Journalism pursue their degree in Journalism or with an emphasis in Strategic Communication

as approved by the University Board of Curators and the Missouri Coordinating Board of Higher Education.

A minor in Journalism is also offered.

### Global and Domestic Programs

The School of Journalism offers exchange, internship, and a variety of short-term programs in the United States and abroad. Students interested in these programs should consult with an advisor in the Journalism Global Programs Office.

### Degree with Honors Requirements

Graduation with Latin honors is based on the grade point average from all UM-system courses. Cum laude requires 3.5, magna cum laude 3.7, and summa cum laude 3.9. The School computes the grades to three decimal points and does not round up. Students are reviewed for honors prior to the graduation ceremony and after the semester concludes.

Kappa Tau Alpha is a journalism honorary society that accepts the top 10 percent of each graduating class. Qualifying students are sent a letter with details about the society and are recognized at the journalism graduation ceremony.

### Graduate

- MA in Journalism (p. 720)
  - with emphasis in Health Communication (p. 721)
  - with emphasis in Interactive Media (p. 722)
  - with emphasis in Media Management (p. 723)
  - with emphasis in Strategic Communication (p. 723)
- PhD in Journalism (p. 724)

### About Journalism's Graduate Degree Programs

The Missouri School of Journalism awarded the first master's and doctoral degrees in journalism in 1921 and 1934, respectively. The master's and doctoral programs at the School enjoy superb reputations, both among scholars and among practitioners in news, advertising, public relations and strategic communication.

### Master's Programs

For the master's program, Missouri Journalism offers a complete set of real-media experiences. We operate the only network affiliate (NBC) television station in the country used to train journalism students. We publish a community daily newspaper (not a campus paper), and we operate several major web sites, a local magazine and an international magazine. Students also may train at our campus-based NPR affiliate.

Our strategic communication students design media campaigns for local and national clients through our two student-run advertising agencies, MOJO Ad and Adzou. Our students have created advertising and public relations campaigns for Nokia, Apple, Dr Pepper, Anheuser-Busch, Duncan Hines, DuPont, Dow Chemical, Kinko's, Eastman Kodak and many other leading international brands.

We operate educational programs in Washington, D.C., New York, Brussels and Barcelona where many of our students carry out their capstone projects or do research. We also partner with educational programs around the world.

The MA is offered in an on-campus program and an online program.

On-Campus Master's Program: <https://journalism.missouri.edu/degrees-programs/graduate-degrees/masters/>

Online Master's Program: <https://journalism.missouri.edu/degrees-programs/graduate-degrees/online-masters/>

## On-Campus Options - MA in Journalism

Students who wish to pursue a traditional on-campus experience, should refer to the MA in Journalism page (<https://journalism.missouri.edu/degrees-programs/graduate-degrees/masters/>). Students choose from more than 20 program models, and complete a thesis or professional project. An accelerated BJ to MA program is available, as well as a joint Journalism and Law program, and a dual degree option with the Masters of Public Health.

## Online Options - MA in Journalism with emphasis

Professional journalists or others who cannot travel to mid-Missouri to attend the on-campus program might consider doing their program in an online format, available to applicants who have a minimum of three years professional journalism-related experience. Students in the online program are required to make two short visits, two to three days each, to campus during their program. Learn more about our online master's programs here <https://journalism.missouri.edu/degrees-programs/graduate-degrees/online-masters/>.

The online option is offered in four emphasis areas: Health Communication, Interactive Media, Media Management, and Strategic Communication.

## Graduate Minor in Law and Conflict Resolution

This program is for journalism doctoral students who are interested in teaching and researching in journalism, law and conflict resolution in a school of journalism or communication department. For details, refer to the Graduate Minor in Law and Conflict Resolution (p. 725).

## Facilities and Resources

A variety of special facilities and resources are available to help students meet their educational objectives. These include the Columbia *Missourian*, a general circulation daily newspaper with full-leased wires of The Associated Press and The New York Times Service; KOMU-TV, an NBC affiliate; KBIA-FM, a National Public Radio station; MOJO Ad and Adzou advertising agencies; and Vox magazine, a weekly city magazine. All provide students the opportunity for hands-on learning under faculty supervision and to conduct applied research.

The Journalism Library subscribes to more than 125 newspapers and magazines worldwide and catalogs more than 40,000 volumes. Many more resources are available in electronic format.

The State Historical Society of Missouri, located on-campus, has an extensive collection of state newspapers dating from 1808.

The Freedom of Information Center maintains a day-to-day study of the actions by government, media and society affecting the movement of information.

The national headquarters of Investigative Reporters and Editors and the National Institute for Computer Assisted Reporting provide educational services to reporters, editors and others interested in investigative journalism.

The Association of Health Care Journalists is headquartered at Missouri and is dedicated to advancing public understanding of health care issues. Its mission is to improve the quality, accuracy and visibility of health care reporting, writing and editing.

The Center on Religion & the Professions works to improve religious literacy among professionals, to help them serve a diverse public. As America grows more religiously diverse, professionals need to better understand the religious traditions and beliefs of the public they serve. CORP's interdisciplinary, practical and applied work centers on that mission. Founded in 2003 with a grant from The Pew Charitable Trusts, the Center is one of Pew's 10 Centers of Excellence. CORP is affiliated with Religion Newswriters Association.

The American Society of News Editors focuses on leadership development and journalism-related issues. Founded in 1922 as a nonprofit professional organization, ASNE promotes fair, principled journalism, defends and protects First Amendment rights, and fights for freedom of information and open government.

Founded in 2003 with a generous gift from the Donald. W. Reynolds Foundation, the Reynolds Journalism Institute is committed to developing and testing new ways to improve journalism through new technology and improved processes.

## Special Events

Each year the school sponsors the Missouri Honor Medal Award program, which brings contemporary leaders in mass communications to the campus. The school also directs a number of professional development and awards programs, including the international competition for the best Pictures of the Year.

## Honor Society

Kappa Tau Alpha, national honor society for scholarship in journalism, founded at the university in 1910, has its headquarters in the school.

## Funding

An array of competitively awarded fellowships, assistantships, scholarships and other financial aid opportunities are available.

## BJ in Journalism

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### Degree Program Description

Journalism is the study and practice of analyzing, gathering, creating and presenting news and information through different media.

The curriculum includes focused study and hands-on experience within the career paths of broadcasting, cross-platform editing and producing, photojournalism and documentary journalism, reporting and writing, and social and audience strategy.

Students customize their degree through elective courses that allow them to gain depth and breadth in a wide array of subject areas and specializations.

Upon graduation, students pursue careers in a wide range of journalism and communication professions including: account management, art direction, audience engagement, audience development, audience research, business journalism, data analysis and visualization, digital content editing, digital strategy, documentary editing and producing, international journalism, investigative reporting, media planning, media production, magazine editing, mobile production, multimedia editing,

news editing, photo editing, photography, podcasting, public relations, project management, product management, science communication, SEO strategy, social media producing, sports reporting, sports and entertainment promotion, strategic communication, television news reporting or production, television sports reporting or production, radio reporting and production, videography, website editing and writing.

## Major Program Requirements

The Bachelor of Journalism degree requires 120 credits. The faculty expects each student to maintain a minimum GPA of 3.0 to be considered in good standing.

To obtain the Bachelor of Journalism degree, a student must complete the following:

- University Graduation Requirements (p. 35)
- University General Education (p. 36)
- **Major Core:** 24 credit hours
- **Major Career Path:** 6 credit hours
- **Major Capstone:** 3 credit hours
- **Major Specialty Areas:** 15 credit hours
- **Non-Journalism Electives:** 28 credit hours

ENGLISH 1000	Exposition and Argumentation (Minimum grade of B- required)	3
Foreign Languages (from same language)		12
Behavioral Science		3
Math/Science		9
Math and Quantitative Reasoning		3
ECONOM 1000	General Economics for Journalists <sup>^</sup>	5
HIST 1100/1200	Survey of American History to 1865 <sup>^</sup>	3
POL_SC 1100/2100	American Government	3
Humanities		3
<b>Journalism Core Requirements</b>		
JOURN 1100	Principles of Journalism in Democracy	3
JOURN 1200	Fundamentals of Visual Journalism and Strategic Communication	2
JOURN 1300	Fundamentals of Written Journalism and Strategic Communication	2
JOURN 1400	Applied Projects for Journalism and Strategic Communication	2
JOURN 2000	Cross-Cultural Journalism	3
JOURN 2200	Audiences and Persuasion	2
JOURN 3000	History of American Journalism	3
	or JOURN 4568W History of Photojournalism - Writing Intensive	
JOURN 4000	Communications Law	3
JOURN 4160	Social Media	1
JOURN 4180	Newsroom Content Creation	3
<b>Career Path (minimum of two courses from one area required)</b>		<b>6</b>
Broadcast		
Cross-Platform Editing and Producing		
Photojournalism and Documentary		
Reporting and Writing		
Social and Audience Strategy		
<b>Specialty Areas (may choose from several)*</b>		<b>15</b>

Accelerated Graduate Program, Account Management, Art Direction, Arts and Culture Journalism, Audience Experience, Broadcast Radio News, Broadcast TV News, Business Journalism, Copywriting, Design, Digital Strategy, Documentary Journalism, Editing, Government Journalism, Innovation and Technology, International Journalism, Investigative and Data Journalism, Magazine Writing, Media Planning, Novak Leadership, Photojournalism Stills and Video, Podcasting, Public Relations, Print and Digital Reporting, Science, Health, and Environment, Social Leadership, Sports and Entertainment Promotion, Sports Journalism, Strategic Communication Research, Strategic Communication Visual Storytelling, Visual Editing and Management

<b>Capstone</b>	<b>3</b>
<b>Non-Journalism Electives from the areas below:</b>	<b>28</b>
(Must be numbered 2000 or above)	

<b>Area 1</b>	<b>3</b>
Students choose from one of these areas: Animal Science, Anthropology, Astronomy, Atmospheric Science, Biochemistry, Biology, Chemistry, Computer Science, Environmental Science, Food Science, Geology, Mathematics, Physics, Plant Science, Psychology, Rural Sociology, Sociology or Statistics.	
Honor's College students can also choose from: GN_HON 2243H, GN_HON 2310H, GN_HON 2430H, GN_HON 2244H, GN_HON 2450H, GN_HON 2461H, GN_HON 2462H, GN_HON 3210H, GN_HON 3241H, GN_HON 3242H, GN_HON 3450H.	

<b>Area 2</b>	<b>6</b>
Students choose from the following areas: Agribusiness Management, Black Studies, Economics, Geography, History, Peace Studies, Political Science, and Women's and Gender Studies.	
Honor's College students can also choose from: GN_HON 2230H, GN_HON 2245H, GN_HON 2246H, GN_HON 3230H.	

<b>Area 3</b>	<b>6</b>
Students choose from the following areas: Ancient Mediterranean Studies, Arabic, Architectural Studies, all Art prefixes, Chinese, Classical Humanities, Classics, Communication**, English**, Film Studies**, French, German, Greek, Hebrew, Italian, Japanese, Korean, Latin, all Music prefixes, Philosophy, Portuguese, Religious Studies, Russian, South Asia Studies, Spanish, Theater, and Visual Studies-Art History	
Honor's College students can also choose from: GN_HON 2015H, GN_HON 2111H, GN_HON 2112H, GN_HON 2113H, GN_HON 2114H, GN_HON 2120H, GN_HON 3112H, GN_HON 3113H, GN_HON 3120H	

<b>Area 4</b>	<b>13</b>
Any non-journalism course**	

- <sup>^</sup> See your advisor for additional choices to fulfill this requirement
- <sup>\*</sup> *Students can earn credit in courses from additional Career Paths. These additional credits will apply to the fifteen credit hours in the Specialty Area requirements.*
- <sup>\*\*</sup> *Some courses are prohibited in the Bachelor of Journalism. Students should consult with their academic advisor for questions regarding courses in these areas.*

## General Electives

Electives may be necessary to complete a minimum of 72 credits of non-journalism classes and 120 total credits. Any course acceptable to the School of Journalism is allowed.

## Semester Plan

The following four-year plan is a sample. A student's path to graduation may vary based on a host of factors. Working with an academic advisor is necessary to determine the best plan for each student.

First Year			
Fall	CR	Spring	CR
ENGLISH 1000		3 Foreign Language II	4
Foreign Language I		4 HIST 1100 or 1200	3
Math and Quantitative Reasoning		3 Science	3
JOURN 1200		2 JOURN 1100	3
JOURN 1300		2 JOURN 1400	2
	14		15
Second Year			
Fall	CR	Spring	CR
Foreign Language III		4 ECONOM 1000	5
Humanities		3 JOURN 2000	3
Behavioral Science		3 Lab Science	3
JOURN 2200		2 JOURN 4180	3
JOURN 4160		1	
Non-Lab Science		3	
	16		14
Third Year			
Fall	CR	Spring	CR
JOURN 3000 or 4568W		3 JOURN 4000	3
Journalism Specialty		3 Journalism Specialty	3
Non-Journalism		3 Non-Journalism	6
POL_SC 1100		3 Career Path Course II	3
Career Path Course I		3	
	15		15
Fourth Year			
Fall	CR	Spring	CR
Journalism Specialty		6 Capstone	3
Non-Journalism		9 Journalism Specialty	3
		Non-Journalism	10
	15		16

Total Credits: 120

## BJ in Journalism with Emphasis in Strategic Communication

### Degree Program Description

Students will develop a solid foundation in the liberal arts and sciences while achieving competency in journalism.

Journalism is the study and practice of analyzing, gathering, creating and presenting news and information through different media.

Within this degree program, students choose an emphasis in Strategic Communication. Strategic Communication is the study of principles and practices of all communication designed to create a desired response from a given audience. The curriculum includes focused study and hands-on experience within a variety of subject areas and specializations. Upon graduation, students pursue careers in a wide range of strategic communication and public relations professions including: account

management, advertising management art direction, audience research, copywriting, digital strategy, marketing, media planning, public relations, strategic communication research and sports and entertainment promotion, social media management, and sports information

### Major Program Requirements

The Bachelor of Journalism degree requires 120 credits. The faculty expects each student to maintain a minimum GPA of 3.0 to be considered in good standing.

To obtain the Bachelor of Journalism degree, a student must complete the following:

- University Graduation Requirements (p. 35)
- University General Education (p. 36)
- **Major Core:** 24 credit hours
- **Major Career Path:** 6 credit hours
- **Capstone:** 3 credit hours
- **Major Specialty Areas:** 15 credit hours
- **Non-Journalism Electives:** 28 credit hours

ENGLISH 1000	Exposition and Argumentation (Minimum grade of B- required)	3
Foreign Language (from same language)		12
Math/Science		9
Math and Quantitative Reasoning		3
Behavioral Science		3
Humanities		3
ECONOM 1000	General Economics for Journalists <sup>^</sup>	5
Journalism Core Requirements		
HIST 1100	Survey of American History to 1865 <sup>^</sup>	3
	or HIST 1200	Survey of American History Since 1865
POL_SC 1100	American Government	3
	or POL_SC 2100	State Government
JOURN 1100	Principles of Journalism in Democracy	3
JOURN 1200	Fundamentals of Visual Journalism and Strategic Communication	2
JOURN 1300	Fundamentals of Written Journalism and Strategic Communication	2
JOURN 1400	Applied Projects for Journalism and Strategic Communication	2
JOURN 2000	Cross-Cultural Journalism	3
JOURN 2200	Audiences and Persuasion	2
JOURN 3000	History of American Journalism	3
	or JOURN 4568W	History of Photojournalism - Writing Intensive
JOURN 4000	Communications Law	3
JOURN 4160	Social Media	1
JOURN 4200	Principles of Strategic Communication	3
Career Path		
JOURN 4204	Introduction to Strategic Writing and Design	3
JOURN 4952	Strategic Communication Research I	3
Specialty Areas (choose from several)		15

Accelerated Graduate Program, Account Management, Art Direction, Arts and Culture Journalism, Audience Experience, Broadcast, Business Journalism, Copywriting, Cross-Platform Editing and Producing, Design, Digital Strategy, Documentary Journalism, Editing, Government Journalism, Innovation and Technology, International Journalism, Investigative and Data Journalism, Magazine Writing, Media Planning, Novak Leadership, Photojournalism Stills and Video, Podcasting, Public Relations, Print and Digital Reporting, Reporting and Writing, Science, Health, and Environment, Social and Audience Strategy, Social Leadership, Sports and Entertainment Promotion, Sports Journalism, Strategic Communication Research, Strategic Communication Visual Storytelling, Visual Editing and Management

**Capstone**

JOURN 4970W	Strategic Campaigns - Writing Intensive	3
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**Non-Journalism Electives from the areas below: 28**

(Must be numbered 2000 or above)

**Area 1 3**

Students choose from one of these areas: Animal Science, Anthropology, Astronomy, Atmospheric Science, Biochemistry, Biology, Chemistry, Computer Science, Environmental Science, Food Science, Geology, Mathematics, Physics, Plant Science, Psychology, Rural Sociology, Sociology or Statistics.

Honor's College students can also choose from: GN\_HON 2243H, GN\_HON 2310H, GN\_HON 2430H, GN\_HON 2244H, GN\_HON 2450H, GN\_HON 2461H, GN\_HON 2462H, GN\_HON 3210H, GN\_HON 3241H, GN\_HON 3242H, GN\_HON 3450H.

**Area 2 6**

MRKTNG 3000	Principles of Marketing	3
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Students choose three credit hours from the following areas: Agribusiness Management, Black Studies, Economics, Geography, History, Peace Studies, Political Science, and Women's and Gender Studies.

Honor's College students can also choose from: GN\_HON 2230H, GN\_HON 2245H, GN\_HON 2246H, GN\_HON 3230H.

**Area 3 6**

Students choose from the following areas: Ancient Mediterranean Studies, Arabic, Architectural Studies, all Art prefixes, Chinese, Communication\*, English\*, Film Studies\*, French, German, Greek, Hebrew, Italian, Japanese, Korean, Latin, all Music prefixes, Philosophy, Portuguese, Religious Studies, Russian, South Asia Studies, Spanish, Theater, and Visual Studies- Art History

Honor's College students can also choose from: GN\_HON 2015H, GN\_HON 2111H, GN\_HON 2112H, GN\_HON 2113H, GN\_HON 2114H, GN\_HON 2117H, GN\_HON 2120H, GN\_HON 3112H, GN\_HON 3113H, GN\_HON 3120H

**Area 4 13**

Students in Strategic Communication must complete three credit hours of Marketing in addition to MRKTNG 3000. Minimum grade of C- is required.

Any non-journalism course*	10
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^ See your advisor for additional choices to fulfill this requirement

## General Electives

Electives may be necessary to complete a minimum of 72 credits of non-journalism classes and 120 total credits. Any course acceptable to the School of Journalism is allowed.

\*Some courses are prohibited in the Bachelor of Journalism. Students should consult with their academic advisor for questions regarding courses in these areas.

## Semester Plan

The following four-year plan is a sample. A student's path to graduation may vary based on a host of factors. Working with an academic advisor is necessary to determine the best plan for each student.

First Year			
Fall	CR	Spring	CR
ENGLSH 1000		3 Foreign Language II	4
Foreign Language I		4 JOURN 1100	3
Math and Quantitative Reasoning		3 Science	3
JOURN 1200		2 JOURN 1400	2
JOURN 1300		2 HIST 1100 or 1200	3
			14
			15

Second Year			
Fall	CR	Spring	CR
Foreign Language III		4 ECONOM 1000	5
Behavioral Science		3 JOURN 2000	3
Non-Lab Science		3 Lab Science	3
JOURN 2200		2 JOURN 4200	3
Humanities		3	
JOURN 4160		1	
			16
			14

Third Year			
Fall	CR	Spring	CR
JOURN 4204		3 Journalism Specialty	6
JOURN 4952		3 JOURN 3000 or 4000	3
MRKTNG 3000		3 Non-Journalism	6
Non-Journalism		3	
POL_SC 1100		3	
			15
			15

Fourth Year			
Fall	CR	Spring	CR
Journalism Specialty		6 JOURN 4970	3
Non-Journalism		6 Non-Journalism	10
MRKTNG course		3 Journalism Specialty	3
			15
			16

Total Credits: 120

## Minor in Journalism

### Requirements

The Journalism minor consists of 15 credit hours of journalism coursework. It is intended for students from other MU academic divisions who wish to broaden their understanding of the news media's role in society.

#### Courses

Students are required to take either JOURN 1000 The News Media: Journalism and Advertising in a Democratic Society or JOURN 1100 Principles of Journalism in Democracy.

Students who decide to pursue the minor after completing JOURN 1100 Principles of Journalism in Democracy are ineligible to take JOURN 1000 The News Media: Journalism and Advertising in a Democratic Society.



## Admissions

All students are required to apply for the Journalism minor. To apply for a minor in Journalism, students must have completed 60 credit hours with a minimum UM system cumulative GPA of 3.0. An application form is available from the Minor Coordinator in the Journalism Student Services Office, 76 Gannett Hall.

Students pursuing a Journalism major are ineligible for the Journalism minor program.

Transfer students may use up to three credit hours of approved Journalism transfer credit toward a Journalism minor.

### Registration

Students are permitted to self-enroll in JOURN 1000 The News Media: Journalism and Advertising in a Democratic Society. Other courses are offered on a space-available basis and after the early registration period has ended. Students are required to submit a course preference list to the Journalism Minor Coordinator. If space is available, a permission number to enroll will be provided.

## Academic Status

Students are subject to probationary or suspension status as determined by the student's major division. Students must earn a minimum grade of C- in Journalism courses. Journalism courses may be repeated one time. Upon repeating a course, if a student fails to earn a C- or better, the student is no longer eligible for the Journalism Minor.

Pre-Journalism or Undeclared Journalism students who complete lower-level journalism courses with a C- or better and then decide to minor in Journalism must maintain a minimum cumulative GPA of 3.0 to be eligible to take additional Journalism courses.

The journalism minor is awarded after the student completes 15 journalism credits.

## Fees

School of Journalism course fees are applied to all Journalism courses.

## Advising

Journalism minors are not assigned a faculty advisor or academic advisor within the School of Journalism. Academic advising occurs in the division of each student's major. Students pursuing a Journalism minor are encouraged to consult with either the designated Minor Coordinator or with School of Journalism faculty on course-specific matters.

## MA in Journalism

The program leading to the MA degree is designed to accommodate several objectives, including: comprehensive professional preparation for careers in the news media, mass communications and strategic communication; expansion of previous professional preparation and experience (e.g. newspaper editing) into a new area (e.g. broadcasting reporting); comprehensive academic preparation for careers in journalism and strategic communication teaching and research; and combinations of the three.

## Program Models

Students choose from more than 20 program models, covering the full range of skills and media of journalism and strategic communication. Because the faculty periodically update these models, students should

visit the school's Web site for the latest details. In addition to the course work in any model, students complete either a thesis or a professional project. Students who make progress on the degree requirements and maintain at least a B average each semester are considered to be in good standing.

## Degree Requirements

Students are required to complete a minimum of 37 hours, unless in the Accelerated BJ-MA program (see below for additional information) where it is required to complete a minimum of 30 credit hours. For all students, at least half of the credit hours must be at the 8000-level. Specific course requirements vary depending on the model selected.

### Required Core Courses

JOURN 8000	Mass Media Seminar	3
JOURN 8006	Quantitative Research Methods in Journalism	3
or JOURN 8008	Qualitative Research Methods in Journalism	
JOURN 8085	Problems in Journalism	9
or JOURN 8190	Area Problem in Journalism	
JOURN 8100	MA Thesis Seminar	1
or JOURN 8098	MA Project Seminar	
<b>Select at least one of the following</b>		<b>3</b>
JOURN 8026	Philosophy of Journalism	
JOURN 8028	The Literature of Journalism	
JOURN 8030	History of Mass Media	
JOURN 8032	Media Sociology	
JOURN 8038	Seminar in Communications Law	
JOURN 8080	Media Ethics	
JOURN 8092	Photography in Society	

<b>Electives</b>		<b>18</b>
Total Credits		37

## Length of Study

The degree must be earned within eight years of beginning the program.

## Professional Project or Thesis

Students must enroll in either the Project Seminar or the Thesis Seminar in the semester prior to embarking on their professional project or thesis. These seminar courses guide students in developing proposals for their professional project or thesis. After proposal approval, students enroll in JOURN 8190, Area Problem (for projects) or JOURN 8090, Research (for thesis). Students earn nine credit hours for either the professional project or thesis research.

Students in any model may choose to complete the professional project or thesis off campus. The school operates programs in Washington D.C., New York City, Brussels, and Barcelona which is supervised by a full-time faculty member. In the Missouri state capital the school has a program focusing on public affairs reporting in any medium. Other off-campus opportunities can be arranged.

## Additional Program Options

### Accelerated Bachelor to Master Program

The accelerated bachelor to master's degree program was designed for students in the Missouri School of Journalism to attain a graduate education. The new program will allow students to apply and begin their master's program in the senior year of undergraduate program. Students

in the program complete requirements as outlined for the Bachelor of Journalism degree and then spend one more year (approximately 12 months) to earn a master's degree. The program requires students to carry 9-12 credits each semester. Course work in the program builds on the undergraduate program and enhances student's skills and understanding of the chosen area of journalism. At the present time, areas include strategic communication, newspaper design, broadcast management, computer-assisted reporting and magazine areas such as magazine writing and magazine design.

### Joint Journalism and Law Programs

The School of Journalism and the School of Law have created a joint program (<https://journalism.missouri.edu/degrees-programs/graduate-degrees/masters/journalism-law-programs/>) that provides an opportunity to earn a MA in Journalism and a JD in Law. Students in the joint program complete one of the journalism models and the course requirements for the law degree with a block of courses that are used for both degrees.

### Dual-degree option with Masters of Public Health

The School of Journalism and the program in Public Health have created a dual-degree option (p. 631) that allows students to earn a journalism degree in reporting or strategic communication with an emphasis in public health. Students complete a block of courses in public health, as well as in journalism, and complete the dual degree with a public health internship and capstone, in which the focus is on journalism or strategic communication.

### Admission Criteria

*On-Campus program deadlines:*

- Fall deadline: January 1
- Spring deadline: September 1

*Online program deadlines:*

- Fall deadline: July 1
- Spring deadline: November 15
- Summer deadline: April 15

- Minimum Academic IELTS scores:

Item	Score
Listening	
Reading	
Speaking	7.0
OVERALL Score	7.0

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
Speaking: 25	
Reading: 25	
Listening: 25	
100	600
Writing: 25	

- Suggested GRE scores:

When did you take the GRE?	Verbal + Quantitative
Prior to August 1, 2011	1100 or better
On or After August 1, 2011	V: 153 or better; Q: 144-148 or better

- Minimum GPA: 3.0 in last 60 hours
- Accelerated Minimum GPA: 3.5 in last 45 hours

**Note:** Deadlines are adhered to strictly, and no applicant is considered for admission until all required information is received.

### Required Application Materials

*To the Graduate School*

All required Graduate School documents

*To the Journalism Master's Program:*

Please upload the following application materials into the online Graduate School application in Slate:

- 3 essays as specified on Departmental application website
- Résumé
- Unofficial transcripts from all undergraduate institutions attended
- 3 letters of recommendation (use the online Graduate School application system)

*Please submit official GRE scores to the School of Journalism using the GRE Department Code: 4503 and Institution Code: 6875.*

### Admission Contact Information

Journalism Graduate Studies  
 179 Gannett Hall  
 Columbia, MO 65211  
 573-882-4852

Email: [jourgraduatestudies@missouri.edu](mailto:jourgraduatestudies@missouri.edu)

### Financial Aid from the Program

Limited fellowships, assistantships, scholarships and other financial aid opportunities are available. All applicants for admission are considered for any available funding. No separate application form is needed. Check the program Web site or ask the program contact for details.

## MA in Journalism with Emphasis in Health Communication

### Degree Requirements

The Health Communication emphasis area is only available in the online MA program. This area, which includes a minimum of 37 credits to graduate, includes both required and elective courses. The electives may be courses from within the same area, from another area or transferred graduate hours from another accredited institution. For students with special needs, an individualized curriculum may be designed with the student's advisor, subject to approval of the associate dean for graduate studies.

#### Core Requirements

The program core is completed by all students:

JOURN 8000	Mass Media Seminar	3
JOURN 8006	Quantitative Research Methods in Journalism	3

or JOURN 8008	Qualitative Research Methods in Journalism	
JOURN 8070	Proseminar in Communications (Section 4)	2
JOURN 8070	Proseminar in Communications (Section 5)	1
JOURN 8080	Media Ethics	3
<b>Emphasis Area Electives</b>		
Students may select 15-17 hours of the following courses:		
JOURN 7000	Communications Law	3
JOURN 7256	Public Relations	3
JOURN 7268	Strategic Communication Practicum	3
JOURN 8020	Principles and Tools in Strategic Communication Planning	3
JOURN 8042	Health News and Promotion	3
JOURN 8056	Theory of Mass Communication	3
JOURN 8058	Communication in Media Organizations	3
<b>Capstone Thesis/Project</b>		
JOURN 8100 & JOURN 8090	MA Thesis Seminar and Research in Journalism	2-10
or JOURN 8098 & JOURN 8190	MA Project Seminar and Area Problem in Journalism	

## Thesis/Non-thesis Requirements

Students may choose from two options: thesis or professional project. The thesis is an independent research study and is appropriate for students who may intend to pursue a doctorate. The professional project is appropriate for students who wish to work as professionals in the journalism industry.

To prepare for the capstone semester students will enroll in either JOURN 8100 MA Thesis Seminar, or JOURN 8098 MA Project Seminar, in the semester prior to their capstone. During the seminar students will form their faculty committee and develop and gain approval for their thesis or project proposal. Successful completion of the seminar is one of the prerequisites to beginning the capstone semester.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MA in Journalism program (<https://gradstudies.missouri.edu/degreecategory/journalism/>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

## MA in Journalism with Emphasis in Interactive Media

### Degree Requirements

The Interactive Media emphasis area is only available in the online MA program. This area, which includes a minimum of 37 credits to graduate, includes both required and elective courses. The electives may be course from within the same area, from another area or transferred graduate hours from another accredited institution. For students with

special needs, an individualized curriculum may be designed with the student's advisor, subject to approval of the associated dean for graduate studies.

### Core Requirements

The program core is completed by all students:		
JOURN 8000	Mass Media Seminar	3
JOURN 8006	Quantitative Research Methods in Journalism	3
or JOURN 8008	Qualitative Research Methods in Journalism	
JOURN 8070	Proseminar in Communications (Section 4)	2
JOURN 8070	Proseminar in Communications (Section 5)	1
JOURN 8080	Media Ethics	3

### Emphasis Area Requirements

Students may select 15-18 hours of the following courses:		
JOURN 7150	Using Infographics	1
JOURN 7256	Public Relations	3
JOURN 7262	Digital Strategy I	3
JOURN 7510	Visual Communications	2-3
JOURN 7700	Engaged Journalism	1-3
JOURN 7736	Changing Media Business Models	3
JOURN 8001	Seminar on Topics in Journalism (Theoretical Foundations/Interactive Media)	3
JOURN 8056	Theory of Mass Communication	3
JOURN 8058	Communication in Media Organizations	3

### Capstone Thesis/Project

JOURN 8100 & JOURN 8090	MA Thesis Seminar and Research in Journalism	2-10
or JOURN 8098 & JOURN 8190	MA Project Seminar and Area Problem in Journalism	

## Thesis/Non-thesis Requirements

Students may choose from two options: thesis or professional project. The thesis is an independent research study and is appropriate for students who may intend to pursue a doctorate. The professional project is appropriate for students who wish to work as professionals in the journalism industry.

To prepare for the capstone semester students will enroll in either JOURN 8100 Thesis Seminar, or JOURN 8098 Project Seminar, in the semester prior to their capstone. During the seminar students will form their faculty committee and develop and gain approval for their thesis or project proposal. Successful completion of the seminar is one of the prerequisites to beginning the capstone semester.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MA in Journalism program (<https://gradstudies.missouri.edu/degreecategory/journalism/>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program

to which you've applied before official admission to the University of Missouri.

## MA in Journalism with Emphasis in Media Management

### Degree Requirements

The Media Management emphasis area is only available in the online MA program. This area, which includes a minimum of 37 credits to graduate, includes both required and elective courses. The electives may be courses from within the same area, from another area or transferred graduate hours from another accredited institution. For students with special needs, an individualized curriculum may be designed with the student's advisor, subject to approval of the associate dean for graduate studies.

#### Core Requirements

The program core is completed by all students:

JOURN 8000	Mass Media Seminar	3
JOURN 8006	Quantitative Research Methods in Journalism	3
or JOURN 8008	Qualitative Research Methods in Journalism	
JOURN 8070	Proseminar in Communications (Section 4)	2
JOURN 8070	Proseminar in Communications (Section 5)	1
JOURN 8080	Media Ethics	3

#### Emphasis Area Electives

Students may select 15-17 hours of the following courses:

JOURN 7000	Communications Law	3
JOURN 7436	Investigative Reporting	3
JOURN 7700	Engaged Journalism	1-3
JOURN 7736	Changing Media Business Models	3
JOURN 7978	Media Management and Leadership	3
JOURN 8044	Strategic Conflict Management	3
JOURN 8056	Theory of Mass Communication	3
JOURN 8058	Communication in Media Organizations	3

#### Capstone Thesis/Project

JOURN 8100/8090	MA Thesis Seminar	1-10
or JOURN 8098 & JOURN 8190	MA Project Seminar and Area Problem in Journalism	

### Thesis/Non-thesis Requirements

Students may choose from two options: thesis or professional project. The thesis is an independent research study and is appropriate for students who may intend to pursue a doctorate. The professional project is appropriate for students who wish to work as professionals in the journalism industry.

To prepare for the capstone semester students will enroll in either JOURN 8100 Thesis Seminar, or JOURN 8098 Project Seminar, in the semester prior to their capstone. During the seminar students will form their faculty committee and develop and gain approval for their thesis or project proposal. Successful completion of the seminar is one of the prerequisites to beginning the capstone semester.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MA in Journalism program (<https://gradstudies.missouri.edu/degrecategory/journalism/>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

## MA in Journalism with Emphasis in Strategic Communication

### Degree Requirements

The Strategic Communication emphasis area is only available in the online MA program. This area, which includes a minimum of 37 credits to graduate, includes both required and elective courses. The electives may be courses from within the same area, from another area or transferred graduate hours from another accredited institution. For students with special needs, an individualized curriculum may be designed with the student's advisor, subject to approval of the associate dean for graduate studies.

#### Core Requirements

The program core is completed by all students:

JOURN 8000	Mass Media Seminar	3
JOURN 8006	Quantitative Research Methods in Journalism	3
or JOURN 8008	Qualitative Research Methods in Journalism	
JOURN 8070	Proseminar in Communications (Section 4)	2
JOURN 8070	Proseminar in Communications (Section 5)	1
JOURN 8080	Media Ethics	3

#### Emphasis Area Electives

Students may select 15-17 hours of the following courses:

JOURN 7256	Public Relations	3
JOURN 7262	Digital Strategy I	3
JOURN 7736	Changing Media Business Models	3
JOURN 8020	Principles and Tools in Strategic Communication Planning	3
JOURN 8044	Strategic Conflict Management	3
JOURN 8056	Theory of Mass Communication	3
JOURN 8058	Communication in Media Organizations	3

#### Capstone Thesis/Project

JOURN 8100 & JOURN 8090	MA Thesis Seminar and Research in Journalism	2-10
or JOURN 8098 & JOURN 8190	MA Project Seminar and Area Problem in Journalism	

### Thesis/Non-Thesis Requirements

Students may choose from two options: thesis or professional project. The thesis is an independent research study and is appropriate for students who may intend to pursue a doctorate. The professional project

is appropriate for students who wish to work as professionals in the journalism industry.

To prepare for the capstone semester students will enroll in either JOURN 8100 Thesis Seminar, or JOURN 8098 Project Seminar, in the semester prior to their capstone. During the seminar students will form their faculty committee and develop and gain approval for their thesis or project proposal. Successful completion of the seminar is one of the prerequisites to beginning the capstone semester.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MA in Journalism program (<https://gradstudies.missouri.edu/degrecategory/strategic-communication/>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

## PhD in Journalism

### About the Doctorate

The objective of the doctoral program is to develop an ability to conduct independent and advanced scholarly research and to integrate this skill with a depth of scholarship in journalism and mass communication. Although it is primarily a research degree, the PhD is designed to facilitate a variety of academic aims. Students must expand their intellectual horizons, gain a theoretical framework for examining and understanding communication and refine their own communication competencies.

### Degree Requirements

Doctoral study in journalism and mass communication is an interdisciplinary enterprise. The doctoral program is designed by the student in collaboration with the advisor and doctoral committee. Course selections are based on the intellectual requirements of the dissertation and the teaching areas the student wishes to pursue. No courses that focus primarily on professional skills may be counted toward the doctoral program, whether taken at the master's or the doctoral level. Courses from journalism should compose no more than two-thirds of the total credit.

Students must develop two research tools, pass qualifying and comprehensive examinations, submit and defend a dissertation, and satisfactorily meet all other requirements of the Graduate School. Doctoral Theory and Research I (JOURN 9000), and Professional Development (JOURN 9087) are required of all PhD students.

### Qualifying Examination

Students are admitted to the PhD program in journalism when they have passed Doctoral Research Portfolio (qualifying examination), which must be taken the semester in which the student completes 18 hours. Graduate School regulations about comprehensive examinations, dissertations, plans of study, residency and other matters are specified in the Degree Requirements section of the catalog.

## Research Method Requirements

Students are expected to take a minimum of four research methods courses during the course of their doctoral coursework. These courses include three research methods courses from within journalism with at least one being an advanced research methods course. Students are also required to take at least one research methods course from a department other than journalism. At the discretion of the student's doctoral committee and the associate dean for graduate studies, students may substitute a course from outside the institution if it is deemed equivalent to a required research methods course offered within the school of journalism.

## Teaching

Doctoral students who plan to teach will participate in a teaching program. Each student's teaching skills will be evaluated in the first year of study, at which point planning for the student's future teaching opportunities begins. Most students will serve as teaching assistants in such classes as JOURN 1100 or JOURN 2100 during their third semester in the program.

In the student's fourth semester, he/she may have an additional teaching experience, either as a teaching assistant, co-instructor or instructor of record in a course. Depending on the student's ability and desire, students might teach a course independently during later semesters.

## Doctoral Admission Criteria

Fall deadline: January 15

- Minimum Academic IELTS scores:

Item	Score
Listening	
Reading	
Writing	
Speaking	7.0
OVERALL Score	7.0

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
Speaking: 25	
100	600

- Typical successful applicant GRE scores:

When did you take the GRE?	Verbal + Quantitative
Prior to August 1, 2011	1100
On or After August 1, 2011	V: 156+; Q: 146+

- Minimum GPA: 3.0, undergraduate, 3.5, graduate

Applicants should have demonstrated interest, education or professional experience in journalism, advertising, public relations, mass communication or a related field. A degree (bachelor's or master's) in one of those fields or two years of full-time professional media experience is preferred. All required information must be received before the admission review can begin. Applicants may be required to participate in an interview with the doctoral faculty as part of the review process. Students who did not write a thesis in their master's program may be required to complete a project to demonstrate their ability to do independent research.

Deadlines for application are January 15 for fall entry. Deadlines are firm, and no applicant is considered for admission until all required information is received.

## Required Application Materials

Upload the following application materials into the Graduate School's online application system:

- All required Graduate School documents
- Statement of Doctoral Objectives
- Résumé
- An abstract of your master's thesis (or thesis proposal, if your thesis is not yet complete)
- Unofficial transcripts
- 3 letters of recommendation (use the online Graduate School application system)

## Admission Contact Information

Journalism Graduate Studies  
 179 Gannett Hall  
 Columbia, MO 65211  
 573-882-6194  
[jourgraduatestudies@missouri.edu](mailto:jourgraduatestudies@missouri.edu)  
<https://journalism.missouri.edu/degrees-programs/graduate-degrees/ph-d/>

## Financial Aid from the Program

Doctoral students are provided assistantship and scholarship support for a maximum of six terms (three years). Contact the department for details on this financial assistance.

## Additional Minors and Certificates - Journalism

### Graduate Certificates

- Certificate in Interactive Media (p. 725)

### Graduate Minors

- Minor in Law and Conflict Resolution for Journalism Doctoral Students (p. 725)

## Graduate Certificate in Interactive Media

The Graduate Certificate in Interactive Media prepares early to mid-career professionals in the journalism and strategic communication fields to work in the rapidly changing newsrooms, media organizations, corporate communications offices and non-profit organizations. The certificate prepares students in the use of interactive, digital and social media. It provides insights into how people perceive and process digital messages. Students will investigate the psychological, social, ethical and legal issues regarding the roles and effects of digital news, advertising and public relations on society.

Objectives of certificate:

- Understanding the rapidly changing technology and role of analytics in journalism and strategic communication

- An understanding of the importance of audience engagement and development
- The skills to create an interactive media plan in their given organizations

## Requirements

The certificate consists of 15 hours divided over three core courses and two electives.

### Required Courses

JOURN 7262	Digital Strategy I	3
JOURN 7462	Emerging Technologies in Journalism	3
JOURN 7700	Engaged Journalism	3

### Electives

JOURN 7252	Branded Strategic Storytelling	3
JOURN 7430	Computer-Assisted Reporting	3
JOURN 7510	Visual Communications	3
JOURN 7812	Online Audience Development	3

## Admissions

- Completed baccalaureate or advanced degree from a regionally accredited institution
- Minimum GPA of 3.00 on the last 60 credit hours of undergraduate education
- Three letters of recommendation

Certificate web site: [journalism.missouri.edu](https://journalism.missouri.edu) (<https://journalism.missouri.edu/>)

## Graduate Minor in Law and Conflict Resolution for Journalism Doctoral Students

This program is designed for doctoral students who are interested in teaching and researching in journalism and law and conflict resolution in a school of journalism or communication department.

## Requirements

Students may receive the Minor upon completion of at least 15 credits at the Law School, including both core courses and at least 9 credits of electives. The Minor will appear on the student's transcript.

### Required Core Courses

LAW 5450	Conflict and Conflict Management	3
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### Electives

Students may take any available course at the Law School in satisfying this requirement. Actual course offerings and availability varies by semester, and enrollment is subject to professor approval. The following courses are ones that are expected to be generally available. They are grouped by tracks to help students more quickly identify areas of specific interest, and to develop deeper concentrations in desired areas. However, students may take any of the courses in meeting the elective requirement for the Minor. Students should consult with a member of the School of Law faculty or administration about which Law School courses or sequences may be most appropriate to the student's curricular needs.

### General Electives

JOURN 7718	Law and the Justice System	3
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JOURN 8046	Controls of Information	3
<b>Electives - Track 1: Civil Rights and International Law</b>		
LAW 5220	Constitutional Law *	1-4
LAW 5240	Criminal Procedure	1-3
LAW 5350	Arbitration *	1-3
LAW 5410	Children and the Law	1-3
LAW 5415	Constitutional and Civil Rights Litigation	1-3
LAW 5435	Comparative Law	1-3
LAW 5525	Education Law	1-3
LAW 5530	Elder Law *	1-3
LAW 5540	Employment Discrimination	1-3
LAW 5575	Family Law *	1-3
LAW 5590	Freedom of Speech and Association	1-3
LAW 5595	Gender, Race, Sexuality and the Law	1-3
LAW 5660	International Human Rights	1-3
LAW 5665	International Law	1-3
LAW 5750	Local Government Law	1-3

**Electives - Track 2: Business Law**

Those students who anticipate covering general business issues as working journalists, or who anticipate careers in media management and strategic communication should consider these courses.

LAW 5395 is recommended and is often a prerequisite for other courses.

LAW 5340	Antitrust Law	1-3
LAW 5350	Arbitration *	1-3
LAW 5365	Bankruptcy	1-3
LAW 5375	Basic Federal Income Taxation	1-4
LAW 5395	Business Organizations	1-4
LAW 5455	Copyright Law	1-3
LAW 5677	Internet Law and Practice	1-3
LAW 5540	Employment Discrimination	1-3
LAW 5640	Intellectual Property	1-3
LAW 5695	Labor Law	1-3
LAW 5810	Negotiation *	1-3
LAW 5820	Patent Law and Policy	1-3
LAW 5890	Securities Regulation	1-3
LAW 5905	Sports Law	1-3
LAW 5920	Trademark Law	1-3
LAW 5940	White Collar Crime	1-3

**Electives - Track 3: General Law**

The following courses permit students a wide range of options for exposure to law, and also permit further emphasis in civil justice, criminal justice, environmental, health care and international law, depending upon student needs and preferences.

LAW 5010	Civil Procedure I	1-3
LAW 5015	Civil Procedure II	1-3
LAW 5220	Constitutional Law *	1-4
LAW 5240	Criminal Procedure	1-3
LAW 5260	Evidence *	1-4
LAW 5310	Administrative Law	1-3
LAW 5320	Advanced Legal Research *	1-2
LAW 5350	Arbitration *	1-3
LAW 5530	Elder Law *	1-3
LAW 5545	Environmental Law	1-3
LAW 5575	Family Law *	1-3
LAW 5615	Health Law: The Regulation of Providers	1-3

LAW 5700	Land Use Controls	1-3
LAW 5765	Mediation *	1-3
LAW 5810	Negotiation *	1-3
LAW 5835	Products Liability	1-3
LAW 5845	Publicly Held Corporation	3

\* Limited Enrollment. Course likely to be full. Law students have first priority.

## School of Medicine

As the first publicly supported medical school west of the Mississippi River, the University of Missouri School of Medicine has improved health, education and research for more than 170 years.

More Missouri physicians received their medical degree from MU than from any other university. The School of Medicine's more than 680 faculty physicians and scientists educate more than 1,000 medical students, residents, fellows and others seeking advanced degrees, as well as more than 1,000 undergraduate students each semester.

Our researchers focus on lifesaving discoveries that address the most prevalent health problems. The school is nationally ranked in such areas as family and community medicine, primary care, pharmacology and physiology, and health management and informatics.

### Graduate

For the Professional program with the School of Medicine please see Medicine. (p. 824)

## Additional Minors and Certificates

### Graduate Certificates

- Certificate in Healthcare Project Management (p. 727)

## Graduate Certificate in Healthcare Project Management

The Graduate Certificate in Healthcare Project Management is a standalone certificate within the Department of Health Management and Informatics. The educational objective is to provide the cross professional training needed to enable health and health workers of all levels of medical or health qualification to better manage projects needed to improve quality of care and decrease healthcare costs. Students will gain basic knowledge of issues in healthcare project management and competence with skills techniques, and tools used for effective, safe, and compliant healthcare project management. The Graduate Certificate can be completed on-campus, in blended format, and online while working or finishing a degree.

### Requirements

This Graduate certificate will require completion of four courses of three credit hours each, for a total of 12 credit hours. Two courses are required core courses and students select two additional courses based on which professional (PMI) certification exam they wish to pursue in addition to the graduate certificate.

#### Required Courses

HMI 8580	Project Management	3
HMI 8880	Agile Project Management in Healthcare	3
<b>Electives (select two courses)</b>		
HMI 7410	Introduction to the US Health Care System	3
HMI 7430	Introduction to Health Informatics	3
HMI 8443	Enterprise Information and Solutions Architecture for Strategic Healthcare Operations	3
HMI 8450	Methods of Health Services Research	3

HMI 8435	Information Security, Evaluation and Policy	3
HMI 8573	Decision Making for Health Care Organizations	3

## Admission Requirements

Students who are interested in applying for the Graduate Certificate in Healthcare Project Management will need to complete and submit the online Graduate School application. The application and admission requirements include:

- A minimum of a baccalaureate degree from an accredited institution.
- Official transcripts sent directly from each university or college attended.
- A GPA of 3.00 or greater for all undergraduate and graduate coursework.
- Current resume or curriculum vitae.
- A personal essay outlining the applicant's professional plans and career objectives, explains how educational, work or other experiences led to the decision to pursue a graduate certificate in Project Management for Healthcare, and includes specific issues and challenges in healthcare that are of strong personal interest.
- Two letters of recommendation from professional colleagues.
- International students whose native language is not English must submit test scores from TOEFL (Test of English as a Foreign Language) of at least 550 on the paper-based version, 215 on the computer-based version, or 80 on the internet-based version.
- Students who fall short in one or more elements of the above standards, but who believe they have the skills and motivation to do well in the Project Management for Healthcare courses, may be granted 'Conditional Acceptance' into the graduate certificate program at the discretion of the Admissions Committee.
- The University of Missouri Application fee applies for domestic and nonresident international students.
- An interview (on-campus, by telephone, or skype) with program faculty may be requested.
- Standardized test scores are not required for admission.

University of Missouri students who have completed their baccalaureate studies, are enrolled in a master's or doctoral program, and are working toward a graduate degree in good standing, are also eligible to add the Graduate Certificate Program in Healthcare Project Management.

University of Missouri students with post-baccalaureate status (non-degree seeking) may be granted permission to enroll, but must complete the application and admissions requirements listed above for full admission to the Graduate Certificate program and conferral of the certificate upon completion of required coursework.

### Contact:

<https://medicine.missouri.edu/departments/health-management-and-informatics> (<https://medicine.missouri.edu/departments/health-management-and-informatics/>)

Dr. Patricia Alafairet  
[alafairetp@health.missouri.edu](mailto:alafairetp@health.missouri.edu)  
 (573)882-9904



## School of Nursing

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### Administration

Sarah Thompson, Dean  
Robin Harris, Associate Dean for Academic Affairs  
Lori Popejoy, Associate Dean for Innovation and Partnerships

#### Sinclair School of Nursing

S235 School of Nursing  
(573) 882-0277  
<https://nursing.missouri.edu> (<https://nursing.missouri.edu/>)

The nursing program at MU began in 1901 with the establishment of Parker Memorial Hospital Training School. Today, the Sinclair School of Nursing is committed to promoting, maintaining and improving health and health-care delivery in Missouri and worldwide through nursing education, research and service. Nursing faculty combine research and education to offer students hands-on experience in the art and science of nursing.

The MU Sinclair School of Nursing's BSN programs have the full approval of the Missouri State Board of Nursing (<http://pr.mo.gov/nursing.asp>). The Baccalaureate, Masters, and Doctor of Nursing Programs at the University of Missouri is accredited by the Commission on Collegiate Nursing Education, 655 K Street, NW, Suite 750, Washington DC, 20001

### Undergraduate

- Admissions (p. 728)
- Advising (p. 729)
- Health Care (p. 729)

### Admissions

#### Traditional BSN Option

The Traditional BSN is for first-time and transfer students. Incoming freshmen and transfer students are admitted as Pre-Nursing majors. Pre-Nursing students must complete their first 60 credit hours in prerequisite and general education courses. Students apply for admission to the clinical major during their last semester of general education and prerequisite courses. Students are admitted to the clinical nursing major on a competitive and space-available basis.

Each student's application is systematically reviewed and considered from a holistic perspective for each admission period. Clinical application criteria include:

- Minimum Pre-Nursing grade point average of 3.25 (on a 4.0 scale)
- Completion of four of the five science courses (in-progress is a maximum of one course):
  - Chemistry, Microbiology, Anatomy, Physiology, and Pathophysiology
- Minimum grade of C in Science courses, NURSE 2200, and NURSE 3200
- Minimum grade of C- in ENGLISH 1000, MATH 1050 or 1100, STAT 1200, and Writing Intensive courses
- Successful completion/currently enrolled in all general education and prerequisite coursework at the time of application
- Evidence of capacity to uphold the practice standard, functional abilities as listed in the Undergraduate Student Handbook, and ethical codes of the Nursing profession

Nursing Scholars who have applied to the clinical major, and who have met general education and prerequisite coursework, are guaranteed admission to the clinical nursing major. Please see the Nursing (<https://nursing.missouri.edu/academic-programs/traditional-bsn/nursing-scholars-program/>) and Honor's College (<https://honors.missouri.edu/>) websites for eligibility information and application details.

BSN graduates must complete a minimum of 120 credits hours. A Bachelor of Science (BSN) degree is awarded at graduation, and the graduate may be eligible to take the licensing examination to become a registered nurse (RN).

#### Accelerated BSN Option

The Accelerated BSN Option is a 15-month program designed for individuals who have completed a non-Nursing bachelor's degree.

Like the clinical nursing major, admission is on a competitive and space-available basis. Students are evaluated for admission to the Accelerated BSN based on the following criteria:

- A baccalaureate or higher degree from an accredited college or university
- A minimum GPA of 3.0 (4.0 grading scale)
- Two letters of reference from individuals that can attest to the student's motivation and ability to complete a course of intensive study
- Personal statement
- Professional resume
- Completion of prerequisite courses with a minimum of a C or better
- Evidence of potential and motivation for nursing
- Evidence of prior work success and/or ability to handle a fast-paced academic program

Transfer students must apply for admission through the MU Admissions Office. An additional, required application for non-MU and MU students is available on the School of Nursing (<https://nursing.missouri.edu/academic-programs/accelerated-bsn/>) website from mid-July to early October. Clinical course work begins the following summer and requires consecutive enrollment in the fall, spring, and a second summer to complete the degree.

A Bachelor of Science (BSN) degree is awarded at graduation, and the graduate may be eligible to take the licensing examination to become a registered nurse (RN).

#### RN to BSN Option

The RN to BSN is for registered nurses who have earned a diploma or associate degree in nursing, with a cumulative GPA of a 2.5 or higher. All RN to BSN courses are offered online.

RN to BSN registered nurse applicants must be currently licensed to practice nursing (or eligible for licensure) in Missouri or another state. The RN to BSN major requires completion of a minimum of 120 credit hours, which includes completed credit hours from other institutions. The length of the program varies, depending on previously completed equivalent prerequisite courses and the student's choice of part-time or full-time enrollment. More details about the program, including program prerequisites, can be found on the School of Nursing (<https://nursing.missouri.edu/academic-programs/rn-to-bsn-online/>) website.

## Transfer Students

Students transferring to MU from another accredited institution of higher education or other schools and colleges within the University are subject to the regulations established by the MU Faculty Council concerning transfer of credit.

For more information regarding the transfer guidelines for the School of Nursing, call (573) 882-0277. Prior to admission, transfer students must have the following:

- Minimum 3.25 GPA
- Approval from the Nursing Student Affairs office

Transfer students must apply for admission through the MU Admissions Office.

## International Students

In addition to the admission criteria described above, international students must meet the following criteria:

- Internet-based Test of English as a Foreign Language (TOEFL) composite score of 84, with speaking sub-score of 26
- International English Language Testing System (IELTS) overall score of 6.5, with a speaking band score of 8

## Advising

The academic advising office is in S235 of the School of Nursing Building, (573) 882-0277. Students are assigned an academic advisor upon enrollment at MU. In addition, each clinical nursing major can work with faculty advisors who are available for consultation about academic and professional matters.

## Health Care

Nursing students participate in a variety of on- and off-campus educational experiences. The School of Nursing does not assume responsibility for health-care expenses incurred in either setting. Students assume responsibility for all health care for illness and injury, including emergency treatment. Student Health is located at University Physicians Medical Building, 1101 Hospital Drive, (573) 882-7481. For additional information, visit their web site at <https://studenthealth.missouri.edu/>.

## Graduate

### Nursing Graduate Programs

### Masters of Science (Nursing) and Masters of Science

The **Master of Science** degree programs prepares nurses with post baccalaureate or post graduate degrees for roles as nurse educators, nurse leaders, and care managers. Graduates of the Masters of Science program proceed to prepare future nurses, promote health, provide care management, and nursing leadership to meet the healthcare needs of its citizens of Missouri and beyond.

### Doctor of Philosophy (PhD)

### Doctor of Nursing Practice

The **DNP program** prepares nurses to develop clinical programs based on the latest evidence. The student will choose an area of study (Adult CNS, FNP, PNP, or FMHNP) on which to focus their clinical practice.

Successful completion of the program prepares nurses for an advanced clinical practice in primary care, hospital and community settings as well as leadership roles in practice settings and clinical faculty positions.

**Note:** Prospective graduate students must apply to *both* the degree program of interest and to the MU Graduate School.

All graduate programs are distance mediated, providing online coursework with minimal, short, intensive campus experiences at specific times during the program to augment learning opportunities and allow for individualized faculty evaluation of educational competencies. The PhD program also offers a residential on-campus option for International Students only.

## Care Management

The Master's of Science in Care Management program is an *interdisciplinary degree* with an overarching goal to educate health care professionals to improve health outcomes, enhance care quality, and reduce health care costs. Graduates will provide care coordination to diverse people across the life span using care management principles and approaches that include facilitating delivery of health care to individuals/family, engagement of individuals/family in care plan design, and implementation resulting in high quality, high value, cost effective care using a collaborative, interdisciplinary approach.

Qualified applicants may have a bachelor's degree from *any health care discipline*. Enrollees will be required to successfully complete 33 graduate credits, which will include 240 hours of clinical practice, and a master's exam. The sequencing of courses builds on the students' unique perspectives and foundational knowledge of theory applications of care coordination, research principles, an understanding of basic physiology and pharmacology, and care management principles and skills. The clinical practica will allow students to apply these principles and skills in order to determine how care management practices are used within health care settings. Students will learn how to use the principles of quality improvement to evaluate the impact of care management on vulnerable populations of people, including those with multiple chronic conditions

This program supports preparation for national certification as a care manager through the American Nurses Credentialing Center, American Case Management Association, and the Commission for Case Manager Certification.

The Care Management Program will begin enrollment Fall 2019.

## Faculty

**Professor** G. Alexander\*\*, J. Armer\*\*, R. A. Johnson\*\*, M. J. Rantz\*\*, S. Thompson\*

**Associate Professor** T. Bloom\*\*, M. Enriquez\*\*, K. Lane\*\*, L. Popejoy\*\*, A. Vogelsmeier\*\*, B. Wakefield\*\*, D. Wipke-Tevis\*\*

**Assistant Professor** J. Chase\*, L. Despina\*, U. Jefferson\*\*, L. Sherwin\*  
**Teaching Professor** J. Sherman\*

**Associate Teaching Professor** G. Oliver\*, S. Ulbrich\*, R. Harris\*, K. Bowman\*

**Assistant Teaching Professor** V. Bader\*, S. Birk\*, N. Birtley\*, M.

Butler\*, P. Evans-Smith\*, J. Sabrowski, S. Thomas\*, L. Wood\*, A. Heyen\*  
**Instructor of Nursing** C. Clark, H. Claunch, M. Fete, L. Frey, C. Grider, B., R. McIntosh, D. Mendenhall, O. Odemuyiwa, D. Otto, A. Vroman, N. Chernookaya, S. Platt, S. Yun Fowler, J. Furrer

**Adjunct Associate Professor** R. McDaniel\*,

**Adjunct Assistant Professor** M. Beck\*, C. Crumley\*, S. Revelle\*, T. Rood\*, J. Miller

**Adjunct Teaching Professor** J. Bostick\*

**Adjunct Instructor** B. Hanson, C. Yonkman, C. Thompson, B. Davenport

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

While MU does not offer undergraduate degrees specifically in care management, the University does offer baccalaureate opportunities in nursing (p. 731) and a number of related areas, both within the School of Nursing, and in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 20).

## Graduate

- MS in Care Management (p. 730)
- Certificate in Care Management (p. 731)

# MS in Care Management

## Degree Requirements

A minimum of 33 hours beyond the bachelor's degree is required. Students must take a minimum of 15 hours of 8000-9000 level course work. No more than forty percent of the total required credit hours may be problems, readings and research hours. For example, in a 38-hour master's degree program, 15 hours may be from problems, readings and research hours.

Key components of this program include:

- Facilitating the delivery of health care to individuals and families
- Engaging individuals and families in care plan design
- Participating in high quality, high value, and cost-effective care

HMI 7430	Introduction to Health Informatics	3
NURSE 7500	Foundations of Care Management: Professional, Legal, Financial, and Business	3
NURSE 7510	Pharmacology, Pathophysiology, & Physical Assessment for Care Managers	3
NURSE 7150 or P_HLTH 7952 or SOC_WK 7952	Research Basis for Advanced Nursing Research Methods in Public Health Research Methods in Social Work	3
NURSE 8150	Interprofessional Practice: Transforming Healthcare	
NURSE 8940 or SOC_WK 8220 or SOC_WK 8240 or P_HLTH 7850	Nursing and Health Policy Integrated Health Policy and Services Social Policy for Older Adults Mental Health Policy	3
NURSE 8160	Evidence Based Care Management Practice for Individuals and Populations	

NURSE 8310	Health Disparities of Rural and Other Underserved Populations	3
NURSE 8920	Quality, Safety, and Performance Outcomes	3
NURSE 8955	Care Management Role-Focused Practicum	
<b>Elective Courses</b>		<b>3</b>
NURSE 8720	Symptom Management in Acute and Chronic Illness	3-5
NURSE 8010	Family Dynamics and Intervention	3
SOC_WK 7480	Helping Strategies with Older Persons	3
SOC_WK 7390	Helping Strategies With Children and Adolescents	3
Other electives upon advisor approval		

To satisfy requirements for the MS, a student must:

- Complete an approved plan of study with a cumulative GPA of 3.0
- Successfully complete the Master's Exam
- Complete the program within a five-year period

Because the program is distance-mediated, students are required to obtain the required computer technology for successful participation in distance-mediated courses (see Mizzou Online Computer Requirements (<http://online.missouri.edu/prepare/computer.aspx>)).

## Sample Plan of Study

Sample plans of study can be found on the Sinclair School of Nursing Master's webpage (<http://nursing.missouri.edu/academic-programs/msn/areas-of-study/>).

## Thesis/Non-Thesis Requirements

Each candidate must pass a final examination to demonstrate mastery of the fundamental principles of the work included in the course of study offered for the degree. This requirement may be fulfilled by completion of the Master's Exam (MS exam).

In the School of Nursing, the Master's Examination (MS exam) consists of a paper that should reflect the graduate student's grasp and synthesis of the clinical and theoretical knowledge gained in the course of study. The MS exam is offered on a pass/fail basis. Students are required to discuss the focus of their MS exam early in their master's program with their faculty advisor. The Critical Review of the Literature master's exam is now the only option available. Details about the Master's examination can be found on the School of Nursing Master's Student Handbook (<http://nursing.missouri.edu/handbooks/>).

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MS in Care Management program (<http://nursing.missouri.edu/academic-programs/msn/apply/>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

**\* Due to higher education regulation changes, the University of Missouri is unable to accept applications for admission to online programs from students residing in various states/. You may find more information at this link:** <http://online.missouri.edu/about/stateauthorization.aspx>.

Deadline for Fall entrance: April 1

## Admission Contact Information

<http://nursing.missouri.edu/>  
 S235 School of Nursing  
 Columbia, MO 65211  
 573-884-4705

## Graduate Certificate in Care Management

The Graduate Certificate in Care Management educates health care professionals to improve health outcomes, enhance care quality, and reduce health care costs. Upon completion of the graduate certificate students will be prepared to provide care coordination to diverse people across the lifespan using care management principles and approaches that include facilitating delivery of health care to individuals and families, engagement of individuals and families in care plan design, and implementation resulting in high quality, high value, cost effective care using a collaborative, interdisciplinary approach.

### Requirements

The certificate is an online program for degree seeking students as well as a stand alone program.

Total credit hours for completion: 15

NURSE 7500	Foundations of Care Management: Professional, Legal, Financial, and Business	3
NURSE 7510	Pharmacology, Pathophysiology, & Physical Assessment for Care Managers	3
NURSE 8150	Interprofessional Practice: Transforming Healthcare	3
NURSE 8160	Evidence Based Care Management Practice for Individuals and Populations	3
NURSE 8955	Care Management Role-Focused Practicum	3

## Nursing

The Traditional BSN is designed for undergraduate students who plan to complete the degree after graduating from high school or transferring from another college. As freshman and sophomores, nursing students are considered Pre-Nursing. Students typically are admitted to the clinical major during their junior and senior years.

Other BSN options include the accelerated option for students with a college degree and RN to BSN for nurses with an associate's degree.

The Master of Science degree programs prepares nurses with post-baccalaureate or post-graduate degrees for roles as advanced practice nurses, nurse educators, nurse leaders, and care managers. Graduates of the Masters of Science program proceed to prepare future nurses, promote health, provide care management, and nursing leadership.

The Doctor of Nursing Practice Degree (or practice doctorate) prepares post baccalaureate and post graduate students in a specific advanced nursing roles (clinical nurse specialist, family nurse practitioner, and leadership) at the highest level of nursing practice.

Our doctor of philosophy in nursing (PhD) program prepares clinical scholars, educators, and researchers for leadership roles in a variety of academic, industry, and healthcare settings. Because the knowledge and skills needed to produce excellent health-related research is not discipline specific, the PhD program does not require a prior degree in nursing. Indeed, we have had PhD students with academic preparation in health administration, health education, medical ethics, nursing, occupational therapy, physical therapy, public health and social work.

## Faculty

- Professor** S. Thompson\*
- Associate Professor** T. Bloom\*\*, K. Lane\*\*, L. Popejoy\*\*, B. Reeder, A. Vogelsmeier\*\*, B. Wakefield\*\*, D. Wipke-Tevis\*\*
- Assistant Professor** A. Anbari\* J. Chase\*, L. Despins\*, C. DeRoche\*\*, B. Galatzan, J. Hulett\*, K. Powell\*, L. Sherwin\*
- Teaching Professor** J. Sherman\*, G. Oliver\*
- Associate Teaching Professor** V. Bader\*, S. Ulbrich\*, R. Harris\*, K. Bowman\*
- Assistant Teaching Professor** S. Birk\*, N. Birtley\*, M. Butler\*, P. Evans-Smith\*, J. Sabrowski, S. Thomas\*, L. Wood\*, A. Heyen\*, M. Shahan\*
- Instructor of Nursing** C. Clark, H. Claunch, M. Fete, L. Frey, C. Grider, B., R. McIntosh, D. Mendenhall, O. Odemuyiwa, A. Vroman, N. Chernookaya, S. Platt, S. Yun Fowler, J. Furrer, Oeth, K., Beach, E.K. Doescher
- Professor Emerita** J. Armer\*\*, M.J. Rantz\*\*
- Teaching Professor Emerita** J. Bostick\*
- Instructor Emerita** D. Otto
- Adjunct Professor** L. Bullock\*\*, M. Enriquez\*\*
- Adjunct Assistant Teaching Professor** M. Beck\*, C. Crumley\*, S. Revelle\*, T. Rood\*, J. Miller, S. Zembles\*
- Adjunct Instructor** C. Thompson

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.  
 \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

- BSN in Nursing (p. 733)

## Academic Regulations

### College Credits

Students applying to the Sinclair School of Nursing may transfer coursework from accredited four-year institutions and community/junior colleges. There is no time limit imposed on transfer courses.

Students may earn advanced standing credit in some courses by satisfactorily completing examinations in certain subjects. The student may acquire College Level Examination Program (CLEP) advance standing by subject examinations in general education and required support courses. Departmental examinations are may also be available. Departmental examinations are comparable to final examinations given

in the required courses offered on campus. A student who has a record of enrollment in a course with a grade less than a 'C' shall not be eligible later for credit on the basis of examination covering the same subject.

Students in the RN to BSN may take advance standing by subject examinations, when transferring in less than 90 credit hours. For RN to BSN students, a standardized nursing examination from the National League for Nursing (NLN) is available for nutrition. If an unsatisfactory score is obtained from the first attempt the student may repeat the failed examination one time. A CLEP examination is available for the subject of Human Growth and Development. If an unsatisfactory score is obtained from the first attempt, the examination may not be repeated for six months.

## Distance Education Courses

Certain courses offered by the Mizzou Online (self-paced) may be applied toward degree requirements. Courses such as literature, advanced psychology or sociology may be taken through independent study. Students should not expect to begin nor continue work on independent study courses during the regular semester except by special permission of the associate dean and then only when carrying less than a full course load in residence.

## Progression Criteria

### Pre-Nursing

#### Minimum Cumulative Pre-Nursing GPA Requirements

- First semester at MU (new and transfer students): 2.8
- Successive semesters at MU: 3.25

These grade standards apply to current MU students seeking to transfer from another major to Pre-Nursing.

### Academic Actions

- **Required major transfer:** Students who do not meet the GPA requirements must transfer to another major at MU.
- **Probation:** Students whose term GPA falls below 2.0, but is above 1.0 are placed on probation.
- **Ineligible:** Students whose semester GPA falls below 1.0 are ineligible to enroll at MU.

### Minimum Pre-Nursing Course Grade Requirements:

- A grade of 'C' or better is required in the following courses:
  - CHEM 1100 \*
  - ENGLSH 1000
  - H\_D\_FS 2400 \*
  - MICROB 2800
  - MPP 3202
  - NEP 2380
  - NURSE 2200
  - NURSE 3200
  - PTH\_AS 2201
  - PTH\_AS 2203
  - Writing Intensive courses

\* Consult your advisor for alternative course choices.

- A grade of "C-" or better is required in MATH 1050 or MATH 1100, and STAT 1200.
- Students may repeat a course in which an unsatisfactory grade was earned. If less than a C is earned in a repeated course, students are ineligible to continue enrollment in the School of Nursing.

## Clinical Nursing

- Progression into the next semester's nursing courses is contingent on the completion, with a grade of C or better, of all of the previous semester's courses.
- A satisfactory academic standing for clinical students is a minimum semester GPA and cumulative GPA of 2.0. A student who does not meet this requirement may be placed on academic probation.
- A grade of C or better is required for all nursing courses. One repetition of a course is permitted, but requires approval of the Student Academic Progression (SAP) committee. Students who earn less than a C in a repeated nursing course are ineligible to continue enrollment in the School of Nursing.
- Students in the clinical nursing phase who withdraw in good standing for any reason must contact the Associate Dean for readmission.
- Students who have been dismissed may reapply through the established admissions procedure for all students and petition the Faculty Assembly Student Admissions and Progression Committee. Students who are readmitted are guided by the rules in operation for the class they join.
- A student in the clinical nursing phase who has been dismissed from the School of Nursing for a second time may not reapply for admission.

## Additional Requirements

Students in the clinical phase of the degree requirements must be prepared to provide their own transportation to clinical agencies. In addition, they must meet the following requirements:

- Required Immunizations and Health Requirements
- Drug Screening
- Criminal Background Check
- CPR Certification (American Heart Association, BLS for Healthcare Providers)
- School of Nursing scrubs/student uniform
- Functional Abilities

## Practicums

Clinical practicums (patient/client care) are an integral part of the curriculum. Students have the opportunity to practice in a variety of health care and related agencies, including:

- University of Missouri Health Care
- Boone Hospital Center
- Truman Veterans Hospital
- Fulton State Hospital
- Multiple county and city health departments
- Long-term care facilities
- Day-care centers
- Schools (K-12)

## Licensure by the Missouri State Board of Nursing

On receipt of the Bachelor of Science in Nursing degree, students may be eligible to take the NCLEX examination for licensure as registered nurses. The Missouri State Board of Nursing grants a license to practice to persons who meet the policies and regulations contained within the Nursing Practice Act, Chapter 335.011 to 335.096.

## Graduate

- MS in Nursing (p. 735)
  - with emphasis in Adult Gerontology Clinical Nurse Specialist (p. 736)
  - with emphasis in Family Nurse Practitioner (p. 736)
  - with emphasis in Leadership in Nursing and Health Care Systems (p. 737)
  - with emphasis in Nurse Educator (p. 738)
  - with emphasis in Pediatric Clinical Nurse Specialist (p. 738)
  - with emphasis in Pediatric Nurse Practitioner-Primary Care (p. 739)
  - with emphasis in Psychiatric Mental Health Nurse Practitioner (p. 739)
- PhD in Nursing (p. 740)
- DNP in Nursing (p. 742)
  - with emphasis in Adult-Gerontology Clinical Nurse Specialist (p. 743)
  - with emphasis in Family Nurse Practitioner (p. 744)
  - with emphasis in Nurse Leadership and Innovations in Health Care (p. 745)
  - with emphasis in Pediatric Clinical Nurse Specialist (p. 746)
  - with emphasis in Pediatric Nurse Practitioner- Primary Care (p. 747)
  - with emphasis in Psychiatric-Mental Health Nurse Practitioner (Across the Lifespan) (p. 748)

## About the Sinclair School of Nursing

Sinclair School of Nursing  
S235 Sinclair School of Nursing Building  
573-882-0277  
<http://nursing.missouri.edu/>

Nursing was an integral part of the Parker Memorial Hospital Training School, which served as the university's first hospital in 1901. Although a nursing program was not officially established until 1920 within the School of Medicine, MU graduated its first nursing class in 1904. Sixteen years later, the Curators approved a Graduate Nursing designation. Today, the Sinclair School of Nursing provides a rich and rewarding learning environment for our students. Our faculty includes knowledgeable and skillful teachers, respected scholars and researchers in the nursing profession, and experienced, caring practitioners. The master's and Doctor of Nursing Practice (DNP) program is accredited by the Commission on Collegiate Nursing Education, 655 K Street, NW, Suite 750, Washington, DC 20001

## Facilities and Resources

Graduate students in the School of Nursing have access to all campus libraries and the various services they provide. The School of Nursing

building is adjacent to University Hospital and Clinics, MU Psychiatric Center and Ellis Fischel Cancer Center. Women and Children's Hospital is located nearby. A variety of learning experiences also are available at other hospital and health and social service agencies in and around Columbia.

## Career Opportunities

Nursing is a professional career for those who would like to combine the following words in any number of ways: Servant leadership, challenge, advanced nursing skills, caring, science, and meaningful work. Graduates of our program work in a variety of settings - from hospital inpatient units and hospital based clinics, to community health centers, private practices, and schools, to areas of research and teaching.

## Funding

Financial assistance is available as scholarships, fellowships, assistantships and traineeships.

## BSN in Nursing

### Degree Program Description

The Bachelor of Science in Nursing (BSN) curriculum encompasses general, foundational, and professional studies within a liberal arts education. The curriculum is driven by the belief that nursing theory has much to offer in the education of professional nurses and in improving the health and well-being of patient populations. Nursing knowledge is developmental in nature; each course is designed to build on knowledge and skills acquired in previous nursing and non-nursing courses.

The BSN program is offered in three formats:

1. **Traditional BSN:** A traditional four-year degree for freshmen and transfer students
2. **Accelerated BSN:** An accelerated program for non-Nursing post-baccalaureate students
3. **RN-BSN:** An online program for graduates of Associate Degree in Nursing programs

### Traditional BSN

The traditional program accepts new students to the Pre-Nursing program in the fall, spring, and summer semesters. These students must formally apply to the clinical major as they are completing 60 credit hours of general education and prerequisite coursework. Admission is based on a competitive, space-available basis through a systematic and holistic review of each applicant.

Upon admission to the clinical major, students must earn 60 additional credit hours to complete the degree. Admission to the clinical major can begin in the fall or spring. A semester plan for students beginning the in the fall or spring is listed below. The School of Nursing also offers an additional plan which utilizes a summer semester for students seeking to expedite their graduation plan. More information on the summer option can be found on the School of Nursing (<https://nursing.missouri.edu/academic-programs/traditional-bsn/curriculum/>) website.

### Accelerated BSN

Non-Nursing post-baccalaureate students with a minimum GPA of 3.0 are eligible to apply for this fast-paced fifteen month program. Like the Traditional program, students are admitted on a competitive, space-available basis. Applications are accepted between mid-July and early

October. More information and the online application can be found on the School of Nursing (<https://nursing.missouri.edu/academic-programs/accelerated-bsn/>) website.

## RN to BSN

This online program admits new students throughout the year to start courses in the fall, spring, or summer semesters. Minimum admission requirements include a 2.5 GPA, RN licensure or evidence of eligibility to take the National Council Licensure Examination (NCLEX) during the first semester of enrollment. More information on program prerequisites, semester plans, and how to apply can be found on the School of Nursing (<https://nursing.missouri.edu/academic-programs/rn-to-bsn-online/>) website.

## Research Opportunities

The school offers a diverse range of research projects that provide care to healthy and ill people of all ages. The Essig Clinical Simulation Learning Center in the school is where students practice technical skills and learn to manipulate various equipment in this simulated clinical setting.

## Major Program Requirements

The completion of all requirements for graduation is the responsibility of the student. The Bachelor of Science in Nursing (BSN) is granted to candidates who have satisfactorily completed all of the following requirements:

- Successful completion of all general education, prerequisite, and clinical nursing courses
- Minimum cumulative GPA of 2.0
- No more than 30 credits through independent study or extension courses
- Minimum of 120 credit hours
- Completion of all University graduation requirements (p. 35), including University general education requirements (p. 36)

## Requirements for Traditional BSN

### Pre-Nursing Requirements

CHEM 1100 or CHEM 1000 or CHEM 1320	Atoms and Molecules with Lab Introductory Chemistry College Chemistry I	2-4
MICROB 2800 or MICROB 3200	Microbiology for Nursing and Health Professions Medical Microbiology and Immunology	4
MATH 1050 or MATH 1100	Quantitative Reasoning College Algebra	3
STAT 1200 or ESC_PS 4170	Introductory Statistical Reasoning (MP) Introduction to Applied Statistics	3
HIST 1100 or HIST 1100H or HIST 1200 or HIST 1200H or HIST 1400 or POL_SC 1100	Survey of American History to 1865 Survey of American History to 1865 - Honors Survey of American History Since 1865 Survey of American History Since 1865 - Honors American History American Government	3
ENGLSH 1000	Exposition and Argumentation	3
PSYCH 1000	General Psychology	3
SOCIOL 1000	Introduction to Sociology	3

or RU_SOC 1000	Rural Sociology	
PHIL 1150 or PHIL 2440	Introductory Bioethics Medical Ethics	3
Humanities/Fine Arts		6
PTH_AS 2201 & PTH_AS 2203	Human Anatomy Lecture and Human Anatomy Laboratory	5
MPP 3202	Elements of Physiology	5
NURSE 3200	Pathophysiology	4
NEP 2380	Diet Therapy for Health Professionals	3
PSYCH 2410 or PSYCH 2410H or H_D_FS 2400 or H_D_FS 2400H or H_D_FS 2400HW or H_D_FS 2400W	Developmental Psychology Developmental Psychology - Honors Principles of Human Development Principles of Human Development - Honors Principles of Human Development - Honors/Writing Intensive Principles of Human Development - Writing Intensive	3
NURSE 2200 or NURSE 2200H	Foundations of Communication and Professionalism in Nursing Foundations of Communication and Professionalism in Nursing - Honors	3
Nursing Elective	*Consult Advisor for list of choices	3

### Clinical Nursing Requirements

NURSE 3000	Health Care Resiliency	1
NURSE 3280	Fundamentals of Nursing	5
NURSE 3300	Pharmacology and Nursing Implications	4
NURSE 3370	Health Assessment in Nursing	4
NURSE 3470	Mental Health Nursing	5
NURSE 3670	Nursing of Adults I	6
NURSE 3800	Gerontological Nursing Care	3
NURSE 3900	Introduction to Nursing Science	3
NURSE 4210 or NURSE 4210W	Nursing Ethics Nursing Ethics - Writing Intensive	3
NURSE 4270	Nursing of Children	4
NURSE 4300	Nursing Issues/Leadership and Management	3
NURSE 4470	Nursing of the Childbearing Family	4
NURSE 4870 or NURSE 4870H	Nursing of Adults II Nursing of Adults II Honors	7
NURSE 4970W or NURSE 4970HW	Nursing in Communities - Writing Intensive Nursing in Communities - Honors/Writing Intensive	5
Clinical Nursing Elective	*Consult Advisor for list of choices	3

## Requirements for Accelerated BSN

NURSE 3100	Pharmacology for Nursing	3
NURSE 3280	Fundamentals of Nursing	5
NURSE 3370	Health Assessment in Nursing	4
NURSE 3470	Mental Health Nursing	5
NURSE 3670	Nursing of Adults I	6
NURSE 3800	Gerontological Nursing Care	3
NURSE 3900	Introduction to Nursing Science	3
NURSE 4210	Nursing Ethics	3
NURSE 4270	Nursing of Children	4
NURSE 4300	Nursing Issues/Leadership and Management	3
NURSE 4470	Nursing of the Childbearing Family	4

NURSE 4870	Nursing of Adults II *	3-7
NURSE 4970W	Nursing in Communities - Writing Intensive	5

\*7 credits required

### Requirements for RN to BSN

NURSE 3080	Introduction to Nursing Informatics *	3
NURSE 4110	RN to MS Role Transition **	3
NURSE 4200	Nursing Ethics and Law	3
NURSE 4380	Health Assessment and Pathophysiology *	3
NURSE 4400	Nursing Leadership and Management *	3
NURSE 4930	Evidence-Based Nursing Practice *	5
NURSE 4950W	Nursing Theory and Research - Writing Intensive	3
NURSE 4970W	Nursing in Communities - Writing Intensive *	5

\*Credit hour requirements have been modified. Visit School of Nursing (<https://nursing.missouri.edu/academic-programs/rn-to-bsn-online/>) website for current credit hour requirements.

\*\*Course title change pending. Course number will remain the same.

### Semester Plan

Below is a sample plan of study for the Traditional BSN. A student's actual plan may vary based on course choices where options are available. Semester plans for the RN-BSN (<https://nursing.missouri.edu/academic-programs/rn-to-bsn-online/>) and Accelerated BSN (<https://nursing.missouri.edu/academic-programs/accelerated-bsn/>) can be found on the School of Nursing website.

### Semester Plan- BSN Traditional

First Year			
Fall	CR	Spring	CR
CHEM 1100, 1000, or 1320		3 PTH_AS 2201 & PTH_AS 2203	5
MICROB 2800		4 ENGLSH 1000 or 1000H	3
HIST 1100, 1100H, 1200, 1200H, or POL_SC 1100		3 PSYCH 1000 or 1000H	3
SOCIO 1000, 1000H, or RU_SOC 1000		3 PHIL 1150 or 2440	3
MATH 1050 or 1100		3	
	16		14
Second Year			
Fall	CR	Spring	CR
MPP 3202		5 NURSE 3200	4
PSYCH 2410, 2410H, H_D_FS 2400, or H_D_FS 2400W		3-4 NEP 2380	3
NURSE 2200 or 2200H		3 STAT 1200 or ESC_PS 4170	3
Humanities/Fine Art Course		3 Humanities/Fine Arts Course	3
		Nursing Elective	3
	14-15		16
Third Year			
Fall	CR	Spring	CR
NURSE 3280		5 NURSE 3470	5
NURSE 3300		4 NURSE 3670	6
NURSE 3370		4 NURSE 3800	3

NURSE 3000	1	NURSE 3900	3
	14		17

Fourth Year			
Fall	CR	Spring	CR
NURSE 4210 or 4210W		3 NURSE 4870 or 4870H	7
NURSE 4270		4 NURSE 4970W or 4970H	5
NURSE 4300		3 Nursing Elective	3
NURSE 4470		4	
	14		15

Total Credits: 120-121

NOTE: Curriculum subject to change.

## MS in Nursing

### About

Students in the distance mediated Master's of Science program obtain advanced nursing preparation in one of two areas:

- Nursing Education (<http://nursing.missouri.edu/academic-programs/msn/areas-of-study/>)
- Leadership in Nursing and Healthcare Systems (<http://nursing.missouri.edu/academic-programs/msn/areas-of-study/>)

### Degree Requirements

A minimum of 30 hours beyond the bachelor's degree is required. Students must take a minimum of 15 hours of 8000-9000 level course work. No more than forty percent of the total required credit hours may be problems, readings and research hours. For example, in a 38-hour master's degree program, 15 hours may be from problems, readings and research hours.

To satisfy requirements for the MS, a student must:

- Complete an approved plan of study with a cumulative GPA of 3.0
- Successfully complete the Master's Exam
- Complete the program within a five-year period

Because the program is distance-mediated, students are required to obtain the required computer technology for successful participation in distance-mediated courses (see Mizzou Online Computer Requirements (<http://online.missouri.edu/prepare/computer.aspx>)).

### Sample Plan of Study

Sample plans of study can be found on the Sinclair School of Nursing Master's webpage (<http://nursing.missouri.edu/academic-programs/msn/areas-of-study/>).

### Thesis/Non-Thesis Requirements

Each candidate must pass a final examination to demonstrate mastery of the fundamental principles of the work included in the course of study offered for the degree. This requirement may be fulfilled by completion of the Master's Exam (MS exam).

In the School of Nursing, the Master's Examination (MS exam) consists of a paper that should reflect the graduate student's grasp and synthesis of the clinical and theoretical knowledge gained in the course of study. The MS exam is offered on a pass/fail basis. Students are required to discuss the focus of their MS exam early in their master's program with



their faculty advisor. The Critical Review of the Literature master's exam is now the only option available. Details about the Master's examination can be found on the School of Nursing Master's Student Handbook (<http://nursing.missouri.edu/handbooks/>).

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MS in Nursing program (<https://nursing.missouri.edu/academic-programs/msn/how-to-apply/>) and the minimum requirements of the Graduate School (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

**\* Due to higher education regulation changes, the University of Missouri is unable to accept applications for admission to online programs from students residing in various states/. You may find more information at this link: <http://online.missouri.edu/about/stateauthorization.aspx>.**

Deadline for Summer entrance: April 1

## Admission Contact Information

<http://nursing.missouri.edu/>  
 S235 School of Nursing  
 Columbia, MO 65211  
 573-884-4705

## MS in Nursing with Emphasis in Adult Gerontology Clinical Nurse Specialist

The Adult Gerontology Clinical Nurse Specialist MS(N) program curriculum prepares nurses as expert clinicians to: as expert clinicians to provide direct patient care from wellness through acute care with a focus on complex and vulnerable adult and older adult populations. The Adult Geriatric Clinical Nurse Specialist student will also be prepared to influence care outcomes by acting as a resource and providing expert consultation for nursing staff and other health professionals by implementing evidence based practice initiatives to support improvements in health care delivery systems.

- Manage clinical efforts across health care settings
- Provide visionary leadership
- Lead quality and safety initiatives
- Implement evidence-based practice

## Degree Requirements

The MS(N) AGCNS curriculum provides core master's coursework in combination with Adult Gerontology Clinical specialty courses. Adult Gerontology Clinical Nurse Specialist specialty courses focus on principles of leadership within healthcare organizations, management of human resources, health care financial management, and managing quality, safety and performance outcomes.

The American Nurses Credentialing Center (ANCC) offers certification as an Adult Gerontology Clinical Nurse Specialist. Students who have completed a master's degree in Nursing in the Adult Gerontology Clinical Nurse Specialist emphasis area are eligible to sit for the exam.

Students must complete the core course required of the MS in Nursing in addition to coursework for the declared emphasis area.

### Core Courses

NURSE 7110	Advanced Nursing Roles and Professional Communication	3
NURSE 7160	Scientific Foundations for Health Sciences	4
NURSE 8170	Public Health, Sociocultural Issues, and Health Policy	3
NURSE 8910	Translational Evidence-Based Nursing Practice	3
NURSE 8990	Practice Inquiry	1

### Emphasis Area Coursework

NURSE 7120	Advanced Physiology and Pathophysiology	3
NURSE 7130	Advanced Pharmacology and Pharmacotherapeutics	3
NURSE 7140	Advanced Health Assessment and Promotion	3.5
NURSE 8400	Adult and Geriatric Primary Care I	3.5
NURSE 8410	Adult and Geriatric Primary Care II	3.5
NURSE 8540	Advanced Diagnostics and Reasoning I	3.5
NURSE 8710	Clinical Management of Acute and Critical Care Problems	3.5
NURSE 8720	Symptom Management in Acute and Chronic Illness	3.5
NURSE 8920	Quality, Safety, and Performance Outcomes	3
NURSE 8980	Advanced Clinical Nursing Practicum	2-3

## MS in Nursing with Emphasis in Family Nurse Practitioner

Students who pursue the Family Nurse Practitioner MS(N) will be prepared to deliver evidence-based comprehensive primary healthcare to individuals of all ages, from birth through older adulthood, including the diagnoses and treatment of common acute episodic health problems and the management of chronic diseases. The student will utilize current research to provide health education to individuals and families and demonstrate expertise in health promotion and disease prevention. The student will be prepared to work independently and collaboratively to integrate advanced knowledge in the delivery of care to all populations including rural and other under-served communities.

- Manage clinical efforts in the primary care setting
- Provide visionary leadership
- Implement evidence-based practice

## Degree Requirements

The MS(N) Family Nurse Practitioner curriculum provides core Master's coursework in combination with Family Nurse Practitioner specialty courses. The specialty courses focus on care of the individual and the

family, with a special emphasis on the rural and under-served, utilizing evidence practice guidelines.

The American Nurses Credentialing Center (ANCC) and the American Academy of Nurse Practitioners (AANP) offers certification as a Family Nurse Practitioner. Students who have completed a Master's degree in Nursing in the Family Nurse Practitioner emphasis area are eligible to sit for the exam.

Students must complete the core course required of the MS in Nursing in addition to coursework for the declared emphasis area.

**Core Courses**

NURSE 7110	Advanced Nursing Roles and Professional Communication	3
NURSE 7160	Scientific Foundations for Health Sciences	4
NURSE 8170	Public Health, Sociocultural Issues, and Health Policy	3
NURSE 8910	Translational Evidence-Based Nursing Practice	3
NURSE 8990	Practice Inquiry	1

**Emphasis Area Coursework**

NURSE 7120	Advanced Physiology and Pathophysiology	3
NURSE 7130	Advanced Pharmacology and Pharmacotherapeutics	3
NURSE 7140	Advanced Health Assessment and Promotion	3.5
NURSE 8010	Family Dynamics and Intervention	3
NURSE 8400	Adult and Geriatric Primary Care I	3.5
NURSE 8410	Adult and Geriatric Primary Care II	3.5
NURSE 8420	Newborn Through Adolescence Primary Care	3.5
NURSE 8430	Reproductive and Sexual Health Primary Care	3.5
NURSE 8540	Advanced Diagnostics and Reasoning I	3.5
NURSE 8980	Advanced Clinical Nursing Practicum	2-3

## MS in Nursing with Emphasis in Leadership in Nursing and Health Care Systems

### Degree Requirements

All students pursuing the MS(N) degree must complete a minimum of 33 to 41 credit hours of graduate coursework. Credit hours vary depending upon the student's area of study. Previous graduate level coursework from another institution may be accepted toward the degree depending upon transcript review. Students must maintain a minimum cumulative Grade Point Average (GPA) of 3.0 in order to graduate.

The MS(N) Leadership curriculum provides core master's coursework in combination with leadership specialty courses. Leadership specialty courses focus on principles of leadership within healthcare organizations, management of human resources, health care financial management, and managing quality, safety and performance outcomes.

**Core MS(N) courses**

NURSE 7110	Advanced Nursing Roles and Professional Communication	3
NURSE 7100	Theoretical Basis for Advanced Nursing	3
NURSE 7150	Research Basis for Advanced Nursing	3
NURSE 8910	Translational Evidence-Based Nursing Practice	3
NURSE 8940	Nursing and Health Policy	3
NURSE 8300	Public Health and Sociocultural Issues	3

**Specialty MS(N) Leadership in Nursing and Healthcare Systems Courses**

NURSE 8820	Health Care Financial Management	4
NURSE 8920	Quality, Safety, and Performance Outcomes	3
NURSE 8860	Organizations & Human Resource Management in Nursing	3
NURSE 8960	Leadership in Nursing and Healthcare Systems Practicum	5

For more information about the Leadership in Nursing and Health Care Systems emphasis, please see our website (<http://nursing.missouri.edu/>).

### Sample Plan of Study

This plan of study is for the post-baccalaureate, three-year plan. For more plans of study visit our website (<http://nursing.missouri.edu/>).

First Year					
Fall	CR	Spring	CR	Summer	CR
NURSE 7100	3	NURSE 7150	3	NURSE 7110	3
NURSE 8820	4			Graduate Statistics required before admission (entering Summer)	
			7	3	3
Second Year					
Fall	CR	Spring	CR	Summer	CR
NURSE 8940	3	NURSE 8860	3	NURSE 8910	3
NURSE 8300	3				
			6	3	3
Third Year					
Fall	CR	Spring	CR		
NURSE 8920 (60 clinical hours)	3	NURSE 8960 (180 hour practicum)	5		
				Master's Exam	No credit
			3	5	

Total Credits: 33

### Thesis/Non-Thesis Requirements

In addition to the Course Requirements, all Masters Students are required to complete either a Thesis or Masters Examination. The Master's Thesis (N8090) requires independent research aimed at discovery and/or development of elements or relationships derived from a nursing theory. The Master's Examination (MS exam) consists of a paper that should reflect the graduate student's grasp and synthesis of the clinical and theoretical knowledge gained in the course of study.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MS in Nursing program (<https://nursing.missouri.edu/academic-programs/msn/how-to-apply/>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

## MS in Nursing with Emphasis in Nurse Educator

### Degree Requirements

All students pursuing the MS(N) degree must complete a minimum of 33 to 41 credit hours of graduate coursework. Credit hours vary depending upon the student's area of study. Previous graduate level coursework from another institution may be accepted toward the degree depending upon transcript review. Students must maintain a minimum cumulative Grade Point Average (GPA) of 3.0 in order to graduate. The MS(N) Educator curriculum provides core master's coursework in combination with leadership specialty courses. Educator specialty courses focus on advanced knowledge in teaching strategies and curriculum development as well as advanced knowledge in pathophysiology, pharmacology, and advanced health assessment.

#### Core MS(N) Courses

NURSE 7110	Advanced Nursing Roles and Professional Communication	3
NURSE 7100	Theoretical Basis for Advanced Nursing	3
NURSE 7150	Research Basis for Advanced Nursing	3
NURSE 8910	Translational Evidence-Based Nursing Practice	3
NURSE 8940	Nursing and Health Policy	3
NURSE 8300	Public Health and Sociocultural Issues	3

#### Specialty MS(N) Nurse Educator

NURSE 7120	Advanced Physiology and Pathophysiology	3
NURSE 7140	Advanced Health Assessment and Promotion	3.5
NURSE 7130	Advanced Pharmacology and Pharmacotherapeutics	3
NURSE 8854	Teaching Strategies in Nursing	3
NURSE 8864	Curriculum Development in Nursing	3
NURSE 8710	Clinical Management of Acute and Critical Care Problems	3.5-5
NURSE 8950	Teaching Nursing Practicum	4

For more information about the emphasis in Nursing Education please visit our website (<http://nursing.missouri.edu/>).

## Sample Plan of Study

The following sample plan of study is for the two-year program. For more sample plans of study, please visit our website (<http://nursing.missouri.edu/>).

First Year					
Fall	CR	Spring	CR	Summer	CR
NURSE 7100	3	NURSE 8854	3	NURSE 7110	3
NURSE 7120	3	NURSE 7140	3.5	Graduate Statistics required before admission (entering Summer Year 1)	
NURSE 8300	3	NURSE 7150	3		
	9		9.5		3
Second Year					
Fall	CR	Spring	CR	Summer	CR
NURSE 8710	3.5	NURSE 7130	3	NURSE 8910	3
NURSE 8864	3	NURSE 8950	4		
NURSE 8940	3	Master's Exam			
	9.5		7		3

Total Credits: 41

**Total Clinical Hours: 420**

## Thesis/Non-Thesis Requirements

In addition to the Course Requirements, all Masters Students are required to complete either a Thesis or Masters Examination. The Master's Thesis (NURSE 8090) requires independent research aimed at discovery and/or development of elements or relationships derived from a nursing theory. The Master's Examination (MS exam) consists of a paper that should reflect the graduate student's grasp and synthesis of the clinical and theoretical knowledge gained in the course of study.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MS in Nursing program (<https://gradstudies.missouri.edu/degreecategory/nursing/>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

## MS in Nursing with Emphasis in Pediatric Clinical Nurse Specialist

The Pediatric Clinical Nurse Specialist MS(N) program curriculum prepares nurses as expert clinicians to: provide direct patient care from wellness through acute care with a focus on complex and vulnerable pediatric populations. The Pediatric Clinical Nurse Specialist student will also be prepared to influence care outcomes by acting as a resource and providing expert consultation for nursing staff and other health professionals by implementing evidence based practice initiatives to support improvements in health care delivery systems.

- Manage clinical efforts across health care settings
- Provide visionary leadership
- Lead quality and safety initiatives
- Implement evidence-based practice

## Degree Requirements

The MS(N) Pediatric Clinical Nurse Specialist curriculum provides core master's coursework in combination with Pediatric Clinical specialty courses. Pediatric Clinical Nurse Specialist specialty courses focus on care of the patient, the family, and the providers working with a special emphasis on system evaluation and change. They do so by utilizing the principles of leadership within healthcare organizations, and managing quality, safety and performance outcomes.

The American Association of Critical Care Nurses (AACN) offers certification as a Pediatric Clinical Nurse Specialist (ACCNS-P). Students who have completed a master's degree in Nursing in the Pediatric Clinical Nurse Specialist emphasis area are eligible to sit for the exam.

Students must complete the core course required of the MS in Nursing in addition to coursework for the declared emphasis area.

### Core Courses

NURSE 7110	Advanced Nursing Roles and Professional Communication	3
NURSE 7160	Scientific Foundations for Health Sciences	4
NURSE 8170	Public Health, Sociocultural Issues, and Health Policy	3
NURSE 8910	Translational Evidence-Based Nursing Practice	3
NURSE 8990	Practice Inquiry	1

### Emphasis Area Coursework

NURSE 7120	Advanced Physiology and Pathophysiology	3
NURSE 7130	Advanced Pharmacology and Pharmacotherapeutics	3
NURSE 7140	Advanced Health Assessment and Promotion	3.5
NURSE 8210	Special Health Care Needs of Children	3.5
NURSE 8420	Newborn Through Adolescence Primary Care	3.5
NURSE 8540	Advanced Diagnostics and Reasoning I	3.5
NURSE 8710	Clinical Management of Acute and Critical Care Problems	3.5
NURSE 8720	Symptom Management in Acute and Chronic Illness	3.5
NURSE 8920	Quality, Safety, and Performance Outcomes	3
NURSE 8980	Advanced Clinical Nursing Practicum	2-3

## MS in Nursing with Emphasis in Pediatric Nurse Practitioner-Primary Care

Students who pursue the Pediatric Nurse Practitioner area of study will be prepared as primary pediatric nurse clinicians providing comprehensive healthcare from birth through young adulthood by assessment, diagnosis, management, and evaluation of care. Special emphasis is placed on the

knowledge, skills, and expertise to emphasize health promotion, injury and disease prevention, and management in coping with chronic illness among children.

- Manage clinical efforts in the primary care setting
- Provide visionary leadership
- Implement evidence-based practice

## Degree Requirements

The MS(N) Pediatric Nurse Practitioner – Primary Care curriculum provides core master's coursework in combination with Pediatric Nurse Practitioner specialty courses. Pediatric Nurse Practitioner – Primary Care specialty courses focus on care of the patient and the family, with a special emphasis on the rural and underserved. They do so by utilizing evidence practice guidelines.

The Pediatric Nursing Certification Board (PNCB) offers certification as a Pediatric Nurse Practitioner – Primary Care. Students who have completed a master's degree in Nursing in the Pediatric Nurse Practitioner – Primary Care emphasis area are eligible to sit for the exam.

Students must complete the core course required of the MS in Nursing in addition to coursework for the declared emphasis area.

### Core Courses

NURSE 7110	Advanced Nursing Roles and Professional Communication	3
NURSE 7160	Scientific Foundations for Health Sciences	4
NURSE 8170	Public Health, Sociocultural Issues, and Health Policy	3
NURSE 8910	Translational Evidence-Based Nursing Practice	3
NURSE 8990	Practice Inquiry	1

### Emphasis Area Coursework

NURSE 7120	Advanced Physiology and Pathophysiology	3
NURSE 7130	Advanced Pharmacology and Pharmacotherapeutics	3
NURSE 7140	Advanced Health Assessment and Promotion	3.5
NURSE 8010	Family Dynamics and Intervention	3
NURSE 8210	Special Health Care Needs of Children	3.5
NURSE 8420	Newborn Through Adolescence Primary Care	3.5
NURSE 8430	Reproductive and Sexual Health Primary Care	3.5
NURSE 8540	Advanced Diagnostics and Reasoning I	3.5
NURSE 8680	Pediatric Mental Health Assessment and Treatment	3.5
NURSE 8980	Advanced Clinical Nursing Practicum	2-3

## MS in Nursing with Emphasis in Psychiatric Mental Health Nurse Practitioner

Students who pursue the Psychiatric Mental Health Nurse Practitioner MS(N) will be prepared to deliver evidence based advanced primary mental health care to individuals of all ages (e.g., children, adolescents,

adults) and their families in a variety of healthcare settings, including in rural and under-served populations. The student will engage in independent and interdependent decision-making, managing psychotropic medications, and delivering psychotherapeutic, and psycho education interventions. In addition, graduates will be prepared to manage clinical efforts in the primary care setting, provide visionary leadership, and implement evidence-based practice.

## Degree Requirements

The MS(N) Psychiatric Mental Health Nurse Practitioner curriculum provides core master's coursework in combination with Psychiatric mental Health Nurse Practitioner specialty courses. The specialty courses focus on care of the individual and the family, with a special emphasis on the rural and under-served, utilizing evidence practice guidelines.

The American Nurses Credentialing Center (ANCC) offers certification as a Psychiatric Mental Health Nurse Practitioner (across the lifespan). Students who have completed a master's degree in Nursing in the Psychiatric Mental Health Nurse Practitioner emphasis area are eligible to sit for the exam.

Students must complete the core course required of the MS in Nursing in addition to coursework for the declared emphasis area.

### Core Courses

NURSE 7110	Advanced Nursing Roles and Professional Communication	3
NURSE 7160	Scientific Foundations for Health Sciences	4
NURSE 8170	Public Health, Sociocultural Issues, and Health Policy	3
NURSE 8910	Translational Evidence-Based Nursing Practice	3
NURSE 8990	Practice Inquiry	1

### Emphasis Area Coursework

NURSE 7120	Advanced Physiology and Pathophysiology	3
NURSE 7130	Advanced Pharmacology and Pharmacotherapeutics	3
NURSE 7140	Advanced Health Assessment and Promotion	3.5
NURSE 8610	Diagnostics and Psychopharmacology for Mental Health Nurses	3.5
NURSE 8620	Brief Individual Psychotherapy for Mental Health Nurses	3.5
NURSE 8640	Group Therapy and Social Skills Training	3.5
NURSE 8660	Mental Health Nursing Interventions for Families	3.5
NURSE 8680	Pediatric Mental Health Assessment and Treatment	3.5
NURSE 8980	Advanced Clinical Nursing Practicum	2-3

## PhD in Nursing

### About the PhD Program

The doctor of philosophy in nursing (PhD) program prepares clinical scholars, educators, and researchers for leadership roles in a variety of academic, industry, and healthcare settings. Because the knowledge and skills needed to produce excellent health-related research is not discipline specific, the PhD program does not require a prior degree in nursing.

Indeed, we have had PhD students with academic preparation in health administration, health education, medical ethics, nursing, occupational therapy, physical therapy, public health and social work.

The MU Sinclair School of Nursing (MUSSON) offers a challenging and yet enriching PhD program with two options. The PhD curriculum, program requirements, and program outcomes are the same whether you choose the Online PhD option or the International Residential Nursing PhD option. Only the method of course delivery varies. Additional details can be found on the Sinclair School of Nursing PhD Program Options webpage (<http://nursing.missouri.edu/academic-programs/phd/program-options/>).

- Online PhD Program Option:** PhD coursework may be accessed online through the Online PhD program option by learning over the World Wide Web using the Canvas learning management system. This option also requires a 5 Day On Campus visit (held the first week of the summer semester on the Columbia campus) the first summer of enrollment and 4 Day On Campus Intensives every April until coursework is completed (see PhD On Campus Dates (<http://nursing.missouri.edu/academic-programs/phd/on-campus-dates/>)). Because the program is online, students are responsible for obtaining the required technology for successful participation in synchronous online courses (see Technology Requirements (<http://nursing.missouri.edu/for-students/technology-requirements/>)). Additionally, students are responsible for all the costs associated with travel and housing for the On Campus Intensives;
- International Residential PhD Option:** Through the International Residential PhD option, international students attend the MU campus hybrid classes in Columbia, Missouri. The International Residential PhD student attends the hybrid classes in person, while the Online student cohort participates virtually via videoconferencing software. International Residential PhD students may also enroll in traditional residential course offerings through the MU Sinclair School of Nursing and the rest of the MU campus. Students in the International Residential PhD option must enroll in 4 credits during their first summer and maintain full-time status by enrolling in 9 credits each fall and spring term thereafter. Of the 9 credits each term, at least 6 credits must be either traditional face-to-face or hybrid coursework in order to qualify for and retain the F-1 or J-1 student visa status. The remaining 3 credits each term may be taken 100% on-line.

## Degree Requirements

MU requires a minimum of 72 credit hours, including 15 hours of 8000-9000 level coursework exclusive of readings, research, problems and independent study experiences, beyond the bachelor's degree for the PhD. The student's doctoral committee may recommend that up to 30 hours of post-baccalaureate graduate credit from a regionally accredited university be transferred toward the total hours required for the doctoral degree. With program approval, up to 6 hours of coursework for which professional credit was received may be counted toward the 72 credit-hour requirement. It is the responsibility of the doctoral committee to determine whether it is appropriate to transfer credit; however, the Graduate School must make the final review of the transfer request to determine if the credit meets the minimum guidelines. Ultimately, the student's doctoral committee, in collaboration with the student, determines the student's plan of study and total credit hours necessary to adequately prepare the student to successfully complete their dissertation research. Typical post-baccalaureate student takes ~77 credits. Typical

post-master's student takes ~59. Typical post-clinical doctorate student takes ~48 credits. The PhD curriculum is divided into two categories:

- **Foundational Core** - Minimum of 26-38 credit hours (theory analysis and development, statistics and measurement, qualitative and quantitative methods courses)
- **Individualized Specialty Area** - Minimum of 27-39 credit hours of research focus seminars, interdisciplinary collateral coursework (coursework taken outside the School of Nursing that helps to support the dissertation research topic), faculty mentored research practicum experiences, specialty area applied sciences including education or leadership courses, and dissertation research.

The PhD program at the MU SSON can be completed in three to five years of full time study, depending on whether the student entered as a post-baccalaureate or a post-graduate degree student. International Residential PhD students are required to be enrolled in full-time study. Part-time study also is available for students in the Online option.

Once the plan of study is completed, you prepare for your doctoral comprehensive examination, develop your research proposal, and begin your dissertation research project. The doctoral dissertation and its defense are the program's culmination and demonstrate your ability to identify and pursue research that meets the highest of professional standards.

## Sample Plan of Study

Sample plans of study can be found on the Sinclair School of Nursing PhD Curriculum webpage (<http://nursing.missouri.edu/academic-programs/phd/curriculum/>).

## Qualifying Process

To be officially admitted to the PhD program, the student must pass a qualifying examination or process. Students admitted with a graduate degree have completed the qualifying process.

Students admitted with a bachelor's degree are admitted to the PhD program on a provisional basis. Following successful completion of a qualifying process, bachelor's prepared students will be granted admission to the PhD program. To fully qualify for the PhD program, BS-PhD students must earn at least a grade of B in the following:

- NURSE 7087 Leadership and Technology Institute
- NURSE 7010 Biostatistical Foundations for Health Researchers
- NURSE 7100 Theoretical Basis for Advanced Nursing
- NURSE 7150 Research Basis for Advanced Nursing
- Nine credits in nursing applied sciences

The student initiates the qualifying process by enrolling in three credits of NURSE 8900 Research Practicum in Nursing with a member of their BS-PhD program committee. The student is officially admitted to the PhD program following approval of the written report and oral presentation for NURSE 8900 by the BS-PhD Program Committee.

## Comprehensive Examination Process

Through the PhD Comprehensive Examination process, the student demonstrates his/her ability to address the theoretical, methodological and substantive issues of his/her field of study. The examination tests the breadth and depth of knowledge and the ability to integrate ideas across research focus areas. The student must be enrolled to take this examination and it may be administered only when MU is officially in session. The student is not allowed to sit for the PhD comprehensive

examination until the last semester of course work or when course work is substantially completed, all incomplete grades are satisfied, and the PhD Competencies are met.

The Comprehensive Exam, which is prepared by the student's PhD program committee, has a written component followed by an oral section. The written component of the examination is completed at home or another site of the student's selection during five consecutive days. The oral defense is a two-hour examination by the PhD program committee. The two sections of the examination must be completed within one month. The student is expected to complete the Comprehensive Examination within five (5) years of enrollment in the PhD program and it must be completed at least seven (7) months before the final defense of the doctoral dissertation. Additional details of the process can be found in the MU School of Nursing PhD Handbook (<http://nursing.missouri.edu/wp-content/uploads/2016/07/2017-18-PhD-Nursing-Handbook.pdf>).

## Dissertation Requirements

The culmination of the PhD degree is the completion of a written doctoral dissertation. The dissertation must:

- Be written on a subject approved by the candidate's doctoral dissertation committee
- Embody the results of original and significant investigation
- Be the candidate's own work.

Within the MU Sinclair School of Nursing, the PhD Dissertation process consists of:

- Development of a dissertation proposal
- Approval of the proposal by the doctoral dissertation committee
- Approval of the research project by the Health Sciences Institutional Review Board
- Ethical conduct of the research project
- Writing the doctoral dissertation
- Public defense of the doctoral dissertation
- Approval of the dissertation by the candidate's doctoral dissertation committee
- Submission of the written doctoral dissertation in an approved format.

Students have five (5) years from completion of the PhD Comprehensive Exam to complete the doctoral dissertation. Additional details of the process can be found in the MU Sinclair School of Nursing PhD Handbook (<http://nursing.missouri.edu/wp-content/uploads/2016/07/2017-18-PhD-Nursing-Handbook.pdf>).

## Admissions

Students interested in the PhD program are encouraged to apply for admission as early as possible. All admitted students are required to start the PhD program during the summer semester.

**Early Acceptance Deadline: January 1st** Recommended for applicants desiring to be full-time students who are planning to apply for a competitive fellowship(s) and international residential PhD option applicants who need time to obtain a visa and move to Columbia, MO prior to classes starting in early June.

**Regular Acceptance Deadline: March 1st**

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the Sinclair School of Nursing PhD

program (<http://nursing.missouri.edu/academic-programs/phd/apply/>) and the minimum requirements of the G (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>) graduate School. (<http://gradstudies.missouri.edu/admissions/eligibility-process/minimum-requirements.php>) Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

**NOTE:** Applicants who do not meet the minimum GPA requirements or do not have a cumulative GPA must submit acceptable scores on the Graduate Record Exam (GRE) and the exam must have been taken within the last 5 years.

#### Admission Contact Information

S246 School of Nursing  
Columbia, MO 65211  
573-8824-4705  
Email: [nursing@missouri.edu](mailto:nursing@missouri.edu)  
<http://nursing.missouri.edu>

## DNP in Nursing

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### About

The DNP program at Mizzou prepares leaders in the advanced nursing practice roles of Adult-Gerontology Clinical Nurse Specialist, (<http://nursing.missouri.edu/academic-programs/dnp/areas-of-study/>) Family Nurse Practitioner (<http://nursing.missouri.edu/academic-programs/dnp/areas-of-study/>), Pediatric Nurse Practitioner (<http://nursing.missouri.edu/academic-programs/dnp/areas-of-study/>), Psychiatric & Mental Health Nurse Practitioner (<http://nursing.missouri.edu/academic-programs/dnp/areas-of-study/>) and Leadership and Innovation in Health Care (<http://nursing.missouri.edu/academic-programs/dnp/areas-of-study/>). Our program strengths include a strong clinical focus and a well-developed trajectory for the development of clinical scholarship. Unique aspects of our program are a focus on rural and underserved populations and the opportunity for students to select electives in family dynamics, financial management, nursing education, or symptom management. Successful completion of the program prepares nurses for an advanced clinical practice in primary care, hospital and community settings as well as leadership roles in practice settings and clinical faculty positions.

Upon admittance to the program, the following must be completed by the student and documentation of these items must be submitted before registering for coursework:

- Current required immunizations
- Satisfactory criminal background check
- Satisfactory drug screen
- Current CPR certification
- Proof of undisciplined nursing licensure

### Degree Requirements

DNP Program Requirements (<http://nursing.missouri.edu/academic-programs/dnp/program-requirements/>) include completion of required coursework, clinical hours, and the DNP Scholarly Project. The DNP in nursing requires a minimum of 72 credits beyond the baccalaureate degree. Of the 72 hours, 36.5 credits must be completed at the University

of Missouri. In addition, a minimum of 1000 faculty/preceptor supervised academic clinical hours must be completed. Post-master's students may transfer in clinical hours completed in their previous master's degree pending approval of their academic advisor. Total number of clinical hours may vary depending upon the student's emphasis area, proof of national certification in an advanced practice role, and previous graduate clinical coursework completed.

Ultimately, the student, in collaboration with their academic advisor determines the student's plan of study, total credit hours, and clinical hours necessary to adequately prepare the student for the DNP degree.

DNP students are required to spend one week on campus the first summer of enrollment and during their last semester of enrollment. Specific On-campus competency days are also required during the course of the program. For specific dates click on On Campus dates (<http://nursing.missouri.edu/academic-programs/dnp/on-campus-dates/>). Further explanation of program requirements can be found on the DNP Program Requirements (<http://nursing.missouri.edu/academic-programs/dnp/program-requirements/>) web page.

#### DNP Curriculum

All students pursuing the DNP degree must complete a minimum of 72-74.5 credit hours of graduate coursework. Credit hours required vary depending upon the students' emphasis area. Up to 38 credit hours of previous graduate level credit hours from another institution may be accepted toward the total hours required for the DNP degree depending upon transcript review and applicability to the specific area of study. Students must maintain a minimum cumulative Grade Point Average (GPA) of 3.0 in order to graduate.

#### DNP Clinical Hours

All DNP students must complete a minimum of 1000 faculty/preceptor supervised academic clinical hours. Post-master's students may transfer in clinical hours completed in their previous master's degree pending approval of their academic advisor. Total number of clinical hours may vary depending upon the student's emphasis area, proof of national certification in an advanced practice role, and previous graduate clinical coursework completed.

#### DNP Scholarly Project

The DNP Residency project is a faculty-guided scholarly experience that provides evidence of the student's critical thinking and ability to apply research principles through identification of a significant practice problem, systematic appraisal of relevant scientific literature and outcome data; design of cost-effective, evidence-based, therapeutic interventions or programs; successful implementation of the selected interventions or program, and comprehensive evaluation of specific, measurable, and appropriate outcomes. The project will reflect the culmination of knowledge and skills developed during the DNP program. DNP students must complete a DNP Residency Project, write a scholarly paper or executive summary, present an electronic poster to peers, committee members, and stakeholders, and defend the project results with their DNP Project Committee.

### Sample Plan of Study

Sample plans of study can be found on the Sinclair School of Nursing DNP webpage (<http://nursing.missouri.edu/academic-programs/dnp/areas-of-study/>).

## Doctor of Nursing Practice Residency Project Requirements

The DNP Residency Project is an in-depth, evidence-based practice change project that will focus on a theoretically and clinically relevant problem impacting a rural or other underserved population or critical healthcare system need. Specifics of the DNP Residency Project can be found in the Sinclair School of Nursing DNP Student Handbook (<http://nursing.missouri.edu/for-students/handbooks/>).

### Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the Doctor of Nursing Practice program (<http://nursing.missouri.edu/academic-programs/dnp/apply/>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility, and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the Graduate School and the degree program to which you've applied.

**\*Due to higher education regulation changes, the University of Missouri is unable to accept applications for admission to online programs from students residing in several states. You may find more information at this link:** <http://online.missouri.edu/about/stateauthorization.aspx>.

**Application Deadlines:** Once application materials have been processed through the online application system and after a preliminary review of academic credentials and applications materials, an interview will be arranged. The interview process will take place within weeks of the completed application being received. Student interviews may take place in person or via electronic means for distance students. Applicants will receive notification of their acceptance decision within two weeks. Students applications received after April 1 will be considered for the following academic year.

#### Admission Contact Information

S246 School of Nursing  
Columbia, MO 65211  
573- 882-0200  
E-mail: [Nursing@missouri.edu](mailto:Nursing@missouri.edu)  
<http://nursing.missouri.edu>

## DNP in Nursing with Emphasis in Adult-Gerontology Clinical Nurse Specialist

Students who pursue the Clinical Nurse Specialist area of study will be prepared as expert clinicians in a specialized area of nursing practice (Adult-Gerontology). In addition to providing direct patient care, Clinical Nurse Specialists influence care outcomes by providing expert consultation for nursing staff and by implementing evidence based practice initiatives to support improvements in health care delivery systems.

## Degree Requirements

### Required Courses

NURSE 7087	Leadership and Technology Institute	1
NURSE 7010	Biostatistical Foundations for Health Researchers	3
NURSE 7100	Theoretical Basis for Advanced Nursing	3
NURSE 7120	Advanced Physiology and Pathophysiology	3
NURSE 7150	Research Basis for Advanced Nursing	3
NURSE 7130	Advanced Pharmacology and Pharmacotherapeutics	3
NURSE 7110	Advanced Nursing Roles and Professional Communication	3
NURSE 8300	Public Health and Sociocultural Issues	3
NURSE 7140	Advanced Health Assessment and Promotion	3.5
NURSE 8310	Health Disparities of Rural and Other Underserved Populations	3
NURSE 8100	Principles of Epidemiology	3
NURSE 8710	Clinical Management of Acute and Critical Care Problems	3.5-5
NURSE 8720	Symptom Management in Acute and Chronic Illness	3-5
NURSE 8910	Translational Evidence-Based Nursing Practice	3
NURSE 9080	DNP Residency Project (x 3)	1-3
NURSE 8540	Advanced Diagnostics and Reasoning I	3.5-5
NURSE 8940	Nursing and Health Policy	3
NURSE 9070	DNP Clinical Residency (x 2)	1-5
NURSE 8400	Adult and Geriatric Primary Care I	3.5-5
NURSE 8920	Quality, Safety, and Performance Outcomes	3
NURSE 8410	Adult and Geriatric Primary Care II	3.5-5
NURSE 8930	Health Program Design and Management	3
NURSE 9087	Leadership and Transformational Role Institute	2

### Electives - choose from the following:

NURSE 8010	Family Dynamics and Intervention	3
NURSE 8854	Teaching Strategies in Nursing	3
NURSE 8864	Curriculum Development in Nursing	3
NURSE 8820	Health Care Financial Management	4

For more information on Area of Study Information please see the Adult-Gerontology Clinical Nurse Specialist page (<http://nursing.missouri.edu/academic-programs/dnp/areas-of-study/>).

## Sample Plan of Study

First Year					
Fall	CR	Spring	CR	Summer	CR
NURSE 7120	3	NURSE 7140	3.5	NURSE 7087 (one-week, on-campus seminar)	1
NURSE 7110	3	NURSE 7150	3	NURSE 7010	3
NURSE 7100	3	NURSE 7130	3		
			9	9.5	4



Second Year					
Fall	CR	Spring	CR		
NURSE 8100		3 NURSE 8310		3	
NURSE 8300		3 NURSE 8720 (90 clinical hours)*		3.5	
NURSE 8710 (90 clinical hours)		3.5 NURSE 8910		3	
		9.5			9.5

Third Year					
Fall	CR	Spring	CR	Summer	CR
NURSE 8400 (90 clinical hours)*		3.5 NURSE 8410 (90 clinical hours)*		3.5 NURSE 9080 (section 1, clinical hours)	1
NURSE 8920 (60 clinical hours)		3 NURSE 8930		3	
Elective#		3 NURSE 8540 (90 clinical hours)*		3.5	
		9.5			10
					1

Fourth Year					
Fall	CR	Spring	CR	Summer	CR
NURSE 8940		3 NURSE 9070 (150-300 clinical hours)*		2.5-5 NURSE 9080 (section 2, 60 clinical hours)	1
NURSE 9070 (180 clinical hours)*		3 NURSE 9080 (section 3, 60 clinical hours)		1	
		NURSE 9087		2	
		6			5.5-8
					1

Total Credits: 74.5-77

**Total Clinical Hours: 1110-1260\*\*\***

- \* Preceptor required for clinical courses.
- # Nursing Course Electives from which to choose:  
 NURSE 8010 Family Dynamics and Intervention  
 NURSE 8720 Symptom Management in Acute and Chronic Illness  
 NURSE 8854 Teaching Strategies in Nursing  
 NURSE 8864 Curriculum Development in Nursing  
 NURSE 8820 Health Care Financial Management

Additional interdisciplinary online elective choices can be found in the areas of geriatric care management, gerontology, grantsmanship, health ethics, health informatics, multicultural education, online education, public health, and youth development (see <http://online.missouri.edu/degreeprograms/degrees.aspx>).

\*\*\* Reflects minimum required DNP clinical and project hours. Additional clinical hours may be required based on specialty and complexity of DNP clinical residency project.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the DNP in Nursing (<http://nursing.missouri.edu/academic-programs/dnp/apply/>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program

to which you've applied before official admission to the University of Missouri.

## DNP in Nursing with Emphasis in Family Nurse Practitioner

NURSE 7010	Biostatistical Foundations for Health Researchers	3
NURSE 7087	Leadership and Technology Institute	1
NURSE 7100	Theoretical Basis for Advanced Nursing	3
NURSE 7110	Advanced Nursing Roles and Professional Communication	3
NURSE 7120	Advanced Physiology and Pathophysiology	3
NURSE 7130	Advanced Pharmacology and Pharmacotherapeutics	3
NURSE 7140	Advanced Health Assessment and Promotion	3.5
NURSE 7150	Research Basis for Advanced Nursing	3
NURSE 8100	Principles of Epidemiology	3
NURSE 8300	Public Health and Sociocultural Issues	3
NURSE 8400	Adult and Geriatric Primary Care I	3.5-5
NURSE 8310	Health Disparities of Rural and Other Underserved Populations	3
NURSE 8410	Adult and Geriatric Primary Care II	3.5-5
NURSE 8910	Translational Evidence-Based Nursing Practice	3
NURSE 9080	DNP Residency Project (x 3)	1-3
NURSE 8010	Family Dynamics and Intervention	3
NURSE 8420	Newborn Through Adolescence Primary Care	3.5-5
NURSE 8920	Quality, Safety, and Performance Outcomes	3
NURSE 8430	Reproductive and Sexual Health Primary Care	3.5-5
NURSE 8540	Advanced Diagnostics and Reasoning I	3.5-5
NURSE 8930	Health Program Design and Management	3
NURSE 8940	Nursing and Health Policy	3
NURSE 9070	DNP Clinical Residency (x 2)	1-5
NURSE 9087	Leadership and Transformational Role Institute	2
<b>Electives - choose from the following:</b>		
NURSE 8720	Symptom Management in Acute and Chronic Illness	3-5
NURSE 8854	Teaching Strategies in Nursing	3
NURSE 8864	Curriculum Development in Nursing	3
NURSE 8820	Health Care Financial Management	4

For more information on Area of Study Information please see the Family Nurse Practitioner page (<http://nursing.missouri.edu/academic-programs/dnp/areas-of-study/>).

## Sample Plan of Study

First Year					
Fall	CR	Spring	CR	Summer	CR
NURSE 7100		3 NURSE 7150		3 NURSE 7087 (one-week, on-campus seminar)	1
NURSE 7110		3 NURSE 7130		3 NURSE 7010	3
NURSE 7120		3 NURSE 7140 (90 Clinical Hours)*		3.5	
			9	9.5	4

Second Year			
Fall	CR	Spring	CR
NURSE 8400 (90 Clinical hours)*	3.5	NURSE 8410 (90 Clinical hours)*	3.5
NURSE 8100		3 NURSE 8910	3
NURSE 8300		3 NURSE 8310	3
		9.5	9.5

Third Year					
Fall	CR	Spring	CR	Summer	CR
NURSE 8920 (60 Clinical hours)*		3 NURSE 8430 (90 Clinical hours)*		3.5 NURSE 9080 (section 1, 60 clinical hours)	1
NURSE 8420 (90 Clinical hours)*	3.5	NURSE 8930		3	
NURSE 8010		3 NURSE 8540 (90 Clinical hours)*		3.5	
			9.5	10	1

Fourth Year					
Fall	CR	Spring	CR	Summer	CR
NURSE 8940		3 NURSE 9070 (150-300 clinical hours)*		2.5-5 NURSE 9080 (section 2, 60 clinical hours)	1
NURSE 9070 (180 Clinical hours)		3 NURSE 9080 (section 3, 60 Clinical hours)		1	
Elective (choose from below) <sup>#</sup>		3 NURSE 9087		2	
			9	5.5-8	1

Total Credits: 77.5-80

### 1110-1260 Clinical Hours \*\*\*

\* Preceptor required for clinical courses.

# Nursing Course Electives from which to choose:  
 NURSE 8010 Family Dynamics and Intervention  
 NURSE 8720 Symptom Management in Acute and Chronic Illness  
 NURSE 8854 Teaching Strategies in Nursing  
 NURSE 8864 Curriculum Development in Nursing  
 NURSE 8820 Health Care Financial Management  
 Additional interdisciplinary online elective choices can be found in the areas of geriatric care management, gerontology, grantsmanship, health ethics, health informatics, multicultural education, online education, public health, and youth development (see <http://online.missouri.edu/degreeprograms/degrees.aspx> (<http://online.missouri.edu/degreeprograms/>)).

\*\*\* Reflects minimum required DNP clinical and project hours. Additional clinical hours may be required based on specialty and complexity of DNP clinical residency project.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the DNP in Nursing (<http://nursing.missouri.edu/academic-programs/dnp/apply/>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

## DNP in Nursing with Emphasis in Nurse Leadership and Innovations in Health Care

Individuals with a master's degree in nursing or related field may apply to this program. Students must complete a total of minimum of 38.5-47 credit hours to earn the degree. Credit hours vary depending upon review of transcripts and previously completed clinical hours.

NURSE 7010	Biostatistical Foundations for Health Researchers	3
NURSE 7087	Leadership and Technology Institute	1
NURSE 8100	Principles of Epidemiology	3
NURSE 8830	Informatics Applications and Innovations in Health Care Systems	3
NURSE 8840	Nursing Leadership, Innovation, and Entrepreneurship	3
NURSE 8910	Translational Evidence-Based Nursing Practice	3
NURSE 9080	DNP Residency Project (x 3)	1-3
NURSE 8820	Health Care Financial Management	4
NURSE 8920	Quality, Safety, and Performance Outcomes	3
NURSE 8860	Organizations & Human Resource Management in Nursing	3
NURSE 8930	Health Program Design and Management	3
NURSE 9070	DNP Clinical Residency (x 3)	1-5
NURSE 8940	Nursing and Health Policy	3
NURSE 9087	Leadership and Transformational Role Institute	2

For more information on Area of Study Information please see the Nurse Leadership and Innovations in Health Care page (<http://nursing.missouri.edu/academic-programs/dnp/areas-of-study/>).

## Sample Plan of Study

First Year					
Fall	CR	Spring	CR	Summer	CR
NURSE 8100		3 NURSE 8910		3 NURSE 7010	3
NURSE 8830		3 NURSE 8840		3 NURSE 7087	1
			6	6	4

Second Year					
Fall	CR	Spring	CR	Summer	CR
NURSE 8820	4	NURSE 8930	3	NURSE 9080	1-3
NURSE 8920 (60 clinical hours)	3	NURSE 8860	3		
		7	6		1-3

Third Year					
Fall	CR	Spring	CR	Summer	CR
NURSE 8940	3	NURSE 9070 (150-300 clinical hours)	2.5-5	NURSE 9070	1-5
NURSE 9070 (120-300 clinical hours)	2-5	NURSE 9080 (section 3, 60 clinical hours)	1	NURSE 9080	1-3
		NURSE 9087 (one-week, on-campus seminar)	2		
		5-8	5.5-8		2-8

Total Credits: 42.5-56

**\*\* 510-1020 clinical hours**

\*\* more clinical hours may be needed to meet the 1000 required hours depending upon review of transcripts

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the DNP in Nursing (<http://nursing.missouri.edu/academic-programs/dnp/apply/>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

## DNP in Nursing with Emphasis in Pediatric Clinical Nurse Specialist

**Effective FALL 2018 we are no longer admitting to this Area of Study.**

Students who pursue the Pediatric Nurse Practitioner area of study will be prepared as primary pediatric nurse clinicians providing comprehensive healthcare from birth through young adulthood by assessment, diagnosis, management, and evaluation of care. Special emphasis is placed on the knowledge, skills, and expertise to emphasize health promotion, injury and disease prevention, and management in coping with chronic illness among children.

## Degree Requirements

NURSE 7010	Biostatistical Foundations for Health Researchers	3
NURSE 7087	Leadership and Technology Institute	1
NURSE 7100	Theoretical Basis for Advanced Nursing	3
NURSE 7110	Advanced Nursing Roles and Professional Communication	3

NURSE 7120	Advanced Physiology and Pathophysiology	3
NURSE 7130	Advanced Pharmacology and Pharmacotherapeutics	3
NURSE 7140	Advanced Health Assessment and Promotion	3.5
NURSE 7150	Research Basis for Advanced Nursing	3
NURSE 8100	Principles of Epidemiology	3
NURSE 8210	Special Health Care Needs of Children	3.5-5
NURSE 8300	Public Health and Sociocultural Issues	3
NURSE 8310	Health Disparities of Rural and Other Underserved Populations	3
NURSE 8420	Newborn Through Adolescence Primary Care	3.5-5
NURSE 8540	Advanced Diagnostics and Reasoning I	3.5-5
NURSE 8710	Clinical Management of Acute and Critical Care Problems	3.5-5
NURSE 8720	Symptom Management in Acute and Chronic Illness	3-5
NURSE 8910	Translational Evidence-Based Nursing Practice	3
NURSE 8920	Quality, Safety, and Performance Outcomes	3
NURSE 8930	Health Program Design and Management	3
NURSE 8940	Nursing and Health Policy	3
NURSE 9070	DNP Clinical Residency	1-5
NURSE 9080	DNP Residency Project	1-3
NURSE 9087	Leadership and Transformational Role Institute	2

## Sample Plan of Study

There are multiple plans of study for this emphasis area. Below is the Plan of Study for the post-baccalaureate, five year plan. For more Sample Plans of Study, please visit our website (<http://nursing.missouri.edu/academic-programs/dnp/areas-of-study/>).

First Year					
Fall	CR	Spring	CR	Summer	CR
NURSE 7100	3	NURSE 7150	3	NURSE 7087 (one-week, on-campus)*	1
NURSE 7120	3	NURSE 7130	3	NURSE 7010	3
		6	6		4
Second Year					
Fall	CR	Spring	CR	Summer	CR
NURSE 8300	3	NURSE 8310	3	NURSE 7110	3
		NURSE 7140	3.5		
		3	6.5		3
Third Year					
Fall	CR	Spring	CR	Summer	CR
NURSE 8100	3	NURSE 8720	3-5	Elective (Choose from list below)	
NURSE 8710	3.5-5	NURSE 8910	3		
		6.5-8	6-8		0

Fourth Year					
Fall	CR	Spring	CR	Summer	CR
NURSE 8420	3.5-5	NURSE 8210	3.5-5	NURSE 9080 (section 2, 60 clinical hours)	1
NURSE 8920	3	NURSE 8930	3		
	6.5-8		6.5-8		1
Fifth Year					
Fall	CR	Spring	CR	Summer	CR
NURSE 8940	3	NURSE 9080	1-3	NURSE 9080	1-3
NURSE 9070	1-5	NURSE 9087 NURSE 9070	2	NURSE 8540 1-5	3.5-5
	4-8		4-10		4.5-8

Total Credits: 67.5-87.5

**1020+ Clinical Hours \*\*\***

- \* Preceptor required for clinical courses.
- # Nursing courses electives from which to choose:  
 NURSE 8010 Family Dynamics and Intervention  
 NURSE 8720 Symptom Management in Acute and Chronic Illness  
 NURSE 8854 Teaching Strategies in Nursing  
 NURSE 8864 Curriculum Development in Nursing  
 NURSE 8820 Health Care Financial Management  
 Additional interdisciplinary online elective choices can be found in the areas of geriatric care management, gerontology, grantsmanship, health ethics, health informatics, multicultural education, online education, public health, and youth development (see <http://online.missouri.edu/degreeprograms/degrees.aspx> (<http://online.missouri.edu/degreeprograms/>)).
- \*\*\* Reflects the minimum required DNP clinical and project hours. Additional clinical hours may be required based on specialty and complexity of DNP residency project.

## Admissions

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the DNP in Nursing (<http://nursing.missouri.edu/academic-programs/dnp/apply/>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

## DNP in Nursing with Emphasis in Pediatric Nurse Practitioner-Primary Care

Students who pursue the Pediatric Nurse Practitioner-Primary Care area of study will be prepared as primary pediatric nurse clinicians providing comprehensive healthcare from birth through young adulthood by assessment, diagnosis, management, and evaluation of care. Special emphasis is placed on the knowledge, skills, and expertise to emphasize

health promotion, injury and disease prevention, and management in coping with chronic illness among children.

## Degree Requirements

NURSE 7010	Biostatistical Foundations for Health Researchers	3
NURSE 7087	Leadership and Technology Institute	1
NURSE 7110	Advanced Nursing Roles and Professional Communication	3
NURSE 7100	Theoretical Basis for Advanced Nursing	3
NURSE 7120	Advanced Physiology and Pathophysiology	3
NURSE 7150	Research Basis for Advanced Nursing	3
NURSE 8310	Health Disparities of Rural and Other Underserved Populations	3
NURSE 7130	Advanced Pharmacology and Pharmacotherapeutics	3
NURSE 7140	Advanced Health Assessment and Promotion	3.5
NURSE 8300	Public Health and Sociocultural Issues	3
NURSE 8100	Principles of Epidemiology	3
NURSE 8680	Pediatric Mental Health Assessment and Treatment	3.5-4
NURSE 8210	Special Health Care Needs of Children	3.5-5
NURSE 8910	Translational Evidence-Based Nursing Practice	3
NURSE 8430	Reproductive and Sexual Health Primary Care	3.5-5
NURSE 9080	DNP Residency Project (x 3)	1-3
NURSE 8420	Newborn Through Adolescence Primary Care	3.5-5
NURSE 8920	Quality, Safety, and Performance Outcomes	3
NURSE 8010	Family Dynamics and Intervention	3
NURSE 8540	Advanced Diagnostics and Reasoning I	3.5-5
NURSE 8720	Symptom Management in Acute and Chronic Illness	3-5
NURSE 8930	Health Program Design and Management	3
NURSE 9070	DNP Clinical Residency (x 2)	1-5
NURSE 8940	Nursing and Health Policy	3
NURSE 9087	Leadership and Transformational Role Institute	2

**1110-1260 Clinical Hours**

For more information on Area of Study Information please see the Pediatric Nurse Practitioner-Primary Care page (<http://nursing.missouri.edu/academic-programs/dnp/areas-of-study/>).

## Sample Plan of Study

There are multiple plans of study for this emphasis area. Below is the Plan of Study for the post-baccalaureate, four year plan. For more Sample Plans of Study, please visit our website (<http://nursing.missouri.edu/academic-programs/dnp/areas-of-study/>).

First Year					
Fall	CR	Spring	CR	Summer	CR
NURSE 7120	3	NURSE 7150	3	NURSE 7087	1
NURSE 7100	3	NURSE 7130	3	NURSE 7010	3

	NURSE 8310	3 NURSE 7110	3
	6	9	7
<b>Second Year</b>			
<b>Fall</b>	<b>CR</b>	<b>Spring</b>	<b>CR Summer CR</b>
NURSE 8300	3	NURSE 8210	3.5-5 NURSE 7140 3.5
NURSE 8100	3	NURSE 8910	3
NURSE 8680	3.5-4	NURSE 8430	3.5-5
	9.5-10	10-13	3.5
<b>Third Year</b>			
<b>Fall</b>	<b>CR</b>	<b>Spring</b>	<b>CR Summer CR</b>
NURSE 8420	3.5-5	NURSE 8720	3-5 NURSE 9080 1-3
NURSE 8920	3	NURSE 8540	3.5-5
NURSE 8010	3	NURSE 8930	3
	9.5-11	9.5-13	1-3
<b>Fourth Year</b>			
<b>Fall</b>	<b>CR</b>	<b>Spring</b>	<b>CR Summer CR</b>
NURSE 8940	3	NURSE 9080	1-3 NURSE 9080 1
			(section 2, 60 clinical hours)
NURSE 9070	1-5	NURSE 9087	2 NURSE 9070 1-5
	4-8	3-5	2-6

Total Credits: 74-94.5

**1110-1260 Clinical Hours\*\*\***

- \* Preceptor required for clinical courses.
- # Nursing course electives from which to choose:  
 NURSE 8010 Family Dynamics and Intervention  
 NURSE 8720 Symptom Management in Acute and Chronic Illness  
 NURSE 8854 Teaching Strategies in Nursing  
 NURSE 8864 Curriculum Development in Nursing  
 NURSE 8820 Health Care Financial Management  
 Additional interdisciplinary online elective choices can be found in the areas of geriatric care management, gerontology, grantsmanship, health ethics, health informatics, multicultural education, online education, public health, and youth development (see <http://online.missouri.edu/degreeprograms/degrees.aspx> (<http://online.missouri.edu/degreeprograms/>)).
- \*\*\* Reflects minimum required DNP clinical and project hours. Additional clinical hours may be required based on specialty, annual portfolio evaluation, and complexity of DNP clinical residency project.

**Admissions**

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the DNP in Nursing (<https://gradstudies.missouri.edu/degreecategory/nursing/>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

**DNP in Nursing with Emphasis in Psychiatric-Mental Health Nurse Practitioner (Across the Lifespan)**

Students who pursue the Psychiatric-Mental Health Nurse Practitioner (Across the Lifespan) area of study will deliver evidence based advanced primary mental health care to individuals of all ages including children, adolescents and their families in a variety of healthcare settings. FPMHNPs engage in independent and interdependent decision making, manage psychotropic medications, and deliver psychotherapeutic and psychoeducational interventions.

**Degree Requirements**

NURSE 7010	Biostatistical Foundations for Health Researchers	3
or STAT 7020	Statistical Methods in the Health Sciences	
NURSE 7087	Leadership and Technology Institute	1
NURSE 7100	Theoretical Basis for Advanced Nursing	3
NURSE 7110	Advanced Nursing Roles and Professional Communication	3
NURSE 7120	Advanced Physiology and Pathophysiology	3
NURSE 7130	Advanced Pharmacology and Pharmacotherapeutics	3
NURSE 7140	Advanced Health Assessment and Promotion	3.5
NURSE 7150	Research Basis for Advanced Nursing	3
NURSE 8100	Principles of Epidemiology	3
NURSE 8300	Public Health and Sociocultural Issues	3
NURSE 8610	Diagnostics and Psychopharmacology for Mental Health Nurses	3.5-4
NURSE 8640	Group Therapy and Social Skills Training	3.5-4
NURSE 8910	Translational Evidence-Based Nursing Practice	3
NURSE 9080	DNP Residency Project (x 3)	1-3
NURSE 8620	Brief Individual Psychotherapy for Mental Health Nurses	3.5-4
NURSE 8680	Pediatric Mental Health Assessment and Treatment	3.5-4
NURSE 8920	Quality, Safety, and Performance Outcomes	3
NURSE 8660	Mental Health Nursing Interventions for Families	3.5-4
NURSE 8930	Health Program Design and Management	3
NURSE 8940	Nursing and Health Policy	3
NURSE 9070	DNP Clinical Residency (x 2)	1-5
NURSE 9087	Leadership and Transformational Role Institute	2
<b>Electives - choose from the following:</b>		
NURSE 8010	Family Dynamics and Intervention	3
NURSE 8720	Symptom Management in Acute and Chronic Illness	3-5
NURSE 8854	Teaching Strategies in Nursing	3
NURSE 8864	Curriculum Development in Nursing	3
NURSE 8820	Health Care Financial Management	4

**Total Clinical Hours: 1110-1260**

For more information on Area of Study Information please see the Psychiatric-Mental Health Nurse Practitioner (Across the Lifespan) page (<http://nursing.missouri.edu/academic-programs/dnp/areas-of-study/>).

**Sample Plan of Study**

There are multiple plans of study for this emphasis area. Below a Sample Plan of Study for the post-baccalaureate, four year plan. For more Plans of Study, please visit our website (<http://nursing.missouri.edu/academic-programs/dnp/areas-of-study/>).

First Year					
Fall	CR	Spring	CR	Summer	CR
NURSE 7120	3	NURSE 7150	3	NURSE 7087 (one-week, on-campus seminar)	1
NURSE 7110	3	NURSE 7130	3	NURSE 7010	3
NURSE 7100	3	NURSE 7140 (90 clinical hours)	3.5		
		9	9.5		4
Second Year					
Fall	CR	Spring	CR	Summer	CR
NURSE 8300	3	NURSE 8640 (90 clinical hours)	3.5		
NURSE 8610 (90 clinical hours)	3.5	NURSE 8910	3		
NURSE 8100	3	NURSE 8310	3		
		9.5	9.5		
Third Year					
Fall	CR	Spring	CR	Summer	CR
NURSE 8680 (90 clinical hours)	3.5	NURSE 8660 (90 clinical hours)	3.5	NURSE 8620 (90 clinical hours)	3.5
NURSE 8920 (clinical hours)	3	NURSE 8930	3	NURSE 9080 (section 1, 60 clinical hours)	1
Electives <sup>#</sup>	3	Electives <sup>#</sup>	3		
		9.5	9.5		4.5
Fourth Year					
Fall	CR	Spring	CR	Summer	CR
NURSE 8940	3	NURSE 9070 (150-300 clinical hours)	2.5-5		
NURSE 9070 (180 clinical hours)	3	NURSE 9080 (section 3, 60 clinical hours)	1		
NURSE 9080 (section 2, 60 clinical hours)	1	NURSE 9087	2		
		7	5.5-8		

Total Credits: 77.5-80

**Total Clinical Hours: 1110-1260<sup>\*\*\*</sup>**

- \* Preceptor required for clinical courses.
- # Nursing course electives from which to choose:  
 NURSE 8010 Family Dynamics and Intervention  
 NURSE 8720 Symptom Management in Acute and Chronic Illness  
 NURSE 8854 Teaching Strategies in Nursing  
 NURSE 8864 Curriculum Development in Nursing  
 NURSE 8820 Health Care Financial Management  
 Additional interdisciplinary online elective choices can be found in the areas of geriatric care management, gerontology, grantsmanship, health ethics, health informatics, multicultural education, online education, public health, and youth development (see <http://online.missouri.edu/degreeprograms/degrees.aspx>).
- \*\*\* Reflects minimum required DNP clinical and project hours. Additional clinical hours may be required based on specialty and complexity of DNP clinical residency project.

**Admissions**

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the DNP in Nursing (<http://nursing.missouri.edu/academic-programs/dnp/areas-of-study/>) and the minimum requirements of the Graduate School (<http://gradschool.missouri.edu/admissions/eligibility-process/minimum-requirements.php>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Your application materials will be reviewed by both the Graduate School and the degree program to which you've applied before official admission to the University of Missouri.

**Additional Minors and Certificates - Nursing**

**Graduate Certificates**

- Certificate in Adult Gerontology Clinical Nurse Specialist (p. 749)
- Certificate in Family Nurse Practitioner (p. 750)
- Certificate in Participatory Health Research (p. 750)
- Certificate in Pediatric Clinical Nurse Specialist (p. 750)
- Certificate in Psychiatric Mental Health Nurse Practitioner (p. 751)

**Graduate Minors**

- Minor in Health System Innovations (p. 751)
- Minor in Nursing Education (p. 751)

**Graduate Certificate in Adult Gerontology Clinical Nurse Specialist**

The Graduate Certificate in Adult Gerontology Clinical Nurse Specialist will prepare students as expert clinicians to provide direct patient care from wellness through acute care with a focus on complex and vulnerable adult and older adult populations. The students will be prepared to influence care outcomes by acting as a resource and providing expert consultation for nursing staff and other health professionals by implementing evidence based practice initiatives to support improvements in health care delivery systems.

## Requirements

This is an online program for both degree seeking and stand alone for those students with previous APRN certification.

Total credit hours for completion: 21.5

NURSE 8400	Adult and Geriatric Primary Care I	3.5
NURSE 8410	Adult and Geriatric Primary Care II	3.5
NURSE 8540	Advanced Diagnostics and Reasoning I	3.5
NURSE 8710	Clinical Management of Acute and Critical Care Problems	3.5
NURSE 8720	Symptom Management in Acute and Chronic Illness	3.5
NURSE 8920	Quality, Safety, and Performance Outcomes	3
NURSE 8980	Advanced Clinical Nursing Practicum Enroll in 1 credit hour	2-7

## Graduate Certificate in Family Nurse Practitioner

The Graduate Certificate in Family Nurse Practitioner will prepare students to deliver evidence-based comprehensive primary healthcare to individuals of all ages, from birth through older adulthood, including the diagnose and treatment of common acute episodic health problems and the management of chronic diseases. The student will utilize current research to provide health education to individuals and families and demonstrate expertise in health promotion and disease prevention. The student will be prepared to work independently and collaboratively to integrate advanced knowledge in the delivery of care to all populations including rural and other under served populations.

### Requirements

This is an online program for both degree seeking and stand alone for those students with previous APRN certification.

Total credit hours for completion: 18.5

NURSE 8400	Adult and Geriatric Primary Care I	3.5
NURSE 8410	Adult and Geriatric Primary Care II	3.5
NURSE 8420	Newborn Through Adolescence Primary Care	3.5
NURSE 8430	Reproductive and Sexual Health Primary Care	3.5
NURSE 8540	Advanced Diagnostics and Reasoning I	3.5
NURSE 8980	Advanced Clinical Nursing Practicum Enroll in 1 credit hour	2-7

## Graduate Certificate in Participatory Health Research

The Graduate Certificate in Participatory Health Research confirms the completion of graduate level training in the rationale, theoretical underpinnings, methods, and applications of community based participatory health research (CBPR) and patient centered outcomes research (PCOR). Community based participatory approaches are innovative methods that intersect with patient centered outcomes. When used together, CBPR and PCOR, there is significant potential for patient empowerment, enhancement of patient care, and improved population

health outcomes. A collaborative effort between the Sinclair School of Nursing, Department of Family and Community Medicine, School of Social Work, and the Masters in Public Health program, individuals completing the Graduate Certificate in Participatory Health Research will gain highly valued skills necessary to conduct clinical research in partnership with a community. Participatory Health Research methods are ideal for addressing patient-centered questions related to informed choices, health outcomes, and quality of life. This graduate certificate is open to all health-related professions. These innovative types of research skills traditionally have not been included in health-related graduate program curricula.

### Requirements

Requirements for the Graduate Certificate in Participatory Health Research include a graduate level statistics course, three didactic courses, and one research practicum experience.

**Courses for this program are online: no campus visits are required.**

#### Required Coursework:

NURSE 8425	Participatory Approaches for Health and Health Systems	3
or F_C_MD 8425	Participatory Approaches for Health and Health Systems	
NURSE 9080	DNP Residency Project	3
or NURSE 9710	Advanced Research Practicum	
or F_C_MD 8450	Research in Community Health	
Graduate Level Statistics (one course)		3
ESC_PS 7170	Introduction to Applied Statistics	
STAT 7020	Statistical Methods in the Health Sciences	
NURSE 7010	Biostatistical Foundations for Health Researchers	
Graduate Level Epidemiology (one course)		3
NURSE 8100	Principles of Epidemiology	
F_C_MD 8420	Principles of Epidemiology	
Elective (one course)		3
NURSE 9450	Doctoral Seminar: Social Determinants of Health	
NURSE 9460	Theories and Interventions in Health Behavior Science	
F_C_MD 8424	Comparative Effectiveness Research	
P_HLTH 8953	Evaluating Global Public Health Programs	
P_HLTH 8120	Applied Epidemiology in Community Assessment	
Total Credits		15

### Contact:

For more information about this graduate certificate, contact the Sinclair School of Nursing by phone at 573-882-0200 or by e-mail at nursing@missouri.edu.

## Graduate Certificate in Pediatric Clinical Nurse Specialist

The Graduate Certificate in Pediatric Clinical Nurse Specialist will prepare students as expert clinicians to provide direct patient care from wellness through acute care with a focus on complex and vulnerable pediatric

populations. Students will also be prepared to influence care outcomes by acting as a resource and providing expert consultation for nursing staff and other health professionals by providing systems leadership to implement evidence-based practice initiatives, collaboration, research, coaching, and advocacy to support improvements in health care delivery systems and patient outcomes.

## Requirements

This is an online program for both degree seeking and stand alone for those students with previous APRN certification.

Total credit hours for completion: 21.5

NURSE 8420	Newborn Through Adolescence Primary Care	3.5
NURSE 8210	Special Health Care Needs of Children	3.5
NURSE 8540	Advanced Diagnostics and Reasoning I	3.5
NURSE 8710	Clinical Management of Acute and Critical Care Problems	3.5
NURSE 8720	Symptom Management in Acute and Chronic Illness	3.5
NURSE 8920	Quality, Safety, and Performance Outcomes	3
NURSE 8980	Advanced Clinical Nursing Practicum Enroll in 1 credit hour	2-7

## Graduate Certificate in Psychiatric Mental Health Nurse Practitioner

The Graduate Certificate in Psychiatric Mental Health Nurse Practitioner will prepare students to be able to deliver evidence based advanced primary mental health care to individuals of all ages and their families in a variety of healthcare settings, including in rural and under served populations. The student will engage in independent and interdependent decision-making, managing psychotropic medications, and delivering psycho-therapeutic, and psycho-education interventions.

## Requirements

This certificate is an online program, for both degree seeking and as a stand alone program.

Total credit hours for completion: 18.5

NURSE 8610	Diagnostics and Psychopharmacology for Mental Health Nurses <small>Enroll in 3.5 credit hours</small>	3.5-4
NURSE 8620	Brief Individual Psychotherapy for Mental Health Nurses	3.5
NURSE 8640	Group Therapy and Social Skills Training	3.5
NURSE 8660	Mental Health Nursing Interventions for Families	3.5
NURSE 8680	Pediatric Mental Health Assessment and Treatment	3.5
NURSE 8980	Advanced Clinical Nursing Practicum Enroll in 1 credit hour	2-7

## Graduate Minor in Health System Innovations

The minor is open to graduate students in the Sinclair School of Nursing as well as all students with graduate status who are interested in health care leadership. This minor is designed for those who have a desire to understand growing innovative trends, who want to learn how to integrate innovation into health system organizations, and who want to determine which innovative practices are financially viable to support health care institutions.

## Requirements

Students with graduate standing may select 9-12 credit hours from the designated courses listed below to be awarded the graduate minor in Health System Innovation.

- N8820 Healthcare Financial Management (4 credits)
- N8830 Informatics, Application and Innovation in Health Care Systems (3 credits)
- N8840 Nursing Leadership, Innovation, and Entrepreneurship (3 credits)
- N8860 Organizations & Human Resource Management in Nursing (3 credits)

## Graduate Minor in Nursing Education

The Graduate Minor in Nursing Education is open to graduate students in the Sinclair School of Nursing as well as nurses interested in teaching in a school of nursing who are graduate students in other departments on campus (e.g. Health Education, Public Health, Health Management and Informatics, Human Development and Family Studies, etc.).

Graduate nursing students who already have a MS in Nursing Education or a Graduate Certificate in Nursing Education will not be eligible for a graduate minor in nursing education as their prior graduate coursework is substantively identical to the required courses.

## Requirements

The graduate minor in nursing education consists of a minimum of 10 graduate credit hours of nursing education coursework.

- NURSE 8854 Teaching Strategies in Nursing (3 credits)
- NURSE 8864 Curriculum Development in Nursing (3 credits)

After completion of the two core courses, students will complete a faculty supervised 4 credit teaching nursing practicum. Students may select from two practicum courses which best meet their learning needs and professional goals:

- NURSE 8950 Teaching Nursing Practicum (4 credits) or NURSE 8954 Distance-Mediated Teaching Nursing Practicum (4 credits).

These aforementioned courses also can be supplemented by problems courses.

## For additional information, contact:

Deidre D. Wipke-Tevis PhD, RN  
MU Sinclair School of Nursing



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email: [wipketevisd@missouri.edu](mailto:wipketevisd@missouri.edu)  
phone: 573-884-8441

## College of Veterinary Medicine

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The college was established in 1946.

For more information about the College of Veterinary Medicine, call (573) 882-3768. <http://cvm.missouri.edu> (<http://cvm.missouri.edu>)

### Undergraduate

In addition to the four-year professional curriculum leading to the Doctor of Veterinary Medicine (DVM) degree, the college offers a variety of undergraduate (BIOMED) courses. Courses serve as electives for other degree programs, a component to the online Health Science and Bachelor of General Studies degrees, and as partial requirements in the MU Pre-veterinary Medicine Scholars program. BIOMED courses are also recommended electives in meeting the requirements to apply for a DVM program.

### Graduate

The College of Veterinary Medicine offers several graduate level degrees within the Department of Biomedical Sciences, Veterinary Medicine and Surgery, and Veterinary Pathobiology.

## Microbiology

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Brenda Beerntsen, Interim Chair  
Department of Veterinary Pathobiology  
College of Veterinary Medicine  
201 Connaway Hall  
Phone: (573) 884-2444  
Fax: (573) 884-5414

Microbiology, which includes the sub-disciplines of bacteriology, virology, mycology, parasitology, and immunology, is a cornerstone discipline in the fields of public health, food safety, medicine, veterinary medicine, dentistry, biotechnology, and biomedical research. A course of study in the Department of Veterinary Pathobiology leads to the Bachelor of Science in Microbiology. This degree program positions graduates favorably for either direct entry into the job market or for additional post-baccalaureate training in medicine, veterinary medicine, dentistry, nursing, or biomedical research. Job opportunities for graduates exist in the private sector with medical, animal health, pharmaceutical, and biotechnology-based companies and with government laboratories such as the Center for Disease Control and Prevention, the National Institutes of Health, and the United States Department of Agriculture. Microbiology courses provide a strong science background, which can be beneficial for specialization in such diverse careers as journalism (science and public health reporting) and law (biotech, patent, and environmental law). Students are encouraged to gain research experience by working on mentored projects in faculty labs.

### Faculty

**Professors** D. Anderson\*\*, B. Beerntsen\*\*, C. Brown\*\*, E. Bryda\*\*, M. Calcutt\*\*, C. Franklin\*\*, G. C. Johnson\*, C. Lorson\*\*, G. Stewart\*\*, R. W. Stich\*\*, S. Zhang\*\*

**Associate Professors** J. Adamovicz\*\*, Y. Agca\*\*, J. M. Amos-Landgraf\*\*, L. M. Berent, T. Evans, A. Franz\*\*, T. Gull, G. S. Johnson\*\*, D. Kim, K. Kuroki\*\*, W. J. Mitchell\*, J. Skyberg\*\*, C. Wiedmeyer\*, F. Williams III, G. Zhang\*\*

**Assistant Professors** A. Ericsson\*\*, S. Odemuyiwa\*, A. Royal

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

### Undergraduate

- BS in Microbiology (p. 753)
- Minor in Microbiology (p. 755)

### Graduate

PhD in Microbiology (MED) (p. 797)

<http://catalog.missouri.edu/undergraduategraduate/interdisciplinaryacademicprograms/molecularmicrobiologyandimmunology/phd-microbiology-med/> (p. 797)

Overview Degree Options Degree Requirements Qualifying/  
Comprehensive Exams Ph.D. Dissertation Guidelines Admissions

Pathobiology Area Program (p. 803)

<http://catalog.missouri.edu/undergraduategraduate/interdisciplinaryacademicprograms/pathobiology/> (p. 803)

PhD in Pathobiology Area Program (p. 804)

<http://catalog.missouri.edu/undergraduategraduate/interdisciplinaryacademicprograms/pathobiology/phd-pathobiology/> (p. 804)

MS in Biomedical Science with Emphasis in Pathobiology (p. 766)

<http://catalog.missouri.edu/undergraduategraduate/interdisciplinaryacademicprograms/biomedicalsciences/ms-biomedical-science-pathobiology/> (p. 766)

Contact: Marie Schlup  
College of Veterinary Medicine  
201 Connaway Hall  
Columbia, MO 65211  
573-882-6550

[schlupm@missouri.edu](mailto:schlupm@missouri.edu)

[http://vpbio.missouri.edu/training\\_programs.html](http://vpbio.missouri.edu/training_programs.html)

## BS in Microbiology

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### Degree Program Description

From the Greek words **mikros** (small), **bios** (life), and **logos** (science), microbiology is the branch of science that studies microscopic forms of life, including bacteria, viruses, algae, fungi, protozoa, and parasites. Although most commonly thought of as causing infection and disease, microorganisms are often beneficial, with many uses in the pharmaceutical, biotech, food, and agricultural industries. A bachelor of science (BS) in microbiology provides direct entry into a number of employment opportunities in the private sector with medical, animal health, pharmaceutical, and biotechnology-based companies and with government laboratories such as the Center for Disease Control and Prevention (CDC), the National Institutes of Health, and the United States Department of Agriculture. A degree in microbiology provides a strong science background which can be beneficial for specialization in such diverse careers as journalism (science and public health reporting) and

law (biotech, environmental, medical, and patent law). This degree also provides excellent preparation for professional schools (medical, veterinary, dental, and nursing) and for admission to masters and PhD degree programs in numerous areas of study.

The faculty in the Department of Veterinary Pathobiology has designed a comprehensive and challenging curriculum for this degree program. Subject matter to be covered includes microbial structure and physiology, genetics and genomics, pathogenic mechanisms, beneficial microbes, and the immune response. Supporting courses from other departments include mathematics, physics, chemistry, biology, and biochemistry. Numerous opportunities for undergraduate research are available. The microbiology courses are taught by faculty whose areas of expertise include bacteriology, immunology, parasitology, and virology.

### Major Program Requirements

To earn a bachelor's degree in microbiology, all undergraduate students must complete the university's general education requirements, degree specific requirements set by the Department of Veterinary Pathobiology, and university total credit hour and writing intensive class requirements.

The following courses are required for the microbiology major. All courses must be taken for a letter grade (satisfactory/unsatisfactory grades will not count toward the major). A grade of C- or higher is required for each class and an overall GPA of 2.0 for these courses is also required.

#### Required Courses

PHYSCS 1210 or PHYSCS 2750	College Physics I University Physics I	4-5
PHYSCS 1220 or PHYSCS 2760	College Physics II University Physics II	4
BIO_SC 1500	Introduction to Biological Systems with Laboratory	5
MATH 1400	Calculus for Social and Life Sciences I	3
CHEM 1320	College Chemistry I	4
CHEM 1330	College Chemistry II	4
CHEM 2100	Organic Chemistry I	3
CHEM 2110 & CHEM 2130	Organic Chemistry II and Organic Laboratory I	5
BIOCHM 3630 or BIOCHM 4270	General Biochemistry Biochemistry	3
V_PBIO 2001 or BIO_SC 3750 & BIO_SC 3760	Fundamentals of Microbiology General Microbiology and Microbiology Laboratory	5
MICROB 3200	Medical Microbiology and Immunology	4
V_PBIO 3345	Fundamentals of Parasitology (or V_PBIO 3554 Introduction to Virology)	3
V_PBIO 3551	Introduction to Immunology I	3
V_PBIO 3554	Introduction to Virology (or V_PBIO 3345:Fundamentals of Parasitology)	3
V_PBIO 3600	Bacterial Genetics and Genomics	3
V_PBIO 4970	Capstone Undergraduate Research in Microbiology (or V_PBIO 4980)	3
V_PBIO 4980	Capstone Senior Seminar (or V_PBIO 4970)	3
Microbiology Electives (15 credit hours selected from the following):		
BIOCHM 4272	Biochemistry	3
BIO_SC 2300	Introduction to Cell Biology	4
BIO_SC 4976	Molecular Biology	3

ENV_SC 4312	Environmental Soil Microbiology	3
F_S 2172	Elements of Food Microbiology	3
F_S 4370	Food Microbiology	3
F_S 4375	Food Microbiology Laboratory	2
MICROB 4304	Immunology	3
V_PBIO 3345	Fundamentals of Parasitology *	3
V_PBIO 3554	Introduction to Virology *	3
V_PBIO 3557	Microbial Pathogenesis I	3
V_PBIO 3700	Medical and Veterinary Entomology	4
V_PBIO 3560	Microbial Physiology	3
V_PBIO 3658	Public Health Microbiology	3
V_PBIO 3650	Applied Microbiology and Biotechnology	3
ANTHRO 3560W	Plagues and Peoples - Writing Intensive	3
V_PBIO 3950W	Current Topics in Emerging Infectious Diseases	3
V_PBIO 3900W	Beneficial Microbes	3
V_PBIO 4950	Advanced Undergraduate Research in Microbiology **	1-3

\*One of these 2 courses must be taken as a major requirement; the other can be taken as a major elective.

\*\*Can be repeated for a maximum of 6 credit hours.

If all degree requirements are met, microbiology majors who enroll in the MU College of Veterinary Medicine prior to receiving their baccalaureate degree will be eligible to receive the BSM degree at the end of their second year in the professional curriculum. The following course substitutions for required core courses will be accepted:

- V\_PBIO 5552 Veterinary Bacteriology and Mycology I and V\_PBIO 5553 Veterinary Bacteriology and Mycology II for MICROB 3200 Medical Microbiology and Immunology
- V\_PBIO 5511 Veterinary Immunology 1 and V\_PBIO 5512 Veterinary Immunology 2 for V\_PBIO 3551 Introduction to Immunology
- V\_PBIO 5557 Veterinary Parasitology for V\_PBIO 3345 Fundamentals of Parasitology

The following courses will be accepted as major electives:

- V\_PBIO 5554 Veterinary Virology
- V\_PBIO 5555 Veterinary Epidemiology and Biostatistics
- V\_PBIO 5558 Veterinary Public Health

#### University Requirements for Graduation

- Satisfactory completion (grade of C- or better) of a 3 credit upper division writing intensive class in the microbiology major. Acceptable classes are:

- ANTHRO 3560W Plagues and Peoples
- HLTH\_SCI 3900W Introduction to the Research Process and Evidence Base
- V\_PBIO 3950W Current Topics in Emerging Infectious Disease
- V\_PBIO 3900W Beneficial Microbes

- Additional electives to meet the 120 credit hour minimum for graduation. These electives can be taken using the satisfactory/unsatisfactory grading system if in compliance with university academic policies.

## Semester Plan

First Year			
Fall	CR	Spring	CR
ENGLSH 1000		3 V_PBIO 2001	5
CHEM 1320		4 CHEM 1330	4
MATH 1100		3 MATH 1400 or 1500	3
BIO_SC 1500		5 Gen Ed Requirements	3
		15	15
Second Year			
Fall	CR	Spring	CR
CHEM 2100		3 CHEM 2110	3
MICROB 3200		4 CHEM 2130	2
Gen Ed Requirements		6 Elective	1-3
Elective		3 Gen Ed Requirement	6
		Major Elective	3
		16	15-17
Third Year			
Fall	CR	Spring	CR
PHYSICS 1210		4 PHYSICS 1220	4
V_PBIO 3551		3 Major Elective	6
BIOCHM 3630		3 Elective	3
Elective		3 Gen Ed Requirement	3
		13	16
Fourth Year			
Fall	CR	Spring	CR
V_PBIO 4950 or V_PBIO 4980		3 V_PBIO 3600	3
Major Elective		3 V_PBIO 4970 or Major Elective	3
V_PBIO 3554		3 Gen Ed Requirement	3
Gen Ed Requirement		3 Elective	6
Elective		3	
		15	15

Total Credits: 120-122

## Minor in Microbiology

The Minor in Microbiology, through the Department of Veterinary Pathobiology in the College of Veterinary Medicine, will be of interest to students majoring in fields related to microbiology, such as biological sciences, food science, and biochemistry. Students pursuing admittance to professional programs, such as medical, dental, and veterinary schools, may also find this minor to be relevant.

### Requirements

To complete the minor, students must successfully complete 15 credit hours from the courses listed below. A minimum grade of C- and an overall GPA of 2.0 for all minor coursework indicates successful completion. At least nine hours of coursework for the minor must be completed at MU.

Students will need to take BIO\_SC 1500 prior to enrolling in any of the courses listed for the minor. Students who opt to take BIO\_SC 3750 and BIO\_SC 3760 in place of V\_PBIO 2001 will be required to take BIO\_SC 2200 and BIO\_SC 2300 as prerequisites.

Interested students should complete the online form at <http://vpbio.missouri.edu/undergraduate-studies.html>. Questions about the program should be sent to: [microbiology@missouri.edu](mailto:microbiology@missouri.edu).

Required Microbiology Courses		8
V_PBIO 2001	Fundamentals of Microbiology	5
or BIO_SC 3750 & BIO_SC 3760	General Microbiology and Microbiology Laboratory	
V_PBIO 3551	Introduction to Immunology I	3
Choose from the following course list:		7
MICROB 3200	Medical Microbiology and Immunology	4
or MICROB 2800	Microbiology for Nursing and Health Professions	
V_PBIO 3345	Fundamentals of Parasitology	3
V_PBIO 3554	Introduction to Virology	3
V_PBIO 3557	Microbial Pathogenesis I	3
V_PBIO 3560	Microbial Physiology	3
V_PBIO 3650	Applied Microbiology and Biotechnology	3
V_PBIO 3658	Public Health Microbiology	3
ENV_SC 4312	Environmental Soil Microbiology	3
F_S 4370	Food Microbiology	3
F_S 4375	Food Microbiology Laboratory	2

## Additional Minors and Certificates - Veterinary Medicine

### Undergraduate Certificates

- Certificate in Biomedical Sciences (p. 755)
- Certificate in Veterinary Science (p. 756)

### Graduate Certificates

- Certificate in Veterinary Science (p. 756)

## Certificate in Biomedical Sciences

This 16-credit hour online undergraduate certificate is intended to better prepare pre-professional students planning a career in veterinary medicine or allied biomedical sciences. The courses required encompass biomedical terminology, cell biology, anatomy, and physiology.

### Requirements

A total of 16 credit hours in online BIOMED courses are required. Thirteen credit hours are core courses and 3 credit hours are selected from the list of elective courses.

#### Required Core Courses (13 Hours)

BIOMED 2110	Biomedical Terminology	3
BIOMED 3219	Elements of Comparative Anatomy	3
BIOMED 4XXX	Comparative Physiology (in development)	3
BIOMED 4333	Veterinary Cell Biology	4

The list of elective courses is subject to change.

#### Electives (2 Hours)

BIOMED 1010	Biomedical Career Explorations	1
BIOMED 2111	Veterinary Medical Terminology	1
BIOMED 2120	Essentials of Animal Handling and Physical Restraint	2

BIOMED 2130	Introduction to Veterinary Anatomy and Physiology	3
BIOMED 2230	Animal Sanitation and Disease Prevention	3
BIOMED 3000	Specialty Careers for Veterinary Technicians	1
BIOMED 3100	Biomedical Pathophysiology	3
BIOMED 3300	Animal Welfare and Ethics	3
BIOMED 3400	Domestic Animal Behavior in Veterinary Practice	2
BIOMED 4001	Topics in Biomedical Sciences (Canine and Feline Nutrition)	3
BIOMED 4110	Veterinary Cytology	2
BIOMED 4120	Principles of Toxicology	3
BIOMED 4210	Animal Issues in Disasters	1
BIOMED 4300	Clinical Veterinary Neurology	3
BIOMED 4320	Fundamentals of Small Animal Emergency and Critical Care	3
BIOMED 4400	Veterinary Surgical Nursing	3
BIOMED 4410	Small Animal Physical Rehabilitation	3
BIOMED 4500	Equine Critical Care and Nursing	3
BIOMED 4510	Equine Clinical Anatomy: Forelimbs	1

Minimum Academic Standards: Satisfactory completion of a certificate requires a grade point average of at least 3.0 in BIOMED courses and no grade less than a C in all courses.

## Certificate in Veterinary Science

This online undergraduate certificate has been developed to help prepare pre-professional students planning a career in veterinary medicine in the areas of biomedical and veterinary terminology, animal handling, sanitation, and welfare. Courses may be used as partial requirement to apply to a college of veterinary medicine.

### Requirements

A total of 16 credit hours in online BIOMED courses are required. Twelve credit hours are core courses and 4 credit hours are selected from the elective course list.

#### Required Core Courses (12 hours)

BIOMED 2110	Biomedical Terminology	3
BIOMED 2111	Veterinary Medical Terminology	1
BIOMED 2120	Essentials of Animal Handling and Physical Restraint	2
BIOMED 2230	Animal Sanitation and Disease Prevention	3
BIOMED 3300	Animal Welfare and Ethics	3

#### Electives (4 hours)

BIOMED 1010	Biomedical Career Explorations	1
BIOMED 2130	Introduction to Veterinary Anatomy and Physiology	3
BIOMED 3000	Specialty Careers for Veterinary Technicians	1
BIOMED 3100	Biomedical Pathophysiology	3
BIOMED 3219	Elements of Comparative Anatomy	3
BIOMED 3326	Principles of Veterinary Pharmacology	3
BIOMED 3400	Domestic Animal Behavior in Veterinary Practice	2

BIOMED 4001	Topics in Biomedical Sciences (Canine and Feline Nutrition or Veterinary Hematology and Clinical Chemistry)	3
BIOMED 4110	Veterinary Cytology	2
BIOMED 4120	Principles of Toxicology	3
BIOMED 4210	Animal Issues in Disasters	1
BIOMED 4300	Clinical Veterinary Neurology	3
BIOMED 4320	Fundamentals of Small Animal Emergency and Critical Care	3
BIOMED 4333	Veterinary Cell Biology	4
BIOMED 4400	Veterinary Surgical Nursing	3
BIOMED 4410	Small Animal Physical Rehabilitation	3
BIOMED 4500	Equine Critical Care and Nursing	3
BIOMED 4510	Equine Clinical Anatomy: Forelimbs	1

Minimum Academic Standards: Satisfactory completion of a certificate requires a grade point average of at least 3.0 in BIOMED courses and no grade less than a C in all courses.

## Graduate Certificate in Veterinary Science

The Graduate Certificate in Veterinary Science is ideal for veterinary professionals who are seeking employment in the public sector (government or state biomedical programs), industry or education. Those who are preparing to take exams for specialty certifications, or desire employment in private referral practices that require advance training, will also benefit from this certificate. Students who successfully complete the coursework required to earn an online graduate certificate in Veterinary Science will have acquired current, advanced information within the area of veterinary medicine and closely related topics.

This certificate can stand alone or may be earned by Master's students within other approved graduate programs.

### Requirements:

In order to successfully complete the certificate program, students must complete 12 hours of courses through Veterinary Online programs and 3 credit hours of graduate level statistics. Problems, Research and courses graded Satisfactory/Unsatisfactory are not applicable, and all courses must be graduate level (7000 level or above) BIOMED, V\_BSCI, V\_PBIO, or V\_M\_S courses unless approved by the student's graduate committee.

Courses required by the certificate program can be finished within 36 weeks, and must be completed within 80 weeks (five 16-week semesters) after the student is accepted into the program. Students must maintain at least a 3.0 cum GPA, and no grade lower than a C may be earned in any course offered through Veterinary Online Programs.

#### Required Course (3 credit hours):

STAT 7020	Statistical Methods in the Health Sciences	3
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#### Electives (12 credit hours):

V_PBIO 7110	Veterinary Cytology	2
V_PBIO 7120	Principles of Toxicology	3
V_PBIO 7210	Animal Issues in Disasters	1
V_M_S 7320	Fundamentals of Small Animal Emergency and Critical Care	3
V_BSCI 7333	Veterinary Cell Biology	4
V_M_S 7510	Equine Clinical Anatomy: Forelimbs	1

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V_M_S 8040	Advanced Small Animal Clinical Nutrition	2
BIOMED 8100	Veterinary Online Course Development and Teaching	3
BIOMED 8310	Advanced Topics in Stress Physiology	3
V_PBio 8436	Pathogenic Mechanisms in Veterinary Pathobiology	3
BIOMED 8700	Principles of Veterinary Pain Management	2
BIOMED 8710	Essentials of Radiation Biology	2

## Admissions Requirements:

- Completion of a Bachelors or Professional degree through an AVMA and the Council for Higher Education Accredited program.
- Veterinary technicians with a bachelor's degree must have achieved a minimum cumulative GPA of 3.0 in the last 60 credit hours prior to achieving a bachelor's degree.
- Acceptance by the University of Missouri Graduate School.
- When appropriate, a score of 520 or greater on the Test of English as a Foreign Language (TOEFL) exam.
- When appropriate, a score of 220 or greater on the Test of Spoken English (TSE) exam.
- Acceptable references from at least three people who know the candidate well, but are not related to the candidate.

## Graduate School

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The mission of the Graduate School at the University of Missouri is to advocate for, support, and advance graduate and postdoctoral education.

For more information about the Graduate School please go to: <https://gradschool.missouri.edu/>

## Additional Minors and Certificates - Graduate School

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### Graduate Certificates

- Certificate in Public Engagement (p. 758)

## Graduate Certificate in Public Engagement

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The Graduate Certificate in Public Engagement is a stand-alone certificate program within the Graduate School. The certificate can be complete in person or online, and will allow students to tailor the curriculum to meet their needs.

### Requirements

This is a 12-credit graduate certificate program.

#### Required Coursework (3 credit hours)

GRAD 9080	Essentials for Public Engagement	1
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#### Integrating Research with Outreach (6 credit hours)

##### Elective (3 credit hours)

GRAD 9072	Science Policy and Public Engagement	3
LTC 8724	College Science Teaching	3
or BIO_SC 8724	College Science Teaching	
LTC 8725	Science Outreach: Public Understanding of Science	1-2
or BIO_SC 8725	Science Outreach: Public Understanding of Science	
or AN_SCI 8725	Science Outreach: Public Understanding of Science	
or PHYSCS 8350	Science Outreach: Public Understanding of Science	

**\*NOTE: College Science Teaching can be replaced with a different pedagogical course with prior permission.**

## Honors College

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### Contact Information

J.D. Bowers, Director  
(573) 882-3893  
<http://honors.missouri.edu>  
210 Lowry Hall

## Honors College

The Honors College is a community of motivated and high-achieving students from all the undergraduate colleges at the University of Missouri. The Honors College offers an innovative and dynamic curriculum that encourages in-depth study in traditional fields of learning as well as other kinds of intellectual inquiry, including interdisciplinary and experiential learning. The College fosters scholarly engagement through research opportunities, study abroad, internships, and other experiences that expand learning beyond the classroom. Students receive personalized advising through a team of professionally-trained advisors.

The Honors College gives honors students maximum flexibility to serve their individual interests. Honors courses, taught by many of the university's best professors, encourage close interaction between students and faculty and allow students to experience a small-college atmosphere within a large research university.

Opportunities in the Honors College are described below.

## Honors Curriculum

Honors courses offered through the Honors College are listed in the University Catalog. The Honors College also offers the following alternative ways by which to earn Honors Credit:

- **Honors Learning-by-Contract.** This arrangement allows honors students to take a non-honors course for honors credit by completing additional or alternative work. To do an Honors Learning-by-Contract, students must enter into a contractual agreement with a professor and gain approval from the director of the Honors College.
- **Honors Credit via Graduate Course Work.** Honors students may earn credit toward the Honors Certificate by taking graduate-level classes.
- **Honors Credit via Study Abroad.** Up to six hours of study abroad credit completed while a student at MU can be considered as honors credit.
- **Honors Courses offered through individual departments.** These include special topics courses and honors sections of regularly-offered courses.
- **Research and other independent-study types of courses, offered both through departments and the Honors College.**

Honors course information and course application forms can be found on the Honors College website. (<https://honors.missouri.edu/current-students/courses/>)

## Special Programs and Services

### Advising

The Honors College offers one-on-one academic advising for all honors students.

### Honors Housing

The Honors Learning Community fosters a living and learning space that enriches intellectual and social stimulation and encourages residents

to succeed academically and socially during their time at the University of Missouri. Honors Freshman Interest Groups (FIGs) are available in a number of interest areas.

## Honors College Admissions

Interested students are encouraged to visit our website (<https://honors.missouri.edu/admission/>) for more information on how to apply and on the profile of a "typical" successful Honors applicant, as well as the required materials for admission—including official transcripts, official score report, essays, and more. The Honors College does not accept applications from conditionally admitted students. A student must be fully admitted to MU, by our required deadlines, before Honors will consider their application.

## Program Requirements

### Maintaining Honors Eligibility

#### GPA Requirement

To retain membership in the Honors College, students must maintain an MU cumulative GPA of 3.5 or above. Students with an MU cumulative GPA below 3.5 will receive a warning letter the first semester in which this occurs. Students with an MU cumulative GPA below 3.5 for a second consecutive semester will no longer be members of the Honors College. Students with a cumulative Mizzou GPA below 3.0 will be removed immediately.

#### Participation Requirement

Students are required to complete two honors courses per year for their first two years at MU. All honors courses will count toward this requirement, including honors-designated courses and Honors Learning-by-Contract.

#### Honors Certificate Requirements

Students who complete 24 or more hours for honors credit and maintain a 3.5 cumulative GPA (as calculated after final grades are posted at the end of the semester in which the student is graduating) are eligible to graduate with an Honors Certificate. In addition to General Honors and Departmental Honors course credits, the 24 hours may include up to 6 hours of honors transfer credit, 6 hours of approved study abroad credit (form required), 8 hours of Learning-by-Contract credit, and 8 hours of approved graduate credit (form required). Students must achieve a minimum letter grade for each course: a C or better for regular honors classes or a B or better for Learning-by-Contract courses and Honors Credit via Graduate Course Work. Students must apply for the Honors Certificate by completing the application (<https://honors.missouri.edu/graduating-with-honors/honors-certificate-application/>). (<https://honors.missouri.edu/graduating-with-honors/>) In order to participate in the Honors Convocation, students must apply no later than the end of the third week of classes in their final semester.

#### University Honors Designation

Students who complete the Honors Certificate and a qualified departmental honors program (<https://honors.missouri.edu/graduating-with-honors/>) will be eligible for this designation, which will be noted on their permanent transcript. See your departmental advisor for information about departmental honors programs.

## Faculty

There are faculty from all disciplines who teach Honors College courses.



## Certificate in General Honors

Students who complete 20 or more honors credit hours and have a 3.3 MU GPA may graduate with general honors. The General Honors Certificate is noted on a student's final transcript. Up to six hours of departmental honors courses, six hours of transfer honors courses, and six hours of Learning by Contract courses may be used toward the 20 hours. In order to receive honors credit for an honors designated course, you must earn a "C" or better.

Upon completion of the 20 hours of honors course work, students must apply for their honors certificate. Graduating students must apply for their honors certificate by mid-semester to graduate with general honors and to have the notation on their transcript.

For additional information on the certificate, contact:

MU Honors College  
 211 Lowry Hall  
 Columbia, MO 65211  
 phone: 573-882-3893  
 fax: 573-884-5700  
 email: [umchonorscollege@missouri.edu](mailto:umchonorscollege@missouri.edu)  
 website: <http://honors.missouri.edu/contact> (<http://honors.missouri.edu/contact>)

## Interdisciplinary Academic Programs

MU offers a number of academic degree programs that are planned, administered and taught collaborative by faculty from numerous disciplines. Those interdisciplinary programs are enumerated in this section of the catalog.

## Academic Medicine

A Master of Science in Academic Medicine (post-doctorate) is offered by the Department of Family and Community Medicine in the College of Medicine. Applicants must be graduates of an accredited medical school, U.S. citizens or permanent residents, and licensed to practice in a primary care specialty.

### Faculty

**Professor** J. D. Campbell, E. Garrett\*, L. A. Headrick, M. C. Hosokawa\*, M. LeFevre\*, D. R. Mehr\*, D. Parker-Oliver\*, E. Ringdahl\*, W. Steinmann, J. Stevermer, D. C. Vinson\*, H. A. Williamson\*, S. C. Zweig\*

**Associate Professor** J. Belden, D. Cravens\*, K. Everett\*, A. B. Fitzsimmons, K. Y. Kane\*, J. Kapp\*, S. Kinkade\*, K. Kochendorfer\*, R. Koopman\*, E. J. Lindbloom\*, C. Reust\*, D. Wen\*, A. Whaley-Connell

**Assistant Professor** K. Craig, D. Howenstine, P. Koopman, J. McElroy\*, L. Morris, A. Swenson, S. Swofford, P. Tatum III\*

**Research Professor** D. Oliver\*

**Associate Research Professor** K. Hoffman\*, R. L. Kruse\*

**Professor Emeritus** R. L. Blake Jr.\*, J. M. Colwill\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

While MU does not offer undergraduate degrees specifically in Academic Medicine, the University does offer baccalaureate opportunities in a number of related areas in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 20).

## Graduate

- MS in Academic Medicine (p. 760)

School of Medicine  
 M224 Medical Sciences Building, DCO32.00  
 Columbia, MO 65212  
 573-884-7060  
<http://www.fcm.missouri.edu/>

The Master of Science in Academic Medicine is offered by the Department of Family and Community Medicine in the College of Medicine. Applicants must be graduates of an accredited medical school, U.S. citizens or permanent residents and licensed to practice in a primary care specialty.

## MS in Academic Medicine

### Degree Requirements

The program has two options for study: Teaching/Administration and Research. The program requires completion of a minimum of 30 course hours with a grade of 3.0 (B) or better. Courses in the Master's degree are:

F_C_MD 8422	Clinical Research Methods I	3
STAT 7020	Statistical Methods in the Health Sciences	3
F_C_MD 8423	Clinical Research Methods II	3
F_C_MD 8420	Principles of Epidemiology	3
F_C_MD 8410	Principles and Practices in Medical Education	3
F_C_MD 8430	Applications of Evidence-Based Medicine I	3
F_C_MD 7310	The Health Care System	3
F_C_MD 8491	Field Experience in Family and Community Medicine	1-6
F_C_MD 8450	Research in Community Health	1-99

In addition there are a number of online elective courses that may be substituted upon approval of the faculty advisor.

## Admissions

Applicants must be graduates of an accredited medical school, U.S. citizens or permanent residents and licensed to practice in a primary care specialty.

## Application Deadline

This program accepts rolling admissions, so you can apply at any time. We recommend you submit your application at least six weeks before the beginning of the term in which you wish to start your course work.

## Admission Criteria

- Board-certified or board-eligible physicians who have already received MD, DO, MBBS or equivalent degrees may apply. Typically, physicians have completed residency training in their primary specialty prior to enrollment, but current residents may apply with the permission of their program director.
- Physicians in clinical or academic fellowship programs (or both) are also welcome to apply. Prospective students with other doctoral and graduate degrees will also be considered.
- If English is not your native language, please submit a TOEFL (<http://www.ets.org/toefl/>) score of at least 80 (internet-based test) or an IELTS (<https://www.ielts.org/>) score of at least 6.5
- This program accepts rolling admissions, so you can apply at any time. We recommend you submit your application at least six weeks before the beginning of the term in which you wish to start your course work.

## Required Application Materials

Submit the following via the online application (<https://applygrad.missouri.edu/apply/>):

- **Transcripts** of all previous college or university education. Upload unofficial transcripts in your online application. If you are accepted, you will be asked to provide official transcripts
- **Two letters of recommendation.** In the online application, you will need to supply names and contact details of two professionals who can attest to your critical thinking, analytical and writing skills, demonstrating your potential as a graduate student and professional
- **Personal statement** of research goals and interests
- **Curriculum vitae or résumé**
- **Verification from residency program** or other relevant post-graduate training
- **TOEFL or IELTS** score reports for applicants whose native language is not English
- A personal phone interview

Carefully follow the instructions on the Graduate School's (<https://applygrad.missouri.edu/apply/>) application site.

- **Upload the above documents** in the online application site. Use the following information to complete your application:
  - a. **Application type:** Master's Program
  - b. **Degree/Delivery:** Masters- Distance (Online/Remote Site/etc.)
  - c. **Academic Program:** Academic Medicine-Distance (MS)
  - d. **TOEFL or IELTS** scores: Institution Code 6875 (if applicable)

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding

packages. Check the program Web site or ask the program contact for details.

## Admission Contact Information

Juliet Bedell, [Bedelljc@health.missouri.edu](mailto:Bedelljc@health.missouri.edu), 573-884-2912  
University of Missouri, School of Medicine  
Department of Family and Community Medicine  
MA303 Medical Sciences Building  
Columbia, MO 65212

## American Law

### Contact Information

Paul Ladehoff, Director of LL.M. Programs & Director of the Campus Mediation Service

American Law - MU School of Law  
206 Hulston Hall  
University of Missouri  
Columbia, MO 65211  
Phone: (573) 882-2020; Fax: (573) 882-3343  
Email: [mulawcdr@missouri.edu](mailto:mulawcdr@missouri.edu)  
Web site: <http://law.missouri.edu/llm> (<http://law.missouri.edu/csdr/llm/>)

This program will provide an introduction to the American legal system and U.S. legal practice for students who received their first degree in law outside the United States. It will help prepare students for a U.S. bar exam, for U.S. law practice, or to work with U.S. clients in the students' home countries or with foreign clients doing business in the U.S.

### Faculty

**Professor** R. Gely\*, J. Lande\*, R. Uphoff\*  
**Associate Professor** C. Conklin\*, D. Crouch\*, S.I. Strong\*  
**Adjunct Assistant Professor** J. Levin\*

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

### Undergraduate

While MU does not offer undergraduate degrees specifically in American Law. The University does offer baccalaureate opportunities in a number of related areas in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options.

### Graduate

- LL.M. in American Law (p. 762)

#### About the American Law Program

This program will provide an introduction to the American legal system and U.S. legal practice for students who received their first degree in law outside the United States. It will help prepare students for a U.S. bar exam, for U.S. law practice, or to work with U.S. clients in the students' home countries or with foreign clients doing business in the U.S.

Create new opportunities for both LL.M. and J.D. students.

## LLM in American Law

Graduates of the LL.M. in American Law program should:

- Possess substantial knowledge of the legal system in the United States
- Possess substantial knowledge in legal analysis and reasoning, legal research, problem solving, and oral communication as practiced in the U.S. legal community
- Understand the goals, structure, values, rules, and responsibilities of the U.S. legal profession and conduct their legal practice in a professional and ethical manner
- Possess the lawyering skills generally regarded as necessary for effective and responsible participation in the U.S. legal profession
- Possess substantial knowledge in areas of the law considered to be foundational for admission to the bar, and for the practice of law in the United States

## Degree Requirements

The LL.M. in American Law is a 24 credit hour program. There will be three core required courses - Overview of the U.S. Legal System, Legal Research and Writing, and Professional Responsibility. Elective courses will be selected from the existing J.D. or LL.M. curriculum. This will provide flexibility for students to customize study in any number of fields in the law school such as intellectual property, commercial law, international law, tax, environmental law, and employment law.

Program open only to international students who have their first degree in law from an institution outside the U.S.

Required Courses		6
LAW 6980	Overview of the US Legal System	2
LAW 5280	Professional Responsibility	2
LAW 5080	Legal Research and Writing	2
<b>Electives</b>		<b>18</b>

## Biomedical Sciences

The study of biomedical sciences includes the major disciplines of:

- anatomy (gross or microscopic)
- physiology/pharmacology (molecular, cellular and integrative)
- biochemistry/molecular biology
- endocrinology
- toxicology

Specific areas of interest are exercise biology including cardiac, vascular and muscle biology; cardiovascular biology including neuroendocrine regulation; membrane transport biology including cystic fibrosis and cardiac disease; and reproductive biology including environmental estrogen toxicities and developmental processes.

All of the biomedical sciences degrees at MU are at the graduate level, and within two very distinct programs. See the Graduate tab for details on these options.

For undergraduate students interested in studying biomedical sciences, there are more than two dozen courses taught at the undergraduate level. See the Courses tab for details on these options.

## Faculty

### Comparative (Veterinary) Medicine

**Professor** C. L. Franklin  
**Associate Professor** Y. Agca, E. C. Bryda  
**Clinical Associate Professor** L. W. Dixon  
**Adjunct Professor** C. L. Besch-Williford  
**Adjunct Clinical Associate Professor** R. S. Livingston  
**Clinical Veterinarian** S. W. Korte, E. K. O'Connor

### Pathobiology Emphasis

**Professor** C. R. Brow, C. Caldwell, S. Casteel\*\*, J. Cook, G. Davis, K. C. Dellsperger, W. Fales\*, C. Franklin\*\*, C. Henry, T. Hoffman, G. C. Johnson\*\*, M. Katz, C. Lorson\*\*, D. Lubahn, C. Moore, D. O'Brien, B. Ray\*\*, R. M. Roberts, H. Schatten\*\*, D. Shaw\*, G. P. Smith, R. W. Stich\*\*, C. V. Ward, H. Zaghout  
**Associate Professor** Y. Agca\*\*, B. T. Beerntsen\*\*, A. Bermudez\*\*, D. Beversdorf, J. N. Bryan, E. Bryda\*\*, M. Calcutt\*\*, L. Cohn, D. D. Cornelison, J. Dodam, T. Evans\*\*, D. Fox, S. A Grant, G. S. Johnson, M. Lewis, S. Liu, J. Middleton, W. J. Mitchell Jr.\*, C. Phillips, C. Reddy, S. G. Sarafianos, C. Wiedmeyer\*\*  
**Clinical Associate Professor** L. Berent\*, D. Kim\*, T. Reilly\*\*, C. Vogelweid\*, M. Whitney\*  
**Associate Research Professor** M. Lorson\*, A. Ray\*  
**Assistant Professor** K. Aldridge, D. Anderson\*, U. Atasoy, C. P. Baines, G. Blomquist, M. Daniels, V. Glinskii, Z. Gu, C. Holliday, K. Kuroki\*\*, S. Schommer\*, K. Taylor, G. Zhang\*  
**Professor Emeritus** C. A. Carson  
**R. Phillip and Diane Acuff Endowed Professor** D. Pintel  
**McKee Endowed Professor** G. Stewart\*\*

### Biomedical Sciences: Veterinary Medicine and Surgery emphasis

**Professor** J. R. Coates\*\*, L. A. Cohn\*\*, J. L. Cook\*, V. K. Ganjam\*, C. J. Henry\*\*, P. J. Johnson\*, K. Keegan\*, T. Mann, R. R. Mohan\*\*, D. O'Brien\*\*, J. Tomlinson\*, D. A. Wilson\*  
**Assistant Professor** S. M. Axiak\*, A. Bukoski\*, A. E. DeClue\*\*, M. Heller\*, P. Pithua\*, F. Winger\*  
**Associate Professor** B. Backus\*\*, J. Bryan\*\*, J. R. Dodam\*, D. Fine\*, D. B. Fox\*, E. Giuliano\*, R. Johnson, J. C. Lattimer\*, M. R. Lewis\*\*, J. R. Middleton\*\*, C. N. Reiner\*\*  
**Clinical Assistant Professor** K. R. Branson\*  
**Teaching Professor** I. Masseur  
**Assistant Teaching Professor** L. Britt\*, C. R. Cook\*, D. Nagy\*, J. Pearce\*, S. Reed\*  
**Associate Teaching Professor** M. Kerl\*, J. Kramer\*, L. Schultz\*, K. A. Selting\*  
**Assistant Extension Professor** S. Pooch\*

### Biomedical Sciences

**Professor** F. W. Booth\*, D. K. Bowles\*\*, L. L. Clarke\*\*, G. M. Constantinescu\*, J. R. Dodam, V. K. Ganjam\*\*, E. M. Hasser\*, C. M. Heesch\*\*, S. Hyder\*\*, H. M. Laughlin\*\*, R. L. Terjung\*\*, R. Tsika\*\*  
**Associate Professor** C. S. Reddy\*\*, C. S. Rosenfeld\*\*, L. J. Rubin\*\*, W. V. Welshons\*  
**Assistant Professor** C. P. Baines\*\*, K. Cummings\*\*, C. Emter\*\*, D. D. Kline\*\*  
**Adjunct Professor** M. B. Brown\*, V. H. Huxley, S. S. Segal\*\*

**Adjunct Assistant Professor** T. Boyd

**Adjunct Associate Professor** G. S. Johnson\*, G. E. Rottinghaus\*

**Clinical Associate Professor** I. A. Constantinescu, B. L. Frappier\*

**Assistant Teaching Professor** D. Cross, M. C. Kuehl-Kovarik\*\*

**Research Professor** S. Yang\*\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

While MU does not offer undergraduate degrees specifically in biomedical sciences, the University does offer baccalaureate opportunities in a number of related areas in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 20).

## Graduate

- MS in Biomedical Sciences (p. 764)
  - with emphasis in Biomedical Sciences (Biomedical Sciences Area program) (p. 763)
  - with emphasis in Comparative Medicine (post DVM degree only) (Veterinary Medicine program) (p. 764)
  - with emphasis in Pathobiology (Veterinary Medicine program) (p. 766)
  - with emphasis in Veterinary Medicine and Surgery (Veterinary Medicine program) (p. 766)
  - with emphasis in Veterinary Sciences (Veterinary Medicine program) (p. 767)
- PhD in Biomedical Sciences (Biomedical Sciences Area program) (p. 768)

## An Array of Biomedical Degrees Offered

The University of Missouri offers several degree program options in Biomedical Sciences:

- The **Biomedical Sciences Area Program** offers a master's program in basic biomedical sciences and a PhD area program. Dual biomedical-DVM degrees are other options. Students in the Biomedical Sciences Area Program do not have to be enrolled in the College of Veterinary Medicine.
- The Graduate School also confers three MS degrees related to veterinary biomedical sciences. Available emphasis areas are (a) comparative veterinary medicine, (b) pathobiology and (c) veterinary medicine and surgery. Generally, applicants to these biomedical degree programs are concurrently enrolled in College of Veterinary Medicine or have previously earned a Doctorate in Veterinary Medicine (DVM).

## Additional Program Options

### Pathobiology

The Pathobiology Area Program offers a PhD in Pathobiology (p. 804).

## DVM/Graduate degree in Biomedical Sciences

The Biomedical Sciences graduate programs enable veterinary medical students to pursue studies in the basic biomedical discipline of their choice for a PhD or MS degree while enrolled in the College of Veterinary Medicine. The program is designed to prepare students for advanced professional careers in universities and colleges, research institutes and industrial research.

With consent of the student's graduate program committee, courses from the professional curriculum (which includes a major portion of the core curriculum) can be accepted toward the graduate degree.

**Master of Science:** The MS/DVM program enables veterinary medical students to complete a master's degree while enrolled in the College of Veterinary Medicine. The program allows qualified students to seek in-depth involvement in the basic biomedical discipline of their choice. Six hours of 9090 Research that result in an original thesis are required. Financial support may be provided to VM2-4 students through teaching assistantships in gross anatomy laboratory (V\_BSCI 5500 Veterinary Anatomy with Laboratory).

**Doctor of Philosophy:** The PhD/DVM program requires a minimum of 30 credit hours of 9090 Research culminating in completion of original research and defense of a written dissertation.

Major biomedical disciplines include anatomy of domestic species (gross or microscopic); physiology/pharmacology (molecular, cellular and integrative); biochemistry/molecular biology; endocrinology; and toxicology. Specific areas of interest are exercise sciences; cardiovascular and neurosciences; muscle biology; membrane transport biology; reproductive biology; and developmental toxicology.

Admission Contact Information

Kevin J. Cummings (cumplingske@missouri.edu), PhD

Associate Professor

E102 Veterinary Medicine Building

(573) 882-0283

<http://biomed.missouri.edu/>

## MS in Biomedical Sciences with Emphasis in Biomedical Sciences

The MS in Biomedical Sciences with emphasis in Biomedical Sciences provides in-depth training to prepare scientists in interdisciplinary basic research (molecular, cellular, organ and integrative). Departmental faculty members represent diverse Medical-related basic science disciplines that provide a unique opportunity for biomedical research training. Core courses include physiology, cell biology and an introduction to research methodology. The multidisciplinary focus of the program is also emphasized in the candidate's MS program committee.

## Degree Requirements

To attain the master's degree, 30 hours of graduate credit must be completed.

- 15 hours or more must be at the 8000 level (exclusive of research, problems and independent study courses)
- 6 to 9 hours of 8090 Research.

- A grade of 3.0 or better is required in all core courses and serves as the qualifying examination for the degree.
- In addition to the departmental core courses, students may take courses specifically planned to meet the needs and strengths of the individual.

## Evaluation

The master's candidate is evaluated semiannually for satisfactory rate of progress as defined by timely completion of course courses and progress on research activities as stipulated by the master's program committee. The master's candidate must carry out original research culminating in a written thesis, present the thesis work at a departmental seminar and defend the thesis in an oral examination by the master's program committee.

## Length of Study

The time limit for the master's degree is five years after initiating the program.

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

## Admission Criteria

- Fall deadline: January 15
- Spring deadline: September 15
- Summer deadline: Not Applicable
- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
100	600

- Minimum GRE scores:

When did you take the GRE?	Verbal + Quantitative
Prior to August 1, 2011	100 3.5
On or After August 1, 2011	300 3.5

- Minimum GPA: 3.0
- Required prerequisite courses: Biology (10 hrs), Physics (3 hrs), Biochemistry (3 hrs), Chemistry (10 hrs), Calculus (3 hrs)

NOTE: The GRE requirement may be waived for applicants with an MD or DVM. Prerequisite courses may be completed during the master's program.

## Required Application Materials

To the Graduate School:

- All required Graduate School documents

To the Biomedical Sciences MS Program:

- Program-specific application
- Letter of intent
- GRE scores
- Copy of transcripts
- 3 letters of recommendation

## Contact Information

**David D. Kline, Ph.D.**

Director of Graduate Studies

Associate Professor, Dept. of Biomedical Sciences

Resident Investigator, Dalton Cardiovascular Research Center

Member, Interdisciplinary Neuroscience Program

University of Missouri-Columbia

134 Research Park Dr.

Columbia, MO 65211

573-884-0505 *phone*

573-884-4232 *fax*

mailto:KlineDD@missouri.edu *e-mail*

Klinedd.missouri *Skype*

Klinelab.dalton.missouri.edu (<http://klinelab.dalton.missouri.edu/>) *website*

## MS in Biomedical Sciences

Students in the MS in Biomedical Sciences must select an emphasis area. Emphasis Areas are housed both in the Biomedical Sciences Area program, and in Veterinary Medicine. Below are the general requirements for a Master's degree at the University of Missouri.

### Degree Requirements

To attain the master's degree, 30 hours of graduate credit must be completed.

- 15 hours or more shall be 8000 level (exclusive of research, problems and independent study courses)
- minimum gpa of 3.0 or above

## MS in Biomedical Sciences with Emphasis in Comparative Medicine (post DVM)

### About This Degree

The University of Missouri Comparative Medicine Program provides advanced graduate training to veterinarians who wish to pursue careers in comparative medicine. Trainees may combine one year of residency training in clinical, administrative and diagnostic laboratory animal medicine with two or more years of research training. Training is designed to prepare individuals for a variety of careers including comparative medicine research and laboratory animal medicine/ collaborative research. Students may either pursue an MS or PhD. Research opportunities are available in several areas including infectious disease, reproductive biology, genetics, metagenomics, biomedical engineering, cancer and cardiovascular physiology. Resources available include the University of Missouri Office of Animal Resources (OAR), the Laboratory of Infectious Disease Research (LIDR), Mutant Mouse, Rat and Swine Resource and Research Centers, MU's Metagenomics Center and Animal Modeling Core, and IDEXX BioAnalytics, an internationally known research animal diagnostic laboratory.

### Programmatic Strengths

- The opportunity for comparative studies in a joint veterinary and human medical environment

- The multidisciplinary nature of the faculty participating in the training program
- The potential to couple training in research with residency training in laboratory animal medicine, comparative pathology, diagnostics, and training toward board certification
- Strong research resources including AAALAC-accredited research animal facilities, a full-service, internationally-recognized research animal diagnostic laboratory, a BSL-3 infectious disease research facility and NIH-funded research resource centers for mice, rats and swine
- A long history of successful training in comparative medicine

### Class Size and Resources

Typically there are 10-12 postdoctoral trainees in the program at a given time. Networking and sharing of experiences and cooperation among trainees is an important factor in the success of the program.

### Degree Requirements

The CMP emphasizes comparative medicine research training and includes graduate course work. The minimum number of credit hours required is 30 for the MS.

Research training is performed under an established investigator in one of several life science departments on the MU campus. Research typically deals with the application of an animal model in the investigation of human diseases or the study of naturally occurring diseases of laboratory animals. Requirements for elective course work, residency and teaching experience are determined with the student's advisory committee. Trainees also participate in teaching and instructional programs offered to veterinary students and research personnel.

The five required core courses for this program are listed below. Trainees also participate in weekly seminar and rounds. Elective courses can be taken to supplement the trainee's interests.

LAB_AN 9468	Laboratory Animal Biology	4
LAB_AN 9437	Pathology of Laboratory Animals	4
LAB_AN 9469	Laboratory Animal Resource Management	4
LAB_AN 9476	Grant and Manuscript Writing for Biomedical Researchers	3
BIO_SC 8060	Ethical Conduct of Research	1

The MS degree requires the completion of a significant first author manuscript suitable for publication in a refereed journal, or an approved equivalent scholarly effort as judged by their MS graduate committee. For board certification eligibility, the manuscript must meet criteria established by the American College of Laboratory Animal Medicine (ACLAM).

### Residency

For trainees enrolled in the combined graduate/residency program, residency rotations are performed during the first year of training and research training occurs in years two and three.

Residency rotations include:

- clinical medicine and animal resource management in the Office of Animal Resources (OAR)

- colony management, diagnostic, comparative and research pathology in the Mutant Mouse Resource & Research Center (MMRRC) and Rat Resource and Research Center (RRRC)

### Moving to a PhD Program

Trainees desiring to change to a PhD program have the opportunity to do so in a variety of programs including the **Pathobiology Area Program**.

### Admission Criteria

- Candidates must have a DVM or VMD degree (or equivalent) from an accredited college of veterinary medicine or successful completion of the foreign equivalency examination.
- Candidate must have or be pursuing a license to practice veterinary medicine in the state of their choice. The majority of funded slots require US citizenship or permanent residency.
- Applicants to the MU CMP must first apply through the Veterinary Internship & Residency Matching Program (VIRMP). Requirements and deadlines are updated annually and can be found at <https://www.virmp.org/>
- Application to the VIRMP typically begins mid-October and ends in early December. However, PLEASE NOTE that Laboratory Animal Medicine (LAM) training programs require a deadline in early November. Deadline specifics can be found in LAM training program descriptions.
- The CMP reviews applications in mid-November and invites selected candidates for interviews in early December. For candidates invited to interview with the MU CMP, it is highly recommended that you participate; therefore, you are encouraged to save these dates. Conflicts for invited candidates who absolutely cannot attend the interview will be addressed on an individual basis.
- Candidates who match with the CMP through VIRMP process must then apply to the MU graduate school and thus must also meet all graduate school requirements.

### Required Application Material

*To the CMP Postdoctoral MS Program:*

- The CMP uses the Veterinary Internship and Residency Matching Program (see above). Candidates must match through VIRMP before applying to the MU Graduate School.

*To the Graduate School:*

- All required Graduate School documents.

### Admission Contact Information

Director of Graduate Studies Craig Franklin, DVM, PhD  
 Discovery Ridge Bldg Rm N128  
 4011 Discovery Drive  
 Columbia, MO 65201  
 573-882-6623

**For more information, please visit our web page at:**

<http://cmp.missouri.edu/>

## MS in Biomedical Sciences with Emphasis in Pathobiology

### About the Program

The College of Veterinary Medicine offers a Master of Science degree in biomedical sciences with a specialization in veterinary pathobiology and/or laboratory animal medicine, which is administered through the Department of Veterinary Pathobiology.

### Degree Requirements

The degree requires 30 credit hours of work including courses, seminars, research, and problems courses. The program includes research in a particular field and defense of a thesis which embodies the results of this work. Certain areas of emphasis require submission of a formal master's thesis while others require preparation of a publishable manuscript.

### Admission Criteria

- Fall deadline: no deadline
- Spring deadline: no deadline
- Summer deadline: no deadline
- Undergraduate GPA of last 60 credit hours: 3.0
- Designated faculty mentor

#### **International Applicants:**

Minimum TOEFL score:

Internet-based test (iBT)	Paper-based test (PBT)
80	550

## Required Application Materials

### Graduate School

- All required Graduate Admissions documents <https://gradschool.missouri.edu/admissions/>

### Veterinary Pathobiology Program:

- Official Transcripts
- Letter of support from mentor
- CV
- Statement of Purpose
- 3 letters of recommendation (can be submitted through the Office of Graduate School online application as well)

## PhD in Pathobiology

For admission information about the doctorate of philosophy (PhD) in Pathobiology, refer to **Pathobiology Area Program** in this catalog.

**Contact:** Marie Schlup  
College of Veterinary Medicine  
201 Connaway Hall  
Columbia, MO 65211  
573-882-6550  
schlupm@missouri.edu  
[http://vpbio.missouri.edu/training\\_programs.html](http://vpbio.missouri.edu/training_programs.html)

**Director of Graduate Studies:** Jerod Skyberg

## MS in Biomedical Sciences with Emphasis in Veterinary Medicine and Surgery

### About the Program

The College of Veterinary Medicine, through the Department of Veterinary Medicine and Surgery, offers graduate work leading to the master of science degree in veterinary biomedical sciences with an emphasis in veterinary medicine and surgery. Many but not all graduate students in this area of study combine their graduate degree training with clinical residency programs leading to board certification in some specialty field within veterinary medicine. The program provides advanced training in anesthesiology, comparative cardiology, equine, food animal and companion animal medicine and surgery, neurology, oncology, comparative ophthalmology, radiation oncology, radiology, nutrition, and theriogenology among other areas. The goal of the Veterinary Medicine and Surgery emphasis area graduate degree-training program is to prepare individuals for investigative careers as specialists in veterinary medicine or as researchers in academia, industry, or governmental settings.

### Degree Requirements

Master's degrees will be conferred on candidates admitted to the graduate degree program who satisfy the general requirements of the MU Graduate School and the specific requirement of the graduate program. Requirements include:

### Advisors and the Advisory Committee

Formulating a plan of study is the joint responsibility of the student, the advisor and the student's advisory committee. An advisory committee of at least three faculty members should be chosen during the first semester of enrollment. The advisory committee offers guidance and is responsible for approving a definitive plan of study.

The advisory group should consist of the major advisor and appropriate faculty members from the department, and at least one other member from another department within the college or university. Members of this committee may be recommended later for appointment to the examining committee. Members of the final examination committee should be chosen in the same manner as the advisory committee.

### Resources and Facilities

Graduate students have ready access to clinical patients, medical records and facilities of the Veterinary Medical Teaching Hospital to aid them in clinical research. The college has its own library. More detailed information regarding the emphasis area of veterinary medicine and surgery can be found at the website <http://www.cvm.missouri.edu/VMS/index.htm> (<http://www.cvm.missouri.edu/VMS/>)

### Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program Web site or ask the program contact for details.

## Admissions

### Admission Criteria

Fall deadline: n/a

- Completion of a bachelor's or professional degree.
- Identification of a mentor with graduate faculty standing within the Department of Veterinary Medicine and Surgery.
- Identification of funding (with advice of mentor) for the period of research and study.
- Minimum TOEFL score (when appropriate):

Internet-based test (iBT)	Paper-based test (PBT)
80	550

- Minimum GRE score: 292; 146 in verbal and 146 in quantitative. Minimum scores should be considered as guidelines not a guarantee of admission.
- Approval of admission by the Departmental Graduate Committee.

Departmental Graduate Committee approval will be determined by perceived likelihood of successful completion of the program as based on the academic qualifications of the candidate, match of candidate and faculty advisor, and when requested, a minimum of 3 suitable letters of recommendation.

The majority of MS students within our program are completing specialty residency training programs in some field of veterinary medicine simultaneously with the MS degree. Admission to these programs generally precedes admission to our graduate programs. The GRE requirement may be waived for exceptional students by the Veterinary Medicine and Surgery Departmental Research and Graduate Studies Committee. Applicants may be asked to strengthen any deficiencies in prerequisites to the chosen area of concentration through enrollment in a post- or non-degree graduate student program.

### Required Application Materials

*To the Graduate School:*

- All required Graduate Admissions documents

*To the Veterinary Medicine and Surgery Emphasis Program:*

- GRE scores

Contact: Connie Sievert  
 College of Veterinary Medicine  
 Department of Veterinary Medicine and Surgery  
 A-384 Clydesdale Hall  
 573-882-1807  
<http://www.cvm.missouri.edu/VMS/index.htm> (<http://www.cvm.missouri.edu/VMS/>)

**Director of Graduate Studies:** Leah Cohn

## MS in Biomedical Sciences with Emphasis in Veterinary Sciences

### Degree Requirements

- Completion of all graduate work attempted at MU with a GPA of 3.0 or better.

- A minimum of 30 semester hours of graduate course credit, including at least 15 hours of graded, 8000-level course work. No more than 40% of the 30-hour credit requirement can be satisfied by Research, Readings, and Problem Courses.
- As part of their program of study during their enrollment in the Veterinary Medicine and Surgery (VMS) graduate degree program, graduate students must receive a passing grade from an approved graduate-level experimental design or statistics course. Following a request by the student's major advisor, this requirement may be waived by the departmental graduate studies committee for those students who have successfully completed a similar course previously.
- All VMS graduate students must submit a report of progress and plans regarding their degree program to the Departmental Graduate committee by April 30 of each year they are enrolled in the program. This report must be derived from the outcome of at least one annual meeting of their graduate degree committee and must be signed by their major advisor. The Annual Review of Graduate Student Progress will be used by students and committees to satisfy these requirements.
- The Departmental Graduate committee will review all reports and will schedule meetings with students and their advisors if deficiencies are noted. Failure to comply may result in disqualification of the student. The major advisor will be disqualified from receiving internal discretionary grant funds during the following calendar year.
- Completion of a thesis describing original investigative research completed by the candidate. Detailed guidelines for preparation of the thesis are available through the Graduate School.
- Documentation of a passing evaluation on the defense of the thesis work by an examination committee (make-up of the committee is described in the graduate catalog) as well as demonstration of mastery of the fundamental principles of the work included in the course of study for the degree.
- The candidate must be enrolled at MU in the semester when their thesis work is defended.
- The master's degree must be completed within eight years of enrollment from the time the student is accepted into the degree program.

V_PBio 7110	Veterinary Cytology	2
V_PBio 7120	Principles of Toxicology	3
V_M_S 8023	Internal Medicine Journal Review	1
V_M_S 8029	Emergency and Critical Care Journal Review	1
V_M_S 8090	Research in Veterinary Medicine and Surgery (Thesis)	1-99
V_M_S 8485	Problems in Veterinary Clinical Sciences	1-3
V_M_S 7320	Fundamentals of Small Animal Emergency and Critical Care	3
V_M_S 8040	Advanced Small Animal Clinical Nutrition	2
V_M_S 8405	Comparative Respiratory Pathophysiology	1
V_PBio 7210	Animal Issues in Disasters	1
V_BSCI 7333	Veterinary Cell Biology	4
V_M_S 7510	Equine Clinical Anatomy: Forelimbs	1

### Advising and Support Services:

Director: C.B. Chastain, DVM, MS, DACVIM, Professor  
 Administrative Assistant: June Kelly, Administrative Associate I



Mizzou Online Advisor: Kelly Ross, Admissions and Recruitment Advisor, Mizzou Online

## PhD in Biomedical Sciences

### About the Doctoral Degree Program

The Biomedical Sciences Area PhD is a multidisciplinary program that integrates molecular, cellular and systemic biology within the context of biomedical research. The program provides the student with the background to investigate questions relevant to the Medical sciences at the integrative, molecular or cellular level and to relate the findings to mammalian physiology. Training in both fundamental and state-of-the-art research methodologies help students develop the skills necessary for competitive biomedical research. The program is administered through the Department of Biomedical Sciences (College of Veterinary Medicine) that has research faculty representing a diversity of medical-related basic science disciplines, including anatomy, biochemistry, histology, pathology, molecular biology, physiology, pharmacology and toxicology. The program offers a rich environment for graduate study and a unique opportunity for training scientists in comprehensive interdisciplinary research.

### Degree Requirements

To attain the PhD degree, 72 hours of graduate credit must be completed, including 15 hours or more at the 8000/9000 level (exclusive of research, problems and independent study courses).

The core curriculum includes:

- physiology (10 credit hours)
- biochemistry/cell biology or histology (4 or 5 credit hours, respectively)
- multidisciplinary approaches to biomedical research (2 credit hours)
- departmental seminar (2 credit hours)

Minimum of 1 additional 7000-level course in each of the following areas:

- molecular biology
- cellular biology
- integrative biology

#### Rate and Quality of PhD Progress

A grade of 3.0 or better is required in the core curriculum and serves in lieu of a qualifying examination for the degree. The choice of additional courses will be made individually by the student in consultation with his/her advisor and doctoral program committee. Following completion of the plan of study, candidates for the PhD degree must pass a comprehensive examination designed by the doctoral program committee that reflects an understanding of the multidisciplinary approach to biomedical research. The PhD candidate is evaluated semiannually by a faculty committee to ensure a satisfactory rate of progress as defined by timely completion of core courses and productivity in research activities as stipulated by the student's doctoral program committee. The PhD candidate must carry out original research culminating in a written dissertation, present the dissertation work at a departmental seminar and defend it in an oral examination given by the doctoral program committee. The program for the PhD degree must be completed within five years of passing the comprehensive examination.

### Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

### Admission Criteria

- Fall deadline: December 15
- Spring deadline: September 15
- Summer deadline: Not Applicable
- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
100	600

- Minimum GRE scores:

When did you take the GRE?	Verbal + Quantitative	Analytical
Prior to August 1, 2011	1000	3.5
On or After August 1, 2011	300	3.5

- Minimum GPA: 3.0
- Required prerequisite courses: Biology (10 hrs), Physics (3 hrs), Biochemistry (3 hrs), Chemistry (10 hrs), Calculus (3 hrs)

NOTE: The GRE requirement may be waived for applicants with an MD or DVM.

For additional information, contact:

Director of Graduate Studies Dr. Douglas Bowles  
 Biomedical Sciences Area Program  
 W111 Veterinary Medicine Building  
 1600 Rollins Road  
 Columbia, MO 65211  
 573-882-7305  
<http://biomed.missouri.edu/>

### Data Science and Analytics

Data Science is an emerging discipline that, by its nature, integrates traditional disciplines. The degree program leverages prior investments in the computing disciplines across campuses and colleges within each campus. The MU Institute for Data Science & Informatics coordinates this collaborative degree program with other MU departments to deliver hands-on, problem-based learning, core, and emphasis area courses. The learning objectives for these novel courses were informed by our industry review board and are taught by dedicated faculty that support a high-touch, interactive learning environment.

The confluence of big data, massively powerful cloud computing platforms, and need of businesses from all sectors to leverage their data repositories has created a high-growth environment and demand for data scientists. Data scientists routinely leverage tools and techniques from computer science, information systems, advanced statistics, and machine learning. To satisfy the growing need for data scientists who can transform large collections of data into actionable decision making products for their employers, we are offering the Master of Science in Data Science and Analytics.

This multidisciplinary Data Science and Analytics (DSA) degree program consists of 34-credit hours of learning that can be completed on-campus or as an executive online program. The online students will visit campus one time each academic year for an intensive on-site learning experience. The academic program has 19 credit hours of core, fundamental data science courses; followed by 9 credits of emphasis area-specific courses (Geospatial, BioHealth Analytics, High-Performance Computing, Human-Centered Science Design, Data Journalism & Strategic Communication) and 6 credits of industry-relevant case studies and capstone project courses.

## Faculty

**Professor:** R. Marra\*\*, J. Moore\*\*, E. L. Perry Jr.\*\*, C. Shyu\*\*  
**Associate Professor:** S. Khan\*, T. Matisziw\*\*, B. Reeder\*, J. Uhlmann\*\*  
**Assistant Professor:** M. Kearney\*\*, G. Scott\*\*  
**Teaching Professor:** L. Ries\*  
**Assistant Teaching Professor:** E. Garwood\*, KSM Tozammel Hossain\*,  
**Professor, Professional Practice:** D. Herzog\*, J. T. Stemmler\*  
**Post-Doctoral Fellow:** I. Ersoy\*  
**Adjunct Instructor:** C. Bottoms, T. Green, W. Spollen

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

While MU does not offer undergraduate degrees specifically in Data Science and Analytics, the University does offer baccalaureate opportunities in a number of related areas.

A listing of current degree programs can be found here (p. 20).

## Graduate

- MS in Data Science and Analytics (p. 769)
  - with emphasis in BioHealth Analytics (p. 770)
  - with emphasis in Geospatial Analytics (p. 770)
  - with emphasis in High Performance Computing (p. 770)
  - with emphasis in Human Centered Science Design (p. 771)
  - with emphasis in Strategic Communications and Data Journalism (p. 771)
- Graduate Certificate in Data Science and Analytics (p. 771)

## Instruction Cyberinfrastructure

The DSA program is continually expanding its internal Big Data infrastructure, including Hadoop/Spark clusters, kubernetes and docker containers for scalable compute, and a variety of database technologies (relational, NoSQL, graph, geospatial, etc.). All of these technology interactions are facilitated from our customized JupyterHub environment, allowing students to conduct hands-on learning using Jupyter Notebooks online at the time and pace of their choosing. In addition, students learn to utilize a rich collection of programming APIs, including cutting-edge machine learning (TensorFlow, Scikit-Learn, SparkML, etc.) as well as cloud computing (boto3, etc.)

## MS in Data Science and Analytics

Graduates will be able to individually acquire and stage large data sets, design and conduct experiments, and analyze results for complex data analytical problems using their foundational and specialized data science tools and techniques; taking a problem from conceptualization stage through to the production of data-derived business intelligence.

The special skills the graduating students will acquire or possess include:

- Real-world experience in applying state-of-the-art data science tools and techniques to solve industry, academic, and/or business data and decision-making challenges.
- A clear understanding of the ethics and security mechanisms required to safeguard large-scale data collections that contain sensitive and critical information.
- A comprehensive understanding of modern data analytics, statistical analysis, and visualization tools that facilitate timely, large data analysis.
- A solid foundational understanding of database systems, database design, and information retrieval; allowing exploitation of a broad spectrum of data repositories and streaming data systems.
- A demonstrated ability to effectively communicate to a broad audience the relevant information derived from large data collections using a variety of visualization and presentation methods. Students will be able to convey the meanings behind specific data analysis techniques to audiences of various technical knowledge.
- Training in the latest data analytic methods and tools; including fundamental and advanced statistical and mathematical principles upon which advanced data analysis techniques are built (machine learning, pattern recognition, data mining, etc.).
- Specialized, advanced training in a chosen emphasis area, such as BioHealth Analytics, High-Performance Computing, Strategic Communications/Data Journalism, Human-Centered Science Design, or Geospatial Analytics.

## Degree Requirements

All students will take 'Core Courses' that will provide a foundation of knowledge and an introduction to state-of-the-art technology in Big Data, database design, data ethics, and visualization of high-dimensional and high-volume data.

To understand real-world Big Data issues in context, students will select three courses in an emphasis area. These elective courses will support in-depth analyses and training on data analytic techniques, issues, and problems students will face within a given emphasis area. Students will take a Case Study course to gain hands-on experience with large data sets and use the relevant technology and techniques. A Capstone project will enable students to refine and demonstrate knowledge and skills learned throughout the program. Both courses will provide students with mentoring from faculty, as well as insight from industry partners.

### Required Core Courses

DATA_SCI 7010	Introduction to Data Analytics	3
DATA_SCI 7020	Statistical and Mathematical Foundations for Data Analytics	3
DATA_SCI 7030	Database and Analytics	3
DATA_SCI 7040	Big Data Visualization	3
DATA_SCI 8000	Data and Information Ethics	1

DATA_SCI 8010	Data Analytics from Applied Machine Learning	3
DATA_SCI 8020	Big Data Security	3
<b>Case Study</b>		
DATA_SCI 8080	Big Data Analysis Case Study	3
<b>Capstone</b>		
DATA_SCI 8090	Big Data Capstone	3
<b>Electives</b>		
		9
Total Credits		34

## Sample Plan of Study

First Year					
Fall	CR	Spring	CR	Summer	CR
DATA_SCI 7010	3	DATA_SCI 7020	3	DATA_SCI 8080	3
DATA_SCI 7030	3	DATA_SCI 8010	3		
DATA_SCI 7040	3	DATA_SCI 8020	3		
		9	9		
<b>Second Year</b>					
Fall	CR	Spring	CR		
Emphasis Area Course 1	3	Emphasis Area Course 3	3		
Emphasis Area Course 2	3	DATA_SCI 8090	3		
DATA_SCI 8000	1				
		7	6		
Total Credits: 34					

## MS in Data Science and Analytics with Emphasis in BioHealth Analytics

### Degree Requirements

In addition to the core program objectives (p. 769), graduates of the Masters of Science in Data Science and Analytics who pursue the BioHealth Analytics emphasis area will achieve the following educational objectives:

- Students will be able to possess an in-depth understanding of the data analytics needs in biotechnology and healthcare industries in the US and worldwide;
- Students will develop hands-on skill sets in understanding and processing multi-omics data and public/population health data, as well as large-scaled electronic health records;
- Students will have the ability to practice their analytic skill sets to applications in areas such as, agriculture, animals, and human healthcare, through case studies and capstone projects.
- Students will be able to visualize and interpret their data analytic results with actionable plans in biotech and healthcare industries.

### Emphasis Area Electives

DATA_SCI 8110	Genomics Analytics	3
DATA_SCI 8120	Multi-Omics Analytics	3
DATA_SCI 8130	Data Science for Health Care	3
DATA_SCI 8140	Advanced Methods in Health Data Science	3

DATA_SCI 8150	Precision Medicine Analytics	3
DATA_SCI 8160	Population Health Analytics	3

## MS in Data Science and Analytics with Emphasis in Geospatial Analytics

Graduates of the Master of Science in Data Science and Analytics who pursue the Geospatial Analytics Emphasis Area will achieve the following educational objectives, in addition to the core program objectives (p. 769) while becoming immersed in Geospatial Big Data computational ecosystems:

- Students will have a firm understanding of the structure of spatial data and its integration with spatial analysis tools. Students will develop a robust understanding of the caveats that can be encountered in geospatial data structures and analysis.
- Students will have a firm understanding of geospatial data structures such as vector and raster data and their use in data analytics.
- Students will develop expertise in designing, managing, accessing, and manipulating geospatial data repositories.
- Students will gain knowledge and experience with the exploitation of geospatial data that is stored in a variety of formats and source locations, as well as experience developing geospatial visualizations of data, blending multiple geospatial data layers as well as non-spatial data.
- Students will have a solid understanding of the basic concepts, principles, and techniques in remote sensing.
- Students will understand the spatial and spectral characteristics of remote sensing data for passive, active, thermal, and other sensor phenomenologies.
- Students will have an ability to acquire and exploit remote sensing data using a variety of tools and techniques for real-world applications.

### Degree Requirements

Students will need to complete the core program objectives (p. 769) in addition to the emphasis area electives below.

### Emphasis Area Electives

DATA_SCI 8510	Geospatial Data Engineering	3
DATA_SCI 8520	Spatial and Geostatistical Analysis	3
DATA_SCI 8530	Remote Sensing Data Analytics	3

## MS in Data Science and Analytics with Emphasis in High Performance Computing

In addition to the core program objectives (p. 769), graduates of the Master of Science in Data Science and Analytics who pursue the High Performance Computing (HPC) emphasis area will achieve the following educational objectives, in addition to the core program objectives while becoming immersed in Big Data computational ecosystems.

- Students will have an in depth understanding of the state-of-the-art technologies which enable big data analytics and high performance computing; such that they can successfully investigate the data

and analytical needs, then guide the decision making process on deployments into HPC infrastructure.

- Students will acquire knowledge to exploit cloud-based computing infrastructure, including virtualization, distributed architectures, on-demand resource scaling, container technology, and other cloud-based computing concepts in support of Big Data management, processing, and analytics.
- Students will have a thorough understanding of advanced technologies and techniques in Big Data analytics, which facilitate the extraction of new data intelligence using state-of-the-art, leading analytical platforms.
- Students will gain a solid understanding of techniques for exploiting advanced co-processing hardware, including graphics processing units (GPU) and many-core units (e.g., Intel Phi) to achieve cost effective, massively parallel data analytics.

### Degree Requirements

Students will need to complete the core program objectives (p. 769) in addition to the emphasis area electives below.

#### Emphasis Area Electives

DATA_SCI 8410	Data Mining and Information Retrieval	3
DATA_SCI 8430	Parallel Computing for Data Analytics	3
DATA_SCI 8420	Cloud Computing for Data Analytics	3

## MS in Data Science and Analytics with Emphasis in Human Centered Science Design

In addition to the core program objectives (p. 769), graduates of the Masters of Science in Data Science and Analytics who pursue the Human-Centered Science Design emphasis area will achieve the following educational objectives:

- Students will develop a deep understanding of the theoretical foundations and hands-on experience necessary to understand the strengths and limitations of different analytical methods.
- Combines both the technical (databases, social networking, data mining, and text mining) and social (economic, ethical, policy, and political) aspects of data analytics.
- Students will build an understanding of the complex interplay between the decisions made during the collection, curation, and transformation steps in the information lifecycle, and their impact on the analytical methods that should be employed.

### Degree Requirements

Students will need to complete the core program objectives (p. 769) in addition to the emphasis area electives below.

#### Emphasis Area Electives

DATA_SCI 8310	Advanced Visualization I	3
DATA_SCI 8320	Advanced Visualization II	3

## MS in Data Science and Analytics with Emphasis in Strategic Communications and Data Journalism

In addition to the core program objectives (p. 769), graduates of the Masters of Science in Data Science and Analytics who pursue the Strategic Communication and Data Journalism emphasis area will achieve the following educational objectives:

- Students will have in-depth capabilities and understanding of big data management, including gathering and interpreting customer and viewer behavior patterns and developing strategies to enhance marketing objectives for organizations and clients.
- Students will have highly marketable skills in analyzing media markets and will be able to develop sophisticated methodologies to optimize usage of apps, social networks, and other technologies for media businesses and brands.
- Students will be able to apply their analytic skills to understanding and optimizing patterns of search, programmatic advertising buying and behavioral targeting.
- Students will have a deep understanding of issues of privacy and ethics in obtaining and utilizing data from a broad range of sources.
- Students will be able to obtain and analyze publicly available data in a variety of structured and unstructured formats. As such, they will develop an understanding of open-records laws and how to effectively use them.
- Students will develop the skills necessary to work as a data journalist for a news organization.
- As data journalism and data science/analytics are constantly evolving, students will develop strategies that enable them to continue to learn on the job.
- Students will develop an understanding of their audiences and how to best communicate with them.

### Degree Requirements

Students will need to complete the core program objectives in addition to the emphasis area electives.

#### Emphasis Area Electives

DATA_SCI 7001	Topics in Data Science and Analytics (Data Journalism)	3
DATA_SCI 7263	Digital Strategy II	3
DATA_SCI 8220	Communication Network Analytics	3
DATA_SCI 8230	Streaming Social Media Data Management and Analytics	3

## Graduate Certificate in Data Science and Analytics

The objective of the Graduate Certificate in Data Science and Analytics is to enable students from multiple different graduate programs at the University of Missouri to receive education and training in the emerging field of Data Science. Data science skills are increasingly necessary for

all fields of advanced study due to the emergence of large scale data and the incumbent challenges across academia and industry.

At the conclusion of the Graduate Certificate in Data Science and Analytics, students will:

1. Have experience in applying state-of-the-art data science tools and techniques to solve industry, academic, and/or business data and decision-making challenges.
2. Have a comprehensive understanding of modern data analytics, statistical analysis, and visualization tools that facilitate timely, large data analysis.
3. Be able to effectively communicate to a broad audience the relevant information derived from large data collections using a variety of visualization and presentation methods.
4. Understand the fundamental and advanced statistical and mathematical principles upon which advanced data analysis techniques are built.

## Requirements

A total of 15 credit hours of coursework is required.

Required coursework:		12
DATA_SCI 7010	Introduction to Data Analytics	3
DATA_SCI 7020	Statistical and Mathematical Foundations for Data Analytics	3
DATA_SCI 7030	Database and Analytics	3
DATA_SCI 7040	Big Data Visualization	3
Data Science Elective		3

## Dispute Resolution

### Contact Information

Rafael Gely, James E. Campbell Missouri Endowed Professor of Law and Director of the Center for the Study of Dispute Resolution  
James Levin, Associate Director of the Center for the Study of Dispute Resolution

Paul Ladehoff, Director of LL.M. Programs & Director of the Campus Mediation Service

LLM Program - MU School of Law

206 Hulston Hall

University of Missouri

Columbia, MO 65211

Phone: (573) 882-2020; Fax: (573) 882-3343

Email: [mulawcdr@missouri.edu](mailto:mulawcdr@missouri.edu)

Web site: <http://law.missouri.edu/llm> (<http://law.missouri.edu/csdr/llm/>)

### Dispute Resolution Field

DR professionals work in many different areas. To illustrate, the Association for Conflict Resolution has sections dealing with commercial, community, consumer, court, criminal justice, education, environmental / public policy, family, health care, international, ombudsman, online disputes, organizational conflict management, spirituality, training, and workplace issues.

### Faculty

**Professor** R. Gely\*, J. Lande\*, I. Lee\*, R. Uphoff\*

**Associate Professor** C. Conklin\*, D. Crouch\*, S. I. Strong\*

**Adjunct Assistant Professor** J. Levin\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

While MU does not offer undergraduate degrees specifically in dispute resolution, the University does offer baccalaureate opportunities in a number of related areas in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 20).

## Graduate

- LLM in Dispute Resolution (p. 772)

### About the Dispute Resolution Program

Students in the Master of Laws (LL.M.) dispute resolution program have a unique opportunity to gain a deeper understanding of theoretical, policy, design and ethical issues in dispute resolution. They study with leading dispute resolution scholars who generate important academic work influencing dispute resolution theory and practice around the world. Small class sizes create a close community with faculty and students.

Our program blends theoretical analysis, practitioner skills, and systems design work in courses usually limited to LL.M. students. Our diverse student body — by age, race, nationality, legal background — enriches the level of discussion, inside and outside the classroom.

The LL.M. meets the needs of those with backgrounds as advocates, neutrals, law-trained court administrators and government agency personnel, among others.

### Admission Requirements

Applicants must have completed the first degree in law (JD, LLB or equivalent) required for law practice or law teaching in the country in which law studies were pursued. Note: U.S. applicants must have satisfied the JD requirements of an ABA-accredited law school. In exceptional cases, U.S. applicants may be admitted if they have satisfied the JD requirements of a non-ABA-accredited law school.

- Applicants may be admitted without a JD degree if they have a bachelor's degree and **substantial** experience in dispute resolution.
- Applicants must possess a minimum 2.5 (A = 4.0) grade point average in their law program, and a 3.0 GPA for work completed in any additional graduate or advanced degree program.
- Applicants must be able to start the program in the fall semester (which begins in mid-August). New students are not admitted in the spring or summer semesters.

## LLM in Dispute Resolution

### Degree Requirements

The LL.M. program requires 24 credit hours of study. A minimum of 12 credits are required courses in dispute resolution and the remaining 12 credits are electives. Students choose electives according to their interests. With approval of the director of the LL.M. Program, students

can apply six (6) credits of graduate-level courses outside the Law School toward the LL.M. graduation requirements.

Students studying full-time can complete degree requirements within one academic year. Part-time students in a continuous course of study can complete the program within two academic years.

**Required Courses**

LAW 6905	LLM Arbitration Seminar	3
LAW 6930	LL.M. Major Research Project	3
LAW 6935	Dispute System Design	3
LAW 6945	Non-Binding Methods of Dispute Resolution	3

**Possible Electives 12**

LAW 5450	Conflict and Conflict Management
LAW 5485	Cross-Cultural Dispute Resolution
LAW 5537	Emotional Intelligence in Law
LAW 6920	LL.M. Externship
LAW 6925	LL.M. Independent Study
LAW 5770	Mediation Clinic
LAW 6950	Practicum on Dispute Resolution Training and Education
PUB_AF 8610	Group Dynamics and Conflict Resolution
PUB_AF 8620	Organizational Analysis and Change
PUB_AF 8630	Organizational Change in a Community and Global Context
PUB_AF 8160	Organizational Dynamics and Leadership
THEATR 4240	Theory and Practice of Theatre of the Oppressed

**Tailoring the Program**

In addition to the recommended electives outlined above, the MU Law School offers courses in many areas. Refer to the Courses tab above for course descriptions. Please note: Every effort is made to teach each of these courses every year, but the ability to offer them depends on faculty availability and budget constraints.

Some of the concentrated areas in the J.D. curriculum include:

- Business Planning/Corporations
- E-commerce
- Employment
- Environmental Law
- Family
- Governmental Processes
- Healthcare
- International Law
- Normative Theory and Diversity
- Tax
- Trial Practice

**Genetics Area Program**

Genetics Area Program  
 241 Engineering West  
 Columbia, MO 65211  
 573-882-9007  
 877-GENE-PHD (877-436-3743)  
 Email: gap@missouri.edu

The Genetics Area Program (GAP) is an interdisciplinary Ph.D. program that will prepare you for a research or teaching career in genetics. As genetic analysis is used in all aspects of biological research, our Program has integrated the efforts of approximately 60 life sciences faculty into one of the strongest training programs at MU.

The curriculum provides broad, individualized training tailored to your career objectives.

**Faculty**

**Professor** S. Alexander\*\*, K. L. Bennett\*\*, J. A. Birchler\*\*, A. K. Chatterjee\*, G. Davis\*\*, D. Duan\*\*, D. W. Emerich\*\*, W. R. Folk\*\*, J. Gorski, T. J. Guilfoyle\*\*, J. P. Gustafson\*, M. Hannink\*\*, G. Hazelbauer\*\*, M. L. Katz\*\*, M. Liscum\*\*, C. Lorson\*\*, D. B. Lubahn\*\*, B. A. McClure\*\*, K. J. Newton\*\*, H. Nguyen\*\*, D. J. Pintel\*\*, J. E. Schoelz\*, R. D. Semlitsch\*\*, D. Setzer\*, D. A. Sleper\*, G. Stacey\*\*, J. J. Tanner\*\*, J. Taylor\*\*, J. C. Walker\*\*, H. Zaghouani\*\*

**Curators' Professor** R. M. Roberts\*\*

**Associate Professor** E. A. Bryda\*\*, D. Burke, J. F. Cannon\*\*, A. Chandrasekhar\*\*, G. L. Davis\*\*, C. Franklin\*\*, W. Gassmann\*\*, M. W. Golomb\*\*, L. J. Holland\*\*, T. P. Holtsford\*, G. S. Johnson\*, T. Kazic\*\*, M. Kirk\*\*, D. R. Lee\*\*, M. E. Martin\*, B. Peculis\*\*, C. L. Phillips\*\*, C. Tan, T. Zars\*\*, S. Zhang\*\*

**Assistant Professor** M. Garcia\*\*, S. Sarafianos

**Adjunct Professor** H. B. Krishnan\*

**Adjunct Associate Professor** M. D. McMullen\*\*

**Adjunct Assistant Professor** S. Flint-Garcia\*\*

**Research Professor** G. Hagen\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

**Undergraduate**

While MU does not offer undergraduate degrees specifically in the genetics area program, the University does offer baccalaureate opportunities in a number of related areas in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 20).

**Graduate**

- PhD in Genetics Area Program (p. 774)

**About the Program**

We believe that an understanding of genetics is essential in solving global problems such as famine, environmental degradation and disease.

The Genetics Area Program (GAP) is an interdisciplinary PhD program that will prepare you for a research or teaching career in genetics. As genetic analysis is used in all aspects of biological research, our Program has integrated the efforts of approximately 60 life sciences faculty into one of the strongest training programs at MU. The curriculum provides broad, individualized training tailored to your career objectives.

Genetics graduate students play a major role in the research programs of our life sciences departments. Students spend approximately twelve weeks in three different laboratories during their first year. This promotes diversity in techniques learned, and it encourages students to meet and

work with faculty members in the associated departments. This scientific interaction helps our students choose a lab in which to complete the degree.

As part of the degree, students will spend a semester teaching or assisting with a course in the Genetics curriculum that is relevant to their career goals.

A genetics seminar series is organized and conducted by the graduate students to promote research interest and encourage scientific communication. Speakers include prominent researchers from universities throughout the country, as well as MU faculty. An annual retreat brings faculty and students together to share research results and techniques.

Genetics graduates leave MU with a strong scientific background, excellent laboratory skills and interpersonal communication abilities.

## PhD in Genetics Area Program

### Degree Requirements

Prerequisites include the following courses or their equivalents: BIO\_SC 2200 General Genetics, BIOCHM 4270 Biochemistry, STAT 1400 Elementary Statistics for Life Sciences.

In general, the minimum requirements for the PhD degree, beyond the requirements of the Graduate School, are outlined below. Others are determined in consultation between the student and faculty advisor.

- advanced courses in genetics, biochemistry and molecular biology
- regular participation in the genetics area seminar program
- successful completion of a comprehensive examination
- at least one semester of teaching in a genetics course
- 3 seminar presentations
- research, dissertation and oral defense

BIO_SC 8060	Ethical Conduct of Research	1
BIO_SC 8050	Professional Survival Skills	2

#### Core Courses - select one from each of 2 areas

At least one must be graduate level, and you must receive a grade of B or better.

##### Molecular Genetics

BIO_SC 4976	Molecular Biology
CHEM 8085	Topics in Chemistry (Bioorganic Chemistry of Nucleic Acids)
MICROB 9432 or BIOCHM 9432	Molecular Biology II
V_PBio 8448	Molecular Methods in Nucleic Acids

##### Developmental Genetics

BIO_SC 8320	Developmental Genetics
BIO_SC 9468	Molecular Biology of Plant Growth and Development

##### Population and Quantitative Genetics

PLNT_S 7325	Advanced Plant Breeding
PLNT_S 9440	Applied Quantitative and Statistical Genetics
AN_SCI 7323	Applied Livestock Genetics
AN_SCI 9423	Genetics of Populations
BIO_SC 8700	Ecological Genetics

#### Specialty Courses - pick any two

At least one must be graduate level, and you must receive a grade of B or better.

##### Genetics of Particular Organisms

BIOCHM 7376	Computer Assisted Sequence Analysis and Molecular Modeling
BIO_SC 4600	Evolution
BIO_SC 4982	Human Inherited Diseases
BIO_SC 8300	Advanced Plant Genetics
BIO_SC 8720	Speciation
CMP_SC 7001	Topics in Computer Science (Bioinformatics)
MICROB 7404	Foundations in Bacteriology and Pathogenesis
PLNT_S 9540	Genetics of Plant-Microorganism Interaction

##### Immunogenetics

MICROB 7304	Immunology
MICROB 9407	Advanced Immunology

##### Electives

One elective approved by student's committee in life science, including genetics or ancillary subjects such as statistics, computer science, etc. Must be 3000 level or above with at least 3 credit hours.

##### GAP Seminar

All students must be enrolled every semester.

##### Student Seminars

Students are required to present 3 research seminars during their tenure. At least 1 must be given in the GAP seminar after the student's second year in the program. Other acceptable presentations, with approval of the student's committee, include a 15 minute talk or an in-person poster presentation at a national or international meeting, or in a public, advertised forum.

### Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

### Application Deadline

Fall deadline: January 15

### Admission Criteria

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
93	580

- Minimum GRE scores:

When did you take the GRE?	Verbal + Quantitative	Analytical
Prior to August 1, 2011	1100	4.5
On or after August 1, 2011	302	4.5

- Minimum GPA: 3.0 in last 60 hours
- Bachelor's degree
- One or more courses in each of the following: organic chemistry, biochemistry, mathematics (calculus and statistics), physics, introductory genetics

- Research experience highly desirable
- Broad background in biology

Note: Deficiencies in the subjects listed can be remedied after admission.

## Required Application Materials

To the Graduate School:

- All required Graduate School documents

To the Genetics Area Program:

Genetics Area Program application (download form from website)

- GRE scores
- TOEFL scores (international applicants)
- 3 letters of recommendation (use provided form)
- Personal statement

## Health Administration

Eduardo J. Simoes, Chair and Dr. Stuart Wesbury Distinguished Professor in Health Management and Informatics  
CE749, CS&E Building  
(573) 882-6179

Sue A. Boren, Director of Academic Programs and Professor  
CE743, CS&E Building  
(573) 882-1492

## Contact Information

Health Management and Informatics  
CE 707 Clinical Support and Education Building, DC006.00  
One Hospital Drive  
(573) 882-6178  
<http://www.hmi.missouri.edu/>

## Department of Health Management and Informatics

Graduate level academic programs at MU in the area of Health Administration are offered through the Department of Health Management and Informatics (HMI) in the School of Medicine.

The HMI Department develops, translates, and disseminates knowledge, innovations, and evidence-based solutions to improve health management and informatics performance in complex health systems.

HMI advances the health of Missouri's communities, the nation, and international partners by:

- Creating a culture of collaborative relationships in research, education, and service to generate innovative ideas and solutions;
- Providing professional health management and informatics education and fostering lifelong learning;
- Delivering technical assistance and consultation by partnering with health, human service, and policy-making organizations; and
- Developing innovative commercial products and services for health- and education-related application

## Degrees & Certificates Offered

The HMI Department offers the following degrees and graduate certificate programs:

- Master of Health Administration (executive and residential cohort)
- Master of Science in Health Informatics and Bioinformatics (executive and residential cohort)
- Dual Master of Health Administration and Master of Science in Health Informatics (executive and residential cohort)
- Graduate Certificate in Health Informatics (executive and residential cohort)
- Graduate Certificate in Health Ethics (100% online format available)
- Graduate Certificate in Informatics for Public Health (100% online)
- Graduate Certificate in Healthcare Project Management (admission beginning AY20-21; both on-campus and 100% online formats will be available)

Residential Master of Health Administration students may also pursue a dual MBA, MS in Industrial Engineering, MPA, or JD degree. Some students choose to complete an additional Master's degree, such as the MPH, concurrently with the MHA degree.

## Faculty

**Professor** S. A. Boren\*\*, J. Kapp\*\*, M. Popescu\*\*, E. J. Simoes\*\*  
**Associate Professor** N. Khatri\*\*, P. Rao\*\*, I. Yoo\*\*  
**Assistant Professor** C. Deroche\*, T. Joshi\*\*, A. Zohrabian\*\*  
**Associate Professional Practice Professor** W. Wells\*  
**Associate Teaching Professor** P. Alafaireet\*\*, W. Phillips\*\*  
**Assistant Research Professor** M. Golzy, M. S. Kim\*\*, A. Mosa\*\*, L. Sheets\*, I. Zachary\*\*  
**Assistant Teaching Professor** B. Hensel\*  
**Clinical Instructor** D. Moxley\*  
**Adjunct Professor** G. Sill\*  
**Adjunct Associate Research Professor** J. Jackson-Thompson\*\*  
**Adjunct Instructor** K. Clements\*, M. Harris\*, M. Johnson Moxley\*, C. Schmaltz\*, R. Sommer\*, T. Weatherford\*, A. Wiggins\*, P. Xaverius\*  
**Professors Emeriti** G. D. Brown\*, L. L. Hicks\*\*, D. Wakefield\*\*

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

Undergraduate students who are eligible for dual enrollment may, with permission, register for Graduate-level HMI courses. For more information on dual enrollment, please see <http://registrar.missouri.edu/policies-procedures/dual-enrollment.php>.

While MU does not offer undergraduate degrees specifically in health administration, the University does offer baccalaureate opportunities in a number of related areas in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 20).

## Graduate

- MHA in Health Administration (p. 776)

## About the Master of Health Administration

The graduate program in Health Administration prepares professionals to meet critical and complex challenges in leadership and improvement



in organizations and systems throughout the health industry. The program provides recognized national and global leadership in health management education.

The program is competency-based and distinctively equips graduates for success through (a) providing solid grounding in professional and operational knowledge and skills, (b) integrating health informatics throughout the health services management curriculum, and (c) incorporating overarching complex systems context and analytical approaches.

The residential and executive master's degrees launch and advance patient-centered, improvement-oriented, financially-responsible, and ethically-grounded careers in evidence-based health administration.

The program admits diverse cohorts of students from Missouri, other states, and other nations. During the admissions process, the program seeks learners with strong academic records, maturity, motivation, leadership capabilities, and career potential. Primary post-graduation placement organizations include health systems, hospitals, academic medical centers, physician group practices, surgery centers, information technology companies, consulting firms, government agencies, insurance entities, and other points of health services delivery.

Whereas the residential master's degree format is a traditional on-campus residential program, the executive master's degree is offered in a hybrid model featuring both on-campus and distance learning. In both formats, emphasis is on fostering an individualized and collaborative culture of learning, mentoring, and professional development among students, faculty, staff, alumni, and other practitioners. The intent is to prepare students to enable transformational leadership and improve patient care quality, safety, value, and overall level of population health.

Established in 1965, the program is a member of the Association of University Programs in Health Administration (AUPHA) and has been accredited since 1968 by the Commission on Accreditation of Healthcare Management Education (CAHME), formerly Accrediting Commission on Education for Health Services Administration (ACEHSA).

Both executive and residential students may pursue the MHA degree jointly with the MS in Health Informatics degree. Residential students may also pursue a dual MBA, MS in Industrial Engineering, MPA or JD degree, or complete an additional Master's degree, such as the MPH, concurrently with the MHA program.

## MHA in Health Administration

### About the MHA

The HMI Department's MHA degree is designed for students from a range of educational backgrounds and provides the knowledge and skills necessary to function effectively as a healthcare executive. The curriculum includes such competency areas as health systems operations, organization theory, information management, financial management, strategic planning and marketing, human resource management, health economics, managerial epidemiology, leadership, and ethics. By combining basic and advanced course work with an internship and executive management study (an applied management study that replaces a thesis), the student may develop expertise in a focused area. Professional elective course selection is a mutual decision between the student and advisor, and in all cases, the intent is to tailor the degree program to the student's interests. The goal of the graduate program in health administration is to prepare professionals for leadership

roles in health care. Students develop an excellent applied knowledge in such areas as clinical decision support systems, risk assessment and management, clinical outcomes assessment, managing interdisciplinary teams and integrated health systems.

### Degree Requirements

The residential MHA degree requires a total of 54 credit hours, which includes 39 hours of core coursework, three credit hours earned for a required 12-week summer internship, a three-credit hour capstone group management project, and nine credit hours of professional electives.

Students must maintain a minimum 3.0 cumulative MU graduate grade point average to earn the Master's degree.

The professional elective requirement, which comprises three courses, allows MHA students the opportunity to concentrate in a particular area of study if they choose. They may take courses in health informatics, health ethics, informatics for public health, and project management within the HMI Department, pursue graduate certificates, or complement their MHA coursework with classes in areas such as business administration, public administration, industrial engineering and public health.

MHA students must complete a 12-week administrative internship at an approved integrated managed care system, group practice, hospital or other healthcare organization under the guidance of a qualified preceptor (often a HMI alumnus/a). The internship is designed to incorporate the academic training students receive in their first year of the master's degree with practical applications within the host site. The students receive hands-on exposure to health care management in a real-world environment and experience first-hand the dynamics of a career in health care. The intern should have the opportunity to observe their mentor and other professionals in the work environment, as well as opportunities to discuss their experiences.

Specific general skills to be developed include:

- Leadership
- Strategic decision making
- Project management
- Teamwork

HMI's executive-in-residence works individually with students to place them at internship sites. For a list of recent internship placements, please see <https://medicine.missouri.edu/departments/health-management-and-informatics/graduate-degrees-programs/residential-mha-program> (<https://medicine.missouri.edu/departments/health-management-and-informatics/graduate-degrees-programs/residential-mha-program/>), administrative internship section.

#### Required Courses

HMI 7410	Introduction to the US Health Care System	3
HMI 7430	Introduction to Health Informatics	3
HMI 7471	Introduction to Accounting and Finance in Health Care (HMI 7471 Introduction to Accounting and Finance in Health Care)	3
HMI 8453	Executive Management Studies	3
HMI 8460	Administration of Health Care Organizations	3
HMI 8461	Managing Human Resources in Health Care Organizations	3
HMI 8470	Strategic Planning and Marketing for Health Care Organizations	3
HMI 8472	Financial Management for Health Care Organizations	3

HMI 8524	Health Economics	3
HMI 8544	Managerial Epidemiology (Population Health Management)	3
HMI 8571	Decision Support in Health Care Systems	3
HMI 8573	Decision Making for Health Care Organizations	3
HMI 8574	Health Care Law	3
HMI 8575	Health Policy and Politics	3
HMI 8689	Field Experience in Health Management and Informatics	3

Students must complete nine credit hours of professional electives  
 Students must satisfy a pre-requisites in microeconomics

## Executive MHA Degree

### Sample Plan of Study

First Year					
Fall	CR	Spring	CR	Summer	CR
HMI 7410	3	HMI 8524	3	HMI 8689	3
HMI 7471	3	HMI 8544	3		
HMI 8460	3	HMI 8573	3		
HMI 8461	3				
		12			9
<hr/>					
Second Year					
Fall	CR	Spring	CR		
HMI 7430	3	HMI 8571	3		
HMI 8470	3	HMI 8574	3		
HMI 8472	3	HMI 8575	3		
		HMI 8453	3		
		9			12

Total Credits: 45

## Thesis/Non-Thesis Requirement

- improvement of patient experience of wait times in the Orthopaedic Clinic at the Missouri Orthopaedic Institute
- surgical site infection reduction informed by NSQIP resources for UMHC
- system-wide urinary catheter reduction for UMHC
- improving screening and follow-up for students with substance use and/or mood disorders at MU Student Health

## Financial Aid

Further information about costs, financial aid, and external scholarship opportunities is available on the HMI Department's website at: [http://hmi.missouri.edu/prospective/financial\\_aid.html](http://hmi.missouri.edu/prospective/financial_aid.html).

## Admissions Requirements

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MHA program (<https://medicine.missouri.edu/departments/health-management-and-informatics/graduate-degrees-programs/how-to-apply/>) and the minimum requirements of the Graduate School (<https://gradschool.missouri.edu/admissions/eligibility-process/>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admission to the University of Missouri, your

application materials will be reviewed by both the degree program to which you've applied and the Graduate School.

## HMI Admissions Information

Deadline for Fall entrance: Rolling; priority deadline is March 1

A minimum of a baccalaureate degree from an accredited institution

Undergraduate GPA: 3.0 during the last 60 hours of undergraduate course work and any subsequent graduate course work

Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
100	603

- Minimum Academics IELTS scores:

Item	Score
OVERALL	7.5

- Minimum GRE Scores:

When did you take the GRE?	Verbal + Quantitative
Prior to August 1, 2011	50th percentile
On or After August 1, 2011	50th percentile

- In lieu of GRE, minimum GMAT score: 50th percentile. HMI also accepts LSAT and MCAT scores.

## Required Application Materials

Master's program applicants should apply online through the **Graduate School application system**. When completing the online application, you will have an opportunity to upload/attach additional documents. Please include the following documents:

- an updated **résumé** or **curriculum vitae**;
- a **personal essay** that:
  - outlines your professional plans and career objectives;
  - explains how you became interested in health services management/health informatics and how your prior training and experience would help your career;
  - includes specific issues and problems in health care you consider challenging and why;
  - indicates if you intend to apply to the traditional (residential) on-campus degree program or the distance education (executive) format

Other required documents:

- **Official transcripts** of all coursework from all colleges, technical schools and/or universities attended
- **Three letters of recommendation** (submitted through the Graduate School application system (<https://applygrad.missouri.edu/apply/>))
- **Official GRE/GMAT score report** (Residential Students only)

You may also be required to submit other documentation and in some cases complete prerequisite courses. Below is a checklist to help make sure your application is complete:

- **Request to re-enroll form** (for previously admitted students only)
- **Application for Change of Degree form** (for students already enrolled in a Master's degree or Graduate Certificate program)
- **Letter of support** from your employer (Executive Students only)

- **Official TOEFL report** (for international applicants only - have official results sent to us: institution code is 6875, our department code is 25 - minimum score of 100 on the Internet-based exam required)
- **Prerequisites** - links to information about prerequisites for each degree program are available at [http://hmi.missouri.edu/prospective/rmha\\_description.html](http://hmi.missouri.edu/prospective/rmha_description.html) ([http://hmi.missouri.edu/prospective/graduate\\_programs.html](http://hmi.missouri.edu/prospective/graduate_programs.html))

For additional information about the Executive MHA, please visit [http://hmi.missouri.edu/prospective/emha\\_description.html](http://hmi.missouri.edu/prospective/emha_description.html), or contact the HMI Dept. at (573) 884-0698.

## Admissions Contact

Veronica Lemme, MPA  
CE740 CS&E Building, DC006.00  
One Hospital Drive  
Columbia, MO 65212  
<http://hmi.missouri.edu>  
(573) 884-0698  
[lemmev@health.missouri.edu](mailto:lemmev@health.missouri.edu)

## Health Informatics and Bioinformatics

Eduardo J. Simoes, Chair and Dr. Stuart Wesbury Distinguished Professor in Health Management and Informatics  
CE749, CS&E Building  
(573) 882-6179

Sue A. Boren, Director of Academic Programs and Professor  
CE743, CS&E Building  
(573) 882-1492

## Contact Information

Health Management and Informatics  
CE 707 Clinical Support and Education Building, DC006.00  
One Hospital Drive  
(573) 882-6178  
<http://www.hmi.missouri.edu/>

## Department of Health Management and Informatics

Graduate level academic programs at MU in the area of Health Informatics and Bioinformatics are offered through the Department of Health Management and Informatics (HMI) in the School of Medicine.

The HMI Department develops, translates, and disseminates knowledge, innovations, and evidence-based solutions to improve health management and informatics performance in complex health systems.

HMI advances the health of Missouri's communities, the nation, and international partners by:

- Creating a culture of collaborative relationships in research, education, and service to generate innovative ideas and solutions;
- Providing professional health management and informatics education and fostering lifelong learning;
- Delivering technical assistance and consultation by partnering with health, human service, and policy-making organizations; and
- Developing innovative commercial products and services for health- and education-related application

## Degrees & Certificates Offered

The HMI Department offers the following degrees and graduate certificate programs:

- Master of Health Administration (executive and residential cohort)
- Master of Science in Health Informatics and Bioinformatics (executive and residential cohort)
- Dual Master of Health Administration and Master of Science in Health Informatics (executive and residential cohort)
- Graduate Certificate in Health Informatics (executive and residential cohort)
- Graduate Certificate in Health Ethics (100% online format available)
- Graduate Certificate in Informatics for Public Health (100% online)
- Graduate Certificate in Healthcare Project Management (admissions beginning AY20-21; certificate will be available in both on-campus and 100% online formats)

## Faculty

**Professor** S. A. Boren\*\*, J. Kapp\*\*, M. Popescu\*\*, E. J. Simoes\*\*  
**Associate Professor** N. Khatri\*\*, P. Rao\*\*, I. Yoo\*\*  
**Assistant Professor** C. Deroche\*, T. Joshi\*\*, A. Zohrabian\*\*  
**Associate Professional Practice Professor** W. Wells\*  
**Associate Teaching Professor** P. Alafaireet\*\*, W. Phillips\*\*  
**Assistant Research Professor** M. Golzy, M. S. Kim\*\*, A. Mosa\*\*, L. Sheets\*, I. Zachary\*\*  
**Assistant Teaching Professor** B. Hensel\*  
**Clinical Instructor** D. Moxley\*  
**Adjunct Professor** G. Sill\*  
**Adjunct Associate Research Professor** J. Jackson-Thompson\*\*  
**Adjunct Instructor** K. Clements\*, M. Harris\*, J. Kaplan\*, M. Johnson Moxley\*, C. Schmaltz\*, R. Sommer\*, T. Weatherford\*, A. Wiggins\*, P. Xaverius\*  
**Professors Emeriti** G. D. Brown\*, L. L. Hicks\*\*, D. Wakefield\*\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

HMI offers two health informatics and bioinformatics courses that are cross-leveled: HMI 4420/HMI 7420 Fundamentals of Bioinformatics and HMI 4440/HMI 7440 Health Information Technology. Undergraduate students may enroll in the 4000-level sections of these classes for Undergraduate credit. Undergraduate students who are eligible for dual enrollment may, with permission, take courses through HMI for Graduate credit. For more information on dual enrollment, please see <http://registrar.missouri.edu/policies-procedures/dual-enrollment.php>.

While MU does not offer undergraduate degrees specifically in Health Informatics, the University does offer baccalaureate opportunities in a number of related areas in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 20).

## Graduate

- MS in Health Informatics and Bioinformatics (p. 779)
  - with emphasis in Bioinformatics (p. 781)
  - with emphasis in Health Informatics (p. 782)
- Graduate Certificate in Health Informatics (p. 784)

MU also offers a PhD in Informatics (p. 785) with emphasis in Health Informatics through the MU Institute for Data Science and Informatics (<https://muidsi.missouri.edu/>).

## About the Master of Science in Health Informatics and Bioinformatics

The Master of Science in Health Informatics and Bioinformatics program prepares professionals to meet critical and complex challenges in applying information technology within the health industry. It provides recognized national and global leadership in health informatics education.

The residential master's degree prepares students for careers in developing and evaluating clinical information systems, data and knowledge management, decision support, and doctoral study in health informatics. The executive master's degree advances the careers of physicians, managers, nurses, information system designers, consultants, entrepreneurs, and others committed to the application of information technology for improving the quality, safety, and efficiency of health services.

The program admits diverse cohorts of students from Missouri, other states, and other nations. During the admissions process, the program seeks learners with strong academic records, maturity, motivation, leadership capabilities, and career potential. Primary post-graduation placements include doctoral programs, health systems, hospitals, academic medical centers, physician group practices, outpatient facilities, information technology companies, consulting firms, government agencies, insurance entities, and other points of health services delivery.

Whereas the residential master's degree format is a traditional on-campus residential program, the executive master's degree is offered in a hybrid model featuring both on-campus and distance learning. In both formats, emphasis is on fostering an individualized and collaborative culture of learning, mentoring, and professional development among students, faculty, staff, alumni, and other practitioners. The intent is to prepare students to enable transformational leadership and improve patient care quality, safety, value, and overall level of population health.

## MS in Health Informatics and Bioinformatics

The residential MS in Health Informatics (MSHI) curriculum includes foundational coursework in health information technology as well as health administration. By integrating learning across computer science, health informatics, and health administration, while also developing student research interests.

Individuals with three or more years of professional experience are encouraged to apply for admission to the Executive MSHI cohort (please see Executive plan of study information below).

## Degree Requirements

The MSHI curriculum requires 37 credit hours of course work. Prior coursework in computer science is not required.

Students must maintain a minimum 3.0 cumulative MU graduate grade point average to earn the Master's degree.

Residential MSHI students have the option to complete a 12-week internship during the summer following their first year, although it is not required for the degree.\* HMI's executive-in-residence will work with HI students who wish to complete an internship to find an appropriate placement.

### Required Courses

HMI 7410	Introduction to the US Health Care System	3
HMI 7430	Introduction to Health Informatics	3
HMI 7440	Health Information Technology	3
HMI 8435	Information Security, Evaluation and Policy	3
HMI 8437	Data Warehousing and Data/Text Mining for Health Care	3
HMI 8441	Biomedical and Health Vocabularies and Ontologies	3
HMI 8443	Enterprise Information and Solutions Architecture for Strategic Healthcare Operations	3
HMI 8571	Decision Support in Health Care Systems	3
HMI 8550	Health Data Analytics	3
HMI 8610	Consumer Health Informatics	3
HMI 8870	Knowledge Representation in Biology and Medicine	3
HMI 8090	Thesis Research in Health Management and Informatics	4

\* If a student chooses to complete an internship, the student must register for HMI 8689 Field Experience in Health Management and Informatics and must abide by all internship program requirements.

## Executive MSHI Program

### Sample Plan of Study - Residential

First Year					
Fall	CR	Spring	CR	Summer	CR
HMI 7410	3	HMI 8441	3	HMI 8689 (Optional)	3
HMI 7430	3	HMI 8443	3		
HMI 7440	3	HMI 8550	3		
HMI 8435	3	HMI 8090	1		
HMI 8090	1				
			13	10	3

Second Year			
Fall	CR	Spring	CR
HMI 8437	3	HMI 8870	3
HMI 8610	3	HMI 8090	1
HMI 8090	1	HMI 8571	3
		7	7

Total Credits: 40

## Sample Plan of Study - Executive

First Year					
Fall	CR	Spring	CR	Summer	CR
HMI 8550	3	HMI 7410	3	HMI 8450	3
HMI 8571	3	HMI 7430	3	HMI 8580	3
		6			6
Second Year					
Fall	CR	Spring	CR	Summer	CR
HMI 8437	3	HMI 8441	3	HMI 8451	3
HMI 8443	3	HMI 8435	3		3
		6			6

Total Credits: 33

## Thesis/Non-Thesis Requirement

Residential MSHI students have the option to complete a formal Master's thesis to be submitted to the Graduate School. Students who choose not to complete a thesis must complete a substantial independent research project. All MSHI students must present their thesis or independent research during their oral comprehensive examination in their final semester.

## Financial Aid

Further information about costs, financial aid, and external scholarship opportunities is available on the HMI Department's website at: [http://hmi.missouri.edu/prospective/financial\\_aid.html](http://hmi.missouri.edu/prospective/financial_aid.html).

## Admissions Requirements

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MSHI program ([http://hmi.missouri.edu/prospective/admissions\\_criteria.html](http://hmi.missouri.edu/prospective/admissions_criteria.html)) and the minimum requirements of the Graduate School (<https://gradschool.missouri.edu/admissions/eligibility-process/>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the degree program to which you've applied and the Graduate School.

## HMI Admissions Information

Deadline for Fall entrance: Rolling; Priority deadline March 1

A minimum of a baccalaureate degree from an accredited institution

Undergraduate GPA: 3.0 during the last 60 hours of undergraduate course work and any subsequent graduate course work

Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
100	603

- Minimum Academic IELTS scores:

Item	Score
OVERALL	7.5
• Minimum GRE Scores:	
When did you take the GRE?	Verbal + Quantitative
Prior to August 1, 2011	50th percentile
On or After August 1, 2011	50th percentile

- In lieu of GRE, minimum GMAT score: 50th percentile. HMI also accepts LSAT and MCAT scores. GRE scores are not required for applicants to the Executive cohort.

## Required Application Materials

Master's program applicants should apply online through the Graduate School (<http://gradschool.missouri.edu/admissions/apply/>) **application system**. When completing the online application, you will have an opportunity to upload/attach additional documents. Please include the following documents:

- an updated **résumé** or **curriculum vitae**;
- a **personal essay** that:
  - outlines your professional plans and career objectives;
  - explains how you became interested in health services management/health informatics and how your prior training and experience would help your career;
  - includes specific issues and problems in health care you consider challenging and why;
  - indicates if you intend to apply to the traditional (residential) on-campus degree program or the distance education (executive) format

Other required documents:

- **Official transcripts** of all coursework from all colleges, technical schools and/or universities attended
- **Three letters of recommendation** (submitted through the Graduate School application system (<http://gradschool.missouri.edu/admissions/apply/>))
- **Official GRE/GMAT score report** (Residential Students only)

You may also be required to submit other documentation and in some cases complete prerequisite courses. Below is a checklist to help make sure your application is complete:

- **Request to re-enroll form** (for previously admitted students only)
- **Application for Change of Degree form** (for students already enrolled in a Master's degree or Graduate Certificate program)
- **Letter of support** from your employer (Executive Students only)
- **Official TOEFL report** (for international applicants only - have official results sent to us: institution code is 6875, our department code is 25 - minimum score of 100 on the Internet-based exam required)
- **Prerequisites** - links to information about prerequisites for each degree program are available at [http://hmi.missouri.edu/prospective/rmha\\_description.html](http://hmi.missouri.edu/prospective/rmha_description.html) ([http://hmi.missouri.edu/prospective/graduate\\_programs.html](http://hmi.missouri.edu/prospective/graduate_programs.html))

**For additional information** about the Executive MSHI degree, please visit [http://hmi.missouri.edu/prospective/emshi\\_description.html](http://hmi.missouri.edu/prospective/emshi_description.html) or call (573) 884-0698.

### Admissions Contact

Veronica Lemme, MPA  
 CE740 CS&E Building, DC006.00  
 One Hospital Drive  
 Columbia, MO 65212  
<http://hmi.missouri.edu>  
 (573) 884-0698  
[lemmev@health.missouri.edu](mailto:lemmev@health.missouri.edu)

## MS in Health Informatics and Bioinformatics with Emphasis in Bioinformatics

- Degree Requirements (p. 781)
- Sample Plan of Study (p. 781)
- Thesis/Non-Thesis Requirements (p. 781)
- Financial Aid (p. 782)
- Executive MSHI Program (p. 782)
- PhD in Informatics (p. 782)
- Admissions (p. 782)

### Degree Requirements

The residential MS in Health Informatics (MSHI) curriculum requires 37 credit hours of course work, which include foundational coursework in health information technology as well as health administration. Prior coursework in computer science is not required. Residential MSHI students have the option to complete a 12-week internship during the summer following their first year, although it is not required for the degree. HMI's executive-in-residence will work with HI students who wish to complete an internship to find an appropriate placement. For a list of recent internship placements, please see <https://medicine.missouri.edu/departments/health-management-and-informatics/graduate-degrees-programs/residential-mha-program> (<https://medicine.missouri.edu/departments/health-management-and-informatics/graduate-degrees-programs/residential-mha-program/>), administrative internship section.

The MSHI curriculum integrates learning across computer science, health informatics, and health administration, and also develops students' research interests. Students must maintain a minimum 3.0 cumulative MU graduate grade point average to earn the Master's degree. Individuals with three or more years of professional experience are encouraged to apply for admission to the Executive MSHI cohort (please see Executive plan of study information below).

#### Required Courses

HMI 7410	Introduction to the US Health Care System	3
HMI 7430	Introduction to Health Informatics	3
HMI 7440	Health Information Technology	3
HMI 8435	Information Security, Evaluation and Policy	3
HMI 8437	Data Warehousing and Data/Text Mining for Health Care	3
HMI 8441	Biomedical and Health Vocabularies and Ontologies	3

HMI 8443	Enterprise Information and Solutions Architecture for Strategic Healthcare Operations	3
HMI 8571	Decision Support in Health Care Systems	3
HMI 8550	Health Data Analytics	3
HMI 8610	Consumer Health Informatics	3
HMI 8870	Knowledge Representation in Biology and Medicine	3
HMI 8090	Thesis Research in Health Management and Informatics	4

\* If a student chooses to complete an internship, s/he must register for HMI 8689 Field Experience in Health Management and Informatics, and must abide by all internship program requirements.

### Sample Plan of Study - Residential

First Year					
Fall	CR	Spring	CR	Summer	CR
HMI 7410	3	HMI 8441	3	HMI 8689 (optional)	3
HMI 7430	3	HMI 8443	3		
HMI 7440	3	HMI 8550	3		
HMI 8435	3	HMI 8090	1		
HMI 8090	1				
			13	10	3
Second Year					
Fall	CR	Spring	CR		
HMI 8437	3	HMI 8870	3		
HMI 8610	3	HMI 8571	3		
HMI 8090	1	HMI 8090	1		
			7	7	

Total Credits: 40

### Sample Plan of Study - Executive

First Year					
	Spring	CR	Summer	CR	
	HMI 7410	3	HMI 8450	3	
	HMI 7430	3	HMI 8580	3	
			6	6	
Second Year					
Fall	CR	Spring	CR	Summer	CR
HMI 8550	3	HMI 8441	3	HMI 8451	3
HMI 8571	3	HMI 8435	3		
			6	6	3
Third Year					
Fall	CR				
HMI 8437	3				
HMI 8443	3				
			6		

Total Credits: 33

### Thesis/Non-Thesis Requirement

Residential MSHI students have the option to complete a formal Master's thesis to be submitted to the Graduate School. Students who choose not to complete a thesis must complete a substantial independent research project. All MSHI students must present their thesis or independent

research during their oral comprehensive examination in their final semester.

## Financial Aid

Further information about costs, financial aid, and external scholarship opportunities is available on the HMI Department's website at: [http://hmi.missouri.edu/prospective/financial\\_aid.html](http://hmi.missouri.edu/prospective/financial_aid.html).

[Back to Top \(http://catalog.missouri.edu/undergraduategraduate/interdisciplinaryacademicprograms/healthinformatics/ms-health-informatics/#top\)](http://catalog.missouri.edu/undergraduategraduate/interdisciplinaryacademicprograms/healthinformatics/ms-health-informatics/#top)

## Executive MSHI Program

## Informatics PhD Program

MU also offers a PhD in Informatics with emphasis in Health Informatics through the MU Informatics Institute (<http://muui.missouri.edu/>).

## Admissions Requirements

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MSHI program ([http://hmi.missouri.edu/prospective/admissions\\_criteria.html](http://hmi.missouri.edu/prospective/admissions_criteria.html)) and the minimum requirements of the Graduate School (<https://gradschool.missouri.edu/admissions/eligibility-process/>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the degree program to which you've applied and the Graduate School.

Deadline for Fall entrance: Rolling; Priority deadline March 1

A minimum of a baccalaureate degree from an accredited institution

Undergraduate GPA: 3.0 during the last 60 hours of undergraduate course work and any subsequent graduate course work

Minimum TOEFL scores: iBt 100, PBT 603

- Minimum Academic IELTS scores: Overall 7.5
- Minimum GRE Scores: Verbal + Quantitative 50th percentile
- In lieu of GRE, minimum GMAT score: 50th percentile. HMI also accepts LSAT and MCAT scores. GRE scores are not required for applicants to the Executive cohort.

### Required Application Materials

Master's program applicants should apply online through the Graduate School (<http://gradschool.missouri.edu/admissions/apply/>) **application system**. When completing the online application, you will have an opportunity to upload/attach additional documents. Please include the following documents:

- an updated **résumé** or **curriculum vitae**;
- a **personal essay** that:
  - outlines your professional plans and career objectives;
  - explains how you became interested in health services management/health informatics and how your prior training and experience would help your career;
  - includes specific issues and problems in health care you consider challenging and why;

- indicates if you intend to apply to the traditional (residential) on-campus degree program or the distance education (executive) format

Other required documents:

- **Official transcripts** of all coursework from all colleges, technical schools and/or universities attended
- **Three letters of recommendation** (submitted through the Graduate School application system (<http://gradschool.missouri.edu/admissions/apply/>))
- **Official GRE/GMAT score report** (Residential Students only)

You may also be required to submit other documentation and in some cases complete prerequisite courses. Below is a checklist to help make sure your application is complete:

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- **Application for Change of Degree form** (for students already enrolled in a Master's degree or Graduate Certificate program)
- **Letter of support** from your employer (Executive Students only)
- **Official TOEFL report** (for international applicants only - have official results sent to us: institution code is 6875, our department code is 25 - minimum score of 100 on the Internet-based exam required)
- **Prerequisites** - links to information about prerequisites for each degree program are available at [http://hmi.missouri.edu/prospective/rmha\\_description.html](http://hmi.missouri.edu/prospective/rmha_description.html) ([http://hmi.missouri.edu/prospective/graduate\\_programs.html](http://hmi.missouri.edu/prospective/graduate_programs.html))

## Admissions Contact

Veronica Lemme, MPA  
CE740 CS&E Building, DC006.00  
One Hospital Drive  
Columbia, MO 65212  
<http://hmi.missouri.edu>  
(573) 884-0698  
[lemmev@health.missouri.edu](mailto:lemmev@health.missouri.edu)

# MS in Health Informatics and Bioinformatics with Emphasis in Health Informatics

## Degree Requirements

The residential MS in Health Informatics (MSHI) curriculum requires 37 credit hours of course work, which include foundational coursework in health information technology as well as health administration. Prior coursework in computer science is not required. Residential MSHI students have the option to complete a 12-week internship during the summer following their first year, although it is not required for the degree. HMI's executive-in-residence will work with HI students who wish to complete an internship to find an appropriate placement. For a list of recent internship placements, please see <https://medicine.missouri.edu/departments/health-management-and-informatics/graduate-degrees-programs/residential-mha-program> (<https://medicine.missouri.edu/departments/health-management-and-informatics/graduate-degrees-programs/residential-mha-program/>), administrative internship section.

The MSHI curriculum integrates learning across computer science, health informatics, and health administration, and also develops

students' research interests. Students must maintain a minimum 3.0 cumulative MU graduate grade point average to earn the Master's degree. Individuals with three or more years of professional experience are encouraged to apply for admission to the Executive MSHI cohort (please see Executive plan of study information below).

**Required Courses**

HMI 7410	Introduction to the US Health Care System	3
HMI 7430	Introduction to Health Informatics	3
HMI 7440	Health Information Technology	3
HMI 8435	Information Security, Evaluation and Policy	3
HMI 8437	Data Warehousing and Data/Text Mining for Health Care	3
HMI 8441	Biomedical and Health Vocabularies and Ontologies	3
HMI 8443	Enterprise Information and Solutions Architecture for Strategic Healthcare Operations	3
HMI 8571	Decision Support in Health Care Systems	3
HMI 8550	Health Data Analytics	3
HMI 8610	Consumer Health Informatics	3
HMI 8870	Knowledge Representation in Biology and Medicine	3
HMI 8090	Thesis Research in Health Management and Informatics	4

\* If a student chooses to complete an internship, s/he must register for HMI 8689 Field Experience in Health Management and Informatics and must abide by all internship program requirements.

**Sample Plan of Study - Residential**

First Year					
Fall	CR	Spring	CR	Summer	CR
HMI 7410	3	HMI 8441	3	HMI 8689 (optional)	3
HMI 7430	3	HMI 8443	3		
HMI 7440	3	HMI 8550	3		
HMI 8435	3	HMI 8090	1		
HMI 8090	1				
13		10		3	

  

Second Year			
Fall	CR	Spring	CR
HMI 8437	3	HMI 8870	3
HMI 8610	3	HMI 8571	3
HMI 8090	1	HMI 8090	1
7		7	

Total Credits: 40

**Sample Plan of Study - Executive**

First Year				
	Spring	CR	Summer	CR
	HMI 7410	3	HMI 8450	3
	HMI 7430	3	HMI 8580	3
		6		6

Second Year					
Fall	CR	Spring	CR	Summer	CR
HMI 8550	3	HMI 8441	3	HMI 8451	3
HMI 8571	3	HMI 8435	3		
6		6		3	

Third Year	
Fall	CR
HMI 8437	3
HMI 8443	3
6	

Total Credits: 33

**Thesis/Non-Thesis Requirement**

Residential MSHI students have the option to complete a formal Master's thesis to be submitted to the Graduate School. Students who choose not to complete a thesis must complete a substantial independent research project. All MSHI students must present their thesis or independent research during their oral comprehensive examination in their final semester.

**Financial Aid**

Further information about costs, financial aid, and external scholarship opportunities is available on the HMI Department's website at: [http://hmi.missouri.edu/prospective/financial\\_aid.html](http://hmi.missouri.edu/prospective/financial_aid.html).

**Executive MSHI Program**

In addition to the residential (on-campus) mode, the MSHI degree is offered in an alternative format for professionals who have significant experience in health informatics. HMI accepts an Executive MSHI cohort to begin in January of each year. The executive MSHI combines three on-campus weekend sessions per semester with independent study and online interaction in an innovative two-year course of study, and requires 33 credit hours of health informatics coursework. Students must complete a substantial independent research project, which they present during their oral comprehensive examination in their final semester. For additional information about the Executive MSHI degree, please visit [http://hmi.missouri.edu/prospective/emshi\\_description.html](http://hmi.missouri.edu/prospective/emshi_description.html) or call (573) 884-0698.

**Informatics PhD Program**

MU also offers a PhD in Informatics with emphasis in Health Informatics through the MU Informatics Institute (<http://muui.missouri.edu/>).

**Admissions Requirements**

Applicants are required to meet two sets of minimum qualifications for admission: the requirements of the MSHI program ([http://hmi.missouri.edu/prospective/admissions\\_criteria.html](http://hmi.missouri.edu/prospective/admissions_criteria.html)) and the minimum requirements of the Graduate School (<https://gradschool.missouri.edu/admissions/eligibility-process/>). Because requirements vary, you *must* refer to a degree program's graduate admission page to learn about specific admission criteria, application deadlines, eligibility and application process. Before official admissions to the University of Missouri, your application materials will be reviewed by both the degree program to which you've applied and the Graduate School.

Deadline for Fall entrance: Rolling; Priority deadline March 1

A minimum of a baccalaureate degree from an accredited institution



Undergraduate GPA: 3.0 during the last 60 hours of undergraduate course work and any subsequent graduate course work

Minimum TOEFL scores: iBt 100, PBT 603

- Minimum Academic IELTS scores: Overall 7.5
- Minimum GRE Scores: Verbal + Quantitative 50th percentile
- In lieu of GRE, minimum GMAT score: 50th percentile. HMI also accepts LSAT and MCAT scores. GRE scores are not required for applicants to the Executive cohort.

#### Required Application Materials

Master's program applicants should apply online through the Graduate School (<http://gradschool.missouri.edu/admissions/apply/>) **application system**. When completing the online application, you will have an opportunity to upload/attach additional documents. Please include the following documents:

- an updated **résumé** or **curriculum vitae**;
- a **personal essay** that:
  - outlines your professional plans and career objectives;
  - explains how you became interested in health services management/health informatics and how your prior training and experience would help your career;
  - includes specific issues and problems in health care you consider challenging and why;
  - indicates if you intend to apply to the traditional (residential) on-campus degree program or the distance education (executive) format

Other required documents:

- **Official transcripts** of all coursework from all colleges, technical schools and/or universities attended
- **Three letters of recommendation** (submitted through the Graduate School application system (<http://gradschool.missouri.edu/admissions/apply/>))
- **Official GRE/GMAT score report** (Residential Students only)

You may also be required to submit other documentation and in some cases complete prerequisite courses. Below is a checklist to help make sure your application is complete:

- **Request to re-enroll form** (for previously admitted students only)
- **Application for Change of Degree form** (for students already enrolled in a Master's degree or Graduate Certificate program)
- **Letter of support** from your employer (Executive Students only)
- **Official TOEFL report** (for international applicants only - have official results sent to us: institution code is 6875, our department code is 25 - minimum score of 100 on the Internet-based exam required)
- **Prerequisites** - links to information about prerequisites for each degree program are available at [http://hmi.missouri.edu/prospective/rmha\\_description.html](http://hmi.missouri.edu/prospective/rmha_description.html) ([http://hmi.missouri.edu/prospective/graduate\\_programs.html](http://hmi.missouri.edu/prospective/graduate_programs.html))

## Admissions Contact

Veronica Lemme, MPA  
 CE740 CS&E Building, DC006.00  
 One Hospital Drive  
 Columbia, MO 65212  
<http://hmi.missouri.edu>  
 (573) 884-0698

lemmev@health.missouri.edu

## Graduate Certificate in Health Informatics

### About the Graduate Certificate in Health Informatics

The Graduate Certificate in Health Informatics offered by the Department of Health Management and Informatics provides learners with the skills necessary to participate in the selection, use, and evaluation of information technology applications throughout the health services industry. The certificate program is designed for students, physicians, nurses, managers, information system designers, consultants, and others committed to the application of information technology for improving the quality, safety, and efficiency of health services.

Students may pursue the HI Certificate in either the residential (on-campus) or executive (blended) format. Students who wish to pursue only the HI Certificate must apply to the HMI Department and the Graduate School for admission to the Graduate Certificate program.

Students currently enrolled in a non-HMI Graduate program also need to formally apply for the Certificate. Students enrolled in the MHA degree program may earn a HI Certificate concurrently with their Master's degree.

### Requirements

The HI Certificate requires the completion of four courses (12 credit hours total). All students must complete HMI 7430 Introduction to Health Informatics, and may choose any three other health informatics courses to fulfill the remaining nine hours. Students will choose their courses in consultation with the HMI academic advisor.

Required		
HMI 7430	Introduction to Health Informatics	3
Electives (select three courses)		
HMI 7440	Health Information Technology	3
HMI 7566	Health Informatics Ethics	3
HMI 8435	Information Security, Evaluation and Policy	3
HMI 8437	Data Warehousing and Data/Text Mining for Health Care	3
HMI 8441	Biomedical and Health Vocabularies and Ontologies	3
HMI 8443	Enterprise Information and Solutions Architecture for Strategic Healthcare Operations	3
HMI 8550	Health Data Analytics	3
HMI 8571	Decision Support in Health Care Systems	3
HMI 8610	Consumer Health Informatics	3
HMI 8870	Knowledge Representation in Biology and Medicine	3

**Health Management & Informatics:** <https://medicine.missouri.edu/departments/health-management-and-informatics> (<https://medicine.missouri.edu/departments/health-management-and-informatics/>)

## Application/Admissions Contact:

Veronica Lemme, MPA  
CE707 CS&E Building, DC006.00  
One Hospital Drive  
Columbia, MO 65212  
(573) 884-0698  
lemmev@health.missouri.edu

## Informatics

Academic doctoral programs at MU in the area of Informatics are coordinated through the Informatics Institute.

muigraduateprogram@missouri.edu  
241 Naka Hall  
Columbia, MO 65211-2060  
573-882-9007  
<https://muidsi.missouri.edu>

## About the Institute for Data Science and Informatics (MUIDSI)

Building on a tradition of outstanding informatics education and research at Missouri, the MU Institute for Data Science and Informatics is comprised of 53 faculty from 24 different departments and 9 schools/colleges, including the Colleges of Agriculture, Food, and Natural Resources; Arts & Science; Education; Engineering; Human and Environmental Science; Veterinary Medicine; School of Health Professions; Medicine; and Nursing. The Institute offers emphasis areas in bioinformatics and health informatics, along with a concentration area in geoinformatics. Each emphasis area and concentration area stress skill sets and research appropriate to the subfield within the broad area of informatics. A core curriculum provides all students with a foundation of knowledge and tools in biology, computer sciences, health systems, and statistics, after which they complete further coursework in their chosen area. The integrated program assures broad exposure to the field and fosters new insights and innovative research concepts.

## Faculty

**Professor** J. Bryan (<https://muidsi.missouri.edu/person/jeffrey-n-bryan/>), S. Chen (<https://muidsi.missouri.edu/person/shi-jie-chen/>), C. Davis-Stober (<https://muidsi.missouri.edu/person/clintin-davis-stober/>), C. Elsik (<https://muidsi.missouri.edu/person/christine-g-elsik/>), R. Hammer (<https://muidsi.missouri.edu/person/richard-hammer/>), H. He (<https://muidsi.missouri.edu/person/hong-s-he/>), B. Meyers (<https://muidsi.missouri.edu/person/blake-meyers/>), J. Moore (<https://muidsi.missouri.edu/person/joi-l-moore/>), J. C. Pires (<https://muidsi.missouri.edu/person/j-chris-pires/>), M. Popescu (<https://muidsi.missouri.edu/person/mihail-popescu/>), L. Schopp\*\*, C. R. Shyu (<https://muidsi.missouri.edu/person/chi-ren-shyu/>), E. Simoes (<https://muidsi.missouri.edu/person/eduardo-j-simoes/>), M. Skubic (<https://muidsi.missouri.edu/person/majorie-skubic/>), S. Van Doren (<https://muidsi.missouri.edu/person/steven-van-doren/>), X. Wan (<https://muidsi.missouri.edu/person/xiu-feng-henry-wan/>), W. Warren\*\*, D. Xu (<https://muidsi.missouri.edu/person/dong-xu/>), X. Zou (<https://muidsi.missouri.edu/person/xiaoqin-zou/>)

**Associate Professor** D. Anderson (<https://muidsi.missouri.edu/person/derek-anderson/>), E. Avery (<https://muidsi.missouri.edu/person/eileen-avery/>), S. Boren (<https://muidsi.missouri.edu/person/suzanne-a-boren/>), P. Calyam (<https://muidsi.missouri.edu/person/prasad-calyam/>), S. Chakraborty (<https://muidsi.missouri.edu/person/sounak->

chakraborty/), J. Decker (<https://muidsi.missouri.edu/person/jared-decker/>), G. DeSouza (<https://muidsi.missouri.edu/person/guilherme-n-desouza/>), Y. Duan (<https://muidsi.missouri.edu/person/ye-duan/>), D. Fitch (<https://muidsi.missouri.edu/person/daled-fitch/>), W. Jiang (<https://muidsi.missouri.edu/person/wei-jiang/>), T. Kazic (<https://muidsi.missouri.edu/person/toni-kazic/>), D. Lin (<https://muidsi.missouri.edu/person/dan-lin/>), R. McGarvey (<https://muidsi.missouri.edu/person/ronald-mcgarvey/>), T. Matisziw (<https://muidsi.missouri.edu/person/timothy-c-matisziw/>), L. Popejoy (<https://muidsi.missouri.edu/person/lori-l-popejoy/>), P. Rao\*\*, B. Reeder\*\*, (<https://muidsi.missouri.edu/person/blaine-reeder/>) R. Schnabel (<https://muidsi.missouri.edu/person/robert-d-schnabel/>), R. K. Slotkin (<https://muidsi.missouri.edu/person/r-keith-slotkin/>), I. Yoo (<https://muidsi.missouri.edu/person/illhoi-yoo/>),

**Assistant Professor** M. Becevic (<https://muidsi.missouri.edu/person/mirna-becevic/>), S. Behura (<https://muidsi.missouri.edu/person/susanta-behura/>), T. Ji (<https://muidsi.missouri.edu/person/tieming-ji/>), T. Joshi (<https://muidsi.missouri.edu/person/trupti-joshi/>), M. S. Kim (<https://muidsi.missouri.edu/person/min-s-kim/>), E. King (<https://muidsi.missouri.edu/person/elizabeth-g-king/>), J. Mitchem (<https://muidsi.missouri.edu/person/jonathan-b-mitchem/>), G. Scott (<https://muidsi.missouri.edu/person/grant-scott/>), D. Shin (<https://muidsi.missouri.edu/person/dmitriy-shin/>)

**Associate Research Professor** J. Jackson-Thompson (<https://muidsi.missouri.edu/person/jeannette-jackson-thompson/>)

**Assistant Research Professor** C. Fulcher (<https://muidsi.missouri.edu/person/christopher-fulcher/>), A. Mosa (<https://muidsi.missouri.edu/person/abu-mosa/>), L. Sheets (<https://muidsi.missouri.edu/person/lincoln-sheets/>)

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

While MU does not offer undergraduate degrees specifically in informatics, the University does offer baccalaureate opportunities in a number of related areas. Many successful informatics students have received bachelor's degrees in Geography, Computer Science, Statistics, Business, Biology, and Biochemistry before starting their doctorate. The catalog provides a complete list of these degree options (p. 20).

In addition, MUIDSI offers several service courses designed for upper-level undergraduates and master's students to expose students to the fundamentals of bioinformatics.

## Graduate

- PhD in Informatics (p. 786)
  - with emphasis in Bioinformatics (p. 787)
  - with emphasis in Health Informatics (p. 789)

## Emphasis Areas & Concentration Areas

MUIDSI offers a doctoral degree (PhD) in two emphasis areas: bioinformatics and health informatics (<https://muidsi.missouri.edu/>). In addition, there are plans to have two new emphasis areas, biomedical informatics and geoinformatics, added by the end of the Fall 2020 semester.

Students with areas of interests outside of informatics may also wish to pursue a collaborative degree program between MUIDSI and other degree programs. The purpose of the collaborative degree program is to allow students the opportunity to obtain advanced degrees in fields that complement the study of informatics and expand the student's knowledge and applicability. The Institute also collaborates with the MD/PhD program, which allows exceptional medical students the opportunity to earn an MD and PhD in a structured environment that allows them to concentrate on each degree in an organized timeline.

## Resources and Facilities

**Instruction Cyberinfrastructure:** For data science training, graduate students of MU Institute for Data Science and Informatics learn to utilize a rich collection of programming APIs, including cutting edge machine learning (TensorFlow, Scikit-Learn, SparkML, etc.) as well as cloud computing (boto3, etc.). Our education program invests significant resources for its internal Big Data infrastructure, including Hadoop/Spark clusters, Kubernetes and docker containers for scalable compute, and a variety of database technologies (relational, NoSQL, graph, geospatial, etc.). All of these technology interactions are facilitated from our customized JupyterHub environment, allowing students to conduct hands-on learning using Jupyter Notebooks.

**Research Cyberinfrastructure:** Students have priority access to the state-of-the-art high-performance and high-throughput computing environment for their computationally-intensive and secured informatics research for all emphasis areas. This infrastructure, built on a National Science Foundation Major Research Instrumentation (MRI) grant (\$880,000), supports the Big Data research and training programs of the Institute for Data Science and Informatics.

The Institute also continues to invest resources to partner with the campus research computing service group to provide an excellent cyberinfrastructure for both instruction and research for the Informatics PhD program.

## Faculty Areas of Research Interest

Faculty research covers a wide range of interests including big data analytics, structural bioinformatics, systems biology, cancer informatics, chemical informatics, epigenomics, phenomics, text mining & understanding, electronic health records, personalized medicine, human-computer interactions in health care, consumer informatics, patient safety, public health informatics, geospatial informatics, information retrievals, biomedical data mining & knowledge discovery, biomedical imaging informatics, and machine learning. For a list of faculty members and their research areas, please visit our web page. (<https://muidsi.missouri.edu/admission/#support>)

## Internal Funding

The Institute and faculty are funded by federal training grants for students who meet residency and citizenship requirements. Fellowships and research/teaching assistantships are available for highly qualified applicants. Application information is available on the Institute's website (<https://muidsi.missouri.edu/admission/#support>).

# PhD in Informatics

## Degree Requirements

The following is a brief synopsis of the general degree requirements; please see the Informatics Institute web site (<https://muidsi.missouri.edu>) or the Emphasis in Bioinformatics (p. 787) and Emphasis in Health Informatics (p. 789) for complete details:

- Students must take required and area courses
- Students must pass a qualifying examination
- Students must present at least one institutional seminar annually
- Students are required to complete a comprehensive exam, which includes written and oral elements, within a specified time frame
- Students must pass a comprehensive examination at least 7 months before their scheduled defense
- Students must submit and defend a dissertation describing the results of successful and original research in one of the branches of informatics.
- To show research progress, students are expected to be working toward presenting at conferences and publishing in peer-reviewed journals based on their informatics research.

## Admission Criteria

**Fall deadline:** The deadline for Fall admission is March 1. However, to be considered for departmental and Graduate School fellowships and assistantships, applications should be submitted by January 15th.

- Preferred GPA: 3.3 out of 4.0
- Preferred GRE scores :

When did you take the GRE?	Verbal + Quantitative	Analytical
Prior to August 1, 2011	1200	3.5-4.0
On or After August 1, 2011	309	3.5-4.0

\* or a preferred GMAT score of 570

- Preferred TOEFL or IELTS scores:

Internet-based test (iBT)	Paper-based test (PBT)
90	577

Item	Score
Minimum IELTS Score	

- Sufficient background and training to pursue advanced degree in informatics

## All Required Documents

Students are required to send ALL required application materials through the Graduate School on-line application system. To begin your application, please see the ApplyYourself website (<http://gradschool.missouri.edu/admissions/apply/>).

1. Curriculum Vitae
2. Statement of Purpose, which should include a summary of why the applicant is interested in pursuing an advanced informatics degree, a brief description of your previous research experiences, the specific area of informatics you are interested in pursuing, and your future career goals and plans in the informatics field.

3. GRE/GMAT scores. Use institution code 6875. The departmental code is not required.
4. TOEFL/ELTS scores for international applicants, if required.
5. Three letters of recommendation from faculty or supervisors who can evaluate the applicant's credentials and potential to become successful in the area of informatics.
6. Scanned copies of transcripts from each college and university attended. If accepted, applicants will be required to have official copies of their transcripts sent directly from the institution to the Graduate School.

## Optional Documents

Applicants are encouraged to submit representative publications in informatics, if available.

## Admission Contact Information

MUIDSI Staff (mailto: muiadmissions@missouri.edu)

241 Naka Hall

Columbia, MO 65211-2060

Phone: 573-882-9007

FAX: 573-884-8709

MU Institute for Data Science and Informatics (MUIDSI) website: <https://muidsi.missouri.edu/> (<https://muii.missouri.edu/>)

## PhD in Informatics with Emphasis in Bioinformatics

### Degree Requirements

The following is a brief synopsis of the general degree requirements; please see the Informatics Institute web site (<https://muii.missouri.edu>) for complete details:

- Students must take required and area courses.
- Students must pass a qualifying examination.
- Students must present at least one institutional seminar annually.
- Students are required to complete a comprehensive exam, which includes written and oral elements, within a specified time frame.
- Students must pass a comprehensive examination at least 7 months before their scheduled defense.
- Students must submit and defend a dissertation describing the results of successful and original research in one of the branches of informatics.
- To show research progress, students are expected to be working toward presenting at conferences and publishing in peer-reviewed journals based on their informatics research.

### Coursework Requirements

All students must have at least 72 credit hours at the graduate level, of which 15 credits must be at the 8000-level not including research, problems, lab rotations, or seminar. Transferring credits will be at the recommendation of the student's doctoral committee and the approval of the MUII Curriculum Committee.

#### REQUIRED CORE COURSES - BIOINFORMATICS EMPHASIS AREA

INFOINST 7002	Introduction to Informatics	3
INFOINST 7010	Computational Methods in Bioinformatics	3

#### REQUIRED METHODS COURSES (9 Credit Minimum)

INFOINST 8810	Research Methods in Informatics	3
STAT 7510	Applied Statistical Models I	3

Student must choose one additional 3-credit methods course with doctoral committee approval.

#### LAB ROTATIONS AND SEMINAR

INFOINST 8087	Seminar in Informatics (Must be enrolled each semester)	0.5-1
INFOINST 8088	Lab Rotations in Informatics	2

#### RESEARCH

INFOINST 8090	Dissertation (pre-candidacy) Research in Informatics	1-99
INFOINST 9090	Dissertation (post-candidacy) Research in Informatics	1-99

#### AREA COURSE ELECTIVES (15 credits)

AN_SCI 7001	Topics in Animal Science (Molecular Evolution)	1-4
CMP_SC 7380	Database Management Systems I	3
CMP_SC 7740	Interdisciplinary Introduction to Natural Language Processing	3
CMP_SC 8370	Data Mining and Knowledge Discovery	3
CMP_SC 8630	Data Visualization	3
ECE 7270	Computer Architecture	4
ECE 7590	Computational Neuroscience	4
ECE 8320	Nonlinear Systems	3
ECE 8570	Neural Dynamics and Communication	3
ECE 8580	Machine Learning in Neuroscience	3
GEOG 7620	Biogeography: Global Patterns of Life	3
GEOG 7710	Spatial Analysis in Geography	3
GEOG 7810	Landscape Ecology and GIS Analysis I	3
GEOG 7840	Geographic Information Systems I	3
GEOG 7860	Advanced Remote Sensing	3
GEOG 7940	Advanced Geographic Information Systems (GIS II)	3
GEOG 8840	Seminar: Applied Remote Sensing	
GEOG 8902	Topics in Geography-Biological/Physical/Mathematical	1-3
HMI 7410	Introduction to the US Health Care System	3
HMI 8435	Information Security, Evaluation and Policy	3
HMI 8437	Data Warehousing and Data/Text Mining for Health Care	3
HMI 8441	Biomedical and Health Vocabularies and Ontologies	3
HMI 8443	Enterprise Information and Solutions Architecture for Strategic Healthcare Operations	3
HMI 8460	Administration of Health Care Organizations	3
HMI 8461	Managing Human Resources in Health Care Organizations	3
HMI 8478	Knowledge Management in Health Care	3
HMI 8524	Health Economics	3
HMI 8565	Health Care Ethics	3
HMI 8571	Decision Support in Health Care Systems	3

HMI 8573	Decision Making for Health Care Organizations	3
HMI 8610	Consumer Health Informatics	3
IMSE 8810	Human Factors	3
INFOINST 8005	Applications of Bioinformatics Tools in Biological Research	3
INFOINST 8085	Problems in Informatics	1-6
INFOINST 8150	Integrative Methods in Bioinformatics	3
INFOINST 8190	Computational Systems Biology	3
INFOINST 8310	Computational Genomics	3
INFOINST 8870	Knowledge Representation in Biology and Medicine	3
IS_LT 9410	Seminar in Information Science and Learning Technology	1-3
NURSE 9460	Theories and Interventions in Health Behavior Science	3
PTH_AS 7450	Precision Medicine Informatics	3

## Qualifying Exam Process

Students are expected to take the qualifying exam by the end of their third semester in the program. The exam will be based on their previous coursework, lab rotation experience, and one-page research statement. For more information on qualifying exam procedures, please see the MUII student handbook ([https://muidsi.missouri.edu/wp-content/uploads/2019/01/Informatics\\_Institute\\_GraduateStudent\\_Handbook\\_Approved\\_Dec2018-1.pdf](https://muidsi.missouri.edu/wp-content/uploads/2019/01/Informatics_Institute_GraduateStudent_Handbook_Approved_Dec2018-1.pdf)).

## Comprehensive Exam Process

The comprehensive exam consists of two parts - the written portion, comprised of an R01 research proposal, and the oral exam. For more information on the comprehensive exam process, please see the MUII student handbook ([https://muidsi.missouri.edu/wp-content/uploads/2019/01/Informatics\\_Institute\\_GraduateStudent\\_Handbook\\_Approved\\_Dec2018-1.pdf](https://muidsi.missouri.edu/wp-content/uploads/2019/01/Informatics_Institute_GraduateStudent_Handbook_Approved_Dec2018-1.pdf)).

## Dissertation Defense Process

The doctoral dissertation defense must be scheduled no sooner than seven months after successful completion of the comprehensive exam. The dissertation must be written on an informatics subject approved by the candidate's doctoral program committee, must embody the results of original and significant investigation, and must be the candidate's own work. Please refer to the MUII student handbook ([https://muidsi.missouri.edu/wp-content/uploads/2019/01/Informatics\\_Institute\\_GraduateStudent\\_Handbook\\_Approved\\_Dec2018-1.pdf](https://muidsi.missouri.edu/wp-content/uploads/2019/01/Informatics_Institute_GraduateStudent_Handbook_Approved_Dec2018-1.pdf)) for additional information.

## Admission Contact Information

MUII Staff (mailto: [muiiadmissions@missouri.edu](mailto:muiiadmissions@missouri.edu))  
 241 Engineering Building West  
 Columbia, MO 65211-2060  
 Phone: 573-882-9007  
 FAX: 573-884-8709  
 Informatics Institute (MUII) website: <https://muii.missouri.edu>

## Admission Criteria

Fall deadline: The deadline for Fall admission is March 1. However, to be considered for departmental and Graduate School fellowships and assistantships, applications should be submitted by January 15.

- Preferred GPA: 3.3 out of 4.0
- Preferred GRE scores\*:

When did you take the GRE?	Verbal + Quantitative	Analytical
Prior to August 1, 2011	1200	3.5-4.0
On or After August 1, 2011	309	3.5-4

\* or a preferred GMAT score of 570

- Preferred TOEFL OR IELTS scores\*\*:

Internet-based test (iBT)	Paper-based test (PBT)
90	577

Item	Score
Minimum IELTS	6.0

## All Required Documents

Students are required to send ALL required application materials through the Office of Graduate Schools on-line application system. To begin your application, please see the ApplyYourself website (<http://gradschool.missouri.edu/admissions/apply/>).

1. Curriculum Vitae
2. Statement of Purpose, which should include a summary of why the applicant is interested in pursuing an advanced informatics degree, a brief description of your previous research experiences, the specific area of informatics you are interested in pursuing, and your future career goals and plans in the informatics field.
3. GRE/GMAT scores. Use institution code 6875. The departmental code is not required.
4. TOEFL/ELTS scores for international applicants, if required.
5. Three letters of recommendation from faculty or supervisors who can evaluate the applicant's credentials and potential to become successful in the area of informatics.
6. Scanned copies of transcripts from each college and university attended. If accepted, applicants will be required to have official copies of their transcripts sent directly from the institution to the Graduate School.

## Optional Documents

Applicants are encouraged to submit representative publications in informatics, if available.

## Exceptional Funding Opportunities - Biomedical Big Data Science Pre-doctoral Training

Funded by NIH T32 (2016-2021)

MU Informatics Institute (MUII) is recruiting SIX top-notch trainees to pursue PhD degree in Informatics through an interdisciplinary training team. Students from basic sciences, life sciences, medicine, and computing disciplines are welcome to apply. Our unique training includes: (1) personalized training modules from core courses of the MS degree in Data Science and Analytics program, Big Data courses from Computer Science, and biomedical informatics courses from MUII, which will expose trainees to the basic concepts, ethics, and working knowledge in Big Data Science; (2) a problem-based learning curriculum in pre-doctoral-level Big Data-related courses, such as Mining Massive Data

Sets for Biomedical Applications, designed to foster a team science approach to problem-solving; (3) a student-driven journal club/seminar series, in which students are offered opportunities to present research, pose questions, and receive feedback from peers and mentors. Our interdisciplinary components include (1) required tri-lab rotations to introduce students to animal/veterinary medical research, human medical research, computing/statistical methodologies, and health communications; (2) development of rigorous and reproducible open-source Big Data analytics tools, which will be assessed by the One Health research community after arduous testing; and (3) creation of an Individual Development Plan based on each trainee's background and career goal prior to joining the program. These positions are open to permanent residents and US citizens only. Women and minority students are encouraged to apply.

Please contact the project director Dr. Chi-Ren Shyu at [ShyuC@missouri.edu](mailto:ShyuC@missouri.edu) ([shyuc@missouri.edu](mailto:shyuc@missouri.edu)) for inquiries.

## PhD in Informatics with Emphasis in Health Informatics

### Degree Requirements

The following is a brief synopsis of the general degree requirements; please see the Informatics Institute web site: (<https://muii.missouri.edu>)

- Students must take required and area courses.
- Students must pass a qualifying examination.
- Students must present at least one institutional seminar annually.
- Students are required to complete a comprehensive exam, which includes written and oral elements, within a specified time frame.
- Students must pass a comprehensive examination at least 7 months before their scheduled defense.
- Students must submit and defend a dissertation describing the results of successful and original research in one of the branches of informatics.
- To show research progress, students are expected to be working toward presenting at conferences and publishing in peer-reviewed journals based on their informatics research.

### Coursework Requirements

All students must have at least 72 credit hours at the graduate level, of which 15 credits must be at the 8000-level not including research, problems, lab rotations, or seminar. Transferring credits will be at the recommendation of the student's doctoral committee and the approval of the MUII Curriculum Committee.

#### REQUIRED COURSES - HEALTH INFORMATICS EMPHASIS AREA

DATA_SCI 7010	Introduction to Data Analytics	3
INFOINST 7430	Introduction to Health Informatics	3

#### REQUIRED METHODS COURSES (9 Credit Minimum)

INFOINST 8810	Research Methods in Informatics	3
STAT 7510	Applied Statistical Models I	3

Students must choose one additional 3-credit methods course with doctoral committee approval.

#### LAB ROTATIONS AND SEMINAR

INFOINST 8087	Seminar in Informatics (Must be enrolled each semester)	0.5-1
INFOINST 8088	Lab Rotations in Informatics	2

#### RESEARCH

INFOINST 8090	Dissertation (pre-candidacy) Research in Informatics	1-99
INFOINST 9090	Dissertation (post-candidacy) Research in Informatics	1-99

#### AREA COURSE ELECTIVES (15 credits)

AN_SCI 7001	Topics in Animal Science	1-4
CMP_SC 7380	Database Management Systems I	3
CMP_SC 7740	Interdisciplinary Introduction to Natural Language Processing	3
CMP_SC 8370	Data Mining and Knowledge Discovery	3
CMP_SC 8630	Data Visualization	3
ECE 7270	Computer Architecture	4
ECE 7590	Computational Neuroscience	4
ECE 8320	Nonlinear Systems	3
ECE 8570	Neural Dynamics and Communication	3
ECE 8580	Machine Learning in Neuroscience	3
GEOG 7620	Biogeography: Global Patterns of Life	3
GEOG 7710	Spatial Analysis in Geography	3
GEOG 7810	Landscape Ecology and GIS Analysis I	3
GEOG 7840	Geographic Information Systems I	3
GEOG 7860	Advanced Remote Sensing	3
GEOG 7940	Advanced Geographic Information Systems (GIS II)	3
GEOG 8840	Seminar: Applied Remote Sensing	
GEOG 8902	Topics in Geography-Biological/Physical/Mathematical	1-3
HMI 7410	Introduction to the US Health Care System	3
HMI 8435	Information Security, Evaluation and Policy	3
HMI 8437	Data Warehousing and Data/Text Mining for Health Care	3
HMI 8441	Biomedical and Health Vocabularies and Ontologies	3
HMI 8443	Enterprise Information and Solutions Architecture for Strategic Healthcare Operations	3
HMI 8460	Administration of Health Care Organizations	3
HMI 8461	Managing Human Resources in Health Care Organizations	3
HMI 8478	Knowledge Management in Health Care	3
HMI 8524	Health Economics	3
HMI 8565	Health Care Ethics	3
HMI 8571	Decision Support in Health Care Systems	3
HMI 8573	Decision Making for Health Care Organizations	3
HMI 8610	Consumer Health Informatics	3
IMSE 8810	Human Factors	3
INFOINST 8005	Applications of Bioinformatics Tools in Biological Research	3
INFOINST 8085	Problems in Informatics	1-6
INFOINST 8150	Integrative Methods in Bioinformatics	3
INFOINST 8190	Computational Systems Biology	3
INFOINST 8310	Computational Genomics	3

INFOINST 8870	Knowledge Representation in Biology and Medicine	3
IS_LT 9410	Seminar in Information Science and Learning Technology	1-3
NURSE 9460	Theories and Interventions in Health Behavior Science	3
PTH_AS 7450	Precision Medicine Informatics	3

### Qualifying Exam Process

Students are expected to take the qualifying exam by the end of their third semester in the program. The exam will be based on their previous coursework, lab rotation experience, and one-page research statement. For more information on qualifying exam procedures, please see the MUII student handbook. ([https://muii.missouri.edu/wp-content/uploads/2019/01/Informatics\\_Institute\\_GraduateStudent\\_Handbook\\_Approved\\_Dec2018-1.pdf](https://muii.missouri.edu/wp-content/uploads/2019/01/Informatics_Institute_GraduateStudent_Handbook_Approved_Dec2018-1.pdf))

### Comprehensive Exam Process

The comprehensive exam consists of two parts - the written portion, comprised of an R01 research proposal, and the oral exam. For more information on the comprehensive exam process, please see the MUII student handbook ([https://muii.missouri.edu/wp-content/uploads/2019/01/Informatics\\_Institute\\_GraduateStudent\\_Handbook\\_Approved\\_Dec2018-1.pdf](https://muii.missouri.edu/wp-content/uploads/2019/01/Informatics_Institute_GraduateStudent_Handbook_Approved_Dec2018-1.pdf)).

### Dissertation Defense Process

The doctoral dissertation defense must be scheduled no sooner than seven months after successful completion of the comprehensive exam. The dissertation must be written on an informatics subject approved by the candidate's doctoral program committee, must embody the results of original and significant investigation, and must be the candidate's own work. Please refer to the MUII student handbook ([https://muii.missouri.edu/wp-content/uploads/2019/01/Informatics\\_Institute\\_GraduateStudent\\_Handbook\\_Approved\\_Dec2018-1.pdf](https://muii.missouri.edu/wp-content/uploads/2019/01/Informatics_Institute_GraduateStudent_Handbook_Approved_Dec2018-1.pdf)) for additional information.

## Admission Contact Information

MUII Staff (mailto: [muiiadmissions@missouri.edu](mailto:muiiadmissions@missouri.edu))  
 241 Naka Hall  
 Columbia, MO 65211-2060  
 Phone: 573-882-9007  
 FAX: 573-884-8709  
 Informatics Institute (MUII) website: <http://muii.missouri.edu/>

## Admission Criteria

Fall deadline: The deadline for Fall admission is March 1. However, to be considered for departmental and Graduate School fellowships and assistantships, applications should be submitted by January 15.

- Preferred GPA: 3.3 out of 4.0
- Preferred GRE scores\*:

When did you take the GRE?	Verbal + Quantitative	Analytical
Prior to August 1, 2011	1200	3.5-4.0
On or After August 1, 2011	309	3.5-4.0

\* or a preferred GMAT score of 570

- Preferred TOEFL or IELTS scores

Internet-based test (iBT)	Paper-based test (PBT)
90	577

Item	Score
Minimum IELTS Score	6.0

## All Required Documents

Students are required to send ALL required application materials through the Office of Graduate Schools on-line application system. To begin your application, please see the ApplyYourself website (<http://gradschool.missouri.edu/admissions/apply/>).

1. Curriculum Vitae
2. Statement of Purpose, which should include a summary of why the applicant is interested in pursuing an advanced informatics degree, a brief description of your previous research experiences, the specific area of informatics you are interested in pursuing, and your future career goals and plans in the informatics field.
3. GRE/GMAT scores. Use institution code 6875. The departmental code is not required.
4. TOEFL/ELTS scores for international applicants, if required.
5. Three letters of recommendation from faculty or supervisors who can evaluate the applicant's credentials and potential to become successful in the area of informatics.
6. Scanned copies of transcripts from each college and university attended. If accepted, applicants will be required to have official copies of their transcripts sent directly from the institution to the Graduate School.

## Optional Documents

Applicants are encouraged to submit representative publications in informatics, if available.

### REQUIRED COURSES - HEALTH INFORMATICS EMPHASIS AREA

DATA_SCI 7010	Introduction to Data Analytics	3
INFOINST 7430	Introduction to Health Informatics	3

### REQUIRED METHODS COURSES (9 Credit Minimum)

INFOINST 8810	Research Methods in Informatics	3
STAT 7510	Applied Statistical Models I	3

Students must choose one additional 3-credit methods course with doctoral committee approval.

### LAB ROTATIONS AND SEMINAR

INFOINST 8087	Seminar in Informatics (Must be enrolled each semester)	0.5-1
INFOINST 8088	Lab Rotations in Informatics	2

### RESEARCH

INFOINST 8090	Dissertation (pre-candidacy) Research in Informatics	1-99
INFOINST 9090	Dissertation (post-candidacy) Research in Informatics	1-99

## Exceptional Funding Opportunities - Biomedical Big Data Science Pre-doctoral Training

Funded by NIH T32 (2016-2021)

MU Informatics Institute (MUII) is recruiting SIX top-notch trainees to pursue PhD degree in Informatics through an interdisciplinary training team. Students from basic sciences, life sciences, medicine, and

computing disciplines are welcome to apply. Our unique training includes: (1) personalized training modules from core courses of the MS degree in Data Science and Analytics program, Big Data courses from Computer Science, and biomedical informatics courses from MUH, which will expose trainees to the basic concepts, ethics, and working knowledge in Big Data Science; (2) a problem-based learning curriculum in pre-doctoral-level Big Data-related courses, such as Mining Massive Data Sets for Biomedical Applications, designed to foster a team science approach to problem-solving; (3) a student-driven journal club/seminar series, in which students are offered opportunities to present research, pose questions, and receive feedback from peers and mentors. Our interdisciplinary components include (1) required tri-lab rotations to introduce students to animal/veterinary medical research, human medical research, computing/statistical methodologies, and health communications; (2) development of rigorous and reproducible open-source Big Data analytics tools, which will be assessed by the One Health research community after arduous testing; and (3) creation of an Individual Development Plan based on each trainee's background and career goal prior to joining the program. These positions are open to permanent residents and US citizens only. Women and minority students are encouraged to apply.

Please contact the project director Dr. Chi-Ren Shyu at [ShyuC@missouri.edu](mailto:ShyuC@missouri.edu) ([shyuc@missouri.edu](mailto:shyuc@missouri.edu)) for inquiries.

## Medical Pharmacology and Physiology

Pharmacology and Physiology  
School of Medicine  
MA415 Medical Sciences Building  
573-882-4957

<https://medicine.missouri.edu/departments/medical-pharmacology-physiology/about> (<https://medicine.missouri.edu/departments/medical-pharmacology-physiology/about/>)

The joining of these two disciplines provides a powerful way to address modern questions of biology.

The department offers MS and PhD degree programs in Pharmacology and Physiology. These programs are designed to prepare students for rewarding teaching and/or research careers in academia, government or the pharmaceutical and biotechnical industries.

### Faculty

**Professor** F. Booth\*\*, D. Bowles\*, S. Chen\*\*, M. Davis\*\*, W. Durante\*\*, W. Fay\*\*, K. Gillis, K. Gruber, C. Hardin, E. Hasser\*, M. Hill\*\*, T. Hwang\*, J. Ibdah, K. Katesh, Z. Liu\*\*, L. Martinez-Lemus\*\*, K. McDonald\*\*, M. Milanick\*\*, L. Pulakat\*, S. Segal\*\*, S. Shukla\*\*, M. Thakkar\*\*

**Associate Professor** C. Baines, T. Domeier\*\*, S. Halenda, M. Krenz\*\*, R. Lim\*, A. Parrish\*\*, L. Polo-Parada\*\*, G. Sowa\*\*, P. Wilden\*

**Assistant Professor** E. Boerman\*\*, B. Bostick\*\*, C. Hans\*, T. Yoshida\*

**Professor Emeritus** E. Blaine\*, E. L. Forker\*, L. Forte\*, R. Freeman\*, L. Holland\*, T. Hurley\*, V. Huxley\*\*, M. James-Kracke\*, A. Jones\*, H. D. Kim\*, R. Korthuis\*, G. Meininger\*, M. Rovetto\*, R. Russell\*, J. Turner, W. Wosilait\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

### Undergraduate

While MU does not offer undergraduate degrees specifically in medical pharmacology and physiology, the University does offer baccalaureate opportunities in a number of related areas in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 20).

### Graduate

- MS in Medical Pharmacology and Physiology (p. 792)
- PhD in Medical Pharmacology and Physiology (p. 793)

Lisa Putting  
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MA415 Medical Sciences Building

[puttingl@health.missouri.edu](mailto:puttingl@health.missouri.edu)

573-882-4957

<https://medicine.missouri.edu/departments/medical-pharmacology-physiology/about> (<https://medicine.missouri.edu/departments/medical-pharmacology-physiology/about/>)

The joining of these two disciplines provides a powerful way to address modern questions of biology. The department offers MS and PhD degree programs in Pharmacology and Physiology. These programs are designed to prepare students for rewarding teaching and/or research careers in academia, government or the pharmaceutical and biotechnical industries.

### Pharmacology

Pharmacology is a basic medical science that deals with actions of drugs, hormones and neurotransmitters on living processes. Knowledge based on the results of pharmacological research leads to increased effectiveness and safety in the treatment of diseases in man and animals. Pharmacology is different from pharmacy, which is a profession concerned with the preparation and dispensing of drugs.

### Physiology

The discipline of Physiology focuses on understanding the integrative function of living organisms from the molecular to the organismal level. As such, physiological research addresses how genes, organelles, cells, tissues and organs are integrated to accomplish the complex functions of living organisms. From a medical perspective, understanding normal function is a prerequisite to understanding disease.

### Areas of Study

Regardless of their final degree objectives, students admitted into the departmental graduate programs will participate in a core curriculum during the first year and choose a specific tract leading to either a degree in Pharmacology or in Physiology following successful completion of the first year. The department also offers specially designed curriculum for individuals interested in a combined MD/graduate degree or who have previous relevant medical education.



## Departmental Research

The departmental faculty has expertise in a variety of mammalian systems, with emphases in cardiovascular and endocrine physiology and molecular and cellular pharmacology. Individual labs utilize a number of different experimental models ranging from the whole animal studies to cellular, subcellular, biochemical and modern molecular approaches. Human research is also emphasized.

Research problems under current investigation include microvascular control of blood flow; modulation of vascular function by the extracellular matrix; role of the microcirculation in inflammation and diabetes; mechanisms involved in angiogenesis membrane regulation and ion transport; barriers separating circulating blood and tissue; energetics and metabolism of vascular smooth and cardiac muscle; electrophysiology of isolated cardiac vascular smooth muscle and endothelial cells; exercise physiology and regulation of contractile protein functions; and hormonal induction of genetic transcription, intracellular signaling mechanisms and genetic regulation of cell proliferation, cell cycle, cell differentiation and apoptosis; and the pathogenetic mechanisms of alcohol on liver cells.

## Partnerships

Cooperative interactions exist with other clinical and basic science departments in the School of Medicine as well as with the Truman Veterans Hospital, the Dalton Cardiovascular Research Center, the College of Veterinary Medicine, Nutrition and Exercise Department and various campus-wide programs in Molecular Biology and Food for the 21st Century. The cooperative research atmosphere encourages staff and students to work across departmental lines and provides a unique opportunity for interdisciplinary training of the students.

## Teaching Experience

In addition to course work and research training, all graduate students are required to participate as teaching assistants in laboratory or lecture instruction offered by the department. Such experience enhances the students' presentation and teaching skills, contributes to their professional maturity, and reinforces a sense of collegiality between students and faculty.

## Financial Aid from the Program

Financial support in this program for qualified graduate students is available from several sources. Students also may be eligible for institutional teaching and research assistantships. In addition, there are a number of fellowship awards from the Graduate School and the campus-wide Life Science Program available on a competitive basis through nominations by the Department.

Deadlines for these fellowships are January to mid-February each year. Applicants do not directly apply for these fellowships. Rather the department applies on behalf of successful applicants for admission. Therefore a prospective candidate should submit an application for admission to the department in the preceding fall. Finally, some of our students are supported by research grants of individual faculty members or by predoctoral fellowships from extramural sources.

# MS in Medical Pharmacology and Physiology

## Degree Requirements

The master's program is two years. The first year consists of required coursework, teaching assistantships and laboratory experiences. By the end of the first semester, students are expected to have selected a laboratory and mentor for either the thesis or non-thesis track and to form their thesis advisory committee. The second year consists of a continuation of coursework, teaching assistantships, ongoing thesis work and the defense of the thesis project. Students are required to present at the annual departmental student research update day each year that they are enrolled in the program. To satisfy requirements for the MS degree, a student must complete the professional plan of study with an average grade of B or better and pass an oral examination over an acceptable master's thesis. Candidates also must comply with other regulations governing master's degrees. MS degree students should normally complete their studies and thesis project within 2-3 years of admission to the degree program.

### Required Coursework

MPP 8411	Mammalian Pharmacology and Physiology	5
MPP 7424	Medical Pharmacology	4
MPP 8420	Skills in Biomedical Research	2
MPP 9422	Medical Pharmacology and Physiology Journal Club (every semester)	1
MPP 8412	Seminar in Medical Pharmacology and Physiology (every semester)	1
MPP 8415	Responsible Conduct of Research thru Engagement, Enactment and Empowerment NIH and other Federal Age	2
STAT 7070 or STAT 7530 or STAT 7510	Statistical Methods for Research Analysis of Variance Applied Statistical Models I	3

### Electives

Two upper-level MPP electives must be taken by non-thesis students. Suggestions include:

MPP 9426	Transmembrane Signaling	4
MPP 9430	Cardiovascular Physiology	3
MPP 9431	Control of Energy Metabolism	3
MPP 9432	Mammalian Membrane Physiology	1-3
MPP 9434	Microvascular Circulatory Function	4
MPP 9435	Molecular Exercise Biology	1-3
MPP 9437	Neural Cardiorespiratory Control	3

## Application Deadlines

Fall deadline: December 15

### Admission Criteria

- Minimum GPA: 3.0 in the last 60 hours
- Bachelor's degree in chemistry, biology, pharmacy or related areas from an accredited college
- Background in biology and chemistry and an understanding of mathematics and physics
- Course work in biochemistry and physiology is highly recommended

- Previous lab or research experience preferred
- Minimum English proficiency scores, one of the following:
- TOEFL Test Of English as Foreign Language (internet based) = 80
- IELTS International English Language Testing System (overall academic score) = 6.5
- PTE Pearson Test of English = 59
- C1A Cambridge C1Advanced = 180

Students are usually admitted to begin their program in the Fall semester, but applications for admission in other semesters will be considered on a space-available basis. Women and minorities are encouraged to apply.

Students with an appropriate educational background are encouraged to apply for entrance into the PhD program. A master's degree is not a prerequisite for admission to the doctoral program. The department will consider applications for the MS degree programs from U.S. citizens but PhD degree students will be given priority consideration for financial support. Deficiencies in course work may be remedied during the first years of the graduate program.

## Required Application Materials

*To the Graduate School:*

- All required Graduate School documents

*To the Medical Pharmacology & Physiology Program:*

- Departmental application
- Personal statement
- Transcripts
- 3 letters of recommendation (use form provided). The letters should be written by individuals knowledgeable of the student's academic capability.
- Official GRE & English proficiency scores

### Admission Contact Information

Lisa Putting  
 MA415 Medical Sciences Bldg, DCO63.00  
 Columbia, MO 65212

puttingl@health.missouri.edu  
 573-882-4957

# PhD in Medical Pharmacology and Physiology

## Degree Requirements

The PhD requires satisfactory completion of at least 72 credit hours of coursework and defense of dissertation. This includes at least two years of basic and advanced courses in physiology and/or pharmacology, as well as courses in cell and molecular biology. Included in course requirements is a minimum of 15 hours of 8000-9000 level courses, not including research courses (8090 or 9090). Students will also be trained in conducting physiological and pharmacological research in the laboratory of individual faculty members during the first year, including three 4-week laboratory rotations before the end of the first semester. The student will choose a dissertation mentor at or before the end of the first year and decide whether they wish to pursue the doctoral program in Pharmacology or Physiology. PhD students must serve as a teaching assistant for at least two semesters. Students are also required to

present at the annual departmental student research update day each year that they are enrolled in the program. The doctoral program normally requires four to five years beyond the baccalaureate degree.

### Required Courses

STAT 7070	Statistical Methods for Research	3
or STAT 7530	Analysis of Variance	
or STAT 7510	Applied Statistical Models I	
MPP 7422	Medical Physiology	4
MPP 7424	Medical Pharmacology	4
MPP 8412	Seminar in Medical Pharmacology and Physiology (every semester)	1
MPP 8415	Responsible Conduct of Research thru Engagement, Enactment and Empowerment NIH and other Federal Age	2
MPP 8420	Skills in Biomedical Research	2
MPP 9422	Medical Pharmacology and Physiology Journal Club (every semester)	1
MPP 9426	Transmembrane Signaling	4
BIOCHM 7270	Biochemistry	3
BIOCHM 7272	Biochemistry	3
<b>Electives (must choose at least two)</b>		
MPP 9437	Neural Cardiorespiratory Control	3
MPP 9430	Cardiovascular Physiology	3
MPP 9431	Control of Energy Metabolism	3
MPP 9432	Mammalian Membrane Physiology	1-3
MPP 9434	Microvascular Circulatory Function	4
MPP 9435	Molecular Exercise Biology	1-3
V_BSCI 8420	Veterinary Physiology	5
V_BSCI 5100	Veterinary Neuroscience	2

## Qualifying Examination Policy

The department does not require a formal qualifying examination. Successful completion of the core curriculum and satisfactory performance in conducting scientific research and teaching will qualify students for continuation in the PhD program.

## Comprehensive Examination

All PhD program students must pass a comprehensive examination before the end of the first semester of the third year of enrollment. The usual format of the comprehensive exam includes the writing and oral defense of a research proposal outside of the student's dissertation research area.

## Dissertation

Each student must then carry out a dissertation research project, original in nature, which is expected to contribute significant new knowledge to the area of study. To facilitate this process, each student submits a dissertation research proposal within six months of passing the comprehensive examination.

## Oral Defense

Finally, all PhD candidates must pass an oral defense of the dissertation and comply with all university and departmental regulations governing the PhD degree.

## Admissions

### Application Deadlines

Fall deadline: December 15

### Admission Criteria

- Minimum GPA: 3.0 in the last 60 hours
- Bachelor's degree in chemistry, biology, pharmacy or related areas from an accredited college
- Background in biology and chemistry and an understanding of mathematics and physics
- Course work in biochemistry and physiology is highly recommended
- Previous lab or research experience preferred
- Minimum English proficiency scores, one of the following:
  - TOEFL Test Of English as Foreign Language (internet based) = 80
  - IELTS International English Language Testing System (overall academic score) = 6.5
  - PTE Pearson Test of English = 59
  - C1A Cambridge C1Advanced = 180

Students are usually admitted to begin their program in the Fall semester, but applications for admission in other semesters will be considered on a space-available basis. Women and minorities are encouraged to apply.

Students with an appropriate educational background are encouraged to apply for entrance into the PhD program. A master's degree is not a prerequisite for admission to the doctoral program. The department will consider applications for the MS degree programs from U.S. citizens but PhD degree students will be given priority consideration for financial support. Deficiencies in course work may be remedied during the first years of the graduate program.

### Required Application Materials

*To the Graduate School:*

- All required Graduate School documents

*To the Medical Pharmacology & Physiology Program:*

- Departmental application
- Personal statement
- Transcripts
- 3 letters of recommendation (use form provided). The letters should be written by individuals knowledgeable of the student's academic capability.
- Official GRE & English proficiency scores

### Admission Contact Information

Lisa Putting

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573-882-4957

## Microbiology

School of Medicine

M616 Medical Sciences Building

(573) 882-8152

<https://medicine.missouri.edu/departments/molecular-microbiology-immunology/graduate-program> (<https://medicine.missouri.edu/departments/molecular-microbiology-immunology/graduate-program/>)

The Department of Molecular Microbiology and Immunology (MMI) at the University of Missouri School of Medicine has three primary missions: to foster cutting-edge research on biomedically relevant problems in microbiology, immunology, and virology; to educate strong, independent research scientists; and to provide knowledge-based service to the state, nation and international communities.

Molecular Microbiology and Immunology has a long history of providing graduate and postgraduate education in basic principles of microbiology and immunology, as well as research training opportunities in the laboratories of established scientists with diverse research interests. Faculty expansion has provided new curricular offers with flexibility for personalized scholarly pursuits built in. The breadth of research training includes faculty laboratories in the School of Medicine (<http://medicine.missouri.edu/>), the Bond Life Sciences Center (<http://bondlsc.missouri.edu/>) and the College of Veterinary Medicine (<http://vetmed.missouri.edu/>).

The Department of Molecular Microbiology & Immunology, in partnership with the faculty from the Department of Veterinary Pathobiology (VPB), offers a comprehensive graduate program, **Molecular Pathogenesis and Therapeutics Graduate Program (MPT)**, leading to the Doctor of Philosophy (PhD) degree. Strong scientific interactions among faculty from these and other academic units across campus illustrate the importance of scientific collaborations not only in meeting the research challenges in microbiology and immunology, but also in providing a strong academic environment for the training of the next generation of scientists and educators in these disciplines. The faculty in this training program have achieved international recognition for their scientific contributions and expertise, with their research efforts published in top tier research journals and funded through stringent peer-reviewed federal grants. Many of these investigators serve on scientific review committees for these funding agencies.

This program provides individualized training that is strongly oriented toward basic research in molecular and cellular biology, microbiology, virology, pathogenesis, immunology and host-parasite interactions. MMI offers under the program name of Molecular Pathogenesis and Therapeutics Graduate Program (MPT):

- PhD in Microbiology (Medicine)
- Cooperative Degrees: MD/ PhD in Microbiology (Medicine)

## Faculty

### Molecular Microbiology and Immunology

**Professor** D.H. Burke, D. Duan, M.C. Johnson, M.A. McIntosh, D.J. Pintel, X. Wan, H. Zaghouani

**Associate Professor** M. R. Baldwin, J.F. Cannon, M.A. Daniels, A.G. Schrum, E. Teixeira-Pernas

**Assistant Professor** H. Guo, M.J. Lange

**Professor Emerita/Emeritus** K.L. Bennett, H. Braley-Mullen, R.A. Finkelstein, D.R. Lee, M.L. Misfeldt, K.S. Wise

**Research Associate Professor** K. Singh, Y. Lai

**Research Assistant Professor** D. Chance

**Associate Teaching Professor** J.L. Furrer

**Adjunct Professor** S. Sarafianos

## Veterinary Pathobiology

**Professor** D.M. Anderson, J.J. Adamovicz, B.T. Beerntsen, C.R. Brown, M.J. Calcutt, C.L. Franklin, C.L. Lorson, W. Ma, R.W. Stich

**Associate Professor** J. Amos-Landgraf, A. Franz, J. Skyberg

**Adjunct Professor** G.C. Stewart

## Jointly appointed to Molecular Microbiology and Immunology

**Professor** C.R. Brown, M.J. Calcutt, D. Cornelison, C. L. Franklin, C.L. Lorson, W. Ma, H. Shirwam, E. Shirwan Yolcu

**Associate Professor** P.B. Brown, D. Gil Pagés, B. Hahm, S.C. McKarns

**Assistant Professor** G. Li

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

For information on the undergraduate degree in Microbiology offered through the university's College of Veterinary Medicine, refer to the BS in Microbiology (p. 753).

## Graduate

- MS in Microbiology (p. 795)
- PhD in Microbiology (p. 797)

School of Medicine

M616 Medical Sciences Building  
(573) 882-8152

<https://medicine.missouri.edu/departments/molecular-microbiology-immunology/graduate-program> (<https://medicine.missouri.edu/departments/molecular-microbiology-immunology/graduate-program/>)

The Departments of Molecular Microbiology & Immunology (MMI), in partnership with the faculty from the Department of Veterinary Pathobiology (VPB), offers a comprehensive graduate program, **Molecular Pathogenesis and Therapeutics Graduate Program (MPT)**, leading to the Doctor of Philosophy (Ph.D.) degree. The Molecular Pathogenesis and Therapeutics Graduate Program is built around scholarly activities with three important missions: cutting-edge research programs to address relevant biomedical problems in microbiology, pathogenesis, and immunology, a graduate training program to educate strong, independent research scientists, and a commitment to provide knowledge-based service to the state, national and international communities that will improve global understanding of the microbial world, infectious diseases and host immunity to infection. Graduate (and postgraduate) education programs offer the basic principles of microbiology, pathogenesis, and immunology as well as research training opportunities in the laboratories of established scientists with diverse research interests.

## Faculty Research

The program is equipped to support a wide range of research activities at the cutting edge of our diverse science. Faculty research activities focus on key problems in pathogenic microbiology, immunology, molecular biology, genetics, therapeutics, and virology.

## Research Facilities and Resources

The research environment at MU with Colleges of Medicine, Veterinary Medicine, Agriculture, Engineering, and Arts and Sciences on one comprehensive campus fosters the development of interdisciplinary scientific interactions that enhance both research and training opportunities for faculty and students alike. The Bond Life Sciences Center represents such an interdisciplinary research enterprise and houses investigators from multiple colleges and departments, including MMI and VPB. Critical to the Molecular Pathogenesis and Therapeutics Graduate Program interests in infectious diseases, pathogenesis, therapeutics, and immunity research, the recent construction of an NIH-funded Laboratory for Infectious Disease Research provides modern BSL3/ABSL3 containment research space and animal holding facilities for the investigation of highly infectious organisms and human select agents. This resource, and the Molecular Pathogenesis and Therapeutics Graduate Program's partnership with the Midwest Regional Center for Excellence in Biodefense and Emerging Infectious Disease Research, centered at Washington University in St. Louis, position MU in the national network of infectious disease research and training efforts. Please visit the MMI Web site (<https://medicine.missouri.edu/departments/molecular-microbiology-immunology/graduate-program/>) for additional information on MMI's access to state of the art facilities.

## Career Opportunities

Graduates completing this training are prepared to pursue challenging and rewarding professional careers that involve research and teaching at supervisory levels in both the academic and private sectors.

## Research and Teaching Assistantships

Students in the doctoral program are awarded research assistantships. Research assistants work with faculty members to obtain practical experience in carrying out a research project through the collection of research data and writing research reports. All students in the graduate program are required to participate as teaching assistants for two semesters during their studies.

If you are interested in a the Molecular Pathogenesis Graduate Program, please see the 'Degrees, Majors (Degree Programs), Emphasis Areas, Minors and Certificate (p. 20)' page for the Ph.D. in Microbiology.

## MS in Microbiology

Admission to the Microbiology program to pursue a M.S. degree is not an option, as students are accepted with the intent that they will fulfill the PhD requirements. Only under unforeseen circumstances such as illness, a change in academic interest, or other personal reason, is a student allowed to transfer to the M.S. degree.

The Molecular Pathogenesis and Therapeutic Graduate Program (MPT) was collaboratively designed by the Department of Molecular Microbiology & Immunology (MMI) and the Department of Veterinary Pathobiology (VPB). The MPT Program offers comprehensive graduate-level training, providing individualized training that is strongly oriented toward basic research in molecular and cellular biology, microbial pathogenesis, virology, immunology and host-parasite interactions.

## Degree Requirements

Requirements are the same as for doctoral candidates, although successful completion of a comprehensive examination is not a

requirement for the Master's candidate. Students opting for a M.S. degree, must complete a research project and write and defend a Master's thesis in front of their Master's committee. The Master's Committee should consist of at least three faculty members including the mentor. At least two of the faculty members should be from the Microbiology Graduate Program and at least one faculty member from outside of the advisor's primary department.

#### Credit Hour Requirements:

The Graduate School requires 30 hours of advanced study to be completed for the M.S. degree. A minimum of 15 hours of 8000-9000 level course work, not including MICROB 9085 Problems in Microbiology and MICROB 9090 Research in Microbiology. A maximum of four hours of MICROB 9087 Seminar in Microbiology can count toward this requirement. Graduate student full-time enrollment status is 9 credit hours for fall and spring, 4 credit hours for summer.

#### Required Courses for Graduate Students in Program

- **Fall semester, 1<sup>st</sup> year (all required):**
  - MICROB 7303 Fundamental Virology (2 credit hrs.)
  - MICROB 7304 Immunology (3 credit hrs.)
  - MICROB 7404 Foundations in Bacteriology and Pathogenesis (3 credit hrs.)
  - MICROB 8050 Graduate Student Survival Skills (1 credit hr.)
- **Three of the following courses** (only one of these may be an approved elective)
  - MICROB 9404 Advanced Bacterial Pathogenesis (4 credit hrs.; offered Spring of odd years only)
  - MICROB 9407 Advanced Immunology (4 credit hrs.; offered Spring semesters of even years only)
  - MICROB 9432 Molecular Biology II (4 credit hrs.; offered every Spring semester)
  - MICROB 9449 Infection and Immunity (4 credit hrs.; offered every Fall semester)
  - MICROB 9001 Topics in Microbiology (4 credit hrs.; every other Spring semester of odd years offering as Advanced Virology)
- Approved 8/9000 current literature-based elective (3-4 credit hrs.)  
8000/9000-level electives: The DGS and the Curriculum Committee must approve these courses. They should also be approved by the student's doctoral committee (examples of courses still needing approval are given below):
  - V\_PBio 8436 Pathogenic Mechanisms in Veterinary Pathobiology (3 hours)
  - BIO\_SC 8320 Developmental Genetics (3 hours)
  - BIO\_SC 8440 Integrative Neuroscience I (3 hours)
  - BIO\_SC 8442 Integrative Neuroscience II (3 hours)
  - MPP 9426 Transmembrane Signaling (4 hours)
  - MPP 9435 Molecular Exercise Biology (3 hours)
- V\_PBio 8641 Introduction to Research Ethics (1 credit hr.; every Spring semester)
- MICROB 9087 Seminar in Microbiology (required to take this 4 times: 2<sup>nd</sup>-5<sup>th</sup> years) (1 credit hr.; every Spring semester)
- MICROB 9403 Advanced Medical Microbiology (credit for teaching) (2 credit hrs.; every semester)

#### Laboratory Rotations

All new graduate students admitted into the MPT Graduate program are required to complete three laboratory rotations starting in the Fall semester and concluding in mid-January before the Spring semester begins. Students will meet with the Director of Graduate Studies prior to each rotation to determine the appropriate laboratory and rotation advisor. Laboratory rotations expose graduate students to research activities within the Program and to the experimental laboratory environment in which they will evolve. Prior to finishing the third laboratory rotation the graduate student selects a mentor based on mutual agreement between the student and the mentor. Once the mentor has been selected, the student will perform his or her doctoral research under the guidance of the mentor in his/her laboratory.

#### Laboratory Rotation Schedule

The MPT Graduate Student Laboratory Rotation Program represents a vehicle to introduce the research laboratory to incoming students and to stimulate a direct interaction between students, faculty and other program personnel. The program is designed to expose students as quickly as possible to research activities within the Program and to the experimental laboratory environment in which they will evolve.

Laboratory rotations will approximately adhere to the following schedule\*:

- Summer Research Experience\*\* - Start of Summer semester (usually 1st Monday June 3rd) - July 27th
- 1st Rotation - August 19th - September 27th
- 2nd Rotation - September 30th - November 8th
- 3rd Rotation - November 11th - January 10th (this allows limited time off for holidays and final exams)

\*These dates will change from year to year depending on the start date of the Fall semester and will be set by the Director of Graduate Studies

\*\*With permission of Director of Graduate Studies, Executive Committee, and Department Chairs

Students who wish to enter the program early at the beginning of the summer semester preceding their first academic semester may do so, if financial resources are available.\*\* However, this will be considered a "summer research experience" with one of the faculty members but not an official rotation. This summer research experience should begin no earlier than June 1 and no later than the first day of the Summer semester, and should end on August 15th. This student will still be required to perform three rotations with different faculty advisors, starting in the fall. The student would then be able to select one of those advisors including the "summer research experience" advisor as his or her doctoral advisor. Students engaging in the "summer research experience" will register for 4 credit hrs. of MICROB 9085 (<http://catalog.missouri.edu/search/?P=MICROB%209085>) Problems (Rotations) for the summer semester and will need to be on campus by the beginning of the MU summer semester (usually first Monday in June).

#### Other duties

- Act as a teaching assistant (TA) in MICROB 2800 or MICROB 3200 for two semesters (to be completed during the first two years, but not during the Fall semester of the first year).
- Attend Program seminars (any invited speakers and student seminars) on Wednesdays at 1:15 pm usually in Monsanto Auditorium in the Bond LSC; attendance will be taken; enroll in MICROB 9087 Seminar in Microbiology for 1 credit hr. in the Spring semesters of years 2-5. **You will need to give a seminar during**

**those years; course grade will be determined by attendance and your presentation.**

- **English-Language Proficiency Requirements for International Students**

Any graduate student who completed primary and secondary education (equivalent of K-12 in the U.S.) in a country where English is not the primary language is required by the state of Missouri law to be assessed for English language proficiency. The Speaking Proficiency English Assessment Kit (SPEAK) test is conducted through the Graduate School. International graduate students must receive a level 2 or higher on their language assessment to meet the requirements to TA. If they receive a score below 2 additional courses may be recommended for the student to increase their language skills before their English language is reassessed.

ONITA training is offered during the week preceding the Fall and Spring semester. The training is required for all new international graduate students before the first semester of teaching or assisting with teaching at MU.

#### **Thesis:**

Students must complete a research project, write and defend a Master's thesis in front of their Master's committee and the program. The Master's Committee should consist of at least four faculty members including the mentor. At least three of the faculty members should be from the MPT Graduate Program and at least one faculty member should be from outside of the adviser's primary department.

## **More Information**

For additional graduate degree information please visit our website at: <https://medicine.missouri.edu/departments/molecular-microbiology-immunology/graduate-program> (<https://medicine.missouri.edu/departments/molecular-microbiology-immunology/graduate-program/>) or Phd in Microbiology (p. 797).

#### **Contact Information:**

Department of Molecular Microbiology & Immunology  
M616 Medical Sciences Building  
Columbia, MO 65212

[mmi@missouri.edu](mailto:mmi@missouri.edu)

## **PhD in Microbiology (MED)**

### **Program Overview**

The Molecular Pathogenesis and Therapeutic Graduate Program (MPT) was collaboratively designed by the Department of Molecular Microbiology & Immunology (MMI) and the Department of Veterinary Pathobiology (VPB). The MPT Program offers comprehensive graduate-level training leading to the Doctor of Philosophy (Ph.D.) degree. This program provides individualized training that is strongly oriented toward basic research in molecular and cellular biology, microbial pathogenesis, virology, immunology and host-parasite interactions. Graduates completing this training are prepared to pursue challenging and rewarding professional careers that involve research and teaching at supervisory levels in the academic, government and private sectors.

Graduate students entering into the program should be highly motivated toward a career in research in microbiology. They must have, as a minimum, a baccalaureate degree with an undergraduate record showing

superior performance in introductory and advanced coursework in prerequisite subjects (biology, chemistry, physics, and mathematics). They must have taken the Graduate Record Examination and should have superior scores. Additionally, international applicants will require demonstration of English fluency via TOEFL scores. Letters of recommendation from individuals who are qualified to judge should clearly indicate aptitude for, and dedication to, a career in science.

The MMI and VPB Departments are central components of an eminent, interdisciplinary campus program in molecular biology and life sciences, which also involves molecular biologists in Biochemistry and Biological Sciences as well as many other University departments. Campus core facilities provide cell culture and immunology services, DNA sequence analysis, transcriptional analysis, protein structural analysis, transgenic animals, protein expression, proteomics, electron microscopy and molecular cytology.

## **Degree Requirements**

### **The Doctor of Philosophy (Ph.D.) Degree**

The program involves (i) a course of study which includes required and elective course work, (ii) participation in programmatic seminars and journal clubs, (iii) training in teaching through participation in laboratory courses for undergraduates, (iv) a comprehensive examination designed to evaluate a student's ability to propose and experimentally evaluate a significant scientific question, and (v) the successful completion of a creative and original scholarly research project.

On average, the graduate degree program will require four to six years of full-time effort, although this may vary depending on the ability and previous experience of the individual student. A Master of Science Degree is not a prerequisite for the Ph.D. degree.

**All students in the program are supported by a stipend (currently \$25,000 per year) plus tuition costs and basic medical insurance.**

### **Laboratory Rotations and Schedule**

All new graduate students admitted into the MPT Graduate program are required to complete three laboratory rotations starting in the Fall semester and concluding in mid-January before the Spring semester begins. Students will meet with the Director of Graduate Studies prior to each rotation to determine the appropriate laboratory and rotation advisor. Laboratory rotations expose graduate students to research activities within the Program and to the experimental laboratory environment in which they will evolve. Prior to finishing the third laboratory rotation the graduate student selects a mentor based on mutual agreement between the student and the mentor. Once the mentor has been selected, the student will perform his or her doctoral research under the guidance of the mentor in his/her laboratory.

The MPT Graduate Student Laboratory Rotation Program represents a vehicle to introduce the research laboratory to incoming students and to stimulate a direct interaction between students, faculty and other program personnel. The program is designed to expose students as quickly as possible to research activities within the Program and to the experimental laboratory environment in which they will evolve.

Laboratory rotations dates can be found in the MPT Graduate Student Handbook at:

<https://medicine.missouri.edu/departments/molecular-microbiology-immunology/graduate-program/graduate-requirements> (<https://medicine.missouri.edu/departments/molecular-microbiology-immunology/graduate-program/graduate-requirements/>)

Students who wish to enter the program early at the beginning of the summer semester preceding their first academic semester may do so, if financial resources are available.\*\* However, this will be considered a “summer research experience” with one of the faculty members but not an official rotation. The student will still be required to perform three rotations with different faculty advisors, starting in the fall. The student would then be able to select one of those advisors including the “summer research experience” advisor as his or her doctoral advisor. Students engaging in the “summer research experience” will register for 4 credit hrs. of MICROB 9085 Problems (Rotations) for the summer semester and will need to be on campus by the beginning of the MU summer semester (usually first Monday in June).

**Required Courses for Graduate Students in Program**

**Required Courses taken Fall semester, 1st year**

BIOCHM 8240	Introduction to Graduate Biochemistry I	4
MPP 8420	Skills in Biomedical Research	2
MICROB 9085	Problems in Microbiology	1-99

**Choose two from the following Basic courses**

MICROB 7304	Immunology	3
MICROB 7404	Foundations in Bacteriology and Pathogenesis	3
MICROB 7303	Fundamental Virology	2

**Choose three from the following (only one of these may be an approved elective)**

MICROB 9404	Advanced Bacterial Pathogenesis (only offered Spring semester of odd years)	4
MICROB 9407	Advanced Immunology (only offered Spring semester of even years)	4
MICROB 9449	Infection and Immunity (only offered Fall semester)	4
MICROB 9001	Topics in Microbiology (Take Advanced Virology, offered every other Spring semester of odd year)	4

**Approved 8000/9000 current literature-based electives**

8000/9000-level electives: The DGS and the Curriculum Committee must approve these courses. They should also be approved by the student’s doctoral committee. (Examples of courses still needing approval are given below):

V_PPIO 8436	Pathogenic Mechanisms in Veterinary Pathobiology	3
BIO_SC 8320	Developmental Genetics	3
BIO_SC 8440	Integrative Neuroscience I	3
BIO_SC 8442	Integrative Neuroscience II	3
MPP 9426	Transmembrane Signaling	4
MPP 9435	Molecular Exercise Biology	3
V_PPIO 8641	Introduction to Research Ethics (every Spring semester)	1
MICROB 9087	Seminar in Microbiology (required to take this four times: 2nd-5th years, offered every Spring semester)	1
MICROB 9403	Advanced Medical Microbiology (credit for teaching)	2

**Other duties**

- Act as a teaching assistant (TA) in MICROB 2800 or MICROB 3200 for two semesters (to be completed during the first two years, but not during the Fall semester of the first year).

- Attend Program seminars (any invited speakers and student seminars) on Wednesdays at 1:15 pm usually in Monsanto Auditorium in the Bond LSC; attendance will be taken; enroll in MICROB 9087 Seminar in Microbiology for 1 credit hr. in the Spring semesters of years 2-5. **You will need to give a seminar during those years; course grade will be determined by attendance and your presentation.**

**English-Language Proficiency Requirements for International Students**

Any graduate student who completed primary and secondary education (equivalent of K-12 in the U.S.) in a country where English is not the primary language is required by the state of Missouri law to be assessed for English language proficiency. The Speaking Proficiency English Assessment Kit (SPEAK) test is conducted through the Graduate School. International graduate students must receive a level 2 or higher on their language assessment to meet the requirements to TA. If they receive a score below 2 additional courses may be recommended for the student to increase their language skills before their English language is reassessed.

ONITA training is offered during the week preceding the Fall and Spring semester. The training is required for all new international graduate students before the first semester of teaching or assisting with teaching at MU.

**Credit Hour Requirements:**

The Graduate School requires 72 hours of advanced study to be completed for the Ph.D. degree. A minimum of 15 hours of 8000-9000 level course work, not including MICROB 9085 Problems in Microbiology and MICROB 9090 Research in Microbiology. A maximum of four hours of MICROB 9087 Seminar in Microbiology can count toward this requirement.

**Full-time Student Enrollment**

**Graduate student full-time enrollment statuses pre-comprehensive exam:**

- 9 credit hours for fall and spring, 4 credit hours for summer.

**Graduate student full-time enrollment statuses post-comprehensive exam:**

- 2 credit hours for fall and spring, 1 credit hour for summer.

**Dual Degree**

A program leading to the combined Ph.D. /M.D. degrees can be designed for students who are admitted to the Medical School and to the MPT Graduate Program. It is anticipated that these students will fulfill their first two years of Medical School academic requirements before entering the MPT Graduate Program for the research- oriented Ph.D. degree. All coursework, TA responsibilities, rotations, comprehensive examination and research requirements are the same as for any other graduate student. Dual degree students will be encouraged to complete research rotations during the summer semesters of their two years of medical curriculum so that a dissertation research project can be initiated immediately upon entering the Ph.D. program. Typically, clinical requirements for the M.D. will be completed after fulfillment of the requirements for the Ph.D.

## Requirements for Qualifying and Comprehensive Exam

Each student will be required to master two phases of the curriculum, qualifying and advanced, designed to achieve the educational objectives described above. The MPT Graduate Program Curriculum Committee makes decisions regarding additions or changes to the basic curriculum. Due to the changing environment in this field of research, the MPT Graduate Program curriculum may be subject to change.

### Qualifying Phase

A required basic series of courses are designed to establish a foundation in bacteriology and pathogenesis (MICROB 7404), virology (MICROB 7303), and immunology (MICROB 7304).

### Advanced Phase

It is expected that combinations of advanced courses in molecular biology of eukaryotes (MICROB 9432), immunology (MICROB 9407), virology (MICROB 9001), infection and immunity (MICROB 9449), and bacterial pathogenesis (MICROB 9404) will comprise the core curriculum, although alternative courses may be prescribed by the MPT Curriculum Committee and by Doctoral committees based upon individual student needs. Satisfactory performance is defined as a grade of B or above in these 8000/9000 level courses. Unsatisfactory performance(s) must be corrected according to the recommendations of the Graduate Student Advisory Committee. Such recommendations may include retaking the course(s), additional examinations, or dismissal from the Graduate Program.

## Goals and Purpose of Qualifying and Comprehensive Exams

### Qualifying Exam

The goal of this exam is to determine whether the student is qualified to enroll in advanced graduate courses as well as intellectually prepared to perform research in this program. Passage of all three fundamental courses will constitute passage of the qualifying exam. The guidelines for this process are covered in greater detail in Section VI of our MPT Graduate Student Handbook (<https://missouri.app.box.com/s/69d37c962u88ap2va1xhqisab97zi8kg/>).

### Comprehension Exam

The purpose of the comprehensive exam is to certify that the student has sufficient scientific knowledge (from the course work) and research insight to advance to candidacy for the Ph.D. This knowledge and insight are examined in this program through the student writing and orally defending an NIH-style research grant proposal. This examination will be administered at the end of the fall semester of the third year. The guidelines for this process are covered in greater detail in Section VII of the MPT Graduate Student Handbook (<https://missouri.app.box.com/s/69d37c962u88ap2va1xhqisab97zi8kg/>). (<https://missouri.app.box.com/s/69d37c962u88ap2va1xhqisab97zi8kg/>)

## PhD Dissertation Guidelines

The final educational requirement for the Ph.D. degree is the written and oral presentation of a novel and creative piece of scholarly research that represents new information and significantly advances knowledge in that field of research. The dissertation project must be approved by the student's doctoral committee and should demonstrate the student's scientific maturity and ability to write in a scholarly fashion. At the

completion of the dissertation research, the student will present his/her research findings in a public seminar for program faculty and personnel and will defend the project before his/her doctoral committee. The project will be detailed in a formal written thesis that conforms to Graduate School guidelines with respect to format. Approval of the scientific content of the thesis is the responsibility of each doctoral committee and requires the signature of each committee member, with no more than one dissenting or abstaining vote. The evaluation will consider the following guidelines with respect to thesis content.

a. **Introduction** – The manuscript should describe pertinent background material that establishes the foundation for the overall thesis proposed as well as the specific research questions being addressed and the significance of this project with respect to the field.

b. **Materials and Methods** – The thesis should describe in detail the experimental protocols used in the study; where applicable, references to published protocols should be made, but modifications to such procedures should be defined. The methods may be presented as a component of each Results chapter, or may be combined into a single, separate chapter.

c. **Results** – Presentation of the data accumulated during the study that is relevant to the thesis being examined and the conclusions reached. The data should be presented in chapter format, with each chapter devoted to particular questions relative to the overall thesis. Since students are encouraged to publish their work during their graduate studies, these chapters may represent those publications (however, the student must be responsible for the writing and presentation of this work in the thesis).

d. **Discussion** – While each chapter presenting research data may contain a discussion of those specific data, the thesis should be concluded with a summary discussion that presents the student's overall conclusions about the study and the relevance of this work to the field as a whole. This summary provides the student an opportunity for knowledgeable speculation as to the significance of the work and its impact on the field.

## Program of Study

The program involves satisfactory completion of a minimum of 72 hours of graduate study as well as completion of original research and a thesis, which demonstrates research competence. Of the 72 hours graduate credit, 15 hours must be in courses numbered 8000/9000 (excluding research and problems courses, but including up to 4 credit hours of seminar courses).

More information at the MPT Graduate Student Handbook (<https://missouri.app.box.com/s/69d37c962u88ap2va1xhqisab97zi8kg/>)

## Research and Teaching Assistantships

Students in the doctoral program are awarded Graduate Research Assistantships, (currently at \$26,000). Graduate Research Assistants work with faculty members to obtain practical experience in carrying out a research project through the collection of research data and writing research reports. All students in the graduate program are required to participate as teaching assistants for two semesters during their graduate studies.

## Degree Completion Requirements

To be accepted for candidacy into the MPT PhD program, all applicants must perform satisfactorily in a core curriculum that includes advanced-



level courses in the sub disciplines of immunology, molecular biology and microbial pathogenesis. Under the guidance of a doctoral program committee, a course of study is individually designed to fit each student's academic background, experience and objectives. Interdisciplinary courses in biochemistry, molecular and cellular biology and genetics provide breadth and balance in the program and enhance the student's research abilities. In addition, the PhD program consists of the following:

- Practical experience in teaching
- Successful completion of a comprehensive examination that tests the student's ability to develop an original scientific hypothesis and devise a feasible research plan that will test the hypothesis.
- A demonstration of research and writing ability by completing a scholarly dissertation on an approved research problem that results in the contribution of significant new knowledge. The final examination primarily covers this dissertation research.

## Admissions

The Molecular Pathogenesis and Therapeutics Graduate Program (MPT) is offered through the Departments of Microbiology and Immunology in the School of Medicine and Veterinary Pathobiology in the College of Veterinary Medicine. This graduate training program is designed to prepare students for an advanced professional career in microbiology and immunology. Emphasis is placed on developing outstanding students for productive supervisory roles in universities and colleges, industry, government and research institutes. Enrollment is limited to those students who show evidence of potential for research.

## Application Deadline

Fall deadline: December 5

## Admission Criteria

### • Minimum English scores

Item	Score
Academic International English Language Testing System (IELTS)	6.5 (6.5 Graduate School requirement)
Internet-Based test (IBT)	92 (80 Graduate School requirement)
PTE	62 (59 Graduate School requirement)
Cambridge - C1 Advanced	185 (180 Graduate School requirement)

### • Minimum GRE scores

When did you take the GRE?	Verbal + Quantitative	Analytical
No more than 5 years old.	300	3.0

- Minimum GPA: 3.0
- Bachelor's degree from an accredited college or university
- Courses in the following: biology; advanced courses in biochemistry and/or molecular biology are highly desirable; chemistry (quantitative or organic); physics; mathematics

The PhD degree is offered only to students who demonstrate a high level of specialized knowledge and clear evidence of research potential.

## Required Application Materials

To the Graduate School:

- All required Graduate School (<https://gradstudies.missouri.edu/admissions/>) documents
- TOEFL score (if international applicant)
- 3 letters of recommendation from individuals competent to comment on the applicant's potential for graduate research and course
- GRE scores are required by our program
- Personal statement and research experience
- CV

### University of Missouri Graduate School Application:

Applications should be submitted through the University of Missouri, Graduate School (<https://gradschool.missouri.edu/admissions/>). Applicants will not be registered with the University of Missouri, Graduate School until they have completed the graduate school application and paid the graduate school application fee.

Applicants who are in the United States and reviewed favorably by the Graduate Admissions Committee will be invited to visit the University of Missouri for an interview for which the program defrays expenses. This visit provides an excellent opportunity for the prospective student to meet the faculty members, talk and interact with our current students, view the University of Missouri-Columbia and the Molecular Pathogenesis and Therapeutics Graduate Program, and experience Columbia, Missouri.

All application materials are filed alphabetically under the family name as indicated by the applicant on the International Student Application form. It is important that all supporting documents use the same name and spelling as the International Student Application so they can be quickly matched up to complete the application file.

Upon acceptance by the Molecular Pathogenesis and Therapeutics Graduate Program, the applicant should then convey his/ her decision to Accept or Decline by April 15th - deadline set by the Council of Graduate Schools, which MU is a member. Once the applicant has declared his decision to the MPT Program, and start date they are posted in the MU application system for the MU Graduate School final review of transcripts and English requirements. The Graduate School will notify the applicant and program of any deficiencies in the application and will let the applicant know that final transcripts will be needed.

### Contact Information:

Jana Clark, Business Support Staff II  
 Department of Molecular Microbiology & Immunology  
 M616 Medical Sciences Building  
 Columbia, MO 65212  
[mmi@missouri.edu](mailto:mmi@missouri.edu)

### Director of Graduate Studies:

Mark A. Daniels, Ph.D.  
[danielsma@missouri.edu](mailto:danielsma@missouri.edu)

## Neuroscience

### About the Program

One of the most exciting and dynamic fields of modern science worldwide is neuroscience, the study of how the nervous system is organized and how it functions. The field of neuroscience encompasses many disciplines, including biology, biochemistry, computer sciences, electrical

engineering (neural modeling of neural networks and biomedical instrumentation), neurology, neurosurgery, pharmacology, physics, physiology, psychology, psychiatry, and radiology. Neuroscientists have advanced our understanding of nervous system development, neural function, injuries of the nervous system, and disease processes. At MU, neuroscientists investigate the molecular and cellular organization of the nervous system, the structure and function of neural systems (including vision and hearing), behaviors generated by the nervous system, and neurological diseases and disorders. For more information about the Neuroscience Program, application materials, and contact information, go to <http://neuroscience.missouri.edu>.

## Faculty

**Professor** B. Bartholomew, D. Beversdorf, A. Chandrasekhar, J. Coates, D. Cornelison, N. Cowan, S. Ding, S. Frey, D. Geary, C. Gerhardt, K. Gillis, M. Hannink, C. Heesch, T. C. Hwang, P. Jen, M. Katz, J. Kerns, M. Kirk, D. Kline, C. Lorson, A. McClellan, C. McCrae, S. Nair, D. O'Brien, M. Pettris, T. Schachtman, H. Schatten, S. Shukla, J. Schul, D. Schulz, G. Sun, M. Thakkar, G. Weisman, B. Zhang

**Associate Professor** K. Aldridge, S. Christ, K. Cummings, M. Garcia, M. Greenlief, Z. Gu, S. Hackley, C. Hagan, J. Johnson, G. Kracke, T. Lever, J. Maruniak, D. Miller, L. Reneker, M. Will

**Assistant Professor** C. Hagan, N. Nichols, I. Ozden

**Assistant Research Professor** C. Cirstea, R. Whiting

**Associate Teaching Professor** C. Kuehl-Kovarik

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

While MU does not offer undergraduate degrees specifically in neuroscience, the University does offer baccalaureate opportunities in a number of related areas in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 20).

## Graduate

- MS in Neuroscience (p. 801)
- PhD in Neuroscience (p. 802)
- Graduate Certificate in Neuroscience (p. 803)

## About the Program

One of the most exciting and dynamic fields of modern science worldwide is neuroscience, the study of how the nervous system is organized and how it functions. The field of neuroscience encompasses many disciplines, including biology, biochemistry, computer sciences, electrical engineering (neural modeling of neural networks and biomedical instrumentation), neurology, neurosurgery, pharmacology, physics, physiology, psychology, psychiatry, and radiology. Neuroscientists have advanced our understanding of nervous system development, neural function, injuries of the nervous system, and disease processes. At MU, neuroscientists investigate the molecular and cellular organization of the nervous system, the structure and function of neural systems (including

vision and hearing), behaviors generated by the nervous system, and neurological diseases and disorders.

Students interested in the program are encouraged to contact members of the faculty directly by phone or e-mail, or visit the Interdisciplinary Neuroscience Program website: <https://neuroscience.missouri.edu/faculty> (<https://neuroscience.missouri.edu/faculty/>)

## Career Opportunities

MU's Interdisciplinary Neuroscience Program offers talented graduate students a chance to train for a career in one of the most exciting fields of modern science. Most of our students pursue research and teaching careers in basic neuroscience departments at prestigious research universities. Others opt for challenging and rewarding positions in applied fields, such as drug research or neurodiagnostic technology. Whatever their ultimate goals, the graduate neuroscientists who are trained at MU gain a solid understanding of the nervous system and of the experimental methods by which this knowledge is acquired.

## Plan of Study

Typical undergraduate majors that constitute preparation for graduate work in neuroscience include, but are not limited to, biochemistry, engineering, biology, computer science, chemistry, physics, neurobiology, physics and psychology.

After completing comprehensive course work in molecular, cellular, systems and behavioral neuroscience, graduate students join a research laboratory and work with other lab personnel to master the relevant technical skills and theoretical concepts in their chosen field. Students in the Interdisciplinary Neuroscience Program have the opportunity to present their findings at lab meetings, seminars, journal club sessions, and both national and international professional scientific conferences.

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

## MS in Neuroscience

### Degree Requirements

The Graduate School requires a minimum of 30 credit hours for completion of the Master's degree. The Interdisciplinary Neuroscience Program requires a certain number of these courses to be at the 8000 level or above (excluding research problems and thesis research).

#### Required Core Courses

BIO_SC 8440	Integrative Neuroscience I	3
BIO_SC 8442	Integrative Neuroscience II	3
BIO_SC 8050	Professional Survival Skills	2

Scientific Ethics (1 course, approved by thesis committee):

Possibilities include but are not limited to:		
BIOCHM 8060	Ethical Conduct of Research	
BIO_SC 8060	Ethical Conduct of Research	
PSYCH 8910	Responsible Conduct of Research	

MPP 8415	Responsible Conduct of Research thru Engagement, Enactment and Empowerment NIH and other Federal Age
V_PBIO 8641	Introduction to Research Ethics
GRAD 9001	Topics in Graduate School

**Select one from either group**

Cellular/Molecular Courses

BIOL_EN 7070	Bioelectricity
MPP 7424	Medical Pharmacology
MPP 9426	Transmembrane Signaling
MPP 9432	Mammalian Membrane Physiology

System/Behavior Courses

BIO_SC 7560	Sensory Physiology and Behavior
BIO_SC 7590	Computational Neuroscience
BIO_SC 7986	Neurology of Motor Systems
PSYCH 8210	Functional Neuroscience
PSYCH 9210	Psychopharmacology
V_BSCI 9467 or MPP 9437	Neural Cardiorespiratory Control

**Statistics course: select one**

Possibilities include but are not limited to:

STAT 7020	Statistical Methods in the Health Sciences	3
STAT 7070	Statistical Methods for Research	3
STAT 7410	Biostatistics and Clinical Trials	3
STAT 7540	Experimental Design	3
PSYCH 3010	Research Methods in Psychology I	3

**Journal Club**

NEUROSCI 8187	Neuroscience Journal Club	1
V_M_S 8021	Neurology Journal Review	1
PTH_AS 8500	Seminar in Translational Neuroscience	1-5

**Thesis Research**

NEUROSCI 9090	Thesis Research in Neuroscience (repeatable up to 12 hours)	1-6
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## Admission Criteria

Fall deadline: December 15

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
100	600

- Minimum GRE scores:

When did you take the GRE?	Verbal + Quantitative	Analytical
Prior to August 1, 2011	1200	
On or After August 1, 2011	308	

- Bachelor's degree or its equivalent

Neuroscience comprises a united field that integrates across many disciplines, and students from a variety of academic backgrounds are encouraged to apply to the Interdisciplinary Neuroscience Program (INP). U.S. residents and international applicants are strongly encouraged to apply.

## Required Application Materials

*To the Graduate School:*

- All required Graduate School documents

*To the INP Program:*

- Departmental application
- 3 letters of recommendation
- GRE scores
- TOEFL (if applicable)

## PhD in Neuroscience

### Degree Requirements

The Graduate School requires a minimum of 72 credit hours for completion of the Doctoral degree. The Interdisciplinary Neuroscience Program requires a certain number of these courses to be at the 8000 level or above (excluding research problems and thesis research).

**Required Core Courses**

BIO_SC 8440	Integrative Neuroscience I	3
BIO_SC 8442	Integrative Neuroscience II	3
BIO_SC 8050	Professional Survival Skills	2

Scientific Ethics (1 course, approved by thesis committee):

Possibilities include but are not limited to:

BIOCHM 8060	Ethical Conduct of Research
BIO_SC 8060	Ethical Conduct of Research
PSYCH 8910	Responsible Conduct of Research
MPP 8415	Responsible Conduct of Research thru Engagement, Enactment and Empowerment NIH and other Federal Age
V_PBIO 8641	Introduction to Research Ethics
GRAD 9001	Topics in Graduate School

**Cellular/Molecular Courses: select one**

BIOL_EN 7070	Bioelectricity	3
MPP 7424	Medical Pharmacology	4
MPP 9426	Transmembrane Signaling	4
MPP 9432	Mammalian Membrane Physiology	1-3

**System/Behavior Courses: select one**

BIO_SC 7560	Sensory Physiology and Behavior	3
BIO_SC 7590	Computational Neuroscience	4
BIO_SC 7986	Neurology of Motor Systems	3
PSYCH 8210	Functional Neuroscience	3
PSYCH 9210	Psychopharmacology	3
V_BSCI 9467 or MPP 9437	Neural Cardiorespiratory Control	3

**Statistics course: select one**

Possibilities include but are not limited to:

STAT 7020	Statistical Methods in the Health Sciences	3
STAT 7070	Statistical Methods for Research	3
STAT 7410	Biostatistics and Clinical Trials	3
STAT 7540	Experimental Design	3
PSYCH 3010	Research Methods in Psychology I	3

**Seminars**

Neuroscience Seminar Course	2
Neuroscience Journal Club: examples include	2
BIO_SC 8187 Seminar in Areas of Specialization	
NEUROSCI 8187 Neuroscience Journal Club	
PTH_AS 8500 Seminar in Translational Neuroscience	
<b>Rotation and Thesis research</b>	
NEUROSCI 9090 Thesis Research in Neuroscience (repeatable up to 28 hours)	1-6
NEUROSCI 8090 Rotation Research in Neuroscience	

## Admission Criteria

Fall deadline: December 15

- Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
100	600

- Minimum GRE scores:

When did you take the GRE?	Verbal + Quantitative	Analytical
Prior to August 1, 2011	1200	
On or After August 1, 2011	308	

- Bachelor's degree or its equivalent

Neuroscience comprises a united field that integrates across many disciplines, and students from a variety of academic backgrounds are encouraged to apply to the Interdisciplinary Neuroscience Program (INP). U.S. residents and international applicants are strongly encouraged to apply.

## Required Application Materials

To the Graduate School:

- All required Graduate School documents

To the INP Program:

- Departmental application
- 3 letters of recommendation
- GRE scores
- TOEFL (if applicable)

## Graduate Certificate in Neuroscience

The purpose of this certificate is to provide formal recognition to post baccalaureate students who are taking neuroscience courses and conducting research in neuroscience laboratories. This stand-alone certificate would allow post-baccalaureate students to have a specific, formal indication of their advanced studies and would be very beneficial to students who are considering applying to graduate degree programs or health sciences programs, such as medical or dental school.

## Requirements

### Cellular/molecular courses (Select 1)

BIOL_EN 7070	Bioelectricity	3
BIO_SC 7002	Topics in Biological Sciences (Neurobiology of Disease)	3

MPP 7424	Medical Pharmacology	4
MPP 9426	Transmembrane Signaling	4
MPP 9432	Mammalian Membrane Physiology	1-3

### System/behavior courses (Select 1)

BIO_SC 7560	Sensory Physiology and Behavior	3
BIO_SC 7986	Neurology of Motor Systems	3
BIO_SC 7590	Computational Neuroscience	4
ECE 8570	Neural Dynamics and Communication	3
ECE 8580	Machine Learning in Neuroscience	3
PSYCH 8210	Functional Neuroscience	3
PSYCH 9210	Psychopharmacology	3
PSYCH 9001	Topics in Psychology-General (Advanced Neural Systems))	3

V_BSCI 8100	Veterinary Neuroscience	2
V_BSCI 9467	Neural Cardiorespiratory Control	3
or MPP 9437	Neural Cardiorespiratory Control	

## Pathobiology Area Program

College of Veterinary Medicine  
201 Connaway Hall  
Columbia, MO 65211  
573-882-6550

## About the Pathobiology Area Program

The Pathobiology Area Program is university-wide and staffed by faculty from the College of Veterinary Medicine (Veterinary Pathobiology, Veterinary Medicine and Surgery), School of Medicine (Pathology and Anatomical Science, Molecular Microbiology and Immunology, Biochemistry), College of Arts and Science (Biological Sciences), and College of Agriculture, Food and Natural Resources (Biochemistry, Animal Sciences).

**Note:** The master of science program in biomedical sciences (p. 766), with an emphasis in veterinary pathobiology, is listed separately in this catalog but shares the pathobiology doctoral courses and faculty list.

## Faculty

**Professor:** D. M. Anderson\*\*, B. T. Beerntsen\*\*, D. Beversdorf\*\*, C. R. Brown\*\*, E. Bryda\*\*, M. Calcutt\*\*, L. Cohn\*\*, J. Cook\*\*, D. D. Cornelison\*\*, G. Davis\*\*, J. Dodam\*\*, D. Duan\*\*, D. Duren \*\*, C. Franklin\*\*, A. Franz\*\*, S. A. Grant\*\*, E. Hasser\*, C. Henry\*\*, T. Hoffman\*, G. C. Johnson\*\*, M. Katz\*\*, D. Kline II\*\*, M. Lewis\*\*, C. Lorson\*\*, D. Lubahn\*\*, L. Lyons\*\*, J. Middleton\*\*, R. Mohan\*\*, D. O'Brien\*\*, D. Pintel\*\*, C. Reiner\*\*, R. M. Roberts\*\*, R. Sherwood\*\*, C.J. Smith\*\*, J.P. Stannard\*\*, R. W. Stich\*\*, M. Thakkar\*\*, H.XF. Wan\*\*, C. V. Ward\*\*, H. Zaghouni\*\*, H. Zaghouni\*\*, S. Zhang\*\*

**Associate Professor:** Y. Agca\*\*, K. Aldridge\*\*, J. Amos-Landgraf\*\*, R. C. Backus\*\*, C. P. Baines\*\*, G. Blomquist\*\*, J. N. Bryan\*\*, M. Daniels\*\*, T. Evans\*\*, D. Fox\*\*, V. Glinskii\*\*, Z. Gu\*\*, R. Hammer\*\*, C. Holliday\*\*, G. S. Johnson\*\*, X. Kang\*\*, K. Kuroki\*\*, T. Lever\*\*, R. Ma\*\*, C. Maitz\*\*, S. McKarns\*\*, K. Middleton\*\*, S. Odemuyiwa\*\*, C. Phillips\*\*, R.S. Rector\*\*, C. Reddy\*\*, D. Shin\*\*, J. Skyberg\*\*, M. Thakkar\*\*

**Assistant Professor:** A. Ericsson\*\*, B. Flesner\*, K. Taylor\*\*

**Clinical Professor:**

**Clinical Associate Professor:**

**Clinical Assistant Professor:** A. Royal\*\*

**Research Professor:**

**Associate Research Professor:** M. Lorson\*, A. Stoker\*\*

**Assistant Research Professor:** H. Men\*, M. Shababi\*  
**Professor Emeritus:** C.A. Carson\*, S. Casteel\*, W. Fales\*, G.C. Stewart\*\*, G. P. Smith\*\*

- \* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.
- \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

While MU does not offer undergraduate degrees specifically in pathobiology, the University does offer baccalaureate opportunities in a number of related areas in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 20).

## Graduate

- PhD in Pathobiology Area Program (p. 804)

Contact Information  
College of Veterinary Medicine  
201 Connaway Hall  
573-882-6550  
<http://vpbio.missouri.edu/>

**Director of Graduate Studies:** Jerod Skyberg

## About the Program

The Pathobiology Area Program is university-wide and is staffed by faculty from the College of Veterinary Medicine (Veterinary Pathobiology, Veterinary Medicine and Surgery), School of Medicine (Pathology and Anatomical Science, Molecular Microbiology and Immunology, Biochemistry), College of Arts and Science (Biological Sciences), and College of Agriculture, Food and Natural Resources (Biochemistry, Animal Sciences).

**Note:** The master of science program in biomedical sciences (p. 766), with an emphasis in veterinary pathobiology, is listed separately in this catalog but shares the pathobiology doctoral courses and faculty list.

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. In this program, various stipends are available, including teaching and research assistantships and postdoctoral fellowships. Check the program Web site or ask the program contact for details.

## Career Preparation

Graduate training relates to the major departmental thrust — application of advanced biotechnology to solving today's most perplexing agricultural, biomedical and companion animal questions. The faculty in the Pathobiology Area Program consists of scientists engaged in a wide variety of research programs supported by grants and contracts from government, foundations and private industry.

The Pathobiology Program is designed to prepare students for advanced professional careers in universities and colleges, research institutes, public health, hospital laboratories and industrial research. The broad scope of the program and its organization across departments creates an

atmosphere for meaningful interdisciplinary dialogue between graduate students and faculty. Furthermore, it increases availability of advisors, committee members, facilities and equipment for doctoral candidates.

A PhD candidate may choose a plan of research to take advantage of a wide range of interests and specialties in pathology and microbiology.

## Facilities and Resources

Facilities are available that are suitable for advanced research in pathology, microbiology and molecular biology. A wide range of equipment for advanced molecular biological procedures is available. BSL-3 biocontainment facilities are available.

## Areas of Study

Toxicology, environmental toxicology, comparative medicine, epidemiology and pathogenesis of avian and mammalian diseases (companion animal, food-producing animal and spontaneous disease of laboratory animals), molecular biology, ultrastructure, parasitology, DNA and RNA analysis, biomechanics, physiology, pathophysiology, oncology, bioinformatics, diagnostic anatomic pathology, veterinary neuropathology, pathology of infectious disease, quantitative pathology, molecular genetics, domestic animal genomics, bacteriology/mycology, virology, cell biology, genomics, and antimicrobial resistance.

## PhD in Pathobiology Area Program

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### Interdisciplinary Area of Pathobiology

The Department of Veterinary Pathobiology in the College of Veterinary Medicine, along with the Department of Pathology and Anatomical Sciences in the School of Medicine and faculty from many other departments throughout the University, offer a PhD degree through the Pathobiology Area Program.

Prospective students must have a solid background in the life sciences, with advanced level experience in microbiology, immunology, genomics, molecular biology, cell biology, pathology, and/or biology. Research experience at the undergraduate and/or master's level is also desirable.

The Pathobiology Area Program is designed to prepare students for advanced professional careers in universities and colleges, research institutes, public health, hospital laboratories and industrial research. The broad scope of the program and its organization across departments creates an atmosphere for meaningful interdisciplinary dialogue between graduate students and faculty. A PhD candidate may choose a plan of research to take advantage of a wide range of interests and specialties in pathology and microbiology. Facilities are available that are suitable for advanced research in pathology, microbiology, and molecular biology. A wide range of equipment for advanced molecular biological procedures is available. Various stipends are available, including teaching and research assistantships and postdoctoral fellowships.

### Degree Requirements

Research is the foundation of graduate and postdoctoral study and students within the Pathobiology Area Program can expect to spend 75 percent of their time engaged in research activities. The PhD degree requires 72 credit hours of work including a minimum of 15 credits of upper-level graduate course work exclusive of research credits. The student must pass a written and/or oral comprehensive examination

in the area of study and write, present and defend a dissertation that embodies the results of original and significant investigation by the candidate. Up to 30 hours of post-baccalaureate credit from an accredited institution may be transferred toward the doctoral degree. Three focus areas are available, each with specific degree requirements.

## Plan of Study

Most of the student's program and examining committees shall be from the Area Program faculty. Under the guidance of a program committee, a course of study is individually designed to fit each student's academic background, experience and objectives. Courses may be chosen from one or more departments, as decided by the student in conjunction with the student's mentor/committee, but shall constitute a definite plan of education for research or scholarly investigation in some particular aspect of microbiology, pathology, or comparative medicine. The final examination covers mainly the dissertation.

Faculty members of the Program guide the selection of coursework and the development of a dissertation project. A list of doctoral faculty eligible to supervise PhD students is available here (<http://vpbio.missouri.edu/AreaProgramFaculty.html>).

For additional information regarding mentorship in the Department of Pathology and Anatomical Sciences program, please contact:

Dr. Casey M. Holliday, Ph.D.  
 Medical Sciences Building  
 MU School of Medicine  
[hollidayca@health.missouri.edu](mailto:hollidayca@health.missouri.edu)

## Admission Criteria

- Fall deadline: no deadline
- Spring deadline: no deadline
- Summer deadline: no deadline
- Undergraduate GPA of last 60 credit hours: 3.0
- Designated faculty mentor

### International applicants:

Minimum TOEFL scores:

Internet-based test (iBT)	Paper-based test (PBT)
80	550

## Required Application Materials

### Graduate School:

- All Graduate Admissions requirements: <https://gradschool.missouri.edu/admissions/>

### Pathobiology Area Program:

- Official Transcripts
- Mentor Letter of Support
- Curriculum Vitae or Resume
- Statement of Purpose
- 3 letters of recommendation
- Upload electronically through the Graduate School's application <https://gradschool.missouri.edu/admissions/apply/>

## Contact Information for Pathobiology Area Program:

### Director of Graduate Studies:

Dr. Jerod Skyberg, Ph.D.  
 Connaway Hall  
 College of Veterinary Medicine  
[skybergj@missouri.edu](mailto:skybergj@missouri.edu)

### Departmental Contact:

Marie Schlup  
 Connaway Hall  
 College of Veterinary Medicine  
[schlupm@missouri.edu](mailto:schlupm@missouri.edu)

## Pathology and Anatomical Sciences

School of Medicine  
 M263 Medical Sciences Building  
 (573) 882-1201  
[pathology-anatomy.missouri.edu](http://pathology-anatomy.missouri.edu) (<http://pathology-anatomy.missouri.edu>)

## About Pathology and Anatomical Sciences

The Department of Pathology and Anatomical Sciences in the School of Medicine, along with the department of Veterinary Pathobiology in the College of Veterinary Medicine, offers a PhD degree through the Pathobiology Area Program. Faculty also participate in other doctoral programs such as the Integrative Neuroscience Program, Genetics Area Program, and Molecular Pharmacology and Physiology. The MS degree is designed primarily to prepare students for supervisory roles in basic-science and clinical laboratories, and to offer greater in-depth study in pathology and anatomical sciences concurrent with studies leading to the PhD and/or MD degree.

## Faculty

- Professor** G. E. Davis, W. J. Krause\*\*, J. H. Miles, G. Y. Sun, C. V. Ward\*\*
- Associate Professor** E. H. Adelstein\*, A. A. Diaz-Arias\*, E. A. Ingram, R. Mitra\*
- Assistant Professor** K. J. Aldridge\*, G. L. Arthur\*, V. V. Glinskii\*\*, Z. Gu\*\*, C. M. Holliday\*\*, K. H. Taylor\*\*
- Lecturer** D. L. Dufeu, R. H. Dunn, S. D. Maddux\*
- Clinical Instructor** J. Jones, D. V. Shin
- Clinical Professor** D. C. Miller\*, M. Petrides\*
- Associate Clinical Professor** A. D. Havey\*
- Assistant Clinical Professor** M. Esebua, S. R. Frazier, C. C. Stacy\*, M. X. Wang\*
- Associate Research Professor** R. R. Little
- Assistant Research Professor** J. Cui
- Adjunct Professor** M. J. Ravosa\*\*, M. S. Stack\*\*
- Associate Professor Emeritus** L. E. Spollen

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Undergraduate

While MU does not offer undergraduate degrees specifically in pathology and anatomical sciences, the University does offer baccalaureate opportunities in a number of related areas in the other Schools and Colleges that make up the University. The catalog provides a complete list of these degree options (p. 20).

## Graduate

- MS in Pathology and Anatomical Sciences (p. 806)

School of Medicine  
 M263 Medical Sciences Building  
 (573) 882-1201  
[pathology-anatomy.missouri.edu](http://pathology-anatomy.missouri.edu) (<http://pathology-anatomy.missouri.edu>)

## About Pathology and Anatomical Sciences

The Department of Pathology and Anatomical Sciences in the School of Medicine, along with the department of Veterinary Pathobiology in the College of Veterinary Medicine, offers a PhD degree through the Pathobiology Area Program. Faculty also participate in other doctoral programs such as the Integrative Neuroscience Program, Genetics Area Program, and Molecular Pharmacology and Physiology. The MS degree is designed primarily to prepare students for supervisory roles in basic-science and clinical laboratories, and to offer greater in-depth study in pathology and anatomical sciences concurrent with studies leading to the PhD and/or MD degree.

## Financial Aid from the Program

Some programs require an extra form or statement from those who wish to be considered for internal assistantships, fellowships or other funding packages. Check the program website or ask the program contact for details.

## MS in Pathology and Anatomical Sciences

The MS degree is designed primarily to prepare students for supervisory roles in basic-science and clinical laboratories, and to offer greater in-depth study in pathology and anatomical sciences concurrent with studies leading to the PhD and/or MD degree.

## Degree Requirements

Each candidate for the master's degree is required to complete a minimum of 30 semester hours at the 8000 or 9000 level and maintain a B or better GPA in graduate course work, with no more than 12 hours of research, problems, seminars or special investigations.

Candidates also must satisfactorily complete a thesis. A candidate is expected to demonstrate knowledge of clinical and/or research techniques and to defend the thesis.

Faculty members advise students regarding their program of study and thesis research. A list of graduate faculty eligible to supervise MS students is available on the departmental website.

Required courses and those of special interest should complement the student's academic background and career objectives.

## Application Deadline

Fall entrance: Inquire with Director of Graduate Studies

## Admission Criteria

- Admission to candidacy in the master's program is limited to those who hold at least a baccalaureate degree from an accredited college or university.
- Preference will be given to students with a college GPA of 3.5 or higher
- Minimum GRE scores:

When did you take the GRE?	Verbal + Quantitative	Analytical
Prior to August 1, 2011		N/A
On or After August 1, 2011	325	N/A

## Required Application Materials to the Graduate School:

- All required Graduate School documents

### Admission Contact Information

Director of Graduate Studies  
 MU School of Medicine  
 M263 Medical Sciences Building  
 Columbia, MO 65211  
 573 882-1201  
 573-884-4612 (fax)  
[pathology-anatomy.missouri.edu](http://pathology-anatomy.missouri.edu) (<http://pathology-anatomy.missouri.edu>)

## Additional Minors and Certificates - Interdisciplinary Academic Programs

### Undergraduate Certificates

- Certificate in Digital Global Studies (p. 807)
- Certificate in Global Supply Chain Management (p. 807)

### Graduate Certificates

- Certificate in Center for the Digital Globe (p. 807)
- Certificate in Community Processes (p. 808)
- Certificate in Conservation Biology - Interdisciplinary (p. 809)
- Certificate in Global Supply Chain Management (p. 810)
- Certificate in Health Ethics (p. 810)
- Certificate in Informatics for Public Health (p. 811)
- Certificate in Life Science Innovation and Entrepreneurship (p. 811)
- Certificate in Organizational Change and Conflict Management (p. 812)
- Certificate in Public Health Communication (p. 812)
- Certificate in Society and Sustainability (p. 812)

## Graduate Minors

- Minor in Ancient Studies (p. 814)
- Minor in College Teaching (p. 815)
- Minor in International Development (p. 816)

## Certificate in Digital Global Studies

This certificate is designed to prepare students in any discipline for our new global reality and equip them with the knowledge and skills needed to be successful in today's highly competitive global job market.

All current MU undergraduate students in any discipline are eligible to participate.

### Requirements

The structure of the certificate includes two required core courses (honors eligible), two elective courses, and an experiential learning component.

Below are the details on the required courses that have various cross-listed options. The core courses can be substituted with relevant courses from various disciplines.

Electives can be taken from a wide variety of courses offering a digital and/or global component. For more information: <http://cdig.missouri.edu/undergraduate/>.

The experiential learning component varies depending on the student's field of study and interest, but there should be an emphasis on global relations, cultural awareness, or media technology. This component could be study abroad, service learning, internship, etc. with an MU Center or an outside local, national or international organization. Volunteer work, internships and mission trips not associated with MU credit work are options also.

Required Courses		
JOURN/GERMAN/DST_VS/	Think Global: Fundamentals of	3
PEA_ST 3510/T_A_M 3010	Globalization and Digital Technologies	
T_A_M/GERMAN/PEA_ST	Case Studies in an Inter/Multicultural	3
4810/DST_VS 4805	World	
<b>Two Electives (3 credit hours each) with a digital and/or global focus</b>		<b>6</b>
<b>Experiential Learning - a 'hands-on' learning experience</b>		<b>3</b>
Total Credits		15

For additional information about the certificate, contact:

Professor Monika Fischer, Certificate Director  
 458 Strickland Hall  
 Columbia, MO 65211  
 E-mail: [globalconnect@missouri.edu](mailto:globalconnect@missouri.edu)

## Certificate in Global Supply Chain Management

The Certificate in Global Supply Chain Management is an interdisciplinary certificate between the Department of Management, Trulaske College of Business, and the Department of Industrial and Manufacturing Systems Engineering, College of Engineering.

## Requirements

The certificate requires the completion of 15 credit hours with a 3.00 GPA.

Required Courses		9
MANGMT 4070	Supply Chain Management	
MANGMT 4010	Operations Management	
or IMSE 4350	Production and Operations Analysis	
BUS_AD 4500	Professional Development Program - Internship	
or IMSE 4910	Industrial Engineering Internship	
Elective Courses		6
MANGMT 4060	Project Management Fundamentals	
MANGMT 4080	Managing Global Trade	
MANGMT 4090	Purchasing and Supply Management	
MANGMT 4210	Management Science	
MRKTNG 4890	Marketing Supply Chain Analytics	
IMSE 4330	Material Flow and Logistics System Design	
IMSE 4360	Supply Chain Engineering	
IMSE 4370	Service Systems Engineering and Management	
IMSE 4380	Six Sigma Methodology	
Total Credits		15

### Contact Information

Dr. Shannon Breske (GSCM Certificate Coordinator)  
[breskes@missouri.edu](mailto:breskes@missouri.edu)

## Graduate Certificate in Center for the Digital Globe

The Center for the Digital Globe (CDiG) offers a 12 credit hour graduate certificate program established by the College of Business, School of Journalism, School of Law and the Department of Textile and Apparel Management in the College of Human Environmental Sciences. The program is available to graduate students, professional students, and non-degree students already possessing a bachelor's degree. While the requirements are the same for all students, the admission and eligibility process differs. See below for details.

The certificate program supplements the students' studies within the various colleges and schools that make up the University, and attests to the student's successful completion of a required course of study with emphasis on the managerial, theoretical and policy-related issues associated with digital media, electronic commerce and globalization. Students receiving the certificate will have demonstrated competencies in:

*Technology* - Students need not have achieved mastery of specific engineering, programming or application skills. Instead, the students must demonstrate a working understanding of how digital technologies function.

*Global Communication* - One of the primary characteristics of digital technologies, and particularly the Internet, are their function as worldwide communications media. Whether from the perspective of journalism, business or the law, the impact of these new communications channels has been substantial. Students should achieve an understanding of



how new media are different from print or broadcast media and the consequences of those differences.

*Business* - Students should be well grounded in the principles, opportunities and ethical uses of electronic commerce and its impact on journalism, law and commercial practices.

*Culture and Society* - Digital media raise recurrent questions which call for political and social solutions. Students should be able to understand the broader issues raised by technological change and be prepared to take positions of leadership as such issues present themselves. Examples of such issues are questions of globalization, political boundaries, access, ownership and uses of information, marketing, etc. To achieve the goals of the certificate and assure its value to students, the University and prospective employers or donors, the certificate program enjoys certain characteristics. Perhaps most fundamental is the interdisciplinary nature of the program. While each department has the capability of offering a course emphasis, track or intra-departmental certificates to students in the area of technology and commerce, one of the fundamental concepts underlying the Center is the value and necessity of approaching these issues from the perspective of various disciplines. With these principles in mind, the program has been designed to assure that the interdisciplinary character of the course of work will be emphasized. The required course work compels students to come together for an interdisciplinary introduction to their studies and permits them to work separately and within their respective disciplines for further study. Students come together for a concluding experience that involves working collectively through a case study.

## Requirements

Electives should be determined in consultation with the student's CDiG affiliated advisor or graduate advisor (if degree seeking). Students must maintain a minimum grade of 3.0 or equivalent in each course to receive credit toward completion of the certificate. No more than six of the twelve credits necessary for the CDiG Graduate Degree Dependent Certificate may count toward a graduate degree or law degree.

MANGMT 8100	Exploring the Digital Globe (offered Fall semester)	3
Electives at the graduate level (see list below)		6
JOURN 8054	Entrepreneurship and Media of the Future (offered Spring semester)	3

Total Credits 12

### Approved Electives

JOURN 7262	Digital Strategy I	3
JOURN 7430	Computer-Assisted Reporting	3
JOURN 7566	Electronic Photojournalism	3
JOURN 7700	Engaged Journalism	1-3
JOURN 7734	Journalism and Chaos: How to Understand and Cover 21st Century Business Models	3
JOURN 7804	Convergence Reporting	3
JOURN 7806	Convergence Editing and Producing	3
JOURN 7974	Advanced Internet Applications for Radio/TV News	3
JOURN 8054	Entrepreneurship and Media of the Future	3
LAW 5455	Copyright Law	1-3
LAW 5640	Intellectual Property	1-3
LAW 5820	Patent Law and Policy	1-3

LAW 5920	Trademark Law	1-3
MANGMT 8054	Entrepreneurship and Media of the Future	3
MANGMT 7410	Management Information Systems	1.5
MRKTNG 8650	Digital Marketing	1-3
T_A_M 8130	Supply Chain Management in the Global Softgoods Industry	3

## Admission and Eligibility

### Academic Requirements for the Stand-Alone Certificate:

Prerequisite for the stand-alone certificate is a baccalaureate degree. Professional students who are pursuing the stand-alone certificate must dually enroll in the Graduate School, be admitted to the CDiG Graduate Certificate Program and receive graduate credit for their 12 semester hours of stand-alone certificate courses. Others seeking this certificate who are not professional students and have not been admitted to Graduate School must also apply and be admitted to the CDiG Graduate Certificate Program. Apply online (<https://applygrad.missouri.edu/apply/>).

## FOR ADDITIONAL INFORMATION

See the Center for the Digital Globe web site for further program details, including contact information, courses, affiliated faculty list, etc.: <http://cdig.missouri.edu/graduate/>. (<http://cdig.missouri.edu/graduate/>)

## Graduate Certificate in Community Processes

The graduate certificate in Community Processes offers graduate students and professionals a unique opportunity to develop expertise in how spatial and relational communities form and function in today's society. A vital part of the certificate is working in community facilitation processes or community analytical processes.

The certificate is available to graduate students and professionals:

- Graduate students seeking certification in addition to their degree program
- Professionals with at least a bachelor's degree seeking a stand-alone graduate certificate for additional professional certification

The Community Processes certificate is offered jointly by the Agricultural and Applied Economics (<https://dass.missouri.edu>) program, Rural Sociology (<https://dass.missouri.edu>) program, Harry S Truman School of Public Affairs (<http://truman.missouri.edu/>) and the School of Law (<http://law.missouri.edu/>).

## Requirements

To earn the Community Processes certificate, students must begin and complete the certificate program in 3 years. Students specialize by choosing the Community Facilitation track or Analytical Processes track. Course requirements vary by track. Credit hour requirements are the following.

- Total credit hours: 12
- Six credits may double count toward your degree program.
- With the director's approval, in lieu of 6 credits from their degree program, students may use 3 credits from their degree program and transfer 3 credits from another institution. Transferred credits must

correspond directly to the MU graduate certificate program course requirements.

There are two tracks: Community Facilitation Track and Analytical Processes for Communities Track.

### Community Facilitation Track

Through the Community Facilitation track, students learn skills for working with groups and communities.

To earn the certificate, students must complete one required course, choose from one basic course within the Community Facilitation track and select two courses in the basic or supporting courses lists of either the Community Facilitation track or Analytical Processes for Communities track.

#### Required Course

RU_SOC 7325	American Community Studies (campus and online)	3
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#### Basic Courses (choose at least one)

RU_SOC 7341	Building Communities from the Grassroots (campus and online)	3
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PUB_AF 8610	Group Dynamics and Conflict Resolution (campus and online)	3
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or

LAW 5450	Conflict and Conflict Management (campus) (but not both)	
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PUB_AF 8630	Organizational Change in a Community and Global Context (campus and online)	3
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#### Supporting Courses

RU_SOC 7342	Empowering Communities for the Future (1-week intensive)	3
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RU_SOC 7343	Creating Capacity for Dynamic Communities (1-week intensive)	3
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PUB_AF 8150	Collaborative Governance (campus and online)	3
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RU_SOC 9480	Community Survey Research (campus)	3
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LAW 5700	Land Use Controls (campus)	1-3
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### Analytical Processes for Communities Track

Students who choose the Analytical Processes for Communities track learn analytical skills for making decisions or working with communities and decision-makers. They must have background in statistical analysis through multiple regression and basic macro- and microeconomics.

To earn the certificate, students must complete one required course, choose from one basic course within the Analytical Processes for Communities track and select two courses in the basic or supporting courses lists of the Community Facilitation track or Analytical Processes for Communities track.

#### Required Course

RU_SOC 7325	American Community Studies (campus and online)	3
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#### Basic Courses (choose at least one)

PUB_AF 7340	Regional and Economic Development Policy (campus)	3
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AAE 8350/PUB_AF 8350	Regional Development Issues and Analysis	
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#### Supporting Courses

PUB_AF 8150	Collaborative Governance (campus and online)	3
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PUB_AF 8320	Spatial Analysis for Public Affairs	3
RU_SOC 9480	Community Survey Research (campus)	3
LAW 5700	Land Use Controls (campus)	1-3

### Certificate Process and Policies

For certificate program processes and policies, please refer to these resources:

Academic process for graduate certificate students (<http://gradstudies.missouri.edu/academics/process/grad-cert-process/>)  
 Certificate completion requirements (<http://gradstudies.missouri.edu/academics/graduation-requirements/certificate-grad-requirements.php>)

### Admissions

The admissions process varies by whether a student enrolls in a degree program and seeks a certificate to enhance his or her degree program experience or whether the student is a certificate-only student. The University of Missouri Graduate School facilitates the admissions process.

### Additional Information

For additional information, please contact Dr. Judith I. Stallmann, 231 Gentry Hall, Columbia, MO, 65211, or by phone at 573-882-6455, or by email at [stallmannj@missouri.edu](mailto:stallmannj@missouri.edu).

## Graduate Certificate in Conservation Biology - Interdisciplinary

A certificate in Conservation Biology - Interdisciplinary from the University of Missouri shows that you have interdisciplinary coursework and experience not already met by any single degree program at MU. As Conservation Biology is an interdisciplinary science the curriculum for our certificate provides coursework and experience beyond what is offered in a single degree program. The interdisciplinary nature of the curriculum is designed to help you reach a higher level of competence in conservation biology.

### Requirements

To accomplish this goal, the program has 2 required components:

- Interdisciplinary coursework that includes at least one course each from the categories of Natural Sciences, Techniques and Policy/ Social Sciences with at least 3 credits are from outside your degree program. Contact Dr. Weegman ([weegmanm@missouri.edu](mailto:weegmanm@missouri.edu)) for details for approved courses.
  - Ph.D. students: 15 credit hours of coursework at the 7000, 8000 or 9000 level, 12 of which may overlap with the degree course of study
  - M.S./M.A. students: 12 credit hours of coursework at the 7000, 8000 or 9000 level, all of which may overlap with the degree course of study
  - Coursework must include one course each from the following areas: Science, Techniques and Policy (See approved course list)
- Practical experience through an internship that falls outside your discipline

- 160 hours of an internship exploring an area complementary to the student's conservation career goals
- Designed and completed under the guidance of a mentor other than your major advisor
- Results in a tangible product (e.g. paper, publication, presentation)

## Graduate Certificate in Global Supply Chain Management

The Graduate Certificate in Global Supply Chain Management (GSCM) is an interdisciplinary certificate between the Department of Management, Trulaske College of Business, and the Department of Industrial and Manufacturing Systems Engineering, College of Engineering. The certificate is a 12 credit-hour interdisciplinary certificate consisting of two Supply Chain courses (one from Management and one from Industrial Engineering) and one Analytics elective and one Supply Chain / Operations elective. Certificate holders will gain knowledge in operations management, analytics, sourcing/procurement, logistics, distribution, transportation, information technology, and decision sciences.

### Requirements

The certificate requires the completion of 12 credit hours with a 3.00 GPA.

#### Academic Requirements for the Stand-Alone Certificate:

The prerequisite for the stand-alone certificate is a baccalaureate degree and prior statistical coursework. Students with either an AACSB accredited BS in Business or an ABET-accredited BS in Industrial Engineering will meet this requirement. Students who are pursuing the stand-alone certificate must dually enroll in the Graduate School, be admitted to the GSCM Graduate Certificate Program and receive graduate credit for their 12 semester hours of stand-alone certificate courses.

#### Academic Requirements for the Obtaining Certificate as part of other MU degree:

Students currently enrolled in MU MBA, MS Business or MS/PhD Industrial Engineering programs will meet admission requirements and need to complete the required 12-semester credits of the GSCM program.

<b>Required Courses- 6 credit hours</b>	<b>6</b>
MANGMT 7070      Supply Chain Management	3
IMSE 8370          Supply Chain Modeling and Analysis (MANGMT 7070 must be taken prior)	3
<b>Analytics Track- 3 credit hours from the following:</b>	<b>3</b>
IMSE 7410          Data Engineering and Predictive Modeling	3
IMSE 8110          Design and Analysis of Engineering Experiments	3
MANGMT 7420      Managerial Statistics	1.5
MANGMT 7470      Data Analysis for Managers	1.5
MANGMT 7480      Managerial Analytics	1.5
MRKTNG 8180      Applied Statistics for Marketing Analytics	1-3
MRKTNG 8760      Marketing Analytics for Business Decisions	1-3
MRKTNG 8780      Advanced Marketing Analytics	1-3
<b>Supply Chain/Operations Track- 3 credit hours from the following:</b>	<b>3</b>

MANGMT 7201	Topics in Management (Topic of: Purchasing & Supply Management)	3
IMSE 7330	Material Flow and Logistics System Design	3
IMSE 7350	Production and Operations Analysis	3
IMSE 7360	Supply Chain Engineering	3
IMSE 7370	Service Systems Engineering and Management	3
IMSE 8030	Advanced Manufacturing and Supply Systems	3
IMSE 8310	Advanced Integrated Production Systems	3
MANGMT 7430	Operations Strategy	1-3
MANGMT 8510	Project Management	1-3
MRKTNG 8350	Business-to-Business Marketing	1-3

### Contact Information:

James S. Noble, Professor  
noblej@missouri.edu

## Graduate Certificate in Health Ethics

The Health Ethics Certificate program is ideal for both students and working professionals such as physicians, nurses, healthcare administrators, and those serving on hospital ethics committees or considering such health ethics issues in their daily employment. The certificate program will help the learner develop an understanding of the ethical issues related to health and healthcare and will foster skill in analyzing and resolving ethical problems and conflicts in the healthcare environment.

The Department of Health Management and Informatics offers the Graduate Certificate in Health Ethics in partnership with the MU Center for Health Ethics. The Certificate may be completed entirely online or through articulation with residential Graduate and professional coursework.

### Requirements

While there are multiple educational offerings that may result in certificate acquisition, students must complete a minimum of 12 credit hours from the below approved list:

<b>Required Courses</b>		
HMI 7564	Health Ethics Theory	3
HMI 8565	Health Care Ethics	3
<b>Elective Course Options</b>		
HMI 7567	Health Organizational Ethics	3
HMI 7566	Health Informatics Ethics	3
HMI 8574	Health Care Law	3
HMI 8575	Health Policy and Politics	3
LAW 5615	Health Law: The Regulation of Providers	1-3
IN_MED 6515	Problems in Medical Ethics	5
HMI 8515	Problems in Medical Ethics and Clinical Ethics Consultation Practicum (Identical to IN_MED 6515. For non medical students.)	5

## Further Information

**Center for Health Ethics:** <http://ethics.missouri.edu/>

**Health Management and Informatics and Application requirements:**

<https://medicine.missouri.edu/departments/health-management-and-informatics/graduate-degrees-programs/graduate-certificate-in-health-ethics> (<https://medicine.missouri.edu/departments/health-management-and-informatics/graduate-degrees-programs/graduate-certificate-in-health-ethics/>)

**Application/Admissions Contact:** Veronica Lemme, [lemmev@health.missouri.edu](mailto:lemmev@health.missouri.edu) ([lemmev@health.Missouri.edu](mailto:lemmev@health.Missouri.edu))

## Graduate Certificate in Informatics for Public Health

The Graduate Certificate in Informatics for Public Health (IPH) offers to further and meet the growing demand for professional education and development in the field of public health informatics. The certificate provides participants with basic knowledge of issues and application of informatics in areas of public health including surveillance, prevention, preparedness, and health promotion, and competence in evaluating and discovering solutions for the current and future public health informatics challenges.

The IPH Certificate is designed to serve as a stand-alone certificate program for non-degree seeking students, public health care professionals and as an additional option for Master of Science in Health Informatics students, Master of Public Health students, and other Graduate students. Courses taken for the certificate program are not intended to fulfill the requirements of any current Graduate degree at MU. All IPH courses are offered in a 100% online format.

### Requirements

Successful completion of the certificate requires a total of 12 credit hours.

**Required Core Courses**

HMI 7431	Foundation of Public Health Informatics	3
HMI 8545	Methods in Public Health Informatics/ Biostatistics	3

**Additional Core Course Options (select 1 or 2)**

HMI 7432	Health Database Management and Public Health Data Systems	3
HMI 7435	Scripting for Public Health Informatics	3
HMI 8610	Consumer Health Informatics	3

**Electives**

HMI 8550	Health Data Analytics	3
P_HLTH 8470	GIS for Public Health	3
HMI 8401	Topics in Health Management and Informatics	3

### Semester Plan

Please contact the HMI Department for further information about the certificate program and plan of study options. Additional information also available at <https://online.missouri.edu/degreeprograms/medicine/health-management-informatics/informatics-public-health/grad-cert/index.aspx> (<https://online.missouri.edu/degreeprograms/medicine/health-management-informatics/informatics-public-health/grad-cert/>)

#### Sample Plan of Study #1

First Year			
Fall	CR	Spring	CR
HMI 7431		3 HMI 8610	3
HMI 7435		3 HMI 8545	3
		6	6

Total Credits: 12

#### Sample Plan of Study #2

First Year			
Fall	CR	Spring	CR
HMI 7431		3 HMI 8545	3
Public Health GIS Elective (in development)		3 HMI 7432	3
		6	6

Total Credits: 12

## Graduate Certificate in Life Science Innovation and Entrepreneurship

### Overview

A certificate in Life Science Innovation and Entrepreneurship at the University of Missouri will broaden the training of graduate and professional students from the fields of business, engineering and medicine, among others. A collaborative program among MU's Trulaske College of Business, College of Engineering and School of Medicine, the program will prepare participants for a wider range of employment opportunities and provide core skills for entrepreneurial endeavors.

### Interdisciplinary Curriculum

Through an interdisciplinary approach, the program will allow MU graduate and professional students to receive training to translate life science discoveries into products and services that will improve health.

### Requirements

The program will require completion of three three-hour core curriculum courses designed to cover the life cycle of a translational science/business venture, as well as elective courses for a total of 12 hours of course credit. The three-course sequence will be augmented by elective courses that round out the educational needs of particular students.

MPP 8000	Scientific Discovery Leading to Life Science Innovations	3
BIOL_EN 8100	Design and Development of Biomedical Innovations	3
MANGMT 8200	Commercialization of Life Science Innovations	3
MPP 8004	Regulatory Issues in Clinical Research and Clinical Trials	3

### Program Objectives

- Know and understand the life sciences industry well enough to be familiar with terms, trends, issues, and industry culture in order to be able to recognize needs that may be commercially viable.

- Know and understand the three disciplines represented by the courses such that they are able to assess the commercial viability of a life sciences technological innovation.
- Know how to commercialize new life science discoveries into products and services to improve health in humans and/or animals.

## Course Content

### School of Medicine

- Nature of discovery
- Protecting intellectual property
- Reimbursement models in health care
- Life science methods and research tools
- Research with industry partners

### College of Engineering

- Identification of clinical needs
- Concept screening and selection
- Regulatory pathways and the FDA
- Patents and intellectual property basics
- Design and prototypes

### Trulaske College of Business

- Commercialization process
- Market assessment and competitive landscape
- Technology transfer, licensing, and startups
- Sources of capital
- Business plan and market strategy

## Admission Requirements

The only prerequisite for the first course in the sequence will be good standing in a graduate/professional program or the consent of the instructor on a case-by-case basis. This certificate is also offered online. (<https://online.missouri.edu/degreeprograms/medicine/life-science/grad-cert/>)

Contact:

Debbie Taylor, Institute for Clinical and Translational Science  
(573) 884-0042

taylor@health.missouri.edu

School of Medicine, One Hospital Drive, MA204D  
Medical Sciences Building, Columbia MO 65212

## Graduate Certificate in Organizational Change and Conflict Management

The Graduate Certificate in Organizational Change and Conflict Management is a collaboration between the Truman School of Public Affairs within the College of Arts and Science and the Law School. The certificate will focus on organizational analysis and change, dispute resolution and conflict management.

### Requirements

The curriculum will require four courses for a total of 12 credit hours and is offered 100% online.

Required Courses		9
PUB_AF 8610	Group Dynamics and Conflict Resolution	3
or LAW 5450	Conflict and Conflict Management	
PUB_AF 8150	Collaborative Governance	3
LAW 6935	Dispute System Design	3
<b>Elective</b>		<b>3+</b>
LAW 6945	Non-Binding Methods of Dispute Resolution	3-4
LAW 5485	Cross-Cultural Dispute Resolution	1-3
LAW 5516	Dispute Resolution in the Digital Age	1-4
LAW 5765	Mediation	1-3
LAW 5810	Negotiation	1-3
PUB_AF 8160	Organizational Dynamics and Leadership	3
PUB_AF 8620	Organizational Analysis and Change	3
PUB_AF 8630	Organizational Change in a Community and Global Context	3
PUB_AF 8864	Administrative Law	3

## Graduate Certificate in Public Health Communication

The Graduate Certificate in Public Health Communication is administered by the Department of Public Health and the School of Journalism. The certificate prepares recent college graduates, mid-career professionals in public health and journalism to effectively communicate scientific evidence for public health policies and interventions with lay and professional audiences. Graduates will be prepared to work in health education, hospital public relations, governmental public health administration, non-profit organizations and a variety of other settings.

The objectives of the certificate are to equip students with a) The principles of public health knowledge, b) The foundations of social and behavioral science in public health and c) Understanding and skills related to public health in news and reporting and audience engagement.

The certificate can be completed as either a stand alone certificate or a degree seeking option.

### Requirements

15 credit hours will be required to complete the certificate.

#### Core Courses (12 credit hours)

P_HLTH 7150	Principles of Public Health	3
JOURN 8042	Health News and Promotion	3
P_HLTH 8920	Social and Behavioral Sciences in Public Health	3
JOURN 7256	Public Relations	3

#### Electives (3 credit hours)

P_HLTH 8270	Storytelling in Public Health and Public Policy	3
P_HLTH 8001	Topics in Public Health	1-3
COMMUN 9610	Seminar in Disaster, Crisis, and Risk	3
JOURN 7812	Online Audience Development	3

## Graduate Certificate in Society and Sustainability

Understanding the complex and dynamic interactions between human activities and the natural environment is essential for achieving

sustainable development. Developing this understanding in the next generation of scientists, educators and resource management professionals is the primary goal of the University of Missouri's interdisciplinary graduate certificate program in Society and Sustainability.

The Society and Sustainability Program (SSP) is a unique interdisciplinary program that prepares students for careers with private and public organizations through advanced graduate level training and research. The certificate program is designed for students with undergraduate-graduate training in agriculture, biology, business administration, economics, engineering, fisheries and wildlife, forestry, geography, geology, sociology and related disciplines. Students who are in a graduate or professional program in their area of specialization take four integrated courses and complete a thesis or dissertation that applies more than one discipline. The program is designed to enhance the student's familiarity with disciplinary and interdisciplinary concepts and principles from the social and natural sciences and humanities.

The goal of the program is to develop critical thinking and analytical skills related to:

- sustainable natural resource and environmental management and planning,
- dynamic interactions between social, economic and ecological systems,
- quantitative-qualitative analysis of individual and social behavior,
- cultural interpretations of natural resource and environmental issues, and
- application of knowledge gained in the above areas to the evaluation of public policy.

## Requirements

Students must be enrolled in a regular academic department and working toward completion of a graduate degree in a sustainability-related discipline. All students are required to take the following core courses: a) a three-credit interdisciplinary course on sustainability and sustainable development, b) a three-credit research seminar in Society and Sustainability, and c) six credits of approved elective courses from a department/unit other than the one in which the student is enrolled.

The interdisciplinary course examines the sociocultural, economic, ethical and biophysical aspects of sustainability with emphasis on the human dimension. It is normally taken during the student's first year. The primary objective of this course is to develop a student's appreciation of: a) major issues in the society-sustainability nexus, b) roles of various disciplines in understanding and resolving socioeconomic-ecological issues, and c) integrative analysis. A course requirement is for students to work in interdisciplinary teams to evaluate human effects on and responses to contemporary societal-environmental issues at the local, regional and global scales.

The research seminar exposes students to interdisciplinary research on the interactions between social, economic and ecological systems. Emphasis is placed on the complexity and multiplicity of sustainability and sustainable development. Speakers for the research seminar include faculty, students, visiting scholars, and private and public officials. Students are expected to present their thesis or dissertation research at the research seminar. Thesis and dissertation research must be conducted on a topic related to the social, economic, environmental, and policy aspects of sustainability. Students completing the SSP receive

a certificate in Society and Sustainability. Recognition of the certificate appears on the student's transcript.

Program requirements: 12 credit hours of coursework, all of which may double count toward a students' primary degree program.

### Interdisciplinary Seminar (3 hours): Choose one of the following

FOREST 8530	Ecosystem Management: The Human Dimension	3
RU_SOC 7335	Social Change and Development	3
or SOCIOL 7335	Social Change and Development	
RU_SOC 8436	Community, Natural Resources and Sustainability	3

### Research Seminar (3 hours): Choose one of the following

RU_SOC 8448	Society and Ecosystems Research Seminar	3
RU_SOC 8287	Seminar on Sustainable Development	3

### Elective Courses (6 hours): Choose two of the following \*

AAE 8410	Natural Resource and Environmental Economics	3
AAE 8430	International Agricultural Development Policy	3
AAE 8610	Economic and Sociological Approaches to Collective Action	3
or RU_SOC 8610	Economic and Sociological Approaches to Collective Action	
ARCHST 7323	Sustainable Technologies and Systems	3
BIOL_EN 7560	Observing the Earth from Space	3
CV_ENG 7286	Environmental Sustainability	3
ENV_SC 7400	Environmental Law, Policy, and Justice	3
F_W 7220	Human Dimensions of Fish and Wildlife Conservation	3
FOREST 7385	Agroforestry I: Theory, Practice and Adoption	3
GEOG 7770	Migration and Immigration	3
GEOG 7560	Resources and Indigenous Peoples	3
IMSE 7720	Introduction to Life Cycle Analysis	3
JOURN 8044	Strategic Conflict Management	3
MAE 7355	Industrial Energy Analysis	3
NAT_R 7024	Foundations of Environmental Education	3
NAT_R 7353	Natural Resource Policy/Administration	3
PRST 7250	Parks, Health and Wellness	3
PRST 8436	Visitor Behavior and Policy	3
PUB_AF 7340	Regional and Economic Development Policy	3
RU_SOC 7325	American Community Studies	3
RU_SOC 7370	Environmental Sociology	3
RU_SOC 8444	Agriculture, Food and Community	3
RU_SOC 8435	Political Ecology	3
RU_SOC 9480	Community Survey Research	3
SOCIOL 9350	Graduate Seminar in Environmental Discourses	3
T_A_M 8130	Supply Chain Management in the Global Softgoods Industry	3
Select Departments 7001/8001	Advanced Topics Courses	3

\* The two electives must be chosen from a department other than the one in which a student is enrolled.

## Admission

Admission to the SSP is open to students who have been admitted to a graduate or professional program in the University of Missouri-Columbia, have undergraduate-graduate training in natural and social sciences, and have interest in interdisciplinary studies. Persons interested in the SSP should contact the Coordinator.

### Hua Qin, Ph.D.

Coordinator, Society and Sustainability Program  
228 Gentry Hall  
University of Missouri-Columbia  
Columbia, MO 65211  
Telephone: 573-882-1640  
Email: qinh@missouri.edu

## Advisory Committee

The student's plan of study and research topic are selected in collaboration with an advisory committee established in accordance with the requirements of the student's department/unit and the Graduate School. The advisory committee includes at least one faculty member affiliated with the SSP. Graduate school permission is required in cases where it is highly desirable for the three faculty members comprising a masters student's advisory committee to be from different departments/units.

## Graduate Minor in Ancient Studies

Interdisciplinary Minor within the College of Arts and Science  
<http://ancientstudies.missouri.edu/>

### About the Minor

The Ancient Studies program, created in 1968, is shared among the faculty from six departments at the University of Missouri. This minor provides an opportunity for students to diversify their curriculum and to perceive their field in a broader context than is possible within a departmental program. Students in this program select about one quarter of the total courses from among a variety of courses designated by the participating departments.

A student pursuing a graduate degree in Anthropology, Art History and Archaeology, Classical Studies, History, Philosophy or Religious Studies may elect an Ancient Studies minor at either the M.A. or Ph.D. level. The Department of Classical Studies offers graduate work leading to the master of arts degree in classical languages with emphasis on Latin, Greek or both classical languages. The PhD degree in classical studies requires work in both Greek and Latin.

### Requirements

The minor consists of additional courses to be selected from Ancient Studies courses outside the student's major department. Requirements for the minor may vary from department to department; individual plans of study must be approved by the student's major adviser, the student's academic program director of graduate studies, and the Graduate School.

1. For the M.A. degree, a minimum of 9 hours at or above the 7000 level from at least two departments outside the student's home

department. In some departments these courses may also fulfill another MA requirement.

2. For the Ph.D. degree, a minimum of 24 hours (including the work for the M.A.) at or above the 7000 level from at least two departments outside the student's home department. These 24 hours must include at least two courses at the 8000-level or above in one or more departments outside the student's home department.

## Contact Information

Department of Anthropology  
1205 University Avenue, University Place, Room 1110  
573-882-4731

Department of Art History and Archaeology  
365 McReynolds Hall, 301 S. 6th Street  
573-882-6711

Department of Classical Studies  
405 Strickland Hall  
573-882-0679

Department of History  
101 Read Hall  
573-882-2481

Department of Philosophy  
438 Strickland Hall  
573-882-2871

Department of Religious Studies  
220 Arts & Science Building  
573-882-4769

## Faculty

**Professor** J. M. Foley, R. L. Lyman, A. Melnyk, M. J. O'Brien, D. M. Pearsall, C. Saylor, K. W. Slane, T. Tarkow, I. Worthington

**Curators' Professor** M. Smith

**Associate Professor** D. Hooley, S. Langdon, R. Marks, J. McGlew, A. Mori, L. Okamura, M. Rautman, D. Schenker, D. Trout, B. Wallach

**Assistant Professor** N. DesRosiers, R. Foley, R. Gregory, D. Kelley

**Assistant Teaching Professor** M. Barnes

**Professor Emeritus** W. R. Biers, W. Bondeson, J. H. Kultge

## Admissions

Ancient Studies Program Requirements

1. Admission into one of the following graduate departments: Anthropology, Art History and Archaeology, Classical Studies, History, Philosophy or Religious Studies.
2. Fulfillment of all the requirements of the major department. The master's degree may be completed within approximately two years; the doctorate normally requires three years of course work beyond the master's level.
3. The minor consists of additional courses to be selected from Ancient Studies courses outside the student's major department; it usually constitutes about one-quarter of the graduate course work. For recognition of the minor, students should apply formally to the current chair of the Ancient Studies Committee.
  - a. For the M.A. degree, a minimum of 9 hours from at least two departments.
  - b. For the Ph.D. degree, a minimum of 24 hours (including the work for the M.A.) from at least two departments outside the student's

home department. These must include at least one course on the 7000-level in each of the two departments.

## To the University

General admission and degree requirements for the Graduate School are determined by the Graduate Faculty Senate. However, admission to the Graduate School does not in itself entitle a student to candidacy for an advanced degree. A student must also be accepted for advisement by the faculty of a department or area. Departments and areas establish admission standards that, in many cases, exceed the minimum requirements of the Graduate School. Admission to the Graduate School is based on three considerations:

- an official transcript showing that the applicant has earned a baccalaureate, DVM, MD or JD degree equivalent to that granted by MU,
- a grade point average of B or better in the last 60 hours of undergraduate courses, and
- Official GRE results.

## To the Ancient Studies Program

Candidates must have earned a bachelor's degree in an appropriate field; preference is usually given to students who intend to continue their work for a PhD. An application, including a completed MU Graduate School application form, transcript and GRE scores, should be made directly to the department in which the student wishes to study. It must be accompanied by three letters of recommendation concerning the student's academic ability, a copy of a recent term paper, and a short statement from the applicant that sets out professional goals and reasons for pursuing the Ancient Studies minor. Inquiries may be addressed to the directors of graduate studies at the appropriate department.

## Financial Support

The Ancient Studies Committee is able to award one fellowship (renewable for four further years) to a doctoral student entering from a University other than MU. In addition, applicants may be eligible for fellowships administered by the Graduate School, including the Gus T. Ridgel Fellowships for Minority Americans. In addition to a stipend, University fellowships include exemption from resident and non-resident educational fees. Some individual departments also offer fellowships, scholarships and other financial assistance for graduate students, including teaching and research assistantships. For information concerning financial aid, write directly to the directors of graduate studies in the department to which you are applying. Financial aid deadlines are frequently earlier than the deadline for applications for admission.

In addition to the materials for admission to the Ancient Studies program, applicants for financial support must submit a separate letter to the department applying for fellowship or assistantship support.

## Graduate Minor in College Teaching

Approximately 75 percent of faculty positions in the United States are at institutions where the importance of teaching and professional service is equal to or greater than the emphasis on research. The Minor in College Teaching, available to all MU graduate degree-seeking students, demonstrates your preparation as an effective teacher to potential employers.

## Requirements

The Minor in College Teaching (MCT) requires 9 credit hours. This includes a 3-hour core course, a teaching practicum, plus 3-6 elective hours. It is highly recommended that students enroll in ED\_LPA 9456, but it is not a requirement.

### Core Required Courses - students must complete one of the following:

ED_LPA 9448	College Teaching	3
AG_ED_LD 8350	College Teaching of Agriculture, Food and Natural Resources	3
BIO_SC 8724	College Science Teaching	3
LTC 8724	College Science Teaching	3

### Teaching Practicum

Students must complete a teaching practicum and portfolio, but do not have to officially register for a course in order to complete the requirement. Students opting to enroll in a course can choose from the options below.

### Teaching Practicum - options for enrollment

AG_ED_LD 8995	College Teaching Practicum	3
ED_LPA 9481	Internship in Educational Leadership and Policy Analysis	1-99
H_D_FS 9100	Teaching Practicum	2-6
NURSE 8950	Teaching Nursing Practicum	4
PHIL 8210	Teaching of Philosophy I	1
SPC_ED 9940	Internship: College Teaching in Special Education	3
PSYCH 9910	Teaching of Psychology Practicum	1-99

### Elective Courses

3-6

#### Teaching with Technology Elective Courses

IS_LT 9467	Technology to Enhance Learning	3
IS_LT 9484	Teaching Online Courses	3

#### Disciplinary Teaching Elective Courses

AG_ED_LD 8330	Advanced Methods of Teaching	3
AG_ED_LD 8350	College Teaching of Agriculture, Food and Natural Resources	3
AN_SCI 8725	Science Outreach: Public Understanding of Science	1-2
BIO_SC 8725	Science Outreach: Public Understanding of Science	1-2
LTC 8712	Inquiry and the Science Curriculum	3
LTC 8900	Seminar in Curriculum and Instruction	1-3
AMS 7700	Advanced Study in the Teaching of the Classics	3
ESC_PS 7115	Human Learning	3
ESC_PS 8320	Advanced Human Learning	3
ESC_PS 8350	Cognition, Learning and Instruction	3
ED_LPA 9440	Race, Gender, and Ethnicity in Higher Education	3
ED_LPA 9442	Curriculum Philosophy and Development in Higher Education	3
ED_LPA 9447	College Student Culture and Environment	3
ED_LPA 9449	History of Higher Education in the United States	3
ED_LPA 9455	The Community College	3
ED_LPA 9456	The Professoriate	3



ED_LPA 9459	Comparative and International Education	3
IS_LT 9471	Instructional Systems Design	3
PHIL 8210	Teaching of Philosophy I	1
PHYSICS 8040	Study of Techniques of Teaching College Physics	1-3
PHYSICS 8350	Science Outreach: Public Understanding of Science	1-2
PSYCH 9150	Human Learning and Memory	3
FRENCH 7120	Foreign Language Teaching Methodology	3
or SPAN 7120	Foreign Language Teaching Methodology	
SPC_ED 7375	Cross Categorical Special Education	3

### Additional Information

Contact: Ashley Siebenaler, Senior Academic Advisor  
 Graduate School  
 210 Jesse Hall  
 Columbia, MO 65211  
 email: siebenalera@missouri.edu  
 phone: 573-882-8006

## Graduate Minor in International Development

### Requirements

The student must satisfactorily complete a total of twelve credit hours in courses dealing with the developing world. This is an Interdisciplinary Minor. At least six of the twelve hours must be taken in at least two departments outside the student's home department.

Foreign language courses are not required, but students who are not fluent in a second language are strongly encouraged to take intensive language courses to develop competency. Credit for language courses does not count toward the twelve hours of credit required for the minor.

When the required twelve hours of credit are completed from approved courses, the student's advisor will submit the second form to the director, who will in turn sign and submit it to the Graduate School. This should be done in advance of the student's orals to give members of the policy committee an opportunity to sit in on the examining committee if they so desire.

The minor is only awarded after all departmental and Graduate School requirements for the advanced degree have been satisfied. An overall grade point average of 3.0 is required for the twelve hours within the minor.

#### Preapproved course options:

AAE 8430	International Agricultural Development Policy	3
ECONOM 7326	Economics of International Trade	3
ED_LPA 9459	Comparative and International Education	3
JOURN 7658	International Journalism	3
JOURN 7656	International News Media Systems	3
POL_SC 9610	Latin American Politics	3
POL_SC 9790	Seminar in Comparative Politics	3
PUB_AF 8630	Organizational Change in a Community and Global Context	3
RU_SOC 8287	Seminar on Sustainable Development	3

RU_SOC 7335	Social Change and Development	3
RU_SOC 9480	Community Survey Research	3
SOCIOL 7230	Women, Development and Globalization	3
ANTHRO 7300	Comparative Social Organization	3
Selected Departments 7085/8085 Problems		1-3
Selected Departments 7001/8001 Advanced Topics		

### Requirements for acceptance into the minor:

The student must be enrolled as a master's or PhD candidate in good standing at MU.

A formal request to be included in the minor must be made in advance of taking courses, to the director, Professor Corinne Valdivia, 210 Mumford Hall. This request should be approved by the student's advisor. A copy will be sent to the Graduate School.

Once the student is admitted to the minor, they should seek advisement from the director and their advisor concerning which courses to take. The plan of study must be submitted to the Graduate School no later than the semester before graduation.

## Professional

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Professional programs are advanced studies in a professional or vocational field. While they have theoretical foundations, the primary purpose is the attainment of knowledge to apply in a professional practice. Students typically begin and end these programs with a cohort, taking a sequence of required courses that prepare them for professional careers.

Professional programs included in this section are those where a professional accrediting body provides oversight of curriculum and sets standards that must be met. For these professional degree programs successful completion is required to sit for licensure and/or certification exam that enables individuals to practice in the profession. These academic programs are primarily focused on preparation for professional practice rather than scientific inquiry and therefore do not meet the criterion for Graduate Studies of requiring an original thesis or dissertation. The programs are included in the same "career" within the myZou system and courses are numbered 5000-6999. The post-bachelorette programs of Master of Occupational Therapy and Physical Therapy Doctorate are professional degrees are included in this section.

## School of Law

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Columbia, MO 65211-4190  
phone: 573-882-6042  
fax: 573-882-4984  
web: <http://law.missouri.edu>

**Welcome to the University of Missouri School of Law's online catalog for the 2020-2021 academic year.**

**Information in this searchable, interactive catalog is current as of May 2020. The next catalog will be made available in May 2021. In the interim, changes to the law school curriculum will be made on our website (<http://law.missouri.edu/>).**

**Use the search box above or click on the left hand menus to navigate through the catalog. There is also a PDF version available through the "Print Options" link above.**

**Broken links inside the law school's online catalog may be reported by contacting [umclawweb@missouri.edu](mailto:umclawweb@missouri.edu). ([umclawweb@missouri.edu](mailto:umclawweb@missouri.edu))**

The University of Missouri School of Law offers a collegial environment, reinforced by a small student body and a low faculty-student ratio. The intimacy of this setting, coupled with reasonable cost, consistently high bar passage rates, a network of alumni around the globe and access to top scholars in the legal world, make the School of Law one of the best values in the nation.

## Administration

- Lyrrisa Lidsky, Dean, Judge C.A. Leedy Professor of Law
- S. David Mitchell, Associate Dean for Academic Affairs and Ruth L. Hulston Professor of Law
- Paul Litton, Associate Dean for Faculty Research and Development and R.B. Price Professor of Law

- Jennifer McGarr, Assistant Dean for Career Development and Student Services
- Randy J. Diamond, Director of Library and Technology Resources and Professor of Legal Research
- Ilhyung Lee, Director of the Center for the Study of Dispute Resolution and Edward W. Hinton Professor of Law
- Sam F. Halabi, Director of the Center for Intellectual Property & Entrepreneurship and Associate Professor of Law
- James Levin, Associate Director of the Center for the Study of Dispute Resolution, Co-Director of the South Africa Study Abroad Program, and Adjunct Professor of Law
- Alisha L. Rychnovsky, Manager of Business Administration
- Aurora Meyer, Director of Communications and Marketing
- JR Swanegan, Assistant Dean of Admissions and Financial Aid
- Joseph Swanegan, Assistant Executive Director of Advancement

## Mission Statement

The MU School of Law aspires to be the school of choice for outstanding students, both from Missouri and other states. As a national leader in the field of dispute resolution, we seek to complement a strong traditional curriculum with an orientation toward lawyering as a problem-solving endeavor. We strive to foster a diverse faculty of nationally recognized scholars who are committed to effective teaching, and to attract a student body with diverse experiences and views. We also strive to offer an intellectually rigorous and collegial environment for the study of law. Furthermore, we seek to graduate well-rounded lawyers who are sensitive to ethical issues, prepared to serve clients, and ready to be leaders in promoting justice.

## Academics

Known worldwide for its Center for the Study of Dispute Resolution, the School of Law's curriculum combines both traditional law school classes with an appreciation of the many dispute resolution techniques in which lawyers engage and includes a certificate program in the rapidly developing area of dispute resolution.

Mizzou Law students are required to complete 89 hours of law school classes in order to graduate. Following the prescribed first year, students are required to take Constitutional Law, Evidence, Criminal Procedure, Professional Responsibility, and Property II. Several clinical and externship programs are available to upper level students, along with skills training in trial practice, negotiation, interviewing and counseling. The curriculum couples courses traditionally tested on the bar examination so that the law school can continue its long tradition of success on bar examinations nationwide, with cross disciplinary dual degree and certificate programs in several other areas. As a result, the law school's curriculum is appealing not only to those who want to engage in the traditional practice of law, but also to those who want to use their law degree as a stepping stone into other disciplines.

## Faculty

**Faculty** A. G. Alexander, R. de R. Barondes, C. Bassett, T.B. Bennett, F. O. Bowman III, C. N. Conklin, D. D. Crouch, R. J. Diamond, A. K. Drake, D. M. English, B. Filbert, R. W. Freyermuth, R. Gely, B. E. Gotberg, S. F. Halabi, C. Henson, N. Jackson, K. K. Johnson, R. Kerns, P. H. Ladehoff, T. A. Lambert, I. Lee, J. H. Levin, L. B. Lidsky, E. F. Lietzan, P. J. Litton, S. D. Mitchell, G. Myers, C. D. Newman, R. C. Oliveri, R. C.

Reuben, C.M. Scales-Ferguson, A. J. Schmitz, D. Seitz, C. Shearrer, B. L. Trachtenberg, C. E. Wells

**Adjunct Faculty** R. Dyer, R. C. Geary, A. Pratzel, J. T. Woods

**Affiliate Faculty** C. Peters, R. Rotman

**VAP Scholar** M. Ayano

**Professor Emeritus** D. E. Abrams, R. G. Bailey, M. M. Beck, M. A. Cecil, M. R. Daily, P. N. Davis, K. D. Dean, R. L. Dessem, M. J. Dragich, C. H. Esbeck, W. B. Fisch, D. A. Fischer, P. B. Fry, P. J. Harter, W. H. Henning, R. H. Jerry II, J. Lande, M. A. Middleton, A. S. Neely IV, G. S. Nelson, P. G. Peters, Jr., L. L. Riskin, R. J. Uphoff, J. E. Westbrook, D. A. Whitman

The catalog also has a cumulative listing of all faculty at the University of Missouri (p. 2359) that includes information on the faculty member's highest degree attained.

Detailed faculty profiles for the School of Law faculty is available at <https://law.missouri.edu/my-law/directory/faculty-directory/>.

## Academic Policies

Below is a listing of policies that only apply to students in the School of Law. Be sure to also check the listing of the University's Academic Policies (p. 850) for policies that apply to all students.

*The policies and procedures of the MU School of Law are revised on a regular basis. Provisions regarding such policies and procedures contained on our website are subject to change without notice. If you have questions or note errors or omissions, please contact the Associate Dean for Academic Affairs. All statements concerning requirements, prerequisites, conditions or other matters are for informational purposes only, and are subject to change without notice. They are not to be regarded as offers to contract.*

Attendance (p. 854)

Course-Load Rules (p. 857)

Credit for Non-Law Courses (p. 857)

Disability Accommodations (p. 858)

Dismissal and Probation (p. 859)

Examinations (p. 863)

Grades & Ranks (p. 868)

Grievances (p. 870)

Residency (p. 875)

Student Conduct (p. 876)

Student Employment (p. 876)

Transfer Credit (p. 878)

## Juris Doctor (JD)

### Overview

The Juris Doctor (J.D.), or 'law degree,' is a three-year post-baccalaureate program. Students must complete 89 credit hours of law courses, roughly one-half of which are required courses.

Upon favorable recommendation of the Faculty of Law, the degree of Juris Doctor will be conferred upon a student who:

1. Has pursued in residence the full-time study of law for at least three academic years (or the equivalent), two of which must have been completed in this School. A full-time student is one who is registered for credit in 12 or more hours in a semester or six or more hours in a summer session. A student registered for less than 12 hours in a semester or less than six in two summer sessions, will receive proportional residence credit. The maximum number of residency credits obtainable in any one summer session shall be seven, provided that for purposes of accelerated graduation (in less than three academic years) no more than 12 residency credits may be obtained in summer sessions.
2. Has received a passing grade in all required courses, except required courses which have been waived.
3. Has received passing grades in law courses aggregating at least 89 credits and has a numerical grade point average of at least 77.5; and
4. Has received an undergraduate degree before or concurrently with his or her graduation from law school.

[Note: The summer school residency provisions allow a student to combine two six-hour summer sessions or a seven-hour summer session with a five-hour summer session and obtain the equivalent of a full semester's residency credit.]

## Curriculum

### Required Courses

#### First Year

LAW 5010	Civil Procedure I	3
LAW 5015	Civil Procedure II	2
LAW 5020	Contracts I	3
LAW 5025	Contracts II	3
LAW 5035	Criminal Law	4
LAW 5040	Property I	3
LAW 5070	Torts	4
LAW 5080	Legal Research and Writing	3
LAW 5085	Advocacy and Research	3
LAW 5090	Foundations of Legal Studies II (if assigned)	1
LAW 5095	Lawyering: Problem Solving and Dispute Resolution	2

#### Second Year

LAW 5220	Constitutional Law	4
LAW 5260	Evidence	4

#### Second or Third Year

LAW 5045	Property II	3
LAW 5240	Criminal Procedure	3
LAW 5280	Professional Responsibility	3

### Completion of a Writing Requirement

1. Every J.D. student must complete a rigorous upper-level writing experience in either the second or third year of study.
2. A 'rigorous writing experience' means an experience that culminates in an individually authored paper of at least 20 pages (double-spaced), based on independent research, through a process that includes preparation of a substantial draft, review and feedback by a faculty member, and revision of the draft.

3. Any of the following activities may satisfy the upper-level writing requirement, provided that the activity meets the definition of a 'rigorous writing experience' in the individual case:
  - a. completion of any course designated as a writing course,
  - b. completion of a writing section attached to a traditional course,
  - c. completion of an independent research project under L5875 Research, or
  - d. membership on one of the journals of the University of Missouri School of Law.
4. A 'designated writing course' is one in which all students complete a rigorous writing experience as defined in section (2) above and in which, in lieu of a final examination, a substantial portion of the final grade for the course is based on that writing.
5. In every case, the supervising full-time faculty member must certify that the writing requirement has been satisfied before a notation will be made in the student's record.
6. As stated in the Student Handbook, '[g]rading is done anonymously in all classes where it is possible.' With the exception of Independent Research, if grading is to be done other than anonymously, the syllabus shall so state.

## Professional Perspectives Requirement

1. As lawyers, each of you will be required to complete a required number of Continuing Legal Education requirements each year.
2. As law students at MU, you have a similar requirement.
3. You **MUST** complete a certain number of Professional Perspective hours each year to be eligible to graduate from this law school.
4. Professional Perspective's hours are designed to further your legal knowledge by presenting you with information about current legal events from current practitioners, including judges, and about other legal or legally-related matters. These hours are also designed to present you with needed information about career planning, the job market, and placement.
5. Matters counting for Professional Perspectives credit are broken into two categories:
  - a. Professional Perspectives are those programs that give students a new or different prospective on the law or its practice.
  - b. Career Component credits are those programs that give students information about career planning and placement.
  - c. Any program approved for credit will designate the category applicable to that program.
6. Matters qualifying for Professional Perspectives credit will appear on the School of Law Calendar. It is your responsibility to select the events you wish to attend within the guidelines set out below.
7. Many programs sponsored by the School of Law automatically qualify for Professional Perspectives credit. When listed on the law school calendar, qualifying programs are so designated.
8. Programs sponsored by student or other groups may qualify for Professional Perspectives credit, but **ONLY** if an application for credit is filed **2 full business days** in advance of the event with the Associate Dean for Academic Affairs. Application forms are available in the Dean's Office.
9. Every event for which Professional Perspectives credit is offered **MUST** be overseen by a responsible person who agrees to maintain an attendance record for that event.
10. Because Professional Perspectives credit is required, it is an event for which attendance counts. As a result, please note that it is

an offense under the Honor Code to misrepresent one's own or another's attendance or absence from such an event. This would include signing in for an event and then leaving before the conclusion of that event.

11. The Professional Perspectives requirement for each class of students is as follows:
  - a. For First Year Law Students:
    - i. 1 Professional Perspective program in the fall semester;
    - ii. 1 Career Component program in the fall semester;
    - iii. 1 Professional Perspective program in the spring semester;
    - iv. 1 Career Component program in the spring semester;
  - b. For Second and Third Year Law Students:
    - i. 2 Programs each semester;
    - ii. At least two of the programs during the year **MUST** be for general Professional Perspectives credit;
    - iii. At least one program during the year **MUST** be for the Career Component credit.

## Certificates & Emphasis

### JD Certificates

- Graduate Certificate in Dispute Resolution (p. 819)

### JD Emphases

- Emphasis in Criminal Justice (p. 820)
- Emphasis in Tax Law (p. 821)

## Experiential Opportunities

The School of Law recognizes the importance of providing students with opportunities to apply the knowledge they receive in the classroom in "real-life" situations. Over their course of study, students have the opportunity to enroll in clinical programs or practicums in a variety of different areas: criminal prosecution, family violence, mediation, the state legislature, landlord/tenant law, entrepreneurship, veterans' disability law, and the wrongly convicted. Additional details are available from the School of Law at <https://law.missouri.edu/academics/clinics/>.

In addition to these clinical opportunities, students can participate in our extensive externship program. In this program, students work under the supervision of a lawyer or judge in a public law office, government agency or not for profit organization or for an attorney in private practice engaged in pro bono work. Additional details are available from the School of Law at <https://law.missouri.edu/externship-program/>. (<https://law.missouri.edu/externship-program/>)

## Graduate Certificate in Dispute Resolution

### MU Certificate in Dispute Resolution

Clients and society today need and expect much more than traditional advocacy from their lawyers. Modern lawyers need to be able to address legal problems in ways that accommodate a variety of needs, goals and values, in addition to vindicating legal rights. As a result, today's lawyer must have the knowledge, skills and perspectives not only to advocate in the courtroom, but to participate in such processes as client counseling, negotiation, mediation, arbitration and creative problem-solving.

The MU Certificate in Dispute Resolution is designed to foster such learning in students by providing the opportunity to work with some of the nation's leading dispute resolution scholars and practitioners. The MU School of Law has been ranked No. 1 in dispute resolution by U.S. News and World Report since 1999, and has more full-time faculty specializing in dispute resolution than any other law school.

This certificate program will give students an advantage in addressing the complex challenges of today's legal environment.

## Requirements

To receive a Certificate in Dispute Resolution from the MU School of Law, a J.D. student must take at least 12 credit hours of dispute resolution courses approved by the Law School. Eight of those credit hours are required core program courses and provide students with a basic understanding of the theory, skills and practice of dispute resolution. Students must take at least 2 additional elective courses from among the courses approved for the Certificate program.

### Core Courses

LAW 5095	Lawyering: Problem Solving and Dispute Resolution	2
LAW 5810	Negotiation	3
Skills courses (select one)		
LAW 5350	Arbitration	3
LAW 5765	Mediation	3
LAW 5925	Trial Practice	3-4

### Elective Courses (select two)

LAW 5350	Arbitration (not if taken as a core course)	3
LAW 5420	Client Interviewing and Counseling	2
LAW 6710	Comparative Dispute Resolution (SA)	2
LAW 5450	Conflict and Conflict Management	3
LAW 5485	Cross-Cultural Dispute Resolution	2
LAW 5496	Deal Skills Class	3
LAW 5537	Emotional Intelligence in Law	3
LAW 5875	Research in Law	3
LAW 5652	International Commercial Arbitration	3
LAW 5680	Journal of Dispute Resolution	1-3
LAW 5765	Mediation (not if taken as a core course)	3
LAW 5770	Mediation Clinic	1-2
LAW 5923	Transnational Litigation	3
LAW 5925	Trial Practice (not if taken as a core course)	3-4
PUB_AF 8620	Organizational Analysis and Change	3
PUB_AF 8150	Collaborative Governance	3
PUB_AF 8160	Organizational Dynamics and Leadership	3

## Additional Information

Additional details and a list of courses satisfying the certificate requirements are available from the School of Law at <https://law.missouri.edu/academics/certificates/dispute-resolution-certificate/>.

# Juris Doctor with Emphasis in Criminal Justice

## Criminal Justice Concentration

The Criminal Justice Concentration is designed for two groups of students: those who are considering beginning their legal careers as prosecutors or criminal defense counsel and those who may not have an express interest in criminal practice, but who are nonetheless seeking a course of study structured to provide training in the range of skills necessary to the practice of law in most substantive areas – particularly including legal analysis, factual investigation, counseling, negotiation and the persuasive arts employed in written and oral advocacy.

Additional details and a list of courses satisfying the Criminal Justice Concentration requirements are available from the School of Law here (<http://www.law.missouri.edu/academics/certificates/criminal-justice/>).

## Degree Requirements

Required Courses	20-21
LAW 5477	Criminal Justice Administration 3
LAW 5035	Criminal Law 4
LAW 5240	Criminal Procedure 3
LAW 5260	Evidence 4
LAW 5280	Professional Responsibility 3
LAW 5925	Trial Practice 3-4

### Electives:

Select 3 courses totaling at least 6 credits from groups A, B and C, including at least 2 credits from A and C:

#### Group A: Courses on Post-Conviction Process

LAW 5723	The Law and Practice of Criminal Sentencing	1-4
LAW 5497	Death Penalty Law	3
LAW 5313	Collateral Consequences of Sentencing	2-3
LAW 5946	Wrongful Convictions	1-4
LAW 5717	The Law of Habeas Corpus and Post-Conviction Relief	1-3

#### Group B. Substantive Law Courses with Criminal Components

LAW 5340	Antitrust Law	3
LAW 5410	Children and the Law	2-3
LAW 5415	Constitutional and Civil Rights Litigation	2-3
LAW 6730	Comparative Criminal Justice	1-2
LAW 5590	Freedom of Speech and Association	1-3
LAW 5890	Securities Regulation	3

#### Group C. Courses Relating to Specialized, Skills-Related Aspects of Criminal Pretrial, Trial or Appellate Practice

LAW 5325	Advanced Trial Practice	1-3
LAW 5345	Appellate Advocacy	2
LAW 5420	Client Interviewing and Counseling	1-3
LAW 5588	Forensic Science and Law	2-3
LAW 5810	Negotiation	2-3
LAW 5691	Jury Instructions	2

### Capstone:

A capstone experience consisting of either a live-client clinic or a course employing complex simulation exercises.

LAW 5470	Criminal Clinic	1-5
LAW 5497	Death Penalty Law	3

LAW 5632	Innocence Project Clinic	3-4
LAW 5940	White Collar Crime	3
LAW 5723	The Law and Practice of Criminal Sentencing	1-4

## Juris Doctor with Emphasis in Tax Law

### Tax Law Concentration

The Tax Law Concentration is designed to provide basic education in both general skills and subject-matter specific knowledge, and provide each participating student with an opportunity to bring the entire skill set to bear in a capstone experience designed to teach integrated legal problem-solving. Completion of a concentration should improve the overall preparedness of graduates by conferring entry-level competence to begin practicing law with appropriate supervision in the concentration's subject matter area or practice setting.

Additional details and a list of courses satisfying the Tax Law Concentration requirements are available from the School of Law here (<https://law.missouri.edu/academics/certificates/tax-law-concentration/>).

### Degree Requirements

#### Required Courses

LAW 5375	Basic Federal Income Taxation	3
LAW 5395	Business Organizations	3-4
LAW 5914	Tax Planning	3
or LAW 5555	Estate Planning	

#### Advanced Tax Electives

Choose 2 courses totaling 5-7 credits, and at least one must be either Corporate Taxation or Partnership Taxation.

LAW 5365	Bankruptcy	3
LAW 5454	Contract Drafting	3
LAW 5465	Corporate Taxation	3
LAW 5430	Commercial Real Estate Leasing	3
LAW 5496	Deal Skills Class	3
LAW 5530	Elder Law	3
LAW 5544	Entrepreneurship Legal Clinic	4
LAW 5584	Fiduciary Administration	2
LAW 5555	Estate Planning ((if not taken as capstone))	3
LAW 5650	International Business Transactions	3
LAW 5675		3
LAW 5815	Partnership Taxation	3
LAW 5845	Publicly Held Corporation	3
LAW 5856	Real Estate Finance	3
LAW 5885	Secured Transactions	3
LAW 5890	Securities Regulation	3
LAW 5916	Taxation of Property Transactions	3
LAW 5914	Tax Planning (if not taken as capstone)	3
LAW 5915	Tax Research	2
LAW 5945	Will and Trust Drafting	2

#### Capstone Course

One of the following two courses is required.

LAW 5914	Tax Planning	3
LAW 5555	Estate Planning	3

## Master of Laws (LLM)

The Master of Laws degrees are offered through a joint effort of the Graduate School and the School of Law. For detailed information on these programs, consult the Dispute Resolution (p. 772) or American Law (p. 761) pages.

## Additional Academic Programs - Law

Students in the School of Law have a wide variety of additional academic options before them, including a number of other degree and certificate programs available at the University of Missouri that can make a good accompaniment to the J.D. Below is a description of some of those options.

#### Certificates

- Center for the Digital Globe (p. 821)
- Dispute Resolution for Non-Lawyers (<http://catalog.missouri.edu/professional/law/additionalacademicprograms/grad-cert-dispute-resolution-non-lawyers/>)

#### Dual/Concurrent Degrees

- Atlantic History and Politics (Masters) (p. 821)
- Business Administration (Masters) (p. 822)
- Economics (Masters) (p. 822)
- Educational Leadership & Policy Analysis (Masters) (p. 822)
- Health Administration (Masters) (p. 822)
- Human Development & Family Science (Masters) (p. 822)
- Journalism (Masters) (p. 822)
- Journalism (Doctorate) (p. 822)
- Library & Information Science (Masters) (p. 822)
- Public Affairs (Masters) (p. 823)

### Certificates:

#### Center for the Digital Globe (Certificate)

The Center for the Digital Globe (<http://cdig.missouri.edu/>) (CDiG), established by the College of Business, School of Journalism, School of Law, and Department of Textile and Apparel Management in the College of Human Environmental Sciences, offers an interdepartmental certificate to graduate students of the University of Missouri-Columbia. The certificate program supplements the students' graduate studies within the various colleges and schools that make up the University. This is not a degree-granting program. Instead, the certificate attests to the students' successful completion of a required course of study with emphasis on the managerial, theoretical and policy-related issues associated with digital media, electronic commerce and globalization.

#### Dual/Concurrent Degrees:

#### Atlantic History and Politics (Masters)

The Kinder Institute on Constitutional Democracy and the School of Law offer an integrated program in which students may obtain both an MA

degree in Atlantic History & Politics and a JD degree from the School of Law. Although an MA degree in Atlantic History & Politics normally requires one year plus one summer of study, and a JD requires three years, many students will be able to complete the program in three years plus two summers. Students also have the option of completing the program in 3.5 years.

The program outlined here meets requirements for the JD degree with 83 hours of law credit, and 6 elective credit hours in Atlantic History & Politics, for a total of 89 credit hours. Requirements for the MA degree in Atlantic History & Politics are met with 24 credit hours of courses in the Kinder Institute, the Department of History, and the Department of Political Science and 6 elective credit hours within the School of Law. The detailed program of study in Atlantic History & Politics is subject to approval by the student's advisor in the Kinder Institute on Constitutional Democracy and by the Director of Graduate Studies at the Kinder Institute on Constitutional Democracy.

Applicants to the Dual Degree Program must submit formal applications for admission to the School of Law and to the Kinder Institute on Constitutional Democracy, accompanied by a statement requesting permission to pursue the Dual Degree Program. Students must meet the requirements for admission to both programs.

## Business Administration (Masters)

Students completing the Law and Business course of study will be eligible to receive the JD degree from the School of Law and the MBA degree from the School of Business. This course of study may be completed in four years. Normally, students require three years to complete the requirements for the JD degree and two years to complete the requirements for the MBA degree.

Additional details are available from the School of Law at <https://law.missouri.edu/academics/dual-degrees/https://law.missouri.edu/academics/dual-degrees/>.

## Economics (Masters)

The Department of Economics and the School of Law offer an integrated program in which students may obtain both an MA degree in economics and a JD degree from the School of Law. Although an MA degree in economics normally requires two years of study, and a JD requires three, many students will be able to complete the program in four years.

Additional details are available from the School of Law at <https://law.missouri.edu/academics/dual-degrees/>.

## Educational Leadership & Policy Analysis (Masters)

With and Emphasis in Higher Education

The College of Education's Department of Educational Leadership & Policy Analysis and the School of Law offer an integrated program in which students may obtain both an MA degree in higher education with a concentration in general higher education administration and a JD degree from the School of Law. Although an MA degree in higher and continuing education normally requires two years of study, and a JD requires three, many students will be able to complete the program in four years.

Additional details are available from the School of Law at <https://law.missouri.edu/academics/dual-degrees/>.

## Health Administration (Masters)

Students completing this course of study will be eligible to receive the JD degree from the School of Law and the MHA degree from the Health Management and Informatics graduate program. This course of study may be completed in four years and an additional summer session. Normally, students require three years to complete the requirements for the JD degree and two years to complete the requirements for the MHA degree.

Additional details are available from the School of Law at <https://law.missouri.edu/academics/dual-degrees/>.

## Human Development & Family Science (Masters)

The Department of Human Development and Family Studies and the School of Law offer an integrated program in which students may obtain both a JD degree from the School of Law and an MS or MA degree in Human Development and Family Studies. Although a Master's degree normally requires two years of study, and a JD requires three, many students will be able to complete the program in four years.

Additional details are available from the School of Law at <https://law.missouri.edu/academics/dual-degrees/>.

## Journalism (Masters)

The School of Journalism and the School of Law offer an integrated program in which students may obtain both an MA degree in journalism and a J.D. degree in law. This program is especially suitable for students interested in enhancing their competencies, qualifications, and career options through the successful completion of two complementary professional programs. Although an MA degree in journalism normally requires two years of study, and a J.D. requires three, many students will be able to complete the full program in four years.

Additional details are available from the School of Law at <https://law.missouri.edu/academics/dual-degrees/>.

## Journalism (Doctorate)

The University of Missouri-Columbia School of Journalism and School of Law offer an integrated program for students seeking both a Ph.D. degree in journalism and a J.D. degree in law. Students should consider this program if they are interested in teaching or in senior-level practice or policy work in either of these fields, nationally or internationally. Although a Ph.D. degree in journalism normally requires three years of study, and a J.D. requires three, students may be able to complete the full program in as few as five years.

Additional details are available from the School of Law at <https://law.missouri.edu/academics/dual-degrees/>.

## Library & Information Science (Masters)

The School of Information Science and Learning Technologies (SISLT) and the School of Law offer an integrated program in which students may obtain both an MLIS degree in library and information science from SISLT and a JD degree from the School of Law. Although an MLIS degree in Library and Information Science normally requires two years of study, and a JD requires three, many students will be able to complete the program in four years.

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Additional details are available from the School of Law at <https://law.missouri.edu/academics/dual-degrees/>.

## **Public Affairs (Masters)**

Students completing the required course of study will be eligible to receive the JD degree from the School of Law and the MPA degree from the Harry S Truman School of Public Affairs. The course of study may be completed in four years. Normally, students require three years to complete the requirements for the JD degree and two years to complete the requirements for the MPA degree. Additional details are available from the School of Law at <https://law.missouri.edu/academics/dual-degrees/>.



## School of Medicine

The MD degree is achieved after a four-year course of study. Please visit the School of Medicine website for information about the admissions process: <http://medicine.missouri.edu/admissions/>

The curriculum at the University of Missouri School of Medicine emphasizes clinical reasoning, self-directed learning, collaborative learning and early clinical experiences. It integrates the basic sciences and clinical reasoning. In years 1 and 2, emphasis is placed on small group learning with some lectures. Courses are not department or discipline based.

During the third year, seven core clerkships are required in family medicine, internal medicine, neurology, obstetrics and gynecology, pediatrics, psychiatry, and surgery. It is during these core clerkships that students learn the fundamentals of good patient care, and faculty assess that students are competent upon completion of the clerkship. These clinical experiences must be under the supervision of Columbia-based School of Medicine faculty or community faculty appointed through the School of Medicine. All students may take up to three core clerkships developed and approved by School of Medicine departments through the University of Missouri School of Medicine Rural Track Clerkship program.

During the fourth year, students must successfully pass a minimum of 30 weeks of elective rotations to meet graduation requirements including two four-week advanced clinical selectives, four four-week general electives, one two-week general elective and one four-week Advanced Biomedical Sciences course. A minimum of four courses must be taken under the supervision of Columbia-based School of Medicine faculty as follows:

Students must take one of the two required clinical selectives under the supervision of University of Missouri School of Medicine faculty or community faculty appointed through the School of Medicine. One of the required selectives must be a surgical selective, and one must be a medical selective. Certain clinical experiences, such as the Indian Health Service and designated rural community electives/selectives, are considered under the supervision of University of Missouri School of Medicine faculty and meet the requirement for one of the two clinical selectives. Many students will have completed the two-week elective requirement during the third year, coupled with the psychiatry clerkship. Students may have completed one of the four-week general elective requirements if they took the neurology clerkship during the third year.

General electives may be taken at sites approved by the department, the advisor and the Medical Education office. Students wishing to take courses at another medical school must comply with all application policies required by the host school.

All fourth-year medical students may apply to take rural electives (Bryant Scholars are required to complete one rural elective). Students wishing to take rural electives must be accepted through MU AHEC and be in good academic standing as determined by the Medical Education office.

**One School, Two Campuses:** The University of Missouri School of Medicine is comprised of two clinical campuses, Springfield and Columbia. Students will be assigned to either the Springfield clinical campus or the Columbia clinical campus for their third and fourth years. A lottery is held to determine assignments for the Springfield and Columbia clinical campuses. Preferences for location will be taken into consideration. Once the campus assignment is established, all of the clerkships will be completed on that campus. Electives and selectives may be taken on either campus and will be under the direction of

University of Missouri School of Medicine faculty. Electives, selectives and advanced biomedical sciences courses at the Springfield campus are considered equal to those in Columbia. Students may participate in the Rural Track program regardless of campus assignment.

For more information about the School of Medicine, call (573) 882-9219. <http://medicine.missouri.edu>

## Patient Based Learning

### First and Second Years

Years one and two consist of four nine-week blocks. Each block has two components: basic science/patient-based Learning (BSci/PBL) and introduction to patient care (IPC).

### BSci/PBL

In this component, students work through one authentic clinical case each week in small groups with a faculty facilitator. The facilitator is not a content expert, but rather guides the group as they work through the case seeking a diagnosis and patient care plan. BSci/PBL cases guide learning and the application of basic science concepts in clinical scenarios. A few basic lectures and laboratory experiences teach concepts that supplement the cases. BSci/PBL features about ten hours of patient-based learning with about ten hours of traditional teaching such as lectures each week.

### IPC

Themes change with each block and focus on clinical skills, including history taking and physical examination, psychosocial issues and increasing the students' understanding of epidemiology, diagnostic tests and psychopathology. The primary learning strategies also emphasize small-group learning with supporting lectures and laboratory experiences.

### ACE (Ambulatory Care Experience)

ACE is required during blocks two through four of the first year and is elective during the second year. During the ACE experience, each student spends a half-day twice a month with a role-model faculty or community physician-preceptor.

### Advanced Physical Diagnosis (APD)

APD is required during the second year. Students are assigned to a clinician mentor for the entire academic year. Times and frequency of meetings are at the discretion of the faculty member and the students; however, it is recommended that they meet at least twice each month. The emphasis of this APD experience is on history and physical exam skills and clinical reasoning. Successful completion of APD is required for advancing to the core clerkships.

### Contemplating Medicine Patients, Self and Society (COMPASS)

This is a longitudinal small group course. Faculty facilitated small group sessions occur throughout all four years; addressing topics related to professional formation.

### Independent Learning

Two half days each week are protected time for independent or student-directed learning; no faculty-initiated activities may be scheduled.

## M1 - Blocks 1, 2, 3, 4

MED_ID 5041	Structure and Function of the Human Body I	6
MED_ID 5042	Interviewing	3

MED_ID 5043	Structure and Function of the Human Body II	6
MED_ID 5044	Physical Examination	3
MED_ID 5045	Structure and Function of the Human Body III	6
MED_ID 5046	Psychosocial Aspects of Medicine	3
MED_ID 5047	Structure and Functions of the Human Body IV	6
MED_ID 5048	Clinical Epidemiology and Preventive Medicine	3
MED_ID 5051	Ambulatory Clinical Experience I	1

## M2 - Blocks 5, 6, 7, 8

MED_ID 5551	Pathophysiology I	6
MED_ID 5552	Diagnostic Tests and Medical Decisions	3
MED_ID 5553	Pathophysiology II	6
MED_ID 5554	Psychopathology and Behavioral Medicine	3
MED_ID 5555	Pathophysiology III	6
MED_ID 5556	Clinical Practicum	3
MED_ID 5557	Pathophysiology IV	6
MED_ID 5558	Physician as a Person	3
MED_ID 5561	Advanced Physical Diagnosis I	1

## Clerkships

Year three includes seven clerkships in family medicine, internal medicine, neurology, obstetrics and gynecology, pediatrics, psychiatry, and surgery. The neurology clerkship is four weeks long, the psychiatry clerkship is six weeks, and all others are eight weeks. Six of the seven core clerkships are required to be taken in the third year with one clerkship being deferred to the fourth year. During these core clerkships, students learn the fundamentals of good patient care, and faculty assesses student competencies. Clerkships must be supervised by Columbia-based School of Medicine faculty or community faculty appointed through the School of Medicine. Students may take up to three clerkships at designated community sites as part of the MU Rural Track Clerkship Program (<http://www.muahec.missouri.edu/rural-track.php>).

Students have the opportunity to learn about common illnesses and abnormalities in children. Emphasis also is placed on the importance of preventive and developmental aspects of child care. Lectures and case presentations correlate with the clinical experiences.

### Family and Community Medicine Clerkship - F\_C\_MD 6001

Core learning experiences take place in ambulatory clinic settings. Students work with experienced clinicians and senior residents, spending time in University teaching practices, and in community-based practices. Students also may spend time seeing patients in emergency room, hospital, or nursing home settings, and taking call with residents and practicing physicians. A high volume of patients of all ages with a wide range of problems is encountered. Many patients will have undifferentiated problems.

### Internal Medicine Clerkship - IN\_MED 6002

Students spend eight weeks on the internal medicine inpatient service at University Hospital and Harry S. Truman Veterans Hospital, where they learn to care for adult patients with acute and chronic illnesses. Teaching emphasizes the principles of differential diagnosis and problem solving, as well as the integration of basic science information into the

art of patient care. Students also gain clinical experience in medical interviewing and physical examination.

### Obstetrics/Gynecology Clerkship - OB\_GYN 6004

Students rotate on the obstetric service, the gynecology service, and the gynecologic oncology service, seeing a broad range of patients in both inpatient and outpatient settings. In addition, they attend lectures and interactive case presentations.

### Neurology Clerkship - NEUROL 6003

Students see patients with neurological disorders in the outpatient clinics, in hospital settings, and on consultation services.

### Psychiatry Clerkship - PSCHTY 6005

Students see patients with psychiatric disorders in the outpatient clinics, in hospital settings, and on consultation services.

### Surgery Clerkship - SURGRY 6006

Emphasis is placed on the diagnosis and treatment of disorders requiring surgical intervention. Each student has a faculty mentor-advisor, attends faculty discussion sessions that cover objectives in the required textbooks, and takes call under the supervision of surgical residents. Students are assigned patients from all surgical specialties, participate in pre-operative examinations and evaluations, assist during surgical procedures, and follow the post-operative management process.

### Patient-Centered Care Objective Structured Clinical Evaluation (PCC-OSCE)

A PCC-OSCE will be administered at the end of the third year to assess students' ability to provide patient-centered care. Successful completion is required for graduation.

### Contemplating Medicine Patients, Self and Society (COMPASS)

This is a longitudinal small-group course. Faculty-facilitated small-group sessions occur throughout all four years, addressing topics related to professional formation.

## Electives

The fourth year consists of two one-month advanced clinical selectives (sub-internships) in the core disciplines, four one-month general electives, one two-week general elective, and a one-month advanced biomedical science (ABS) course. One of the advanced selectives must be in a surgical area and one must be in a medical area. A minimum of four courses (including one advanced selective) must be taken under the supervision of Columbia-based School of Medicine faculty. Many students will have completed the two-week elective requirement during the third year, coupled with the psychiatry clerkship. Students may have completed one of the four-week general elective requirements if they took the neurology clerkship during the third year.

The fourth year consists of two groups of advanced selectives and general electives.

### Advanced Clinical Selectives

Two advanced clinical selectives from the core disciplines of child health, family medicine, internal medicine, neurology, obstetrics and gynecology, psychiatry and surgery are required. Each selective is four weeks long. One must be in a surgical area and one must be in a medical area. Advanced clinical selectives build on the knowledge and skills acquired

during third-year core clerkships. Students are expected to assume more responsibility for patient care than in the core blocks.

### **Advanced Biomedical Sciences Selectives**

The advanced biomedical science selectives revisit the biomedical sciences in the context of a patient, disease, diagnosis or problem. Four options are available. Students may:

- Search and analyze literature, integrate and evaluate data, produce a paper or presentation
- Conduct original research with mentors from the basic or clinical sciences
- Attend a series of graduate-level lectures and discussions of current literature
- Function as co-tutors for PBL, attend tutor preparation sessions and write a PBL case

### **General Electives**

Eighteen weeks of general electives are required. Off-site experiences are available but must be approved by the appropriate department.

For more information on fourth year course offerings, please refer to the **Clinical Rotation Catalog**. This catalog contains descriptions of all clinical rotations offered at the University of Missouri - Columbia School of Medicine, as well as information concerning enrollment for rotations.

### **Contemplating Medicine Patients, Self and Society (COMPASS)**

This is a longitudinal small group course. Faculty facilitated small group sessions occur throughout all four years; addressing topics related to professional formation. Fourth year students complete a required COMPASS capstone assignment.

## **USMLE**

The United States Medical Licensing Examination (USMLE) (<http://www.usmle.org/>) is a three-step examination for medical licensure in the United States and is sponsored by the National Board of Medical Examiners® (NBME) (<http://www.nbme.org/>) and the Federation of State Medical Boards (FSMB) (<http://www.fsmb.org/>). The USMLE assesses a physician's ability to apply knowledge, concepts, and principles, and to demonstrate fundamental patient-centered skills that are important in health and disease and that constitute the basis of safe and effective patient care.

All medical students are required to take Step 1 at the end of the second year of medical school and must pass it prior to beginning the fourth year.

All medical students are also required to pass Step 2 Clinical Knowledge (CK) and Step 2 Clinical Skills (CS) prior to graduation.

Step 3 is typically taken after the first year of residency.

## Occupational Therapy

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Department of Occupational Therapy  
School of Health Professions  
801B Clark Hall  
Columbia, Missouri 65211  
(573) 882-3988

### Advising Contact

MUOT@health.missouri.edu

### Scholarship Information Contact

<https://healthprofessions.missouri.edu/student-services/scholarships/>

Occupational therapists are skilled health professionals who provide services to individuals across the lifespan to maximize their independence in meaningful everyday activities. Occupational therapists use research, scientific evidence, and a holistic perspective to incorporate an individual's valued occupations into the intervention process.

The mission of the Department of Occupational Therapy is to improve the health and well-being of society by assisting people to optimize their participation in everyday life occupations.

We achieve this mission through the integration of our:

- Professional education of clinically innovative occupational therapists prepared to meet the dynamic occupational needs of people and communities across the lifespan;
- Steadfast commitment to service to our community and our profession;
- Evidence-based practice; and
- Commitment to scholarship, discovery and clinical research to advance our profession.

To become a registered occupational therapist, either an entry-level master's degree or an entry-level doctoral degree is required. The Department of Occupational Therapy is in the process of transitioning from offering the entry-level master's degree to the entry-level doctoral degree.

### Entry-Level Master's Degree Program

**The occupational therapy program is in the process of transitioning to the doctoral level. New admissions to the master's degree program are no longer being accepted.**

The final cohort for the entry-level master's degree was selected during the 2019 application cycle, began coursework in Summer 2020, and will graduate in May 2022. The entry-level master's degree program is currently accredited by the Accreditation Council for Occupational Therapy Education (ACOTE) of the American Occupational Therapy Association, located at 6116 Executive Boulevard, Suite 200, North Bethesda, MD 20852-4929. ACOTE's telephone number c/o AOTA is (301) 652-2682 and its Web address is [www.acoteonline.org](http://www.acoteonline.org)

Graduates are eligible to sit for the national certification examination for the occupational therapist administered by the National Board for Certification in Occupational Therapy (NBCOT), Inc. located at One Bank Street, Suite 300, Gaithersburg, MD 20878. NBCOT's telephone number is (301) 990-7979 and its Web address is [www.nbcot.org](http://www.nbcot.org).

After successful completion of this exam, the individual will be an Occupational Therapist, Registered (OTR). In addition, all states require

licensure in order to practice; however, state licenses are usually based on the results of the NBCOT Certification Examination. Note that a felony conviction may affect a graduate's ability to sit for the NBCOT Certification Examination or attain state licensure.

### Entry-Level Doctoral Degree Program

The Department of Occupational Therapy is in the process of transitioning to a 3.5-year entry-level occupational therapy doctoral (OTD) degree, with first cohort selected during the 2020 application cycle, beginning coursework in Summer 2021, and graduating in August 2024. The application cycle for this cohort will be open July 2020 – January 2021. **Admissions decisions are made on a rolling basis and the program may be full prior to the application deadline.** The Department of Occupational Therapy admits a cohort of 44 students each year.

The Department of Occupational Therapy entry-level occupational therapy doctoral degree program has applied for accreditation and has been granted Candidacy Status by the Accreditation Council for Occupational Therapy Education (ACOTE) of the American Occupational Therapy Association (AOTA), located at 6116 Executive Boulevard, Suite 200, North Bethesda, MD 20852-4929. ACOTE's telephone number c/o AOTA is (301) 652-AOTA and its Web address is [www.acoteonline.org](http://www.acoteonline.org) (<http://www.acoteonline.org>). The program must have a preaccreditation review, complete an on-site evaluation, and be granted Accreditation Status before its graduates will be eligible to sit for the national certification examination for the occupational therapist administered by the National Board for Certification in Occupational Therapy (NBCOT), located at One Bank Street, Suite 300, Gaithersburg, MD 20878. NBCOT's telephone number is (301) 990-7979 and its Web address is [www.nbcot.org](http://www.nbcot.org) (<http://www.nbcot.org>). After successful completion of this exam, the individual will be an Occupational Therapist, Registered (OTR). In addition, all states require licensure in order to practice; however, state licenses are usually based on the results of the NBCOT Certification Examination. Note that a felony conviction may affect a graduate's ability to sit for the NBCOT certification examination or attain state licensure.

Students must complete 24 weeks of Level II fieldwork as well as an individual 14-week capstone experience within 24 months following the completion of the didactic portion of the program. The doctoral capstone experience must be started after completion of all coursework and Level II fieldwork as well as completion of preparatory activities defined in 2018 ACOTE OTD Standard D.1.3.

Professional courses are offered only to students enrolled in the program. Contact the Department of Occupational Therapy for more information regarding the degree.

**Undergraduate Education Requirements:** A baccalaureate degree from an accredited college/university to be completed prior to starting the Occupational Therapy Doctorate program. Exceptions include:

- **3+3 BHS / OTD Option for MU Health Sciences Students:** MU Bachelor's of Health Science (BHS) students have the option to apply and enter the OTD program after their junior year (90 credits of undergraduate coursework) and meet the requirements for completion of the BHS degree through the first year of coursework in the OTD. This program will allow students to complete both degrees in six years.
  - Students considering this option will apply during the Summer/Fall after their sophomore year (after 60 credit hours completed);

selected students begin coursework the summer after completion of their junior year.

- Students must have evidence of a minimum of three semesters of college coursework after high school graduation.
- First year of OTD professional coursework also counts toward the BHS degree. Students must have at least 90 credits, all OT prerequisites, and all BHS degree requirements except the capstone requirement completed before beginning the OTD program. Students will then graduate with their BHS in May after successfully completing the 1st year of OTD coursework. The first year of OTD coursework includes a fieldwork experience and a practicum experience which combined will meet the capstone requirement for the BHS degree.
- Students applying for the 3+3 option will be considered in the same pool as all other applicants. There are no reserved spots for 3+3 applicants, nor is there a limit on the number of 3+3 applicants we will accept.
- The more prerequisites you have completed at the time of application, the more strongly your application will be considered. (Same is true for all applicants.)
- Professional tuition begins at the start of the OTD coursework; students enrolled in professional coursework are no longer eligible for Pell Grants. See <https://cashiers.missouri.edu/cost/> for current professional tuition rates for the occupational therapy program.
- *MU Health Sciences students applying for the 3+3 option must work very closely with their undergraduate School of Health Professions advisors (<https://healthprofessions.missouri.edu/student-services/advising/>) before, during, and after application to ensure that they have completed all Health Science degree program requirements AND all OT prerequisites before beginning the OTD program.*
- **Early-Entry Option for Students Outside the University of Missouri:**
  - Prospective students from outside the University of Missouri with a minimum of 90 undergraduate credit hours completed prior to starting the OTD program. Completion of their undergraduate degree will be contingent on their undergraduate institution allowing the courses in the first year of the OTD program to count toward the completion of their undergraduate degree.
  - While a bachelor's degree is not required to complete the OTD, we strongly encourage applicants who want to pursue early-entry to also obtain a bachelor's degree if at all possible.

because all post-professional coursework will be offered online, nearly all postprofessional students are expected to complete their OTD degrees on a part-time enrollment basis while maintaining employment as OT practitioners. Students applying to the post-professional OTD program must previously have completed an entry-level OT degree at the bachelor's or master's level and be licensed to practice as an OT in their state of residence.

Additional information regarding application and admission will be made available in Fall 2020, with admitted students beginning coursework in Fall 2021.

## Faculty

**Assistant Clinical Professor** T. Bolton\*, G. Pifer\*

**Assistant Professor** A. Boone\*\*, R. Proffitt\*\*

**Assistant Research Professor** W. Janes\*\*

**Associate Clinical Professor** W. Henderson\*

**Associate Professor** T. Wolf\*\*

**Clinical Professor** L. Lowery\*\*

**Teaching Professor** C. Gateley\*\*

**Distinguished Professor** W. Dunn\*\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.

\*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Post-Professional Occupational Therapy Doctorate (PPOTD)

A Post-Professional Occupational Therapy Doctorate (PPOTD) program, for individuals with a previous bachelor's or master's degree in occupational therapy and already licensed to practice as an occupational therapist, is in the process of development. The PPOTD program is designed to provide occupational therapists with the opportunity to advance their formal education. Students earning the OTD degree on a post-professional basis will have the ability to customize their educational plans to meet their unique academic and professional goals, which may include, but are not limited to, advanced clinical practice, leadership and management, research, and occupational therapy education. They will have the opportunity to select unique combinations of elective coursework and doctoral capstone experiences. Furthermore,

## Occupational Therapy (MOT)

Department of Occupational Therapy  
 School of Health Professions  
 801B Clark Hall, Columbia, MO 65211  
 (573) 882-3988; FAX (573) 884-2610  
<https://healthprofessions.missouri.edu/occupational-therapy/>

The 2-year post-baccalaureate entry-level master's degree program is being phased out with the final cohort already selected during the 2019 application cycle, beginning coursework in Summer 2020, and graduating in May 2022. The occupational therapy program is in the process of transitioning to the doctoral level. **New admissions to the master's degree program are no longer being accepted.**

Professional courses are offered only to students enrolled in the program. Contact the Department of Occupational Therapy for more information regarding the degree.

### Accreditation and Certification

#### Entry-Level Master's Degree

The Department of Occupational Therapy entry-level master's degree program is accredited by the Accreditation Council for Occupational Therapy Education (ACOTE) of the American Occupational Therapy Association, located at 6116 Executive Boulevard, Suite 200, North Bethesda, MD 20852-4929. ACOTE's telephone number c/o AOTA is (301) 652-2682 and its Web address is [www.acoteonline.org](http://www.acoteonline.org) (<http://www.acoteonline.org>)

Graduates are eligible to sit for the national certification examination for the occupational therapist administered by the National Board for Certification in Occupational Therapy (NBCOT), Inc. located at One Bank Street, Suite 300, Gaithersburg, MD 20878. NBCOT's telephone number is (301) 990-7979 and its Web address is [www.nbcot.org](http://www.nbcot.org) (<http://www.nbcot.org>). After successful completion of this exam, the individual will be an Occupational Therapist, Registered (OTR). In addition, all states require licensure in order to practice; however, state licenses are usually based on the results of the NBCOT Certification Examination. Note that a felony conviction may affect a graduate's ability to sit for the NBCOT Certification Examination or attain state licensure.

Students must complete 24 weeks of Level II fieldwork within 24 months following completion of the didactic portion of the program.

### Financial Aid

Check the School of Health Professions website at <https://healthprofessions.missouri.edu/student-services/scholarships/> for scholarship information.

### Curriculum

Courses listed below as Degree Requirements are applicable only to students already accepted into the Master of Occupational Therapy (MOT) program, which is being phased out, with final cohort graduating in May 2022.

#### Degree Requirements

OC_THR 5010	Professional Development	3
OC_THR 5020	Foundations and Theory in Occupational Therapy	3
OC_THR 5030	Human Development and Occupation	3

OC_THR 5100	Introduction to Interprofessional Practice	1
OC_THR 5110	Introduction to Evidence-Based Practice	3
OC_THR 5120	Principles of Assessment	3
OC_THR 5130	Conditions in Occupational Therapy	1
OC_THR 5140	Human Motion and Occupation	4
OC_THR 5150	Concepts of Neuroscience	2
OC_THR 5160	Psychosocial Aspects of Occupational Therapy	3
OC_THR 5210	Adult Practice	4
OC_THR 5220	Pediatric Practice	4
OC_THR 5230	Application of Evidence Based Practice	3
OC_THR 5240	Clinical Reasoning and Documentation	2
OC_THR 5250	Emerging Trends in Occupational Therapy	1
OC_THR 5260	Occupational Therapy Practicum I	2
OC_THR 5310	Advanced Practice Strategies	4
OC_THR 5320	Performance, Participation, and Well-Being	2
OC_THR 5330	Functional Cognition	2
OC_THR 5340	Evidence Based Practice Seminar *	1
OC_THR 5410	Case Based Learning	4
OC_THR 5420	Populations and Communities	4
OC_THR 5430	Leadership, Management, and Policy	3
OC_THR 5440	Contemporary Issues in Occupational Therapy	2
OC_THR 5450	Occupational Therapy Practicum II	2
OC_THR 5460	Professional Seminar	1
OC_THR 5510	Fieldwork Level II-A	6
OC_THR 5520	Fieldwork Level II-B	6
Total Credits		79

\* Any student participating in a faculty-mentored research project will be required to register for 1 credit hour of OC\_THR 5340 during the second year summer semester.

### Admission Criteria

The occupational therapy program is in the process of transitioning to the entry-level doctoral degree. **New admissions to the master's degree program are no longer being accepted.**

For more information, contact:

Bethany Kendrick, Student Support Specialist II  
 801B Clark Hall; Columbia, MO 65211  
 573-884-6365

## Occupational Therapy (OTD)

Department of Occupational Therapy  
 School of Health Professions  
 801B Clark Hall, Columbia, MO 65211  
 (573) 882-3988; FAX (573) 884-2610  
<https://healthprofessions.missouri.edu/occupational-therapy/>

#### Entry-Level Doctoral Degree

The Department of Occupational Therapy is in the process of transitioning to a 3.5-year entry-level occupational therapy doctoral (OTD) degree, with first cohort selected during the 2020 application cycle, beginning coursework in Summer 2021, and graduating in August

2024. The application cycle for this cohort will be open July 2020 – January 2021. **Admissions decisions are made on a rolling basis and the program may be full prior to the application deadline.**

## Accreditation and Certification

### Entry-Level Doctoral Degree

The Department of Occupational Therapy entry-level occupational therapy doctoral degree program has applied for accreditation and has been granted Candidacy Status by the Accreditation Council for Occupational Therapy Education (ACOTE) of the American Occupational Therapy Association (AOTA), located at 6116 Executive Boulevard, Suite 200, North Bethesda, MD 20852-4929. ACOTE’s telephone number c/o AOTA is (301) 652-AOTA and its Web address is [www.acoteonline.org](http://www.acoteonline.org) (<http://www.acoteonline.org>). The program must have a preaccreditation review, complete an on-site evaluation, and be granted Accreditation Status before its graduates will be eligible to sit for the national certification examination for the occupational therapist administered by the National Board for Certification in Occupational Therapy (NBCOT), located at One Bank Street, Suite 300, Gaithersburg, MD 20878. NBCOT’s telephone number is (301) 990-7979 and its Web address is [www.nbcot.org](http://www.nbcot.org) (<http://www.nbcot.org>). After successful completion of this exam, the individual will be an Occupational Therapist, Registered (OTR). In addition, all states require licensure in order to practice; however, state licenses are usually based on the results of the NBCOT Certification Examination. Note that a felony conviction may affect a graduate’s ability to sit for the NBCOT certification examination or attain state licensure.

Students must complete 24 weeks of Level II fieldwork as well as an individual 14-week capstone experience within 24 months following the completion of the didactic portion of the program. The doctoral capstone experience must be started after completion of all coursework and Level II fieldwork as well as completion of preparatory activities defined in 2018 ACOTE OTD Standard D.1.3.

## Admission Criteria

Application window for entry-level occupational therapy doctoral (OTD) degree program beginning coursework in Summer 2021 opens July 2020, with an application deadline of January 15, 2021. Applications are reviewed on a rolling basis and admission offers may be made at any point during or after the application window. The Department of Occupational Therapy admits a cohort of 44 students each year.

- Minimum TOEFL or IELTS scores: (must have been completed in the last two years)

## Minimum English Proficiency Requirements

Internet-based test (iBT) Area	iBT Score	Paper-based test (PBT) Area	PBT Score
Total Score: 100, Reading: 20, Listening: 21, Speaking: 26, Writing: 17		Total Score: 600, Reading: 55, Listening: 55, Speaking: N/A, Writing: 55	

## IELTS Academic

Item	Score
Total Score	7
Reading	6.5

Listening	6.5
Speaking	8
Writing	6

- Minimum GPA: Cumulative 3.0 or higher (4.0=A). This includes ALL undergraduate completed coursework. Official transcripts from each institution must be sent to OTCAS.
- Completion of all prerequisites at a grade of B- or better
- 20 hours of observation with a licensed Occupational Therapist in at least 2 different practice settings. Observation forms uploaded to OTCAS.
- 3 letters of recommendation, uploaded to OTCAS
- Personal statement and essay, uploaded to OTCAS
- Resume, including minimum of 20 hours of volunteer experience, uploaded to OTCAS

## Prerequisite Courses

The following prerequisite courses must be completed with a B- or better prior to starting MUOT’s program. Prerequisites are subject to minor changes with each application cycle.

- General Biology – 3 credit hour course with a lab or 4 credit hours combined lecture/lab minimum
- Human Anatomy\* – 3 credit hour course with a lab or 4 credit hours combined lecture/lab minimum
- Human Physiology\* – 3 credit hour course with a lab or 4 credit hours combined lecture/lab minimum
- Human Movement Science\* – 3 credit hour combined lecture and lab minimum. Strong preference for Kinesiology or Biomechanics. Physics is a third option if the first two are not available.
- Sociology – 3 credit hour course minimum
- Abnormal Psychology – 3 credit hour course minimum
- Human Development – Must address development across the lifespan. 3 credit hour course minimum
- Introduction to Statistics – 3 credit hour course minimum. Any introductory statistics course in any discipline is acceptable.
- Medical Terminology – 1 credit hour minimum. Can take for credit or noncredit. Will accept a passing grade if taken as a pass/fail course.

\*Courses must have been completed within 4 years of application. Human Anatomy and Human Physiology can be substituted with Human Anatomy & Physiology I and Human Anatomy & Physiology II (both with lab)

Advanced placement, dual credit, and transfer credits for prerequisite coursework are acceptable if they were recognized by your undergraduate institution and appear on official transcripts at the time of application. Transfer credits may not be applied toward the OTD degree. The Department of Occupational Therapy does not allow credit for experiential learning or work experience to count toward any of the OTD degree requirements.

## Required Application Materials

- Go to <https://healthprofessions.missouri.edu/occupational-therapy/about/admissions/> for departmental application forms (available July - Jan. 15)

- All applications will be submitted through the Occupational Therapy Centralized Application System (OTCAS (<https://otcas.liasoncas.com/applicant-ux/#/login>))
- Observation Forms and supplemental fee

For more information, contact:

Bethany Kendrick, Student Support Specialist II  
801B Clark Hall; Columbia, MO 65211  
573-884-6365

**Post-Professional Occupational Therapy Doctorate (PPOTD)**

A Post-Professional Occupational Therapy Doctorate (PPOTD) program, for individuals with a previous bachelor's or master's degree in occupational therapy and already licensed to practice as an occupational therapist, is in the process of development. The PPOTD program is designed to provide occupational therapists with the opportunity to advance their formal education. Students earning the OTD degree on a post-professional basis will have the ability to customize their educational plans to meet their unique academic and professional goals, which may include, but are not limited to, advanced clinical practice, leadership and management, research, and occupational therapy education. They will have the opportunity to select unique combinations of elective coursework and doctoral capstone experiences. Furthermore, because all post-professional coursework will be offered online, nearly all postprofessional students are expected to complete their OTD degrees on a part-time enrollment basis while maintaining employment as OT practitioners. Students applying to the post-professional OTD program must previously have completed an entry-level OT degree at the bachelor's or master's level and be licensed to practice as an OT in their state of residence.

**Admissions Criteria**

- Proof of state OT licensure (any state)
- Official transcripts for all previous coursework
- Professional statement/goals
- One professional reference

Additional information regarding application and admission will be made available in Fall 2020, with admitted students beginning coursework in Fall 2021.

**Financial Aid**

Check the School of Health Professions website at <https://healthprofessions.missouri.edu/student-services/scholarships/> for scholarship information.

**Curriculum**

**Degree Requirements**

**Entry-Level OTD**

This includes students with no previous OT degree to practice as licensed occupational therapists. Students must complete a baccalaureate degree in any field, including several specific prerequisite courses, prior to beginning the entry-level OTD program. Students will complete 116 credit hours over 3.5 years in a full-time on-site cohort model curriculum.

Students will also be required to pass a national certification exam administered by the National Board of Certification in Occupational Therapy (NBCOT) in order to gain entry into the profession and obtain licensure. Students will have the ability to customize their educational

plans through unique combinations of elective coursework, fieldwork, and doctoral capstone experiences.

**Required Coursework**

**Entry-Level OTD Required Coursework**

OC_THR 5010	Professional Development	3
OC_THR 5020	Foundations and Theory in Occupational Therapy	3
OC_THR 5030	Human Development and Occupation	3
OC_THR 5110	Introduction to Evidence-Based Practice	3
OC_THR 5120	Principles of Assessment	3
OC_THR 5130	Conditions in Occupational Therapy	1
OC_THR 5140	Human Motion and Occupation	4
OC_THR 5150	Concepts of Neuroscience	2
OC_THR 5160	Psychosocial Aspects of Occupational Therapy	3
OC_THR 5210	Adult Practice	4
OC_THR 5220	Pediatric Practice	4
OC_THR 5230	Application of Evidence Based Practice	3
OC_THR 5240	Clinical Reasoning and Documentation	2
OC_THR 5250	Emerging Trends in Occupational Therapy	1
OC_THR 5260	Occupational Therapy Practicum I	2
OC_THR 5310	Advanced Practice Strategies	4
OC_THR 5320	Performance, Participation, and Well-Being	2
OC_THR 5330	Functional Cognition	2
OC_THR 5350	Proposal Development	2
OC_THR 5410	Case Based Learning	4
OC_THR 5420	Populations and Communities	4
OC_THR 5430	Leadership, Management, and Policy	3
OC_THR 5440	Contemporary Issues in Occupational Therapy	2
OC_THR 5450	Occupational Therapy Practicum II	2
OC_THR 5470	EBP Seminar	3
OC_THR 5471	Evidence Based Practice Mentor Hour	1
OC_THR 5510	Fieldwork Level II-A	6
OC_THR 5520	Fieldwork Level II-B	6
OC_THR 6010	Advanced Occupation Based Practice	3
OC_THR 6020	Population Health	3
OC_THR 6030	OT Practicum III	2
OC_THR 6040	Advanced EBP	3
OC_THR 6041	Capstone I - Mentor Hour	1
OC_THR 6110	Practice Analysis	3
OC_THR 6120	Instructional Design & App	3
OC_THR 6130	Capstone I - Project	3
OC_THR 6140	Capstone II - Project Planning B	2
OC_THR 6141	Capstone II - Mentor Hour	1
OC_THR 6210	Capstone II - Experience	6
HTH_PR 5100	Intro to Interprofessional Practice	1
Electives in 3rd Year (3 required, 4th optional)		
OC_THR 6190	Health Professions Educator	
OC_THR 6191	Community Engagement in HP	
OC_THR 6192	Research in OT	
OC_THR 6193	Complex Adaptive Leadership	



Coursework is subject to minor changes as the program makes occasional curricular revisions to meet accreditation requirements and to reflect contemporary occupational therapy practice.

**Early-Entry Options for the Entry-Level OTD**

The University of Missouri OTD program offers two early-entry options for students who are interested in OT and want to begin OT coursework prior to the completion of a bachelor’s degree. While a bachelor’s degree is not required to complete the OTD, we strongly encourage applicants who want to pursue early-entry to also obtain a bachelor’s degree if at all possible.

**3+3 BHS / OTD Option for MU Health Sciences Students**

MU Health Sciences students have the option to apply for early consideration for admission to the MU OT program. Selected students will complete a 3+3 option, with 3 years of undergraduate coursework + 3 years of professional OT coursework to earn both a Bachelor in Health Science (BHS) and an Occupational Therapy Doctorate (OTD) degree.

- Students considering this option will apply during the Summer/Fall after their sophomore year (after 60 credit hours completed); selected students begin coursework the summer after completion of their junior year
- Students must have evidence of a minimum of three semesters of college coursework after high school graduation.
- First year of OTD professional coursework also counts toward the BHS degree. Students must have at least 90 credits, all OT prerequisites, and all BHS degree requirements except the capstone requirement completed before beginning the OTD program. Students will then graduate with their BHS in May after successfully completing the 1st year of OTD coursework. The first year of OTD coursework includes a fieldwork experience and a practicum experience which combined will meet the capstone requirement for the BHS degree.
- Students applying for the 3+3 option will be considered in the same pool as all other applicants. There are no reserved spots for 3+3 applicants, nor is there a limit on the number of 3+3 applicants we will accept.
- The more prerequisites you have completed at the time of application, the more strongly your application will be considered. (Same is true for all applicants.)
- Professional tuition begins at the start of OTD coursework; students enrolled in professional coursework are no longer eligible for Pell Grants. See <https://cashiers.missouri.edu/cost/> for current professional tuition rates for the occupational therapy program.

MU Health Sciences students applying for the 3+3 option must work very closely with their undergraduate School of Health Professions advisors before, during, and after application to ensure that they have completed all Health Science degree program requirements AND all OT prerequisites before beginning the OTD program.

**Sample Pre-OT Plan with Electives:** <https://healthprofessions.missouri.edu/wp-content/uploads/sites/7/2020/04/Sample-Pre-OT-Academic-Plan-with-Electives.pdf> (<https://healthprofessions.missouri.edu/wp-content/uploads/sites/7/2020/04/Sample-Pre-OT-Academic-Plan-with-Electives.pdf>)

**Sample Pre-OT Plan without Electives:** <https://healthprofessions.missouri.edu/wp-content/uploads/sites/7/2020/04/Sample-Pre-OT-Academic-Plan-without-Electives.pdf> (<https://healthprofessions.missouri.edu/wp-content/uploads/sites/7/2020/04/Sample-Pre-OT-Academic-Plan-without-Electives.pdf>)

[healthprofessions.missouri.edu/wp-content/uploads/sites/7/2020/04/Sample-Pre-OT-Academic-Plan-without-Electives.pdf](https://healthprofessions.missouri.edu/wp-content/uploads/sites/7/2020/04/Sample-Pre-OT-Academic-Plan-without-Electives.pdf))

Please note that the Health and Wellness emphasis is not required for application to the OTD program, but that particular emphasis area may offer the most flexibility in completing both the OT prerequisites and the BHS degree requirements in 3 years.

**These academic plans are intended to be a guide for students preparing to apply to the 3+3 entry-level OTD program, but they do not replace advising.** Students must seek advising from a School of Health Professions advisor before and after application to ensure that they are on track to complete all requirements for their declared emphasis area for the Health Science degree.

**Students must have approval from their School of Health Professions advisor in order to apply for the 3+3 option.** Additional information regarding documentation of this approval will be available during each application cycle.

The first opportunity to apply for the 3+3 option will be during the application cycle running July 2020 - January 2021, with accepted students for the 3+3 program beginning professional coursework in Summer 2021, graduating with a BHS in Spring 2022, and graduating with an OTD in Summer 2024. **Admissions decisions are made on a rolling basis and the program may be full prior to the application deadline.**

**Early-Entry Option for Students Outside the University of Missouri**

There will be an early-entry option available to prospective students from outside the University of Missouri who are interested in the OTD program. Students must complete a minimum of 90 credits of undergraduate coursework, all of the prerequisite course requirements and all other admission requirements before starting the OTD program. Completion of their undergraduate degree will be contingent on their undergraduate institution allowing the courses in the first year of the OTD program to count toward completion of their undergraduate degree.

**Post-Professional OTD with Master's in OT**

This includes students entering with a master's degree in Occupational Therapy, and licensed to practice as occupational therapists. Students entering at this level will complete 36 credits which will be offered entirely online. Students will have the ability to customize their educational plans to meet their unique academic and professional goals. Since they are already practicing occupational therapists, they will not be required to complete fieldwork experiences. However, they will have the opportunity to select unique combinations of elective coursework and doctoral capstone experiences. Furthermore, because all post-professional coursework will be offered online, students may choose to complete their degree on a part-time enrollment basis.

**Post-Professional OTD with Master's in OT Required Coursework**

OC_THR 6010	Occupation Based Practice	3
OC_THR 6020	Population Health	3
OC_THR 6030	Professional Leadership & Development	3
OC_THR 6040	Advanced EBP	3
OC_THR 6110	Practice Analysis	3
OC_THR 6120	Instructional Design & App	3
OC_THR 6130	Capstone I - Project	3
OC_THR 6210	Capstone II - Experience	6
Elective #1		3

Elective #2	3
Elective #3	3

Coursework is subject to minor changes as the program makes occasional curricular revisions to meet accreditation requirements and to reflect contemporary occupational therapy practice.

**Post-Professional OTD with Bachelor's in OT**

This includes students entering with a bachelor's degree in Occupational Therapy, and licensed to practice as occupational therapists. Students entering at this level will complete 15 hours of foundational coursework, followed by 36 credits of PPOTD coursework, for a total of 51 credits, which will be offered entirely online. Students will have the ability to customize their educational plans to meet their unique academic and professional goals. Since they are already practicing occupational therapists, they will not be required to complete fieldwork experiences. However, they will have the opportunity to select unique combinations of elective coursework and doctoral capstone experiences. Furthermore, because all post-professional coursework will be offered online, students may choose to complete their degree on a part-time enrollment basis.

**Post-Professional OTD with Bachelor's in OT Required Coursework**

OC_THR 5610	Theoretical Concepts of OT	3
OC_THR 5620	Evidence Based Practice in OT	3
OC_THR 5630	Community-Based OT Practice	3
OC_THR 5640	Overview of Current OT Practice	3
OC_THR 5650	Self-Directed OT Practicum	3
OC_THR 6010	Occupation Based Practice	3
OC_THR 6020	Population Health	3
OC_THR 6030	Professional Leadership & Development	3
OC_THR 6040	Advanced EBP	3
OC_THR 6110	Practice Analysis	3
OC_THR 6120	Instructional Design & App	3
OC_THR 6130	Capstone I - Project	3
OC_THR 6210	Capstone II - Experience	6
Elective #1		3
Elective #2		3
Elective #3		3

Coursework is subject to minor changes as the program makes occasional curricular revisions to reflect contemporary occupational therapy practice.

## Physical Therapy

K. Gibson, Chair  
 Department of Physical Therapy  
 School of Health Professions  
 801 Clark Hall  
 (573) 882-7103  
 Fax: (573) 884-8369  
<https://healthprofessions.missouri.edu/physical-therapy/>

Physical therapists (PTs) are health care professionals who diagnose and treat individuals of all ages, from newborns to the very oldest, who have medical problems or other health-related conditions that limit their abilities to move and perform functional activities in their daily lives.

PTs examine each individual and develop a plan using treatment techniques to promote the ability to move, reduce pain, restore function,

and prevent disability. In addition, PTs work with individuals to prevent the loss of mobility before it occurs by developing fitness- and wellness-oriented programs for healthier and more active lifestyles.

The University of Missouri offers a Doctor of Physical Therapy degree.

## Admissions

### Doctor of Physical Therapy Program, Regular Admissions

Most students admitted to the Doctor of Physical Therapy program will have a baccalaureate degree. Students who are interested in pursuing application to the Doctor of Physical Therapy program are encouraged to work on an undergraduate degree that will allow them to fulfill application requirements.

### Doctor of Physical Therapy Program, Early Admissions

Admission to the Doctor of Physical Therapy program may be available to a small group of students who have completed at least 90 credit hours, completed at least six full-time semesters of residential course work, all MU general education requirements and have shown excellent academic progress. Students who gain early admission to the Doctor of Physical Therapy program will be awarded the Bachelor of Health Science in pre-professional physical therapy upon completing one year of coursework in the physical therapy program.

## Faculty

- Emeritus Professor** M. Brown\*, M. A. Minor\*
- Teaching Professor** T. Briedwell\*, K. Gibson\*
- Clinical Professor** C. C. Abbott\*
- Associate Professor** E. A. Dannecker\*\*, T. M. Guess\*\*, S. P. Sayers\*\*
- Associate Teaching Professor** D.E. Martin\*, E. Probst\*, K. Stephens\*
- Associate Clinical Professor** M. S. Hargrove\*
- Assistant Professor** J. Craggs\*
- Assistant Teaching Professor** R. Bliss\*, C. Blow\*, J. Bridges\*, A. Campbell\*, J. Hall\*, B. Willis\*

\* Graduate Faculty Member - membership is required to teach graduate-level courses, chair master's thesis committees, and serve on doctoral examination and dissertation committees.  
 \*\* Doctoral Faculty Member - membership is required to chair doctoral examination or dissertation committees. Graduate faculty membership is a prerequisite for Doctoral faculty membership.

## Physical Therapy (DPT)

Physical Therapy Doctoral Degree Program (<https://healthprofessions.missouri.edu/physical-therapy-program/>)  
 School of Health Professions  
 801 Clark Hall  
 573-882-7103  
 573-884-8369 (fax)  
 MUSHPPT@missouri.edu

Students who enter the MU Physical Therapy program will complete a Doctor of Physical Therapy (DPT) degree program.

## Careers

The DPT degree is an entry-level clinical degree that prepares the student to enter the field of physical therapy as a general practitioner with a background in musculoskeletal, neuromuscular, cardiovascular/pulmonary and integumentary systems.

## Financial Aid from the Program

The Department of Physical Therapy recognizes the financial commitment of attending PT school and how financial decisions can influence your future. MU is an exceptional value and it's understandable that financing your PT education can be daunting. The Financial Aid Office (<https://financialaid.missouri.edu/>) offers support in the area of student finances including financial aid, financial literacy as well as individual financial counseling.

It is important for students to review their finances and consider the resources available to pay for their DPT degree. Mizzou DPT students finance their education through savings, scholarships, and student loans. Financial aid resources are allocated on the basis of academic merit and financial need.

Students may apply for scholarships at the end of their first and second year in the professional phase of the program. For PT scholarship information, download PT Scholarships: Application instructions (<https://healthprofessions.missouri.edu/physical-therapy-program/wp-content/uploads/sites/3/2016/06/Department-of-Physical-Therapy-Scholarships.docx>).

## Curriculum

### Degree Requirements

All students admitted must maintain a 3.0 grade point average with no grade below C (2.0) in courses required for the degree. Failure to achieve a semester or professional cumulative grade point average of 3.0 in required courses will result in probation or dismissal from the program. Students are expected to maintain full-time enrollment in the curriculum and complete the degree requirements as outlined in the course of study. Any exception must be approved by departmental faculty. Students must demonstrate the personal behaviors and characteristics associated with optimal patient welfare and professional trust.

PH_THR 5110	Fundamentals of Physical Therapy	1
PH_THR 5210	Applied Neurophysiology for Allied Health Students	3
PH_THR 5220	Biophysical Agents	3
PH_THR 5230	Clinical Evaluation and Procedures	4
PH_THR 5240	Foundations of Therapeutic Exercise	3
PH_THR 5250	Human Kinesiology	3
PH_THR 5260	Introduction to Clinical Education and PhysZOU I	1
PH_THR 5310	Applied Therapeutic Exercise	3
PH_THR 5320	Clinical Kinesiology	3
PH_THR 5330	Clinical Pathophysiology	3
PH_THR 5340	Introduction to Clinical Education and PhysZOU II	1
PH_THR 5350	Introduction to Orthopedic Physical Therapy with Laboratory	3
PH_THR 5360	Pharmacology in Rehabilitation	2
PH_THR 6010	Problems in Physical Therapy	1-3

PH_THR 6410	Clinical Education I	5
PH_THR 6510	Differential Diagnosis in Physical Therapy	3
PH_THR 6520	Evidence-Based Practice	3
PH_THR 6530	Orthopedic Physical Therapy	3
PH_THR 6540	Pediatric Physical Therapy	4
PH_THR 6550	PhysZOU III	0.5
PH_THR 6560	Rehabilitation of the Neurologically Impaired Adult	4
PH_THR 6620	Case Management: Acute and Chronic Medical and Surgical Conditions	5
PH_THR 6630	Clinical Education II	7
PH_THR 6640	Diagnostic Imaging in Rehabilitation	3
PH_THR 6650	PHYSZOU IV	0.5
PH_THR 6660	Psychosocial Issues for Health Promotion	2
PH_THR 6610	Assessment and Neuropsychology of Pain	1
PH_THR 6710	Case Management: Neurological Impairments Across the Lifespan	5
PH_THR 6810	Case Management: Geriatrics and Orthopedics	5
PH_THR 6820	Clinical Education III	6
PH_THR 6830	Health Policy for Physical Therapy	2
PH_THR 6840	PhysZOU V	0.5
PH_THR 6850	Professional Issues	3
PH_THR 6910	Clinical Education IV	5
PH_THR 6920	PhysZOU VI And Professional Development Plan	0.5
PH_THR 6930	Seminar in Physical Therapy	4
PH_THR 6940	Special Skills in Physical Therapy	1
HTH_PF 5100	Intro to Interprofessional Practice	1
PTH_AS 7222	Gross Human Anatomy (The Health Professions)	7

### Plan of Study

The professional program is offered in sequential blocks and requires full-time enrollment for three academic years (including summer sessions), beginning in the summer session following acceptance. The curriculum contains foundational and clinical sciences combining traditional lectures and course work, laboratory sessions, problem-based learning classes and clinical education. More than 200 clinical sites in Missouri and beyond are available for supervised clinical education.

A graduate must pass the National Physical Therapy Examination to receive a license to practice in the United States. The program is accredited by the Commission on Accreditation in Physical Therapy Education (CAPTE). Graduates are eligible for licensure anywhere in the United States.

### \*DPT Sample Curriculum

\* Subject to Change

<b>Summer First year</b>		
PTH_AS 7222	Gross Human Anatomy (The Health Professions)	7
PH_THR 5110	Fundamentals of Physical Therapy	1
<b>Fall First year</b>		

PH_THR 5210	Applied Neurophysiology for Allied Health Students	3
PH_THR 5220	Biophysical Agents	3
PH_THR 5230	Clinical Evaluation and Procedures	4
PH_THR 5240	Foundations of Therapeutic Exercise	3
PH_THR 5250	Human Kinesiology	3
PH_THR 5260	Introduction to Clinical Education and PhysZOU I	1
<b>Spring First year</b>		
PH_THR 5310	Applied Therapeutic Exercise	3
PH_THR 5320	Clinical Kinesiology	3
PH_THR 5330	Clinical Pathophysiology	3
PH_THR 5340	Introduction to Clinical Education and PhysZOU II	1
PH_THR 5350	Introduction to Orthopedic Physical Therapy with Laboratory	3
PH_THR 5360	Pharmacology in Rehabilitation	2
<b>Summer Second Year</b>		
PH_THR 6410	Clinical Education I	5
<b>Fall Second Year</b>		
PH_THR 6510	Differential Diagnosis in Physical Therapy	3
PH_THR 6520	Evidence-Based Practice	3
PH_THR 6530	Orthopedic Physical Therapy	3
PH_THR 6540	Pediatric Physical Therapy	4
PH_THR 6550	PhysZOU III	0.5
PH_THR 6560	Rehabilitation of the Neurologically Impaired Adult	4
<b>Spring Second Year</b>		
PH_THR 6620	Case Management: Acute and Chronic Medical and Surgical Conditions	5
PH_THR 6630	Clinical Education II	7
PH_THR 6640	Diagnostic Imaging in Rehabilitation	3
PH_THR 6650	PHYSZOU IV	0.5
PH_THR 6660	Psychosocial Issues for Health Promotion	2
<b>Summer Third Year</b>		
PH_THR 6610	Assessment and Neuropsychology of Pain	1
PH_THR 6710	Case Management: Neurological Impairments Across the Lifespan	5
<b>Fall Third Year</b>		
PH_THR 6810	Case Management: Geriatrics and Orthopedics	5
PH_THR 6820	Clinical Education III	6
PH_THR 6830	Health Policy for Physical Therapy	2
PH_THR 6840	PhysZOU V	0.5
PH_THR 6850	Professional Issues	3
<b>Spring Third Year</b>		
PH_THR 6910	Clinical Education IV	5
PH_THR 6920	PhysZOU VI And Professional Development Plan	0.5
PH_THR 6930	Seminar in Physical Therapy	4
PH_THR 6940	Special Skills in Physical Therapy	1
Total Credits		113

## Application and Admission Information

All applicants will apply to the Graduate School online admission process. Graduate School applications must be submitted and complete by September 30th.

The departmental application will be completed during the on-line admission process.

Students who are admitted without a degree will receive a bachelor's degree upon completion of the first year of the program.

## Admission Criteria

- Minimum TOEFL scores:

Internet-based test (iBT) Area	iBT Score	Paper-based test (PBT) Area	PBT Score
Reading	17	Reading	52
Listening	17	Listening	52
Speaking	17	Speaking	N/A
Writing	17	Writing	17
TOTAL	80	TOTAL	550

- Minimum IELTS scores:

Item	Score
Reading	6
Listening	6
Speaking	6
Writing	6
Total Score	6.5

- Minimum GPA: 3.0

## Required Application Materials

*To Graduate School:*

- All required Graduate School documents/application fee
- Departmental application/application fee
- 2 letters of recommendation as specified by the application instructions
- Activities and Awards Questionnaire as specified by the application instructions
- Distinct Experiences and Attributes Essay (see application instructions)
- Unofficial transcripts (year of application, summer grades must be recorded on transcript)
- GRE scores must be sent to MU, Institution Code R6875

## Admission Contact Information

Beverly Denbigh  
 School of Health Professions  
 801 Clark Hall  
 573-882-7103 or 7250  
 573-884-8369 (Fax)

## Prerequisites for the Doctoral Degree

**Note:** The DPT program accepts students to begin the professional program only for summer terms, which begin in June.

Admission to the DPT program is available through regular admission (applicants will have a bachelor's degree prior to beginning the professional program) or through an early admission option that allows students to enter the professional program with 90 credit hours.

Regular admission applicants must have at least a 3.0 GPA in the core required courses (<https://healthprofessions.missouri.edu/physical-therapy-program/wp-content/uploads/sites/3/2018/03/2018professional-numbers.pdf>) and the cumulative GPA in the last 60+ credit hours.

Students who enter without a bachelor's degree must have satisfied general education and graduation requirements, including two Writing Intensive courses. These applicants must have at least a 3.5 cumulative GPA at the time of application.

On-campus interviews are required for admission to the professional program.

Applicants are notified of the selection committee's decision by December.

All students are strongly encouraged to contact the School of Health Professions Office of Student Services for advisement and planning well in advance of application.

Admission to the program is selective.

## College of Veterinary Medicine

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The college was established in 1946. It offers a four-year professional program leading to the Doctor of Veterinary Medicine (DVM) degree. Applicants (<http://cvm.missouri.edu/prospective-students/>) generally have a B.S. or B.A. degree but can be admitted after completing prerequisite course requirements

The Pre-Veterinary Medical Scholars and AgScholars programs (<http://cvm.missouri.edu/prospective-students/early-acceptance-programs/>) provide early assurance of admission to the MU College of Veterinary Medicine upon satisfactory completion of undergraduate and program requirements. Students work with advisers in the college, and they observe veterinarians at work as part of the program. Students with a minimum ACT score of 30 or an equivalent SAT score are eligible to apply for the Pre-Vet Scholars Program. The required minimum ACT score for the AgScholars Program is 27 and applicants must have demonstrated experience in livestock production and health. Once at Mizzou, scholars must meet program minimum standards, including maintaining a 3.5 cumulative GPA. For more information, call the College of Veterinary Medicine at 573-884-3341.

In addition to the professional program, the college's Department of Veterinary Pathobiology offers a bachelor of science degree in microbiology (<http://vpbio.missouri.edu/undergraduate-studies/>). This program provides students with a thorough and challenging curriculum designed to prepare graduates for a multitude of careers, including entry-level positions in research, clinical and pharmaceutical laboratories, graduate studies in microbiology and other scientific fields, and admission to schools of health professions.

Online biomedical science courses (<http://biomedonline.missouri.edu/online-programs-for-graduate-veterinary-technicians-in-veterinary-biomedical-technology/>) available to undergraduate and graduate students through the College of Veterinary Medicine are listed in this catalog. These can be used to fulfill the requirements of a Certificate in Biomedical Science, for a licensed veterinary technician to complete a baccalaureate degree or to earn a master's degree in biomedical sciences.

The college also provides diagnostic and patient care services for animals. The CVM has a national reputation for excellent student-to-instructor ratio and state-of-the-art facilities. The college also offers post-graduate training to interns, residents in various specialties (<http://www.vms.missouri.edu>) and graduate students (<http://cvmresearch.missouri.edu/>).

For more information about the College of Veterinary Medicine, call (573) 882-3768, or visit <http://cvm.missouri.edu> (<http://cvm.missouri.edu/>)

### Faculty

Department of Biomedical Sciences: <http://biomed.missouri.edu/faculty-and-staff/>

Department of Veterinary Medicine and Surgery: <http://www.vms.missouri.edu/faculty.html>

Department of Veterinary Pathobiology: <http://vpbio.missouri.edu/faculty.html>

### Academic Policies

Below is a listing of policies that apply only to students admitted to the College of Veterinary Medicine. The full CVM student handbook can

be found at: <http://www.cvm.missouri.edu/current-students/student-handbook/> (<http://cvm.missouri.edu/current-students/student-handbook/>)

CVM students must also abide by the University's Academic Polices that apply to all students.

The policies and procedures of the MU College of Veterinary Medicine are revised on a regular basis. Provisions regarding such policies and procedures contained on our website are subject to change without notice. If you have questions or note errors or omissions, please contact the College. All statements concerning requirements, prerequisites, conditions or other matters are for informational purposes only, and are subject to change without notice. They are not to be regarded as offers to contract.

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## DVM in Veterinary Medicine

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### Overview

The DVM degree is achieved after a four-year course of study. Applicants generally have a B.S. or B.A. degree but can be admitted after completing prerequisite course requirements. <http://cvm.missouri.edu/prospective-students/>

At the University of Missouri, the first two years are largely spent in classrooms and laboratories with the second two years devoted primarily to clinical study in the Veterinary Health Center.

The curriculum at the MU College of Veterinary Medicine is designed to provide students with the knowledge and technical skills necessary to be competent entry level veterinarians. We prepare our students for general veterinary practice, for entry into graduate or specialty training programs and with the background necessary for careers in regulatory medicine.

In the first two years, all students follow the same schedule, and courses must be successfully completed in sequence. In the final two years of the professional program, the student must successfully complete the required and elective clinical rotations to fulfill graduation requirements.

To receive the DVM degree, students must pass all courses. In addition to passing examinations, attendance and participation in all lectures, laboratories and clinical exercises is required. The doctor or veterinary medicine degree is awarded after successful completion of the professional program.

## Curriculum

### Objectives and Summary of the Professional Curriculum

The primary objective of the CVM curriculum is to provide students with the knowledge and technical skills necessary to be competent entry level veterinarians. We prepare our students for general veterinary practice, for entry into graduate or specialty training programs, or for careers in regulatory medicine. The overall objective of the first two years of the curriculum is to provide students with a solid foundation in basic biomedical sciences. The courses in the preclinical professional curriculum include anatomy, physiology, cell and molecular biology, pathology, pharmacology, microbiology, virology, and toxicology. The fundamentals of the clinical disciplines are also taught during this time and include anesthesiology, clinical pathology, radiology, public health, medicine and surgery.

The organizational scheme of the professional curriculum differs from that of other schools in that the first two academic years are divided into eight-week instructional periods and our academic year runs from August through June. The students have a summer break between the first and second years and second and third years of instruction that is approximately seven weeks in duration. The overall objective of the clinical curriculum is to solidify basic knowledge and practice clinical skills in the Veterinary Health Center, VMDL, and external preceptorships. This portion of the curriculum is organized into 12 clinical blocks that begin in October of the third year of professional instruction. These clinical blocks are six to eight weeks in duration and may be divided into 1, 2, or 3 clinical courses. The required clinical rotations are listed below and organized by duration:

### Required Clinical Rotations

**Full Block Rotations:** Food Animal Medicine and Surgery; Equine Medicine and Surgery; Small Animal Community Practice and Shelter Medicine; Diagnostic Pathology and Special Species Medicine.

**Third Block Rotations:** Theriogenology; Ophthalmology; Small Animal Internal Medicine; Small Animal Emergency and Critical Care; Oncology; Soft Tissue Surgery; Orthopedic Surgery; Neurology and Neurosurgery

**Half Block Rotations:** Clinical Radiology; Clinical Anesthesia

Note that students are required to complete four credit hours (four weeks) of external evaluated preceptorships as part of the required curriculum. Students also select 10 credit hours of elective rotations (cardiology, nutrition, production medicine, special imaging, etc.). In addition to required and elective blocks, students are allotted two blocks as 'free time.' Most students utilize their free time to study for licensing examinations, complete preceptorships at practices, or interview with prospective employers. A total of 154.5 semester credit hours are required for graduation. Most students accumulate a higher number of credit hours as a result of enrollments in extra didactic or clinical elective courses.

#### VM-1 Required Courses (Instructional Periods 1-4)

Instructional Periods 1 and 2; August - December		
V_BSCI 5500	Veterinary Anatomy with Laboratory	4
V_BSCI 5502	Veterinary Microscopic Anatomy with Laboratory	3
V_BSCI 5504	Veterinary Physiology	5
V_BSCI 5506	Veterinary Molecular and Cellular Biology	4

V_BSCI 5100	Veterinary Neuroscience	2
<b>Instructional Period 3; January - February</b>		
V_BSCI 5011	Veterinary Anatomy	3
V_BSCI 5020	Developmental Anatomy	0.5
V_BSCI 5503	Veterinary Microscopic Anatomy	2
V_BSCI 5051	Veterinary Gastrointestinal	2
V_M_S 6005	Clinical Skills	0.5
V_M_S 6140	Nutrition with Laboratory	1.5
<b>Instructional Period 4; March - April</b>		
V_BSCI 5012	Veterinary Anatomy with Laboratory	3
V_BSCI 5021	Developmental Anatomy	0.5
V_BSCI 5052	Veterinary Endocrinology and Reproductive Physiology	2
V_PBIO 5511	Veterinary Immunology	1.5
V_PBIO 5555	Epidemiology and Biostatistics with Laboratory	2
V_M_S 6006	Clinical Skills	0.5
<b>VM-2 Required Courses (Instructional Periods 5-9)</b>		
<b>Instructional Period 5; May - June</b>		
V_PBIO 5512	Veterinary Immunology	1.5
V_PBIO 5552	Veterinary Bacteriology with Laboratory	3
V_PBIO 5575	Veterinary Pathology with Laboratory	3
V_PBIO 5579	Veterinary Genomics	1
<b>Instructional Period 6; August - October</b>		
V_PBIO 5553	Veterinary Bacteriology II	2.5
V_PBIO 5554	Veterinary Virology	2.5
V_PBIO 5557	Veterinary Parasitology with Laboratory	3
V_PBIO 5576	Veterinary Systemic and Special Pathology with Laboratories	3
<b>Instructional Period 7; October - December</b>		
V_BSCI 5507	Veterinary Pharmacology with Laboratory	3
V_PBIO 5558	Veterinary Public Health	2
V_PBIO 5577	Veterinary Systemic and Special Pathology II with	3
V_PBIO 5601	Animals in Emergencies & Basic Emergency Response Training for Vet Students	1
V_M_S 6130	Fundamentals of Veterinary Business Management	1
<b>Instructional Period 8; January - February</b>		
V_BSCI 5508	Veterinary Pharmacology	2
V_PBIO 5578	Veterinary Clinical Pathology with Laboratory	3
V_PBIO 6010	Laboratory Animal Medicine	1.5
V_M_S 6020	Veterinary Radiology with Laboratory	2
<b>Instructional Period 9; March - April</b>		
V_BSCI 5509	Veterinary Toxicology	3
V_M_S 6030	Veterinary Anesthesiology with Laboratory	2
V_M_S 6040	Companion Animal Medicine with Laboratory	4
V_M_S 6060	Small Animal Surgery with Laboratory	2
<b>VM-3 Courses (Instructional Periods 10-11)</b>		
<b>Instructional Period 10; May - June Required Courses</b>		
V_M_S 6050	Small Animal Medicine	2.5
V_M_S 6071	Small Animal Surgery	2
V_M_S 6073	Fundamental Surgery Laboratory	1

V_M_S 6081	Food Animal Medicine and Surgery	2.5
V_M_S 6151	Equine Medicine and Surgery	2
<b>Instructional Period 10; May - June Electives</b>		
V_M_S 6072	Optional Surgery and Anesthesia Laboratory	1
<b>Instructional Period 11; August - October</b>		
V_M_S 6082	Food Animal Medicine and Surgery	2
V_M_S 6090	Small Animal Emergency and Critical Care with Laboratory	1
V_M_S 6110	Theriogenology	3
V_M_S 6120	Veterinary Ophthalmology	1
V_M_S 6152	Equine Medicine and Surgery	1.5
<b>Instructional Period 11; August - October Elective Courses</b>		
V_PBIO 5991	Introduction to Avian Medicine	1
V_M_S 6986	Advanced Clinical Neurology and Neurosurgery	1
V_M_S 6987	Problem-Based Learning Clinic Preparation	1
V_M_S 6988	Small Animal Clinical Nutrition	1
V_M_S 6989	Advanced Oncology of Animals	1
V_M_S 6990	Zoological Medicine	2
V_M_S 6991	Advanced Equine Lameness with Laboratory	1
V_M_S 6993	Advanced Veterinary Anesthesia	1
V_M_S 6994	Advanced Techniques in Small Animal Surgery with Laboratory	1
V_M_S 6995	Clinical Cardiology	1
V_M_S 6996	Advanced Dermatology	1
V_M_S 6997	Food Animal Diagnostic Exercises	1
V_M_S 6998	Small Animal Behavioral Medicine	1
V_M_S 6999	Food Animal Surgery Laboratory	1
<b>VM-3 and VM-4 Required Clinical Rotations (October - Graduation)</b>		
V_M_S 6010	Evaluated Veterinary Preceptorship	2-12
V_M_S 6400	Food Animal Medicine and Surgery I	6
V_M_S 6411	Small Animal Internal Medicine	2
V_M_S 6412	Small Animal Community Practice	6
V_M_S 6420	Equine Medicine and Surgery I	6
V_M_S 6432	Small Animal Soft Tissue Surgery	2
V_M_S 6434	Small Animal Orthopedic Surgery	2
V_M_S 6436	Veterinary Neurology/Neurosurgery	2
V_M_S 6441	Clinical Radiology I	3
V_M_S 6442	Clinical Anesthesiology I	3
V_M_S 6450	Theriogenology I	2
V_M_S 6460	Clinical Ophthalmology I	2
V_M_S 6490	Small Animal Specialty Medicine I	2
V_M_S 6820	Small Animal Emergency and Critical Care	2
V_PBIO 6647	Diagnostic Pathology and Special Species Medicine	8
<b>Elective Clinical Rotations</b>		
V_M_S 6700	Food Animal Medicine and Surgery II Elective	2-6
V_M_S 6710	Small Animal Medicine II Elective	2-6
V_M_S 6711	Small Animal Internal Medicine Elective Clinical or Research Rotation	2

V_M_S 6712	Private Practice Small Animal Internal Medicine Elective	2
V_M_S 6720	Equine Medicine and Surgery II Elective	2-6
V_M_S 6732	Small Animal Soft Tissue Surgery II Elective	2
V_M_S 6734	Small Animal Orthopedic Surgery II Elective	2
V_M_S 6736	Veterinary Neurology/ Neurosurgery- Elective	2
V_M_S 6741	Clinical Radiology II Elective	2-6
V_M_S 6742	Clinical Anesthesiology II Elective	2-6
V_M_S 6743	Radiology - Special Imaging Elective	2-3
V_M_S 6750	Theriogenology II Elective	2-6
V_M_S 6751	External Food Animal Service and Theriogenology Teaching Program	2-6
V_M_S 6760	Small Animal Nutrition	2
V_M_S 6800	Clinical Ophthalmology II Elective	2-6
V_M_S 6810	Cardiology II Elective	2
V_M_S 6821	Small Animal Emergency Critical Care Elective	2
V_M_S 6830	Food Animal Production Medicine	6
V_M_S 6850	Clinical Oncology	2-6
V_PBIO 6676	Laboratory Animal Medicine and Management Elective	4-6
V_PBIO 6678	Epidemiology and Community Health	2-6
V_PBIO 6679	Diagnostic Pathology and Special Species Medicine	2-6
V_PBIO 6684	Research Techniques in Veterinary Pathobiology	2-6

## Preceptorships

Missouri students are encouraged to use free blocks for preceptorships to increase exposure to veterinary practice and to meet the requirements of the Missouri Veterinary Medical Practice Act. The University of Missouri College of Veterinary Medicine does not have the authority to approve the use of student free block time or the veterinarians with whom they gain experience.

Available preceptorships may be found by contacting the Office for Student Affairs.

Preceptorship requirements and forms required by the Missouri State Veterinary Medical Board can be found at their website: <http://pr.mo.gov/veterinarian.asp>

The level of supervision required by preceptors is detailed at: <http://pr.mo.gov/boards/veterinary/VetSupervisionChart.pdf>

The Missouri State Veterinary Medical Board preceptorship form may be found at: <http://pr.mo.gov/veterinarian-application-forms.asp>

## Licensing Examination

### Professional Licensing Information

In addition successfully completing a professional veterinary education, most states require state and national licensing examinations to meet requirements to practice. Please visit the International Council for Veterinary Assessment (ICVA) and the American Association of Veterinary State Boards (AAVSB (<http://www.aavsb.org/>)) websites for further information.



# Program Updates Since Publication in May

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This page is used to display programs that have been approved or deleted/inactivated after publication of the University Catalog. This includes degrees, emphasis areas, certificates and minors.

**New Programs:**

As of this time, there are no newly approved programs since the initial publication of the 2020-21 catalog.

**Discontinued Programs:**

As of this time, there are no newly deleted or inactivated programs since the initial publication of the 2020-21 catalog.

**Programs with Title changes (new title shown below):**

As of this time, there are no newly changed program titles since the initial publication of the 2020-21 catalog.



## About MU

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### Our mission

As the only state-supported member of the Association of American Universities, Mizzou provides Missourians the benefits of a world-class education. MU's unique physical infrastructure and scholarly environment stimulate teaching, research, service and economic development on behalf of all citizens. Students work side by side with some of the world's best faculty to advance arts, humanities, sciences and professions. Scholarship and teaching are driven by a sense of public service and an obligation to produce and disseminate knowledge that improves the quality of life in the state, the nation and the world.

### Mizzou, Missouri's Flagship University

We are a diverse group of students, faculty and staff who value the excitement and learning that come from interaction among people with richly different backgrounds and ideas.

We challenge talented undergraduates to stretch their minds and imaginations with the unique strengths of a major research university. Our students take advantage of various experiences in classrooms, residence hall learning communities, collaborative research opportunities and creative projects with faculty.

We develop the world leaders of tomorrow through rigorous graduate and professional programs across a broad range of disciplines.

We improve the quality of MU through a financial model that supplements taxpayer support with rational tuition and student aid, public-private partnerships and aggressive fundraising. Our responsible fiscal planning assures both excellence and access for all well-prepared students, regardless of socioeconomic status.

We live and work in a community of scholars. We treasure our core values of respect, responsibility, discovery and excellence.

As a 21st century land-grant university, we are an economic engine for Missouri. We generate businesses and jobs by creating and disseminating the knowledge that fuels the new economy.

We use our intellectual resources to improve the civic, economic and educational well-being of Missourians from all walks of life and all corners of the state. We are committed to improving the quality of life of students and their families and communities through the creative and performing arts and the application of new knowledge.

### Accreditation

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The University of Missouri is accredited by the Higher Learning Commission. Various schools, colleges and departments are also accredited by their respective professional associations and accrediting agencies.

#### Agriculture Food & Natural Resources

Council on Accreditation Parks Recreation & Tourism (CoAPRT)

Institute for Food Technologists (IFT) Higher Education Review Board

Missouri Department of Elementary & Secondary Education (MDESE)

Society for American Foresters' Accreditation/Forestry

#### Arts & Science

American Chemical Society/Chemistry

American Psychological Association/Clinical Psychology Training Program

National Association of Schools of Music/Music

National Association of Schools of Public Affairs and Administration

United States Geospatial Intelligence Foundation

#### Trulaske College of Business

Association to Advance Collegiate Schools of Business (AACSB) International

#### Education

American Library Association/MA

American Psychological Association (Counseling Psychology)

American Psychological Association Accreditation/School Psychology

American Psychological Association Accreditation/Counseling Program

Missouri Department of Elementary & Secondary Education (MDESE)

Teacher Education Accreditation Council (TEAC)

#### Engineering

ABET - Computing Accreditation Commission of ABET

ABET - Engineering Accreditation Commission of ABET

Commission on the Accreditation of Medical Physics Education Programs - NSEI

#### Health Professions

Accreditation Council for Occupational Therapy (ACOTE)/OT

Commission on Accreditation of Allied Health Education Programs (CAAHEP)/Diagnostic Med Sonography

Commission on Accreditation of Athletic Training Education (CAATE)

Commission on Accreditation in Physical Therapy Education/PT

Commission on Accreditation for Respiratory Care (CoARC)

Council on Academic Accreditation/Audiology & Speech Lang Pathology (CAA)

Council on Education for Public Health

Joint Review Committee on Education in Radiologic Technology (JRCERT)

Joint Review Committee on Educational Programs in Nuclear Medicine Technology (JRCNMT)

National Accrediting Agency for Clinical Laboratory Sciences through University of Nebraska Medical Center

#### Human Environmental Sciences

Accreditation Council for Education in Nutrition & Dietetics (ACEND)

Commission on Accreditation (COA) (Social Work)

Council for Interior Design Accreditation (CIDA) /Architectural Studies

Council on Social Work Education/Social Work

#### Journalism

Accrediting Council on Education in Journalism & Mass Communications

## Law School

American Bar Association

## Nursing

Commission on Collegiate Nursing Education (CCNE)

## Medicine

Accreditation Council for Continuing Medical Education

Accreditation Council for Graduate Medical Education

Commission on Accreditation of Healthcare Management Education

Liaison Committee on Medical Education -Association of American Medical Colleges

## Veterinary School

American Veterinary Medical Association

# Important Facts

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## History

Founded in 1839, the University of Missouri was established in Columbia as the first public university west of the Mississippi River and the first in Thomas Jefferson's Louisiana Purchase territory. In 1870, the University of Missouri was approved as a land-grant university under the Morrill Act of 1862. The original mission of land-grant institutions was to make higher education accessible to more people. Gradually, that mission has expanded to include research, service and outreach enabling the state's citizens to benefit directly from the knowledge gained through university research. As Missouri's flagship university, MU continues its historic mission through its emphasis on excellence in teaching, research, service and economic development.

## Students

- Students come from all 50 states and more than 100 countries. The diversity of backgrounds, opinions and lifestyles improves the overall quality of the student experience.
- The university has more than 30,000 undergraduate students who choose courses from a broad range of academic disciplines.
- The university also has more than 5,000 graduate and professional students enrolled in more than 150 different degree programs. The professional schools include more than 1,400 students in law, medicine and veterinary medicine.
- MU is nationally recognized for its Freshman Interest Groups, in which students with shared academic interests live in the same residence hall and attend classes together. These communities provide a strong academic and social foundation for freshmen, as well as increased faculty involvement with students.

## The Campus

- The University of Missouri prides itself on respecting the past while embracing the future. The 1,262-acre Mizzou campus is a testament to that belief, including the six Ionic Columns adorning Francis Quadrangle, the Memorial Union Tower honoring fallen soldiers and the MU Student Center completed in 2010.
- The campus is also a living museum with hundreds of plant species from all over the world that make up the Mizzou Botanic Garden. The garden features more than 42,000 plants and invites a stroll

through more than 170 years of history as MU was transformed into the global university it is today. National magazines and newspapers consistently rank Columbia among the top cities in the nation for its excellent quality of life.

## Alumni

With more than 340,000 living alumni, Mizzou's influence spans the globe. Notable graduates include Grammy Award-winning musician Sheryl Crow, Academy Award-winning actor Chris Cooper, Emmy Award-winning actor Jon Hamm, Peabody Award-winning journalist Jim Lehrer and Cy Young Award-winning pitcher Max Scherzer. Mizzou alumni succeed after graduation: 92.7 percent of MU graduates find successful career outcomes including employment, continued education and military service.

## University of Missouri Board of Curators

Julia G. Brncic, St. Louis  
Darryl M. Chatman, St. Louis  
Maurice B. Graham, Clayton  
Greg E. Hoberock, Washington  
Jeffrey L. Layman, Springfield  
Phillip H. Snowden, Kansas City  
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Marsha Fisher, Associate Vice President and Chief Human Resources Officer  
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Christine Holt & Marsha Fischer, Interim Chief Diversity Officer and Interim Chief Equal Opportunity Officer  
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Ryan Rapp, Vice President for Finance, Human Resources and Chief Financial Officer  
Steve Graham, Senior Associate Vice President for Academic Affairs  
Stephen J. Owens, General Counsel  
Christine Holt, Chief of Staff

## Leadership of the University of Missouri

Mun Y. Choi, Interim Chancellor  
Mark McIntosh, UM Vice President and MU Vice Chancellor for Research, Graduate Studies and Economic Development  
Tom Hiles, Vice Chancellor for Advancement  
NaTashua Davis, Interim Vice Chancellor for Division of Inclusion, Diversity & Equity, Executive Director of Access and Leadership Development  
Rhonda Gibler, Vice Chancellor for Finance and Chief Financial Officer  
Gary Ward, Vice Chancellor for Operations  
William Stackman, Vice Provost for Student Affairs  
Jeni Hart, Vice Provost for Graduate Studies, Dean of Graduate School  
Patty Haberberger, Vice Chancellor of Human Resource Services  
Todd McCubbin, Associate Vice Chancellor of Alumni Relations and Director, Mizzou Alumni Association

Jeri Doty, Interim Executive Director of Strategic Communications and Marketing  
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Jim Sterk, Director of Intercollegiate Athletics  
Christopher R. Daubert, Vice Chancellor for Agriculture and Dean, College of Agriculture, Food and Natural Resources  
Pat Okker, Dean, College of Arts and Science  
Ajay Vinzé, Dean, Trulaske College of Business  
Kathryn Chval, Dean, College of Education  
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Kristofer Hagglund, Dean, School of Health Professions  
Sandy Rikoon, Dean, College of Human Environmental Sciences  
David Kurpius, Dean, School of Journalism  
Lyrisa Lidsky, Dean, School of Law  
Steven Zweig, Dean, School of Medicine  
Sarah Thompson, Dean, Sinclair School of Nursing  
Carolyn Henry, Dean, College of Veterinary Medicine  
Deb Ward, Interim Vice Provost for Libraries  
Clark Peters, Chair, Faculty Council  
Hannah Clampitt, Chair, Staff Advisory Council  
Julia Wopata, President, Missouri Students Association  
Alek Willsey, President, Graduate Professional Council  
Andrea Allison-Putman, President, Mizzou Alumni Association

## Notifications

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All statements in this catalog are announcements of present policies only, and are subject to change without notice. They are not to be regarded as offers to contract. If you have questions or note errors or omissions, please contact the Office of the University Registrar (<http://registrar.missouri.edu>). Below is additional information for items on which the University is required to make available.

## Accommodations for Students with Disabilities

The University of Missouri complies with the American with Disabilities Act and other applicable laws and regulations. If you have a disability and need accommodations, please contact Disability Services, S5 Memorial Union, Voice (573) 882-4696, TTY (573) 882-8054, or e-mail [disabilityservices@missouri.edu](mailto:disabilityservices@missouri.edu) as soon as possible so that appropriate arrangements can be made. For more information please visit the website at <http://disabilityservices.missouri.edu>. If you need this information in an alternative format (Braille, large print, or digital format), Disability Services can provide assistance.

## Complaint Resolution

The University of Missouri desires to resolve student grievances, complaints and concerns in an efficient, fair and amicable manner. For details on procedures to file a complaint, please refer to the section on Complaint Resolution at <http://financialaid.missouri.edu/consumer-information-disclosures/index.php> (<http://financialaid.missouri.edu/consumer-information-disclosures/>).

## Equity in Athletics Disclosure Act

The University of Missouri complies with the Equity in Athletics Disclosure Act of 1994, Section 360B of Pub. L. 103-382. This act and accompanying federal regulations require that certain information with regard to intercollegiate athletics, including operation expenses, revenue, salaries and participation rates, be made available to current and prospective students and the public. This report is available from the Department of Intercollegiate Athletics at (573) 882-6501.

## Family Education Rights and Privacy Act (FERPA)

The University of Missouri policies and procedures adhere to this federal law. Students have the right to restrict the release of directory information. Directory information for MU is defined as: a student's name, address, telephone listing, e-mail address, major field of study, student level, dates of attendance, degrees and awards received, enrollment status in any past and present semester (i.e. full/part-time), and the most recent previous educational agency or institution attended by the student.

To restrict this information, students should change their privacy settings in myZou or contact the Office of the University Registrar-Registration, 125 Jesse Hall. For the full policy, go to <http://registrar.missouri.edu/policies/ferpa.php>. (<http://registrar.missouri.edu/policies-procedures/ferpa.php>)

Note: University of Missouri students can grant other users direct authorized online access to their student information in myZou, which may include academic information (including, but not limited to grades), account information, directory information and financial aid. See <http://registrar.missouri.edu/registration-adddrop/additional-authorized-access.php> (<http://registrar.missouri.edu/parents/>) for more information.

The University does not release grades to parents unless the student specifically authorizes it in writing in the Office of the University Registrar or a parent shows proof that the student is a dependent as defined in Section 152 of the Internal Revenue Code of 1954. "Parent" means a parent of a student and includes a natural parent, a guardian, or an individual acting as a parent in the absence of a parent or guardian.

## Nondiscrimination

The University of Missouri does not discriminate on the basis of race, color, religion, sex, sexual orientation, national origin, age, disability, protected veterans. Any person having inquiries concerning the University of Missouri compliance with implementing Title VI of the Civil Rights Act of 1964, Title IV of the Education Amendments of 1972, Section 504 of the Rehabilitation Act of 1973, the Americans with Disabilities Act of 1990, or other civil rights laws should contact the Assistant Vice Chancellor, Human Resources Services, University of Missouri, 130 Heinkel Building, Columbia, MO 65211, (573) 882-4256, or the Assistant Secretary for Civil Rights, US Department of Education.

## Oak Ridge Associated Universities (ORAU) Consortium

Since 1981, students and faculty of the University of Missouri have benefited from its membership in Oak Ridge Associated Universities (ORAU). ORAU is a consortium of 96 colleges and universities and a contractor for the U.S. Department of Energy (DOE) located in Oak Ridge, Tennessee. ORAU works with its member institutions to help their students and faculty gain access to federal research facilities throughout the country; to keep its members informed about opportunities

for fellowship, scholarship, and research appointments; and to organize research alliances among its members.

Through the Oak Ridge Institute for Science and Education (ORISE), the DOE facility that ORAU operates, undergraduates, graduates, postgraduates, as well as faculty enjoy access to a multitude of opportunities for study and research. Students can participate in programs covering a wide variety of disciplines including business, earth sciences, epidemiology, engineering, physics, geological sciences, pharmacology, ocean sciences, biomedical sciences, nuclear chemistry, and mathematics. Appointment and program length range from one month to four years. Many of these programs are especially designed to increase the numbers of underrepresented minority students pursuing degrees in science- and engineering-related disciplines. A comprehensive listing of these programs and other opportunities, their disciplines, and details on locations and benefits can be found in the *ORISE Catalog of Education and Training Programs*, which is available at <https://www.orau.org/index.html> (<https://www.orau.org/>), or by calling either of the contacts below.

ORAU's Office of Partnership Development seeks opportunities for partnerships and alliances among ORAU's members, private industry, and major federal facilities. Activities include faculty development programs, such as the Ralph E. Powe Junior Faculty Enhancement Awards, the Visiting Industrial Scholars Program, consortium research funding initiatives, faculty research and support programs as well as services to chief research officers.

For more information about ORAU and its programs, contact:

Robert V. Duncan

Vice Chancellor for Research

ORAU Councilor for University of Missouri

Monnie E. Champion

ORAU Corporate Secretary (865-576-3306); or

Visit the ORAU Home Page (<http://www.orau.org>)

## State of Missouri Registration for Professional Engineers

The Revised Statutes of Missouri (Section 327.221) require that "all applicants for registration as a professional engineer in the State of Missouri after Jan. 1, 1977, be a graduate of and hold a degree in engineering in a curriculum accredited by the Accreditation Board for Engineering and Technology (ABET)." All MU undergraduate engineering bachelor's-level programs are so accredited. Applicants who receive advanced degrees in MU's engineering programs but who do not have a bachelor's degree in an accredited engineering program are not eligible for registration in Missouri. Candidates for a graduate degree (MS or PhD) in engineering who want to establish eligibility for registration should consult with their academic program chair about a plan of study that also will lead to a bachelor's degree in an ABET-accredited program. Further information about professional engineering registration may also be obtained from the Missouri Board for Architects, Professional Engineers and Land Surveyors, P.O. Box 184, Jefferson City, MO 65102.

## Veteran Access, Choice and Accountability Act of 2014, Section 702

The University is compliant with the requirements of PL 113-146 the Veteran Access, Choice and Accountability Act of 2014, Section 702. Section 702 targets educational assistance through ensuring in-state

tuition/in-district rates to uniformed services veterans and their qualified dependents covered under this Section.

These new requirements will ensure that our Nation's recently discharged Veterans, and their eligible family members, will not have to bear the cost of out-of-state charges while using their well-deserved education benefits.

The following individuals shall be charged the in-state/in-district rate, or otherwise considered a resident, for tuition purposes:

- A Veteran using educational assistance under either chapter 30 (Montgomery G.I. Bill – Active Duty Program) or chapter 33 (Post-9/11 G.I. Bill), of title 38, United States Code, who lives in the State of Missouri while attending a school located in the State of Missouri (regardless of his/her formal State of residence) and enrolls in the school within three years of discharge from a period of active duty service of 90 days or more.
- Anyone using transferred Post-9/11 GI Bill benefits (38 U.S.C. § 3319) who lives in the State of Missouri while attending a school located in the State of Missouri (regardless of his/her formal State of residence) and enrolls in the school within three years of the transferor's discharge from a period of active duty service of 90 days or more.
- A spouse or child using benefits under the Marine Gunnery Sergeant John David Fry Scholarship (38 U.S.C. § 3311(b)(9)) who lives in the State of Missouri while attending a school located in the State of Missouri (regardless of his/her formal State of residence) and enrolls in the school within three years of the Service member's death in the line of duty following a period of active duty service of 90 days or more.
- Anyone described above while he or she remains continuously enrolled (other than during regularly scheduled breaks between courses, semesters, or terms) at the same school. The person so described must have enrolled in the school prior to the expiration of the three year period following discharge or death described above and must be using educational benefits under either chapter 30 or chapter 33, of title 38, United States Code.

## Veterans Benefits and Transition Act of 2018, Section 103

In compliance with Section 103 of the Veterans Benefits and Transition Act of 2018, the University of Missouri will not impose any penalty, including the assessment of late fees, the denial of access to classes, libraries or other institutional facilities. Further, the University of Missouri will not require that a Chapter 31 or Chapter 33 recipient borrow additional funds to cover the individual's inability to meet his or her financial obligations due to the delayed disbursement of a payment by the U.S. Department of Veterans Affairs.

## A Statement of Values

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The University of Missouri, as the state's major land-grant university, honors the public trust placed in it and accepts the associated accountability to the people of Missouri for its stewardship of that trust. Our duty is to acquire, create, transmit, and preserve knowledge, and to promote understanding.

We the students, faculty, and staff of MU hold the following values to be the foundation of our identity as a community. We pledge ourselves to act, in the totality of our life together, in accord with these values.

## Respect

Respect for one's self and for others is the foundation of honor and the basis of integrity. A hallmark of our community is respect — for the process by which we seek truths and for those who engage in that process. Such respect is essential for nurturing the free and open discourse, exploration, and creative expression that characterize a university. Respect results in dedication to individual as well as collective expressions of truth and honesty. Respect is demonstrated by a commitment to act ethically, to welcome difference, and to engage in open exchange about both ideas and decisions.

## Responsibility

A sense of responsibility requires careful reflection on one's moral obligations. Being responsible imposes the duty on us and our university to make decisions by acknowledging the context and considering consequences, both intended and unintended, of any course of action. Being responsible requires us to be thoughtful stewards of resources — accountable to ourselves, each other, and the public we serve.

## Discovery

Learning requires trust in the process of discovery. Discovery often fractures existing world views and requires acceptance of uncertainty and ambiguity. Therefore, the university must support all its members in this lifelong process that is both challenging and rewarding. As we seek greater understanding and wisdom, we also recognize that knowledge itself has boundaries — what we know is not all that is.

## Excellence

We aspire to an excellence that is approached through diligent effort, both individual and collective. Pursuing excellence means being satisfied with no less than the highest goals we can envision. Pursuing excellence involves being informed by regional, national, and global standards, as well as our personal expectations. We recognize and accept the sacrifices, risks, and responsibilities involved in pursuing excellence, and so we celebrate each other's successes. We commit ourselves to this process in an ethical and moral manner.

These statements are mere words until we integrate them as values in our individual lives and reflect them in our institutional policies and practices. We pledge ourselves to make them effective in the very fabric of our lives, our community, and all our relationships with others, thereby enhancing the development of individuals and the well-being of society.

## Supporting Offices

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### Admissions - Undergraduate

phone: 573-882-7786  
fax: 573-882-7887  
email: AskMizzou@missouri.edu  
web: <http://admissions.missouri.edu>

### Admissions - Graduate

phone: 573-882-6311 or 1-800-877-6312  
fax: 573-884-5454  
email: gradadmin@missouri.edu  
web: <http://gradschool.missouri.edu/admissions/index.php> (<http://gradschool.missouri.edu/admissions/>)

### Admissions - Law

103 Hulston Hall  
Columbia, MO 65211-4300  
phone: 573-882-6042 or 1-888-MULAW4U  
fax: 573-882-9625  
email: [mulawadmissions@missouri.edu](mailto:mulawadmissions@missouri.edu)  
web: <http://law.missouri.edu/admissions/>

### Admissions - Medicine

MA215 Medical Sciences Building  
Columbia, MO 65212  
phone: 573-882-9219  
fax: 573-884-2988  
email: [MizzouMed@missouri.edu](mailto:MizzouMed@missouri.edu)  
web: <http://medicine.missouri.edu/admissions/>

### Admissions - Veterinary Medicine

W-203 Veterinary Medicine Building  
Columbia, MO 65211  
phone: 573-884-3341  
fax: 573-884-5044  
email: [VetAdmissions@missouri.edu](mailto:VetAdmissions@missouri.edu)  
web: <http://vetmed.missouri.edu/prospective.htm>

### Campus Writing Program (CWP)

Conley House, 602 Sanford Street  
Columbia, MO 65201  
phone: 573-882-4881  
email: [cwp@missouri.edu](mailto:cwp@missouri.edu)  
web: <http://cwp.missouri.edu>

### Career Services

**(Career Major Exploration, Student Employment and Job Search)**

Lower Level, Student Success Center on Lowry Mall  
Columbia, MO 65211  
phone: 573-882-6801 or (573) 882-JOBS  
fax: 573-882-5540  
email: [career@missouri.edu](mailto:career@missouri.edu)  
web: <http://career.missouri.edu/>

### Cashiers

phone: 573-882-3097  
fax: 573-882-4453  
e-mail: [4cash@missouri.edu](mailto:4cash@missouri.edu)  
web: <http://cashiers.missouri.edu/index.html> (<http://cashiers.missouri.edu/>)

### Center for Academic Success & Excellence

110 Student Success Center  
Columbia, MO 65211  
phone: 573-882-9208  
fax: 573-884-4353  
email: [muarsinfo@missouri.edu](mailto:muarsinfo@missouri.edu)  
web: <https://success.missouri.edu/>

## Counseling Center

119 Parker Hall  
Columbia, MO 65211  
phone: 573-882-6601  
web: <http://counseling.missouri.edu>

## Disability Center

S5 Memorial Union  
Columbia, MO 65211  
phone: 573-882-4696 or (VP) 573-234-6662  
fax: 573-884-5002  
email: [disabilityservices@missouri.edu](mailto:disabilityservices@missouri.edu)  
web: <http://disabilityservices.missouri.edu>

## Discovery Center (formerly Academic Exploration & Advising Services)

M110 Student Success Center  
Columbia, MO 65211  
phone: 573-884-9700  
email: [discoverycenter@missouri.edu](mailto:discoverycenter@missouri.edu)  
web: <http://discoverycenter.missouri.edu>

## Division of Information Technology

615 Locust St, Rm E100  
Columbia, MO 65211  
phone: 573-882-5000  
email: [helpdesk@missouri.edu](mailto:helpdesk@missouri.edu)  
web: <http://help.missouri.edu> (<https://cherwell.umssystem.edu/CherwellPortal/DoITPortal/>) (for IT help)  
web: <http://doit.missouri.edu> (for additional information)

## Financial Aid

Columbia, MO 65211  
phone: 573-882-7506 or 800-225-6075 (toll free in MO, KS, IL)  
fax: 573-884-5335  
email: [finaidinfo@missouri.edu](mailto:finaidinfo@missouri.edu)  
web: <http://financialaid.missouri.edu/>

## Intensive English Program and English Language Support Program

208 McReynolds Hall  
Columbia, MO 65211  
phone: 573-882-7523  
fax: 573-882-0360  
email: [iepmu@missouri.edu](mailto:iepmu@missouri.edu)  
web: <http://iep.missouri.edu>

## International Center

**(International Center, Study Abroad and International Student and Scholar Services)**

N52 Memorial Union  
Columbia, MO 65211  
phone: 573-882-6007  
email: [international@missouri.edu](mailto:international@missouri.edu) (International Center)  
web: <http://international.missouri.edu/> (International Center)  
email: [studyabroad@missouri.edu](mailto:studyabroad@missouri.edu) (Study Abroad)

web: <http://international.missouri.edu/studyabroad> (Study Abroad)  
email: [iss@missouri.edu](mailto:iss@missouri.edu) (International Student and Scholar Services)  
web: <http://international.missouri.edu/iss> (International Student and Scholar Services)

## Learning Center

Student Success Center- 1st level  
phone: 573-882-2493  
e-mail: [learningcenter@missouri.edu](mailto:learningcenter@missouri.edu)  
web: <https://success.missouri.edu/>

## Libraries

104 Ellis Library  
Columbia, MO 65201  
phone: 573-882-4701  
email: [ellisref@missouri.edu](mailto:ellisref@missouri.edu)  
web: <http://mulibraries.missouri.edu>

## Mizzou Online

136 Clark Hall  
Columbia, MO 65211  
phone: 573-882-2491 or 1-800-609-3727  
fax: 573-882-5071  
email: [MizzouOnline@missouri.edu](mailto:MizzouOnline@missouri.edu)  
web: <http://online.missouri.edu>

## Office of the University Registrar

125 Jesse Hall  
Columbia, MO 65211  
phone: 573-882-7881  
Fax: 573-884-8382  
email: [umcunivregistrarwr@missouri.edu](mailto:umcunivregistrarwr@missouri.edu)  
web: <http://registrar.missouri.edu>

## Student Health Center

1020 Hitt St, 4th Floor  
Columbia, MO 65201  
phone: 573-882-7481  
fax: 573-882-5370  
email: [mizzoustudenthealth@missouri.edu](mailto:mizzoustudenthealth@missouri.edu) (non-medical questions)  
email: [immunizations@health.missouri.edu](mailto:immunizations@health.missouri.edu) (immunization questions)  
web: <https://studenthealth.missouri.edu/>

## Student Success Center

909 Lowry Mall  
Columbia, MO 65211  
phone: 573-882-6803  
fax: 573-884-9625  
email: [success@missouri.edu](mailto:success@missouri.edu)  
web: <http://success.missouri.edu>

## Testing Services - Main Office

4 Parker Hall  
Columbia, MO 65211  
phone: 573-882-4801  
fax: 573-882-8439  
email: [umcvcsatesting@missouri.edu](mailto:umcvcsatesting@missouri.edu)  
web: <http://testing.missouri.edu>



## Testing Services - Computer-Based Testing

1 Parker Hall  
Columbia, MO 65211  
phone: 573-884-0911  
web: <http://testing.missouri.edu>

## Transfer Center

M110 Student Success Center  
Columbia, MO, 65211  
phone: 573-884-8700  
Email: [muprovtc@missouri.edu](mailto:muprovtc@missouri.edu)  
Web: <http://transfercenter.missouri.edu>

## Veteran's Center

N-5 Memorial Student Union  
Columbia, MO 65211  
phone: 573-884-4383  
fax: 573-884-4387  
email: [veterans@missouri.edu](mailto:veterans@missouri.edu)  
web: <http://veterans.missouri.edu/>

## Women's Center

G108 MU Student Center  
Columbia, MO 6511  
phone: 573-882-6621  
web: <http://womenscenter.missouri.edu>

## Undergraduate Academic Assessment Goals

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All undergraduate students are required to participate in the University's processes/program for assessing student learning in general education and in the major fields. The purpose of assessment at MU is to provide faculty and administrators with the information they need to ensure high levels of student learning. The key goal is to improve how and what students learn in their programs and to increase how much they learn. At the same time, the process provides documentation of student learning to help programs and the University meet external requirements, including those of accreditation organizations.

Faculty members develop assessment strategies specific to each degree program and conduct assessments at appropriate points in their students' undergraduate careers. Each program at the University has defined learning objectives for their students that form the basis of assessments. Students participate in assessments of discipline-specific learning objectives and of learning objectives aligned with the University's learning objectives for all students.

In order to meet the needs of the people of the State of Missouri, the nation and the global society, the University of Missouri shall provide its baccalaureate graduates with a sound intellectual foundation in the liberal arts and sciences and in the student's chosen major fields of study. Toward that end, in addition to having every bachelor's degree recipient fulfill appropriate course work requirements for general education and for degree programs, MU strives to have all students achieve the following goals:

**Goal 1: Graduates of MU will be able to identify and evaluate new information in light of previous knowledge.**

MU graduates will be able to:

- Identify issues and problems important to society, define their scope, and identify information needed to address them.
- Find existing sources of information on a topic.
- Evaluate the accuracy, validity, and reliability of information presented in a wide variety of media.
- Conduct appropriately focused library, field or laboratory research.
- Analyze and synthesize information gathered, demonstrating strategic and logical reasoning skills.
- Demonstrate understanding of costs, benefits, and/or consequences of proposed resolutions of issues and problems important to society.
- Organize information, data and ideas for further analysis and/or presentation.

**Goal 2: Graduates of MU will possess the knowledge, abilities, and skills necessary to communicate effectively.**

MU graduates will be able to:

- Communicate information to a variety of audiences and purposes.
- Revise and edit their presentations to improve clarity and accuracy.
- Engage in the healthy and positive exchange of ideas.
- Apply communication skills in furthering their post-MU careers.
- Use multiple formats and technologies to communicate ideas effectively.

**Goal 3: Graduates of MU will possess the knowledge, abilities, and skills necessary to serve society responsibly.**

MU graduates will be able to:

- Understand the duties of being a responsible citizen.
- Identify and analyze the requisite behaviors for carrying out their academic and professional lives with integrity.
- Work collaboratively with others where appropriate.

**Goal 4: Graduates of MU will possess knowledge to observe and critically analyze the diverse human experience.**

MU graduates will be able to:

- Engage in life-long learning.
- Appreciate fine art and literature.
- Understand the contributions of diverse groups and experiences to life at the individual, community, national, and the world levels.
- In addition, some students will be required to take standardized tests in their major field and/or for general education.

## University General Education Assessment

Each year, a sample of seniors will participate in a University general education assessment examination known as the CAAP Exam, which addresses University general education competencies of MU students in the areas of mathematics, science reasoning, reading, writing and critical thinking.

## Major Field Assessment

Prior to graduation, all seniors will participate in assessment of their mastery of course work in their major field. The assessment program is determined by the faculty of each department to measure the extent to which students are achieving instructional goals and outcomes for graduates in that field. The methods of assessment are appropriate to the educational goals for students in their respective major fields. Information on subject field assessment is included with the college and school sections of this catalog. Methods may include:

- Nationally-normed examinations
- Portfolio review
- Performance review
- Capstone project
- Faculty-developed exit examinations
- Exit interviews University

## University Organization

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The largest academic units at the University of Missouri are its colleges and schools. Each college and school may consist of smaller units called departments. Some colleges have divisions within them as well, which are a collection of departments within a college or school. By long tradition, some of the smaller units are also called schools.

The academic year is divided into two, 16-week semesters (fall and spring) and one, 8-week summer semester. The January intersession is considered part of the spring semester for registration and financial aid purposes. The May intersession is considered part of the summer session.

## Academic Programs and Degree Structure

To earn a degree from the University of Missouri, students must complete all University, college and/or school, departmental and major requirements. In some cases, the major requirements may include emphasis areas and/or minors. In other cases, there may be options or tracks, which do not appear on transcripts.

# Academic Policies

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The academic rules and regulations of the University of Missouri are published online in the *Collected Rules and Regulations of the University of Missouri* and the MU Faculty Council Academic Regulations (<https://missouri.app.box.com/v/facultyhandbook/>). The following are selected policies and procedures. Many are summarized as a guide for students.

Students needing additional information on academic regulations in specific colleges and schools may obtain this information from their deans' offices.

If a policy is only applicable to certain students and not all students, this is indicated with one of the following codes. Else the policy is applicable to all University of Missouri students.

(G) policy applicable to Graduate students only

(L) policy applicable to Law students only

(U) policy applicable to Undergraduate students only

(V) policy applicable to Veterinary Medicine students only

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## Absences

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Students are expected to attend all scheduled class sessions. A student who does not complete assigned academic work because of absence from class is responsible for making up that work in accordance with instructions provided by the faculty member consistent with any policy established by the faculty of the respective department, school or college. A school or college faculty, a department faculty, a course director or an individual instructor may establish attendance standards and will determine whether a student will be permitted to make up work missed as a result of absence(s). There is no dean's excuse or official absence. (See Satisfactory Academic Progress Policy for Financial Aid Eligibility (<http://financialaid.missouri.edu/eligibility/satisfactory-academic-progress.php>)).

However, a student who is also a member of a national guard, Federal Emergency Management Agency or military reserve unit and is called to active duty while the University is in session, will be permitted to make up work missed as a result of such absences for up to two weeks of absences, provided that to do so does not require the instructor to engage in individualized tutorial work with the student. Recognizing that some students have contractual obligations to the University, while others are participating in intercollegiate events at the behest of their departments, faculty are encouraged to make accommodations for absences incurred because of these responsibilities. In enforcing their absence policy, it is recommended that faculty give due consideration to the important role that extracurricular activities play in the development of students, as well as to the benefits they provide to both our university and community.

Students must notify instructors of any scheduled absences within the first two weeks of the semester. In the case of later qualifying events, the instructor must be informed two weeks prior to those events. Instructors are encouraged to advise students of their absence policy at the beginning of the semester.

## Academic Dishonesty

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Academic honesty is essential to the intellectual life of the University. Thus, academic dishonesty, such as cheating and plagiarism, is a basis for disciplinary action. In all cases of academic dishonesty, the faculty member makes an academic judgment about the student's grade on that work and in that course and reports all incidents to the provost for disciplinary action.

Academic honesty is fundamental to the activities and principles of the University. All members of the academic community must be confident that each person's work has been responsibly and honorably acquired, developed and presented. Any effort to gain an advantage not given to all students is dishonest whether or not the effort is successful. The academic community regards academic dishonesty as an extremely serious matter, with serious consequences that range from probation to expulsion. When in doubt about plagiarism, paraphrasing, quoting or collaboration, consult the course instructor. Refer to the *Collected Rules and Regulations*, Section 200.010, Standard of Conduct ([http://www.umsystem.edu/ums/rules/collected\\_rules/programs/ch200/200.010\\_standard\\_of\\_conduct/](http://www.umsystem.edu/ums/rules/collected_rules/programs/ch200/200.010_standard_of_conduct/)), and Section 200.020, Rules of Procedures in Student Conduct Matters ([http://www.umsystem.edu/ums/rules/collected\\_rules/programs/ch200/200.020\\_rules\\_of\\_procedures\\_in\\_student\\_conduct\\_matters/](http://www.umsystem.edu/ums/rules/collected_rules/programs/ch200/200.020_rules_of_procedures_in_student_conduct_matters/)) for more specific details. (The *Collected Rules* are available on the University

of Missouri System web site.) According to the UM Rules of Procedures in Student Conduct Matters, when they suspect that academic dishonesty has occurred, faculty members have an obligation to report an incident to the Office of the Vice Provost for investigation.

## Academic Progress (G)

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### Measuring Graduate Student Progress

#### Annual Requirement: Review of Graduate Student Progress

The Graduate School requires that all graduate students' academic progress is reviewed at least annually. Typically, graduate students file an annual report on their academic performance, degree program milestones, and related academic/scholarly/research/creative achievements. Faculty mentors (advisors) are required to review their advisees' annual reports to assess if their advisees are making satisfactory progress toward degree completion. In some cases, the director of graduate studies and/or department chair also review the students' annual reports and faculty member responses.

Each division/area/department degree program must inform all students of the annual progress reporting requirement. This includes printed, published, or electronic materials provided to graduate students (e.g., handbooks, orientation materials, guidelines, web site.)

At a minimum, students are required to report on academic progress, completion of required forms, award and honors, conferences, presentations, publications, service activities, creative activities, employment, funding activity, and job placement. Academic program faculty or administrators may require additional indicators of performance or achievement to accommodate the unique needs of their programs.

Additional information on measuring graduate student progress is at <http://gradschool.missouri.edu/policies/satisfactory-progress.php>.

### Extension and Appeals of Satisfactory Progress Infractions

The definition of "satisfactory progress" and procedures for its verification may vary among departments/programs. If a department/program has instituted timelines that differ from those applying generally to graduate students (see below), these timelines should be made available to students from their entrance into the graduate degree program. If a student is authorized to diverge from progress timelines established by either the department/program or the Graduate School, this should be documented in written form and endorsed by the student's advisor and director of graduate studies.

### Progress Toward Degree

Full-time students (those taking 9 hours or more per semester) should follow the time frames associated with degree programs discussed in the catalog. They must submit required forms on time and maintain a grade point average of 3.0 or better. Furthermore, they must successfully undergo their departments' annual review processes.

Part-time students should file a timeline for successful degree completion with their department/program. This timeline should be endorsed by the director of graduate studies and a prospective advisor by the end of the first calendar year of admission into the department/program. When these timelines conflict with time to degree guidelines established by the Graduate Faculty Senate and enforced by the Graduate School, they

must request an extension, supported by their advisor and director of graduate studies to the dean of the Graduate School.

## Distinction Between Requests for Extension and Appeals

A "Request for an Extension" and an "Appeal" are distinct processes for dealing with problems related to "satisfactory progress." A "Request for Extension" is the appropriate course of action when a student has failed to meet satisfactory progress provisions of the Graduate School. The "Appeal Process" should be followed when a department/program has dismissed a student after the required probationary period.

## Probation and Termination Dismissal

In addition to dismissal for failure to meet the usual examination and grade requirements, departments and graduate degree-granting area programs have the right to place on probation and, after at least 30 days of probation, to dismiss from their program any graduate student who is deemed to be making insufficient academic progress or whose work is not of the quality required. The faculty advisor or academic program chair must inform the Graduate School as soon as the student is notified and the probationary period begins. The dismissal may occur at any time during a student's work toward a graduate degree.

For additional information on satisfactory progress, probation, termination, extension and appeals go to the Extension and Appeals of Satisfactory Progress Infractions section of the catalog; additional information can also be found at <http://gradschool.missouri.edu/academics/progress/probation-termination.php>.

## Academic Progress (L)

### Annual Review of Students' Progress (Applicable to LLM Students)

The progress of each graduate student will be evaluated annually by the Director of the LL.M. Program.

For students who first enrolled in the LL.M. Program after January 1, 2001, the following are the standards of "satisfactory progress" in the LL.M. Program, subject to individual exceptions for good cause as approved by the Director of the LL.M. Program. Normally, students should complete all degree requirements within three (3) years of enrollment. By the end of the first year of enrollment, students must have completed at least eight (8) credits that satisfy requirements for the LL.M. degree. By the end of the second year of enrollment, students must have completed at least sixteen (16) credits that satisfy requirements for the LL.M. degree. By the end of the third year of enrollment, students must have completed at least twenty-four (24) credits that satisfy requirements for the LL.M. degree. Time spent in the armed services will not count toward the period for completing the degree requirements.

For students who first enrolled in the LL.M. Program before January 1, 2001, to achieve 'satisfactory progress,' students must complete an average of at least four (4) credits for every academic year since their initial enrollment in the LL.M. Program.

The Graduate School will be informed of all students who are not making satisfactory progress. When there is a question as to whether satisfactory progress is being made, the Director of the LL.M. Program will write to the student and recommend a face-to-face meeting with the student. If there is disagreement, the Director of the LL.M. Program will ask the student to

submit a separate letter to him or her. Copies of both letters will be made available to the student, maintained in a departmental file, and forwarded to the Graduate School.

If difficulties persist and the Director of the LL.M. Program determines that probation is appropriate, the Director will notify the student in writing of the probationary period, which may be from 30 days to a full semester. The probation letter will state explicitly that the student is on departmental probation and state precisely what must be accomplished and by what date in order to enable the student to return to good standing in the Program and be removed from probation. Within ten (10) working days of receipt of the probation letter, the student may submit a written request for a review of this decision by the LL.M. Admissions Committee, which may affirm or revise the probation letter or determine that probation is not appropriate.

If the student does not comply with the conditions of probation, a letter signed by Director of the LL.M. Program will be sent to the student (with a copy to the Graduate School) with notification of dismissal from the LL.M. Program. Within ten (10) working days of receipt of the probation letter, the student may submit a written request for a review of this decision by the LL.M. Admissions Committee, which may affirm or revise the notification of dismissal or determine that dismissal is not appropriate (with a copy to the Graduate School). The Graduate School sends the official notice of dismissal from the Program.

A student may appeal a dismissal decision to the Graduate Faculty Senate only after completing the Program's appeal process. The full text of the Dismissal Policy and Appeals Process for Graduate Students (<http://gradschool.missouri.edu/academics/progress/requests-for-extensions-appeals.php>) can be found in the Graduate School Catalog on its web site.

## Academic Renewal (U)

Students who are returning to the University of Missouri to pursue an undergraduate degree after an extended absence may request permission to remove one or more complete academic terms from future degree and GPA considerations.

### Eligibility

To be eligible for academic renewal consideration, students must meet these requirements:

- Students must not have enrolled as degree-seeking at the University of Missouri for four or more consecutive years.
- Students must not have graduated from the University of Missouri-Columbia.
- Students must either:
  - be admitted as degree-seeking and have earned a minimum of 12.0 credits with at least a 2.5 GPA of record for those credits at the University of Missouri within the past 12 months; OR
  - have attended as a non-degree-seeking student and have earned thereby a minimum of 12.0 credits with at least a 2.5 GPA of record for those credits at the University of Missouri within the past 12 months and subsequently have been admitted as degree-seeking by the University.

### Conditions

Academic renewal is based on the following conditions:

- All courses and credits taken during the chosen terms will be removed from consideration for GPA and degree requirements. Students may not combine individual courses from multiple terms to comprise the semester(s) dropped. All courses and grades for the chosen terms will remain on the student's academic record.
- Renewal may be applied only to academic terms completed prior to the student's extended absence.
- Students may be granted only one academic renewal.
- Students who choose academic renewal must meet the degree requirements of the University of Missouri undergraduate catalog at the time of their readmission.
- Degree requirements met during the dropped terms must be repeated.
- To be eligible for a degree, students must complete a minimum of 24 credits at the University of Missouri after the granting of academic renewal.

## Procedures

- Students should discuss their desire to pursue academic renewal with an academic advisor in the college they wish to enter.
- Students should submit an application for academic renewal (<http://registrar.missouri.edu/policies-procedures/academic-renewal.php>) to the Office of the University Registrar.
- For each term approved for academic renewal, a note will appear on the transcript.

Questions may be directed to the Office of the University Registrar, 125 Jesse Hall, (573) 882-7881.

## Academic Standing

Academic performance is represented by academic standing, according to the Faculty Handbook (<https://missouri.app.box.com/v/facultyhandbook/>), of which there are three levels: regular, academic probation, and ineligible to enroll. For the purposes of this policy, "term" may refer to a semester or summer term.

### Regular Academic Standing

Students whose term and cumulative GPAs are 2.0 or higher are in regular academic standing.

### Probation

Students in regular standing whose term GPA subsequently falls below 2.0, but is 1.0 or above are placed on probation. Students on probation must establish a 2.0 cumulative GPA within two successive terms of enrollment; otherwise they are ineligible to enroll.

Any beginning student admitted to the University of Missouri who does not meet the minimum entrance standards as specified in the *Faculty Handbook*, Article II, Admissions, Advanced Standing, and Classification will enter on scholastic probation and will have one semester in which to remove probation.

### Ineligible to enroll

Students whose term GPA falls below 1.0 are ineligible to re-enroll. Students on probation must establish a 2.0 cumulative GPA within two successive terms of enrollment; otherwise they are ineligible to enroll.

In the application of the foregoing rules, the dean or faculty committee of the division concerned will determine how an incomplete grade in a course will be considered in determining a student's academic standing. A student who has been ineligible to enroll for a period of one year may be readmitted only upon the approval of the dean of the school or college in which the student desires to enroll. If a readmitted student again becomes ineligible to enroll, his or her ineligibility is normally considered permanent. These regulations are the prescribed minimal standards but do not limit the authority of the faculty of any school or college to adopt and enforce additional regulations affecting students enrolled therein.

## Advanced Standing - Credit by Exam (U)

MU offers the opportunity for advanced credit by examination to any student with fewer than 90 credits. Credit may be awarded, but no grades or honors points are recorded. General eligibility to receive advanced standing at MU does not guarantee its applicability to a degree program. A student who has received credit for any portion of a lower level course will not receive advanced standing credit for that same course. More information can be found at <https://admissions.missouri.edu/apply-freshmen/college-credits/> The programs described below are used to award credit.

### Advanced Placement Program

The Advanced Placement Program of the College Board is accepted by MU. The examinations are prepared and graded by national committees, and the results are furnished to MU on request of the student. Students who receive a sufficiently high score are eligible for college credit. Students should contact their academic units if they have questions.

### College Level Examination Program

The College Level Examination Program of the College Board provides general examinations and subject examinations. Credit may be awarded for CLEP subject exams only. Credit must be applicable in students' programs of study. (Refer to the appropriate section in this catalog for the school or college, or contact the academic unit to ascertain the specific limitations for CLEP examinations.)

You are eligible to earn CLEP credit if you have fewer than 90 hours of college credit. Credit can be applied only to a course in your program of study. In most cases, your scaled score must be higher than 50 to earn credit. Exceptions are noted below.

Credit is accepted by most individual schools and colleges but might not be considered by your specific degree program.

Visit the CLEP website (<https://clep.collegeboard.org/about/score/>) to learn how to send your scores to Mizzou.

### Credit by Examination for Mathematics Courses

It is possible to receive credit in the following math courses by passing the appropriate examination:

MATH 1100	College Algebra	3
MATH 1140	Trigonometry	2
MATH 1160	Precalculus Mathematics	5
MATH 1360	Geometric Concepts	3
MATH 1500	Analytic Geometry and Calculus I	5

MATH 1700	Calculus II	5
Total Credits		23

To inquire about these examinations, contact either the Group Testing Program, 220 Parker Hall, (573) 882-4801, or the departmental representative on testing for advanced placement. Credit for a course by examination is not available to students who have essentially covered the material of the course in college or university courses.

## Departmental Examinations

Departmental examinations are limited to students with fewer than 90 credits and with no official record of previous enrollment in the course(s) in which credit is to be received.

Departmental examinations are comparable to final examinations given in the various courses offered on campus. The examinations are objective or essay formats and are prepared and graded by the faculty of the department concerned and MU Testing Services. Arrangements for departmental examinations should be made through Testing Services. (Also see the College of Arts and Science information on departmental exams (p. 138).)

## International Baccalaureate

MU recognizes the International Baccalaureate Program. Students may receive credit and/or advanced standing for proficiency on the higher-level subject examinations. No credit is granted for subsidiary-level examinations.

## Additional College Course Work

MU recognizes college course work completed before high school graduation if the college attended provides an official transcript of the course work.

## Freshman Placement Tests

Placement in English is based on ACT score in English. Math placement is based on ALEKS Exam score or prior course credit. (See [mathplacement.missouri.edu](http://mathplacement.missouri.edu) (<http://mathplacement.missouri.edu>) for more details)

## Subject Examinations

Subject examinations are limited to students with fewer than 90 credits. The subject examinations are generally accepted by most schools and colleges but may not be considered for credit in all degree programs.

## Application for Degree

Students should contact their academic unit *at least* a full semester before they anticipate graduating to complete the appropriate steps and paperwork to apply for receiving their degree. The University does *not* automatically anticipate or calculate who will be degree candidates each term.

## Attendance (L)

### Policies & Rules — Attendance

Law schools approved by the American Bar Association must adopt, publish and adhere to a written policy requiring regular class attendance.

The rules below implement this requirement at MU, and were adopted by the faculty on January 23, 2015:

1. Class Attendance
  - a. Attendance is expected, in accordance with the ABA Standard 308.
  - b. Administration of the attendance policy lies with the individual instructor for each course.
  - c. The individual instructor determines the number and nature of absences from each course for an excess of which sanctions may be imposed, as well as the sanctions which will be imposed, up to and including dismissal from the course.
  - d. If the instructor intends to attach a formal sanction (grade reduction or dismissal from the course) to inadequate attendance, he/she must announce to the class in writing at the beginning of the course what the rules governing attendance in that course will be, with appropriate provision for notice to students who enroll in course late.
  - e. A student who is in danger of accumulating excessive absences must be given notice by the instructor in advance of the absence which will give rise to a significant sanction (major grade reduction or dismissal from the class).
2. Appeals
  - a. A student who is dropped from a course for excessive absences may meet with the Associate Dean for Academic Affairs and request reversal of the decision. A student may seek the assistance of the Student Bar Association in support of the request.
  - b. A final decision on the appeal rests in the discretion of the Dean.

## Auditing a Course (Hearer)

Students who wish to obtain knowledge from a course, but do not need or want the credit for graduation, may enroll in the course(s) as auditors/hearers.

- Hearers receive no credit toward a degree and an H grade appears on the transcript. The credit received when auditing a course does not count toward your verification of full, half or less than half time enrollment status. This credit is not reported to the National Student Clearinghouse for enrollment verifications.
- Students pay standard fees (<http://cashiers.missouri.edu/>) for the course(s).
- Students may *not* change their registration status (hearer vs. credit) after two weeks following the first day of classes in regular session or the equivalent thereof in a shorter session.
- Check the academic calendar (<http://registrar.missouri.edu/academic-calendar/>) for deadlines.
- Students who want to change their grading basis must go to the academic advising office *before* two weeks following the first day of classes in regular session or equivalent thereof in a shorter session.
- Students who fail to meet class requirements may be dropped from the course by their academic advising unit upon request of their instructor and with the dean's stamp.
- Normally, a hearer will attend the course on a regular basis; either the department or an individual instructor will stipulate the requirements for enrollment in a course as a hearer.

## Catalog Editions (Which catalog applies to whom?)

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These policies concern the application of the University of Missouri's graduation, divisional and departmental degree requirements. The catalog (this publication) is a compilation of information about degrees, requirements, courses, and policies.

Courses and policies listed in this catalog are subject to change through normal approval channels within the University. New courses, changes in existing coursework and new policies are initiated by the appropriate institutional departments, committees or administrators. Policy revisions are implemented in the next academic year following notification thereof. The University of Missouri ("MU") publishes a new edition of the catalog each June, and its contents apply to the subsequent Summer, Fall, and Spring terms. Occasionally a policy or requirement must be changed and implemented in the same academic year (e.g., in the case of changes to state regulations). All changes must be approved by the college or school's associate or assistant dean that oversees academic curriculum and policies.

MU students' academic requirements for graduation are typically met as follows:

Students must complete the graduation requirements in effect for the term that they first enroll at MU.

- Transfer students from community colleges and other universities are permitted to complete degree requirements in effect at the time of their enrollment as freshmen at a community college or university, so long as their enrollment was continuous from year to year (summer semesters excluded).
- Students who started at MU but change degree programs, must meet the requirements in effect for the term that they first enroll at MU.
- If students discontinue their studies for more than a year, the catalog edition is the one applicable during the term they restart their studies at MU, unless the stoppage is due to military obligations, in which case this provision only applies if students re-enroll more than a year after the military assignment ends.
- Any undergraduate student who re-enrolls at MU within one year of being released from military assignment shall be allowed to continue under the same catalog year. Any undergraduate student who had been admitted to a degree program prior to mobilization and who re-enrolls within one year of being released from military assignment shall not be subject to any additional degree requirements enacted in the interim.
- Students entering MU in a summer term follow requirements for the subsequent fall term.
- In some cases, due to changes in state, federal or accreditation requirements there may necessitate modifications that supersede these policies. All policy changes must be approved by the college or school's associate dean. Advisors will provide counsel to students in these situations. Students should consult with an advisor in all cases.

After consulting with an advisor, students may appeal to change catalog years or alter degree requirements. Requests for exceptions to the above policy may be made to the academic dean for the academic unit in which the student is enrolled for college and program requirements, or the Vice Provost for Undergraduate Studies for general education and University graduation requirements.

## Mechanism for Requesting Exceptions to Catalog Edition or Year Policy

Student seeking an exception to the Catalog Edition policies:

- Option 1 – After consulting with their academic adviser students may, for good cause, petition to be subject to the requirements of a different edition of the catalog. The petition must be approved by the Dean of the Academic Unit offering the degree, and by the Vice Provost for Undergraduate Studies. If your petition is approved, the new applicable edition of the catalog will be recorded in myZou, via a change to the pertinent Requirement Term value. Students may not petition to change the applicable catalog year for only a portion of your degree requirements (e.g., major requirements, but not General Education requirements)
- Option 2 - After consulting with their academic adviser students may, for good cause, may petition for a substitution, change, or waiver of certain requirements. The petition must be approved by the Dean of the Academic Unit offering the degree (or their designee). If the petition is about a University-wide requirement, the petition must be additionally approved by the Vice Provost for Undergraduate Studies.

Academic departments' request changes to the Catalog Edition policies:

From time to time, requirements change due to changes in state, federal or accreditation requirements, which necessitate modifications that supersede these policies. Typically, those changes are included in the next edition of the catalog and apply to future students. Exceptionally, for good cause shown, changes must be applied retroactively to prior editions of the catalog. The cause may be external (e.g., changes to licensure requirements) or internal (e.g., a required course can no longer be offered due to compelling circumstances). Requests for such changes are initiated by the Dean of the Academic Unit offering the degree and require the approval of the Vice Provost for Undergraduate Studies. Such changes do not apply to students who have already completed the old requirement and the old and new requirement are fully interchangeable in all regards.

## Class Cancellation Guidelines

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Refer to the the MU Faculty Council on University Policy regarding class cancellation guidelines (<https://missouri.app.box.com/v/facultyhandbook/>).

## Completion of a Course

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A course is considered complete if the student earns a grade of A, B, C, D, F or U, and the "+" or "-" sign if appropriate, or S for the course. A course in which the student receives a grade of W, NR, or I is not considered a completed course.

- The faculty of the division concerned will determine how the grade of I in a course and a grade in a repeated course will be considered in determining a student's academic standing. However, for financial aid purposes the grade of I is not considered a completed course and a repeated course will be counted as additional credits attempted.
- The dean of the relevant division may, after consulting with relevant faculty, waive any of the regulations governing a student's eligibility to re-enroll. However, the Financial Aid Advisory Committee shall have authority concerning students' satisfactory progress toward



their educational objectives and eligibility to receive federal, state and institutional student financial aid.

## Computer Policies (L)

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### Acceptable Use Policy

- Priority use of lab computing equipment is for academic rather than recreational purposes. If you are asked to relinquish use for this reason, your compliance is expected and appreciated.
- Computing at MU is a community enterprise serving academic, administrative and research needs. Please conserve resources by carefully managing your e-mail, data, web files, and printing.
- Users will respect copyright, slander, libel, anti-discrimination and other appropriate laws as well as the security and proper functioning of the campus network.
- MU is committed to privacy and will not routinely inspect the contents of your computer files.
- MU provides uncensored access to materials on the campus network or the Internet unless those materials violate federal or state laws.

For more detailed information on current acceptable use guidelines, or to report a potential violation, view MU's Acceptable Use Policy ([http://www.umsystem.edu/ums/rules/collected\\_rules/facilities/ch110/110.005\\_acceptable\\_use\\_policy/](http://www.umsystem.edu/ums/rules/collected_rules/facilities/ch110/110.005_acceptable_use_policy/)).

### Law School Computer Lab Polices

- **Limited Access to the Law School Computer Lab** - In order to use the computer lab you must be a current MU law student. Access to the computer lab is a privilege and is not transferable to non-law students. You may not let your family use the lab for any purpose.
- **Computer Availability and Priority of Use** - Computers in back of the lab are available during regular library service hours on a first-come, first-served basis. Computer training classes held in the front room of the lab take priority over individual use. An ADA workstation is available in Room 119 of the lab. Students who require access to this equipment in order to be able to access library resources have priority. All decisions as to the use of the computers are at the discretion of the Library Director, the Associate Director, or the Automation Librarian.
- **Copyright and Licensing Restrictions** - The user is responsible for observing all copyright laws. The software and documentation made available in the lab is for use only in the lab and is not to be duplicated for use elsewhere. Duplicating a copyrighted program or documentation is illegal and is an Honor Code violation. Any use of computer-assisted legal research databases (Westlaw and Lexis) is for academic purposes only. Terms of use are governed by individual subscriber agreements for each system.
- **Assumption of the Risk** - The MU Law Library and MU School of Law make no guarantee with respect to any equipment, programs, or other materials in the computer lab. The entire risk as to the quality and performance of the computer equipment, programs, and documentation is with the user. The lab is not responsible for loss of data due to faulty programs or equipment.
- **Data Storage** - Users may not store their files on the hard drives of the individual workstations or on the law school's network. Users may not save their personal settings on individual workstations.
- **Reporting Equipment Problems** - Report any PC or printer problem, such as paper jams, toner replacement, backed-up print

jobs, etc. to the User Support Analyst, student lab assistant, or reference office. Do not attempt to fix any lab equipment on your own. Lab supplies (paper reams, toner etc.) are to be handled by staff only.

- **Food, Drink and Tobacco are not allowed in the lab.**
- **Lab Phones and Help Desk** - Lab phones are for staff use only. Public telephones are available in the student area of the subplaza.

Failure to observe lab policies and directions from library staff regarding proper lab use may result in restriction or revocation of computer access, or in termination, academic probation, or prosecution under federal or state law.

## Course Changes (V)

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Any changes in course enrollments and/or number and dates of course offerings shall be initiated by the course coordinator and the appropriate chairman in consultation with the Associate Dean for Academic Affairs. (CVM Executive Committee, 1986)

## Course Repeat Policy

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The course repeat policy will not be applied automatically to a student's GPA. After completing the second attempt of a course, a student must submit a request for GPA adjustment form (<http://registrar.missouri.edu/policies-procedures/course-repeat.php>) to the University Registrar's Office 125 Jesse Hall.

When the grade received in an initial attempt, for an undergraduate course at University of Missouri-Columbia, or any University of Missouri System Campus, is a "C-", "D+", "D", "D-", "F" or "WF", the grade will be replaced in the calculation of the GPA by the grade received in any second attempt of the same course at the University of Missouri-Columbia (unless the repeat grade is an I or W). All grades received in second and subsequent attempts will be included in GPA calculations. No more than 15 semester hours will be dropped from the calculation of the student's GPA. All attempts of a given course will appear on the official transcript with the grade(s) earned. The transcript will have an explanation that the GPA is calculated using all grades earned in a course except the initial attempt when a course has been repeated. This policy is effective with course work where the initial enrollment and completion of the course was fall semester 2000 and thereafter.

Any course being repeated may not be taken on an S/U basis. This policy does not imply a guarantee that openings will be available in courses if and when students wish to retake them, and instructors will not ordinarily know whether a student is enrolled in a course for the second time. When a course is repeated, all applicable tuition and required fees apply.

Degree credit may be earned only once for a particular course unless a department or division has, in other policies, allowed for multiple credit from that course.

Students are strongly encouraged to visit with an advisor to determine whether re-enrollment is advisable (certain department or divisional policies may be important in this connection). Further, students should be aware that repeating a course may have an impact on financial aid, insurance, entrance to professional schools, participation in athletics, immigration status, and other non-academic matters.

The academic status of a student in a given semester will not change as a result of repeating a course.

The policy is applicable to undergraduate students only.

## Clarifying comments

Students should not re-enroll in a course for which they have been assigned a grade of "I".

Students may not apply the course repeat policy to courses once they have graduated. This also applies to students who are seeking a second undergraduate degree.

For the purposes of this policy, an undergraduate course is any course an undergraduate student attempts for undergraduate credit regardless of the course level. A student may not apply the course repeat policy to a course repeated as an undergraduate student for graduate credit.

If the department or course number has changed since the student completed the first attempt of a course, the department offering the course will verify that the subsequent course is substantially the same and the course repeat policy may apply. If the initial course is a cross-listed course, a student may apply the course repeat policy if the student subsequently completes the cross-listed course offered by the alternate department.

Courses for which a NR, W or a grade of I are assigned are not considered attempts since no final grade has been recorded.

If the initial attempt of a course contained an attribute such as; honors, writing intensive, math reasoning proficiency, service learning, or computer proficiency, the second attempt is not required to contain the same course attribute for the purpose of the course repeat policy. Students should be aware that if the second course does not have the same attribute as the initial course they will no longer be allowed to count the initial attribute toward any graduation requirement.

Grades of C or greater may not be repeated under the course repeat policy because these grades are considered acceptable work and would not prevent a student from graduating from MU.

Students may replace the grade earned from the course at the University of Missouri-Columbia or any other University of Missouri campus with a grade earned in an equivalent course at University of Missouri-Columbia campus. Courses for which a W or a grade of I are assigned are not considered attempts since no final grade has been recorded.

## Course-Load Rules (L)

**Fall or Spring Semester:** A student is permitted to take a total of 17 credits without the approval of the Associate Dean for Academic Affairs. With good cause and with written permission from the Associate Dean for Academic Affairs, pursuant to ABA Standard 311, a student is permitted to take a maximum of 18 credits.

**NOTE:** Credit hours earned taking courses during the Winter Intersession will be counted as a part of the Spring semester. For example, if a student takes a 3-credit course during Winter Intersession and then wants to take 15 credits in the Spring semester, the student will need to seek the written permission of the Associate Dean for Academic Affairs because the total is 18 credits.

**Summer Session:** A student is permitted to take six credit hours without the approval of the Associate Dean of Academic Affairs. With good cause and with written permission from the Associate Dean for Academic Affairs, pursuant to ABA Standard 311, a student is permitted to take a maximum of nine credits.

**Full-Time Status:** A student must be enrolled in a minimum of 12 credit hours during a semester in order to be considered a full-time student

unless the student is in the final semester of law school when they are permitted to take 9 credits provided that the student will satisfy the 89 credits for graduation upon completion of that semester. There is no minimum number of credits to be full-time for the summer session.

## Credit for Non-Law Courses (L)

Law students are permitted to take up to a total of six hours of courses for Law School credit in other schools of the University during law school. Please note that because you are listed as 'primary degree program-Law' with the University. You will be charged the same per credit hour law school course rate for ANY non-law courses taken (NOT the undergraduate or graduate per credit hour rate). This does not apply to students officially enrolled in a dual degree program.

- Grades for non-law school courses are a Satisfactory/Unsatisfactory (S/U) basis. In addition, non-law courses are subject to the following regulations:
  - The course must be at the graduate level (numbered 7000-9999).
  - The course must be related to the student's study and future practice of law.
  - The semester hours of the non-law course will be counted in the student's total number for the semester, and the student may not (without permission) take any more than a combined total of seventeen credit hours in a regular semester, or seven in a Summer Session.
  - Students wishing to take a non-law course for law school credit MUST request approval in writing from the Associate Dean for Academic Affairs and complete the Petition to Enroll in Non-Law Courses Form (<https://law.missouri.edu/registrar/forms/>) which will include the following information:
    - A Statement of purpose for taking the course as related to (b) above.
    - a Syllabus; and,
    - all other relevant information
  - Requests for the approval of non-law courses below the 7000-Level within the guidelines given above must be referred to the Standards and Readmissions Committee. The Associate Dean for Academic Affairs may approve 7000-9999 level courses without consultation with the Standards and Readmissions Committee.
  - For purposes of calculating a student's cumulative GPA, non-law course are treated as S/U courses.
- Any petition for law school credit for non-law courses beyond the cumulative maximum total of six hours, shall be initially presented to the Associate Dean for Academic Affairs. If the student's request is denied, the student may then petition the Standards and Readmissions Committee. If the Committee denies the student's request, the student can petition the entire faculty whose decision will be final.

## Deficient Academic Performance (V)

**Mid-course/rotation grade warnings must be issued to students if they are not achieving at least a 'C' grade average. The notice should be copied to the Associate Dean for Academic Affairs.**

A student who receives a grade of "F" in any required or elective course of the professional curriculum will be dismissed.

No more than 9 total semester credit hours of "D" grades may be accumulated prior to graduation. Greater than 9 semester credit hours of "D" grades will result in dismissal from the CVM.

**NOTE:** These regulations were adopted by faculty action August 4, 1983. They are subject to change by faculty action. *Revised in 1988, 2002, 2009, 2011 and 2012.*

## Degrees, Diplomas and Certificates

The process for awarding Degrees, Diplomas and Certificates at the University of Missouri is governed by the Faculty Council. For a full listing of this process please see Article IX of the Faculty Handbook (<https://missouri.app.box.com/v/facultyhandbook/>).

## Disability Accommodations (L)

It is the policy and practice of the University of Missouri School of Law to comply with the Americans with Disabilities Act, Section 504 of the Rehabilitation Act, and state and local requirements regarding students and applicants with disabilities. No individual shall be discriminated against by the University of Missouri School of Law because of a disability, nor shall any qualified individual with a disability be denied access to or participation in Law School services, programs, or activities because of a disability. The School of Law is committed to providing reasonable accommodations for individuals with disabilities, though the School is not required to make accommodations that are unduly burdensome or that fundamentally alter the nature of the program.

Students who have been accepted for admission are advised to contact the Associate Dean for Academic Affairs as soon as possible regarding disabilities that might require accommodation. Continuing students who believe they have acquired or developed a disability should also contact the Associate Dean for Academic Affairs as soon as possible. Early identification of disabilities is necessary to allow adequate time for an evaluation, to review supporting documentation and to coordinate required accommodations. The accommodation process takes some time, so the Law School may be unable to grant last-minute requests for accommodation.

### Accommodation Process

To accommodate students with disabilities, the School of Law worked with the University's Disability Center to arrange the following accommodation process:

1. A student who believes he/she has a disability that requires any accommodation should notify the Associate Dean for Academic Affairs.
2. The Associate Dean for Academic Affairs will then refer that student to the Disability Center (<http://disabilitycenter.missouri.edu/>), located at S5 Memorial Union.
3. The Director of the Disability Center or a representative will meet with the student, request medical records and other information from the student. Please note that the Disability Center must first receive all necessary medical documentation from the student.
4. The Disability Center will then decide what accommodations are necessary and appropriate to provide, if any, in light of the student's

medical information and the student's course schedule, exams, and/or graded exercises.

5. The student will then forward the Disability Center's accommodation recommendations to the Associate Dean for Academic Affairs and to the Law School Registrar.
6. The Associate Dean for Academic Affairs and the Registrar will work with the student to provide the accommodations that the Disability Center recommends.
7. Any problems that arise should be brought to the attention of the Associate Dean for Academic Affairs and/or the Disability Center.

## Academic Dismissal and Readmission

If a student who is academically dismissed raises a previously undisclosed disability as a basis for academic difficulty, the burden will be on the student to explain why the disability was not previously brought to the attention of the administration, to explain why accommodations were not requested or why those provided were not adequate, and to demonstrate that the disability was the cause of the dismissal.

Readmission requests should be directed to the Associate Dean for Academic Affairs who will forward the request to the Law School's Standards and Readmissions Committee, which acts on the requests. For further information on the readmission process, please refer to the Policies and Honor Code section on School of Law website under Dismissal and Probation (<http://catalog.missouri.edu/academicpolicies/dissmissalandprobation/>).

## Bar Examination

Law students with disabilities who believe they will require accommodations in taking the bar examination should inquire early in their legal education as to what will be necessary to obtain accommodations. Information on how to contact bar examiners in all states is available from the National Conference of Bar Examiners (<http://www.ncbex.org/jurisdiction-information/>). Many state boards of bar examiners will request that the law school provide information on accommodations provided during law school upon a written release from the student.

## Career Services

The Career Development and Student Services Office provides assistance to all students and does not discriminate on the basis of disability. Students who believe that an employer working through Career Development and Student Services has discriminated on the basis of disability should bring their concerns to the attention of the Assistant Dean for Career Development and Student Services.

## Grievances

If a student who requests accommodations from the School of Law believes that he/she has been discriminated against on the basis of his/her disability, the student should bring this matter to the attention of the Associate Dean for Academic Affairs, who will work with the Disability Center to attempt to resolve the matter. The Associate Dean for Academic Affairs will communicate the decision to the student. If the student is dissatisfied with the decision, the student may file a grievance with the ADA Coordinator (<http://ada.missouri.edu/complaints.php>). Grievances filed with the ADA Coordinator must be in writing and must be filed within two weeks of the date the Associate Dean for Academic Affairs communicated the decision to the student.

## Confidentiality

Information related to a student's disability is treated as confidential information under applicable federal, state and university laws.

## Dismissal

A dean may at any time, and following such procedures as are reasonable, dismiss a student from a class or from a school or college for failure to perform academic duties.

In addition, the director of the Student Health Center (<https://studenthealth.missouri.edu/>) has the authority to exclude a student from classes and other University exercises and activities because of exposure to a communicable or contagious disease, or to require a student to withdraw from the University at any time if the student has a medical condition constituting a hazard to themselves, other students or the campus community.

Adapted from the Faculty Handbook. (<https://missouri.app.box.com/v/facultyhandbook/>)

## Dismissal and Probation (L)

### A. Rules for Dismissal and Probation

1. For purposes of this section (Policies & Rules – Dismissal and Probation)
  - a. 'First year' consists of that series of semesters or summer sessions, or both, at the end of which a student first receives grades in courses aggregating to not fewer than 30 hours.
  - b. 'Semester' means either the fall or spring semester. The summer session is considered to be part of the next succeeding semester for the purpose of computing semester grade point averages.
2. A student is dismissed:
  - a. at the end of the student's
    - i. first semester if the student's cumulative grade point average is equal to or less than 76.399; or
    - ii. second semester if the student's semester grade point average is equal to or less than 76.399
    - iii. first year if the student's cumulative grade point average is equal to or less than 76.399; or
  - b. at the end of any semester after the student's first year if the student's semester grade point average is equal to or less than 76.399; or
  - c. at the end of any semester during which the student has been on probation if the student's semester grade point average is equal to or less than 77.499; or
  - d. at the end of any semester during which the student has been on probation if the student's semester grade point average is
    - i. not sufficient to raise his or her cumulative grade point average to an average greater than 77.499 if continued in future semesters until the remaining requirements for graduation have been satisfied; or
    - ii. is less than the semester or cumulative grade point average which was imposed upon the student as a condition of probation or readmission;
  - e. at the end of any semester prior to the completion of the student's first year if

- i. the student has received grades in at least two sessions; and
- ii. has received grades in at least 12 hours of coursework; and
- iii. has a cumulative grade point average of equal to or less than 76.399;

- f. at the end of that semester where the student has a cumulative grade point average equal to or less than 77.499 after completing 89 or more hours of course work.
3. A student is placed or continued on probation:
    - a. at the end of the student's first year if the student's cumulative grade point average is greater than 76.399 but equal to or less than 77.499; or
    - b. at the end of any semester after the student's first year, if the student's semester grade point average is greater than 76.399 but equal to or less than 77.499; or
    - c. a student who is on probation will remain on probation if the student's cumulative grade point average is equal to or less than 77.499, but the semester grade point average is sufficient to raise his or her cumulative grade point average to a cumulative grade point average greater than 77.499 if continued in future semesters until the remaining requirements for graduation have been satisfied.
  4. Any first-year student who does not achieve a grade point average greater than 77.499 in the fall semester will be required to take the Foundations of Legal Studies II course during the second semester. Students who are required to take Foundations of Legal Studies II under this provision will drop one of their courses. The course to be dropped will be decided in consultation with the Associate Dean for Academic Affairs.
  5. A student ceases to be on probation at the end of a semester when the student's cumulative grade point average and semester grade point average are both greater than 77.499.
  6. After the first semester of the first year, a student is in 'good standing' at the School of Law if the student's cumulative grade point average is greater than 76.399. Thereafter, a student is in good standing when both the student's current semester and overall grade point average are greater than 77.499.

### B. Rights of Students Petitioning for Readmission

Students who petition the Law School for readmission following academic dismissal have the following rights:

1. To be given fair notice of the time and place of the meeting.
2. To submit any supporting written material to the Standards and Readmissions Committee and/or to the Faculty at large in advance of the meeting, or to present such material at the meeting.
3. To appear personally at the meeting and make a presentation of reasonable duration.
4. To be accompanied by a person of their own choosing.
5. To be informed promptly following the meeting of the Committee's recommendation or decision, or the Faculty's decision.

### C. Readmission Procedures

1. Readmission Procedures for students dismissed at the end of the first semester under Rule A.2.a.i

- a. A student dismissed at the end of the student's first semester whose grade point average for the first semester is equal to or

less than 75.299 will not be permitted to attend law school for the succeeding spring semester. The student will be required to meet with the Standards and Readmissions Committee to evaluate his or her past academic performance. Such student will be permitted to enroll for the next fall semester provided the student gives notice of his or her intention to enroll by April 15 of the semester following the student's dismissal. A student so re-enrolling will retake all the first year courses, and will be required to obtain a grade point average greater than 77.499 for the repeated semester. If the student fails to obtain this grade point average, the student will be dismissed. At its discretion, the Standards and Readmissions Committee may require readmitted students or students on probation to drop one or more of their courses.

b. A student dismissed at the end of the student's first semester whose grade point average is greater than 75.299 and equal to or less than 76.399 may apply for readmission for the spring semester. Such student may not attend classes unless he or she has filed a written petition for readmission within the time limits indicated in the letter of dismissal issued by the School of Law. To qualify for readmission, an applicant for readmission must show that the applicant's poor academic performance was the result of factors other than intellectual inability to perform satisfactory law school work and that these factors will not continue to impair the applicant's performance in the future. If the Standards and Readmissions Committee denies readmission for the spring semester, or if the student requests readmission as of the next fall semester, the student shall be readmitted for the following fall semester subject to the same conditions described in paragraph C.1.a above, or under such conditions as the Standards and Readmissions Committee may determine. If the student is readmitted for the spring semester, the student will be subject to the dismissal rules under paragraph A.2.a.ii and A.2.a.iii above, but shall not be subject to dismissal under paragraph A.2.c or A.2.d above.

## 2. Readmission Procedures for students dismissed at any time after the first semester

a. A student who has been dismissed may not attend classes unless the student has filed a written petition within the time limits indicated in the letter of dismissal issued by the School of Law.

b. To qualify for readmission, an applicant for readmission must show: (1) that the applicant's poor academic performance was the result of factors other than intellectual inability to perform satisfactory law school work; (2) that these factors will not continue to impair the applicant's performance in the future; and (3) that there is a reasonable probability that the applicant's grade point average can be raised to the graduation level by the time 89 credits have been accumulated.

c. A petition for readmission by a student who has been dismissed shall be heard by the Standards and Readmissions Committee. A quorum of the Standards and Readmissions Committee, for purposes of deciding petitions for readmission, shall consist of one less than all voting members. If the Standards and Readmissions Committee's decision is favorable for readmission, or is unanimous against readmission, that decision shall be final and the student shall have no right of appeal to the Faculty at large. If the Standards and Readmissions Committee's decision is unfavorable against

readmission, but not unanimous, the petition shall be referred to the Faculty at large for decision.

d. A student who petitions for readmission has the right to appear personally before the Standards and Readmissions Committee and, if allowed under these rules, the Faculty at large. The student may be summoned to appear before either group by making a personal appearance or by supplying answers to written questions. (See above for a full statement of rights of petitioners.)

e. A student who has been dismissed for scholastic reasons and whose readmission is approved will be on probation and subject to such conditions as may be imposed. The conditions below will apply unless varied by the Standards and Readmissions Committee or the Faculty.

f. It is the policy of the Standards and Readmissions Committee to make decisions on readmission prior to the end of the summer term for those students who are dismissed at the end of the spring semester and who may be enrolled in the summer term. Therefore, the readmission decision will not be delayed until summer grades are received.

## D. Standard Conditions for Law Students Readmitted after Scholastic Dismissal, and for Law Students on Probation

Students who are readmitted or are on probation are subject to the following conditions as well as any specific conditions stated in the readmission action.

1. They will continue on academic probation until achieving academic good standing, which requires a cumulative grade point average greater than 77.499.
2. Students placed on probation at the end of the fall semester of their first year will be required to take the Foundations of Legal Studies II course during the second semester. At its discretion, the Standards and Readmissions Committee may require such students to drop one or more of their courses.
3. Until such time as they achieve a cumulative grade point average greater than 77.499, they must maintain a semester grade point average as set out in the readmission action. If no semester grade point average was specified, the student must maintain a semester grade point average sufficient to raise the student's grade point average to a cumulative grade point average greater than 77.499 by the time the other requirements for graduation are completed.
4. Their schedule of courses must be approved by the Associate Dean for Academic Affairs, and the dropping of any course during the semester must also be approved by the Associate Dean for Academic Affairs. In general, students will be required to take required courses before electives and take graded courses rather than S/U or pass-fail courses.
5. During any session in which they are enrolled, they will not engage in any employment for compensation or spend a substantial amount of time on extra-curricular activities without the prior written approval of the Associate Dean for Academic Affairs. 'Substantial amount of time on extra-curricular activities' is interpreted by the Standards and Readmissions Committee to include participation in any internal or external competition sponsored by the Board of Advocates as well as any position of leadership on any student board or organization.

6. Unless exempted by the Standards and Readmissions Committee, they are not allowed to take the following courses:

- \* Externship
- \* Independent Research
- \* Courses taught outside Law School for Law School credit (e.g. graduate courses)
- \* Courses taught by adjuncts
- \* Seminars, except students classified as third-year students
- \* Participation in any Study-Abroad Programs
- \* Clinics or clinic-related courses including: Criminal Prosecution Clinic, Clinical Skills, Entrepreneurship Clinic, Family Violence Clinic, Innocence Project, Legislative Practicum, Landlord/Tenant Practicum, Mediation Clinic, Veterans Clinic

**PLEASE NOTE that the Committee cannot exempt students from prohibitions regarding courses that are imposed by external sources such as Supreme Court rule or ABA accreditation requirements.**

## Drug and Alcohol Policy

### Drug Free Schools & Community Act

Pursuant to the Drug-Free Schools and Communities Act Amendments of 1989, the University of Missouri is required to establish a drug and alcohol prevention program for its students and employees. Following is a description of the University of Missouri-Columbia's program. A biennial review of this program will be done to determine its effectiveness, to implement changes to the program if they are needed and to ensure that the University's disciplinary sanctions are consistently enforced.

A reference listing of MU resources for alcohol and other drug educational preventions efforts, counseling, and referral are listed below. Please feel free to contact any of the offices listed for more information.

### Standards of conduct

University of Missouri-Columbia regulations prohibit the unlawful possession, use, distribution, and sale of alcohol and illicit drugs by University students and their guests and for employees on University-owned or controlled property and at University-sponsored or supervised activities.

### University Discipline

Violation of these University regulations can result in disciplinary action up to and including expulsion for students and discharge for employees.

### Legal sanctions

Local, state and federal laws also prohibit the unlawful possession, use, distribution, and sale of alcohol and illicit drugs. Criminal penalties for violation of such laws range from fines up to \$20,000 to imprisonment for terms up to and including life.

### Health risks

Specific serious health risks are associated with the use of alcohol and illicit drugs. Some of the major risks are listed below. For more information contact the Wellness Resource Center in G202 MU student

Center or at [www.wellness.missouri.edu](http://www.wellness.missouri.edu). (<https://wellbeing.missouri.edu/education-outreach/>)

### Alcohol and Other Depressants (barbiturates, sedatives, and tranquilizers)

Addiction; accidents as a result of impaired ability and judgment; overdose when used with other depressants; damage to a developing fetus; heart and liver damage.

### Marijuana

Impair short-term memory, thinking, and physical coordinations. Can cause panic reaction and increase the risk of lung cancer and emphysema. Can interfere with judgment, attention span concentration, and overall intellectual performance. Impairs driving ability. May cause psychological dependence and compromise the immune system.

### Cocaine

Addiction, cardiovascular system damage including heart attack, brain damage, seizures, lung damage, severe depression, paranoia, psychosis. Similar risks are associated with other stimulants, such as speed and uppers.

### Nicotine

Tobacco smoke contains thousands of chemical compounds, many of which are known to cause cancer. Nicotine, which is a central nervous system stimulant, produces and increase in heart and respiration rates, blood pressure, adrenaline production and metabolism. People can rapidly become physically and psychologically dependent on tobacco. Compromises the immune system.

### Inhalants

Inhalants are a diverse group of chemicals that easily evaporate and can cause intoxication when their vapors are inhaled. Most inhalants are central nervous system depressants. Use of these drugs slows down many body functions. High doses can cause severe breathing failure and sudden death. Chronic abuse of some of these chemicals can lead to irreversible liver damage and other health problems.

### Resources

#### Wellness Resource Center - (Campus Alcohol and Drug Abuse Prevention Office)

Alcohol and other drug abuse prevention programs, speakers, peer educators, and referral services and research. Provides educational brochures and other printed materials and houses a large resource library of books, brochures, videos and other materials on a variety of wellness issues including alcohol and other drugs of wellness. Provides BASICS (Brief Alcohol Screening Intervention for College Students) workshops and individual assessments for students caught in violation of alcohol or drug policies or individual sessions for students who would like their alcohol or drug use evaluated.

- **MUSWA (MU Student Wellness Advocates): ADAPT** (Alcohol and Drug Abuse Prevention Team)/**PAWS** (Peers Advocating Wellness solutions) and **PASS** (Peers Advocating Smoke-free Solutions)
- **Sober In College (SIC):** SIC is for students in recovery and students who want to live a sober lifestyle. Sponsors 12 step meetings.
- **GAMMA (Greeks Advocating the Mature Management of Alcohol)** is composed of Greek students who are interested in issues related to responsible alcohol use.

- **Active Minds:** Students working to de-stigmatize mental health issues and increase help seeking skills.

Counseling Center (<http://counseling.missouri.edu/>)  
573-882-6601

This center provides individual counseling, and group counseling.

Student Health Center (<https://studenthealth.missouri.edu/>)  
573-882-7481

This center offers medical services and individual consultation.

University Police crime prevention unit (<http://www.mupolice.com/cp/>)  
573-884-7809

This unit provides alcohol- and drug-awareness presentations as well as printed and video resources.

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## Dual Enrollment

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### Dual Enrollment for Senior Undergraduates

Beginning Fall 2012, qualified undergraduate students will be eligible to enroll in up to 12 hours of graduate credit during the last 30 hours of their undergraduate program. The eligibility requirements are listed below.

#### Eligibility Requirement

With the approval of the undergraduate advisor, the undergraduate divisional dean, the Director of Graduate Studies, and the Graduate Dean, eligible seniors may dually enroll as an undergraduate for up to 12 semester hours of graduate credit. To qualify, seniors must:

1. Rank in the upper half of their class.
2. Have a B average in the most recent 45 semester hours of credit.
3. Be within 30 hours of completing graduation requirements for the first bachelor's degree.

**Note:** Graduate degree programs may establish their own policies with regard to enrollment in and the applicability of senior dual enrollment credits.

Dual enrollment forms (<http://gradschool.missouri.edu/forms-downloads/repository/dual-enrollment.pdf>) (PDF) must be completed and approved by the Graduate School prior to registering for the graduate level courses.

This program also is available to seniors in other Missouri colleges. Additional information may be obtained from the Graduate School.

### Undergraduate/Law Enrollment (90-Credit Program)

With prior written approval, select undergraduate MU Arts and Science students may have up to 30 credits in courses from the School of Law, which are acceptable to the faculty of the College of Arts and Science, applied toward a Bachelor of Arts degree. This combined curriculum enables students to obtain both the Bachelor of Arts (BA) and the Juris Doctor (JD) degrees in six years.

Other university divisions, and some colleges and universities other than MU, accept the Juris Doctorate in lieu of the fourth year of college and award a baccalaureate degree upon graduation from MU's Law School. Students interested in this program should check with the dean of their college early in their undergraduate careers to ensure compliance with all requirements.

The undergraduate degree is a requirement for the Juris Doctor degree. Students entering law school under this combined degree program must make arrangements with their undergraduate schools to complete all requirements for their undergraduate degree.

Students with Bright Flight or MU awarded scholarships, such as Curators, Excellence, and Diversity, may use these awards in the law school. Check with the Office of Financial Aid.

*Please note: While not a problem in the state of Missouri, prior to participating in the 90-credit program, students should determine whether participation would adversely affect admission to the bar in the jurisdiction in which they expect to practice. Some states will not admit to their bar persons with fewer than 14 semesters of university work or who did not have their bachelor's degree before entering law school.*

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## Enrollment Requirements (G)

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### Enrollment Requirements for Master's and Educational Specialist Degree Candidates

After completing courses, students expecting to take examinations, present a thesis, manuscript, project, portfolio, or other capstone project must be enrolled when that activity occurs. If a master's or educational specialist candidate only needs to take exams or defend a thesis or project, the candidate can enroll for "Graduate Examination" hours in myZou. Registration in the "Graduate Examination" does not count toward enrollment certification. Students enrolled in the "Graduate Examination" would not be considered full-time or part-time. If students need to use the library or computers on campus, they should enroll in at least one hour of regular credit hour instead of "Graduate Examination."

### Enrollment Requirements for Doctoral Candidates

Candidacy for a doctoral degree is established by passing the comprehensive examination. Status as a continuous enrollment doctoral student begins the term following the one in which the comprehensive exam was successfully completed (e.g., if they defend at the beginning of the Fall semester, they begin continuous enrollment for the Spring semester). The continuous enrollment requirement is met by enrolling in 2 hours each spring and fall semester and 1 hour each summer semester.

### Important Note on Graduate Examination Registration and Financial Aid

Students with financial aid should check with the Student Financial Aid office before registering for the Graduate Examination option. Failure to do so could result in serious consequences for the student's financial aid status.

### Important Note for International Students regarding Graduate Examination Registration and Your Visa Status

International students must check with the International Center before registering for the Graduate Examination option. Failure to do so could result in serious consequences for the student's visa status.

## Examinations (U)

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### Evening examinations

If a conflict arises between a group evening examination and a regularly scheduled class, the regularly scheduled class has priority. The instructor giving the group evening examination is responsible for scheduling a makeup examination at a mutually convenient time for both the student and the instructor.

### Classes, Exams and Finals

For the schedule of evening exams and finals week schedule, refer to the Class, Exams and Finals (<http://registrar.missouri.edu/academic-calendar/>) on the University Registrar's website.

### Credits by Examination

<https://admissions.missouri.edu/apply-freshmen/college-credits/>

## Examinations (L)

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### Policies Related to Final Examinations

1. The examination schedule is specified by the Associate Dean for Academic Affairs.
2. All students should arrive and be settled in the examination room 15 minutes prior to the scheduled beginning of the examination.
3. Arrivals after the examination begins should report immediately to Room 203 Hulston Hall.
4. The Cover Page for examinations should include the following information:
  - a. Start of the Exam: Do not start reading (other than the cover page) or writing on scrap paper until the proctor starts the exam.
  - b. Exam Number: Write your exam number on the Cover Page (not your Student Id or your pawprint)
  - c. Length of Exam
  - d. Exam Mode
  - e. Materials
  - f. Number of Pages
  - g. Special Instructions
5. The 'Instructions' page of any examination is reserved for all additional special instructions for the examination, and may include:
  - a. the length of the examination;
  - b. any special instructions for collaboration or material to be used during the examination;
  - c. any special instructions for turning in the examination or parts thereof; and
  - d. any other general instructions not a substantive part of the exam itself
6. Each student will have a different number on each examination, unless emergency circumstances require an alternative process. A three-part, perforated slip printed with a number on each of the three parts **MUST** be picked up from Room 203 Hulston Hall prior to the examination. The student will complete each portion of the exam number slip and tear off the bottom part for his/her records. (If a student elects to write their examination and more than one bluebook is used or a computer failure requires the use of a bluebook to complete the examination, the student will carefully number the bluebooks with the assigned number.) At the end of the examination, students will turn in either their exams or their bluebooks with the remaining two portions attached, and all other exam materials distributed including scrap paper. The proctor collecting the examinations will remove the identifying second part to be retained in the office and the professor will receive the bluebook bearing only the examination number.
7. It is important for students to retain their portion of the number slip in order to review an examination.
8. There must be an accounting of all copies of an examination. As a result, the person administering the exam will:
  - a. notify students to complete the exam slip on the front of the exam or the bluebook;
  - b. check the exam slips against the class roster at the conclusion of the exam (any portion of the exam slip that contains the student's name is removed by the law school staff before the exam is given to a faculty member); and
  - c. collect all copies of the examination and other exam materials distributed -- all copies of the exam must be turned in with the exam answer.
9. Examinations are scheduled in rooms that accommodate the taking of that examination. A list of the examination rooms is on the law school website and posted in various places in the law school prior to the last day of classes.
10. Examinations are distributed in the rooms scheduled and in no other rooms unless the exams are take-home exams, or a professor has made special arrangements for the administration of the exam.
11. Students may work on their examinations in assigned rooms only and in other designated areas in the law school. It is the responsibility of the student to return the completed examination to the place where it is to be picked up, at or before the time scheduled for the end of the examination.
12. A student who chooses to leave a designated examination room is responsible for returning their examination to the designated place at or prior to the end of the examination period.
13. Earplugs are permitted in any exam room.
14. The items below are NOT permitted in any examination room, unless SPECIFICALLY authorized by the instructions at the beginning of the written examination, or specifically permitted pursuant to the law school policy relative to exams on computer. The devices below should not be brought into the examination room. If they are, they **MUST** be turned in to the proctor **PRIOR TO THE START OF THE EXAMINATION**. The proctor will collect and keep any such device while the exam is being taken. The following items are prohibited:
  - a. Noise cancelling headphones;
  - b. Cellular phones or other communication devices;
  - c. Personal Digital Assistants (PDA) or any device having the characteristics of a PDA;
  - d. I-pads or other similar devices;
  - e. Laser Pointers;
  - f. Any device that allows for the recording of data, or the playing of recorded data, including, but not limited to iPods, MP3 players, CD players, DVD players, cassette players or recorders;
  - g. Smart watches and other similar devices;
  - h. Digital recording pens and other devices
15. Smoking is **NEVER** permitted in any examination room or on university property.



16. Examinations are distributed by the proctor unless the professor elects to do so. Upon receipt of an examination, each student places his or her initials beside his or her name on the class roll. The proctor writes the time the examination begins and ends on the board in the room.
17. Students in the authorized examination rooms are given a 10-minute warning prior to the end of the examination period. The warning is given by the proctor unless the instructor elects to do so. Once the 10-minute warning is given, no student may leave the examination room. Students shall remain seated quietly.
18. The examination ends at the earliest of the following:
  - a. The time written on the board by the proctor or at the conclusion of the time designated on the examination. In some rooms, a law school staff member may say 'Stop,' but the failure to so indicate does not allow a student to continue to write after the time limit has expired. No writing whatsoever is permitted after the exam ends.
  - b. The time a student submits a written examination to the proctor collecting exams and leaves the immediate line of sight of that proctor. Whether such a student has left the immediate line of sight of the proctor is a question left to the discretion of the proctor, it being recognized that as more students turn in exams, the sight line of the proctor will be decreased.
  - c. The time a student taking an exam on computer submits an exam and exits from the exam-writing software.
19. When the examination period ends, students who have not completed the examination early shall go to the place announced for examination pickup and hand to the proctor the examination, bluebooks and/or answer sheet and all scratch paper, used and unused. The material is checked at that time to be sure exam numbers are on each examination, bluebook and/or answer sheet and then placed in receptacles provided for that purpose. Students should not walk away until the proctor has confirmed they have all materials.
20. At the conclusion of each examination, each student again places his or her initials by his or her name on the class roll. The proctor checks to be sure all examinations and materials that should be returned are returned.

## Externships (V)

Students from other colleges of veterinary medicine desiring an externship or participation in one or more instructional periods of the segmented curriculum must be accepted by the section/department involved. Our visiting students page ([http://vms.missouri.edu/veterinary\\_student\\_extrnships.html](http://vms.missouri.edu/veterinary_student_extrnships.html)) provides more information about available programs. The University of Missouri will not provide insurance coverage for any externship.

Students from colleges with animal health technician training programs desiring an internship in the Veterinary Health Center will be considered upon proper application through the director of that program. They must be enrolled in and paying fees at their college, be evaluated by their director in consultation with the involved departmental unit during the externship period while allowing full utilization of their expertise in the hospitals' operations. [http://www.vms.missouri.edu/vet\\_tech\\_int\\_prog.html](http://www.vms.missouri.edu/vet_tech_int_prog.html) (CVM Executive Committee, 1986)

## Final Examination Week (V)

The University of Missouri College of Veterinary Medicine does not schedule "final examination week" for those courses included in the professional veterinary curriculum. Instead, classes will be scheduled through the last day of any regular session (term). Final grades will be submitted to the Dean's Office so they can be filed with the Office of Academic Affairs as specified in the faculty handbook, i.e., "within 2 days, except Sunday, after the end of the examination period". The "end of the examination period" will be interpreted as the time and date when the "semester (or session) closes". (General Faculty meeting minutes, 10-9-73). Changes in examinations can be scheduled as outlined in the Student Handbook.

## Full-time/Part-time Status

Undergraduate students who register for fewer than 12 hours and graduate students who register for fewer than nine hours during the fall or spring semesters are considered to be enrolled part time.

### Undergraduate Students

Enrollment Status	Fall/Spring	Summer
Full-time	12 Credit Hours	6 Credit Hours
Three-quarter	9 Credit Hours	4 Credit Hours
Half-time	6 Credit Hours	3 Credit Hours
Less than half-time	< 6 Credit Hours	< 3 Credit Hours

### Graduate Students

Enrollment Status	Fall/Spring	Summer
Full-time	9 Credit Hours	4.5 Credit Hours
Three-quarter	6 Credit Hours	3 Credit Hours
Half-time	4.5 Credit Hours	2.25 Credit Hours
Less than half-time	< 4.5 Credit Hours	< 2.25 Credit Hours

### Professional Students

#### Enrollment Status

Law student — 12 Credit hours

Medical student — 10 Credit hours

Occupational Therapy/Physical Therapy student — 9 Credit hours

Veterinary Medicine student — 12 Credit hours

*Policy Source:* Faculty Council, Article VII (<https://missouri.app.box.com/v/facultyhandbook/>)

## Grades

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### GPA of Record

The grade point average for any period is obtained by dividing the quality points earned by the total number of credits for which the student was enrolled during that period. Grades of *S*, *U*, *H*, *W*, *NR*, or *I* are not included in determining the grade point average.

The undergraduate CUM GPA is the University of Missouri GPA, which will include all grades, credits, and honor points attempted at any University of Missouri campus, including all grades and credits. In computing the undergraduate GPA the grade points assigned to students' transfer work are the grade points that would have been assigned if the courses had been taken on the University of Missouri System campus, including any adjustments made under policies related to course repeats and/or Academic Renewal/Forgiveness.

### GPA Calculator Web Site

To calculate a grade point average, go to the GPA Calculator Web Site at <http://registrar.missouri.edu/grades-calculators/gpa-calculator.php>

### Plus-Minus Grading System

The purpose of the grading system is to provide a framework in which the faculty can report evaluation of student performance and achievement. For undergraduates, all teachers are expected to use the grading scale approved by the faculty. This precludes any department or unit from opting to use a modification of the scale.

The A through F grading system is appropriate for those subjects and situations that allow discrimination in quality of achievement and performance. The S/U grading system is more appropriate for students wishing to take elective courses in a subject matter field in which they will be competing with majors, for mastery learning situations, and for courses graded primarily on the basis of attendance.

Grades carrying credit are: *A+/-*, *B+/-*, *C+/-*, *D+/-*, and *S*. Grades calculated in the grade point average are *A+* (4.00), *A* (4.00), *A-* (3.7), *B+* (3.3), *B* (3.00), *B-* (2.7), *C+* (2.3), *C* (2.00), *C-* (1.7), *D+* (1.3), *D* (1.00), *D-* (0.7), and *F* (0). The grades of *S*, *U*, *NR*, and *W* are not incorporated in the grade point average.

Students must have a cumulative GPA of 2.00 to remain in good academic standing.

All regulations currently applicable on a course-by-course basis and currently tied to a specific letter grade would be interpreted to mean a specific letter grade range. Hence, if a student must achieve a *C* in one course in order to proceed to another course, under the plus-minus grading system, that student must achieve a grade in the "C range," which would include the grade of *C-*.

All regulations currently tied to a specific grade average are interpreted to mean the numerical average currently associated with that specific grade. Hence, the required "C average or better" on all courses is a "2.00 average or better."

The grade of *S* (on S/U basis) is defined as equivalent to the letter grade of *C-* or higher.

## Satisfactory/Unsatisfactory Grading System

Students may elect to take courses under the S/U (pass/fail) grading system in several MU colleges and schools. Before electing to take a course on a pass/fail basis, the student should evaluate the advantages and disadvantages of the S/U grading system. The S/U grading status is indicated in the appropriate column on the registration or add/drop form. Students may change to or from the S/U status only through the tenth day of classes in a semester.

In general, the teacher of a course does not know which students, if any, are enrolled on the S/U system, and a grade of *A-/+*, *B-/+*, *C-/+*, *D-/+* or *F* for each student is reported to the Office of the University Registrar. The Office of the University Registrar staff members ascertain which students are enrolled on the S/U system and assign a grade of *U* to those reported for grades of *D-/+* or *F*, and a grade of *S* for those reported *A-/+*, *B-/+* or *C-/+*. Grades of *S* and *U* are not included in the computing of grade point averages.

Enrollment in courses under the S/U system is subject to the following restrictions by the University faculty:

- Students cannot change from one grading system to the other after the tenth day of classes in the fall or spring semesters, or the equivalent thereof in a shorter session.
- Students cannot elect to enroll in more than one course on an S/U basis in a given semester. This excludes courses taught only with the S/U grading system.
- First-semester freshmen and students on scholastic probation are not eligible to enroll in courses on an S/U system. This excludes courses taught only with the S/U grading system.
- *A+/-*, *B+/-*, and *C+/-* grades are recorded on the transcript as an *S*. *S* grades are not included in the semester or cumulative grade point average on the transcript. Full credit is earned for courses completed with a grade of *S*.
- *D+/-* and *F* grades are recorded on the transcript as a *U*. *U* grades are not included in the semester or cumulative grade point average on the transcript and no academic credit is awarded for courses completed with a grade of *U*.
- Courses completed with a grade of *S* may be accepted in an area of concentration only with the prior approval of the area advisor.

Courses completed with a grade of *S* may constitute no more than 20 percent of the total credits for the baccalaureate degree.

- Taking S/U courses may affect eligibility for Latin or other graduation honors for undergraduate students. Contact the academic advising unit for information.
- Some specified courses may not be taken on S/U basis to meet graduation or degree program requirements. Contact the academic advising unit for S/U approval.

## Selecting Grading Options (S/U vs. A through F)

Students must choose to change their grading option no later than after the expiration of two weeks following the first day of classes in regular session or the equivalent thereof in a shorter session. Students' academic advising unit must approve and change their grading option in myZou for the change to become official. See the University Registrar's

website at <http://registrar.missouri.edu/academic-calendar/> for deadlines for each term.

## How Dropping/Withdrawing from a Class Affects the GPA

Students may drop a course through the end of the business day of the fifth week or the 25th class day of the semester. It will have no effect on the grade point average. After the 25th class day, the signature of the course instructor and/or dean of the academic unit is required. After the last day to drop, students are withdrawing from a course if they choose to leave the course. Students may withdraw from a course through the end of the business day of the 10th week or 50th class day of the semester. At this point a grade of W for withdraw is recorded if the student was passing at the time of withdrawal. If the student was failing at the time of withdrawal, the course grade is F. The instructor determines which grade to assign. A W grade does not affect the grade point average, while a grade of F does. The grade generally will not appear until all grades for the course are submitted at the end of the semester.

## Grades for Students Who Officially Withdraw from the University

No grade will be assigned to a student who officially drops prior to the 26th day of the fall or spring semester or an equivalent period in a summer session (other non-standard classes are also adjusted accordingly).

Students who officially withdraw from a standard 16-week course on or after the 26th day may be required to obtain the signature of the course instructor on the Course Withdrawal Form, available from the academic advising unit. This will inform the student of the grade (*W* or *F*) that will be submitted to the Office of the University Registrar at the end of the semester. A grade of *F* is assigned if the student is judged to be failing at the time of the withdrawal and will be calculated into the grade point average. Once the course withdrawal form is completed, students should return the form to their academic advising unit to obtain the dean's signature (stamp of approval) on an add/drop form. The add/drop form is submitted to 125 Jesse Hall for processing.

Dropping or withdrawing from all classes for a term is considered withdrawing from the University. If done after the first day of standard classes the student remains eligible to pre-register for the following term. If a term elapses (other than summer) between enrollments, the student must apply for readmission. **NOTE:** Refund dates are different from withdrawal dates. (See Withdrawal from the University section on the University Registrar's website: <http://registrar.missouri.edu/policies-procedures/withdrawal-university.php>.)

## Grade Appeal

Guidelines for grade changes are as follows:

- Students who believe that they have been graded unfairly or incorrectly should see the course instructor.
- If still dissatisfied, the student may appeal to the chair of the department. (If the course has a large number of sections, it may have a course director. If so, the student should see the director before appealing the grade to the department chair.)
- The chair of the department will conduct an investigation. The chair cannot substitute his or her judgment for that of the instructor concerning the quality of the student's work.
- If the instructor of the course also is the department chair, the dean of the school or college will handle grade appeals.
- No one may substitute personal judgment for that of the instructor concerning the quality of the student's work. However, mathematical or mechanical errors in scoring examinations may be corrected.
- No grade shall be otherwise changed unless there is clear, convincing and unequivocal evidence that it was a direct result of arbitrary and capricious conduct by the instructor.

## Incomplete Grades (Grade of I)

Whenever students cannot be assigned a grade at the end of a course in which they have been enrolled because their work is for good reason incomplete, the instructor will postpone the grades, reporting *I* grades to the University Registrar.

An *I* grade may be assigned only when:

1. The completed portion of the student's work in the course is of passing quality AND
2. There is such evidence of hardship as to make it unjust to hold the student to the limits previously fixed for the completion of the work.

Each department of the schools and colleges maintains a record of *I* grades in courses of that department. (Exemptions are made for research courses and problems courses related to research assignments.) This record, kept in the electronic student information system, will include:

- The name of the student
- The course number, title and credits
- Semester and year of enrollment
- A brief statement of the reason for delaying the grade
- An adequate guide for the removal of the *I* grade along with a suggested final grade in the event of the departure or extended absence of the instructor from the campus

An undergraduate student who receives an *I* grade must complete the course requirements either:

1. within one year from the date it was recorded (unless the course is numbered 4950-4959 or 4995), OR
2. before the date of graduation (whichever comes first).

When an incomplete is satisfactorily resolved, the faculty member responsible for the grade change will notify the University Registrar of the revised grade.

Otherwise, the University Registrar will remove the *I* and record a grade of *F* in classes graded A-F or a grade of *U* in classes graded S/U. Any student planning to graduate with an unresolved *I* grade should be aware that translation to an *F* could drop the GPA below the requirements for graduation. As with any academic deficiency, the low GPA would delay the student's graduation until all requirements for graduation are met.

### Note:

- A grade of *I* is not figured into the grade point average.
- Students should not re-enroll in a course for which they have been assigned a grade of *I*.
- For further information, see the Faculty Handbook, Academic Regulations (<https://missouri.app.box.com/v/facultyhandbook/>).
- Exceptions to unresolved incomplete grades changing to an *F* are as follows:

- Courses taken for graduate level credit
  - Courses taken prior to Fall 2003
  - Undergraduate research, honors research or problems courses that are approved for multiple terms of continuous research
- Grades of *I* and the reason for the delay of grade may also be entered directly into myZou.

Questions may be directed to the Office of the University Registrar, (573) 882-4249.

## Unassigned or Erroneous Grades

To correct a grade erroneously reported, proper notification is sent from instructors and their department chairs to the Office of the University Registrar on a form provided for that purpose.

**Note:** Grade corrections must be processed within one year of the original reporting date.

In situations when there is a failure to record a grade on the official grade sheet, the University Registrar will record a *NR* (not reported) and send a written notification of this action to the faculty member and relevant department chair. The faculty member is responsible for submitting a corrected entry. After 12 months *NR* will change to an *F*.

For graduate and professional students, the *NR* grade will remain on the transcript until a letter grade is submitted. If a letter grade is not submitted, an *NR* can remain on the student's record indefinitely and will not convert to an *F*.

No student may be re-examined for the purpose of changing a grade after a final grade has been reported to the University Registrar. For further information see the Faculty Handbook, Academic Regulations (<https://missouri.app.box.com/v/facultyhandbook/>). Questions may be directed to the Office of the University Registrar, (573) 882-4249.

## Grades & Credits (G)

### Grading Scale

Graduate students' grades in all courses counting toward an advanced degree may be reported as: A +/-, B +/-, and C +/- . Faculty members are not required to use a plus/minus grading scale; that decision should be based on the faculty member's evaluation of student performance and/or policies of their academic program.

Grade point averages are calculated as: A+ (4.0), A (4.0), A- (3.7), B+ (3.3), B (3.0), B- (2.7), C+ (2.3), C (2.0), and C- (1.7).

The Graduate School considers grades of C+, C and C- as passing grades; however, grades in the C range may not be acceptable for specific program-matic requirements and may result in the student being unable to maintain a 3.0 cumulative average. No D grade may be awarded to a graduate student, and a grade of F means the work has not satisfied the minimum requirements of the course. W denotes withdrawn passing and does not affect a student's grade point average.

### S/U Grading

Graduate students may be graded satisfactory/unsatisfactory (S/U) in graduate-level courses only when those courses are designated as "graded on S/U basis only" in the online Schedule of Courses available through myZou.

## Incompletes

An incomplete grade (*I*) may be recorded when the student's work is incomplete but otherwise worthy of credit, or when the instructor is unable to assign a grade at the end of the semester. The student must finish this work (Problems and Research courses exempted) within the next calendar year of residence.

If the work is not completed after one calendar year, the request to change an "I" grade will require an accompanying letter of justification from the instructor. Although grades of "I" do not automatically convert to an "F" if not completed, academic programs or the instructor may establish conditions or regulations pertaining to "I" grades that are more stringent.

## Unreported Grades: NR

When grades are not reported by the instructor, these "Blank Grades" will be recorded as "NR" (Not Recorded). The NR designation will remain on the student's transcript until a letter grade is submitted. If a letter grade is not submitted, the NR can remain on the student's record indefinitely and will not revert to an "F".

## Grade Changes by Faculty

Faculty members may change grades within the policies set by the faculty. Grade Change Forms, available from the faculty member's academic unit, must be completed, signed and submitted to the Office of the University Registrar - Records Dept., 126 Jesse Hall.

## Graduate-Level Credit

No graduate credit is given for courses numbered below 7000. Graduate students taking 7000-level courses that are cross-leveled with 4000-level courses will be given additional course requirements in order to warrant graduate credit received for those courses. Courses at 8000/9000 level are primarily for graduate credit. 8090/9090 research (8990/9990 Research for Engineering students) is reserved for master's and doctoral degree students working on a thesis or dissertation.

## Grade Point Average

A graduate student's grade point average is based on the student's entire graduate record at MU. To remain in good standing, a graduate student must maintain a cumulative GPA of 3.0 or better.

## GPA and Probation

At the end of each semester, graduate students with a cumulative GPA below 3.0 are placed on probation. If at the end of the following semester the cumulative GPA is 3.0 or better, the probationary status is removed.

A student on probation failing to raise the cumulative GPA to 3.0 may, on the recommendation of the department or area program, be allowed a second probationary semester.

A student is subject to dismissal upon failure to raise the cumulative GPA to 3.0 by the end of the second probationary semester, or at any time a semester/term or cumulative GPA falls below 2.0. Note: Summer session is not counted as a semester.

## GPA and Graduation

To graduate, a student must have an overall GPA of 3.0 in all graduate courses taken at MU and not just those courses listed on a plan of study.

For more information on grading, credit and related policies go to <http://gradschool.missouri.edu/academics/progress/grading-credit.php>.

## Grades & Ranks (L)

### Class Rankings

At the end of each semester, students are included in the first year, second year or third year class lists and are given a class rank based on their position in their class list. Classes are ranked by expected date of graduation.

When calculating the class rankings for the first year and second year classes, summer grades are included in the rankings for the following fall semester.

The graduating class ranking is determined as of the end of the summer semester and includes all students graduating within the academic year (preceding fall and spring semesters and current summer session).

### Rules for Determining Class Levels

In order to register for courses, students are assigned a class level. The class levels are determined as follows:

1. **First Year Students:** A student who has received 30 hours or fewer of law school grades;
2. **Second Year Students:** A student who has between 31 and 56 (inclusive) hours of law school grades;
3. **Third Year Students:** A student who has received more than 56 hours of law school grades;
4. **Law School Grades:** As used herein, 'law school grades' means grades counting towards credit at the School of Law. Failing grades do not count as 'law school grades;'
5. **Effect of Summer School.** The determination of class level is made ONLY at the conclusion of the fall and spring semesters. A student's class level will NOT therefore change at the end of summer school;
6. **Exceptional Circumstances:** In cases of students in unusual situations, including, for example, part-time or unusually heavy- or light-load semesters, a determination will be made on the basis of dividing the student's law school career into relatively equal periods for the first, second and third years.

### Computation of Grade Point Average (GPA)

Grade point averages are based only on law school courses taken at this school and only upon 'graded courses.' For the purpose of computing grade point averages, a 'graded course' is one which is graded on the 65-100 scale.

A grade point average is obtained as follows:

1. The 'grade points' for a graded course are obtained by multiplying the numerical grade for the course by the number of credit hours for the course.
2. The 'grade point average' is obtained by dividing the total grade points for all graded courses by the total number of credit hours for all graded courses.

In computing grade point averages, all graded courses are included. When a course is repeated, the grade and hours for both takings are included in computing cumulative grade point averages subject to the following exception:

A student who is required to repeat a course will have his or her cumulative grade point average computed as follows: If the grade on the repeated course is 81 or higher, neither the hours nor the

grade for the previous taking of the course will thereafter be used in the computation of the student's cumulative grade point average. The earlier grade will, however, remain on the transcript.

Grade point averages are computed for each student by semester, year and cumulatively. The fall semester grade point average includes the courses taken in the fall semester and courses taken in the preceding summer session. The yearly grade point average is based upon courses taken during a student's first, second and third years.

### Course Repeat Policy

The School of Law's Standards and Readmissions Committee ('the Committee') has adopted the following course repeat policy:

1. Students who petition the Committee for readmission may be required to repeat any or all courses previously completed;
2. Students who achieve a grade in a course above the graduating average are not eligible to repeat that course;
3. Students who achieve a passing grade in a course that is below the graduating average are eligible to petition the Committee for permission to repeat the course. The Committee may grant such petition based on exceptional circumstances;
4. Students who fail a required course are required to repeat that course unless, in exceptional circumstances, repeating the course is waived.
5. Students who fail a non-required course are eligible to petition the Committee for permission to repeat the course. The Committee may grant such petition based on exceptional circumstances.

Note: When a course is repeated only the hours for one taking may be credited toward meeting the graduation requirement of having passed 89 hours, without regard to how the course is treated for computing grade point averages.

### Dean's List

Beginning with the Class of 2021 and going forward, the top 1/3 of the class will be eligible for inclusion on the Dean's List. For the Class of 2019 and the Class of 2020, a student qualifies for inclusion on the Dean's List with a semester average greater than 85.999.

### Good Standing

After the first semester of the first year, a student is in 'good standing' at the School of Law if the student's cumulative GPA is greater than 76.399.

Thereafter, a student is in 'good standing' at the School of Law when both the student's current semester and overall GPA are greater than 77.499.

### Grades and Grading

The grades (<https://law.missouri.edu/registrar/grades/>) recorded in the School of Law are the official grades and the determination of grade point averages and satisfaction of law school requirements is based on the grades recorded in the School of Law.

Grades are recorded in the School of Law as numerical grades ranging from 65 through 100 or, where authorized, by the letters 'S' (Satisfactory) and 'U' (Unsatisfactory). The grades of S and of 70 through 100 are passing grades and earn course credit. The grades of U and of 65 through 69 are failing grades and do not earn course credit. A 70 is the lowest passing grade and a cumulative grade point average greater than 77.499 is the minimum required for graduation.

With the exception of Independent Research, and any of the activities that satisfy the writing requirement, if grading is to be done other than

anonymously, the syllabus shall so state. Professors do not know the names of students until after grades are turned in to the Dean's Office. Professors may not obtain the names of students prior to assigning grades. Upon written approval from the professor and only under exceptional circumstances may a grade be changed after the names are known.

Explanation of the Grading Scale (<https://law.missouri.edu/registrar/grades/>)

## Grades from myZou

Students may obtain their grades from MyZou. In addition to the student's PawPrint, when checking grades for only one course, students must know the course number.

## Student Honors

### J.D. Degree Cum Laude

Any student with a graduating grade point average greater than 96.999 is eligible for the designation of Juris Doctor Summa Cum Laude upon graduation.

Any student with a graduating grade point average within the top 7 percent of the graduating class is eligible for the designation of Juris Doctor Magna Cum Laude.

Any student with a graduating grade point average within the top 12 percent of the graduating class is eligible for the designation of Juris Doctor Cum Laude.

### Order of the Coif

The Order of the Coif is a national law school honor society, founded for the purpose of encouraging legal scholarship and of advancing the ethical standards of the legal profession. It has established chapters in the leading law schools of the country. Its members are selected by the faculty from the top ten percent of the graduating class and rank highest in scholarship, and whose achievements as students make them worthy of this distinction. Selections are made after six semesters of grades and once rankings have been determined. To be eligible for membership in the Order of the Coif students must complete 75 percent of their law studies in graded courses. Starting in 2014, transfer students will be considered as having completed their first year of law studies in graded courses for purposes of calculating the 75 percent of coursework in graded courses requirement.

### Order of the Barristers

The Order of the Barristers is a national law school honor society founded for the purpose of promoting legal advocacy and of advancing the ethical standards of the legal profession. Members are selected based upon participation and excellence in the advocacy programs of the School of Law.

## Graduate Academic Minors (G)

### Non-designated minors

Non-designated minors consist of course work constituting a unified plan of study that includes a minimum of nine hours of graduate course work. These minors should be listed on a student's plan of study; however, they are not listed on a student's transcript.

## Obtaining approval for a minor

Both designated and non-designated minors must be approved by the student's major advisor, the student's academic program director of graduate studies, and the Graduate School.

In addition, the inclusion and completion of a designated minor must be approved by the director of graduate studies (or academic program chair/program director) of the academic program or interdisciplinary group offering the minor. Designated minors are listed on a student's transcript.

## Graduate Assistants and Fellows (G)

### Graduate Assistantships

Graduate assistantships give students opportunities for professional experience, academic training and financial support while pursuing advanced degrees. Specific assignments vary by type of assistantship. Graduate assistantships generally entail 10-20 hours of work per week (.25 to .50 full-time exempt). Students who hold graduate assistantships are discouraged from working more than 20 hours per week for more than one semester during the period of the assistantship.

### Fellowships

Fellowships are a type of aid granted to graduate students to help support their education. Some fellowships include a tuition waiver or a payment to the university in lieu of tuition. Most fellowships include a small stipend to cover living expenses. Unlike a loan, a fellowship is a form of gift aid and does not have to be repaid. However, fellowships may be taxable and reportable to the Internal Revenue Service. No service or work requirement is associated with a fellowship.

### Assistantship and Fellowship Policies

The complete set of policies regarding graduate assistantships and fellowships may be found on the Graduate School's website (<http://gradschool.missouri.edu/policies/graduate-assistantships-fellows.php>).

## Graduate Certificates

A graduate certificate is not a graduate degree. Rather, it is a document verifying the successful completion of a specified group of graduate courses. Certificates are intended to help students acquire (or enhance) discipline-related knowledge and skills. Upon completion of a designated set of courses and other requirements, the name of the graduate certificate will appear on the student's official University of Missouri Transcript.

To accommodate a variety of learners' needs, MU offers two types of graduate certificate programs:

- Stand-alone graduate certificates allow individuals to earn graduate credit hours without having to enroll in a specific degree program. Prospective students have an option to apply for graduate study as a Certificate-Seeking Student only. Degree seeking students may also pursue this type of certificate as complementary to (or independent of) their graduate degree program.
- Degree-dependent graduate certificates are designed for degree-seeking students only. Further, the students must be enrolled in the particular degree program offering the certificate. In other words, this type of certificate is intended for degree seeking students who wish to pursue specialized courses or related, complementary study.

## Certificate Admission Information

Stand-Alone Certificate Applicants. All students enrolled in a stand-alone graduate certificate program will be classified as Graduate Certificate-seeking graduate students. As such, to qualify for admission, they must have successfully completed the baccalaureate degree at an accredited college/university. Specific graduate certificate programs may have admission standards that exceed those for post-baccalaureate graduate students. New graduate applicants wishing to pursue a stand-alone certificate only should complete the Graduate School's online application for admission and meet the Graduate Faculty Senate's minimum admission requirements for all programs.

## Degree-Dependent Certificate Applicants

New applicants applying for a degree program should complete the Graduate Studies' online application for admission for the degree program. Once enrolled at MU, the Application for Graduate Change of Division, Program, Degree Emphasis or Advisor Form (pdf) should be completed to add a graduate certificate.

## Financial Aid

Check eligibility on both types of certificates Degree-dependent graduate certificate programs are federal financial-aid-eligible. Students only enrolled in stand-alone graduate certificates are potentially eligible for federal financial aid. Read our disclosure pages to learn more about the costs (tuition & fees); time needed to complete the certificate; and future placement (e.g., degree programs, jobs) of certificate holders. Next, check with MU Student Financial Aid Office to determine eligibility. Students enrolled only in a stand-alone graduate certificates are not eligible for scholarships, fellowships, assistantships, tuition waivers, etc. from the Office of Graduate Studies or University of Missouri.

## Stand-Alone Certificate Admission Requirements for Non-Degree Seeking Students

A non degree-seeking student who is admitted into a stand-alone certificate program will be officially classified as "certificate-seeking" graduate student. To be admitted, the student must have successfully completed a baccalaureate degree at an accredited college/university. Specific graduate certificate programs may have admission standards that exceed those for post-baccalaureate graduate students. Transfer credit for stand-alone certificate seekers. A maximum of three graduate credit hours which correspond directly to the MU graduate certificate program course requirements may be used as transfer credit from another university to satisfy the requirements for the certificate program. An original transcript from the other university, verifying graduate credit received for the requested hours of transfer credit, must be submitted to the Graduate School when the Plan of Study form is submitted. Please refer to the certificate program's site for certificate policy updates.

## Credit Hours Necessary for Certificate Completion

Graduate certificates vary in completion requirements, including the minimum credit hours. Please refer to the certificate program's site for credit hour requirements.

Up to 12 hours of graduate credit earned for graduate certificate may be applied to degree requirements for a graduate degree upon approval of the degree program.

## Grievances (L)

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The School of Law is a charter member of the Association of American Law Schools. Information on the AALS may be found at <http://www.aals.org/>.

The School of Law is fully accredited by the American Bar Association. Questions regarding ABA accreditation may be directed to the Office of the Consultant on Legal Education, American Bar Association, 321 N. Clark Street, 21st Floor, Chicago, IL 60654-7597, (312)988-6738.

Student complaints implicating compliance with the standards imposed by the American Bar Association Section on Legal Education and Administration to the Bar shall be filed in writing with the Associate Dean for Academic Affairs, or if the complaint involves the person serving in that capacity, with the Dean of the Law School. The complaint shall include the date on which the complaint is being filed; the name and address of the complainant; and a description of the complaint. The description of the complaint shall include a description of the accreditation standard which the law school's action or inaction implicates. The Associate Dean for Academic Affairs (or the Dean of the Law School) will investigate the complaint and respond to the complainant in writing within 30 calendar days from receiving the complaint. The response will indicate whether the Law School has taken any corrective action, or if not, the reasons for not taking any action.

The complainant shall have the right to appeal this initial decision by filing an appeal with the Faculty Policy Committee. The appeal shall be filed in writing within 14 calendar days from the date on which the initial decision was issued. The appeal shall include the date on which the appeal is filed; the name and address of the complainant; a copy of the original complaint; a copy of the initial decision; and an explanation of the basis of the appeal.

The Faculty Policy Committee will review the documents presented, and issue a decision in writing within 30 calendar days from receiving the appeal. The Faculty Policy Committee can sustain or reverse the initial decision. In cases where the initial decision is reversed, the Faculty Policy Committee will direct the Associate Dean for Academic Affairs on what corrective actions to take. The decision of the Faculty Policy Committee shall be considered final and subject to no further review.

All complaints submitted to the Associate Dean for Academic Affairs or to the Dean of the Law School shall be retained for a period of 7 years in the Associate Dean for Academic Affairs Office or electronically. The above serves to satisfy ABA Standard 510.

## Holds

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There are several types of holds, which are restrictions that may block registration. Students are notified through myZou if they have a hold. They should go to the location indicated in myZou to resolve the hold.

*Policy Source: Academic Unit/Department*

In some situations, it is important that records or holds preventing certain actions be maintained in student records across the four campuses in the University of Missouri System. For instance, if a student is sanctioned with University Dismissal, University Suspension, University Expulsion or other sanctions / agreements that extend beyond a given campus, a mechanism to enforce such agreements or sanctions is applied. (Click here for the policy

([http://www.umsystem.edu/ums/rules/collected\\_rules/programs/ch200/200.025\\_equity\\_resolution\\_process\\_for\\_resolving\\_complaints\\_of\\_harassment](http://www.umsystem.edu/ums/rules/collected_rules/programs/ch200/200.025_equity_resolution_process_for_resolving_complaints_of_harassment))

## Honors Recognition (V)

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Each student graduating from the College of Veterinary Medicine and whose cumulative grade point average (G.P.A.) in the professional curriculum is within the range listed below will be designated, as indicated on the diploma, to graduate with honors:

G.P.A. 3.9-4.0 summa cum laude

G.P.A. 3.8-3.89 magna cum laude

G.P.A. 3.7-3.79 cum laude

(General Faculty meeting minutes, 10-10-74)

## Late Registration

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A student cannot register in classes offered by any school or college after one week following the first day of classes in a regular semester or the equivalent period of time for other sessions or classes. Class session meeting dates may be found in the class details on myZou (<http://myzou.missouri.edu/>).

A late registration fee equal to the tuition for one undergraduate credit hour will be assessed starting the first day of classes for the regular session for the term.

Exceptions to this rule are enrollments in class sections of graduate exam, internships, problems, research and special readings.

## Leave of Absence (G)

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### Key Terms

#### Leave of Absence

The student anticipates a need to discontinue enrollment for one or more semesters.

#### Active Duty Leave or Withdrawal

Students who are members of the US Military (e.g., Reserve or National guard) may be called into active duty by the government. As a result of the assignment, the student may need to request an active duty leave or may decide to withdraw from the University.

#### Contact Advisor and Director of Graduate Studies

Students considering a leave of absence that will result in a break in enrollment of one or more semesters must first contact their graduate advisor and the academic program's director of graduate studies to inform them of their intent, the reason requesting leave and the expected duration.

#### Letters to the Graduate School

If leaves are requested for pregnancy, parenting, or other caregiving reasons or once a doctoral student has reached candidacy (post-comprehensive examination), the request must be approved by the Dean of the Graduate School. After approval of the leave at the academic program level, the director of graduate studies and the student will submit letters to the Dean of the Graduate School. The director of

graduate studies' letter will verify that the academic program has been ~~submitted~~ and that a leave of absence has been approved. The letter from the student will provide an explanation for the request as well as the anticipated departure and return date. All leaves for pregnancy, parenting, and other caregiving reasons will be granted according to the policy established by the Graduate Faculty Senate.

#### Resolving Financial Support Responsibilities

It will be the responsibility of students to resolve all issues pertaining to their support (e.g., research or teaching assistantship, scholarship) with their advisor or other relevant authority before departure. These issues include the date when support will be terminated and whether or under what conditions the student will be reinstated for support upon their return.

#### Notification for Re-Entry

Before the completion of the Leave of Absence, the student must notify the academic program's director of graduate studies and the Graduate School so that the re-entry process can be initiated.

#### Contact with the University During Leave

Students on a Leave of Absence may not make significant use of University resources and services or engage in significant consultation with the faculty.

#### Extension of Degree Time, Continuous Enrollment

Time spent on leave does not automatically extend limits for completion of the graduate degree but can be considered in a request for an extension. Extensions for parenting, pregnancy, and caregiving reasons will be granted at the time of the leave request.

Doctoral students who are required to maintain continuous enrollment may petition for an exception to this policy while they are on an approved Leave of Absence. Students who are on leave due to pregnancy, parenting, or other caregiving reasons will not be required to petition for an exception and will not be required to be continuously enrolled during the leave.

#### International Students

International students in F-1 and J-1 non-immigrant status must also obtain authorization from the International Center before the initiation of a Leave of Absence and before returning to campus to ensure compliance with current SEVIS regulations and visa restrictions.

F-1 and J-1 students approved for a leave of absence may not remain in the United States during the leave period unless authorized by the International Center. For students who must depart the United States, leave periods exceeding five months will necessitate updated student immigration documentation for re-entry.

All international students considering a leave of absence should meet with an international student advisor to determine the appropriate steps to safeguard their immigration status.

#### Military - Active Duty (Voluntary or Involuntary)

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Enrolled students called into active service in the armed forces of the United States prior to the completion of the semester, whether voluntarily



or involuntarily, but not including active service for training, shall be eligible for either of the options listed as follows: **NOTE: Students must choose either option 1 or 2**

Students taking distance / online classes who reside in states other than Missouri where a conflicting law may require other options than listed below will be given the accommodations required by that law when the student provides documentation of the law's existence and proof of its applicability to him/her. **Please note:** Students who are enrolled at the University of Missouri and reside in a state outside of Missouri should review the information below related to unique military deployment benefits:

State of Iowa "Code Section 261.9(1)'g' (<https://www.iowacollegeaid.gov/content/postsecondary-registration-iowa-code-chapter-261b-additional-requirements/#codes>)

## Option 1 - Withdrawal from all courses for semester

They may choose to withdraw from all classes. In such cases, a student may request either:

1. That the official transcript indicate the courses from which he or she has withdrawn, the date of withdrawal and the reason for withdrawal. Students choosing this option will have their tuition and fee charges and their student financial aid eligibility calculated effective with their official withdrawal date.
2. Or the student may request that all courses for that semester be expunged from the student's academic record. Students taking this option will receive a complete refund of all educational and incidental fees paid by the student for enrollment for that semester. However, students who have received federal, state or institutionally funded financial aid must return all aid disbursed to them for the semester

**NOTE:** Students must see their Academic Advising Unit to withdraw and return the form to Office of the University Registrar, 125 Jesse Hall.

Refunds will not be immediately available. Refunds are based on your last method of payment (i.e. credit card, check, etc). Refund checks will be sent to your mailing address unless a forwarding address is left with the University.

## Option 2 - Receive Incompletes in all courses for the semester

The student may choose to receive an incomplete in all courses not yet completed for the semester. In that case the following rules apply:

- The student must complete all course work for the semester to the satisfaction of the instructor(s), and the time a student spends on active military duty shall not be counted against time allowed for the completion of an "Incomplete" grade.
- **I to F policy:** Students called to active military duty will be exempted from the one-year automated changes of I to F grades for the term of deployment and the year prior to deployment. In accordance with State statute, students may complete work upon their return from duty or may choose to maintain the I grade. Therefore, I grades for students called to active military duty will remain listed as "I" until a change of grade is submitted by the faculty member, or indefinitely, if so desired by the student.
- **NR to F Policy:** Military duty will be exempted from the one -year automated changes of NR to F grades for the term of deployment and the year prior to deployment. In accordance with State statute, students may choose to maintain the NR grade. Therefore, NR

grades for students called to active military duty will remain listed as "NR" indefinitely, if so desired by the student.

Upon completion of all course work for the semester, the student may choose either to:

1. Have the grade earned for the course and have the "Incomplete" expunged from his or her official record  
OR
2. Have the "Incomplete" grade remain as the final grade with reason for the "Incomplete" noted on his or her official record

**NOTE:** No refunds will be given for option 2.

**Residential life:** Residential life will be contacted and informed of your intent to exit the University. Room, board and social fees will be prorated and applied to your University student account based on the effective date of your official check out from the residence hall or other University accommodations.

**Financial Aid:** The Office of Student Financial Aid will be informed of your student status and your official withdrawal date and may make adjustments according to federal, State of Missouri and institutional guidelines.

**Scholarships:** Scholarships may or may not be applicable upon the student's return to the University. For example, Section 41.948.2, RSMo, provides that if a student has been awarded a scholarship to be used to pursue an academic program in any higher education institution in Missouri and he or she is not able to complete the term for which the scholarship was granted, the student shall be awarded that scholarship at any subsequent academic term provided the student returns to the academic program at the same institution at the beginning of the next academic term after the completion of active military service. If a student has any scholarships or other aid or award, he or she should contact the issuer to determine whether it will be applicable on his or her return and whether he or she will need to satisfy any other conditions.

### Contact:

Office of the University Registrar  
125 Jesse Hall  
The University of Missouri - Columbia  
Columbia, MO 65211  
Office: (573) 882-7881  
Fax: (573) 884-4530

**The Office of the University Registrar will require the following information:**

- A copy of your military orders, as soon as possible
- Forwarding Address
- Name, address and phone number of a contact or your representative
- Your name as it is on MU records
- MU ID number
- Which option student wishes to choose for classes

This information may be brought to 125 Jesse Hall or faxed to (573) 884-4530.

## Re-admission of previously enrolled students

**Undergraduate** students who are returning to MU after an absence of at least one semester must complete a request for re-admission

for undergraduate studies (<https://admissions.missouri.edu/apply-returning-student/>) and return it to the Office of Admissions, 230 Jesse Hall, Columbia, MO 65211-1300 or fax to 573-882-7887.

Degree-seeking **graduate** students who are returning to MU after an absence of at least two semesters must complete a graduate studies re-activation form (PDF) (<http://gradstudies.missouri.edu/forms-downloads/>) and return it directly to the academic program for approval. Post-baccalaureate (non-degree seeking) graduate students should return the completed form to the Graduate Admissions Office, 210 Jesse Hall, Columbia, MO 65211-1160 or fax it to 573-884-5454.

View Missouri Revised Statutes Chapter 41 (41.948) (<https://revisor.mo.gov/main/OneSection.aspx?section=41.948>). This policy is implemented to assure that students called to active duty prior to the end of a term receive fair and just treatment, both financially and academically.

Contact the Office of the University Registrar-Registration for more information at 573-882-7881.

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## MU Course Work Required

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MU requires that 30 of a student's last 36 credits must be MU course work. Mizzou Online-Self Paced courses authored by MU faculty are acceptable as are courses offered for credit through Mizzou Online. (NOTE: This policy has replaced the requirement for courses to be taken "in residence.") Courses from a community college can account for six of the last 36 credits.

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## Name Changes

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### Policy Related to Changing Preferred Names for Students at the University of Missouri

The student may use preferred first and middle names at Mizzou. Preferred first and middle names are used on class rosters, ID cards, transcripts and diplomas and other locations where the legal name is not required. The policy outlining the use of the name may be found at: The University of Missouri Office of the University Registrar Preferred Name Policy ([https://www.umsystem.edu/ums/rules/collected\\_rules/information/ch180/180.040\\_student\\_preferred\\_name\\_policy/](https://www.umsystem.edu/ums/rules/collected_rules/information/ch180/180.040_student_preferred_name_policy/))

The path to update a preferred name in myZou is:  
Student Center>Personal Information>Names>Add a New Name.

NOTE: The Human Resource computing system overrides ID card names. If students who are employed by MU wish to have a preferred name on ID cards, they need to contact their department MU HR officer. Students who have questions may contact the University Registrar.

### Policy Related to Changing Names for Students at the University of Missouri

The student must submit one of the legal documents listed below under 'Proof of legal change to new name.'

The document submitted must have date of birth, a photograph and a signature. If you have multiple documents that prove your legal name change, please bring copies of the documents along with the name change form (<http://registrar.missouri.edu/forms/name-change.pdf>) to the

Office of the University Registrar (<http://registrar.missouri.edu/contact/>). (<http://registrar.missouri.edu/contact/>)

Proof of legal change to new name:

1. current, government-issued ID card such as a driver's license, military ID, passport
2. current, valid Social Security card with new name
3. federally recognized Indian tribe's enrollment card or a US Bureau of Indian Affairs identification card containing the new name, the signature and photograph of the individual
4. certified copy of a court order or a marriage certificate or a dissolution decree reflecting the new name in full

NOTE: Students may abbreviate their middle name(s) without documentation. Documentation is required if a student is adding or deleting a middle name or changing an initial to a name.

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## Non-Degree Graduate Study (G)

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The Non-Degree Graduate Student Program (post-baccalaureate) allows students to prepare for admission to a graduate degree program either at MU or elsewhere, explore a new discipline, take courses for career advancement, or simply to seek personal enrichment experiences.

A non-degree graduate student may take undergraduate or graduate level courses, but hours earned are not credit toward a graduate degree. However, if a student is later admitted to a degree-granting program, up to 12 hours of earned graduate credit may be applied toward a graduate degree program, at the discretion of faculty in the admitting academic program.

Students admitted under the non-degree seeking status have access to MU libraries, museums, laboratories, and recreational and athletic facilities.

Note: To manage course enrollment, some academic programs require registration permission for non-majors. Contact the academic program (<https://gradschool.missouri.edu/degree-programs/>) in which you wish to take courses for more information.

### Eligibility

To be admitted as a non-degree graduate student, applicants must have earned a minimum of a baccalaureate degree or equivalent from a regionally accredited institution. Applicants who completed their baccalaureate degree in a country where English is not the native language must provide evidence of English proficiency. Please consult the Graduate School's website (<https://gradschool.missouri.edu/admissions/eligibility-process/international-applicants/>) for acceptable examinations and minimum score requirement.

### Tuition and Fees

Non-degree graduate students must pay graduate educational and student activities fees regardless of whether they take graduate or undergraduate courses.

### Financial Aid

Non-degree graduate students are not eligible to receive veterans benefits or to hold campus-sponsored assistantships. Federal financial aid may be available to some non-degree students for preparatory coursework. Contact the Office of Student Financial Aid for more information.

## How to Apply for On-Campus Non-Degree Study

- Complete the Graduate School's online Application for Admission (<https://applygrad.missouri.edu/apply/>).
- While completing your application, you will be asked to upload unofficial copies of your transcript(s) with degree awarded.
- As part of the submission process, you will be asked to pay an application fee. Consult the Graduate School's website (<https://gradschool.missouri.edu/policy/application-fee/>) for more information on the application fee.
- Official transcripts should be submitted to the Graduate School before the end of the first semester of enrollment. Transcripts may be sent from your schools electronically via email to this address: [gradadmin@missouri.edu](mailto:gradadmin@missouri.edu).
- Hard-copy transcripts may be sent to: Graduate School Admissions, 210 Jesse Hall, Columbia, MO 65211.
- Supplemental application materials, such as standardized tests (e.g. GRE, GMAT), or recommendations, personal statements, writing samples, etc. are not required for non-degree graduate applicants.

## Maintaining Good Standing

Non-degree graduate students must maintain a 3.0 GPA. If the cumulative GPA is less than 3.0, the student will be given one automatic probationary semester. If, after one semester of probation, the student's cumulative GPA does not reach 3.0, the student may be granted a second probationary semester following a successful written petition made directly to the Dean of the Graduate School. (Summer sessions are not counted as probationary semesters.) If the student fails to achieve a cumulative GPA of 3.0 following the second probationary semester, the student will be made ineligible to enroll as a non-degree or degree-seeking graduate student. If at any time a student's term or cumulative GPA falls below 2.0, the student will be ineligible to enroll as a non-degree or degree-seeking graduate student.

## Switching Student Status from "Non-Degree" to "Degree-Seeking"

When transitioning from non-degree status to a degree program, non-degree graduate students should consult the academic program of interest (<https://gradschool.missouri.edu/degree-programs/>) to determine the required application process.

## Posthumous Degree Awarding (G)

### Honoring Deceased Graduate Students

The following policies and procedures apply in instances in which a graduate student dies before being awarded a degree.

### Student Completed All Degree Requirements

If the student has completed all degree requirements, the college or school's representative (dean, assistant/associate dean or director) will contact the Office of the Provost and the Associate Vice Chancellor for Graduate Studies to nominate the individual to receive a posthumous degree.

The diploma for the degree that the student was pursuing will be prepared in the same manner as if the student had lived. This diploma

may be presented to the family of the deceased in a special ceremony, at Commencement or in whatever manner is deemed appropriate.

## Student Did Not Yet Complete Degree Requirements

If the student had not completed degree requirements but was making satisfactory progress at the time of death, a dean's certificate honoring the student can be provided by the appropriate academic unit(s). These certificates may be designed and presented in a manner that is fitting to the circumstances.

- \* In some instances, presentation of the degree or certificate to family members may be made at a remembrance ceremony.

## Refund of Fees Policy

### Exceptions to published tuition and required fees assessment policy and charges

1. The Office of the University Registrar and the vice provost for enrollment management are charged with considering and approving exceptions to published tuition and required fees assessment policy.
2. Any change in assessment can be adjusted or pro-rated only to a rate already established in the published university tuition and required fees schedule.
3. Only tuition required related to a student's assessment for registration in credit hours are covered by these guidelines. Other required fees such as those for residence halls, the bookstore, etc. need to be directed to departments responsible for assessment of those required fees.
4. Grade assignments and other academic issues are not within the scope of these procedures and should be addressed to the dean of the college or school in which the student is enrolled for further direction.

### Initial appeal by a student

1. An appeal and all pertinent written documentation must be submitted in writing within 90 calendar days of notification of assessment, adjustment or refund. In cases of incapacitation, exceptions may be made on a case-by-case basis.

Minimally, each written appeal must be dated and include the student name, address and phone number, student number, signature of the student, statement describing specifically what is being requested and for what term, statement of any extenuating circumstances, and why the request should be honored.

2. All appeals must be submitted to the Office of the University Registrar, 125 Jesse Hall. Appeals must meet one or more of the following criteria to be considered and approved:
  - a. Written documentation of an illness, accident, injury or situation that could not be influenced, planned for, or prevented by the student or the institution and which subsequently caused a change in the student's enrollment, thus changing the assessment. This provision specifically excludes conditions or chronic illnesses that remain static and are known to the student at the time of enrollment.

- b. Written documentation of substantiated circumstances involving deadlines where a student has in good faith relied on information provided by a named University official, or the official's interpretation of the text of a University document or publication, and was consequently misled or mistaken about its terms.
  - c. In individual cases and when it is in the best interest of the student and the institution, the University registrar or his/her designated assistant registrar may grant an exception that is not deemed to be served appropriately by the exception criteria stated elsewhere in this document.
3. Decisions will address only whether an adjustment of charges will be made. Grade assignments and other academic issues are not within the scope of these procedures and should be addressed to the dean of the college or school. Record changes, such as requests to withdraw, drop, add or enroll for courses in a term that has ended must be submitted on a separate form to the Revision of Records Committee, c/o the Office of the University Registrar, 130 Jesse Hall.
  4. Generally, grounds for consideration of an appeal will be restricted to those circumstances personally experienced by the enrolled student with whom the University has a direct relationship.
  5. Decisions will be rendered by the designated official of the Office of the University Registrar and will be based solely upon any and all pertinent written documentation.
  6. Notification of the status of the tuition appeal will be made in writing within 10 calendar days of receipt of the written appeal.

## Appeal of the decision rendered by the Office of the University Registrar

1. Upon written request a student may appeal the decision rendered by the Office of the University Registrar.
2. A written appeal must be submitted to the Office of the University Registrar.
3. The written appeal must request a review of the original decision and may contain additional written documentation to support the appeal.
4. The appeal will be reviewed by the same designated official. If the appeal information is sufficient to overturn the original decision, the designated Office of the University Registrar official can direct staff to issue a tuition refund or adjustment in accordance with appropriate fiscal procedures.

If denied within 10 calendar days of receipt, the information must be forwarded to the University Registrar. If the appeal is denied a second time by the University Registrar, it may be forwarded to the vice provost for enrollment management for further consideration, upon the student's request.

The decision rendered by the vice provost for enrollment management is the final University determination on the matter.

## Refund of tuition and fees in the event of a student death

1. When a student dies prior to completing the current academic semester, a full refund of or credit for tuition and required fees will be made after the deduction of the following:
  - a. Any required adjustments to scholarships, grants or loans determined by federal formula applied by the Office of Student Financial Aid.
  - b. Any other debts owed to the University that occurred prior to the death of the student.
2. Any refund will be made payable to the student.
3. If, after all adjustments are made, there still remains a debt to the University, generally the University would not attempt to recover the debt from the estate of the deceased student.

## Students called to active military duty

Enrolled students called into active service in the armed forces of the United States prior to the completion of the semester, whether voluntarily or involuntarily, but not including active service training, and unable to complete their course work, shall be eligible for two options. The options are implemented to assure that students called to active duty prior to the end of a term receive fair and just treatment, both financially and academically. Contact the Office of the University Registrar at 573-882-7881 for more detailed information.

## Students called to jury duty

Full refunds (100 percent) of required tuition and any applicable required fees for all credit hours from which a student withdraws, when following University procedures announced by the provost.

## Residency (L)

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The School of Law residency rules satisfy the requirements of the American Bar Association and the Association of American Law Schools. The purpose of the residency requirements is to assure that the study of law will be spread evenly over a minimum period of six semesters or the equivalent.

The rules regarding the size of a student's course load -- the number of hours a student enrolls in for a given semester -- and residency rules are not the same.

The residency requirement means that students may not graduate in less than six semesters or the equivalent. Most students attend law school for six semesters. However, some students plan to graduate after only five semesters by attending summer school. Students who plan to attend summer school for two years and graduate a semester early should visit with the Associate Dean for Academic Affairs concerning their summer course load requirements.

For residency purposes, a minimum load of twelve hours is required for a semester. Thus, each student generally needs at least 12 hours each semester to meet residency requirements. (NOTE: An average of 12 credits per semester is not sufficient to complete the 89 credit degree requirement.) For purposes of accelerated graduation, the law school's residency rules require students to take a minimum of five hours in one summer session and combine it with another summer session of no less

than seven hours. Two summer sessions of six hours each serve the same purpose. This approach gives students five semesters of at least 12 hours and two combined summers of 12 hours, which satisfies our residency requirements. If fewer hours are taken in a summer session, they may not be used toward residency for the purpose of accelerated graduation.

A student may combine any summer hours with an appropriate number of hours in a regular semester in order to fulfill a 12-hour semester residency requirement if they should fall below 12 hours during a semester for some reason. Students completing more than 12 hours in a semester may not use surplus hours over 12 toward residency in any other session; hence the three surplus hours from a 15-hour semester cannot be added to a subsequent nine-hour semester to give residency for two semesters. On the other hand, a nine-hour semester can be combined with a three-hour summer session to give residence for one semester.

A student in their final semester only can take less than 12 hours provided that the number of credits being taken is sufficient to satisfy the remainder of the 89 credit degree requirement. In cases of extreme hardship the Faculty may make a slight variance in the residency requirements, but cannot go below the standards set by the American Bar Association and the Association of American Law Schools.

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## Revision of Records

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The Committee for Revision of Records reviews petitions from students asking for changes to their academic records. Students should discuss the petition process with their advisor before appealing to the committee to verify that changes are warranted and will benefit the student.

**For instructions for completing petition to the committee see** Revision of Records (<http://registrar.missouri.edu/policies-procedures/revision-records.php>).

The committee is composed of faculty appointed by the chancellor. Members are anonymous and students are not allowed to communicate directly with them. Forward questions to [revisionofrecords@missouri.edu](mailto:revisionofrecords@missouri.edu).

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## Student Conduct (L)

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The academic life of students at the School of Law is governed by a Code of Honor that has been adopted by the Faculty and the Student Bar Association.

Students should note that they generally will be required to report any Honor Code violation on state bar application forms.

The Honor Code is available at <https://law.missouri.edu/academics/policies-rules-student-conduct/>.

Students may have to appear before the Office of Student Accountability and Support (<https://accountability.missouri.edu/>) for conduct that violates university or other rules.

Incidents involving bias or harassment can be reported through the Office of Civil Rights and Title IX. Information is available at <http://missouri.edu/civil-rights-title-ix/>.

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## Student Employment (L)

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No student shall work more than 20 hours per week in a semester where the student is enrolled as a full-time first-year law student (hereinafter the '1L 20-hour rule').

The 1L 20-hour rule does not apply to the period between semesters, or the summer (unless the student is enrolled in summer school full-time) or to any break during the semester (e.g., spring or Thanksgiving breaks).

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## Student Files (V)

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The following policy relates to compliance with the Family Educational Rights and Privacy Act Amendment to the Elementary and Secondary Education Act of 1974:

- (1) Each student requesting permission to examine his/her file will be referred to the Associate Dean for Academic Affairs or his or her designate.
- (2) Each student must provide proof of:
  - a. Current student status at the University of Missouri (or, if during an academic recess, attendance during the past academic session).
  - b. Identity. They must provide some identification which allows visual comparison of person's appearance with a photograph on an item such as a driver's license or student identification card.
- (3) If the above conditions are met and permission is granted, a student will be allowed to examine their entire student record. This must be affected only in an office occupied by one of the assistants in the Dean's Office.
- (4) Copies of any item in the student's folder except for transcripts or letters of recommendation and/or evaluation will be provided at cost. In such cases the sum of 25 cents per page must be collected before any copies are provided.
- (5) A student must not, under any circumstances, be left alone with the folder.
- (6) A record will be placed in the student's folder stating the date and time that such examination occurred. It should be initialed and dated by the Associate Dean for Academic Affairs or his or her designate. (CVM Executive Committee, 1986)

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## Student Level (U)

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Students are assigned to a particular class level based upon the number of credits they have completed in accordance with the following limitations:

Class	Credits
Freshman	0 to 29 credits
Sophomore	30 to 59 credits
Junior	60 to 89 credits
Senior	90 or more credits

For registration purposes, student level will be determined by earned credits plus those credits in progress at MU. Undergraduate students pursuing degree programs at other institutions who enroll at MU as visiting students will generally be considered as freshmen, non-degree students. They are not assigned to a school or college. This applies to students who enroll under agreements with the Mid-Missouri Associated

Colleges and Universities as well as those from other colleges and universities.

## Testing Out of Courses (V)

For professional courses cross-listed as undergraduate or graduate courses, students may opt out of the course during the professional curriculum if the following conditions are met. The student took the course within three years, received an A or B in a course, and received instructor permission to waive the course.

Veterinary students are charged a flat rate per academic semester and testing out of a course will not result in a prorated tuition rate.

## Theses and Dissertations: Submission Deadline, Review and Public Disclosure (G)

### Formatting the Thesis

A thesis, when required for a master's program, must be written on a subject approved by the candidate's advisory committee. The thesis must be the student's own work and must demonstrate a capacity for research and independent thought. Refer to the Master's Degree section for details.

Formatting guidelines may be found here (<https://gradschool.missouri.edu/current-students/thesis-dissertation/thesis-dissertation-guidelines/electronic-dissertation-thesis-basics/>) and/or on the Graduate School's Canvas organization site. Students must follow the style manual recommended by their academic program. All work must be properly cited and permission to use copyrighted materials must be obtained prior to submission.

### Formatting the Dissertation

A dissertation is required for doctoral degrees and must be written on a subject approved by the candidate's advisory committee. The dissertation must include the results of original and significant investigation, and it must be the candidate's own work. Refer to the Doctoral Degree section for details.

Formatting guidelines may be found here (<https://gradschool.missouri.edu/current-students/thesis-dissertation/thesis-dissertation-guidelines/electronic-dissertation-thesis-basics/>) and/or on the Graduate School's Canvas organization site. Students must follow the style manual recommended by their academic program. All work must be properly cited and permission to use copyrighted materials must be obtained prior to submission.

### About Third-Party Copyright

If your work contains material that has been copyrighted by another party, you may need to seek permission to use the material in your thesis or dissertation. Examples of materials for which you would need to seek copyright permission include, but are not limited to: third-party software, images, graphics, large portions of text and maps. If copyright permission is needed, you must submit written approval for the use of the copyrighted material along with your thesis or dissertation.

## Substituting for Copyrighted Materials in Theses and Dissertations

The purpose of the thesis and dissertation is to advance knowledge in the student's discipline or field. The Graduate School encourages students to seek permission to use copyrighted material in their theses and dissertations. Your work is published after it is submitted in approved form to the Graduate School, and it will be available to audiences who wish to know more about the subject you investigate. The more full and complete the thesis or dissertation, the better the experience for your reader and, therefore, the better the response your scholarship and creative work. However, if you are unable or unwilling to obtain copyright permission for some of the materials in your research, you may substitute for the copyrighted material as described below.

*Acceptable substitutions include:*

- Redrawing or tracing of maps, images, graphics, etc.
- References to URLs, printed documents, or physical locations where the copyrighted material can be found

A student whose thesis or dissertation has had copyrighted material removed prior to submission must have their advisor sign a document reading:

[Student's name] has removed copyrighted material from the copy of the thesis or dissertation submitted to the Graduate School for electronic publication. I certify that:

- I approve the thesis or dissertation in this form;
- The student has presented accurate information as to where the removed, copyrighted material can be found.

Advisor's name (signature line) Date (date line)

## Submission Deadline for a Thesis or Dissertation Following Committee Approval

Each semester the Graduate School establishes semester deadlines for the Report of the Examining Committee (master's & EdS students), Report Dissertation Defense (doctoral students), and submission of theses, dissertations, and supplemental materials. Those deadlines may be found on the Graduate School's website (<https://gradschool.missouri.edu/current-students/graduation-commencement/graduation-checklist/>).

After successful defense of the thesis or dissertation, students must comply with their academic program's and/or the International Center's enrollment requirements.

Generally, based upon input from the thesis/dissertation committee, a student will make corrections to a thesis/dissertation. The student will prepare the final document and supplemental materials in the required format (<http://gradschool.missouri.edu/policies/thesis-dissertation/>) and submit everything to the Graduate School by the semester deadline. In the event the student misses the current semester deadline, the student is required to submit the final dissertation or thesis by the end of the following semester after a successful defense. If an extension is needed, the student's advisor and program's DGS must submit a request for an extension letter to the Graduate School. The student's degree will not be conferred until the final document is submitted and approved by the Graduate School. If it is submitted after a semester deadline, the degree

will not be conferred until the following semester, which can include summer.

## Submission Requirements and Forms

A thesis or dissertation must be presented before the deadline to the Graduate School. The preferred submission method is via Canvas, however submissions on high-quality CD are also acceptable. The thesis or dissertation must be contained in a Portable Document Format (PDF) file (<https://gradschool.missouri.edu/policy/technology-and-your-thesis-or-dissertation-supplemental-materials-submission/>), with the appropriate margins and formatting. Additional electronic files must be included (<https://gradschool.missouri.edu/policy/supplemental-electronic-thesis-and-dissertation-materials/>) on the CD as PDF documents with the appropriate file name. If all files will not fit on one CD, a DVD or multiple CDs may be used, as long as no single file is split between CDs.

## Additional Documents that Accompany the Electronic Submission

Several other documents must be submitted electronically or on CD, including the original signed Approval of the Committee page, electronic release form, processing fee, and more. Please review the required supplemental materials at this link (<https://gradschool.missouri.edu/current-students/thesis-dissertation/thesis-dissertation-guidelines/electronic-dissertation-thesis-basics/>).

## Review of Theses and Dissertations by the Graduate School

Before a manuscript can be accepted for publication in scholarly journals, it is examined by editorial board members, for conformance to specific format style guidelines, in addition to quality of content. In much the same manner, Graduate School staff, acting as an editorial board, reviews every submitted thesis and dissertation for conformance to University guidelines. Failure to meet the appropriate standards will result in the rejection of your work.

## Copies of Theses and Dissertations

The MU library catalogs all thesis and dissertations in the Merlin system. To locate a thesis or dissertation go to the MOSpace repository.

## Specific Questions about MU Theses or Dissertations?

Specific questions should be directed to the academic advising staff of the Graduate School, 210 Jesse Hall, 1-800-877-6312.

## Thesis and Dissertation Research Must be Open to Public Disclosure

Students are prohibited from using research (e.g., data, results, methods, other content) in their theses or dissertations that could restrict subsequent publication or public disclosure of these documents. Examples of restricted information include classified or proprietary materials. It is important to note that these restrictions do not apply to non-thesis or non-dissertation research that is approved by the student's advisor and allowed by University of Missouri policies.

Freedom to publish and disseminate results are major criteria for assessing the appropriateness of any research project, particularly those involving graduate students. Consistent with the mission of the University of Missouri, the integrity of a student's academic/research experience

shall be preserved, including the ability to complete and publish a thesis or dissertation and to freely publish, present, or otherwise disclose the results of research both within the academic community and to the public at large. The University precludes assigning to extramural sources the right to keep or make final decisions about what may or may not be published with respect to a student's dissertation or thesis project. Within this general understanding, the University also realizes that circumstances may arise where certain restrictions or limitations may be appropriate. Short, reasonable delays may be appropriate, for example, to allow the research sponsor to review publications for inadvertent disclosures of proprietary data or potentially patentable inventions. When at all possible, these potential delays should be discussed with the student as early in the research process as possible. In the case of a dissertation or thesis, the review MUST be completed prior to submitting the document to the Graduate School. Policies that govern graduate student thesis/dissertation publication allow for a short embargo of the dissertation/thesis but it is advisable to ensure the dissertation, in its entirety, contains no proprietary information prior to submission. Once submitted, the dissertation/thesis is linked to the degree and withdraw of the dissertation could require rescinding the associated degree.

## Transfer Admission from Other AVMA Accredited Schools (V)

Transfer students entering the professional curriculum from other AVMA-accredited veterinary schools: Applications will be referred to the Committee on Admissions and Scholarship for recommendation to the Dean. Each case shall be handled on an individual basis. (CVM Executive Committee, 1986)

## Transfer Credit (L)

### Credit Earned at Other Law Schools

Pursuant to ABA Standard 505, a student may earn credits at another law school to be applied toward the J.D. graduation requirements of the School of Law, on the following conditions:

1. No more than 30 semester credits may be so applied. Grades in courses taken at other law schools are reflected in the transcript. However, those grades do not calculate in the student's grade point average.
2. The law school at which the credits are earned must be, at the time of the student's work there, approved by the American Bar Association.
3. The Associate Dean for Academic Affairs must approve, in advance of the student's work, the particular law school and the course of study the student will pursue there. The student is required to submit a syllabus for the course(s) to be taken.

### Credit Toward LL.M. Requirements for Non-Law Courses/Transfer Credit

With approval of the Director of the LL.M. Program, students may apply to the LL.M. graduation requirements up to six (6) graduate credits of university or college courses from outside the School of Law. This limit includes Independent Study courses supervised by faculty in units other than the School of Law. Credit toward the LL.M. degree for a non-law school course will be granted only under the following conditions:

- The course must be a graduate-level course and clearly marked as such on the transfer transcript complete with credit hours and a

grade. If taken at the University of Missouri, it must be numbered 5000 or above.

- The transfer coursework is from a regionally-accredited institution in the U.S. or an overseas institution that is recognized by its country's Ministry of Education as a graduate degree-granting institution.
- The course must involve at least 14 class hours per credit (based on 50-minute class hours).
- The course must be related to the student's program of study. Students must submit a copy of the course syllabus if possible.
- The semester hours of the non-law-school course will be counted in the student's total number for the semester.
- The grade must be B or higher.
- The transfer coursework is not online, extension or correspondence credit.

Normally, the Director of the LL.M. Program must approve the course in advance of the student's work. In unusual situations, the Director of the LL.M. Program may approve application of credits earned within four (4) years prior to initial enrollment in the LL.M. Program if the credits were for work closely related to the student's work in the LL.M. Program and were taken for graduate credit. Credits will not be applied from the student's J.D. degree program or equivalent. A written request must be submitted to the Director of the LL.M. Program and include the following:

- (a) Institution, course name, number, and instructor; and
- (b) Description of how the course relates to the student's program of study.

## Transfer Credit and Degree Applicability

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- Transfer from a Regionally Accredited Missouri College (p. 879)
- Transfer from a Community College (p. 879)
- Transfer Within the UM Systems (p. 880)
- Military Transfer Credits (p. 880)
- Transfer Students and University General Education Requirements (p. 880)

## Credits and Transfers

After students are admitted to the University of Missouri (MU), an admissions evaluator will evaluate whether any college credit earned elsewhere is transferable to MU. Coursework being transferred from schools outside of Missouri may need faculty review, which can delay the evaluation process.

- Advanced Placement (<https://admissions.missouri.edu/apply-transfers/credits-transfers/>) credit is only awarded based on official score reports sent to MU directly from the College Board, and not based on scores reported on transcripts.
- Dual credit (<https://admissions.missouri.edu/apply-transfers/credits-transfers/>) must be evaluated by Admissions prior to being awarded.
- Courses transferred from Missouri community colleges will generally count as lower-division credit, however students should check the Transfer Course Equivalency site for course specific information.
- For details on course equivalencies for most school in Missouri and for select out-of-state institutions, check MU's transfer course equivalencies which can be accessed from the myZou log-in page (<http://myzou.missouri.edu>) and then clicking on Transfer Course

Equivalency. Students interested in seeing how transfer courses might apply toward MU degree requirements can go online to transferology (<https://www.transferology.com/>) to enter course data, review equivalencies, and produce an unofficial degree audit.

- The MizzouMACC Program (<https://admissions.missouri.edu/mizzoumacc/.html>) is available for students wishing to transfer from Moberly Area Community College of MU.
- Advanced standing credit in a foreign language awarded by previous institutions will not transfer to MU. It can be requested after you have successfully completed a course at MU at or above that level.
- Military veterans may be awarded some credit if they meet certain criteria (<https://admissions.missouri.edu/military/military-veterans-service-credit/>).

Generally, coursework completed at a regionally accredited institution and oriented toward a baccalaureate degree will be accepted if each grade is C or better. Generally, the following types of credit are exceptions that are excluded from transferable courses: Technical, vocation or remedial courses; Courses not intended for a baccalaureate degree and/or terminal vocational degree or certificate program; Courses from non-regionally accredited institutions, though there is an appeal process.

Questions should be directed to the MU Office of Admissions (<http://admissions.missouri.edu/>).

## Transfer from a Regionally Accredited Missouri College

Students may transfer more than 64 credit hours of lower division courses from either Missouri associate degree-granting or baccalaureate degree-granting institutions. Any additional lower division course credits above 64 credit hours will be accepted in transfer if the credits are applicable to the baccalaureate degree or are prerequisites for an upper division course in the major, in accordance with the Missouri Coordinating Board's policy.

## Transfer from a Community College

Community college courses generally have transferable equivalents at the 1000 or 2000 level. A community college course may be the equivalent of a University of Missouri course of 3000 or greater, if that course is determined by the MU department that it is equivalent.

Courses from a community college can account for six of the last 36 credits.

Students may transfer more than 64 credit hours for lower division courses from either Missouri associate degree-granting or baccalaureate degree-granting institutions. Any additional lower division course credits above 64 credit hours will be accepted in transfer if the credits are applicable to the baccalaureate degree or are prerequisites for an upper division course in the major, in accordance with the Missouri Coordinating Board's Handbook.

For additional information, contact the college or school from which the degree is sought or see Credits and Transfers (<https://admissions.missouri.edu/apply-transfers/credits-transfers/>) information from the MU Office of Admissions (<http://admissions.missouri.edu/>).

## Articulation Agreements

Contact departmental advisors for information on articulation programs and agreements.



## Associate of Arts Degree

An Associate of Arts degree (AA) is a two-year program that indicates the completion of a student's lower-division education. It also is a specific transfer degree for entry, at the junior level, into the general range of baccalaureate degree programs offered by the University.

Students transferring to MU from a regionally-accredited Missouri college or university with an AA degree and a certified 2.0 GPA will be accepted with junior standing. They will also have completed lower-division, general education requirements if the AA degree consisted of at least 60 credits of college-level work. These 60 credits must include completion of an institutionally-approved, general-education program of not fewer than 39 credits.

Students holding the AA degree are admissible to MU, but are not necessarily admissible to specific programs. Some of the specific programs with specialized lower-division requirements are the colleges of Business, Education, Human Environmental Sciences and the schools of Health Professions, Journalism, Nursing and Social Work. The transfer requirements for all academic units may be found in this catalog on the degree specific pages. Students applying with an AA degree from another state will have their courses reviewed for equivalency on an individual basis.

## Associate of Science Degree

An Associate of Science degree (AS) is a specialized degree intended for transfer into a specific, preprofessional program. Junior standing is guaranteed to the transfer student only if curricular details have been agreed on by MU and the institution granting the AS. Students who receive a specialized AS degree do not automatically qualify for junior standing in all MU programs. To enroll in some degree programs, students may have to take additional, general-education courses.

## Students without Associate Degrees

Students transferring without associate degrees must meet regular MU transfer admission standards.

## Transfer within the UM System

Students may transfer among campuses within the University of Missouri System. University of Missouri Policy states that 'Any course that leads to an undergraduate degree on any campus of the University of Missouri shall be accepted in transfer toward the same degree on each campus of the University offering said degree.' Students transferring within the UM system are still required to satisfy the course and residency requirements of the campus from which they wish to graduate. Grades, including D and F grades, and grade points earned will also transfer and be included in the cumulative UM grade-point-average.

For more information contact the following offices:

University of Missouri - Columbia, Office of Admissions, 800-225-6075, mu4u@missouri.edu

University of Missouri - Kansas City, Registration & Records Office, 816-235-1125, registrar@umkc.edu

Missouri University of Science and Technology, Registrar's Office, 573-341-4181, registrar@mst.edu

University of Missouri - St. Louis, Office of the Registrar, 314-516-5545, registration@umsl.edu

## Military Transfer Credits

Military veterans, with at least two years of honorable service are allowed to transfer military course credit. The transcript coursework must have

been accredited by the American Council of Education (ACE). Veterans are advised to contact University Admissions regarding specific transfer credit policies. An exception to current transfer credit policies is that military veterans be allowed a maximum of 9 hours credit as general electives. This policy began with military veterans enrolled for the Fall 2010 semester.

## Transfer Students and University General Education Requirements

All University, general-education requirements are considered completed for students who transfer to MU with an AA degree from a regionally-accredited Missouri institution. Transfer credits for other students are evaluated on a course-by-course basis. All students must complete University graduation requirements beyond the University general education requirements.

NOTE: Many departments, degrees and majors have more specific requirements for foundation course work in addition to the University, general-education requirement. However, the reverse is not true. Departments or academic units may not have fewer general education requirements than described by the University general education requirements. Careful planning will allow students to simultaneously meet University, general-education requirements and prepare for many of the more specific foundation courses required by their field of study.

## Visiting Graduate Student Program (G)

Effective Fall 2011, the UM Visiting Graduate Student Program replaces the UM Traveling Scholars Program. The UM Visiting Graduate Student Program offers eligible graduate students a streamlined process for applying and registering for graduate courses on other UM campuses.

To participate in the UM System Visiting Graduate Student Program, a graduate student must be a degree-seeking graduate student and in good-standing on the **home** campus and **host** campus.

To apply for this program, a "UM System Visiting Graduate Student Application (<http://gradschool.missouri.edu/forms-downloads/repository/um-system-visiting-graduate-student-application.pdf>)" should be completed and submitted to the **home** campus Graduate office for certification, at least two weeks before the beginning of the semester. The graduate student's **home** campus Graduate office will review the form; if approved, the **home** campus Graduate office will transmit the approved form to the **host** campus Graduate office. The **host** campus will notify the student when they are eligible to register for courses.

All course fees are paid to the **host** campus. Graduate students should contact their **home** campus Financial Aid office for more information on financial aid.

International (non-U.S. citizen) students should consult the International student office on their **home** campus to determine eligibility for this program.

Important Points:

- No application fee is required for this program.
- The **home** campus determines maximum enrollment requirements and the transferability of courses taken at other UM campuses. At MU, all courses taken in UM Visiting Graduate Student Program will be considered "transfer courses" and are subject to MU's graduate course transfer policies.

- Visiting UM Graduate Students are subject all **host** campus registration requirements and restrictions.
- To officially transfer courses from the host campus to the **home** campus, students must order an official transcript from the **host** campus and comply with the home campus's transfer policies and processes.

## Withdraw from the University

### From the Term

A student who wishes to withdraw from the Term (University) must process the appropriate Term Withdraw Form (<http://registrar.missouri.edu/policies-procedures/withdrawal-university.php>) (PDF). Dropping all classes is considered a withdrawal from the Term (University) and must be initiated in the students academic school or college and completed by the end of the business day of the Monday of the last week of classes or prior to completing the final in a self-paced course. Finals are not included as part of the term for this purpose.

Withdrawal forms will normally be dated according to the date the request was first received with the following exception: When health or other critical circumstances constitute the reason for withdrawal, the dean may designate an earlier date to which academic rules will apply.

### Withdraw from the University (L)

Formal withdrawal from MU is arranged through the Graduate School using a Notice of Withdrawal form that is signed by the Director of the LL.M. Program and the Dean of the Graduate School. If the student is making a C or better at withdrawal time, a grade of W is recorded. If the student is doing failing work at withdrawal time, a grade of F is recorded. Students are responsible for notifying their instructors of their intention to withdraw and for determining if their work qualifies for a W grade. Students who leave MU without filing a statement of formal withdrawal are given a grade of F in all courses. If the reason is so urgent that an official withdrawal cannot be obtained, the student should notify the LL.M. Program as soon as possible and officially request to be withdrawn.

### Withdraw from the University (V)

Students who withdraw or seek a leave of absence from the College of Veterinary Medicine prior to successful completion of the first semester of the professional curriculum (Instructional Periods 1 through 2), and who seek readmission, must submit a letter of intent within 30 days of the withdrawal date to the Office of Academic Affairs. The student's application will be evaluated for readmissions by the Admissions and Scholarship Committee by March 1 with the pool of incoming candidates.

Readmission will be based on their scoring within the pool of the next cohort and remediation plan submitted prior to March 1. Students who request a leave of absence after the first semester will develop a return and remediation plan in consultation with the Associate Dean for Academic Affairs. Exceptions to this timeline will be evaluated on a case-by-case basis by the Committee.

### Withdrawing from a Course

If a student wishes to drop a course after the last day to drop a course without a grade, the process is referred to as "withdrawing" from a course. To withdraw from a course, students must begin in their academic advising unit. Following the approval from the academic

advising unit, the student takes the form for processing to the Office of the University Registrar, 125 Jesse Hall. The process must be completed by the end of the business day of the Monday of the last week of classes or prior to completing the final in a self-paced course. See Academic Policies: Grades (p. 865) for more information on withdrawing from a course

**NOTE: Students may not withdraw from all courses or their last course via myZou after the tenth day prior to the start of the semester or term. This must be done in the academic advising unit.**

# Course Numbering

Course	Number	Description
Basic skills courses	0000-0999	Courses that do not count toward degree requirements- primarily used for skill development. May NOT be cross listed or cross level.
Freshmen-level courses	1000-1999	Entry-level courses that have only skill development courses for course prerequisites. (Test scores, etc. are acceptable prerequisites.) Considered lower-division. Community College courses will be considered equivalent to this level. May NOT be listed as cross level with 5000-8999.
Sophomore-level courses	2000-2999	Intended primarily for second-year or sophomore students who have the essential prerequisites or background. Considered lower-division. Community College courses will be considered equivalent to this level as well. May NOT be listed as cross level with 5000-8999.
Junior/Senior-level courses (Upper Division)	3000-3999	Upper-division courses that may NOT be listed as cross level with 5000-8999. Intended primarily for third and fourth-year (juniors and seniors) students who have the essential prerequisites or background. Often restricted to students admitted to junior-level entry degree programs.

Junior/Senior-level courses (Upper Division)	4000-4999	Upper-division courses that may be listed as cross level with 5000-7999. Intended primarily for juniors and seniors. Note special sub-ranges for capstone, research and departmental honors courses.
Undergraduate Research courses	4950-4959	Upper-division, undergraduate research courses
Capstone courses	4970-4990	
Capstone/Honor courses	4991	Courses that are both capstone and departmental honors courses
Capstone/Reading courses	4992	
Capstone/Internship courses	4993	
Capstone/Research courses	4994	
Extended Research & Departmental Honors course	4995	Multiple term duration courses based on research
Departmental Honors courses	4996-4999	Used only for departmental honors courses. Include Dept. Honors in title or course description. No "H" is listed after the catalog number.
Professional-level courses	5000-6999	Professional-level courses for Law, Vet. Med, Medicine, and Occupational/Physical Therapy. Generally, not for undergraduate credit. May be listed as cross-level with 4000-4999 courses.
Beginning Graduate courses	7000-7999	Graduate-level courses for beginning and mid-level graduate students primarily. Generally not for undergraduate credit, but may be listed as cross-level with 4000-4999 courses.

Mid-level Graduate courses	8000-8999	Graduate-level courses intended primarily for mid-and upper-level graduate students. Not for undergraduate credit. May NOT be listed as cross-level with 4000-4999 courses.
Upper-level Graduate courses	9000-9999	Graduate-level courses intended primarily for upper-level graduate students. Not for undergraduate credit. May NOT be listed as cross-level with 4000-4999 courses.

"H" after a number indicates that it is an Honors course, approved by the Honors College for use toward Honors Certificate or University Honors. Not applicable to courses only designated for departmental honors.

'W' after a number indicates that it is a Writing Intensive course, approved by the Campus Writing Board for use toward fulfilling MU's writing requirement.

## Undergraduate Topics Courses

Final two digits represent the distribution category within the University requirements.

Distribution Category	Description
01	General
02	Biological Sciences
03	Behavioral Sciences
04	Social Sciences
05	Humanities
06	Mathematical Sciences
07	Physical Sciences

## Guidelines for Cross-Listed and Cross-Level Courses \*

\* Approved by Faculty Council February 13, 2003

Per the faculty approved policies, only 4000 and 7000 level courses may be cross-level listed. Courses that are cross-listed should be from different departments, but cover the same content, with matching course descriptions.

### Cross-Listed Courses *must*:

- Be at the same level
- Cover the same content
- Not meet different general education requirements

### Cross-Listed Courses *may*:

- Not have the exact same number, but it is preferred that they do
- Have different additional fees. However, students may need to enroll in a specific course to meet a requirement and may or may not be allowed to substitute the cross-listed course to avoid the fee. There

are limits on enrollment and space may not be available in the non-fee course or section.

- Exceptions: Fine art and music "skills" classes such as painting or drawing may have different levels meeting in the same room at the same time, such as 1000, 2000, etc. with the instructor requiring the appropriate additional quality and/or quantity of work for the respective level.

### Cross-Level Courses:

- Only 4000 and 7000-level courses may be cross-level listed.
- The 7000-level course must require work appropriate for graduate credit and be approved as such by the Graduate Faculty Senate.
- Exceptions: Fine art and music "skills" classes such as painting or drawing may have different levels meeting in the same room at the same time, such as 1000, 2000, etc. with the instructor requiring the appropriate additional quality and/or quantity of work for the respective level.

**Courses that are not cross-level may not meet in the same room at the same time or near each other at the same time so that they attempt to "get around" this rule.**

### Restrictions by Course Level

#### Not allowed:

- 0000-0999 – May **not** be cross listed or cross leveled outside of the 0000-0999 range
- 1000-3999 – May **not** be cross listed or cross leveled with 5000-9999
- 4000-4999 - May **not** be listed as cross level with 8000-9999
- Linked cross-leveling may not result in a 1000-3999 level being linked with a 4000-4999, that is subsequently linked with 5000-7999, and a 7000-7999 that is cross-level with 8000-9999

#### Permissible:

- 1000-3999 May be cross-listed and/or cross-leveled with 1000-4999
- 4000-4999- May be listed as cross level with 5000-7999
- 5000-6999 – May be listed as cross level with 4000-4999 or with 7000-7999
- 7000-7999 – May be listed as cross level with 4000-6999 or with 8000-8999, but not both

# Curriculum Designator Abbreviations

The abbreviations listed below are used in course descriptions. They may be called Curriculum Designators.

Designator	Subject Area	Academic Unit
ACCTCY	Accountancy	BUS
AERO	Aerospace Studies	A&S
AAE	Agricultural Applied Economics	CAFNR
ABM	Agribusiness Management	CAFNR
AG_ED_LD	Agricultural Education and Leadership	CAFNR
AGSC_COM	Agricultural Science Communication	CAFNR
AG_S_M	Agricultural Systems Management	CAFNR
AFNR	Agriculture, Food and Natural Resources	CAFNR
AMS	Ancient Mediterranean Studies	A&S
ANESTH	Anesthesiology	MED
AN_SCI	Animal Science	CAFNR
ANTHRO	Anthropology	A&S
ARABIC	Arabic	A&S
ARCHST	Architectural Studies	HES
ARTCE_VS	Art Ceramics - Visual Studies	A&S
ARTDR_VS	Art Drawing - Visual Studies	A&S
ARTFI_VS	Art Fibers - Visual Studies	A&S
ARTGE_VS	Art General - Visual Studies	A&S
ARTGD_VS	Art Graphic Design - Visual Studies	A&S
ARH_VS	Art History - Visual Studies	A&S
ARTPA_VS	Art Painting - Visual Studies	A&S
ARTPH_VS	Art Photo - Visual Studies	A&S
ARTPR_VS	Art Printmaking - Visual Studies	A&S
ARTSC_VS	Art Sculpture - Visual Studies	A&S
ASTRON	Astronomy	A&S
ATHTRN	Athletic Training	HP
ATM_SC	Atmospheric Science	CAFNR
BIOCHM	Biochemistry	CAFNR
BIOL_EN	Biological Engineering	ENGR

BIO_SC	Biological Sciences	A&S
BME	Biomedical Engineering	ENGR
BIOMED	Biomedical Sciences	VET M
BL_STU	Black Studies	A&S
BUS_AD	Business Administration	BUS
CH_ENG	Chemical Engineering	ENGR
CHEM	Chemistry	A&S
CH_HTH	Child Health	MED
CHINSE	Chinese	A&S
CV_ENG	Civil Engineering	ENGR
CDS	Clinical & Diagnostic Science	HP
CL_L_S	Clinical Laboratory Sciences	HP
COMMUN	Communication	A&S
C_S_D	Communication Science and Disorders	HP
CMP_SC	Computer Science	ENGR
CNST_DEM	Constitutional Democracy	PRVST
DATA_SCI	Data Science	ENGR
DERM	Dermatology	MED
DMU	Diagnostic Medical Ultrasound	HP
DST_VS	Digital Storytelling - Visual Studies	A&S
ECONOM	Economics	A&S
EDUC_H	Education Honors	EDUC
ED_LPA	Educational Leadership and Policy Analysis	EDUC
ESC_PS	Educational, School and Counseling Psychology	EDUC
ECE	Electrical and Computer Engineering	ENGR
EMR_ME	Emergency Medicine	MED
ENGINR	Engineering	ENGR
ENGLSH	English	A&S
ELSP	English Language Support Program	ELSP
ENV_SC	Environmental Science	CAFNR
ENV_ST	Environmental Studies	PRVST
F_C_MD	Family and Community Medicine	MED
FILMS_VS	Film Studies - Visual Studies	A&S
FINANC	Finance	BUS
F_W	Fisheries and Wildlife	CAFNR
F_S	Food Science	CAFNR
FOREST	Forestry	CAFNR
FRENCH	French	A&S

GN_HES	General Human Environmental Sciences	HES
G_STDY	General Studies	A&S
GEOG	Geography	A&S
GEOL	Geological Sciences	A&S
GERMAN	German	A&S
GRAD	Graduate School	GRAD
GREEK	Greek	A&S
HR_SCI	Health and Rehabilitation Science	HP
HMI	Health Management and Informatics	MED
HTH_PR	Health Professions	HP
HLTHPSYC	Health Psychology	HP
HLTH_SCI	Health Sciences	HP
HEBREW	Hebrew	A&S
HIST	History	A&S
GN_HON	Honors General	PRVST
HSP_MGMT	Hospitality Management	CAFNR
H_D_FS	Human Development and Family Science	HES
IMSE	Industrial and Manufacturing Systems Engineering	ENGR
IS_LT	Information Science and Learning Technologies	EDUC
INFOTC	Information Technology	ENGR
IEPG	Intensive English Program - Grammar	ELSP
IEPL	Intensive English Program - Listening and Speaking	ELSP
IEPR	Intensive English Program - Reading	ELSP
IEPS	Intensive English Program - Special Topics	ELSP
IEPW	Intensive English Program - Writing	ELSP
NEUROSCI	Integrative Neuroscience	A&S
INTDSC	Interdisciplinary Studies	A&S
IN_MED	Internal Medicine	MED
INTL_S	International Studies	A&S
ITAL	Italian	A&S
JAPNSE	Japanese	A&S
JOURN	Journalism	JOURN
KOREAN	Korean	A&S
LAB_AN	Laboratory Animal Medicine	VET M
LATIN	Latin	A&S

LAW	Law	LAW
LTC	Learning, Teaching & Curriculum	EDUC
LTC_V	Learning, Teaching & Curriculum - Vocational	EDUC
LINGST	Linguistics	A&S
MANGMT	Management	BUS
MRKTNG	Marketing	BUS
MATH	Mathematics	A&S
MAE	Mechanical and Aerospace Engineering	ENGR
MPP	Medical Pharmacology and Physiology	MED
MED_ID	Medicine – Interdisciplinary	MED
MDVL_REN	Medieval Renaissance Studies	A&S
MICROB	Molecular Microbiology and Immunology	MED
MIL_SC	Military Science	A&S
INFOINST	MU Informatics Institute	MED
MUS_APMS	Music-Applied Music	A&S
MUSIC_NM	Music-Courses for Non-Majors	A&S
MUS_ENS	Music-Ensemble Courses	A&S
MUS_GENL	Music-General	A&S
MUS_I_VR	Music-Instrumental and Vocal Repertory	A&S
MUS_I_VT	Music-Instrumental and Vocal Techniques	A&S
MUS_EDUC	Music-Music Education	A&S
MUS_H_LI	Music-Music History and Literature	A&S
MUS_THRY	Music-Music Theory	A&S
NAIS	Native American and Indigenous Studies	A&S
NAT_R	Natural Resources	CAFNR
NAVY	Naval Science	ENGR
NEUROL	Neurology	MED
NU_ENG	Nuclear Engineering	GRAD
NUCMED	Nuclear Medicine	HP
NURSE	Nursing	NURS
NUTRIT	Nutrition	CAFNR
NEP	Nutritional and Exercise Physiology	HES
OB_GYN	Obstetrics and Gynecology	MED
OC_THR	Occupational Therapy	HP
OPHTH	Ophthalmology	MED
PRST	Parks, Recreation, Sport & Tourism	CAFNR

PTH_AS	Pathology & Anatomical MED Sciences	
PEA_ST	Peace Studies	A&S
FINPLN	Personal Financial Planning	HES
PHIL	Philosophy	A&S
PM_REH	Physical Medicine and Rehabilitation	MED
PH_THR	Physical Therapy	HP
PHYSCS	Physics	A&S
PLNT_S	Plant Science	CAFNR
POL_SC	Political Science	A&S
PORT	Portuguese	A&S
PSCHTY	Psychiatry	MED
PSYCH	Psychology	A&S
PUB_AF	Public Affairs	A&S
P_HLTH	Public Health	GRAD
RA_SCI	Radiologic Sciences	HP
RADIOL	Radiology	MED
REL_ST	Religious Studies	A&S
RS_THR	Respiratory Therapy	HP
RM_LAN	Romance Languages	A&S
RU_SOC	Rural Sociology	CAFNR
RUSS	Russian	A&S
SRV_LRN	Service Learning	PRVST
SOC_WK	Social Work	HES
SOCIOL	Sociology	A&S
SOIL	Soil Science	NAT R
S_A_ST	South Asia Studies	A&S
SPAN	Spanish	A&S
SPC_ED	Special Education	EDUC
SLHS	Speech, Language, and Hearing Sciences	HP
STAT	Statistics	A&S
SSC	Student Success Center	PRVST
SURGRY	Surgery	MED
T_A_M	Textile and Apparel Management	HES
THEATR	Theatre	A&S
V_BSCI	Veterinary Biomedical Science	VET M
VMED_I	Veterinary Medicine - Interdisciplinary	VET M
V_M_S	Veterinary Medicine and Surgery	VET M
V_PBIO	Veterinary Pathobiology	VET M
WGST	Women's & Gender Studies	A&S

# Course Offerings

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## A

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- Art General - Visual Studies (ARTGE\_VS) ([http://catalog.missouri.edu/courseofferings/artge\\_vs/](http://catalog.missouri.edu/courseofferings/artge_vs/))
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- Data Science (DATA\_SCI) (p. 1814)
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- Economics (ECONOM) (p. 1827)
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## F

- Family And Community Medicine (F\_C\_MD) (p. 1890)
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- Finance (FINANC) (p. 1900)
- Fisheries And Wildlife (F\_W) (p. 1905)
- Food Science (F\_S) (p. 1909)
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## G

- General Human Environmental Sciences (GN\_HES) (p. 1923)
- General Studies (G\_STDY) (p. 1923)
- Geography (GEOG) (p. 1923)
- Geology (GEOL) (p. 1931)
- German (GERMAN) (p. 1937)
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## H

- Health and Rehabilitation Science (HR\_SCI) (p. 1946)
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- Hebrew (HEBREW) (p. 1957)
- History (HIST) (p. 1957)
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- Hospitality Management (HSP\_MGMT) (p. 1980)
- Human Development And Family Science (H\_D\_FS) (p. 1985)

## I

- Industrial And Manufacturing Systems (IMSE) (p. 1996)
- Information Science And Learning Technologies (IS\_LT) (p. 1996)
- Information Technology (INFOTC) (p. 2004)
- Integrative Neuroscience (NEUROSCI) (p. 2009)
- Interdisciplinary Studies (INTDSC) (p. 2011)
- Internal Medicine (IN\_MED) (p. 2011)
- International Studies (INTL\_S) (p. 2014)
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## J

- Japanese (JAPNSE) (p. 2016)
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## K

- Korean (KOREAN) (p. 2047)

## L

- Laboratory Animal Medicine (LAB\_AN) (p. 2049)
- Latin (LATIN) (p. 2049)
- Law (LAW) (p. 2051)
- Learning, Teaching, Curriculum (LTC) (p. 2066)
- Learning, Teaching, Curriculum - Vocational (LTC\_V) (p. 2085)
- Linguistics (LINGST) (p. 2087)
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## M

- Management (MANGMT) (p. 2091)
- Marketing (MRKTNG) (p. 2099)
- Mathematics (MATH) (p. 2104)
- Mechanical And Aerospace Engineering (MAE) (p. 2113)
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- Medicine-Interdisciplinary (MED\_ID) (p. 2127)
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- Music-General (MUS\_GENL) (p. 2141)
- Music-Instrumental And Vocal Repertory (MUS\_I\_VR) (p. 2143)
- Music-Instrumental And Vocal Techniques (MUS\_I\_VT) (p. 2144)
- Music-Music Education (MUS\_EDUC) (p. 2147)
- Music-Music History And Literature (MUS\_H\_LI) (p. 2149)
- Music-Music Theory (MUS\_THRY) (p. 2152)

## N

- Natural Resources (NAT\_R) (p. 2156)
- Naval Science (NAVY) (p. 2160)
- Neurology (NEUROL) (p. 2161)
- Nuclear Engineering (NU\_ENG) (p. 2161)
- Nuclear Medicine (NUCMED) (p. 2165)
- Nursing (NURSE) (p. 2167)
- Nutrition (NUTRIT) (p. 2177)
- Nutrition and Exercise Physiology (NEP) (p. 2177)

## O

- Obstetrics And Gynecology (OB\_GYN) (p. 2185)
- Occupational Therapy (OC\_THR) (p. 2187)
- Ophthalmology (OPHTH) (p. 2191)

## P

- Parks, Recreation, Sport Tourism (PRST) (p. 2191)
- Pathology Anatomical Science (PTH\_AS) (p. 2196)
- Peace Studies (PEA\_ST) (p. 2199)
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- Physical Medicine And Rehabilitation (PM\_REH) (p. 2220)
- Physical Therapy (PH\_THR) (p. 2221)
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- Plant Science (PLNT\_S) (p. 2233)
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## R

- Radiologic Sciences (RA\_SCI) (p. 2279)
- Radiology (RADIOL) (p. 2282)
- Reading (Intensive English Program) (IEPR) (p. 2010)
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## S

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## T

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## V

- Veterinary Biomedical Science (V\_BSCI) (p. 2337)
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## W

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- Writing (Intensive English Program) (IEPW) (<http://catalog.missouri.edu/courseofferings/iepw/>)

## Accountancy Courses

### ACCTCY 2010: Introduction to Accounting

Introduction to accounting for non-business majors. Emphasis on introducing students to business operations, as well as preparing and using management information and financial accounting information for business decisions (does not count as either ACCTCY 2036 or ACCTCY 2037).

**Credit Hours:** 3

**Prerequisites:** sophomore standing

### ACCTCY 2026: Accounting I

An introduction to the field of accounting, this course covers the fundamentals of financial accounting. Business students at UMC must have advisor's approval. Credit may not be earned for both ACCTCY 2026 and ACCTCY 2036.

**Credit Hours:** 3

**Prerequisites:** Sophomore Standing

### ACCTCY 2027: Accounting II

This course covers the fundamentals of managerial accounting and additional topics in financial accounting. Business students at UMC must have advisor's approval. Credit may not be earned for both ACCTCY 2027 and ACCTCY 2037. Course only offered through Mizzou Online (self paced).

**Credit Hours:** 3

**Prerequisites:** ACCTCY 2026, ACCTCY 2036 or ACCTCY 2136H

### ACCTCY 2036: Accounting I

First part of two-part course focusing on the nature and use of managerial and financial accounting information for decision making in various business settings. Emphasizes use of accounting information by internal and external users. This course covers the fundamentals of financial accounting.

**Credit Hours:** 3

**Prerequisites:** Completion of 28 credit hours. May be restricted to lower-level business and lower-level accountancy students during early registration

### ACCTCY 2037: Accounting II

Second part of two-part course focusing on the nature and use of managerial and financial accounting information for decision making in various business settings. Emphasizes use of accounting information by internal and external users. This course covers the fundamentals of managerial accounting.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 2026, ACCTCY 2036 or ACCTCY 2136H

### ACCTCY 2136H: Honors Accounting I

First part of two-part course focusing on the nature and use of managerial and financial accounting information for decision making in various business settings. Emphasizes use of accounting information by internal and external users.

**Credit Hours:** 3

**Prerequisites:** sophomore standing in Accounting or Business, 3.3 or higher GPA. Honors eligibility required

### ACCTCY 2137H: Honors Accounting II

Continuation of Accountancy 2136H.

**Credit Hours:** 3

**Prerequisites:** C or better ACCTCY 2136H. Honors eligibility required

### ACCTCY 2258: Computer-Based Data Systems

Introduces the computer as a tool in the efficient operation of a business. Skills developed in the course include electronic information retrieval, information analysis using a spreadsheet, what-if analysis macro development, and information presentation. In addition, computer components, data storage, networks, and information technology are discussed.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing

### ACCTCY 3326: Financial Accounting Theory and Practice I

Institutional structure, conceptual framework, and reporting standards and practices of financial accounting, with special emphasis on accounting for assets.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 2037 or ACCTCY 2137H or ACCTCY 2027. Restricted to Accountancy Majors

### ACCTCY 3328: Accounting Information Systems

Introduction to accounting information systems (AIS). General AIS concepts. Transaction processing systems and accounting cycles. Alternative platforms for computerized transaction processing. Database management and data modeling. Control concepts and design.

**Credit Hours:** 3

**Prerequisites:** Restricted to Accountancy Majors

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**ACCTCY 3346: Financial Accounting Theory and Practice II**

Continuation of Accountancy 3326, with special emphasis on income recognition and accounting for liabilities and ownership equity.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 3326. Restricted to Accountancy Majors

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**ACCTCY 3347: Cost and Managerial Accounting**

Activity based and traditional job order and process cost systems for service, merchandising, and multinational manufacturing companies; Cost accounting techniques and procedures for financial reporting by multinational companies. Strategic focus to management accounting measurement and reporting. Standard costs and variances, capital budgeting.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 2037 or ACCTCY 2137H or ACCTCY 2027. Restricted to Accountancy Majors

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**ACCTCY 4000: Accountancy Professional Speakers and Symposia**

(cross-leveled with ACCTCY 7000). This non-credit course, recommended for all accountancy majors, will provide exposure to issues in the accounting profession through professional speaker series and symposia. Components will include the Dawdy Speaker Series, Orin Ethics Symposium, and Symposia delivered by accounting firms and/or professional accounting organizations. This will be a non-credit, non-billed, no hours course.

**Credit Hours:** 0

**Prerequisites:** Accountancy Majors

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**ACCTCY 4301: Topics in Accounting**

Independent investigations, reports on approved topics.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ACCTCY 4353: Introduction to Taxation**

(cross-leveled with ACCTCY 7353). Introduction to the structure and conceptual foundation of the U.S. federal income tax system for individual taxpayers. Topics include income recognition, deductions, property transactions, trusts, and family wealth planning. This course also introduces students to legal tax research and preparation of individual income tax returns.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 2037 or ACCTCY 2137H or ACCTCY 2027. Restricted to accountancy majors only

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**ACCTCY 4356: Financial Accounting Concepts**

(cross-leveled with ACCTCY 7356). Current issues in the financial reporting of business corporations to external parties.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 2037 or ACCTCY 2137H or ACCTCY 2027 or ACCTCY 7310. Not open to accountancy majors

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**ACCTCY 4365: Governmental Accounting and Budgeting**

(cross-leveled with ACCTCY 7365). Introduction to government and not-for-profit accounting. Concepts and principles of fund accounting,

budgeting, auditing, and financial reporting in government and not-for-profit entities.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 3326. Restricted to Accountancy Majors

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**ACCTCY 4384: Auditing Theory and Practice I**

(cross-leveled with ACCTCY 7384). Introduction to the auditing profession, assurance function, and generally accepted standards for conducting audits.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 3328 and ACCTCY 3346. Restricted to Accountancy Majors

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**ACCTCY 4940: Professional Accounting Internship**

(cross-leveled with ACCTCY 7940). Provides full-time professional accounting work experience of at least eight weeks duration. Graded on S/U basis only.

**Credit Hour:** 3-6

**Prerequisites:** Accountancy Majors only and 105 credit hours completed and ACCTCY 3326 and ACCTCY 3328 and ACCTCY 3346 and ACCTCY 3347 and ACCTCY 4353, and GPA of 3.0 or higher

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**ACCTCY 7000: Accountancy Professional Speakers and Symposia**

(cross-leveled with ACCTCY 4000). This non-credit course, recommended for all accountancy majors, will provide exposure to issues in the accounting profession through professional speaker series and symposia. Components will include the Dawdy Speaker Series, Orin Ethics Symposium, and Symposia delivered by accounting firms and/or professional accounting organizations. This will be a non-credit, non-billed, no hours course. Graded on S/U basis only.

**Credit Hours:** 0

**Prerequisites:** Accountancy Majors

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**ACCTCY 7310: Accounting for Managers**

Introduction to understanding how accounting information is used to help make informed decisions in various business settings. Includes an introduction to basic financial and management accounting concepts and procedures.

**Credit Hours:** 3

**Prerequisites:** MBA or MSPA candidate, or departmental consent

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**ACCTCY 7353: Introduction to Taxation**

(cross-leveled with ACCTCY 4353). Introduction to the structure and conceptual foundation of the U.S. federal income tax system for individual taxpayers. Topics include income recognition, deductions, property transactions, trusts, and family wealth planning. This course also introduces students to legal tax research and preparation of individual income tax returns.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 2037 or ACCTCY 2137H or ACCTCY 2027. Restricted to accountancy majors only

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**ACCTCY 7356: Financial Accounting Concepts**

(cross-leveled with ACCTCY 4356). Current issues in the financial reporting of business corporations to external parties. Not open to accountancy majors.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 2037 or ACCTCY 2137H or ACCTCY 2027 or ACCTCY 7310

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**ACCTCY 7365: Governmental Accounting and Budgeting**

(cross-leveled with ACCTCY 4365). Introduction to government and not-for-profit accounting. Concepts and principles of fund accounting, budgeting, auditing, and financial reporting in government and not-for-profit entities.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 3326. Restricted to Accountancy Majors

---

**ACCTCY 7384: Auditing Theory and Practice I**

(cross-leveled with ACCTCY 4384). Introduction to the auditing profession, assurance function, and generally accepted standards for conducting audits.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 3328 and ACCTCY 3346. Restricted to Accountancy Majors

---

**ACCTCY 7940: Professional Accounting Internship**

(cross-leveled with ACCTCY 4940). Provides full-time professional accounting work experience of at least eight weeks duration. Graded on S/U basis only.

**Credit Hour:** 3-6

**Prerequisites:** Completion of undergraduate portion of 150 hour program (or equivalent) and consent of Internship Coordinator

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**ACCTCY 8363: Multi-Jurisdictional Tax**

This course takes a practical approach to exploring multistate and international tax concepts by focusing on tax issues that can arise as a company expands from a single business location into a multinational corporation. Part 1 of this course focuses on the economic, political, and constitutional constraints imposed on state and local taxation, including the due process clause, the commerce clause and state uniformity and equality clauses. Part 2 of the course includes a survey of state and local tax laws, with a particular emphasis on the imposition of sales and use taxes and the allocation and apportionment of state income taxes. Part 3 of the course surveys principals of international taxation, including U.S. taxation of the foreign investments or activities of U.S. taxpayers (outbound) and U.S. taxation of the U.S. activity or investments of foreign taxpayers (inbound).

**Credit Hours:** 3

**Prerequisites:** ACCTCY 4353. Restricted to Accountancy Majors

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**ACCTCY 8373: Taxation of Corporations and Shareholders**

Life cycle of a corporation including formations, operations, distributions, and liquidations of corporations.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 4353 or ACCTCY 7353. Restricted to Accountancy Majors

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**ACCTCY 8393: Taxation of Trust, Gifts and Estates**

This course covers two main topics. Students are introduced to the construction, operation and income taxation of trusts. After this portion of the course students will learn about the gift tax consequences of completed exchanges. Finally, students will learn the basic rules regarding the estate tax. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 4353 or ACCTCY 7353. Restricted to Accountancy Majors

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**ACCTCY 8401: Topics in Accounting**

Independent investigations, reports on approved topics.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ACCTCY 8404: Internal Auditing**

This course covers the concepts, practices, and application of internal audit activities. The course will review the entire internal audit process including annual audit and engagement planning, fieldwork, reporting, and management communication. Other topics including internal controls, enterprise risk management, and key behavior skills will be discussed. The Professional Practices Framework and industry best practices will be incorporated throughout the semester. This course will prepare students for entry-level internal audit positions. Graded A-F only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 4384 or ACCTCY 7384. Restricted to Accountancy Majors

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**ACCTCY 8414: Audit of Internal Controls**

A combination of control theory, concept application, demonstration of actual practice, and student research to develop an understanding of the concepts and practices used in the design, development or assurance of information systems (IS) controls. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 3328, and ACCTCY 4384 or ACCTCY 7384. Restricted to Accountancy Majors

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**ACCTCY 8419: International Accounting**

Introduction to accounting regulations and practices outside of the U.S., accounting regulations for foreign registrants on the NYSE and NASDAQ, international accounting standards and international management control issues. Review of cultural frameworks; transfer pricing methods and international accounting standards.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 3346 and ACCTCY 3347. Restricted to Accountancy Majors

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**ACCTCY 8423: Tax Research and Planning**

Applied tax research using print and electronic data bases; heuristic biases in tax judgments; responsibilities of professional tax practices.

**Credit Hours:** 3

**Prerequisites or Corequisites:** ACCTCY 8373

**Prerequisites:** Restricted to Accountancy Majors

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**ACCTCY 8424: Fraud Examination**

A study of the methods and techniques of fraud examination, particularly with regard to frauds perpetrated by the company against the public. The ethical and professional standards that underlie the accountant's responsibility for fraud detection and prevention are emphasized. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 4384 or ACCTCY 7384. Restricted to Accountancy Majors

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**ACCTCY 8428: Data Visualization and Data Mining**

Enterprise-wide view of data and transaction processing. Concepts and techniques of data visualization and data mining of business-critical data. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Accountancy Majors or with Department consent

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**ACCTCY 8433: Mergers and Acquisitions Taxation**

This course covers the basic taxation of mergers and acquisitions, both taxable and tax-free acquisitions; issues in merger and acquisition deal making, such as due diligence and understanding contract tax provisions; and an overview of securities regulations with respect to publicly traded companies. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** ACCTCY 8373

**Prerequisites:** ACCTCY 4353

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**ACCTCY 8436: Advanced Accounting**

Continuation of ACCTCY 3346. Addresses a series of special financial accounting topics including income taxes, pensions, leases, business combinations, consolidated statements, and foreign currency translation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 3346. Restricted to Accountancy Majors

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**ACCTCY 8438: Forensic Accounting**

Coverage of forensic accounting processes and tools used in the detection and prevention of fraud against the company. Topics include skimming, cash larceny, check tampering, billing schemes and others. An emphasis of the course will be upon the use of computer aids. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 3328, ACCTCY 4384 or ACCTCY 7384. Restricted to Accountancy Majors

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**ACCTCY 8444: Advanced Audit**

The Advanced Auditing course helps students develop a better understanding of the audit environment and gives them the opportunity to gain hands-on experience planning for an audit engagement, performing test work, and completing an audit engagement. The course also addresses additional topics not covered in detail in the Audit Theory and Practice I course, including inventory observation, legal liability issues faced by auditors today, the regulatory environment, professional responsibilities of auditors, preparing appropriate documentation for audit engagements, providing required communications to clients,

and performing Single Audits. The course is designed to encourage open discussions of cases and current issues and provide learning opportunities for the students. The class meetings and assignments are designed to improve the student's critical thinking skills, communication skills, and team-building skills. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 4384 or ACCTCY 7384. Restricted to Accountancy Majors

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**ACCTCY 8448: Emerging Issues in Accounting Information Systems**

Current developments in the implementation and use of accounting information systems. Topics may vary. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Accountancy Majors

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**ACCTCY 8450: Accounting and Strategic Business Analysis**

Capstone course in the Master of Accountancy program. Emphasis on case analysis to develop critical thinking and analytical skills in the use of accounting reports for broad-based business analysis. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 3346 or equivalent. Restricted to Accountancy Majors

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**ACCTCY 8453: Taxes and Business Strategies**

This class examines the role taxes in business decisions. The analysis involved considers 1) tax consequences of all parties to a transaction, 2) both explicit and implicit taxes, and 3) tax as well as non-tax costs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Accountancy Majors

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**ACCTCY 8456: Corporate Governance**

Corporate governance has taken on new prominence in light of the accounting scandals of the early 2000's (e.g., Enron) and the new regulatory regime of Sarbanes-Oxley. As a result, corporations, investors, auditors, and others are paying more attention to corporate governance. This course will familiarize students with corporate governance mechanisms and how they interact with financial reporting. This course should appeal to students pursuing careers in auditing, finance, management, as well as anyone seeking a deeper understanding of relations between financial reporting and corporate governance. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 8436. Restricted to Accountancy Majors

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**ACCTCY 8463: Partnership Taxation**

Formations, operations, distributions, and liquidations of partnerships. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 4353 or 7353

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**ACCTCY 9090: Research in Accounting**

Each student is under direction and guidance of an accountancy professor in writing a dissertation. Periodic seminars discuss research projects. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** doctoral candidacy and instructor's consent

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**ACCTCY 9401: Doctoral Research Problems in Accounting**

Independent investigations, reports on approved topics. Restricted to Doctoral level students only

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent and director's consent

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**ACCTCY 9444: Seminar in Auditing Research**

The economic role of auditing; the audit process; audit reports and the consequences of auditing on financial statements; new audit directions and perspectives.

**Credit Hours:** 3

**Prerequisites:** doctoral candidacy or instructor's consent

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**ACCTCY 9457: Quantitative Methods in Accounting**

Application of mathematics and statistics to managerial and financial accounting problems.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 3347, MATH 1300 and STAT 3500, or instructor's consent

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**ACCTCY 9460: Research Methods in Accounting**

Application of research methods to the investigation of current accounting issues. A research paper is required.

**Credit Hours:** 3

**Prerequisites:** doctoral candidacy or instructor's consent

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**ACCTCY 9466: Seminar in Financial Accounting Research**

Theory of financial accounting and regulated disclosure; empirical tests of financial accounting theory, with emphasis on the nature of the research question addressed, and the method used to address the research question.

**Credit Hours:** 3

**Prerequisites:** doctoral candidacy or instructor's consent

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**ACCTCY 9467: Seminar in Behavioral Accounting Research**

Critical review of the Behavioral accounting research literature with emphasis on issues and research methods.

**Credit Hours:** 3

**Prerequisites:** doctoral candidacy and instructor's consent

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## Aerospace Studies Courses

**AERO 1100: Heritage and Values of the United States Air Force**

A survey course designed to introduce students to the United States Air Force and provides an overview of the basic characteristics, missions, and organization of the Air Force.. Applies communicative skills. Leadership lab.

**Credit Hours:** 2

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**AERO 1200: Heritage and Values of the United States Air Force**

Continues introducing students to the United States Air Force and provides an overview of the basic characteristics, missions, and organization of the Air Force. Applies communicative skills. Leadership lab.

**Credit Hours:** 2

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**AERO 2100: Team and Leadership Fundamentals**

A survey course that focuses on laying the foundation for teams and leadership. The topics include skills that will allow cadets to improve their leadership on a personal level and within a team. The courses will prepare cadets for their field training experience where they will be able to put the concepts learned into practice. The purpose is to instill a leadership mindset and to motivate sophomore students to transition from AFROTC cadet to AFROTC officer candidate. Applies communicative skills. Leadership lab.

**Credit Hours:** 2

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**AERO 2200: Team and Leadership Fundamentals**

Continues laying the foundation for teams and leadership. The topics include skills that will allow cadets to improve their leadership on a personal level and within a team. The courses will prepare cadets for their field training experience where they will be able to put the concepts learned into practice. The purpose is to instill a leadership mindset and to motivate sophomore students to transition from AFROTC cadet to AFROTC officer candidate. Applies communicative skills. Leadership lab.

**Credit Hours:** 2

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**AERO 3100: Leading People and Effective Communication**

Focuses on teaching cadets advanced skills and knowledge in management and leadership. Special emphasis is placed on enhancing leadership skills and communication. Cadets have an opportunity to try out these leadership and management techniques in a supervised environment as juniors and seniors. Leadership lab.

**Credit Hours:** 3

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**AERO 3200: Leading People and Effective Communication**

Continues teaching cadets advanced skills and knowledge in management and leadership. Special emphasis is placed on enhancing leadership skills and communication. Cadets have an opportunity to try out these leadership and management techniques in a supervised environment as juniors and seniors. Leadership lab.

**Credit Hours:** 3

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**AERO 4100: National Security Affairs/Preparation for Active Duty**

Designed for college seniors and gives them the foundation to understand their role as military officers in American society. It is an overview of the complex social and political issues facing the military profession and requires a measure of sophistication commensurate with the senior college level. The final semester provides information that will prepare the cadets for Active Duty. Leadership lab.

**Credit Hours:** 3

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**AERO 4200: National Security Affairs/Preparation for Active Duty**

Designed for college seniors and gives them the foundation to understand their role as military officers in American society. It is an overview of the complex social and political issues facing the military profession and requires a measure of sophistication commensurate with the senior college level. The final semester provides information that will prepare the cadets for Active Duty. Leadership laboratory.

**Credit Hours:** 3

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**Agribusiness Management Courses****ABM 1010: Introduction to Agribusiness Management**

Introduction to Agribusiness Management, will provide students the opportunity to learn about business, agriculture, food, and the environment. Students will develop an understanding of how agriculture contributes to the U.S. economy and international markets. Agriculture is one of the fastest growing sectors in the U.S. economy and provides many great career opportunities nationwide. Students will learn about careers in agribusiness and food industry sales, commodity and food product marketing, entrepreneurial endeavors, farm management and production, financial management and analysis, human and public relations, policy and law and supply chain management.

**Credit Hours:** 3

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**ABM 1041: Applied Microeconomics**

Introduction to the microeconomic principles and their application to decision-making in agribusinesses. Consumer decision analysis, producer goals and optimization and the market environment where they meet and trade. Applications to current issues. Students who complete AG\_EC/ABM 1041 may not have credit for ECONOM 1014.

**Credit Hours:** 3

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**ABM 1042: Applied Macroeconomics**

Introduction to macroeconomic principles and their application to agriculture-food sector and natural resource issues. Using macroeconomic principles in decision making and in evaluating national and regional economic problems and issues. Students who complete ABM 1042 may not have credit for ECONOM 1015.

**Credit Hours:** 3

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**ABM 1200: Applied Computer Applications**

This course is an applied problem based learning opportunity for students to gain Excel spreadsheet related skills critical to careers in agriculture, food and natural resources. Students will learn intermediate and advanced spreadsheet skills essential for problem solving and decision making in these biologically influenced fields.

**Credit Hours:** 3

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**ABM 1230: Introduction to the Agricultural Policy Process**

This course is designed to help students recognize various aspects of agricultural policy and leadership. Students will learn about the food/agriculture/rural policy making process, the impact of those policies, and the role of leadership through discussions with recognized local, state, and national leaders in agriculture and policymaking. Graded on A-F basis only. Recommended Freshman preferred.

**Credit Hours:** 3

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**ABM 1230H: Introduction to the Agricultural Policy Process - Honors**

This course is designed to help students recognize various aspects of agricultural policy and leadership. Students will learn about the food/agriculture/rural policy making process, the impact of those policies, and the role of leadership through discussions with recognized local, state, and national leaders in agriculture and policymaking. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required. Recommended Freshman preferred

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**ABM 2050: For the Love of Food: Global Food System Debate**

This course is designed to develop students' understanding of the food system from farm to plate and the consumer's role in the global food system. Gaining a knowledge base on food system dynamics will allow students to better understand the societal and policy making processes behind food production. Each week we will discuss key topics and issues facing the food system today. This class will help students develop critical thinking skills to address challenges in the global food system.

**Credit Hours:** 3

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**ABM 2070W: Environmental Economics and Policy - Writing Intensive**

(same as ENV\_ST 2070). Examines current environmental and natural resource issues using a systems perspective and key economic concepts. Explores connections between the environment and the economy based on problems at the local, national, and international levels.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** ENGLISH 1000

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**ABM 2183: The Agricultural Marketing System**

Analysis of marketing systems that transforms agricultural products into food products. Examines functions and institutions in marketing and distributing food from both micro and macro perspectives.

**Credit Hours:** 3

**Prerequisites:** ABM 1041 or ECONOM 1014

**Recommended:** ABM 1042 or ECONOM 1015

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**ABM 2223: Agricultural Sales**

Principles of salesmanship in agricultural input and output markets; buyer motivations; time and territory management; communication models and techniques; planning and executing sales calls; after-sale service.

**Credit Hours:** 3

**Prerequisites:** ABM 1041 or ABM 1042 or ECONOM 1014 or ECONOM 1015 and sophomore standing

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**ABM 2225: Statistical Analysis**

Elementary statistical inference. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** MATH 1100

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**ABM 2294: Market Watch - Understanding and Using Commodity Markets**

This course is an introduction to commodity merchandising with a focus on the underlying fundamental market factors that determine commodity prices. In addition to monitoring market news, weather and supply/demand, students learn about cash, futures and options markets. Various merchandising tools are examined and how they can be applied to develop effective commodity merchandising strategies.

**Credit Hours:** 3

**Recommended:** Excel

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**ABM 2301: Topics in Agribusiness Management**

Initial offering of a course in a specific subject matter area related to Agribusiness Management. The course is offered when proposed by a faculty member in that area of expertise.

**Credit Hour:** 1-3

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**ABM 3150: International Agribusiness**

This course covers the primary factors that shape the business environment for food and agricultural firms conducting business across borders. The course examines how culture, institutions and public policy affect business operations and business strategies.

**Credit Hours:** 3

**Prerequisites:** ABM 2183

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**ABM 3224: New Products Marketing**

Learning experience to develop skills in marketing new agriculture products. To include market analysis, goals and objectives, action plan, financial evaluation and monitoring and measurement. In small groups, students will develop complete marketing plan for a new product.

**Credit Hours:** 3

**Prerequisites:** ABM 1041 or ECONOM 1014

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**ABM 3224W: New Products Marketing - Writing Intensive**

Learning experience to develop skills in marketing new agriculture products. To include market analysis, goals and objectives, action plan, financial evaluation and monitoring and measurement. In small groups, students will develop complete marketing plan for a new product.

**Credit Hours:** 3

**Prerequisites:** ABM 1041 or ECONOM 1014

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**ABM 3230: Agricultural and Rural Economic Policy**

Study and analysis of past and present government policies affecting agriculture and rural economy.

**Credit Hours:** 3

**Prerequisites:** ABM 1041 or ECONOM 1014 and ABM 1042 or ECONOM 1015

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**ABM 3241W: Ethical Issues in Agriculture - Writing Intensive**

The study of how economics, philosophy, and science inform on and impact important ethical problems in agriculture, such as the environment, biotechnology, animal welfare, farm structure, the role of agribusiness, development, sustainability, and agriculture-related public policy. Course may be repeated once for credit.

**Credit Hours:** 3

**Prerequisites:** ABM 1041 or ECONOM 1014 and junior standing

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**ABM 3256: Agribusiness and Biotechnology Law**

Legal concepts applicable to agribusiness and biotech firms. To include contracts, torts, product liability, warranties, corporate farming laws, UCC, corporations/partnerships/limited liability companies, labor laws, patent copyrights/trademark laws, international and ethical perspectives.

**Credit Hours:** 3

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**ABM 3260: General Farm Management**

Economics and management principles applied to planning and operating farm businesses. Includes enterprise combination, resource acquisition, water management, profit maximizing techniques and annual adjustments to changing conditions.

**Credit Hours:** 3

**Prerequisites:** ABM 1041 or ECONOM 1014

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**ABM 3271: International Agricultural Development**

Examines world food problem; analyzes its causes; economic and noneconomic policy alternatives for modernizing agriculture in less-developed countries.

**Credit Hours:** 3

**Prerequisites:** ABM 1041 or ECONOM 1014 and ABM 1042 or ECONOM 1015

**Recommended:** junior standing

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**ABM 3272: International Food Trade and Policy**

Examines food trade; develops economic analyses of trade impacts on domestic agricultural policies; examines international trade agreements; and interface of trade and environment.

**Credit Hours:** 3

**Prerequisites:** ABM 1041 or ECONOM 1014 and ABM 1042 or ECONOM 1015

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**ABM 3282: Agribusiness Finance**

Application of the concepts and methods of finance to the management of agribusiness firms, including cooperatives. Special attention is given to the working capital needs of agribusiness and to the specialized lending institutions in the agricultural economy.

**Credit Hours:** 3

**Prerequisites:** ABM 1041 or ECONOM 1014 and ACCTCY 2036 or ACCTCY 2026

**Recommended:** ACCTCY 2037 or ACCTCY 2027

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**ABM 3283: Fundamentals of Entrepreneurship**

Introduce students to entrepreneurial way of thinking. Entrepreneurship is a way of thinking about identifying/creating opportunities and transforming those opportunities into new businesses, new institutions, or solutions to problems. Students will participate in the process of formulating and evaluating solutions to problems and identifying and exploiting opportunities.

**Credit Hours:** 3

**Prerequisites:** ABM 1041 or ECONOM 1014 and ACCTCY 2036 or ACCTCY 2026. Restricted to Agricultural Economics and Agribusiness Management majors during early registration



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**ABM 3285: Problems in Agribusiness Management**

Supervised study in a specialized phase of agricultural economics. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ABM 3286: Economics of Managerial Decision Making**

Introduces tools and concepts from price theory, game theory, industrial organization and organizational economics, and applies them to managerial decision making activities for businesses in the agrifood system and for natural resource and environmental management.

**Credit Hours:** 3

**Prerequisites:** ABM 2123 and ABM 2183

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**ABM 3294: Agricultural Marketing and Procurement**

Content of course focuses on marketing issues in the agriculture supply chain. Topics covered include price discovery, basis, futures/options, contracting, logistics, and management decision making.

**Credit Hours:** 3

**Prerequisites:** ABM 2183

**Recommended:** ABM 2225 or STAT 2500

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**ABM 3295: Real Money: Speculative Trading for Beginners**

Familiarize students with the learning components of commodity future trading. Students learn through involvement by investing in a commodity pool and trading futures. Students apply both fundamental and technical analysis. Students taking this course are required to invest from \$200 to \$600 in \$200 increments. Students cannot lose more money than invested.

**Credit Hours:** 3

**Recommended:** ABM 3294

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**ABM 3370: Transportation in the Global Supply Chain**

This course provides an overview of the transportation sector, including history, providers, users, government regulation, and the central role of transportation in supply chain management. The course covers the importance of domestic and global transportation, the operational aspects of the various transportation modes (rail, water, motor, air, and pipeline), the role of transportation intermediaries, the demand and supply of transportation, and the managerial aspects of transport in both the commercial and urban environment.

**Credit Hours:** 3

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**ABM 4223: Professional Solution Selling**

(cross-leveled with AAE 7223). This course will reinforce the sales education students gained in ABM 2223, Agricultural Sales. Class will focus on strategic and conceptual selling which are techniques geared toward complex B2B sales. In this course, we will discuss myriad career opportunities in the sales profession. Students will have the opportunity to interact with sales professionals.

**Credit Hours:** 3

**Prerequisites:** ABM 2223

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**ABM 4230: Understanding the Agricultural Policy Process**

The goal of this course is to prepare students for a career in agricultural policy and will build the skill set needed in the agricultural policy environment.

**Credit Hours:** 3

**Prerequisites:** ABM 3230

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**ABM 4240: Microeconomics Theory and Applications**

(cross-leveled with AAE 7240). This course extends the learning from principles of microeconomics for students of applied economics. The topics in this course prepare students for further study in finance, business management, policy analysis, economic development, and other applications of economic theory. The course stresses development of theoretical models of consumer choice, firm behavior, perfect and imperfect markets, and externalities, balanced by investigation of the assumptions behind these models. Applications of the models to management and policy issues will be assigned throughout the semester.

**Credit Hours:** 3

**Prerequisites:** MATH 1400 and ABM 1041 or ECONOM 1014

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**ABM 4251: Agricultural Prices**

(cross-leveled with AAE 7251). Variations in prices of agricultural products; underlying factors.

**Credit Hours:** 3

**Prerequisites:** ABM 2123 and ABM 2225 or STAT 2500

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**ABM 4295: Agricultural Risk Management**

(cross-leveled with AAE 7295). This class will examine the range of risks business face and explore ways of characterizing and evaluating those risks.

**Credit Hours:** 3

**Prerequisites:** ABM 2183 and ABM 2225 or STAT 2500

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**ABM 4301: Topics in Agribusiness Management**

Current and new topics not currently offered in applied and/or theoretical areas in Agribusiness Management.

**Credit Hour:** 1-6

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**ABM 4301H: Topics in Agribusiness Management - Honors**

Current and new topics not currently offered in applied and/or theoretical areas in Agribusiness Management. .

**Credit Hour:** 1-6

**Prerequisites:** honors eligibility required

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**ABM 4940: Internship Opportunities**

Combines study, observation, and employment in a public agency or private firm in marketing, farm management, or credit. Staff supervision and evaluation. Reports required.

**Credit Hour:** 1-3

**Recommended:** 75 hours completed

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**ABM 4962: Planning the Farm Business**

(cross-leveled with AAE 7962). Economic analysis and planning of the farm business and its organization. Applications of computerized

management techniques to farm business including resource acquisition, tax management, enterprise analysis, and business analysis through farm records and budgets.

**Credit Hours:** 3

**Prerequisites:** ABM 3260

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**ABM 4971: Agribusiness Management Strategy**

(cross-leveled with AAE 7971). Analysis of industry forces in agriculture and food sector. Assessing risks and firms' capabilities. Development of firm's competitive strategy, including vertical integration, diversification, international business option, and financial planning and performance measurement.

**Credit Hours:** 3

**Prerequisites:** ABM 3282 or FINANC 3000 and ABM 3286 or MANGMT 3000

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**ABM 4971W: Agribusiness Management Strategy - Writing Intensive**

(cross-leveled with AAE 7971). Analysis of industry forces in agriculture and food sector. Assessing risks and firms' capabilities. Development of firm's competitive strategy, including vertical integration, diversification, international business option, and financial planning and performance measurement.

**Credit Hours:** 3

**Prerequisites:** ABM 3282 or FINANC 3000 and ABM 3286 or MANGMT 3000

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**ABM 4972: Agri-Food Business and Cooperative Management**

(cross-leveled with AAE 7972). Risk management in the global agrifood chain, including managing the unique uncertainties of biological production processes, global market analysis, and government intervention, of risk management tools and institutions unique to strategic decision making in agribusiness and cooperative firms.

**Credit Hours:** 3

**Prerequisites:** ABM 4971 and ABM 3286 or MANGMT 3000

**Recommended:** ABM 3256

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**ABM 4983W: Strategic Entrepreneurship in Agri-Food - Writing Intensive**

(cross-leveled with AAE 7983). Strategic entrepreneurship is the search for opportunities to generate income streams from innovation, development of new markets, and altering the rivalry positions in existing markets.

**Credit Hours:** 3

**Prerequisites:** ABM 3283 and ABM 3282 or FINANC 3000

**Recommended:** senior standing

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**ABM 4990W: Economic Analysis of Policy and Regulation - Writing Intensive**

(cross-leveled with AAE 7990). Apply economic concepts and tools to analyze the policy-making process and the implications of policy for individuals, firms, markets and society. Policy topics include, among other things, agricultural support programs, environmental policy, international trade, international development, and agribusiness regulation.

**Credit Hours:** 3

**Prerequisites:** ABM 4251

**Recommended:** ECONOM 4351

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## Agricultural & Applied Economics Courses

**AAE 7223: Professional Solution Selling**

(cross-leveled with ABM 4223). This course will reinforce the sales education students gained in ABM 2223, Agricultural Sales. Class will focus on strategic and conceptual selling which are techniques geared toward complex B2B sales. In this course, we will discuss myriad career opportunities in the sales profession. Students will have the opportunity to interact with sales professionals.

**Credit Hours:** 3

**Prerequisites:** ABM 2223

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**AAE 7240: Microeconomics Theory and Applications**

(cross-leveled with ABM 4240). This course extends the learning from principles of microeconomics for students of applied economics. The topics in this course prepare students for further study in finance, business management, policy analysis, economic development, and other applications of economic theory. The course stresses development of theoretical models of consumer choice, firm behavior, perfect and imperfect markets, and externalities, balanced by investigation of the assumptions behind these models. Applications of the models to management and policy issues will be assigned throughout the semester.

**Credit Hours:** 3

**Prerequisites:** ABM 1041 or ECONOM 1014

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**AAE 7251: Agricultural Prices**

(cross-leveled with ABM 4251). Variations in prices of agricultural products; underlying factors.

**Credit Hours:** 3

**Prerequisites:** ABM 2123 and ABM 2225 or STAT 2500

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**AAE 7295: Agricultural Risk Management**

(cross-leveled with ABM 4295). This class will examine the range of risks businesses face and explore ways of characterizing and evaluating those risks.

**Credit Hours:** 3

**Prerequisites:** ABM 2183 and ABM 2225 or STAT 2500

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**AAE 7301: Topics in Agricultural and Applied Economics**

Current and new topics not currently offered in applied and/or theoretical areas in Agricultural and Applied Economics.

**Credit Hour:** 1-6

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**AAE 7400: Environmental Law, Policy, and Justice**

(same as ENV\_SC 7400; cross-leveled with ENV\_SC 4400). This course will examine the intersection of environmental law, policy, and justice. We will first cover the building blocks of U.S. environmental law, including common law and statutes such as the Clean Air Act and the Clean Water Act. We will then turn to international environmental policy issues such as climate change, marine pollution, and the hazardous waste trade. We will approach these laws and treaties through the lens of equity and environmental justice. The course will use a variety of teaching methods, including lecture and classroom discussion using cold calling and the Socratic Method. We will also have student presentations, guest

speakers, a moot court, a negotiation simulation, and a field trip in the Columbia, Missouri area. Graded on A-F basis only.

**Credit Hours:** 3

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**AAE 7940: Internship Experiences in Agricultural and Applied Economics**

Combines study, observation, and employment in a public agency or private firm in marketing, farm management, or credit. Staff supervision and evaluation. Reports required. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** 2.5 GPA; 75 hours of course work and instructor's consent

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**AAE 7962: Planning the Farm Business**

(cross-leveled with ABM 4962). Economic analysis and planning of the farm business and its organization. Applications of computerized management techniques to farm business including resource acquisition, tax management, enterprise analysis, and business analysis through farm records and budgets.

**Credit Hours:** 3

**Prerequisites:** ABM 3260

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**AAE 7971: Agribusiness Management Strategy**

(cross-leveled with ABM 4971). Analysis of industry forces in agriculture and food sector. Assessing risks and firms capabilities. Development of firm's competitive strategy, including vertical integration, diversification, international business option, and financial planning and performance measurement.

**Credit Hours:** 3

**Prerequisites:** ABM 3282 or FINANC 3000 and ABM 3286 or MANGMT 3000

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**AAE 7972: Agri-Food Business and Cooperative Management**

(cross-leveled with ABM 4972). Risk management in the global agrifood chain, including managing the unique uncertainties of biological production processes, global market analysis, and government intervention, of risk management tools and institutions unique to strategic decision making in agribusiness and cooperative firms.

**Credit Hours:** 3

**Prerequisites:** ABM 4971 and ABM 3286 or MANGMT 3000

**Recommended:** ABM 3256

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**AAE 7983: Strategic Entrepreneurship in Agri-Food**

(cross-leveled with ABM 4983). Strategic entrepreneurship is the search for opportunities to generate income streams from innovation, development of new markets, and altering the rivalry positions in existing markets. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Graduate standing and one course at the level of intermediate microeconomics

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**AAE 7990: Economic Analysis of Policy and Regulation**

(cross-leveled with ABM 4990). Apply economic concepts and tools to analyze the policy-making process and the implications of policy for individuals, firms, markets and society. Policy topics include, among other

things, agricultural support programs, environmental policy, international trade, international development, and agribusiness regulation.

**Credit Hours:** 3

**Prerequisites:** ABM 4251

**Recommended:** ECONOM 4351

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**AAE 7995: Economics of Agricultural Production and Distribution**

(cross-leveled with ABM 4995). Applies economic principles to agricultural production including price theory, linear programming and uncertainty.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 and ABM 2225 or STAT 2500

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**AAE 8001: Advanced Topics in Agricultural and Applied Economics**

Analyzes economic logic problems. Current agricultural and applied economic problems.

**Credit Hours:** 3

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**AAE 8050: Economics of Institutions and Organizations**

This course expands upon the fundamental principles of neo-classical economics by relaxing traditional behavioral and informational assumptions and by introducing the importance of transaction costs and institutions for economic analysis.

**Credit Hours:** 3

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**AAE 8060: Quantitative Tools for Decision Making and Performance Evaluation**

Firm decision making and evaluation are key concepts in business economics and management. This is an introductory course that focuses on quantitative methods for modeling the decision process and evaluating the performance of Decision-Making Units (DMUs).

**Credit Hours:** 3

**Prerequisites:** STAT 4510

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**AAE 8085: Masters Problems in Agricultural and Applied Economics**

Supervised study, research in specialized phases of agricultural and applied economics.

**Credit Hour:** 1-99

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**AAE 8090: Masters Thesis Research in Agricultural and Applied Economics**

Independent investigation of advanced nature, leading to dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-6

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**AAE 8265: Agricultural and Food Policy**

The course is designed to help students understand how agricultural and food policies are developed and how they can affect farmers, consumers, taxpayers and the environment. Topics include the policy process, farm subsidy programs, crop insurance, nutrition programs, trade agreements, food security, biofuel policies, promotion of organic and local foods and food safety. The primary focus will be U.S. policies, but policies in other countries will also be discussed. Students will develop analytical skills

that will prepare them for careers in government, business or academia. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECONOM 7351 or equivalent

**Recommended:** AAE 9220, AAE 9230

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**AAE 8350: Regional Development Issues and Analysis**

(same as PUB\_AF 8350). Examines theories of regional growth and development and methods for analysis with applications to current policy issues. Topics include firm location, new economic geography and agglomeration theory, clusters, human capital, migration, social capital, tax and development incentives, and sustainable regional development.

**Credit Hours:** 3

**Prerequisites:** ECONOM 7351 or PUB\_AF 8190 or equivalent

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**AAE 8410: Natural Resource and Environmental Economics**

Contemporary natural resource/environmental problems; natural resource capacity, alternative economic theories, property rights, externalities, market failures, efficient use of exhaustible and renewable resources, and economics of environmental pollution.

**Credit Hours:** 3

**Prerequisites:** ECONOM 7351

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**AAE 8430: International Agricultural Development Policy**

An analytical review of economic policies directed toward stimulating agricultural development in the world's low income countries.

**Credit Hours:** 3

**Prerequisites:** ECONOM 7351 and ECONOM 7353

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**AAE 8450: Masters Non Thesis Research**

Independent investigation of advanced nature. Report required.

**Credit Hour:** 1-6

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**AAE 8510: Research Methods and Design**

(same as AG\_ED\_LD 8510, RU\_SOC 8510). This course will give students a foundational understanding of quantitative research methods and design in the social and behavioral sciences. The main objective is to help students identify and formulate their own research questions and develop and implement a process for answering them. Students will examine the nature of the research process, explore the connection between theory and empirical research, identify viable research topics, critique published research, learn how to structure good arguments, understand the structure of research papers and proposals, plan and manage research activities, and become familiar with research ethics. Graded on A-F basis only.

**Credit Hours:** 3

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**AAE 8520: Economics of Transaction and Contracting**

This course focuses on the economic incentives underlying transaction relationships and develops and implements a framework for analyzing contract documents governing various kinds of transactions.

**Credit Hours:** 3

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**AAE 8610: Economic and Sociological Approaches to Collective Action**

(same as RU\_SOC 8610). This course identifies analytical and methodological tools, including rational choice and social capital, to deal with practical problems of collective action in: agricultural cooperatives, rural community development, political interest groups and other mutuals.

**Credit Hours:** 3

**Prerequisites:** AAE 7972

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**AAE 8860: International Comparative Rural Policy**

(same as PUB\_AF 8860, NAT\_R 8860). Compares the rural policy objectives and implementation strategies of various countries, and assesses these policies in terms of economic, social, environmental outcomes and their implications for international relations. Includes 2-weeks of study Abroad. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AAE 9001: Advanced Topics in Economics II**

Analyzes economic logic problems. Current agricultural economic problems.

**Credit Hours:** 3

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**AAE 9040: Advanced Microeconomics Theory and Applications I**

First semester course that rigorously examines the microeconomic theory of producer and consumer behavior, combined with applications of the theoretical concepts to empirical economic research on agricultural, business, development, and environmental issues. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECONOM 7351 or instructors consent

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**AAE 9042: Advanced Microeconomics Theory and Applications II**

Second semester advanced micro theory covering choice under uncertainty, industry structure, game theory, information econ, and political economy of regulation. Includes applications of micro models to issues in agricultural, natural resource, and development sectors.

**Credit Hours:** 3

**Prerequisites:** AAE 9040

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**AAE 9085: Doctoral Problems in Agricultural and Applied Economics**

Supervised study, research in specialized phases of agricultural and applied economics.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AAE 9090: Doctoral Dissertation Research in Agricultural and Applied Economics**

Independent investigation of advanced nature, leading to dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**AAE 9220: Price and Market Analysis**

Applies economic theory and quantitative methods to analyze agricultural prices and markets. Examines problem formulation, estimation, and model evaluation applied to the concepts of demand, supply, and prices.

**Credit Hours:** 3

**Prerequisites:** ECONOM 8451 or ECONOM 8472; STAT 4510

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**AAE 9230: Welfare and Consumption Economics**

Introduces welfare economic principles; application to problems of resource allocation. Appraises economic policies, programs; consumers' choice; measurement of consumption; living standards; household decisions and markets relation.

**Credit Hours:** 3

**Prerequisites:** ECONOM 8451 or instructor's consent

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**AAE 9265: Food, Agricultural and Rural Policy**

Application of welfare economics theory to food, agricultural and rural development policy analysis. Historical perspective and economics analysis of contemporary issues in national and international policy and institutions.

**Credit Hours:** 3

**Prerequisites:** ECONOM 7351 and AAE 9230

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**AAE 9510: Organizational Economics I**

This course builds on transaction cost-based theories and tools to study the economic underpinnings of intra-firm organization, firm boundaries, and the structure of inter-firm transactions.

**Credit Hours:** 3

**Prerequisites:** AAE 8050

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**AAE 9520: Organizational Economics II**

Relationships of neoclassical and new institutional economics to designing organizational strategy and structure. Internal coordination and structure, organizational boundaries, inter-firm rivalry and cooperation, and competitiveness of food system organizations.

**Credit Hours:** 3

**Prerequisites:** AAE 8050

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## Agricultural Education and Leadership Courses

**AG\_ED\_LD 1000: Orientation to Agricultural Education and Leadership**

Overview of the discipline of agricultural education including: career opportunities, certification requirements, professional development, and current issues.

**Credit Hour:** 1

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**AG\_ED\_LD 2250: Introduction to Leadership**

Any student can learn to be a leader. Students will analyze their strengths and then develop their personalized leadership brand. Students will develop leadership skills for leading in home, work, and organizational contexts and will apply those skills in planning and implementing a personal leadership project.

**Credit Hours:** 3

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**AG\_ED\_LD 2260: Team and Organizational Leadership**

Principles and practices in planning, developing, conducting, and evaluating leadership programs for agricultural groups. The course focuses on helping students better understand themselves and others, improving group communications; becoming effective leaders and members of groups; improving leadership and personal development skills; assessing leadership situations, determining and administering appropriate leadership strategies, and evaluating results.

**Credit Hours:** 3

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**AG\_ED\_LD 2260W: Team and Organizational Leadership - Writing Intensive**

Principles and practices in planning, developing, conducting, and evaluating leadership programs for agricultural groups. The course focuses on helping students better understand themselves and others, improving group communications; becoming effective leaders and members of groups; improving leadership and personal development skills; assessing leadership situations, determining and administering appropriate leadership strategies, and evaluating results.

**Credit Hours:** 3

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**AG\_ED\_LD 2270: Leadership Development in Youth Organizations**

This course focuses on how to develop leadership in youth through participation in a youth organization. In particular, this course explores youth development, how to develop leadership through youth organizations and their activities, and organizational structures.

**Credit Hours:** 3

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**AG\_ED\_LD 2271: Early Field Experience**

This field experience is designed for students to explore the role of being a school-based agricultural educator. In particular, students will experience the total agricultural education program with a focus on youth organizations.

**Credit Hour:** 1

**Prerequisites:** AG\_ED\_LD 2270 or concurrent enrollment

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**AG\_ED\_LD 3010: Leadership in Today's World**

(same as RU\_SOC 3010). Critically examines the leaders and leadership surrounding the greatest challenges to society today and in the future, while developing awareness and understanding of global and local issues in agriculture, democracy, civil society, business, and the environment. Course also focuses on fostering civil discourse and enhancing engagement. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** RU\_SOC 1000, AG\_ED\_LD 2250, or AG\_ED\_LD 2260

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**AG\_ED\_LD 3010H: Leadership in Today's World - Honors**

(same as RU\_SOC 3010H). Critically examines the leaders and leadership surrounding the greatest challenges to society today and in the future, while developing awareness and understanding of global and local issues in agriculture, democracy, civil society, business, and the environment. Course also focuses on fostering civil discourse and enhancing engagement. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** RU\_SOC 1000, AG\_ED\_LD 2250, or AG\_ED\_LD 2260

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**AG\_ED\_LD 3085: Problems in Agricultural Education and Leadership**

Supervised and independent study of problems and issues in Agricultural Education and Leadership at the undergraduate level.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AG\_ED\_LD 3320: Metal Fabrication and Laboratory Management**

Application of metal fabrication skills, including cutting, bending, and welding, using a variety of processes. Operations of hand tools and power equipment used in project construction. Also includes laboratory management, instructional strategies, and assessment techniques related to secondary agriculture programs. Prerequisites: Agriculture Education Majors Only

**Credit Hours:** 3

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**AG\_ED\_LD 3776: Litton Leadership Scholars**

The Litton Leadership Scholars class focuses on developing students as leaders. Through leadership coursework, field-based mentorship and self-reflection, students will practice and develop exemplary leadership skills. Students will have an opportunity to spend time with industry leaders, expand their personal growth boundaries and develop their unique leadership style. Students will engage in an interview process to be selected for the Litton Leadership Scholars program. Graded on A-F basis only.

**Credit Hour:** 1-2

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**AG\_ED\_LD 4001: Topics in Agricultural Education and Leadership**

Courses on specialized topics offered on a trial basis until the course has been assigned a course number.

**Credit Hour:** 1-3

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**AG\_ED\_LD 4087: Internship Seminar in Agricultural Education and Leadership**

Seminar focused on the problems of practice and developing skills needed for a career in teaching agriculture at the secondary level. The core of the seminar is on coordinating experiential learning and leadership development activities, managing the complete program, and professional development.

**Credit Hours:** 3

**Corequisites:** AG\_ED\_LD 4995

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**AG\_ED\_LD 4240: Leading Organizational and Community Change**

(cross-leveled with AG\_ED\_LD 7240). This course provides the diagnostic and strategic foundations for students to enact leadership in organizational and community contexts. Designed for undergraduate students and graduate-level professionals alike, this course increases a student's capacity to lead with or without authority, and with or without a formal organizational or political position. The course is based heavily on Heifetz's Adaptive Leadership theory, which challenges individuals to think beyond individual, role-based leadership skills and behaviors when enacting change in systems, such as organizations and communities.

**Credit Hours:** 3

**Recommended:** AG\_ED\_LD 2250 and AG\_ED\_LD 2260

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**AG\_ED\_LD 4310: Intracurricular Program Management in Agricultural Education**

This course explores the philosophical foundations and current structures of secondary Agricultural Education Programs. Students will learn how to plan, supervise, and evaluate the intracurricular components within Agricultural Education programs.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**AG\_ED\_LD 4320: Methods of Teaching I**

(cross-leveled with AG\_ED\_LD 7320). Investigations into the teaching and learning process which including lesson planning, direct instruction methods, and assessment. Enrollment limited to students accepted into Phase II of the Teacher Development Program.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**AG\_ED\_LD 4321: Field Experience I**

A field-based experience that examines the integration of Supervised Agricultural Experience and Career Development Events into the secondary agriculture curriculum. Investigates the use of advisory committees and graduate follow-up data in curriculum planning. Graded on S/U basis only.

**Credit Hour:** 1

**Corequisites:** AG\_ED\_LD 4320

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**AG\_ED\_LD 4330: Methods of Teaching II**

(cross-leveled with AG\_ED\_LD 7330). Further investigations into the teaching and learning process which includes methods beyond direct instruction, classroom and behavior management, assessment, and curricular design. Enrollment limited to students accepted into Phase II of Teacher Development Program.

**Credit Hours:** 3

**Prerequisites:** AG\_ED\_LD 4320 or instructor's consent

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**AG\_ED\_LD 4331: Field Experience II**

A field-based experience that provides students with comprehensive experience directed toward learning, teaching, and assessment in secondary agriculture programs. Graded on S/U basis only.

**Credit Hour:** 1

**Corequisites:** AG\_ED\_LD 4330

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**AG\_ED\_LD 4340: Designing and Delivering Educational/Leadership Programs**

(cross-leveled with AG\_ED\_LD 7340). Overview of theory and practice in communicating and facilitating adult and youth training/leadership programs in communities and organizations. Including: communicating program design, methods of communicating for different contexts, marketing programs, and evaluating programs.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**AG\_ED\_LD 4340H: Designing and Delivering Educational/Leadership Programs - Honors**

(cross-leveled with AG\_ED\_LD 7340). Overview of theory and practice in communicating and facilitating adult and youth training/leadership programs in communities and organizations. Including: communicating program design, methods of communicating for different contexts, marketing programs, and evaluating programs.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required; junior standing or instructor's consent

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**AG\_ED\_LD 4993: Internship in Agricultural Education and Leadership**

Field-based learning experience that combines study, observation, and employment with an agricultural business, industry or government agency in the area of education, training, and development. Individual internship plans are developed by a student, faculty supervisor, and an industry cooperator.

**Credit Hour:** 1-4

**Prerequisites:** departmental consent

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**AG\_ED\_LD 4995: Student Teaching Internship in Agriculture**

A field-based learning experience that combines observation and practice in a secondary/adult agriculture program. The purpose of the internship is to provide an opportunity to apply teaching and learning concepts in a practical context.

**Credit Hour:** 1-12

**Prerequisites:** departmental consent

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**AG\_ED\_LD 7087: Internship Seminar in Agricultural Education and Leadership**

Seminar focused on the problems of practice and developing skills needed for a career in teaching agriculture at the secondary level. The core of the seminar is on coordinating experimental learning and leadership development activities, managing the complete program, and professional development.

**Credit Hours:** 3

**Corequisites:** AG\_ED\_LD 4995

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**AG\_ED\_LD 7240: Leading Organizational and Community Change**

(cross-leveled with AG\_ED\_LD 4240). This course provides the diagnostic and strategic foundations for students to enact leadership in organizational and community contexts. Designed for undergraduate students and graduate-level professionals alike, this course increases a student's capacity to lead with or without authority, and with or without a formal organizational or political position. The course is based heavily on Heifetz's Adaptive Leadership theory, which challenges individuals to think beyond individual, role-based leadership skills and behaviors when enacting change in systems, such as organizations and communities.

**Credit Hours:** 3

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**AG\_ED\_LD 7310: Intracurricular Program Management in Agricultural Education**

This course explores the philosophical foundations and current structures of secondary Agricultural Education Programs. Students will learn how

to plan supervise and evaluate the intracurricular components within Agricultural Education Programs.

**Credit Hours:** 3

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**AG\_ED\_LD 7320: Methods of Teaching I**

(cross-leveled with AG\_ED\_LD 7320). Investigations into the teaching and learning process which includes lesson planning, direct instruction methods, and assessment.

**Credit Hours:** 3

**Prerequisites:** acceptance into the Teacher Certification option

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**AG\_ED\_LD 7330: Methods of Teaching II**

(cross-leveled with AG\_ED\_LD 4330) Further investigations into the teaching and learning process which includes methods beyond direct instruction, classroom and behavior management, assessment, and curricular design.

**Credit Hours:** 3

**Prerequisites:** acceptance into Teacher Certification option and AG\_ED\_LD 4320 or AG\_ED\_LD 7320

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**AG\_ED\_LD 7340: Designing and Delivering Educational/Leadership Programs**

(cross-leveled with AG\_ED\_LD 4340). Overview of theory and practice in communicating and facilitating adult and youth training/leadership programs in communities and organizations. Including: communicating program design, methods of communicating for different contexts, marketing programs, and evaluating programs.

**Credit Hours:** 3

**Prerequisites:** AG\_ED\_LD 2220 or equivalent

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**AG\_ED\_LD 7350: Inservice Course in Agricultural Education and Leadership**

Professional development course which focuses on enhancing the technical, administrative, or management skills of agricultural educators.

**Credit Hour:** 1-99

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**AG\_ED\_LD 8080: Creative Component in Agricultural Education and Leadership**

Independent original work that culminates in a scholarly project, document or presentation. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**AG\_ED\_LD 8085: Problems in Agricultural Education and Leadership**

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AG\_ED\_LD 8087: Seminar in Agricultural Education and Leadership**

Seminar in Agricultural Education and Leadership.

**Credit Hour:** 1-99

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**AG\_ED\_LD 8090: Thesis Research in Agricultural Education and Leadership**

Independent research activities by a master's student that culminates in a thesis. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AG\_ED\_LD 8210: History and Leadership of the Land Grant University**

Historical overview of the evolution and development of land-grant colleges. Students examine early public mandates and evaluate education, research, public service developments and new initiatives needed for Land Grant universities to effectively serve society.

**Credit Hours:** 2

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**AG\_ED\_LD 8250: Leadership Theory and Application**

Survey of concepts, theories and practices of leadership, personal development and group dynamics. Exploration of leadership traits and models with a focus upon how they apply to Agricultural Education.

**Credit Hours:** 3

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**AG\_ED\_LD 8330: Advanced Methods of Teaching**

Explores the principles and psychological aspects of teaching and learning; teaching strategies, methods, and techniques; evaluating student learning; motivating students; and personal teacher behaviors that influence learning.

**Credit Hours:** 3

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**AG\_ED\_LD 8340: Student and Teacher Development in Agricultural Education and Leadership**

Examines planning and supervising career exploration, experiential learning, and leadership development activities of secondary agriculture students. The professional development of the secondary agriculture teacher is also examined.

**Credit Hours:** 3

**Prerequisites:** AG\_ED\_LD 4310 or equivalent

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**AG\_ED\_LD 8350: College Teaching of Agriculture, Food and Natural Resources**

A course designed to assist current or future college faculty who wish to improve their teaching skills. Topics include theories, principles and practices associated with effective teaching and learning in higher education.

**Credit Hours:** 3

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**AG\_ED\_LD 8351: Induction Year Teaching I**

Continuing education course for the professional development of first-year teachers of agriculture. The course focuses on the pedagogical knowledge, skills, and attitudes and managerial skills needed by beginning teachers of agriculture.

**Credit Hour:** 1-2

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**AG\_ED\_LD 8352: Induction Year Teaching II**

Continuing education course for the professional development of second-year teachers of agriculture. The course is a continuation of AG\_ED\_LD 8351 and focuses on the pedagogical knowledge, skills, and attitudes and managerial skills needed by beginning teachers of agriculture.

**Credit Hour:** 1-2

**Prerequisites:** AG\_ED\_LD 8351

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**AG\_ED\_LD 8410: Philosophical Foundations of Agricultural Education and Leadership**

Overview of the history and philosophical development of agricultural education and leadership as a discipline. Philosophers, policy makers, movements, trends, and legislation that has influenced agricultural education. Current issues and future trends impacting the field. Graded on A-F basis only.

**Credit Hour:** 1-3

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**AG\_ED\_LD 8430: Evaluation of Educational Programs**

(same as RU\_SOC 8430). Examines program evaluation concepts, principles, and models; and identifies major steps in planning, conducting, and reporting results of evaluation objects.

**Credit Hours:** 3

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**AG\_ED\_LD 8510: Research Methods and Design**

(same as RU\_SOC 8510, AAE 8510). This course will give students a foundational understanding of quantitative research methods and design in the social and behavioral sciences. The main objective is to help students identify and formulate their own research questions and develop and implement a process for answering them. Students will examine the nature of the research process, explore the connection between theory and empirical research, identify viable research topics, critique published research, learn how to structure good arguments, understand the structure of research papers and proposals, plan and manage research activities, and become familiar with research ethics. Graded on A-F basis only.

**Credit Hours:** 3

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**AG\_ED\_LD 8530: Grant Proposal Writing**

Preparation of proposals designed to solicit grant funding to support teaching, research or outreach programs. Emphasis on proposal development, identifying funding sources, and proposal review processes.

**Credit Hours:** 2

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**AG\_ED\_LD 8540: Methods of Qualitative Research**

(same as RU\_SOC 8540). Overview of philosophies, approaches toward, design, data collection, analysis and reporting of qualitative research.

**Credit Hours:** 3

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**AG\_ED\_LD 8995: College Teaching Practicum**

Learning experience that combines the study, observation, and practice of teaching university-level courses in food, agriculture and/or natural resources under the supervision of teaching mentors. Graded on S/U basis only.

**Credit Hours:** 3



**Prerequisites:** instructor's consent and AG\_ED\_LD 8330 or AG\_ED\_LD 8350

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**AG\_ED\_LD 9090: Doctoral Research in Agricultural Education and Leadership**

Independent research activities by a doctoral student that culminates in a dissertation or other scholarly work. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AG\_ED\_LD 9410: Foundations and Practices of Teacher Education**

Foundations and practices of teacher preparation programs including student selection and advisement, licensure requirements, accreditation, curriculum, clinical and field experiences, supervision, evaluation and research.

**Credit Hours:** 3

**Prerequisites:** Doctoral student or instructor's consent

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**AG\_ED\_LD 9510: Data Collection, Analysis and Interpretation**

(same as RU\_SOC 9510). A quantitative methods course in measurement, data collection and analysis related to social and behavioral science research. An applied approach is taken on instrumentation and analyzing data using descriptive and inferential statistics. Practical skills in data manipulation using SPSS are developed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AG\_ED\_LD 8510 or RU\_SOC 8510 or instructor's consent

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## Agricultural Science Communications Courses

**AGSC\_COM 1160: Foundations of Agricultural Science Communications**

This course provides an introduction to the various segments of agricultural communications. Students develop verbal, written, and visual communication skills through hands-on learning methods and gain insight into how these techniques are utilized in the context of agriculture. Emphasis is placed on gaining a historical perspective of agricultural communications, where agricultural communications is today, and what it might look like in the future. Students will be exposed to basic communication theories and will focus on the different type of communications including interpersonal, mediated interpersonal, organizational, and mass media.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**AGSC\_COM 2150: Problems in Science and Agricultural Journalism**

For undergraduates majoring in science and agricultural journalism. May be repeated.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**AGSC\_COM 2210: Communicating Science to the Public**

Introduction to the history, theory and practice of communicating science to the general public. Emphasis on the interplay of science, human

values and politics; also, the art and craft of writing and talking to lay audiences. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

**Recommended:** Sophomore standing

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**AGSC\_COM 2220: Verbal Communication in Agriculture, Food and Natural Resources**

Application of verbal communication skills used in the dissemination of information related to agriculture, food, and natural resource topics. Acquisition of interpersonal communication skills and small group, impromptu and professional presentation skills.

**Credit Hours:** 3

**Prerequisites:** Restricted to College of Agriculture, Food and Natural Resources students only during Early Registration

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**AGSC\_COM 2220H: Verbal Communication in Agriculture, Food and Natural Resources - Honors**

Application of verbal communication skills used in the dissemination of information related to agriculture, food, and natural resource topics. Acquisition of interpersonal communication skills and small group, impromptu and professional presentation skills.

**Credit Hours:** 3

**Prerequisites:** Restricted to College of Agriculture, Food and Natural Resources students only during Early Registration. Honors eligibility required

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**AGSC\_COM 2225: Science, Technology and Society**

Overview of the social influences that shape science including how scientific knowledge is contested and legitimated; how social forces (among them mass communication) influence the choice of innovations; and the role social systems and sectors play in the use and benefit of science. Communication intensive-discussion, presentation and essay based.

**Credit Hours:** 3

**Recommended:** RU\_SOC 1000 or SOCIOL 1000

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**AGSC\_COM 2225W: Science, Technology and Society - Writing Intensive**

Overview of the social influences that shape science including how scientific knowledge is contested and legitimated; how social forces (among them mass communication) influence the choice of innovations; and the role social systems and sectors play in the use and benefit of science. Communication intensive-discussion, presentation and essay based.

**Credit Hours:** 3

**Recommended:** RU\_SOC 1000 or SOCIOL 1000

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**AGSC\_COM 2940: Internships in Science and Agricultural Journalism**

May be repeated for credit.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**AGSC\_COM 3201: Topics in Science and Agricultural Journalism**

Instruction in select subject matter areas in the field of communications.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**AGSC\_COM 3210: Fundamentals of Communications**

Learn to write about complex topics so that your audience understands and relates to the issues. Students are challenged to become critical thinkers by evaluating and revising business documents. Discuss the free flow of information to the public in a democratic society, media literacy and becoming a discerning consumer of information. Ethical issues related to communicating in the workplace. Through practical application, learn skills in writing effective business messages: positive, negative, and persuasive messages. Learn to apply basic rules of grammar to written communications. Identify the purpose and audience for a written document and organize the information needed to write it. Develop and demonstrate oral presentation skills.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and sophomore standing

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**AGSC\_COM 3210W: Fundamentals of Communications - Writing Intensive**

Learn to write about complex topics so that your audience understands and relates to the issues. Students are challenged to become critical thinkers by evaluating and revising business documents. Discuss the free flow of information to the public in a democratic society, media literacy and becoming a discerning consumer of information. Ethical issues related to communicating in the workplace. Through practical application, learn skills in writing effective business messages: positive, negative, and persuasive messages. Learn to apply basic rules of grammar to written communications. Identify the purpose and audience for a written document and organize the information needed to write it. Develop and demonstrate oral presentation skills.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and sophomore standing

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**AGSC\_COM 3240: Communicating on the Web**

Learn to make an effective, content-rich website using web authoring software. This course includes experiential learning through a project requiring students to develop a website for a client. Course topics include elements of design, website usability, and evaluation of website effectiveness. This is not a programming course.

**Credit Hours:** 3

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**AGSC\_COM 3385: Problems in Science and Agricultural Journalism**

Opportunity to apply journalism skills to agricultural subjects; opportunity to integrate communication processes within single medium or across media. Section 1: Corner Post Staff, Section 2: Problems in Science and Agricultural Journalism. May be repeated for up to 9 credit hours.

**Credit Hour:** 1-4

**Prerequisites:** instructor's consent

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**AGSC\_COM 4301: Topics in Science and Agricultural Journalism**

Instruction in select subject matter areas in the field of communications. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** JOURN 4450 and Junior standing

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**AGSC\_COM 4301HW: Topics in Science and Agricultural Journalism - Honors/Writing Intensive**

Instruction in select subject matter areas in the field of communications.

Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** JOURN 4450 and Junior standing; Honors Eligibility required

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**AGSC\_COM 4301W: Topics in Science and Agricultural Journalism - Writing Intensive**

Instruction in select subject matter areas in the field of communications.

Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** JOURN 4450 and Junior standing

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**AGSC\_COM 4410: Readings in Science and Agricultural Journalism**

An examination of modern journalistic book-length storytelling about science, the food system, environment, natural resources and society. Students will learn about the authors and how they use theory and techniques of storytelling. Students will gain a deeper knowledge about how to pursue such information-gathering and writing, as well as develop their critical-thinking abilities and expertise in the subject matter covered by the books. They will read, analyze and write about the books and the ideas and times that shaped them. Each course will examine a particular subject grouping of books, for example several on farming, or on conservation, or on climate change.

**Credit Hour:** 1-3

**Prerequisites:** ENGLISH 1000

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**AGSC\_COM 4414: Field Reporting on the Food System and Environment**

(Same as JOURN 4414). Field reporting on the social, political, scientific, economic and ethical dimensions of the food system and environment, with emphasis on explanatory story-telling. Includes multi-day field trip. Graded A-F only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AGSC\_COM 4415: Current Issues in Science Journalism**

(Same as JOURN 4415) Focuses on covering the interplay of one or more current issues of concern to journalists, scientists and society. The focus for any given semester may be biotechnology, climate change, energy, food safety, global population growth, wildlife or another issue. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 2100 or instructor's consent

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**AGSC\_COM 4480: Will Write for Food (and Wine)**

(same as JOURN 4480) Course focuses on food and wine writing in current U.S. culture. Come ready to create mouthwatering narrative and actively seek publishing your finished work. An emphasis will be placed on class participation and written critiques of peer-reviewed articles in class. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 4804. Restricted to Journalism and Science Agricultural Journalism students only

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**AGSC\_COM 4480W: Will Write for Food (and Wine) - Writing Intensive**

(same as JOURN 4480) Course focuses on food and wine writing in current U.S. culture. Come ready to create mouthwatering narrative and actively seek publishing your finished work. An emphasis will be placed on class participation and written critiques of peer-reviewed articles in class. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 4804. Restricted to Journalism and Science Agricultural Journalism students only

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**AGSC\_COM 4482: Field Reporting: Wine Country Writing**

(same as JOURN 4482). Students will examine wine culture, agricultural issues in the vineyard, wine trends, the historical context of wine and Missouri settlement, and more. Come ready to shape articles into sharp focus and make them fresh with input from fellow student critiques. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 2100

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**AGSC\_COM 4482W: Field Reporting: Wine Country Writing - Writing Intensive**

(same as JOURN 4482). Students will examine wine culture, agricultural issues in the vineyard, wine trends, the historical context of wine and Missouri settlement, and more. Come ready to shape articles into sharp focus and make them fresh with input from fellow student critiques. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 2100

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**AGSC\_COM 4940: Internships in Science and Agricultural Journalism**

May be repeated for credit.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

**Recommended:** 60 or more credit hours completed

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**AGSC\_COM 4970: Agriculture and the Media Senior Seminar Capstone**

Provides background, knowledge of trends and experience with agricultural media.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

**Recommended:** Science and Agricultural Journalism seniors take last Spring semester before graduation

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**AGSC\_COM 7301: Topics in Science and Agricultural Journalism**

Selected current topics in science and agricultural journalism. Specific topics to be announced at time of registration. Course graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent

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**AGSC\_COM 7414: Field Reporting on the Food System and Environment**

(same as JOURN 7414). Field reporting on the social, political, scientific, economic and ethical dimensions of the food system and environment, with emphasis on explanatory story-telling. Includes multi-day filed trip. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**Agricultural Systems Management Courses**

**AG\_S\_M 1020: Introduction to Agricultural Systems Management**

Introductory course that acquaints students with the general technical areas of Agricultural Systems Management. A systematic problem-solving approach is applied to problems derived from each of six technical areas within Agricultural Systems Management. The six areas in addition to agricultural safety include applied physical principles, internal combustion engines, surface water management, ohms law and electrical circuits, machinery systems and management, and grain and material handling.

**Credit Hours:** 3

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**AG\_S\_M 1040: Physical Principles for Agricultural Applications**

Introductory survey course to help students: formulate problems; understand units/accuracy; learn basic definitions; understand simple machines, power transmission, fluid statics, electricity, heat-flow, and temperature/moisture relationships.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher

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**AG\_S\_M 2007: Topics in Agricultural Systems Management-Physical**

Current and new technical developments in agricultural systems management.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

**Recommended:** 6 hours in AG\_S\_M or instructor's consent

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**AG\_S\_M 2199: Seminar in Professional Development**

ASM faculty meet with and discuss what it means to be a professional in the field of Agricultural Systems Technology. In general, the course includes aspects of what it means to be a professional, to develop a resume, tips for interviewing, finding a job, and building one's career. A second major aspect of the course is to explore the field of Agricultural Systems Technology to gain a better understanding of various potential career paths available to students in Agricultural Systems Technology. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** ASM Freshman, Sophomores, Transfer students or instructor consent

**Recommended:** AG\_S\_M 1020

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**AG\_S\_M 2220: Agricultural/Industrial Structures**

A building science course looking at construction materials, structural component selection, ventilation, moisture control and energy use. Math reasoning proficiency course.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher

**Recommended:** AG\_S\_M 1040

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**AG\_S\_M 2320: Internal Combustion Power**

Basic internal combustion engine principles, mechanisms, combustion cycles, fuels, fuel injection, electrical systems, engine testing.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher

**Recommended:** AG\_S\_M 1040

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**AG\_S\_M 2340: Pesticide Application Equipment**

Principles of pesticide application; sprayer hydraulics and spray atomization; calibration, mixing calculations and compatibility of tank mixes; personal and environmental protection; pesticide labels and regulations. Students earn their private applicators license.

**Credit Hours:** 3

**Recommended:** AS\_S\_M 1040. AS\_S\_M 1040. MATH 1100 or higher

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**AG\_S\_M 2345: Chemical Application Systems**

Systems, components and operation practices used in the chemical application industry. Liquid and granular application systems and respective components will be studied along with procedures for minimizing drift, system calibration, recommended maintenance, and off-season storage procedures.

**Credit Hour:** 2-3

**Prerequisites:** MATH 1100 or higher

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**AG\_S\_M 2360: Fluid Power**

Basic power hydraulic theory and application. Hydraulic systems, components and circuits are demonstrated using hydraulic trainers. Items demonstrated include hydraulic motors, cylinders, couplers, hoses and connectors.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher

**Recommended:** AG\_S\_M 1040

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**AG\_S\_M 3007: Topics in Agricultural Systems Management-Physical**

Current and new technical developments in agricultural systems management.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

**Recommended:** 6 hours in AG\_S\_M or instructor's consent

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**AG\_S\_M 3350: Problems in Agricultural Systems Management**

Supervised independent study at the undergraduate level.

**Credit Hour:** 1-5

**Prerequisites:** instructor's consent

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**AG\_S\_M 4020: Agricultural Safety and Health**

(cross-leveled with AG\_S\_M 7020). Protecting agricultural workers and the general public in our age of technological and scientific advancement has become one of the most challenging and rewarding career fields.

This online agricultural safety and health class will prepare you to respond to these needs, to analyze agricultural hazardous and rural public health situations, to develop and implement safety programs and apply governmental regulations associated with production agriculture. It covers safety training strategies, safety management systems, workplace safety behaviors, safety standards and compliance, risk assessment and risk management, safety performance measurement, safety leadership, and safety and health program design amongst agricultural populations. Additionally, students will develop an understanding of how to develop a safety risk management plan for a farm or other agricultural related business.

**Credit Hours:** 3

**Prerequisites:** junior or senior standing or instructor's consent

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**AG\_S\_M 4025: Principles of Injury Prevention**

Basic foundations of injury causation and prevention in home, motor vehicle, public and work environments. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Junior or Senior standing or Instructor's consent required

**Recommended:** ENGLSH 1000, MATH 1100

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**AG\_S\_M 4030: Legal Aspects of Occupational Safety and Health**

A review of the common legal issues facing safety practitioners in the workplace. Includes OSHA, EPA and DOT regulations; workers' compensation, as well as common liability issues. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** junior or senior standing or instructor's consent

**Recommended:** ENGLSH 1000, MATH 1100

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**AG\_S\_M 4035: Occupational Safety Management**

Introduction to occupational safety and health administration and management. Focus on development and management of safety programs and obtaining employee involvement in occupational safety programs. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Junior or Senior standing or Instructor's consent

**Recommended:** ENGLSH 1000, MATH 1100

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**AG\_S\_M 4040: Fire Protection and Prevention**

An overview of the current problems and technology in the fields of fire protection and fire prevention, with emphasis on industrial needs, focusing on the individual with industrial safety responsibilities. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** junior or senior standing or instructor's consent

**Recommended:** ENGLSH 1000, MATH 1100

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**AG\_S\_M 4045: Occupational Safety**

Identifies safety and health risks in industrial work environments. Focus on how managers and supervisors meet their responsibilities for providing

a safe workplace for their employees. Includes the identification and remediation of workplace hazards. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Junior or Senior standing or Instructor's consent

**Recommended:** ENGLISH 1000, MATH 1100

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**AG\_S\_M 4140: Electricity: Wiring and Equipment**

(cross-leveled with AG\_S\_M 7140). Home and agricultural electricity; emphasis on proper selection and use of electrical wiring materials and equipment. Topics such as power factor, electric motors, relays, magnetic controllers, programmable logic controllers, solar power, wind power and Bbasic electrical theory are discussed.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher

**Recommended:** AG\_S\_M 1040

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**AG\_S\_M 4150: Biorenewable Systems Technology**

Converting biorenewable resources into bioenergy and biobased products. Biorenewable concepts as they relate to drivers of change, feedstock production, processes, products, co-products, economics, transportation and logistics, and marketing.

**Credit Hours:** 3

**Prerequisites:** MATH 1100, CHEM 1100 and AG\_EC 1041

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**AG\_S\_M 4160: Internet of Things for Precision Agriculture Technology**

Introduction to basic concepts and applications of Internet of Things (IoT) technology in agriculture, and its impacts on farming and agricultural industry. Show-case of typical IoT systems used in farms, on farm equipment and in cloud. Hands on experience on essential IoT components, including hardware (wireless sensors, controllers, computers and network devices) and software.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or equivalent or higher, Junior or Senior Standing

**Recommended:** AG\_S\_M 4140, AG\_S\_M 1040, BIOL\_EN 4380

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**AG\_S\_M 4220: Material Handling and Conditioning**

(cross-leveled with AG\_S\_M 7220). Principles required for processing and handling food and feed materials; selection of machines; analysis and development of systems for processing and handling grain and bulk material.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher

**Recommended:** AG\_S\_M 1040

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**AG\_S\_M 4225: Preservation of Grain Quality**

Principles and management for grain quality preservation. Grain drying and grain storage. Psychrometrics. Fan and airflow. Grain handling methods and system planning. Grain quality measurement and end-use value analysis.

**Credit Hours:** 2

**Prerequisites:** MATH 1100. Recommended AG\_S\_M 1040 and AG\_S\_M 4220

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**AG\_S\_M 4320: Agricultural Equipment and Machinery**

(cross-leveled with AG\_S\_M 7320). Operation of agricultural machinery. Selection and management of equipment.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher

**Recommended:** AG\_S\_M 1040

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**AG\_S\_M 4330: Principles for Food Processing**

(same as F\_S 4330; cross-leveled with AG\_S\_M 7330, F\_S 7330). Introduction to basic engineering concepts used to process raw materials. Principle topics include energy and material balance, fluid flow, heat transfer, refrigeration and freezing, and preservation.

**Credit Hours:** 3

**Prerequisites:** MATH 1100, AG\_S\_M 1040 or PHYSICS 1210

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**AG\_S\_M 4350: Problems in Agricultural Systems Management**

Supervised independent study at the undergraduate level.

**Credit Hour:** 1-5

**Prerequisites:** instructor's consent

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**AG\_S\_M 4360: Precision Agriculture Science and Technology**

(same as PLNT\_S 4360, SOIL 4360; cross-leveled with AG\_S\_M 7360, PLNT\_S 7360, SOIL 7360). Precision agriculture is an information-based approach to farming whereby variability is managed to optimize crop production and reduce environmental pollution. This course provides an overview of precision agriculture technologies (like GIS, GPS, remote sensing), mapping methods, and case studies illustrating decisions and management.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2100 or SOIL 2100, or PLNT\_S 2110; MATH 1100; AG\_S\_M 1040

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**AG\_S\_M 4365: Machinery Management Using Precision Agriculture Technology**

(cross-leveled with AG\_S\_M 7365). Planters, combines, fertilizer application equipment, and sprayer management along with GPS technologies are the focus of the course. One will learn how to manage these tools efficiently and accurately. Valuable precision agriculture management skills emphasized.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher

**Recommended:** AG\_S\_M 1040, and AG\_S\_M 4360 or PLNT\_S 4360 or SOIL 4360

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**AG\_S\_M 4366: Data Management and Analysis Using Precision Agriculture Technology**

(cross-leveled with AG\_S\_M 7366). Course begins with a section on how to minimize errors while collecting spatial datasets. Datasets may include yield data, soil chemical and physical properties with real-time sensors, and soil nutrient data from grids or management zones. The course then continues with a section regarding data analytical techniques such as interpolation. The second half of the course will focus on writing prescriptions based on actual data obtained from industry leader experts. This portion of the course will integrate industry experts as well as hardware/software tools. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher

**Recommended:** AG\_S\_M 1040, AG\_S\_M 4360, STAT 1200

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**AG\_S\_M 4368: Profit Strategies Using Precision Agriculture Technology**

(cross-leveled with AG\_S\_M 7368). Course begins with section on how Precision Agriculture Technology can be used to benefit a farm's financial sustainability. Discussion of various types of farm operations and currently available Precision Agriculture Technology that is already developed and in use will be examined. The course continues by considering cost factors that create barriers for farm operators to adopt Precision Agriculture. The second half of the course will focus on developing a plan to implement various technologies into an existing farm operation and draft a business plan for cost, equipment, and transition the farm into using the following types of technologies, GPS, GIS, VRA, RS, RTK and other types of tracking and monitoring systems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher

**Recommended:** AG\_S\_M 1040, AG\_S\_M 4360, STAT 1200

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**AG\_S\_M 4390: Optimization and Management of Food and Agricultural Systems**

(same as F\_S 4390; cross-leveled with F\_S 7390, AG\_S\_M 7390). This course is designed to introduce the student to the concept of layers and interacting systems within an operation and the analytical methods of modeling and simulation to make effective management decisions for optimal system design and function.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher

**Recommended:** AG\_S\_M 1040

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**AG\_S\_M 4420: Surface Water Management**

(cross-leveled with AG\_S\_M 7420). Topics include hydrology; soil erosion precautions; elementary surveying; selection and layout of ponds, terraces and water control structures.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher

**Recommended:** AG\_S\_M 1040

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**AG\_S\_M 4460: Irrigation and Drainage**

(cross-leveled with AG\_S\_M 7460). Soil, water, plant relationships. Selection and layout of irrigation and drainage systems.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher

**Recommended:** AG\_S\_M 1040

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**AG\_S\_M 4940: Agricultural Systems Management Internship**

Combines study, observation, and employment with industry or government agency in an area of Agricultural Systems Management. A special problem / learning experience is selected by internship company representative, faculty problem advisor and student. Written and oral reports evaluated by faculty.

**Credit Hour:** 2-5

**Prerequisites:** Instructor's consent

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**Recommended:** Sophomore standing and minor or major in Agricultural Systems Management

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**AG\_S\_M 4970: Agricultural Systems Management - Capstone**

Capstone course required of Agricultural Systems Management majors. Team project involving extensive use of the students education, oral presentations and comprehensive written reports are required. Class experiences include but may not be limited to system selection and comparison, replacement and operating cost calculations, life cycle costing, and business feasibility analysis.

**Credit Hours:** 3

**Prerequisites:** Senior Standing

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**AG\_S\_M 4970W: Agricultural Systems Management - Capstone - Writing Intensive**

Capstone course required of Agricultural Systems Management majors. Team project involving extensive use of the students education, oral presentations and comprehensive written reports are required. Class experiences include but may not be limited to system selection and comparison, replacement and operating cost calculations, life cycle costing, and business feasibility analysis.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher, AG\_S\_M 1040 and Senior Standing

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**AG\_S\_M 7001: Topics in Agricultural Systems Management**

Initial offering of a course in a specific subject matter area related to Agricultural Systems Management. The course is offered when proposed by a faculty member in that area of expertise.

**Credit Hours:** 3

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**AG\_S\_M 7020: Agricultural Safety and Health**

(cross-leveled with AG\_S\_M 4020). Protecting agricultural workers and the general public in our age of technological and scientific advancement has become one of the most challenging and rewarding career fields. This online agricultural safety and health class will prepare you to respond to these needs, to analyze agricultural hazardous and rural public health situations, to develop and implement safety programs and apply governmental regulations associated with production agriculture. It covers safety training strategies, safety management systems, workplace safety behaviors, safety standards and compliance, risk assessment and risk management, safety performance measurement, safety leadership, and safety and health program design amongst agricultural populations. Additionally, students will develop an understanding of how to develop a safety risk management plan for a farm or other agricultural related business.

**Credit Hours:** 3

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**AG\_S\_M 7085: Problems in Agricultural Systems Management**

Supervised individual study at the graduate level.

**Credit Hour:** 1-99

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**AG\_S\_M 7140: Electricity: Wiring and Equipment**

(cross-leveled with AG\_S\_M 4140). Home and agricultural electricity; emphasis on proper selection and use of electrical wiring materials and equipment. Topics such as power factor, electric motors, relays, magnetic

controllers, programmable logic controllers, solar power, wind power and Basic electrical theory are discussed.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher

**Recommended:** AG\_S\_M 1040

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**AG\_S\_M 7220: Material Handling and Conditioning**

(cross-leveled with AG\_S\_M 4220). Principles required for processing and handling food and feed materials; selection of machines; analysis and development of systems for processing and handling grain and bulk materials.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher

**Recommended:** AG\_S\_M 1040

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**AG\_S\_M 7320: Agricultural Equipment and Machinery**

(cross-leveled with AG\_S\_M 4320). Operation of agricultural machinery. Selection and management of equipment.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher

**Recommended:** AG\_S\_M 1040

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**AG\_S\_M 7360: Precision Agriculture Science and Technology**

(same as PLNT\_S 7360 and SOIL 7360; cross-leveled with AG\_S\_M 4360, PLNT\_S 7360, SOIL 7360). Precision agriculture is an information-based approach to farming whereby variability is managed to optimize crop production and reduce environmental pollution. This course provides an overview of precision agriculture technologies (like GIS, GPS, remote sensing), mapping methods, and case studies illustrating decisions and management.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2100 or SOIL 2100, or PLNT\_S 2110; MATH 1100; AG\_S\_M 1040

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**AG\_S\_M 7365: Machinery Management Using Precision Agriculture Technology**

(cross-leveled with AG\_S\_M 4365). This course focuses on agricultural equipment that is commonly used in conjunction with GPS technology. Planters, combines, fertilizer application equipment and sprayer application equipment are commonly equipped with GPS equipment to control and record operational parameters. These parameters focus around the equipments geographic location and can be recorded simultaneously with the volume of product applied and weather information (wind, temperature, humidity, etc.). GPS guidance is one of the main technologies to be studied throughout this course. The management of this equipment and the GPS technologies used to control and record this information is the focus of the course.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher

**Recommended:** AG\_S\_M 1040, and AG\_S\_M 4360 or PLNT\_S 4360 or SOIL 4360

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**AG\_S\_M 7366: Data Management and Analysis Using Precision Agriculture Technology**

(cross-leveled with AG\_S\_M 4366). Course begins with a section on how to minimize errors while collecting spatial datasets. Datasets may

include yield data, soil chemical and physical properties with real-time sensors, and soil nutrient data from grids or management zones. The course then continues with a section regarding data analytical techniques such as interpolation. The second half of the course will focus on writing prescriptions based on actual data obtained from industry leader experts. This portion of the course will integrate industry experts as well as hardware/software tools. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher

**Recommended:** AG\_S\_M 1040, AG\_S\_M 4360, STAT 1200

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**AG\_S\_M 7368: Profit Strategies Using Precision Agriculture Technology**

(cross-leveled with AG\_S\_M 4368). Course begins with section on how Precision Agriculture Technology can be used to benefit a farm's financial sustainability. Discussion of various types of farm operations and currently available Precision Agriculture Technology that is already developed and in use will be examined. The course continues by considering cost factors that create barriers for farm operators to adopt Precision Agriculture. The second half of the course will focus on developing a plan to implement various technologies into an existing farm operation and draft a business plan for cost, equipment, and transition the farm into using the following types of technologies, GPS, GIS, VRA, RS, RTK and other types of tracking and monitoring systems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher

**Recommended:** AG\_S\_M 1040, AG\_S\_M 4360, STAT 1200

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**AG\_S\_M 7370: In-Service Course Agriculture Systems Management-Farm Power and Machinery**

A. Farm Power and Machinery B. Farm Buildings and Conveniences C. Soil and Water Management D. Rural Electrification and Processing E. Agricultural Construction and Maintenance Basic principles relating to agricultural systems management. Applies principles and subject matter in successful classroom presentation at the high school level.

**Credit Hour:** 1-8

**Prerequisites:** 10 credits from Agricultural Systems Management courses; a B.S. degree in Agriculture or instructor's consent

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**AG\_S\_M 7390: Optimization and Management of Food and Agriculture Systems**

(same as F\_S 7390; cross-leveled with AG\_S\_M 4390, F\_S 4390). This course is designed to introduce the student to the concept of layers and interacting systems within an operation and the analytical methods of modeling and simulation to make effective management decisions for optimal system design and function.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher

**Recommended:** AG\_S\_M 1040

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**AG\_S\_M 7420: Surface Water Management**

(cross-leveled with AG\_S\_M 4420). Topics include hydrology; soil erosion precautions; elementary surveying; selection and layout of ponds, terraces and water control structures.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher

**Recommended:** AG\_S\_M 1040

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**AG\_S\_M 7440: Water Quality and Pollution Control**

(cross-leveled with AG\_S\_M 4440). Applies scientific principles to a variety of water quality problems arising from activities associated with nonpoint pollution, agricultural chemicals, land disposal of wastes, on-site sewage disposal and individual drinking water systems.

**Credit Hours:** 3

**Prerequisites:** MATH 1100

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**AG\_S\_M 7460: Irrigation and Drainage**

(cross-leveled with AG\_S\_M 4460). Soil, water, plant relationships. Selection and layout of irrigation and drainage systems.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher

**Recommended:** AG\_S\_M 1040

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**AG\_S\_M 8085: Problems in Agricultural Systems Management**

Supervised individual study at the graduate level.

**Credit Hours:** 3

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**AG\_S\_M 8090: Thesis Research in Agricultural Systems Management**

Independent investigation to be presented as a thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**AG\_S\_M 8340: Agricultural Mechanization Systems**

Review of current literature. Case study of mechanization systems. Computer analysis of management alternatives.

**Credit Hours:** 3

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**AG\_S\_M 8360: Internet of Things for Precision Agriculture Technology**

Wireless sensor network and communication technologies of precision agriculture systems (tractors, sprayers, combines, trucks, and field equipment) establishing real time cloud synchronization of data. Evaluation of big data (spatial, economics, environmental, imagery) and how statistical tools can be used to analyze this information.

**Credit Hours:** 3

**Prerequisites:** AG\_S\_M 4360, AG\_S\_M 7360

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**AG\_S\_M 9090: Thesis Research in Agricultural Systems Management**

Independent investigation to be presented as a thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

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## Agriculture, Food and Natural Resources Courses

**AFNR 1115: Foundations for College Success**

An investigation of principles and practices associated with academic success and the interpersonal challenges encountered in collegiate life. Learning preferences, time investment, study skills, degree requirements, and personal development opportunities available in the College and across campus are explored. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Instructor's consent

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**AFNR 2115: College to Career: Strategies for Success**

Systematic approach to self-assessment, career research and exploration, goal-setting and implementation of a career development plan. Students will learn specific skills, research knowledge and lifelong career management techniques.

**Credit Hour:** 1

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**AFNR 2190: International Agriculture and Natural Resources**

This course is designed to provide students with an introduction into the agriculture/natural resources of the host country. Activities may include course work at an international institution, professional and personal development and special projects. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AFNR 2191: International Agriculture and Natural Resources - Humanities**

This course is designed to provide students with an introduction to valuing and appreciating the culture and philosophy entrenched in the host country's civilization through the examination of its arts, culture, language and history. May be repeated for credit. Selected sections of the course may be offered on A-F or S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** Instructor's consent

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**AFNR 2191W: International Agriculture and Natural Resources - Humanities - Writing Intensive**

This course is designed to provide students with an introduction to valuing and appreciating the culture and philosophy entrenched in the host country's civilization through the examination of its arts, culture, language and history. May be repeated for credit. Selected sections of the course may be offered on A-F or S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** Instructor's consent

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**AFNR 2192: International Agriculture/Natural Resources-Social Science**

This course is designed to provide students with an examination of the social sciences of the host country; including the sociology, psychology, economics, government, and history of the country; including the dynamics of urban and rural communities. May be repeated for credit. Selected sections of this course may be graded either on A-F or S/U basis only.



**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**AFNR 2215: Introduction to the Theory and Practice of Sustainable Agriculture**

This experiential course provides an overview of the theoretical and practical principles of sustainable agriculture by exploring the holistic nature of sustainable agriculture, and analyzing agriculture systems based on their impact on the environment, economy and community.

**Credit Hours:** 3

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**AFNR 3215: Community Food Systems**

This course focuses on essential concepts in the research, implementation and understanding of food systems, with topics ranging from micro-level local, community and regional food systems to macro-level global trends in food production and distribution. Students examine the social, economic and health implications of conventional and alternative food systems as well as specific U.S. policies and programs relevant to our present food systems. Particular focus is on the growing proliferation of alternative marketing schemes, food sovereignty issues, and the relationships between community food systems, and contemporary health and nutritional issues.

**Credit Hours:** 3

**Recommended:** AFNR 2215

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**AFNR 3315: Advanced Practices in Sustainable Agriculture**

Course furthers students' understanding of sustainable production systems with an emphasis on stewarding natural resources (soil, water, biodiversity and energy) while maintaining and economically profitable enterprise that provides for a good quality of life.

**Credit Hours:** 3

**Recommended:** AFNR 2215; SOIL 2100

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**AFNR 4001: Topics in Agriculture-General**

Topics in Agriculture-General

**Credit Hour:** 1-99

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**AFNR 4972: Capstone Project in Agriculture, Food and Natural Resources**

A culminating learning experience focused on student's area of concentration that requires the application of knowledge and skills taught in the undergraduate curriculum. The capstone project comprises independent, original work culminating in a scholarly project, written document, and/or presentation. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

**Recommended:** junior or senior standing

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**AFNR 4993: Internship in Agriculture, Food and Natural Resources**

Field-based learning experience combining the study, observation, and employment with a business, organization, or governmental agency. The internship provides opportunities to apply skills, concepts and theories about agriculture, food and natural resources in a practical context.

The student intern, internship supervisor, and university coordinator will develop an individualized internship plan. May be repeated for credit.

Some sections may be graded on either an A-F or S/U basis only.

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**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

**Recommended:** junior or senior standing

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**AFNR 7190: International Agriculture/Natural Resources**

This course is designed to provide students with an introduction into the agriculture/natural resources of the host country. Activities may include course work at an international institution, professional and personal development and special projects. Selected sections of the course may be offered on A-F or S/U basis only.

**Credit Hour:** 1-9

**Prerequisites:** advisor and instructor's consent

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## Ancient Mediterranean Studies Courses

**AMS 1005: Undergraduate Topics in Ancient Mediterranean Studies - Humanities**

Special studies in Ancient Mediterranean Studies.

**Credit Hour:** 1

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**AMS 1050: Greek and Latin in English**

A survey of the influence of Greek and Latin upon English literary, scientific, technical, legal and medical vocabulary. Emphasis is upon building competency with complex English words while studying the cultural influence of the classical languages on modern vocabulary.

**Credit Hours:** 3

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**AMS 1060: Classical Mythology**

Myths of Greece and Rome in literature and art.

**Credit Hours:** 3

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**AMS 1060H: Classical Mythology - Honors**

Myths of Greece and Rome in literature and art.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**AMS 1060HW: Classical Mythology - Honors/Writing Intensive**

Myths of Greece and Rome in literature and art.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**AMS 1060W: Classical Mythology - Writing Intensive**

Myths of Greece and Rome in literature and art.

**Credit Hours:** 3

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**AMS 1105: Undergraduate Topics in Ancient Mediterranean Studies - Humanities**

Special studies in Ancient Mediterranean Studies.

**Credit Hours:** 3

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**AMS 1150: The Archaeology of Ancient Lives**

This course introduces the methods and goals of classical archaeology to explore how people lived in the Mediterranean region in the days of

the ancient Egyptians, Greeks, Romans, and their neighbors. Along the way we will study parts of our own contemporary human landscape in Columbia (and maybe learn to look at columns in some unexpected ways). Classes are a combination of lecture, group discussions, and activities. Graded on A-F basis only.

**Credit Hours:** 3

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**AMS 2005: Topics in Ancient Mediterranean Studies - Humanities**  
Study of special topics in Ancient Mediterranean Studies.

**Credit Hour:** 1-3

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**AMS 2005H: Topics in Classical Humanities - Honors**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** Honors eligibility required

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**AMS 2050: Comparative History of Greece and Rome I**

This comparative survey explores the ancient Mediterranean world of Greece and Rome from the age of Homer to the eve of the crisis of the Roman Republic. Topics include the rise of the city-state in Greece and Italy, the formation of democratic and republican constitutions, Greek and Roman imperialism, the Persian and Hannibalic wars, women and the family, slavery and the economy, the formation and context of literary production, and architecture and the ancient city-cape.

**Credit Hours:** 3

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**AMS 2060: Comparative History of Greece and Rome II**

This comparative survey explores the ancient Mediterranean world of Greece and Rome from the crisis of the Roman Republic (1c BCE) to the eve of the post-Roman Mediterranean (6c CE). Topics include the collapse of the Roman Republic and transition to the Augustan principate, the administrative and economic foundations of the Pax Romana (1-2c CE), the vitality of Greek culture and literature under Roman rule, the imperial army, the family and slavery, Judaism and Christianity, and the transformation of the Roman world into its medieval and Byzantine successors.

**Credit Hours:** 3

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**AMS 2100: The Ancient Greeks**

This course offers a broad historical and cultural introduction to ancient Greek society. Emphasis is placed on acquainting students with the everyday lives of the men, women and children inhabiting this world and the social, political and technological realities that shaped their lives.

**Credit Hours:** 3

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**AMS 2100H: Greek Culture - Honors**

Survey of Greek life and thought. Principal developments in literature, the arts, politics, religion and philosophy, and their influence on Western civilization.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**AMS 2200: The Ancient Romans**

This course offers a broad historical and cultural introduction to ancient Roman society. Emphasis is placed on acquainting students with the everyday lives of the men, women and children inhabiting this world and the social, political and technological realities that shaped their lives.

**Credit Hours:** 3

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**AMS 2230: Introduction to the Arts of Islam**

Architecture, decorative arts and painting of the Muslim world from the seventh to the 19th century. The formation of Islamic art and its relationships with religion, philosophy and symbolism.

**Credit Hours:** 3

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**AMS 2230W: Introduction to the Arts of Islam - Writing Intensive**

Architecture, decorative arts and painting of the Muslim world from the seventh to the 19th century. The formation of Islamic art and its relationships with religion, philosophy and symbolism.

**Credit Hours:** 3

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**AMS 2300: Greek Classics in Translation**

Reading in translation and critical study of the most important literary works of the ancient Greek World.

**Credit Hours:** 3

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**AMS 2300H: Greek Classics in Translation - Honors**

Reading in translation and critical study of the most important literary works of the ancient Greek world.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**AMS 2400: Roman Classics in Translation**

Reading in translation and critical study of the most important literary works of the ancient Roman world.

**Credit Hours:** 3

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**AMS 2410: Ancient Technology**

Engineering, architecture, and military technology in the ancient world.

**Credit Hours:** 3

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**AMS 2450: The World of Pompeii**

An exploration of various facets of ancient urban and rural life in the Roman world through the exceptionally well-preserved archaeological remains found in and around Pompeii.

**Credit Hours:** 3

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**AMS 2450H: The World of Pompeii - Honors**

An exploration of various facets of ancient urban and rural life in the Roman world through the exceptionally well-preserved archaeological remains found in and around Pompeii.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**AMS 2500: The Origins of Music in the Ancient World**

Explores the use of music in the earliest historical societies, from the earliest evidence up to the fall of the Roman empire. Topics will include the history of musical instruments, the earliest scores, the development of music theory, the origins of melody, rhythm, and harmony, and the relationship between music, politics, and religion. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** AMS 1060; AMS 2100; AMS 2200

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**AMS 2600: Media and Communication in Ancient Greece and Rome**

An introduction to communications media in ancient Greece and Rome, from the invention of the alphabet to the fall of the Roman empire. Special attention will be paid to the material bases for communication, the social uses of information, and the relationship between communications technology and political power.

**Credit Hours:** 3

**Recommended:** AMS 1060

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**AMS 2700: Black Dionysus: Greek Drama in Africa and the African Diaspora**

In this course, we will focus on one aspect of the reception of Classical literature: the reuse, rewriting, and re-performing of Greek tragedies in Africa and the African diaspora in the 20th and 21st centuries. What accounts for the popularity of the Greek plays and stories among those who have every reason to reject European cultural models? Why do these ancient Greek tragedies still matter, and not only to people of European descent? Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** AMS 1060 or AMS 2100

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**AMS 2750: Achilles in Vietnam**

This class compares the depiction of warfare in Homer's Iliad with experiences of the U.S. combat soldier in Vietnam. By studying essential selections from Homer's epic alongside accounts of the Vietnam War from the soldiers who fought in it, students will gain an understanding of how the uniquely difficult circumstances of the Vietnam War were damaging to those who served in the front lines of this conflict. Students will also study the significance of race and class divisions in the conflict both at home and overseas and how the Vietnam War is portrayed in film, literature and television.

**Credit Hours:** 3

**Recommended:** AMS 1060

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**AMS 2750H: Achilles in Vietnam - Honors**

This class compares the depiction of warfare in Homer's Iliad with experiences of the U.S. combat soldier in Vietnam. By studying essential selections from Homer's epic alongside accounts of the Vietnam War from the soldiers who fought in it, students will gain an understanding of how the uniquely difficult circumstances of the Vietnam War were damaging to those who served in the front lines of this conflict. Students will also study the significance of race and class divisions in the conflict both at home and overseas and how the Vietnam War is portrayed in film, literature and television.

**Credit Hours:** 3

**Prerequisites:** Honors Eligibility required

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**Recommended:** AMS 1060

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**AMS 2800: Sports and Spectacles in Greco-Roman Antiquity**

Investigates athletic display in ancient Greek and Roman culture, from its earliest representations in Greek literature to the massive spectacles of the Roman empire, with an emphasis on the intersections between sport and spectacle and other areas of ancient cultural life.

**Credit Hours:** 3

**Prerequisites:** AMS 1060 or instructor's consent required

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**AMS 2940: Service Learning in Classical Studies**

Students provide enrichment programming on the Ancient World at various Columbia Public School sites. Participants must be Classical Studies majors or minors. Graded on A/F basis only. Does not meet Arts and Science general education requirements.

**Credit Hour:** 1

**Prerequisites:** instructor's consent required

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**AMS 2950: Archaeological Methods**

Methods of excavating various types of sites; recording, preserving their materials.

**Credit Hour:** 2-6

**Prerequisites:** instructor's consent

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**AMS 3000: Foreigners and Dangerous Women in Greek and Latin Literature**

(same as PEA\_ST 3130). The study of how Greek and Roman writers depicted and reacted to other races and cultures, compared them with their own, and thereby revealed their own values and prejudices.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060

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**AMS 3000H: Foreigners and Dangerous Women in Greek and Latin Literature - Honors**

(same as PEA\_ST 3130). The study of how Greek and Roman writers depicted and reacted to other races and cultures, compared them with their own, and thereby revealed their own values and prejudices.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** CL\_HUM 1060

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**AMS 3000W: Foreigners and Dangerous Women in Greek and Latin Literature - Writing Intensive**

(same as PEA\_ST 3130). The study of how Greek and Roman writers depicted and reacted to other races and cultures, compared them with their own, and thereby revealed their own values and prejudices.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060

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**AMS 3005: Topics in Ancient Mediterranean Studies - Humanities**

Selected studies in various facets of Ancient Mediterranean Studies.

**Credit Hour:** 1-3

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**AMS 3005H: Topics in Classical Humanities - Honors**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** Honors eligibility required

**Recommended:** AMS 1060

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**AMS 3005W: Topics in Classical Humanities - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Recommended:** AMS 1060

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**AMS 3025: Ancient Western Philosophy**

(same as PHIL 3000). Philosophical thought on nature, knowledge, the gods, human life and society, from Thales to Augustine. Emphasis on Plato and Aristotle. The relevance of the ancients to contemporary life.

**Credit Hours:** 3

**Recommended:** AMS 1060

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**AMS 3050H: Philosophy Before Socrates - Honors**

A study of the origin of philosophical thinking in the Ancient Greek world. Topics to be explored include the nature of reality and our knowledge of it, the structure and constituents of the cosmos, human excellence and its relation to morality, political power, and happiness.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** AMS 1060

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**AMS 3100: The Age of Pericles**

A study of the literature and culture of the 5th and early 4th centuries B.C. in Athens. Authors will include Thucydides, Herodotus, Xenophon, Plato, Aristotle, the tragedians and Aristophanes.

**Credit Hours:** 3

**Recommended:** AMS 1060

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**AMS 3100H: The Age of Pericles - Honors**

A study of the literature and culture of the 5th and early 4th centuries B.C. in Athens. Authors will include Thucydides, Herodotus, Xenophon, Plato, Aristotle, the tragedians and Aristophanes.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** AMS 1060

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**AMS 3120: Art and Gender in Antiquity**

Comparative survey of Egypt, Greece, and Rome, focusing on gender construction and cultural perception through material resources.

**Credit Hours:** 3

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**AMS 3150: The Age of Augustus**

Study of the literature of the Age of Augustus; Vergil, Ovid, Horace, Livy, and Propertius.

**Credit Hours:** 3

**Recommended:** AMS 1060

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**AMS 3150H: The Age of Augustus - Honors**

Study of the literature of the Age of Augustus; Vergil, Ovid, Horace, Livy, and Propertius.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** AMS 1060

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**AMS 3210: Near Eastern and Egyptian Art and Archaeology**

General survey of material culture of the Near East and Egypt from the earliest times to the early Iron Age.

**Credit Hours:** 3

**Recommended:** VS\_ARH 1110 or equivalent

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**AMS 3225: Roman Comedy, Wit and Humor**

Study of works illustrating the comedy, wit and humor of the Romans: readings in comedies of Plautus and Terence, Catullus, Ovid's *Metamorphoses*, Petronius' *Satyricon*, Martial, Juvenal and Macrobius.

**Credit Hours:** 3

**Recommended:** AMS 1060

---

**AMS 3250: Greek and Roman Epic**

A study of the major representatives of the ancient epic genre. Readings will include Homer's *Iliad* and *Odyssey*, Apollonius' *Argonautica*, Vergil's *Aeneid*.

**Credit Hours:** 3

**Recommended:** AMS 1060

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**AMS 3250H: Greek and Roman Epic - Honors**

A study of the major representatives of the ancient epic genre. Readings will include Homer's *Iliad* and *Odyssey*, Apollonius' *Argonautica*, Vergil's *Aeneid*.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** AMS 1060

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**AMS 3300: Greek Drama**

Reading and interpretation of Greek tragedies and comedies in translation.

**Credit Hours:** 3

**Recommended:** AMS 1060

---

**AMS 3310: Greek Art and Archaeology**

General survey of material culture in Greece from earliest times to the Hellenistic period.

**Credit Hours:** 3

**Recommended:** VS\_ARH 1110 or equivalent

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**AMS 3350: Advanced Mythology**

Interpretation of selected classical myths and their influence on later literature and art.

**Credit Hours:** 3

**Recommended:** AMS 1060

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**AMS 3350H: Advanced Mythology - Honors**

Interpretation of selected classical myths and their influence on later literature and art.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** AMS 1060

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**AMS 3400: Murder and Mayhem: Images of Justice in Classical Antiquity**

Ideas of justice from Homer through the early Roman Empire; personal vengeance, law courts and trials, philosophical attitudes, women and courts, techniques of persuasion.

**Credit Hours:** 3

**Recommended:** AMS 1060

---

**AMS 3400W: Murder and Mayhem: Images of Justice in Classical Antiquity - Writing Intensive**

Ideas of justice from Homer through the early Roman Empire; personal vengeance, law courts and trials, philosophical attitudes, women and courts, techniques of persuasion.

**Credit Hours:** 3

**Recommended:** AMS 1060

---

**AMS 3410: Roman Art and Archaeology**

General survey of material culture in the Roman world from earliest times through the 3rd century.

**Credit Hours:** 3

**Recommended:** VS\_ARH 1110 or equivalent

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**AMS 3450: Greek and Roman Characters and Ideals**

Study of selected types of characters admired and imitated or hated and rejected in classical antiquity; heroes, philosophers, women.

**Credit Hours:** 3

**Recommended:** AMS 1060

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**AMS 3450H: Greek and Roman Characters and Ideals - Honors**

Study of selected types of characters admired and imitated or hated and rejected in classical antiquity; heroes, philosophers, women.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** AMS 1060

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**AMS 3510: Byzantine and Islamic Art and Archaeology**

General survey of the visual world of the Middle Ages in southwest Asia and the east Mediterranean, from late antiquity through the rise of the Ottoman empire.

**Credit Hours:** 3

**Recommended:** VS\_ARH 1110 or equivalent

---

**AMS 3510W: Byzantine and Islamic Art and Archaeology - Writing Intensive**

General survey of the visual world of the Middle Ages in southwest Asia and the east Mediterranean, from late antiquity through the rise of the Ottoman empire.

**Credit Hours:** 3

**Recommended:** VS\_ARH 1110 or equivalent

---

**AMS 3520: Early Medieval Art and Archaeology**

An investigation of the arts of western Europe during the first millennium, when the unifying traditions of Rome were transformed by the diverse cultures of her Northern neighbors.

**Credit Hours:** 3

**Recommended:** VS\_ARH 1110 or equivalent

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**AMS 3520W: Early Medieval Art and Archaeology - Writing Intensive**

An investigation of the arts of western Europe during the first millennium, when the unifying traditions of Rome were transformed by the diverse cultures of her Northern neighbors.

**Credit Hours:** 3

**Recommended:** VS\_ARH 1110 or equivalent

---

**AMS 3550: War and Democracy in Late 5th c. BCE Athens**

(same as PEA\_ST 3550). Explores the discourse on war and peace in Athenian texts and art that survives from the last quarter of the 5th century B.C.E. This was a period of relentless warfare: the Athenians were fighting the Spartans, Sparta's allies, unaligned cities and several of their own subject states.

**Credit Hours:** 3

**Recommended:** AMS 1060

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**AMS 3600: The Ancient Novel**

Reading and analysis of Greek and Latin prose fiction: ideal and comic romance, fantasy, romantic biography; Hellenistic background.

**Credit Hours:** 3

**Recommended:** AMS 1060

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**AMS 3600H: The Ancient Novel - Honors**

Reading and analysis of Greek and Latin prose fiction: ideal and comic romance, fantasy, romantic biography; Hellenistic background.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** AMS 1060

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**AMS 3650: Paganism and Christianity**

A study of the transition from Paganism to Christianity in the Roman Empire, as seen by observers contemporary with the events.

**Credit Hours:** 3

**Recommended:** AMS 1060

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**AMS 3650W: Paganism and Christianity - Writing Intensive**

A study of the transition from Paganism to Christianity in the Roman Empire, as seen by observers contemporary with the events.

**Credit Hours:** 3

**Recommended:** AMS 1060

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**AMS 3700: Women in the Ancient World**

Using classical literary texts as the central focus this course examines the role of women: the conflict inherent in their obligations and their identity in the context of these obligations.

**Credit Hours:** 3

**Recommended:** AMS 1060

---

**AMS 3750: Classics in a Cross-Cultural Context**

The goal of this course is to place classical literature in a multicultural context by studying Greek and Latin literary texts alongside verbal art from non-European as well as European cultures.

**Credit Hours:** 3

**Recommended:** AMS 1060

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**AMS 3750H: Classics in a Cross-Cultural Context - Honors**

The goal of this course is to place classical literature in a multicultural context by studying Greek and Latin literary texts alongside verbal art from non-European as well as European cultures.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** AMS 1060

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**AMS 3775: The Ancient World on Film**

(same as FILM\_S 3775) This course explores how classical antiquity has been represented in twentieth and twenty-first-century film, with particular emphasis on the ways in which ancient narratives and iconography have been appropriated by filmmakers to address contemporary cultural issues.

**Credit Hours:** 3

**Recommended:** Prior 2000 level coursework in Classical Humanities, Art History and Archaeology, or Film Studies

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**AMS 3775W: The Ancient World on Film - Writing Intensive**

(same as FILM\_S 3775). This course explores how classical antiquity has been represented in twentieth and twenty-first-century film, with particular emphasis on the ways in which ancient narratives and iconography have been appropriated by filmmakers to address contemporary cultural issues.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060

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**AMS 4005: Topics in Classical Humanities**

Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Recommended:** AMS 1060 and junior standing

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**AMS 4100: Greece: From the Bronze Age to the Byzantine Empire**

Study abroad in Greece, in conjunction with the MU International Center. Immersion in the physical and intellectual heritage of ancient Greece; emphasis on cross-disciplinary, on-site learning and the intersections among ancient, Byzantine, and modern Greece. Application required. Graded on A/F basis only.

**Credit Hours:** 6

**Recommended:** CL\_HUM 1060

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**AMS 4100H: Greece: From the Bronze Age to the Byzantine Empire - Honors**

Study abroad in Greece, in conjunction with the MU International Center. Immersion in the physical and intellectual heritage of ancient Greece; emphasis on cross-disciplinary, on-site learning and the intersections among ancient, Byzantine, and modern Greece. Participants chosen by instructor. Graded on A/F basis only. Application required.

**Credit Hours:** 6

**Prerequisites:** Honors eligibility required

**Recommended:** CL\_HUM 1060

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**AMS 4205: Topics in Classical Studies**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent for repetition.

**Credit Hour:** 1-99

**Recommended:** GREEK 2000 and LATIN 2000

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**AMS 4300: Introduction to Text Criticism and Paleography**

(cross-leveled with AMS 7300). Latin and/or Greek textual criticism and paleography, using manuscript facsimiles at the University library.

**Credit Hours:** 3

**Recommended:** GREEK 2000 and LATIN 2000

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**AMS 4320: Archaeology of the Aegean Bronze Age**

(cross-leveled with AMS 7320). Analysis of the material culture of Greek prehistoric civilizations from 3000 to 1000 B.C.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AMS 4340: Greek Cities and Sanctuaries**

(cross-leveled with AMS 7340). Survey of the built environment in the Aegean and the Classical world from Neolithic through the Hellenistic period.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**AMS 4350: Greek Pottery**

(cross-leveled with AMS 7350). Examination of pottery and vase painting with an emphasis on production, iconography, and social context.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AMS 4360: Greek Sculpture**

(cross-leveled with AMS 7360). Survey of sculptor's art in Aegean and Classical world from earliest times to Hellenistic period.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AMS 4400: Ancient Pastoral**

(cross-leveled with AMS 7400). Reading and interpretation of pastoral poetry and prose in Greek and Latin; emphasis on Theocritus, Virgil, and Longus.

**Credit Hours:** 3

**Recommended:** GREEK 4300 and LATIN 4300

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**AMS 4420: Minor Arts of Antiquity**

(cross-leveled with AMS 7420). Discussion of selected minor arts and crafts of the Greco-Roman world.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AMS 4440: Roman Architecture**

(cross-leveled with AMS 7440). The history of Roman architecture, origin and development of forms and techniques, major monuments in Rome and its provinces through the 3rd century after Christ.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AMS 4460: Roman Sculpture**

(cross-leveled with AMS 7460). The origins and development of sculpture in the Roman Republic and the Roman Empire.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AMS 4490: Late Antique Art and Archaeology**

(cross-leveled with AMS 7490). Exploration of the material culture of the Mediterranean world from the 3rd century to Iconoclasm.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AMS 4500: Greek and Roman Religion**

(same as REL\_ST 4500). Survey of religious development among the Greeks and Romans.

**Credit Hours:** 3

**Recommended:** AMS 1060 and junior standing

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**AMS 4500H: Greek and Roman Religion - Honors**

(same as REL\_ST 4500). Survey of religious development among the Greeks and Romans.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** AMS 1060 and junior standing

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**AMS 4510: Byzantine Art and Archaeology**

(cross-leveled with AMS 7510). Exploration of the material culture of the east Mediterranean between the 6th and 15th centuries.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AMS 4520: Art and Archaeology of Early Medieval Europe**

(cross-leveled with AMS 7520). Exploration of the material culture of western Europe from the 5th century to c. 1000.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AMS 4550: Literature and Culture of the Hellenistic Age**

(cross-leveled with AMS 7550). A survey of the literature and culture of the Hellenistic Age.

**Credit Hours:** 3

**Recommended:** AMS 1060 and junior standing

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**AMS 4550H: Literature and Culture of the Hellenistic Age - Honors**

A survey of the literature and culture of the Hellenistic Age.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** AMS 1060 and junior standing

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**AMS 4600: The Classical Tradition**

(cross-leveled with AMS 7600). Selected studies in continuity and influence of Greek and Roman culture on Middle Ages, Renaissance, and modern times.

**Credit Hours:** 3

**Recommended:** AMS 1060 and junior standing

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**AMS 4600H: The Classical Tradition - Honors**

(cross-leveled with AMS 7600). Selected studies in continuity and influence of Greek and Roman culture on Middle Ages, Renaissance, and modern times.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** AMS 1060 and junior standing

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**AMS 4600HW: The Classical Tradition - Honors/Writing Intensive**

(cross-leveled with AMS 7600). Selected studies in continuity and influence of Greek and Roman culture on Middle Ages, Renaissance, and modern times.

**Credit Hours:** 3

**Recommended:** AMS 1060 and junior standing

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**AMS 4600W: The Classical Tradition - Writing Intensive**

(cross-leveled with AMS 7600). Selected studies in continuity and influence of Greek and Roman culture on Middle Ages, Renaissance, and modern times.

**Credit Hours:** 3

**Recommended:** AMS1060 and junior standing

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**AMS 4650: The World of Late Antiquity**

(cross-leveled with AMS 7650). A survey of the literature, culture, and history of the late Roman and early Byzantine periods. Attention to Christianity's development and the transformation of the classical heritage.

**Credit Hours:** 3

**Recommended:** AMS 1060 and junior standing

---

**AMS 4650H: The World of Late Antiquity - Honors**

A survey of the literature, culture, and history of the late Roman and early Byzantine periods. Attention to Christianity's development and the transformation of the classical heritage.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** AMS 1060 and junior standing

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**AMS 4700: Advanced Study in the Teaching of the Classics**

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AMS 4770: Oral Tradition**

Study of verbal art from living oral traditions (e.g. Native American and African American) and important literary works with roots in oral tradition (e.g. the Bible, the Iliad and Odyssey, and Beowulf).

**Credit Hours:** 3

**Recommended:** AMS 1060 and junior standing

---

**AMS 4770H: Oral Tradition - Honors**

Study of verbal art from living oral traditions (e.g. Native American and African American) and important literary works with roots in oral tradition (e.g. the Bible, the Iliad and Odyssey, and Beowulf).

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** AMS 1060 and junior standing

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**AMS 4800: Political Thought in Classical and Christian Antiquity**

(same as POL\_SC 4800, CNST\_DEM 4800; cross-leveled with AMS 7800). Reading and discussion of Greek, Roman, and Early Christian treatises on politics and political life. Survey of the political institutions and procedures of the Greek city states and Roman Republic and Empire. Examination of contemporary Christian responses and adaptations.

**Credit Hours:** 3

**Recommended:** AMS 1060 and junior standing

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**AMS 4960: Special Readings in Ancient Mediterranean Studies**

Independent readings and research selected in consultation with supervisory faculty.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**AMS 4970: Capstone: Ancient Mediterranean Studies**

Students will write an expanded, guided research paper. The Capstone student will consult on a regular basis with the professor responsible for the course and will make an oral presentation of the paper in the course. Must be taken in conjunction with a 4000-level Art History and Archaeology course.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**AMS 4970H: Capstone in Ancient Mediterranean Studies - Honors**

Culminating course in the study of Greek and Roman literature and Classical culture. Required for Greek, Latin, and Classical Languages majors in first term of senior year. Recommended for double-majors.

**Credit Hours:** 3

**Prerequisites:** instructor's consent. Honors eligibility required

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**AMS 4995H: Honors Proseminar in Classical Studies**

Limited to Honors undergraduates. To be taken in senior year. Integrated exploration of classical civilization. May repeat to 6 hours maximum.

**Credit Hour:** 3-6

**Prerequisites:** Honors eligibility required

**Recommended:** Senior standing

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**AMS 4996: Honors Proseminar I**

Research methods, bibliography, use and criticism of source material.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AMS 4996H: Honors Proseminar I**

Research methods, bibliography, use and criticism of source material.

**Credit Hours:** 3

**Prerequisites:** instructor's consent; Honors eligibility required

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**AMS 4999: Honors Reading and Research I**

Individual research projects in preparation of senior thesis.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AMS 7000: Introduction to Graduate Study in Classics**

Required of all first-year graduate students.

**Credit Hour:** 1

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**AMS 7005: Topics in Ancient Mediterranean Studies**

Special studies in Ancient Mediterranean Studies; covers subjects not included in regularly offered courses.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AMS 7100: History of the Greek and Latin Languages**

(same as LINGST 7130; cross-levelled with CLASS 4100, LINGST 4130). Evolution of classical languages and their relationship to each other.

**Credit Hours:** 3

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**AMS 7205: Topics in Classical Studies**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent for repetition.

**Credit Hour:** 1-99

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**AMS 7250: The Classical Avant-Garde**

This course offers in depth study of the uses made of classical culture by proponents of various avant-garde movements from the 1850s to the present. Combines interrogations of the history and practice of the avant-garde and the theory of classical reception with close reading of exemplary texts.

**Credit Hours:** 3



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**AMS 7300: Introduction to Text Criticism and Paleography**

(cross-leveled with AMS 4300). Latin and/or Greek textual criticism and paleography, using manuscript facsimiles at the University library.

**Credit Hours:** 3

**Prerequisites:** 2 years of Classical Languages or equivalent

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**AMS 7320: Archaeology of the Aegean Bronze Age**

(cross-leveled with AMS 4320). Analysis of the material culture of Greek prehistoric civilizations from 3000 to 1000 B.C.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AMS 7340: Greek Cities and Sanctuaries**

(cross-leveled with AMS 4340). Survey of the built environment in the Aegean and the Classical world from Neolithic through the Hellenistic period.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**AMS 7350: Greek Pottery**

(cross-leveled with AMS 4350). Examination of pottery and vase painting with an emphasis on production, iconography, and social context.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AMS 7360: Greek Sculpture**

(cross-leveled with AMS 4360). Survey of sculptor's art in Aegean and Classical world from earliest times to Hellenistic period.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AMS 7420: Minor Arts of Antiquity**

(cross-leveled with AMS 4420). Discussion of selected minor arts and crafts of the Greco-Roman world.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AMS 7440: Roman Architecture**

(cross-leveled with AMS 4440). The history of Roman architecture, origin and development of forms and techniques, major monuments in Rome and its provinces through the 3rd century after Christ.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AMS 7460: Roman Sculpture**

(cross-leveled with AMS 4460). The origins and development of sculpture in the Roman Republic and the Roman Empire.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AMS 7490: Late Antique Art and Archaeology**

(cross-leveled with AMS 4490). Exploration of the material culture of the Mediterranean world from the 3rd century to Iconoclasm.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AMS 7510: Byzantine Art and Archaeology**

(cross-leveled with AMS 4510). Exploration of the material culture of the east Mediterranean between the 6th and 15th centuries.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AMS 7520: Art and Archaeology of Early Medieval Europe**

(cross-leveled with AMS 4520). Exploration of the material culture of western Europe from the 5th century to c. 1000.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AMS 7550: Literature and Culture of the Hellenistic Age**

(cross-leveled with AMS 4550). A survey of the literature and culture of the Hellenistic Age. Graded on A-F basis only.

**Credit Hours:** 3

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**AMS 7600: The Classical Tradition**

(cross-leveled with AMS 4600). Selected studies in continuity and influence of Greek and Roman culture on Middle Ages, Renaissance, and modern times. Graded on A-F basis only.

**Credit Hours:** 3

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**AMS 7650: The World of Late Antiquity**

(cross-leveled with AMS 4650). A survey of the literature, culture, and history of the late Roman and early Byzantine periods. Attention to Christianity's development and the transformation of the classical heritage.

**Credit Hours:** 3

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**AMS 7700: Advanced Study in the Teaching of the Classics**

**Credit Hours:** 3

**Prerequisites:** classroom teaching experience or chairman's consent

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**AMS 7800: Political Thought in Classical and Christian Antiquity**

(cross-leveled with POL\_SC 4800, AMS 4800, CNST\_DEM 4800). Reading and discussion of Greek, Roman, and Early Christian treatises on politics and political life. Survey of the political institutions and procedures of the Greek city states and Roman Republic and Empire. Examination of contemporary Christian responses and adaptations. Graded on A-F basis only.

**Credit Hours:** 3

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**AMS 7940: Archaeological Methods**

(cross-leveled with AMS 4940). Methods of excavating various types of sites; recording, preserving their materials.

**Credit Hour:** 2-6

**Prerequisites:** instructor's consent

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**AMS 7960: Special Readings in Classical Studies**

Readings in authors and texts not covered in other courses.

**Credit Hour:** 1-3

**Prerequisites:** graduate standing and classics/classical humanities; departmental consent; Greek--two years classical Greek or equivalent; Latin--two years Classical Latin or equivalent

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**AMS 8080: Readings for MA Thesis in Ancient Mediterranean Studies**

Reading, critical evaluation of literature of special fields of art history and/or archaeology.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AMS 8085: Directed Readings in Ancient Mediterranean Studies**

For graduate students to undertake special projects for graduate credit under the supervision of faculty.

**Credit Hours:** 3

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**AMS 8090: Master's Thesis Research and Thesis**

Individual research leading to preparation of the M.A. thesis Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AMS 8320: Seminar in Greek Art and Archaeology**

Special subjects of study assigned for individual research; discussion of reports by seminar members.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AMS 8420: Seminar in Roman Art and Archaeology**

Special subjects of study assigned for individual research; discussion of reports by seminar members.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AMS 8440: Ancient/Medieval Topography**

Descriptive and historical analysis of a selected city or site. Subject varies.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AMS 8490: Seminar in Late Antique Art and Archaeology**

Special subjects of study assigned for individual research; discussion of reports by seminar members.

**Credit Hours:** 3

**Prerequisites:** AMS 7490 or equivalent

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**AMS 9080: Readings for PhD Dissertation in Ancient Mediterranean Studies**

Reading, critical evaluation of literature of special fields of Ancient Mediterranean Studies.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AMS 9090: Doctoral Dissertation Research in Ancient Mediterranean Studies**

Individual research leading to preparation of the Ph.D. dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AMS 9187: Seminar in Classical Mythology**

Intensive study of classical mythology in origin, development, meaning and influence.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AMS 9387: Seminar in Ancient Rhetoric and Oratory**

Seminar in Ancient Rhetoric and Oratory

**Credit Hours:** 3

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**AMS 9487: Seminar in Ancient Literary Criticism**

Principles and theories of ancient Greek and Latin literary criticism, as developed in significant works on the subject.

**Credit Hours:** 3

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**AMS 9587: Greco-Roman Didactic**

Critical and comparative study of Greek and Latin didactic poetry with emphasis on major authors from Hesiod through the Augustan Age.

**Credit Hour:** 3-6

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**AMS 9887: Seminar in the Age of the Antonines**

Seminar in the Age of the Antonines

**Credit Hour:** 3-6

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**Anesthesiology Courses**

**ANESTH 6057: Springfield Anesthesiology 4Wk**

The fourth-year anesthesia medical student will work as part of a team providing hands-on clinical services in an inpatient, outpatient, and consultative setting. Students will participate in daily morning conferences and mini- didactic sessions.

**Credit Hours:** 5

**Prerequisites:** Successful completion of 5 of 7 core clerkships, including Surgery clerkship

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**ANESTH 6203: ABS Anesthesiology Research**

ABS Anesthesiology Research

**Credit Hour:** 5-10

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**ANESTH 6205: ABS Anesthesiology Research and Review**

ABS Anesthesiology Research and Review

**Credit Hour:** 5-10

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**ANESTH 6400: Anesthesiology**

Goals/Objectives: The goals are providing students with opportunities to: 1. Understand the anesthetic state (e.g. the inability of a person to protect themselves from the environment; concomitant and common depression of other systems of the body other than the nervous system). 2. Learn how to think and react quickly and correctly in times of stress. 3. Develop knowledge and skill at maintaining artificial ventilation and circulation. 4. Develop technical skills (e.g. insertion of endotracheal tubes, intravenous catheters). 5. Understand the rationale behind the choice of an anesthetic agent or technique. 6. Learn the function of an anesthesiologist as a perioperative physician and pain consultant. 7. Learn about the specialty of anesthesiology as a possible future career. Notes: Curriculum: Direct participation in anesthetic evaluation and administration for surgical procedures is combined with close individual supervision. Attendance at weekly teaching conferences is expected. Each student will follow a patient pre, intra, and post operatively and write a case presentation. Interblock: First consideration given to students interested in anesthesia as a career choice; honors considered only with documentation of participation and completion of a research project related to anesthesia. Evaluations: Evaluations are compiled from daily encounter cards completed by anesthesia providers, a written paper that discusses one patient's anesthetic, and a 50 question written examination at the end of the rotation.

**Credit Hours:** 5

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**ANESTH 6927: Anesthesiology Two-Week**

Through daily participation, students will gain insight into the specialty of anesthesiology and will develop an appreciation for the integration of basic science knowledge (especially anatomy, physiology, and pharmacology) in the clinical care of patients.

**Credit Hours:** 2

**Prerequisites:** successful completion of the first two years of medical school

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## Animal Science Courses

**AN\_SCI 1001: Topics in Animal Science**

Various courses offered on a preliminary basis to determine need for such offering prior to submission as a numbered course. Various topics, credit arranged. There may be prerequisites enforced depending on the topic.

**Credit Hour:** 1-4

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**AN\_SCI 1002: Topics in Animal Science- Lab**

Various courses offered on a preliminary basis to determine need for such offering prior to submission as a numbered course. Various topics, credit arranged. There may be prerequisites enforced depending on the topic.

**Credit Hour:** 1-4

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**AN\_SCI 1010: Orientation to Animal Sciences**

This course is designed to introduce students to the field of animal sciences, opportunities within this field, and an array of campus resources. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Restricted to Animal Sciences majors or consent required

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**AN\_SCI 1011: Introduction to Animal Sciences**

An introductory course for non animal sciences majors discussing the principles of animal sciences including the importance of animal agriculture, genetics, anatomy, physiology and nutrition.

**Credit Hours:** 4

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**AN\_SCI 1011H: Animal Science - Honors**

Principles of animal science including importance of animal agriculture, genetics, anatomy, physiology and nutrition.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**AN\_SCI 1012: Introduction to Captive Wild Animal Management**

(same as F\_W 1012). General introduction to housing, husbandry, behavior, genetics, nutrition, reproduction, animal health, and disease control of native and exotic species in zoological parks and other animal conservation facilities; emphasizes the role of captive animals in wildlife conservation. Graded on A-F basis only.

**Credit Hours:** 3

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**AN\_SCI 1013: Biotechnology in Animal Agriculture**

Concepts, discoveries, and applications of biotechnology ranging from the discovery of brewing and baking to animal cloning and genetic engineering are covered. Students will acquire a foundation to understand how biotechnology affects agriculture and our everyday lives. Graded on A-F basis only.

**Credit Hours:** 3

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**AN\_SCI 1164: Biology of Animal Production I**

This is an introductory course; a companion to Biology of Animal Production II. The overall intent of the courses is to provide an introduction to modern livestock production systems with emphasis on fundamental biological principles and their application in management of production animals. Key disciplines include genetics, nutrition, reproduction, physiology, health and behavior. This course is for non-Animal Sciences majors. No credit may be earned if taken after AN\_SCI 1165. Graded on A-F basis only.

**Credit Hours:** 3

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**AN\_SCI 1165: Biology of Animal Production I with Laboratory**

This is an introductory course; a companion to Biology of Animal Production II. The overall intent of the courses is to provide an introduction to modern livestock production systems with emphasis on fundamental biological principles and their application in management of production animals. Key disciplines include genetics, nutrition, reproduction, physiology, health and behavior. The laboratory section of the course will provide hands on experience with livestock. Only 1 credit may be earned if taken after AN\_SCI 1164. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** This course is restricted to Animal Sciences students or requires consent

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**AN\_SCI 1165H: Biology of Animal Production I with Laboratory - Honors**

This is an introductory course; a companion to Biology of Animal Production II. The overall intent of the courses is to provide an introduction to modern livestock production systems with emphasis on fundamental biological principles and their application in management of production animals. Key disciplines include genetics, nutrition, reproduction, physiology, health and behavior. The laboratory section of the course will provide hands on experience with livestock. Only 1 credit may be earned if taken after AN\_SCI 1164. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** This course is restricted to Animal Sciences students or requires consent. Honors eligibility required

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**AN\_SCI 1174: Biology of Animal Production II**

This is an introductory course; a companion to Biology of Animal Production I. The overall intent of the courses is to provide an introduction to modern livestock production systems with emphasis on fundamental biological principles and their application in management of production animals. Key disciplines include genetics, nutrition, reproduction, physiology, health and behavior. Graded on A-F basis only. This section is open to all majors. No credit may be earned if taken after AN\_SCI 1175.

**Credit Hours:** 3

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**AN\_SCI 1175: Biology of Animal Production II with Lab**

This is an introductory course; a companion to Biology of Animal Production I. The overall intent of the courses is to provide an introduction to modern livestock production systems with emphasis on fundamental biological principles and their application in management of production animals. Key disciplines include genetics, nutrition, reproduction, physiology, health and behavior. The laboratory section of the course will provide hands on experience with livestock. Only 1 credit may be earned if taken after AN\_SCI 1174. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** This course is restricted to Animal Sciences students or requires consent

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**AN\_SCI 1175H: Biology of Animal Production II with Lab - Honors**

This is an introductory course; a companion to Biology of Animal Production I. The overall intent of the courses is to provide an introduction to modern livestock production systems with emphasis on fundamental biological principles and their application in management of production animals. Key disciplines include genetics, nutrition, reproduction, physiology, health and behavior. The laboratory section of the course will provide hands on experience with livestock. Only 1 credit may be earned if taken after AN\_SCI 1174. Graded on A-F basis only. Honors eligibility required

**Credit Hours:** 4

**Prerequisites:** This course is restricted to Animal Sciences students or requires consent

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**AN\_SCI 2001: Topics in Animal Science**

Various courses offered on a preliminary basis to determine need for such offering prior to submission as a numbered course. Various topics, credit arranged. There may be prerequisites enforced depending on the topic.

**Credit Hour:** 1-4

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**AN\_SCI 2002: Topics in Animal Science- Lab**

Various courses offered on a preliminary basis to determine need for such offering prior to submission as a numbered course. Various topics, credit arranged. There may be prerequisites enforced depending on the topic.

**Credit Hour:** 1-4

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**AN\_SCI 2010: Careers in Animal Sciences**

This course is designed to explore the breadth and depth of careers in animal sciences. Students will develop a professional resume, practice interviewing skills, and assess the value of a job offer. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Restricted to Animal Sciences majors or consent required

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**AN\_SCI 2045: Equine Practicum**

Focus on learning hands-on equine skills through the care of horses at the university's equine facility. Experiential learning is emphasized. Skills include: how to identify the general health and well-being of horses, recognize early onset of illness or lameness, understand basic feeding, housing, and daily care, and demonstrate the ability to handle and feed horses in a safe manner. Monthly meetings, scheduled feed shifts, monthly journals, required skill assessments, and attendance at various educational activities are required. Feed shift scheduling is determined around individual availability and no equine or animal experience is required. To enroll, students should contact the instructor for an application. Graded on A-F basis only.

**Credit Hour:** 1-2

**Prerequisites:** Instructor consent required

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**AN\_SCI 2085: Problems in Animal Science**

Library and laboratory study of assigned problems in animal breeding, nutrition, physiology or production and management. Planning, conduction and reporting to be in consultation with instructor.

**Credit Hour:** 1-5

**Prerequisites:** instructor's consent

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**AN\_SCI 2090: Foal Training Practicum**

This class focuses on practical skills associated with training and handling of foals (horses less than 6 months of age). During this class, students will gain experience in behavior modification strategies for horses. Students will work alongside the instructor to teach foals basics of haltering, leading, desensitization and ground manners. Training techniques will focus on safe and non-traumatic methods of teaching horses. No equine or training experience is necessary! Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

**Recommended:** AN\_SCI 2045

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**AN\_SCI 2095: Equine Behavior and Training**

Students learn the psychology and ethology of equine behavior and how it relates to training. The use and proper fitting of equipment is taught and students learn to teach horses to perform the basic movements needed prior to advancing to specialized training. Cannot be taken at the same time as AN\_SCI 2195. Enrollment is limited to students who have completed AN\_SCI 1065, AN\_SCI 1001, or AN\_SCI 1175.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**AN\_SCI 2110: Global Animal Agriculture**

Animal Agriculture as influenced globally by political, religious cultural, economic and climatic factors.

**Credit Hours:** 2

**Prerequisites:** sophomore standing

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**AN\_SCI 2111: Sophomore Seminar: Societal Issues Facing Animal Agriculture**

Course designed to introduce students to key issues facing animal agriculture. Assignments focus on reading current publications associated with issues affecting the animal agriculture industry. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**AN\_SCI 2111W: Sophomore Seminar: Societal Issues Facing Animal Agriculture - Writing Intensive**

Course designed to introduce students to key issues facing animal agriculture. Assignments focus on reading current publications associated with issues affecting the animal agriculture industry. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**AN\_SCI 2112: Livestock and Literature**

The human fascination with animals is documented throughout history. The impact of domesticated animals, and the livestock industry, on the human condition has been the focus of numerous authors across diverse literary genres. The care we provide for animals reflects the value we place on life, and often how we view society. This course will explore these themes while using varied fictional and non-fictional texts written in the 20th century.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**AN\_SCI 2115: Livestock Judging**

Comparative judging and evaluation; various classes of farm animals; particular reference to utility. Reference reading; illustrated lectures.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required

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**AN\_SCI 2116: Animal Welfare Evaluation**

Comparative evaluation of 4 animal welfare scenarios related to farm, zoo, lab, and exotic species. Welfare decisions are based on data and modern scientific literature. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**AN\_SCI 2131: Dairy Products Evaluation**

(same as F\_S 2131) Sensory Evaluation and judging of dairy products.

**Credit Hours:** 2

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**AN\_SCI 2140: Companion Animals**

(same as BIOMED 2140). Companion animals form an important part of our society. They serve us, provide companionship and many become members of our families. This class focuses primarily on dogs, cats, and horses. Topics covered include: the pet industry, breeds, wellness, management, care, training, zoonotic diseases, evolution and domestication, toxicology, nutrition, reproduction, genetics, human animal interactions, companion animal enterprise, and biomedical research. Students may enroll in one of two sections: service learning section or traditional course section.

**Credit Hours:** 3

**Recommended:** sophomore standing

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**AN\_SCI 2146: Introduction to Animal Behavior**

Explore animal behavior in domestic, zoo, and wild animals through a scientific approach. This course will begin with traditional animal behavior theories and move into the application of animal behavior in modern situations. Students will finish this course with an understanding of the foundational concepts in animal behavior and be able to apply those concepts to the animals around them. Graded on A-F basis only.

**Credit Hours:** 3

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**AN\_SCI 2187: Introduction To Foaling**

This class focuses on practical skills associated with parturition and neonatal care of horses. Topics include identifying signs of impending parturition, creating action plans for problems during foaling, monitoring of benchmarks during the pre- and post-natal period, and assisting with neonatal care of foals. Students will gain hands on experience in each of these areas while assisting with foaling of mares at the Division of Animal Sciences Equine Teaching Facility. Enrollment is limited to students who have completed AN\_SCI 2045. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Instructor's Consent

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**AN\_SCI 2195: Equine Facility Management and Marketing**

Focuses on learning equine facility management through student care and management of the University's equine facility and breeding herd. Students also learn handling techniques for a wide variety of horses and gain experience in general equine facility maintenance. Students will be responsible for marketing horses sold in the annual MU online horse auction. Cannot be taken at the same time as AN\_SCI 2095. Enrollment is limited to students with Sophomore standing or higher. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**AN\_SCI 2214: Animal Products and Biotechnology**

This course is designed to explore the variety of products that humans derive from animals for nutrition, fiber, and health and includes a laboratory session that promotes the working knowledge of methods for measuring animal product quality. Students will also assess factors related to consumer demand that influence the value of animal products. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Restricted to Animal Sciences majors or instructor's consent

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**AN\_SCI 2244: Introduction to Comparative Anatomy with Lab**

Introduction into the vertebrate body structure and function, with an emphasis in the direct comparison between humans and non-human animals including but not limited to cattle, horses, swine, poultry, and rodents. Course topics include: cells and tissues, skeletal system, muscles and muscle tissue. This course will also touch on the cardiovascular system, the senses, respiratory system and animals as models of human disorders and diseases. Internet access required: lectures and portions of material will be online. On-campus laboratory meetings will allow students to explore various systems and gain experiential learning opportunities through manipulation, dissection, evaluation and use of Anatomy In Clay models to deepen the understanding of the material. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Freshmen or Sophomore standing

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**AN\_SCI 3001: Topics in Animal Science**

Various courses offered on a preliminary basis to determine need for such offering prior to submission as a numbered course. Various topics, credit arranged. There may be prerequisites enforced depending on the topic.

**Credit Hour:** 1-4

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**AN\_SCI 3002: Topics in Animal Science- Lab**

Various courses offered on a preliminary basis to determine need for such offering prior to submission as a numbered course. Various topics, credit arranged. There may be prerequisites enforced depending on the topic.

**Credit Hour:** 1-4

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**AN\_SCI 3010: Graduate Experience Program**

This course is designed to give undergraduates insight into the graduate student experience and to provide background knowledge in the various aspects of graduate level research as well as the application process for graduate school.

**Credit Hour:** 1

**Prerequisites:** Consent required

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**AN\_SCI 3085: Problems in Animal Science**

Current problems in animal breeding, nutrition, livestock production and management, meats. Assigned topics. In some cases student may undertake a project by outlining objectives, planning work, keeping records and summarizing results in written report. Some sections may be graded either on S/U or A-F basis only.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**AN\_SCI 3085W: Problems in Animal Science - Writing Intensive**

Current problems in animal breeding, nutrition, livestock production and management, meats. Assigned topics. In some cases student may undertake a project by outlining objectives, planning work, keeping records and summarizing results in written report. Some sections may be graded either on S/U or A-F basis only.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**AN\_SCI 3190: Study Abroad: International Meat, Dairy and Enology**

(same as F\_S 3190). This study abroad course introduces students to the meat, dairy and wine industries in Germany or in New Zealand (destinations are on a rotational basis). Students will visit small, medium and large-scale producers and learn about differences in comparisons to the US industries. May be repeated once for credit.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AN\_SCI 3213: Genetics of Agricultural Plants and Animals**

(same as PLNT\_S 3213). Concepts of molecular, transmission, and population and quantitative genetics. Special emphasis given to breeding and biotechnological applications in plant and animal agriculture. Prerequisites: MATH 1100 or higher and one of the following: BIO\_SC 1100 or BIO\_SC 1200 or BIO\_SC 1500 or FW 1100.

**Credit Hours:** 3

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**AN\_SCI 3214: Principles of Meat Science**

(same as F\_S 3214). Study of the principles involved in the conversion of living animals to meat and by-products; efficient utilization of meat as a food.

**Credit Hours:** 3

**Recommended:** one course in Biology

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**AN\_SCI 3231: Principles of Dairy Foods Science**

(same as F\_S 3231). Technology, chemistry and microbiology related to milk and its transformation into fluid milk products, fermented dairy foods and spreads. (2 hours of lecture and two hours of laboratory per week.)

**Credit Hours:** 3

**Recommended:** One course in Chemistry or Biological Sciences

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**AN\_SCI 3242: Principles and Applications of Animal Nutrition**

Fundamentals of animal nutrition, including digestion, absorption, metabolism, and function of nutrients; nutrient and energy requirements; feedstuffs used in livestock and companion animal nutrition; and integration of these principles with nutrition-based calculations to make nutritional management decisions. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** MATH 1100 or higher, CHEM 1320 or higher, Sophomore standing or higher

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**AN\_SCI 3253: Physiology of Domestic Animals- All Majors**

Course covers basic concepts of physiology and anatomy in vertebrate animals.

**Credit Hours:** 4

**Prerequisites:** Sophomore standing or higher. 4 credit section is open to all majors

**Recommended:** BIO\_SC 1500 or F\_W 1100, CHEM 1320, and MATH 1100 are strongly recommended. Students would also benefit from prior completion of CHEM 1330, CHEM 2030 (or 2100), and/or BIO\_CHEM 3630

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**AN\_SCI 3254: Physiology of Domestic Animals**

Course covers basic concepts of physiology and anatomy in vertebrate animals.

**Credit Hours:** 5

**Prerequisites:** Sophomore standing or higher. 5 credit section (with lab) is restricted to Animal Sciences Majors Only

**Recommended:** BIO\_SC 1500 or F\_W 1100, CHEM 1320, and MATH 1100 are strongly recommended. Students would also benefit from prior completion of CHEM 1330, CHEM 2030 (or 2100), and/or BIO\_CHEM 3630

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**AN\_SCI 3254H: Physiology of Domestic Animals - Honors**

Course covers basic concepts of physiology and anatomy in vertebrate animals.

**Credit Hours:** 5

**Prerequisites:** BIO\_SC 1100 or BIO\_SC 1500 or F\_W 1100; CHEM 1320; Honors eligibility required. 5 credit section (with lab) is restricted to Animal Sciences majors

**Recommended:** CHEM 1330; CHEM 2030 or CHEM 2100

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**AN\_SCI 3264: Physiology of Domestic Animals II**

Advanced study of selected topics and systems in domestic animal physiology. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** AN\_SCI 3254 or BIO\_SCI 3700 or MPP 3202 or equivalent physiology course

**Recommended:** Foundational courses in biology and chemistry

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**AN\_SCI 3275: Meat Animal Evaluation**

Meat animal evaluation highlights the relationships and limitations that exist when evaluating market and breeding animals and develops an appreciation for carcass excellence as it relates to production, merchandising and consumption. Some travel time and commitments will be necessary.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**AN\_SCI 4001: Topics in Animal Science**

Various courses offered on a preliminary basis to determine need for such offering prior to submission as a numbered course. Various topics, credit arranged.

**Credit Hour:** 1-4

**Prerequisites:** instructor's consent

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**AN\_SCI 4001W: Topics in Animal Science - Writing Intensive**

Various courses offered on a preliminary basis to determine need for such offering prior to submission as a numbered course. Various topics, credit arranged.

**Credit Hour:** 1-4

**Prerequisites:** instructor's consent

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**AN\_SCI 4010: Pasture-Based Dairy Management**

(cross-leveled with AN\_SCI 7010). The objective of the class is to give a broad overview of pasture-based dairying and instill a confidence for students evaluating if this type of animal agriculture is an occupation they want to pursue after graduation. The class is taught by experts from various departments in CAFNR and covers elements of dairy and forage production needed to be successful. Materials from this class are also cross-species related where information can be used on other ruminant type operations. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** restricted to Junior and Seniors

**Recommended:** Background in dairy production, nutrition and reproductive physiology for Animal Science students or plant physiology and forage production for Plant Science students

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**AN\_SCI 4010W: Pasture-Based Dairy Management - Writing Intensive**

(cross-leveled with AN\_SCI 7010). The objective of the class is to give a broad overview of pasture-based dairying and instill a confidence for students evaluating if this type of animal agriculture is an occupation they want to pursue after graduation. The class is taught by experts from various departments in CAFNR and covers elements of dairy and forage production needed to be successful. Materials from this class are also cross-species related where information can be used on other ruminant type operations. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** restricted to Junior and Seniors

**Recommended:** Background in dairy production, nutrition and reproductive physiology for Animal Science students or plant physiology and forage production for Plant Science students

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**AN\_SCI 4011: Pasture Based Dairy Management Lab**

(cross-leveled with AN\_SCI 7011). This course is a hands-on experience class taught over 4 days during spring break. The objective of the class is to give a broad overview of pasture-based dairying and instill a confidence for students evaluating if this type of animal agriculture is an occupation they want to pursue after graduation. The class is taught by experts from various departments in CAFNR and covers elements of dairy and forage production needed to be successful. Students will have the opportunity to interact with successful pasture-based dairy producers in Missouri and apply their experience from AN\_SCI 4010 on real farm situations. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites or Corequisites:** AN\_SCI 4010

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**AN\_SCI 4012: Elements of Experimental Surgery**

(cross-leveled with AN\_SCI 7012). This course implements the basics of surgery techniques as well as the laws and regulations governing the privilege of using vertebrate animals in research. Consideration for

enrollment will be given first to graduate students. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Instructor's consent

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**AN\_SCI 4312: Monogastric Nutrition**

(same as NEP 4020; cross-leveled with AN\_SCI 7312 and NUTRIT 7020). Principles of nutrition, feed formulation and recent research in poultry feeding. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** AN\_SCI 3242

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**AN\_SCI 4314: Physiology of Reproduction**

(cross-leveled with AN\_SCI 7314). Principles of animal reproduction with emphasis on endocrine control of reproductive processes.

**Credit Hours:** 3

**Prerequisites or Corequisites:** AN\_SCI 3254 or MPP 3202 or BIO\_SC 3700

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**AN\_SCI 4314H: Physiology of Reproduction - Honors**

Principles of animal reproduction with emphasis on endocrine control of reproductive processes.

**Credit Hours:** 3

**Prerequisites or Corequisites:** AN\_SCI 3254 or MPP 3202 or BIO\_SC 3700. Honors eligibility required

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**AN\_SCI 4323: Applied Livestock Genetics**

(cross-leveled with AN\_SCI 7323). Genetic principles applied to improvement of farm animals. Covers selection, prediction of genetic merit and mating systems. Math Reasoning Proficiency Course.

**Credit Hours:** 2

**Prerequisites or Corequisites:** AN\_SCI 3213 or PLNT\_S 3213 or BIO\_SCI 2200 or F\_W 2500

**Prerequisites:** MATH 1100 or higher

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**AN\_SCI 4324: Genomics of Plants and Animals**

(cross-leveled with AN\_SCI 7324). Analysis of organisms at the level of the complete genome sequence. Covers genome sequencing, assembly and annotation, as well as functional, evolutionary and computational genomics.

**Credit Hours:** 2

**Prerequisites or Corequisites:** AN\_SCI 3213 or PLNT\_S 3213 or equivalent

**Prerequisites:** BIO\_SC 1010 and BIO\_SC 1020 or BIO\_SC 1500 or F\_W 1100; MATH 1100

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**AN\_SCI 4332: Ruminant Nutrition**

(cross-leveled with AN\_SCI 7332). Physiology, chemistry, microbiology and pathology of ruminants. Emphasizes the digestion, absorption, metabolism and utilization of nutrients.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 3001 or AN\_SCI 3212 or AN\_SCI 3242

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**AN\_SCI 4354: Physiology and Biochemistry of Muscle as Food**

(same as F\_S 4354; cross-leveled with AN\_SCI 7354). Basic concepts in muscle growth and development of livestock evaluating the effects of environment, welfare, nutrition and genetics regarding muscle metabolism, physiology, and the ultimate condition of muscle as food.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 3254 or MPP 3202 or BIO\_SC 3700; AN\_SCI 2001 or AN\_SCI 2214 or AN\_SCI 2114 or AN\_SCI 3214 or F\_S 3214 or AN\_SCI 3231 or F\_S 3231

**Recommended:** Any Biochemistry or Organic Chemistry course

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**AN\_SCI 4384: Reproductive Management**

(cross-leveled with AN\_SCI 7384). Reproductive management of cattle, swine and sheep; estrous synchronization; artificial insemination; embryo development and transfer; assisted reproductive technologies. Enrollment is restricted to students with senior standing that have completed or are currently enrolled in AN\_SCI 4314.

**Credit Hours:** 3

**Prerequisites or Corequisites:** AN\_SCI 4314

**Prerequisites:** Instructor's consent

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**AN\_SCI 4385: Reproductive Management Laboratory**

(cross-leveled with AN\_SCI 7385). This laboratory is complementary to the reproductive management course (AN\_SCI 4384). The objective of this laboratory is to provide hands on experience with semen handling, artificial insemination, embryo manipulation, and pregnancy diagnosis.

**Credit Hour:** 1

**Prerequisites:** Instructor's consent

**Corequisites:** AN\_SCI 4384

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**AN\_SCI 4386: Equine Reproduction**

Focuses on reproductive management techniques and breeding in the horse. Topics include stallion collection and evaluation, artificial insemination, interpreting ultrasound images, teasing, parturition, and foal care. Graded on A-F basis only. Students will not receive credit if taken after AN\_SCI 4387.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 4314 and instructor's consent

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**AN\_SCI 4387: Equine Breeding Management**

Focuses on practical applications of reproductive management techniques and breeding in the horse. Topics include stallion collection and evaluation, artificial insemination, interpreting ultrasound images, teasing, parturition, and foal care. Students will gain hands-on experience in each of these areas. Students will receive 2 credits if taken after AN\_SCI 4386.

**Credit Hours:** 5

**Prerequisites:** AN\_SCI 4314 and instructor's consent

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**AN\_SCI 4436: Animal Welfare**

This course is a comprehensive assessment of animal welfare. Topics will cover livestock, lab, zoo, and companion animal welfare by considering their physiology, behavior, and affective state. The course begins with a description of the scientific and theoretical framework underlying welfare and moves throughout the semester by applying the science to different species. Students will be responsible for producing



an educational deliverable item during the semester which will assist students by building on their understanding of animal welfare and will reflect the learning objectives of this course. Graded on A-F basis only. Prerequisites: Students must have taken and passed with grade of C or better in: AN\_SCI 1011 or AN\_SCI 1165 or AN\_SCI 1175 or AN\_SCI 1012 or F\_W 1012 and AN\_SCI 3254 or MPP 3202 or BIO\_SC 3700 prior to the start of this course.

**Credit Hours:** 4

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#### **AN\_SCI 4437: Stress Physiology**

This online course will provide a general understanding of internal and external stress conditions that animals face throughout life. Since stress physiology can be expanded into many far-reaching and different areas, we will focus on specific topics that have a historical background and, at the same time, are pertinent in today's world. We will examine basic concepts of how stressors are received by the body and how it responds in both healthy and pathological situations. You will be able to relate many of the situations discussed in class to life events. In the end, you will acquire a better understanding of external, environmental and internal stressors and why we need some of them for normal growth and development. Finally, you will learn to apply concepts gained in this class to actual research presented in the scientific literature, and apply this ability to real-world scenarios in the future.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 3254, MPP 3202, or BIO\_SC 3700

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#### **AN\_SCI 4910: Senior Seminar in Captive Wild Animal Management**

(same as F\_W 4910). Investigates key issues in captive wild animal management, focusing on the role of animal caretakers in addressing the issues. Students are required to formulate informed opinions regarding these topics and communicate effectively about the subject matter. Graded A-F only.

**Credit Hour:** 1

**Prerequisites:** AN\_SCI 1012 or F\_W 1012 or instructor's consent; junior or senior standing

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#### **AN\_SCI 4940: Internship in Animal Science & Technology**

Off-campus training to develop technical skills and understanding of an area of animal science. Written reports required. Graded on an S/U basis only.

**Credit Hour:** 1-12

**Prerequisites:** instructor's consent

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#### **AN\_SCI 4950: Undergraduate Research in Animal Science**

Individually directed field or laboratory research culminating in a poster or oral presentation for upper-class students under faculty supervision.

**Credit Hour:** 1-3

**Prerequisites:** At least sophomore standing or instructor's consent

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#### **AN\_SCI 4973: Molecular and Cellular Techniques in Animal Science**

A directed research project that employs current molecular and cellular technologies. Students will generate experimental data, analyze the data and draft a research report in the format of a scientific paper.

**Credit Hours:** 4

**Prerequisites:** instructor's consent

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**Recommended:** an introductory course in biology and a course in organic chemistry, at least junior standing

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#### **AN\_SCI 4975: Beef Production and Management**

(cross-leveled with AN\_SCI 7975). Systems of beef production: breeding, feeding, management of commercial and purebred beef cattle.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1165 or AN\_SCI 1001 or AN\_SCI 1065 and AN\_SCI 2165; AN\_SCI 3001 or AN\_SCI 3212 or AN\_SCI 3242; AN\_SCI 3254 or MPP 3202 or BIO\_SC 3700; AN\_SCI 3213

**Recommended:** AN\_SCI 4314

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#### **AN\_SCI 4975W: Beef Production and Management - Writing Intensive**

(cross-leveled with AN\_SCI 7975). Systems of beef production: breeding, feeding, management of commercial and purebred beef cattle. Recommended: AN\_SCI 4314

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1165 or AN\_SCI 1001 or AN\_SCI 1065 and AN\_SCI 2165; AN\_SCI 3001 or AN\_SCI 3212 or AN\_SCI 3242; AN\_SCI 3254 or MPP 3202 or BIO\_SC 3700; AN\_SCI 3213

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#### **AN\_SCI 4976: Dairy Production**

(cross-leveled with AN\_SCI 7976). Applied dairy science; emphasis on nutrition and management; herd health, labor-saving equipment, buildings, quality products, organization of dairy enterprise, business and economic aspects.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1065 and AN\_SCI 2165, or AN\_SCI 1065 and AN\_SCI 1001, or AN\_SCI 1065 and AN\_SCI 1165, or AN\_SCI 1165, or AN\_SCI 1001; AN\_SCI 3212 and AN\_SCI 3232, or AN\_SCI 3001, or AN\_SCI 3242; or instructor's consent

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#### **AN\_SCI 4976W: Dairy Production - Writing Intensive**

(cross-leveled with AN\_SCI 7976). Applied dairy science; emphasis on nutrition and management; herd health, labor-saving equipment, buildings, quality products, organization of dairy enterprise, business and economic aspects.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1065 and AN\_SCI 2165, or AN\_SCI 1065 and AN\_SCI 1001, or AN\_SCI 1065 and AN\_SCI 1165, or AN\_SCI 1165; AN\_SCI 3212 and AN\_SCI 3232, or AN\_SCI 3001, or AN\_SCI 3242; or instructor's consent

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#### **AN\_SCI 4977: Horse Production**

(cross-leveled with AN\_SCI 7977). Systems of horse production: breeding, feeding and management of horses.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1001 or AN\_SCI 1175 or AN\_SCI 1065 and AN\_SCI 2175; AN\_SCI 3001 or AN\_SCI 3212 or AN\_SCI 3242; or instructor's consent

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#### **AN\_SCI 4978: Swine Production**

(cross-leveled with AN\_SCI 7978). Systems of pork production: breeding, feeding, management of commercial and purebred swine.

**Credit Hours:** 3

**Prerequisites or Corequisites:** AN\_SCI 3212 or AN\_SCI 3242 or AN\_SCI 3001 or instructor's consent

**Prerequisites:** AN\_SCI 1065 and AN\_SCI 2175, or AN\_SCI 1065 and AN\_SCI 1001, or AN\_SCI 1065 and AN\_SCI 1175, or AN\_SCI 1001, or AN\_SCI 1175, or instructor's consent

**Recommended:** AN\_SCI 4314 and AN\_SCI 3213

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**AN\_SCI 4978W: Swine Production - Writing Intensive**

Systems of pork production: breeding, feeding, management of commercial and purebred swine.

**Credit Hours:** 3

**Prerequisites or Corequisites:** AN\_SCI 3212 or AN\_SCI 3242 or AN\_SCI 3001 or instructor's consent

**Prerequisites:** AN\_SCI 1065 and AN\_SCI 2175, or AN\_SCI 1065 and AN\_SCI 1001, or AN\_SCI 1065 and AN\_SCI 1175, or AN\_SCI 1001, or AN\_SCI 1175, or instructor's consent

**Recommended:** AN\_SCI 4314 and AN\_SCI 3213

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**AN\_SCI 4979: Poultry Production**

(cross-leveled with AN\_SCI 7979). Principles of housing systems, nutrition, management, business and production of commercial chickens and turkeys.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1001 or AN\_SCI 1175 or AN\_SCI 1065 and AN\_SCI 2175; AN\_SCI 3001 or AN\_SCI 3232 or AN\_SCI 3242; or instructor's consent

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**AN\_SCI 4979W: Poultry Production Writing Intensive**

(cross-leveled with AN\_SCI 7979). Principles of housing systems, nutrition, management, business and production of commercial chickens and turkeys.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1001 or AN\_SCI 1175 or AN\_SCI 1065 and AN\_SCI 2175; AN\_SCI 3001 or AN\_SCI 3232 or AN\_SCI 3242; or instructor's consent

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**AN\_SCI 7001: Topics in Animal Science**

Various courses offered on a preliminary basis to determine need for such offering prior to submission as a numbered course. Various topics, credit arranged.

**Credit Hour:** 1-4

**Prerequisites:** instructor's consent

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**AN\_SCI 7010: Pasture-Based Dairy Management**

(cross-leveled with AN\_SCI 4010). The objective of the class is to give a broad overview of pasture-based dairying and instill a confidence for students evaluating if this type of animal agriculture is an occupation they want to pursue after graduation. The class is taught by experts from various departments in CAFNR and covers elements of dairy and forage production needed to be successful. Materials from this class are also cross-species related where information can be used on other ruminant type operations. Graded on A-F basis only.

**Credit Hours:** 2

**Recommended:** Background in dairy production, nutrition and reproductive physiology for Animal Science students or plant physiology and forage production for Plant Science students

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**AN\_SCI 7011: Pasture Based Dairy Management Lab**

(cross-leveled with AN\_SCI 4011). This course is a hands-on experience class taught over 4 days during spring break. The objective of the class is to give a broad overview of pasture-based dairying and instill a confidence for students evaluating if this type of animal agriculture is an occupation they want to pursue after graduation. The class is taught by experts from various departments in CAFNR and covers elements of dairy and forage production needed to be successful. Students will have the opportunity to interact with successful pasture-based dairy producers in Missouri and apply their experience from AN\_SCI 7010 on real farm situations. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites or Corequisites:** AN\_SCI 7010

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**AN\_SCI 7012: Elements of Experimental Surgery**

(cross-leveled with AN\_SCI 4012). This course implements the basics of surgery techniques as well as the laws and regulations governing the privilege of using vertebrate animals in research. Consideration for enrollment will be given first to graduate students. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Instructor's consent

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**AN\_SCI 7312: Monogastric Nutrition**

(same as NUTRIT 7020, NEP 7020; cross-leveled with NEP 4020, AN\_SCI 4312). Principles of nutrition, feed formulation and recent research in poultry feeding. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** AN\_SCI 3242

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**AN\_SCI 7314: Physiology of Reproduction**

(cross-leveled with AN\_SCI 4314). Principles of animal reproduction with emphasis on endocrine control of reproductive processes.

**Credit Hours:** 3

**Prerequisites or Corequisites:** AN\_SCI 3254 or BIO\_SC 3700 or MPP 3202

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**AN\_SCI 7323: Applied Livestock Genetics**

(cross-leveled with AN\_SCI 4323). Genetic principles applied to improvement of farm animals. Covers selection, prediction of genetic merit and mating systems.

**Credit Hours:** 2

**Prerequisites or Corequisites:** AN\_SCI 3213 or PLNT\_S 3213 or BIO\_SC 2200 or F\_W 2500

**Prerequisites:** MATH 1100

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**AN\_SCI 7324: Genomics of Plants and Animals**

(cross-leveled with AN\_SCI 4323). Analysis of organisms at the level of the complete genome sequence. Covers genome sequencing, assembly and annotation, as well as functional, evolutionary and computational genomics.

**Credit Hours:** 3

**Prerequisites or Corequisites:** AN\_SCI 3213 or PLNT\_S 3213 or equivalent

**Prerequisites:** BIO\_SC 1010 and BIO\_SC 1020 or BIO\_SC 1500 or F\_W 1100; MATH 1100

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**AN\_SCI 7332: Ruminant Nutrition**

(cross-leveled with AN\_SCI 4332). Physiology, chemistry, microbiology and pathology of ruminants. Emphasizes the digestion, absorption, metabolism and utilization of nutrients.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 3001 or AN\_SCI 3212 or AN\_SCI 3242

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**AN\_SCI 7344: Processing Muscle Foods**

(same as F\_S 7344; cross-leveled with AN\_SCI 4344, F\_S 4344). Materials and technologies for the manufacture of muscle food products from red meats, poultry and seafood. Experience problem-solving through further processing of complex ingredients and develop skills by practicing operations in a pilot plant facility.

**Credit Hours:** 3

**Prerequisites:** one Chemistry course

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**AN\_SCI 7354: Physiology and Biochemistry of Muscle as Food**

(same as F\_S 7354; cross-leveled with AN\_SCI 4354, F\_S 4354). Basic concepts in muscle growth and development of livestock evaluating the effects of environment, welfare, nutrition and genetics regarding muscle metabolism, physiology, and the ultimate condition of muscle as food.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 3254 or MPP 3202 or BIO\_SC 3700; AN\_SCI 2001 or AN\_SCI 2214 or AN\_SCI 2114 or AN\_SCI 3214 or F\_S 3214 or AN\_SCI 3231 or F\_S 3231

**Recommended:** Any Biochemistry or Organic Chemistry course

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**AN\_SCI 7384: Reproductive Management**

(cross-leveled with AN\_SCI 4384). Reproductive management of cattle, swine and sheep; estrous synchronization; artificial insemination; embryo development and transfer; assisted reproductive technologies.

**Credit Hours:** 3

**Prerequisites or Corequisites:** AN\_SCI 7314

**Prerequisites:** Instructor's consent

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**AN\_SCI 7385: Reproductive Management Laboratory**

This laboratory course is to provide hands on experience with semen handling, artificial insemination, embryo manipulation and pregnancy diagnosis. Laboratory is complementary to the Reproductive Management course (AN\_SCI 7384).

**Credit Hour:** 1

**Corequisites:** AN\_SCI 7384

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**AN\_SCI 7975: Beef Production and Management**

(cross-leveled with AN\_SCI 4975). Systems of beef production: breeding, feeding, management of commercial and purebred beef cattle.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1165 or AN\_SCI 1001 or AN\_SCI 1065 and AN\_SCI 2165; AN\_SCI 3001 or AN\_SCI 3212 or AN\_SCI 3242; AN\_SCI 3254 or MPP 3202 or BIO\_SC 3700; AN\_SCI 3213

**Recommended:** AN\_SCI 4314

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**AN\_SCI 7976: Dairy Production**

(cross-leveled with AN\_SCI 4976). Applied dairy science; emphasis on nutrition and management; herd health, labor-saving equipment, buildings, quality products, organization of dairy enterprise, business and economic aspects.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1065 and AN\_SCI 2165, or AN\_SCI 1065 and AN\_SCI 1001, or AN\_SCI 1065 and AN\_SCI 1165, or AN\_SCI 1165; AN\_SCI 3212 and AN\_SCI 3232 or AN\_SCI 3001 or AN\_SCI 3242; or instructor's consent

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**AN\_SCI 7977: Horse Production**

(cross-leveled with AN\_SCI 4977). Systems of horse production: breeding, feeding and management of horses.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1001 or AN\_SCI 1175 or AN\_SCI 1065 and AN\_SCI 2175; AN\_SCI 3001 or AN\_SCI 3212 or AN\_SCI 3242; or instructor's consent

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**AN\_SCI 7978: Swine Production**

(same as AN\_SCI 4978; cross-leveled with AN\_SCI 4978). Systems of pork production: breeding, feeding, management of commercial and purebred swine.

**Credit Hours:** 3

**Prerequisites or Corequisites:** AN\_SCI 3212 or AN\_SCI 3242 or AN\_SCI 3001 or instructor's consent

**Prerequisites:** AN\_SCI 1065 and AN\_SCI 2175, or AN\_SCI 1065 and AN\_SCI 1001, or AN\_SCI 1065 and AN\_SCI 1175, or AN\_SCI 1001, or AN\_SCI 1175, or instructor's consent

**Recommended:** AN\_SCI 4314 and AN\_SCI 3213

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**AN\_SCI 7979: Poultry Production**

(cross-leveled with AN\_SCI 4979). Principles of housing systems, nutrition, management, business and production of commercial chickens and turkeys.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1001 or AN\_SCI 1175 or AN\_SCI 1065 and AN\_SCI 2175; AN\_SCI 3001 or AN\_SCI 3232 or AN\_SCI 3242; or instructor's consent

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**AN\_SCI 8001: Topics in Animal Science**

Various courses offered on a preliminary basis to determine need for such offering prior to submission as a numbered course. Various topics, credit arranged.

**Credit Hour:** 1-4

**Prerequisites:** Instructor's consent

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**AN\_SCI 8085: Problems in Animal Science**

Advanced independent studies in fields not directly related to thesis or non-thesis degree research program. May be graded on S/U or A-F basis only.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**AN\_SCI 8087: Seminar in Animal Science**

Critical consideration of research and other selected subjects in animal breeding, animal nutrition, reproductive physiology, growth and development and livestock production and management.

**Credit Hour:** 1

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**AN\_SCI 8090: Thesis Research in Animal Science**

Investigations in animal breeding, animal nutrition, reproduction physiology, growth and development livestock production and management. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**AN\_SCI 8413: Reproductive Biology Seminar**

Presentation and discussion of selected topics from all phases of reproductive biology. Open to qualified students of graduate standing in the field of Reproductive Biology.

**Credit Hour:** 1

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**AN\_SCI 8414: Meat Quality**

(same as F\_S 8414). Discussion of factors affecting meat quality in beef, pork, lamb and poultry. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 3214 or equivalent

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**AN\_SCI 8415: Survey of Epigenetics**

This course will introduce graduate students to the basic concepts in epigenetics, including DNA methylation, histone modifications, epigenetic modifiers/transacting factors, non-coding RNAs, genomic imprinting, and dosage compensation. The course is designed to be a combination of lectures, paper discussions, and research talks by invited faculty speakers from across campus.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AN\_SCI 8420: Endocrinology**

Hormones of pituitary and endocrine glands; special reference to influence on growth, reproduction, milk secretion.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 7314 or equivalent

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**AN\_SCI 8424: Meat Investigations**

(same as F\_S 8424). Discussions of scientific literature and hands-on experimentation with research techniques customarily used in the field of meat science. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** F\_S 3214 /AN\_SCI 3214 or equivalent; instructor's consent

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**AN\_SCI 8430: Introduction to Bioinformatics Programming**

(same as PLNT\_S 8430). This course provides the basics of programming and database development to students in the life sciences

who have little prior programming experience. It covers Unix/Linux, Perl, MySQL, the relational database design process, and common data formats used in genome informatics. Students will learn how programming skills can enhance their ability to analyze large biological datasets, and will gain hands on experience with examples focused on genomics and bioinformatics. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Instructor's consent

**Recommended:** Undergraduate or graduate course in Genetics

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**AN\_SCI 8431: Nutritional Biochemistry of Lipids**

(Same as NEP 8310 and NUTRIT 8310). Current concepts in the nutritional regulations of lipid metabolism. Emphasis on integrating information and interpreting current research data.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 4270 and BIOCHM 4272

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**AN\_SCI 8434: Special Topics in Reproductive Biology**

The physiological, hormonal, cellular and molecular mechanisms regulating development and function of reproductive systems of mammals will be studied with an emphasis on domestic animals, rodents, and humans. Current theories will be evaluated and discussed using information from recent scientific publications. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** AN\_SCI 4314 or AN\_SCI 7314 or equivalent; AN\_SCI 8420; and courses in biochemistry and/or cell biology

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**AN\_SCI 8441: Statistical Applications in Agriculture**

Techniques of experimentation, with application to livestock production and management. Exercises in methods of planning, conducting, analyzing, evaluating and reporting research.

**Credit Hours:** 3

**Prerequisites:** STAT 4530/STAT 7530 or equivalent or instructor's consent

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**AN\_SCI 8442: Digestive Physiology and Metabolism**

The objective of this course is to provide graduate students in Animal Science and related areas with current knowledge in gastrointestinal physiology, including research methods used in nutrition and nutritional physiology. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** At least one (each) undergraduate or graduate-level nutrition, physiology (general), and biochemistry course; or instructor's consent

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**AN\_SCI 8633: Molecular and Network Evolution**

(same as BIO\_SC 8633). Evolution of biological macromolecules and networks, including sequence analysis algorithms and theory, phylogenetics, gene duplication, genome evolution, principles of biological networks. Development of computational skills emphasized.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required

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**AN\_SCI 8725: Science Outreach: Public Understanding of Science**  
(same as BIO\_SC 8725, PHYSCS 8350 and LTC 8725). Development of presentations to adult audiences on the science underlying issues of current interest. May be repeated for credit.

**Credit Hour:** 1-2

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**AN\_SCI 9001: Topics in Animal Science**

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AN\_SCI 9090: Dissertation Research in Animal Science**

Investigations in animal breeding, animal nutrition, livestock production and management. Dissertation required. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**AN\_SCI 9423: Genetics of Populations**

Theoretical and practical examination of the forces that affect genetic variation at a population level.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**AN\_SCI 9432: Ruminant Nutrition**

(same as NUTRIT 8320). Physiology, chemistry, microbiology, pathology of ruminants. Emphasizes digestion, absorption, metabolism, utilization of nutrients. Lecture, laboratory, assigned readings.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 4332/AN\_SCI 7332 or equivalent and BIOCHM 4270

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**AN\_SCI 9433: Gamete and Embryo Development**

A classical and molecular approach to spermatogenesis, oogenesis, fertilization and preimplantation development in the domestic species.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 4314/AN\_SCI 7314 or BIO\_SC 4984 or equivalent

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**AN\_SCI 9434: Gonadal Function**

(same as BIOMED 9434).

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 4314, biochemistry or cell biology and AN\_SCI 8420

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**AN\_SCI 9435: Placentation**

Provide students with current and in-depth information about the mechanisms involved in placental development and how the placenta (and placental products) influence maternal physiology - both locally at the placenta-uterine interface and systemically. All course topics will be covered in a comparative cross-species approach whenever possible. Emphasis will be placed on the most recent literature regarding the interactions taking place between the placenta and maternal system and how these interactions lead to the eventual birth of live young.

**Credit Hours:** 3

**Recommended:** It is preferred that students take AN\_SCI 9433 prior to this class, but this is not an absolute requirement

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**AN\_SCI 9442: Vitamins and Minerals**

Designed to provide students with an understanding of the chemical, metabolic, and functional role of vitamins and minerals in nutrition. While the primary focus will be on animals, comparative aspects to human nutrition will be discussed.

**Credit Hours:** 4

**Prerequisites:** AN\_SCI 3212, BIOCHM 4270 or equivalent

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## Anthropology Courses

**ANTHRO 1000: Introduction to Anthropology: Human Biology, Prehistory, and Culture**

General survey course in fields of anthropological concern: archaeology, cultural anthropology, biological anthropology, linguistics; emphasizes underlying concepts, principles. Examples from peoples of the world.

**Credit Hours:** 3

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**ANTHRO 1000H: Introduction to Anthropology: Human Biology, Prehistory, and Culture - Honors**

General survey course in fields of anthropological concern: archaeology, cultural anthropology, biological anthropology, linguistics; emphasizes underlying concepts, principles. Examples from peoples of the world.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**ANTHRO 1001: Topics in Anthropology - General**

Problems, topics, issues, or review of research in any areas of anthropology and/or experimental development of new content areas at a freshman level. Specific content will vary and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hour:** 1-3

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**ANTHRO 1002: Topics in Anthropology - Biological Sciences**

Problems, topics, issues, or review of research in any areas of anthropology and/or experimental development of new content areas at a freshman level. Specific content will vary and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hour:** 1-3

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**ANTHRO 1003: Topics in Anthropology - Behavioral**

Problems, topics, issues, or review of research in any areas of anthropology and/or experimental development of new content areas at a freshman level. Specific content will vary and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hour:** 1-3

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**ANTHRO 1006: Topics in Anthropology - Mathematical Sciences**

Problems, topics, issues, or review of research in any areas of anthropology and/or experimental development of new content areas at a freshman level. Specific content will vary and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hour:** 1-3

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**ANTHRO 1007: Topics in Anthropology - Physical Sciences**

Problems, topics, issues, or review of research in any areas of anthropology and/or experimental development of new content areas at a freshman level. Specific content will vary and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hour:** 1-3

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**ANTHRO 1060: Human Language**

(same as LINGST 1060, SLHS 1060 and ENGLSH 1060). General introduction to various aspects of linguistic study. Elementary analysis of language data with some attention to application of linguistic study to other disciplines.

**Credit Hours:** 3

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**ANTHRO 1150: Introduction to Folklore Genres**

(same as ENGLSH 1700). Course focus is on genres of folklore in both historic and contemporary contexts, as well as in people's daily lives. Genres include narrative, proverbs, oral poetry and rhyme, riddles, jokes, legends, epics, material culture and intangible expressive culture. Graded on A-F basis only.

**Credit Hours:** 3

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**ANTHRO 1200: Significant Discoveries of Archaeology**

Detailed consideration of approximately 20 archaeological discoveries and conclusions, from the field and the laboratory, which have been of surpassing importance for an understanding of human origins, behavior, culture and past experiences on earth.

**Credit Hours:** 3

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**ANTHRO 1300: Multiculturalism: An Introduction**

Examines contemporary multiculturalism (and its origins) globally; introduces key concepts; uses diverse, extended cross-cultural and American examples; and emphasizes complexity of cultures, practicality of issues, and change.

**Credit Hours:** 3

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**ANTHRO 1350: Deviance: A Cross-Cultural Perspective**

Cross-cultural studies of problem behavior with emphasis on violence, suicide, sexual misconduct, drug use and mental disorder.

**Credit Hours:** 3

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**ANTHRO 1500: Monkeys, Apes and Humans**

For those with little or no background in anthropology. Surveys the ecology and behavior of major nonhuman primate groups, and how these relate to the evolution of human behavior.

**Credit Hours:** 3

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**ANTHRO 1500W: Monkeys, Apes and Humans - Writing Intensive**

For those with little or no background in anthropology. Surveys the ecology and behavior of major nonhuman primate groups, and how these relate to the evolution of human behavior.

**Credit Hours:** 3

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**ANTHRO 2002: Topics in Anthropology-Biological Science**

Problems, topics, issues or review of research in any area of anthropology (including its relationships with other areas) and/or experimental development of new content areas at an undergraduate level. Specific content will vary and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hour:** 1-3

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**ANTHRO 2003: Topics in Anthropology - Behavioral**

Problems, topics, issues or review of research in any area of anthropology (including its relationships with other areas) and/or experimental development of new content areas at an undergraduate level. Specific content will vary and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hour:** 1-3

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**ANTHRO 2005: Topics in Anthropology - Humanities**

Problems, topics, issues or review of research in any area of anthropology (including its relationships with other areas) and/or experimental development of new content areas at an undergraduate level. Specific content will vary and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hour:** 1-3

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**ANTHRO 2006: Topics in Anthropology-Mathematical Science**

Problems, topics, issues or review of research in any area of anthropology (including its relationships with other areas) and/or experimental development of new content areas at an undergraduate level. Specific content will vary and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hour:** 1-3

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**ANTHRO 2007: Topics in Anthropology-Physical Science**

Problems, topics, issues or review of research in any area of anthropology (including its relationships with other areas) and/or experimental development of new content areas at an undergraduate level. Specific content will vary and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hour:** 1-3

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**ANTHRO 2020: Fundamentals of Archaeology with Laboratory**

Introduces the methodological and theoretical underpinnings of archaeology. The goals of archaeological research, and the techniques used to extract data from the archaeological record are discussed. The lab involves hands-on experience with archaeological materials. No credit for both ANTHRO 2020 and ANTHRO 2021.

**Credit Hours:** 4

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**ANTHRO 2021: Fundamentals of Archaeology**

Introduces the methodological and theoretical underpinnings of archaeology. The goals of archaeological research, and the techniques used to extract data from the archaeological record are discussed. No credit for both ANTHRO 2020 and ANTHRO 2021.

**Credit Hours:** 3

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**ANTHRO 2022: Fundamentals of Archaeology Lab**

Involves hands-on experience with archaeological materials. No credit given to students who have taken ANTHRO 2020.

**Credit Hour:** 1

**Prerequisites:** must have completed ANTHRO 2021

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**ANTHRO 2030: Cultural Anthropology**

Analysis of human cultures with emphasis on both constant and variable factors at different levels of social complexity; contact between cultures, and cultural influences on individual behavior.

**Credit Hours:** 3

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**ANTHRO 2030W: Cultural Anthropology - Writing Intensive**

Analysis of human cultures with emphasis on both constant and variable factors at different levels of social complexity; contact between cultures, and cultural influences on individual behavior.

**Credit Hours:** 3

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**ANTHRO 2050: Introduction to Biological Anthropology with Laboratory**

A survey of biological anthropology. Primary emphasis on the biological evidence for human evolution. Major topics include human paleontology, primate behavior and human variation. Three hours lecture and two hours lab. No credit for both ANTHRO 2050 and ANTHRO 2051. Math Reasoning Proficiency Course.

**Credit Hours:** 5

**Prerequisites:** MATH 1050, MATH 1100, or MATH 1160

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**ANTHRO 2051: Introduction to Biological Anthropology**

A survey of biological anthropology. Primary emphasis on the biological evidence for human evolution. Major topics include human paleontology, primate behavior and human variation. No credit for both ANTHRO 2050 and ANTHRO 2051.

**Credit Hours:** 3

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**ANTHRO 2052: Biological Anthropology Laboratory**

Laboratory exercises dealing with human genetics, non-human primates, the human fossil record, and human variation. Credit not given for students who have taken ANTHRO 2050. Math Reasoning Proficiency Course.

**Credit Hours:** 2

**Prerequisites:** ANTHRO 2051 (or equivalent) and MATH 1050, MATH 1100, or MATH 1160

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**ANTHRO 2100: Indigenous Religions**

(same as REL\_ST 2100). Explores the central aspects of religious life in indigenous communities. Focusing on specific native communities, it considers individual and group identity and the meaning of the sacred.

**Credit Hours:** 3

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**ANTHRO 2100H: Indigenous Religions - Honors**

(same as REL\_ST 2100H). Explores the central aspects of religious life in indigenous communities. Focusing on specific native communities, it considers individual and group identity and the meaning of the sacred.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**ANTHRO 2150: Introduction to Folklore Field Research**

(same as ENGLISH 2700). Course will focus on the specifics of how to identify, collect, preserve and document folklore within communities.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ANTHRO 2215: World Archaeology**

Major events in cultural evolution such as control of fire, invention of ceramic and metallurgical technologies, colonization of Australia and the Americas, development of agriculture, and emergence of complex sociopolitical organization are described in all regions of the world.

**Credit Hours:** 3

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**ANTHRO 2300: Anthropology of War**

Anthropological approaches to tribal and modern war; theories of war's origins; relation to ecology, economy, gender, belief systems, politics; transformation of tribal warfare by state expansion; peace.

**Credit Hours:** 3

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**ANTHRO 2340: Hunters and Gatherers**

Exploration of how different hunter-gatherer groups interact with their physical and social environment. Topics include food acquisition, allocation of labor, reproduction and family life, and deciding where to live and when to move.

**Credit Hours:** 3

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**ANTHRO 2500: Primate Anatomy and Evolution**

This course will explore why primates (and humans) are built the way they are, how they evolved, and what their anatomy tells us about their biology. We will cover basic primate anatomy and ecology, and then survey the fossil record of primate evolution.

**Credit Hours:** 3

**Recommended:** Sophomore standing

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**ANTHRO 2530: Human Evolution through Film and Literature**

This course will use recent films and novels as starting points to introduce students to concepts in human biology, history and evolution. Topics will range broadly from genetics and mutation to primatology to paleoanthropology and the human fossil record.

**Credit Hour:** 1-3

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**ANTHRO 2570: Parents and Offspring**

A comparative investigation of the evolution of parental behaviors and family interactions in humans and other primates.

**Credit Hours:** 3

**Recommended:** Sophomore standing

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**ANTHRO 2580: Evolution of Human Sexuality**

Biological and cultural aspects of human reproduction are examined from the perspective of evolutionary and ecological theory.

**Credit Hours:** 3

**Recommended:** Sophomore standing

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**ANTHRO 2580W: Evolution of Human Sexuality - Writing Intensive**

Biological and cultural aspects of human reproduction are examined from the perspective of evolutionary and ecological theory.

**Credit Hours:** 3

**Recommended:** Sophomore standing

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**ANTHRO 2800: Introduction to Field Methods in Archaeology**

Techniques of field research and laboratory analysis through field experience.

**Credit Hour:** 1-6

**Prerequisites:** ANTHRO 2020 or ANTHRO 2021 or instructor's consent

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**ANTHRO 2825: Analyzing Artifacts**

A brief introduction to the main methods used to analyze artifacts.

**Credit Hours:** 3

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**ANTHRO 2950: Research Skills in Anthropology**

Participation in faculty research activities. Course coordinator matches students with participating faculty. Three hours of research activities per week per credit hour. May be repeated to a maximum of nine hours.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ANTHRO 3001: Topics in Anthropology - General**

Problems, topics, issues, or review of research in any area of anthropology and/or experimental development of new content areas. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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**ANTHRO 3002: Topics in Anthropology-Biological Sciences**

Problems, topics, issues or review of research in any area of anthropology and/or experimental development of new content areas. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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**ANTHRO 3003: Topics in Anthropology - Behavioral Science**

Problems, topics, issues or review of research in any area of anthropology and/or experimental development of new content areas. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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**ANTHRO 3004: Topics in Anthropology - Social Science**

Problems, topics, issues or review of research in any area of anthropology and/or experimental development of new content areas. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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**ANTHRO 3005: Topics in Anthropology - Humanities**

Problems, topics, issues or review of research in any area of anthropology and/or experimental development of new content areas. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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**ANTHRO 3006: Topics in Anthropology-Mathematical Sciences**

Problems, topics, issues or review of research in any area of anthropology and/or experimental development of new content areas. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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**ANTHRO 3007: Topics in Anthropology-Physical Sciences**

Problems, topics, issues or review of research in any area of anthropology and/or experimental development of new content areas. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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**ANTHRO 3150: American Folklore**

(same as ENGLISH 3700). Focus on regional and ethnic folklore; emphasis on analysis of folklore in context. Requirements include book reports and two analytical papers based on student field research. May be repeated for a maximum of six hours with department's consent.

**Credit Hours:** 3

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**ANTHRO 3340H: The Evolution of Human Nature - Honors**

(same as GN\_HON 3241H, ANTHRO 3340). We will investigate the topic of human nature, asking such questions as: What are we like? Why do we behave the way we do? Are we inherently selfish or social? Do we have a unitary 'self' or are we made up of many (and sometimes contradictory) selves? Is there a single 'human' nature or are there distinct 'male' and 'female' natures? Does human nature vary across cultures? Insights come from fields ranging from genetics to literature. The concept of 'human nature' is fiercely contested and debated both within and between academic disciplines. We will be focusing on the scientific study of human nature, seeking naturalistic explanations by formulating and testing hypotheses. In particular, we will use evolutionary theory to unify explanations from disparate disciplines like biology, psychology, and anthropology. In each class, we will discuss one specific topic like sex or violence and seek to make sense of it from both the proximate level (what triggers the behavior and how does it develop?) and the ultimate level (why and how did our evolutionary history imbue us with this capacity?). Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**ANTHRO 3340HW: The Evolution of Human Nature - Honors/Writing Intensive**

(same as ANTHRO 3340, ANTHRO 3340H GN\_HON 3241H). We will investigate the topic of human nature, asking such questions as: What are we like? Why do we behave the way we do? Are we inherently selfish or social? Do we have a unitary 'self' or are we made up of many (and sometimes contradictory) selves? Is there a single 'human' nature or are there distinct 'male' and 'female' natures? Does human nature vary across cultures? Insights come from fields ranging from genetics to literature. The concept of 'human nature' is fiercely contested and



debated both within and between academic disciplines. We will be focusing on the scientific study of human nature, seeking naturalistic explanations by formulating and testing hypotheses. In particular, we will use evolutionary theory to unify explanations from disparate disciplines like biology, psychology, and anthropology. In each class, we will discuss one specific topic like sex or violence and seek to make sense of it from both the proximate level (what triggers the behavior and how does it develop?) and the ultimate level (why and how did our evolutionary history imbue us with the capacity?). Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors Eligibility Required

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**ANTHRO 3380: Native American Religions**

(same as REL\_ST 3380). Investigation of religious lives of the native peoples of the Americas through cultural contact with modernity. Perspectives based on historical, anthropological and native texts.

**Credit Hours:** 3

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**ANTHRO 3470: Culture as Communication**

(same as COMMUN 3470, LINGST 3470). Study of the influence of culture on communication processes. Examines topics such as the impact of values, languages, and nonverbal behavior on intercultural interaction.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**ANTHRO 3490: Indian Cinema**

(same as S\_A\_ST 3490, FILM\_S 3490, VS\_ARH 3790). Indian Cinema provides an overview of the key genres and themes of Indian film, including Bollywood, art cinema/parallel cinema, Indian regional cinemas, and diasporan cinema. The course combines film studies, anthropological, historical, and visual culture analyses to provide a holistic view of Indian culture and society through cinema.

**Credit Hours:** 3

**Recommended:** Sophomore standing or higher

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**ANTHRO 3540: Human Biology and Life History**

A general survey of human biology, focusing on the development of the individual from infancy to adult and the biology of human populations.

**Credit Hours:** 3

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**ANTHRO 3560: Plagues and Peoples**

Overview of the ecology of human host-pathogen interactions and the influence of human culture on the transmission and spread of infectious diseases through time and in different environments.

**Credit Hours:** 3

**Recommended:** sophomore standing

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**ANTHRO 3560W: Plagues and Peoples - Writing Intensive**

Overview of the ecology of human host-pathogen interactions and the influence of human culture on the transmission and spread of infectious diseases through time and in different environments.

**Credit Hours:** 3

**Recommended:** sophomore standing

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**ANTHRO 3600: North American Indian Culture**

Comparative study of American Indians north of Mexico, emphasizes eastern United States.

**Credit Hours:** 3

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**ANTHRO 3780: Cultures of Southeast Asia**

Survey of peoples and cultures of Southeast Asia; topics include regional geography and prehistory, European colonialism, economic and social organization, religious practices, changing status of women, urban and rural poverty, and environmental transformations.

**Credit Hours:** 3

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**ANTHRO 4001: Topics in Anthropology-General**

Problems, topics, issues, or review of research; experimental development of new content areas. Specific content varies depending on needs of faculty or students and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hour:** 1-3

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**ANTHRO 4002: Topics in Anthropology - Biological Science**

Problems, topics, issues, or review of research; experimental development of new content areas. Specific content varies depending on needs of faculty or students and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hour:** 1-3

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**ANTHRO 4005: Topics in Anthropology - Humanities**

Problems, topics, issues, or review of research; experimental development of new content areas. Specific content varies depending on needs of faculty or students and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hour:** 1-3

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**ANTHRO 4006: Topics in Anthropology - Mathematical Science**

Problems, topics, issues, or review of research; experimental development of new content areas. Specific content varies depending on needs of faculty or students and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hour:** 1-3

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**ANTHRO 4007: Topics in Anthropology - Physical Science**

Problems, topics, issues, or review of research; experimental development of new content areas. Specific content varies depending on needs of faculty or students and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hour:** 1-3

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**ANTHRO 4150: Special Themes in Folklore**

(same as ENGLSH 4700; cross-leveled with ANTHRO 7150 and ENGLSH 7700). Intensive study in a selected area of folklore: folk narrative, folk song, myth, proverb, etc., folklore and literature, or the folklore of a particular group. May be repeated for a maximum of six hours with department's consent.

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**Credit Hours:** 3

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**ANTHRO 4170: Oral Tradition**

(same as ENGLISH 4770; cross-leveled with ANTHRO 7170, ENGLISH 7770). Study of oral tradition from living cultures as well as literary works and mass media with roots in verbal art. Oral tradition is a form of human communication through which ideas, knowledge, art, and cultural material is received, preserved, and transmitted orally from one generation to another or from one person to another. May include such folklore genres as ballads, chants, folktales, jokes, legends, myths, proverbs, prose, or verses.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and sophomore standing

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**ANTHRO 4200: Environment and Archaeology**

(cross-leveled with ANTHRO 7200). Study of Quaternary environments and cultural systems. Focuses on North American records emphasizing climate and biologic components of regional ecosystems; regional environmental reconstruction.

**Credit Hours:** 3

**Recommended:** ANTHRO 2020 or ANTHRO 2021

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**ANTHRO 4240: History of Archaeology**

(cross-leveled with ANTHRO 7240). Growth of archaeology worldwide since AD 1700. Emphases include intellectual and theoretical developments, field and laboratory techniques, and major figures in the history of the discipline.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2020 or ANTHRO 2021 or instructor's consent

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**ANTHRO 4280: Archaeology of Religion**

(same as REL\_ST 4280; cross-leveled with ANTHRO 7280 and REL\_ST 7280). Examines how anthropologists conceptualize religious behavior, and how archaeologists use material remains to examine past religious behavior, rituals, religious practitioners, cosmogonical constructs, worldview and ideology in the Americas.

**Credit Hours:** 3

**Recommended:** ANTHRO 2020 or REL\_ST 2100

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**ANTHRO 4300: Comparative Social Organization**

(cross-leveled with ANTHRO 7300). Cross-cultural comparison, analysis of social structures. Role of kinship, age, sex, locality, economics, religion and other factors in determining relationships between individuals and groups cross-culturally.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2030

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**ANTHRO 4320: Ecological and Environmental Anthropology**

(cross-leveled with ANTHRO 7320). Cultural anthropological approaches to human-environment interaction; cultural adaptations to diverse environments; theoretical developments and current issues; cultural, social, and historical contexts of natural resource use.

**Credit Hours:** 3

**Recommended:** junior or senior standing

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**ANTHRO 4340: Cultural Evolution and Change**

(cross-leveled with ANTHRO 7340). Alternative hypotheses about the relationship between culture and evolution are evaluated in light of ethnographic evidence.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2030 or instructor's consent

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**ANTHRO 4350: Psychological Anthropology**

(cross-leveled with ANTHRO 4350). Examines cross-cultural approaches to the study of perception, cognition, and personality; methods for gathering and validating data; examples from non-Western societies.

**Credit Hours:** 3

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**ANTHRO 4360: Medical Anthropology**

(cross-leveled with ANTHRO 7360). Cross-cultural study of belief systems concerning health and illness, practices of diagnosis and treatment, and roles of patients and practitioners. Several non-Western health care systems are studied in detail.

**Credit Hours:** 3

**Recommended:** junior or senior standing

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**ANTHRO 4370: Anthropology of Gender**

(same as WGST 4370; cross-leveled with ANTHRO 7370 and WGST 7370). The Anthropology of Gender introduces the student to the variation in the relationships between male and females; and between men, women, and other genders from around the world. The different approaches to understanding and modeling gender are discussed, as are specific case-studies from many different cultures.

**Credit Hours:** 3

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**ANTHRO 4380: Anthropological Theories of Religion**

(same as REL\_ST 4380; cross-leveled with ANTHRO 7380 and REL\_ST 7380). Course provides a critical evaluation of anthropological explanations of various forms of traditional religious behavior such as magic, shamanism, divination, ritual, mythology, and witchcraft. The anthropological explanations examined range from nineteenth century classics to the current approaches of today.

**Credit Hours:** 3

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**ANTHRO 4385: Anthropology of Shamanism**

(cross-leveled with ANTHRO 7385). Shamans are considered to be intermediates between this world and the spiritual world because they possess the power to communicate with spiritual beings and seek such beings to ask for their help with a variety of tasks such as healing, killing enemies, and weather control. Shamans are also the earliest ritual practitioners. Ancient cave paintings depict men dressed in animal skins, holding objects resembling the rattles used by modern shamans among northern hunting peoples. The cave art also has entopic imagery that is seen in the shaman's mind during his shamanic rituals. In this course we will look at shamanism through time and in many cultures. We will also discuss the early accounts of shamanism by priests, explorers and adventurers, and how anthropology has come to understand and study this phenomenon. Particular topics to be discussed include biological explanations for shamanic trances and visions, mental health concerning shamans, gender issues, and how shamans fit in with societal development and complexity. Graded on A-F basis only.

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**Credit Hours:** 3

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**ANTHRO 4412: Gender, Language, and Communication**

(same as COMMUN 4412 and LINGST 4412; cross-leveled with COMMUN 7412 and LINGST 7412). Relationship among gender, language, nonverbal communication, and culture.

**Credit Hours:** 3

**Prerequisites:** junior standing or departmental consent

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**ANTHRO 4420: Historical Linguistics**

(same as LINGST 4420, ENGLSH 4660; cross-leveled with ANTHRO 7420, LINGST 7420, ENGLSH 7660). Methods of tracing the history of languages by glottochronology, and by comparative and internal reconstructions; cultural and linguistic implications of such reconstructions and of areal linguistics.

**Credit Hours:** 3

**Recommended:** junior or senior standing

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**ANTHRO 4500: Human Origins**

(cross-leveled with ANTHRO 7500). History and theory in the study of human paleontology.

**Credit Hours:** 5

**Prerequisites:** ANTHRO 2050 or ANTHRO 2052 or instructor's consent

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**ANTHRO 4520: Functional Morphology of the Human Skeleton**

(cross-leveled with ANTHRO 7520). This course will explore human functional morphology in a broad sense, i.e. will investigate how the form of various bodily systems influences their function and vice versa. In addition, the course is explicitly evolutionary in perspective; after the basic anatomy and function of a specific bodily region is introduced, we will cover how this functional unit has changed over the course of human evolutionary history. Lastly, we will be using the knowledge gained in lecture and from the text to critically analyze examples of research in human functional morphology. Graded on A-F basis only.

**Credit Hours:** 3

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**ANTHRO 4540: Human Biological Variation**

(cross-leveled with ANTHRO 7540). Human biological variation both among and within living populations. Evolutionary, genetic, ecological, demographic and especially cultural factors which contribute to biological variation.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2050 or ANTHRO 2051 or BIO\_SC 1010

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**ANTHRO 4580: Evolutionary Medicine**

(cross-leveled with ANTHRO 7580). Principles of modern evolutionary theory are applied to medical problems. Topics include: function of symptoms (fever, nausea, etc.); strategies of pathogens; senescence; cancer; phylogenetic constraints; mental disorders. Ideas will be actively discussed in class.

**Credit Hours:** 3

**Recommended:** lower level course in Biology or Biological Anthropology, junior or senior standing

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**ANTHRO 4600: Ethnographic Studies of Selected Cultures**

(cross-leveled with ANTHRO 7600). Specific content varies with student interest, faculty availability. Will concentrate on peoples and cultures of one area such as East Asia, South Asia, Africa, North America, Mesoamerica, Oceania, Europe. Amplifies ethnographic knowledge gained in lower-level survey courses.

**Credit Hours:** 3

**Recommended:** junior standing

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**ANTHRO 4620: North American Archaeology**

(cross-leveled with ANTHRO 7620). Ancient peoples and development of American Indian culture.

**Credit Hours:** 3

**Recommended:** ANTHRO 2020 or ANTHRO 2021

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**ANTHRO 4640: Prehistory of the Greater Southwest**

(cross-leveled with ANTHRO 7640). The course will introduce students to the archaeology of aboriginal peoples of the American Southwest and northwestern Mexico. The emphasis will be on prehistoric culture development from the Paleoindians to the arrival of the Spanish. Ethnographic and modern peoples will be discussed as well.

**Credit Hours:** 3

**Recommended:** ANTHRO 2020 or ANTHRO 2021

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**ANTHRO 4650: Prehistory of Mesoamerica**

(cross-leveled with ANTHRO 7650). Archaeology and prehistory of Mesoamerica (Mexico and Northern Central America). Emphasis on archaeological evidence for development of human societies from late Pleistocene hunting bands to complex agricultural civilizations encountered by Europeans in 1500s.

**Credit Hours:** 3

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**ANTHRO 4680: Cultures and Peoples of the Amazon**

(cross-leveled with ANTHRO 7680). Ethnographic survey of indigenous Amazonian cultures.

**Credit Hours:** 3

**Recommended:** Junior standing required

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**ANTHRO 4700: Old World Prehistory**

(cross-leveled with ANTHRO 7700). Beginnings of culture in the Old World through the early Iron Age.

**Credit Hours:** 3

**Recommended:** ANTHRO 2020 or ANTHRO 2021

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**ANTHRO 4790: Culture and Society in South Asia**

(same as S\_A\_ST 4790; cross-leveled with ANTHRO 7790 and S\_A\_ST 7790). Survey of the cultures, social organizations, and lived experience of people from across the Indian subcontinent. Major topics include cast, kinship, gender, religion, village life, urbanization, public culture, popular culture, social change, and the South Asian diaspora.

**Credit Hours:** 3

**Recommended:** junior standing

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**ANTHRO 4800: Field Methods in Archaeology**

(cross-leveled with ANTHRO 7800). Techniques of archaeological excavation; field surveying, recording, care and interpretation of materials.

**Credit Hour:** 1-8

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**ANTHRO 4820: Zooarchaeology**

(cross-leveled with ANTHRO 7820). Survey of specialized techniques for archaeological faunal analysis, including zooarchaeological sampling, taphonomy, study of paleoecology, and recognition of domestication.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2020 or ANTHRO 2022 or instructor's consent

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**ANTHRO 4826: Stone Artifact Analysis**

(cross-leveled with ANTHRO 7826). Theory, methods, and techniques of studying lithic artifacts and deriving culturally meaningful interpretations. Emphasizes flaked artifacts. Includes physical examination, manufacture and experimentation with stone tools.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2020 or ANTHRO 2022 or instructor's consent

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**ANTHRO 4828: Archaeological Analysis of Ceramics**

(cross-leveled with ANTHRO 7828). To introduce students to the basic methods and concepts used in the archaeological analysis of pottery. By the end of the semester students will understand the various ways that pottery is created and how archaeologists can use ceramics to gain insights into everything from the organization of craft production to trade to symbolism.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2020 or ANTHRO 2022

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**ANTHRO 4830: Ethnographic Methods**

(cross-leveled ANTHO 7830). Relation of problems to techniques; surveys techniques of gathering data; discusses their limitations and potentials.

**Credit Hours:** 3

**Recommended:** ANTHRO 2030

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**ANTHRO 4840: The Comparative Method in Anthropology**

(cross-leveled with ANTHRO 7840). Comparative methods provide common ground for uniting bio-cultural anthropologists, archaeologists, and evolutionary biologists together in the investigation of human variation across time and space. It is an exciting time for comparative anthropology with the emergence of a large number of open-access databases covering many realms of biological, cultural, and linguistic variation. This class addresses many research opportunities that are opened up by these large collaborative efforts. Objectives are to develop research questions of interest to students, compile comparative databases necessary to answer those questions, and learn tools and software relevant for running analyses. Graded on A-F basis only.

**Credit Hours:** 3

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**ANTHRO 4870: Field Methods in Linguistics**

(same as LINGST 4870, ENGLSH 4670; cross-leveled with ANTHRO 7870, LINGST 7870, ENGLSH 7670). Intensive training in collection and

analysis of data taken from a native speaker of a non-Indo-European language. May be repeated for credit.

**Credit Hours:** 4

**Prerequisites:** Contact the Linguistics advisor to request permission

**Recommended:** 9 hours of Linguistics

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**ANTHRO 4870W: Field Methods in Linguistics - Writing Intensive**

(same as LINGST 4870, ENGLSH 4670; cross-leveled with ANTHRO 7870, LINGST 7870, ENGLSH 7670). Intensive training in collection and analysis of data taken from a native speaker of a non-Indo-European language. May be repeated for credit.

**Credit Hours:** 4

**Prerequisites:** Contact the Linguistics advisor to request permission

**Recommended:** 9 hours of Linguistics

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**ANTHRO 4880: Demographic Anthropology**

(cross-leveled with ANTHRO 7880). The major topics considered in this course are basic demographic analysis, including life tables, models for population growth and stable population theory; fertility analysis; disease and fertility; disease in human populations; and paleodemography. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** MATH 1100

**Recommended:** junior or senior standing

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**ANTHRO 4885: Anthropological Genetics**

(cross-leveled with ANTHRO 7885). Population genetics theory and methods applied to human and primate evolution and variation.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2050, or ANTHRO 2051 and ANTHRO 2052, or BIO\_SC 1500, or instructor's consent

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**ANTHRO 4890: Human Skeletal Identification and Analysis**

(cross-leveled with ANTHRO 7890). Students interested in archaeology, physical anthropology, and law enforcement will learn human osteological methods of analysis applied to bioarchaeological problems and modern forensic techniques for personal identification.

**Credit Hours:** 5

**Prerequisites:** ANTHRO 2050 or ANTHRO 2052 or instructor's consent

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**ANTHRO 4950: Undergraduate Research in Anthropology**

Advanced research approved by and under the direction of a departmental faculty member. Enrollment limited to Juniors and Seniors.

**Credit Hour:** 2-8

**Prerequisites:** instructor's consent

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**ANTHRO 4950H: Honors Research in Anthropology**

Individual study and research leading to Honors in Anthropology. In consultation with instructor, student works on Honors Thesis. May be repeated for up to 6 credit hours. Enrollment is limited to Anthropology Majors with Junior Standing or higher, honors eligibility and a 3.5 GPA in Anthropology.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ANTHRO 4950HW: Undergraduate Research in Anthropology - Honors/Writing Intensive**

Advanced research approved by and under the direction of a departmental faculty member. Enrollment limited to Juniors and Seniors with Honors Eligibility.

**Credit Hour:** 2-8

**Prerequisites:** instructor's consent

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**ANTHRO 4960: Undergraduate Readings in Anthropology**

Directed readings in ethnology, linguistics, archaeology, or physical anthropology not leading to thesis.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ANTHRO 4990: Capstone Seminar in Anthropology**

Readings, discussions, and problems in the integration of the subfields of anthropology through theory and examples.

**Credit Hours:** 3

**Prerequisites:** Anthropology major and senior standing, or instructor's consent

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**ANTHRO 4990W: Capstone Seminar in Anthropology - Writing Intensive**

Readings, discussions, and problems in the integration of the subfields of anthropology through theory and examples.

**Credit Hours:** 3

**Prerequisites:** Anthropology major and senior standing, or instructor's consent

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**ANTHRO 7001: Topics in Anthropology-General**

Problems, topics, issues, or review of research; experimental development of new contact areas. Specific content varies depending on needs of faculty or students and will be announced in advance.

**Credit Hour:** 1-3

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**ANTHRO 7150: Special Themes in Folklore**

(same as ENGLISH 7700; cross-leveled with ANTHRO 4150 and ENGLISH 4700). Intensive study in a selected area of folklore: folk narrative, folk song, myth, proverb, etc., folklore and literature, or the folklore of a particular group. May be repeated for a maximum of six hours. Instructor's consent for repetition.

**Credit Hours:** 3

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**ANTHRO 7170: Oral Tradition**

(same as ENGLISH 7770; cross-leveled with ENGLISH 4770, ANTHRO 4170). Study of oral tradition from living cultures as well as literary works and mass media with roots in verbal art. Oral tradition is a form of human communication through which ideas, knowledge, art, and cultural material is received, preserved, and transmitted orally from one generation to another or from one person to another. May include such folklore genres as ballads, chants, folktales, jokes, legends, myths, proverbs, prose, or verses.

**Credit Hours:** 3

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**Prerequisites:** Instructor's consent

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**ANTHRO 7200: Environment and Archaeology**

(cross-leveled with ANTHRO 4200). Study of quaternary environments and cultural systems. Focuses on North American records emphasizing climate and biologic components of regional ecosystems; regional environmental reconstruction.

**Credit Hours:** 3

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**ANTHRO 7240: History of Archaeology**

(cross-leveled with ANTHRO 4240). Growth of archaeology worldwide since AD 1700. Emphasis include intellectual and theoretical developments, field and laboratory techniques, and major figures in the history of the discipline.

**Credit Hours:** 3

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**ANTHRO 7280: Archaeology of Religion**

(Same as REL\_ST 7280; cross-leveled with ANTHRO 4280 and REL\_ST 4280) This course examines how anthropologists conceptualize religious behavior, and how archaeologists use material remains to examine past religious behavior, rituals, religious practitioners, cosmological constructs, worldview and ideology in the Americas.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2020 and/or REL\_ST 2100

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**ANTHRO 7300: Comparative Social Organization**

(cross-leveled with ANTHRO 4300). Cross-cultural comparison, analysis of social structures. Role of kinship, age, sex, locality, economics, religion and other factors in determining relationships between individuals and groups cross culturally.

**Credit Hours:** 3

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**ANTHRO 7340: Cultural Evolution and Change**

(cross-leveled with ANTHRO 4340). Alternative hypotheses about the relationship between culture and evolution are evaluated in light of ethnographic evidence.

**Credit Hours:** 3

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**ANTHRO 7350: Psychological Anthropology**

Examines cross-cultural approaches to the study of perception, cognition, and personality; methods for gathering and validating data; examples from non-Western societies.

**Credit Hours:** 3

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**ANTHRO 7360: Medical Anthropology**

(cross-leveled with ANTHRO 4360). Cross-cultural study of belief systems concerning health and illness, practices of diagnosis and treatment, and roles of patients and practitioners. Several non-Western health care systems are studied in detail.

**Credit Hours:** 3

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**ANTHRO 7370: Anthropology of Gender**

(same as WGST 7370; cross-leveled with ANTHRO 4370 and WGST 4370) The Anthropology of Gender Introduces the student to the

variation in the relationships between males and females; and between men, women, and other genders from around the world. The different approaches to understanding and modeling gender are discussed, as are specific case-studies from many different cultures.

**Credit Hours:** 3

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**ANTHRO 7380: Anthropological Theory of Religions**

(same as REL\_ST 7380; cross-leveled with ANTHRO 4380 and REL\_ST 4380). Course provides a critical evaluation of anthropological explanations of various forms of traditional religious behavior such as magic, shamanism, divination, ritual, mythology and witchcraft. The anthropological explanations examined range from nineteenth century classics to the current approaches of today.

**Credit Hours:** 3

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**ANTHRO 7385: Anthropology of Shamanism**

(cross-leveled with ANTHRO 4385). Shamans are considered to be intermediates between this world and the spiritual world because they possess the power to communicate with spiritual beings and seek such beings to ask for their help with a variety of tasks such as healing, killing enemies, and weather control. Shamans are also the earliest ritual practitioners. Ancient cave paintings depict men dressed in animal skins, holding objects resembling the rattles used by modern shamans among northern hunting peoples. The cave art also has entopic imagery that is seen in the shaman's mind during his shamanic rituals. In this course we will look at shamanism through time and in many cultures. We will also discuss the early accounts of shamanism by priests, explorers and adventurers, and how anthropology has come to understand and study this phenomenon. Particular topics to be discussed include biological explanations for shamanic trances and visions, mental health concerning shamans, gender issues, and how shamans fit in with societal development and complexity. Graded on A-F basis only.

**Credit Hours:** 3

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**ANTHRO 7420: Historical Linguistics**

(same as LINGST 7420, ENGLSH 7660; cross-leveled with ANTHRO 4420, LINGST 4420, ENGLSH 4660). Methods of tracing the history of languages by glottochronology, and by comparative and internal reconstructions; cultural and linguistic implications of such reconstructions and of areal linguistics.

**Credit Hours:** 3

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**ANTHRO 7500: Human Origins**

(cross-leveled with ANTHRO 4500). History and theory in the study of human paleontology.

**Credit Hours:** 5

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**ANTHRO 7520: Functional Morphology of the Human Skeleton**

(cross-leveled with ANTHRO 4520). This course will explore human functional morphology in a broad sense, i.e. will investigate how the form of various bodily systems influences their function and vice versa. In addition, the course is explicitly evolutionary in perspective; after the basic anatomy and function of a specific bodily region is introduced, we will cover how this functional unit has changed over the course of human evolutionary history. Lastly, we will be using the knowledge gained in

lecture and from the text to critically analyze examples of research in human functional morphology. Graded on A-F basis only.

**Credit Hours:** 3

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**ANTHRO 7540: Human Biological Variation**

(cross-leveled with ANTHRO 4540). Human biological variation both among and within living populations. Evolutionary, genetic, ecological, demographic and especially cultural factors which contribute to biological variation.

**Credit Hours:** 3

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**ANTHRO 7580: Evolutionary Medicine**

(cross-leveled with ANTHRO 4580). Principles of modern evolutionary theory are applied to medical problems. Topics include: function of symptoms (fever, nausea, etc.); strategies of pathogens; senescence; cancer; phylogenetic constraints; mental disorders. Ideas will be actively discussed in class.

**Credit Hours:** 3

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**ANTHRO 7600: Ethnographic Studies of Selected Cultures**

(cross-leveled with ANTHRO 4600). Specific content varies with student interest, faculty availability. Will concentrate on peoples and cultures of one area such as East Asia, South Asia, Africa, North America, Mesoamerica, Oceania, Europe. Amplifies ethnographic knowledge gained in lower-level survey courses.

**Credit Hours:** 3

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**ANTHRO 7620: North American Archaeology**

(cross-leveled with ANTHRO 4620). Ancient peoples and development of American Indian culture.

**Credit Hours:** 3

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**ANTHRO 7640: Prehistory of the Greater Southwest**

(cross-leveled with ANTHRO 4640). The course will introduce students to the archaeology of aboriginal peoples of the American southwest and northwestern Mexico. The emphasis will be on prehistoric culture development from the Paleoindians to the arrival of the Spanish. Ethnographic and modern peoples will be discussed as well.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2020 or ANTHRO 2021

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**ANTHRO 7650: Prehistory of Mesoamerica**

(cross-leveled with ANTHRO 4650). Covers the archaeology and prehistory of Mesoamerica (Mexico and Northern Central America). Emphasis on archaeological evidence for development of human societies from late Pleistocene hunting bands to complex agricultural civilizations encountered by Europeans in 1500s.

**Credit Hours:** 3

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**ANTHRO 7680: Cultures and Peoples of the Amazon**

(cross-leveled with ANTHRO 4680). Ethnographic survey of indigenous Amazonian cultures

**Credit Hours:** 3

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**ANTHRO 7700: Old World Prehistory**

(cross-leveled with ANTHRO 4700). Beginnings of culture in the old world through the early Iron Age.

**Credit Hours:** 3

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**ANTHRO 7790: Cultures and Society in South Asia**

(same as S\_A\_ST 7790; cross-leveled with ANTHRO 4790 and S\_A\_ST 4790). Survey of the cultures, social organizations, and lived experience of people from across the Indian subcontinent. Major topics include cast, kinship, gender, religion, village life, urbanization, public culture, popular culture, social change, and the South Asian Diaspora.

**Credit Hours:** 3

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**ANTHRO 7800: Field Methods in Archaeology**

Techniques of archaeological excavation; field surveying, recording, care and interpretation of materials.

**Credit Hour:** 1-8

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**ANTHRO 7820: Zooarchaeology**

(cross-leveled with ANTHRO 4820). Survey of specialized techniques for archaeological/faunal analysis, including zoo archaeological sampling, taphonomy study of paleoecology, and recognition of domestication.

**Credit Hours:** 3

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**ANTHRO 7826: Stone Artifact Analysis**

(cross-leveled with ANTHRO 4826). Theory, methods, and techniques of studying lithic artifacts and deriving culturally meaningful interpretations. Emphasizes flaked artifacts. Includes physical examination, manufacture and experimentation with stone tools.

**Credit Hours:** 3

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**ANTHRO 7828: Archaeological Analysis of Ceramics**

(cross-leveled with ANTHRO 4828). To introduce students to the basic methods and concepts used in the archaeological analysis of pottery. By the end of the semester students will understand the various ways that pottery is created and how archaeologists can use ceramics to gain insights into everything from the organization of craft production to trade to symbolism.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2020 and/or ANTHRO 2022

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**ANTHRO 7830: Ethnographic Methods**

(cross-leveled with ANTHRO 4830). Relation of problems to techniques; surveys techniques of gathering data; discusses their limitations and potentials.

**Credit Hours:** 3

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**ANTHRO 7840: The Comparative Method in Anthropology**

(cross-leveled with ANTHRO 4840). Comparative methods provide common ground for uniting bio-cultural anthropologists, archaeologists, and evolutionary biologists together in the investigation of human variation across time and space. It is an exciting time for comparative anthropology with the emergence of a large number of open-access databases covering many realms of biological, cultural, and linguistic

variation. This class addresses many research opportunities that are opened up by these large collaborative efforts. Objectives are to develop research questions of interest to students, compile comparative databases necessary to answer those questions, and learn tools and software relevant for running analyses. Graded on A-F basis only.

**Credit Hours:** 3

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**ANTHRO 7870: Field Methods in Linguistics**

(same as LINGST 7870 and ENGLSH 7670; cross-leveled with LINGST 4870 and ENGLSH 4670). Intensive training in collection and analysis of data taken from a native speaker of a non-Indo-European language. May be repeated for credit.

**Credit Hours:** 4

**Prerequisites:** instructor's consent

**Recommended:** 9 hours of linguistics

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**ANTHRO 7880: Demographic Anthropology**

(cross-leveled with ANTHRO 4880). The major topics considered in this course are basic demographic analysis, including life tables, models for population growth and stable population theory; fertility analysis; disease and fertility; disease in human populations; and paleodemography.

**Credit Hours:** 3

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**ANTHRO 7885: Anthropological Genetics**

(cross-leveled with ANTHRO 4885). Population genetic theory and methods applied to human and primate evolution and variation.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2050 and ANTHRO 2052 or BIO\_SC 1500

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**ANTHRO 7890: Human Skeletal Identification and Analysis**

(cross-leveled with ANTHRO 4890). Students interested in archaeology, physical anthropology, and law enforcement will learn human osteological methods of analysis applied to bioarchaeological problems and modern forensic techniques for personal identification.

**Credit Hours:** 5

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**ANTHRO 7950: Introduction to Post-Graduate Anthropology**

How to succeed in graduate school and profession, and who is MU Anthropology. Introduces skills for success in graduate school, describes attributes of a professional anthropologist and how to find a job. Handouts and readings supplement discussions. Graded on S/U basis only.

**Credit Hour:** 1

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**ANTHRO 7960: Graduate Readings in Anthropology**

Directed readings in ethnology, linguistics, archaeology, or physical anthropology not leading to thesis.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ANTHRO 7990: Non Thesis Research in Anthropology**

Original research not leading to the preparation of a thesis or dissertation.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ANTHRO 8010: History of Anthropology I**

Development of anthropological theories, methods, perspectives, major figures and contributions in cultural and linguistic subfields.

**Credit Hours:** 3

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**ANTHRO 8090: Masters Thesis Research in Anthropology**

Advanced work leading to thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** consent of major advisor

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**ANTHRO 8157: Seminar in Folklore**

(same as ENGLSH 8700 and REL\_ST 8700). Roots of folklore scholarship and methodology; their evolution in modern approaches to the study of oral, traditional, verbal genres; and their performance in natural folk groups. May repeat to twelve hours with departments consent.

**Credit Hours:** 3

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**ANTHRO 8187: Seminar in Ecological Adaptation**

Relationships and interactions between humans and their environments, with emphasis on the physical and cultural adaptations to environment. May be repeated to 9 hours maximum.

**Credit Hours:** 3

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**ANTHRO 8287: Seminar in Theory and Methods in Archaeology**

Application of theory and conceptual frameworks to archaeological studies drawn from both Old and New Worlds. May be repeated to 6 hours maximum.

**Credit Hours:** 3

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**ANTHRO 8357: Seminar in Psychological Anthropology**

Focuses on developments in psychological anthropology, cross-cultural psychology. Special attention on cognition, perception, socialization, personality assessment, psycho-cultural change, psycho-linguistics, psychometrics, within cross-cultural contexts. May be repeated to 6 hours maximum.

**Credit Hours:** 3

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**ANTHRO 8487: Seminar in Anthropological Linguistics**

(same as LINGST 8487). Topics: Ethnolinguistics, linguistic prehistory, pidgin and Creole languages, linguistic theories and cultural and cultural analysis. French structural anthropology. May be repeated for 9 hours maximum.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ANTHRO 8587: Seminar in Physical Anthropology**

Readings and discussion concerning current problems in human and nonhuman primate evolution, with emphasis on taxonomy, morphology, and behavior. May be repeated to 9 hours maximum.

**Credit Hours:** 3

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**ANTHRO 8687: Seminar in Cultural Dynamics**

Focuses on geographical, topical, and/or theoretical developments within cultural anthropology. May be repeated to 6 hours maximum.

**Credit Hours:** 3

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**ANTHRO 8888: Analyzing Anthropological Data I**

Provides students with the conceptual and analytic tools necessary to conduct and evaluate the analysis of anthropological data. Examples gleaned from archaeology, bioanthropology, ethnography, and linguistics will provide a broad perspective of the application and utility of the various methods discussed.

**Credit Hours:** 3

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**ANTHRO 8889: Analyzing Anthropological Data II**

This course introduces a variety of conceptual tools and advanced quantitative methods that anthropologists use to analyze their data. It includes an introduction of common software packages used to manipulate and analyze anthropological data.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 8888 or grad-level intro stats or instructor's consent

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**ANTHRO 8960: Graduate Readings in Anthropology**

Directed readings in ethnology, linguistics, archaeology, or physical anthropology not leading to thesis.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ANTHRO 8987: Grant Writing for Graduate Students**

Formal research project design with an emphasis on the development of a grant at the graduate level. May be repeated to 9 hours maximum.

**Credit Hours:** 3

**Prerequisites:** introductory course in statistics

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**ANTHRO 8990: Non Thesis Research in Anthropology**

Original research not leading to the preparation of a dissertation.

**Credit Hour:** 1-99

**Prerequisites:** consent of major advisor

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**ANTHRO 9090: Doctoral Dissertation Research in Anthropology**

Advanced work leading to dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** consent of major advisor

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## Arabic Courses

**ARABIC 1100: Elementary Arabic I**

For beginners with no prior knowledge of Arabic. An elementary level course designed to facilitate student's acquisition of basic proficiency in communication within culturally significant contexts. Students learn Modern Standard Arabic language skills in an environment integrating interactive video and classroom instruction.

**Credit Hours:** 6

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**ARABIC 1200: Elementary Arabic II**

This course builds upon the foundation established in ARABIC 1100. Greater emphasis is placed on oral and written expression. Cultural issues are explored in an environment integrating interactive video and classroom instruction.

**Credit Hours:** 6

**Prerequisites:** C- or higher in ARABIC 1100, or instructor's permission

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**ARABIC 2005: Undergraduate Topics in Arabic - Humanities**

Organized study of selected topics. Subjects and credits may vary from semester to semester. May be repeated with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing or instructor's consent

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**ARABIC 2130: Intermediate Arabic**

Builds on students' knowledge of Elementary Arabic by investing in four language skills of listening, speaking, reading, and writing. Course is culturally oriented and considers various social, political, and religious forces to play in Arab world. Offers a unique blend of modern standards and colloquial Arabic. Enables students to develop listening comprehension, initiate and sustain conversations on daily-life topics, read texts on familiar topics, and write informal essays on topics, and write informal essays on topics connected to daily life.

**Credit Hours:** 3

**Prerequisites:** ARABIC 1200 or equivalent

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**ARABIC 2260: Intermediate Arabic II**

This course enables students at the intermediate proficiency level to further strengthen the four language skills: listening, speaking, reading, and writing in Modern Standard Arabic and to understand key aspects of the Arab world and the Arab culture. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ARABIC 2130 or equivalent

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**ARABIC 3160: Intermediate Arabic III**

This course enables students at the intermediate proficiency level to further strengthen the four language skills: Listening, speaking, reading, and writing in MODERN Standard Arabic and to understand key aspects of the Arab World. It expands communicative competence in Arabic and provides a good introduction to important aspects in Arabic Grammar. ORAL and written skills also be emphasized, besides expanding students vocabulary. It will also help students develop an understanding of the Arabic culture and its growing importance in the world, while providing contexts that reinforce the usefulness of the Arabic language in today's global economy. This course is conducted in Arabic.

**Credit Hours:** 3

**Prerequisites:** ARABIC 2260 or equivalent

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## Architectural Studies Courses

**ARCHST 1005: Topics in Architectural Studies - Humanities**

Organized study of selected topics in architectural studies. Particular topic and earnable credit may vary by semester. May be repeated for credit up to 6 credit hours.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ARCHST 1100: Visual Design**

Design study as an introduction to basic design and visual composition with application to creating two- and three-dimensional abstract and /or functional design work. Studio exercises expressed through drawings and abstract models, using various media.

**Credit Hours:** 3

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**ARCHST 1200: Architectural Drafting and Working Drawings**

Beginning drafting including equipment and materials; lettering; floor plans, sections, elevations; orthographic and axonometric drawings; working drawings; and details.

**Credit Hours:** 3

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**ARCHST 1600: Fundamentals of Environmental Design**

Survey of the architectural environment emphasizing design fundamentals such as use, aesthetics, stability of structures and human relationships with places and time.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ARCHST 1600W: Fundamentals of Environmental Design - Writing Intensive**

Survey of the architectural environment emphasizing design fundamentals such as use, aesthetics, stability of structures and human relationships with places and time.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ARCHST 2005: Topics in Architectural Studies - Humanities**

Organized study of selected topics in architectural studies. Particular topic and earnable credit may vary by semester. May be repeated for credit up to 6 credit hours.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ARCHST 2085: Problems in Architectural Studies**

Supervised independent work.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARCHST 2100: Understanding Architecture and the American City**

Multifaceted introduction to the architectural and social roots of urban form in the U. S.: historic precedents from around the world; growth, decline and revival of cities; rise of suburbia; tradition and transformation in campus communities; continuing housing challenges; sustainable design and the future of urbanism. Explores a diverse range of opportunities to improve communities available to professionals and general public.

**Credit Hours:** 3

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**ARCHST 2210: Understanding Visualization for Animated Films**

Provides a critical overview of design and visualization techniques in animated film-making. Emphasizes the role of the built environment and spatial design features.

**Credit Hours:** 3

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**ARCHST 2220: Introduction to CAD**

Introduction to computer-aided drafting and design with AutoCad software. Emphasis will be placed on development of skills and problem solving related to the professions of environmental and interior design.

**Credit Hours:** 3

**Recommended:** ARCHST 1200

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**ARCHST 2230: Design Communication I**

A course introducing techniques and conventions of digitally-mediated graphic communication as aids in the design process.

**Credit Hours:** 3

**Prerequisites:** ARCHST 2220 and ARCHST 2811

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**ARCHST 2310: Building Systems**

Integrated building systems: structure, construction, technology, comfort; including voice-data communication, safety, floor, wall, ceiling, mechanical, electrical, and plumbing systems; and project estimating.

**Credit Hours:** 3

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**ARCHST 2315: Introduction to Building Systems Laboratory**

Building system renovations, materials, processes, finishes, and applications testing: furniture design, fabrication, finishing, lighting, concrete and masonry, wood and steel light framing construction, and mock-up fabrication and testing. All equipment training and safety is covered in this introductory course.

**Credit Hour:** 1

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**ARCHST 2316: Advanced Building Systems Lab**

Advanced exposure to building system renovations, materials, processes, finishes, and applications testing: furniture design, fabrication, finishing, lighting, concrete and masonry, wood and steel light framing construction, and mock-up fabrication and testing. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** ARCHST 2315

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**ARCHST 2323: Sustainable Building Design Fundamentals**

Environmental concerns addressed by green building design practices for consumers and owners of homes and businesses. Overview of how green buildings improve prospects for ecology, economy, social equity, and human health. Hands-on lab experiments reference national performance standards for decision making in sustainable building projects. Emphasis on energy and water use, sustainable sites, environmentally friendly building products, indoor air quality, and design for sustainable behaviors. Graded on A-F basis only.

**Credit Hours:** 3

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**ARCHST 2620: People, Places and Design**

Understanding human behavior and interaction with environments; the influence of architectural design on built places. Practical application for design.

**Credit Hours:** 3

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**ARCHST 2811: Studio I**

Application of basic design and composition to built form. Studio exercises in two and three dimensions using various media relating to usable spaces. Formation of design concept, development of form and space, and application in built environment.

**Credit Hours:** 4

**Prerequisites:** instructor's consent

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**ARCHST 3100: Color and Light**

The theory, application, and specification of color and light for interior and architectural design. Includes assigned lab exercises for color and light portfolio.

**Credit Hours:** 3

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**ARCHST 3182: Studio II**

Application of basic design principles to built forms and functional spaces. Identification and manipulation of elements of design, understanding spatial relationships between human body and spatial enclosures related to built forms. Spatial organization and familiarity with role of immediate context.

**Credit Hours:** 4

**Prerequisites:** ARCHST 2310 and ARCHST 2811

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**ARCHST 3230: Advanced Design Communication Using BIM**

Advanced course in techniques and conventions of computer aided design (CAD) and Building Information Modeling (BIM) for contemporary design process.

**Credit Hours:** 3

**Prerequisites:** ARCHST 2230

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**ARCHST 3600: Environmental Analysis**

Discover through analytical methods of primary organizational factors which operate in a building and reveal the preoccupations of designer. Analytical approach investigates design principles by means of dissection.

**Credit Hours:** 3

**Prerequisites:** ARCHST 2811

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**ARCHST 3600W: Environmental Analysis - Writing Intensive**

Discover through analytical methods of primary organizational factors which operate in a building and reveal the preoccupations of designer. Analytical approach investigates design principles by means of dissection.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000 and ARCHST 2811

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**ARCHST 3860: Human Factors Programming**

Design Programming for Human Factors using a Case Study.

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**Credit Hours:** 3

**Recommended:** ARCHST 1600

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**ARCHST 3860W: Human Factors Programming - Writing Intensive**

Design Programming for Human Factors using a Case Study.

**Credit Hours:** 3

**Recommended:** ARCHST 1600

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**ARCHST 4001: Topics in Architectural Studies**

Selected current topics in field of interest.

**Credit Hour:** 1-99

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**ARCHST 4085: Problems in Architectural Studies**

Supervised independent work.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ARCHST 4085W: Problems in Architectural Studies - Writing Intensive**

Supervised independent work.

**Credit Hour:** 1-12

**Prerequisites:** instructor's consent

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**ARCHST 4320: Materials, Methods and Products**

Inherent qualities of materials used in the design of interior environments. Manufacturing, application, and installation methods. Focus on environmentally sensitive materials.

**Credit Hours:** 3

**Recommended:** ARCHST 2310

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**ARCHST 4323: Sustainable Technologies and Systems**

An in-depth study of ecologically-sensitive and energy-efficient strategies used in building and interiors. Prerequisites: MATH 1100 or equivalent or MATH 1160 or higher level of math: MATH 1400 or MATH 1500.

**Credit Hours:** 3

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**ARCHST 4325: Energy-Efficient Building Design**

Broad study of energy use and energy-efficient strategies for buildings. Course will cover the fundamentals of climate-based design, energy-efficient heating/cooling/daylighting strategies, alternative energy systems applicable to buildings, energy auditing/modeling/verification, applicable building energy codes, and high performance building technologies.

**Credit Hours:** 3

**Prerequisites:** MATH 1100

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**ARCHST 4333: Compliance and Specifications**

Application of laws, codes, regulations, standards in specifying for life safety, barrier-free and universal design, lighting, human factors, and contract documents.

**Credit Hours:** 3

**Prerequisites:** ARCHST 2220 and ARCHST 2811

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**ARCHST 4355: Recent Trends in Digital Media I**

Recent Trends in Digital Media I

**Credit Hour:** 1-99

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**ARCHST 4411: Study Abroad in Architectural History**

Discovery of historic architecture through on-site tour of timeless cities and places. May be repeated for credit.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ARCHST 4430: Guiding Design with Historic Preservation**

(cross-leveled with ARCHST 7430). Approaches to historic preservation; historic roots of architecture and interiors; regulations and design guidelines governing intervention; assessing significance of historic properties.

**Credit Hours:** 3

**Recommended:** American History or Government, or Art History

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**ARCHST 4435: History of the Designed Environment to 1750**

An in-depth study of the designed environment including interiors, architecture, art, and the decorative arts within the major historical periods and cultural context from prehistory to the Industrial Revolution.

**Credit Hours:** 3

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**ARCHST 4440: Design Precedents: Architecture, Interiors and Furniture since the Industrial Revolution**

(cross-leveled with ARCHST 7440). Analysis of historical exemplars of architecture, interiors and furniture design offering strategies for approaching contemporary design problems. Covers design precedents from industrial revolution to contemporary design.

**Credit Hours:** 3

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**ARCHST 4555: Recent Trends**

Upper-division students seeking additional knowledge in specific subject matter areas including digital media software.

**Credit Hour:** 1-99

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**ARCHST 4630: Shaping Human Settlements**

Review classic designs and designers, key concepts and enduring issues of community design within the overall framework of environmental design.

**Credit Hours:** 3

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**ARCHST 4700: Place-Making in Community Design**

Ideologies, case studies and participatory methods on place-making in community design. Use processes to design a place-making scheme in actual community project.

**Credit Hours:** 3

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**ARCHST 4710: Design Business Practices**

Analysis of basic professional, human, and business skills necessary for the successful design practice. Studio work in development of portfolio and self-marketing materials with refinement through critiques.

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**Credit Hours:** 3

**Prerequisites or Corequisites:** ARCHST 4814 or ARCHST 4824

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**ARCHST 4760: Healthcare Facilities Design**

(cross-leveled with ARCHST 7760). Health care facilities design and planning course provides an in-depth investigation of best practice examples. Design and research methods include evidence-based design, simulation, and space syntax analysis leading to high-performance healthcare design. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** senior standing

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**ARCHST 4813: Interiors Studio III**

Spatial morphology, organization pattern, construction methods, materials, systems, and processes and integration with total design processes. Space planning and spatial manipulation in response to social, environmental, functional, and aesthetics specific to interiors.

**Credit Hours:** 4

**Prerequisites:** ARCHST 3182

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**ARCHST 4814: Interiors Studio IV**

Continuation of ARCHST 4813. Manipulation of form and space responding to programmatic functions and activities, and constraints imposed by structure, building materials, spatial enclosure, and related factors. Projects may involve designing single-function space to multiple-function layered spaces--both vertically and horizontally.

**Credit Hours:** 4

**Prerequisites:** ARCHST 4813

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**ARCHST 4815: Construction Documents and Building Information Modeling Studio**

Studio of how materials, systems, and assemblies reinforce and extend intentions of designers. Course teaches strategies and techniques for integration and coordination of the building components and details in construction documents and building information modeling.

**Credit Hours:** 4

**Prerequisites or Corequisites:** ARCHST 3230, ARCHST 4814 or ARCHST 4824, ARCHST 4860, ARCHST 4990

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**ARCHST 4823: Architectural Studio III**

Continuation of ARCHST 3182. Spatial morphology, organization pattern, construction methods, materials, systems, and processes and integration with total design process. Space planning and spatial manipulation in response to social, environmental, functional, and aesthetics specifics to architecture.

**Credit Hours:** 4

**Prerequisites:** ARCHST 3182

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**ARCHST 4824: Architectural Studio IV**

Continuation of ARCHST 4823. Manipulation of form and space responding to programmatic functions and activities, and constraints imposed by structure, building materials, spatial enclosure, and related factors. Projects may involve designing single-function space to multiple-function layered spaces - both vertically and horizontally.

**Credit Hours:** 4

**Prerequisites:** ARCHST 4823

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**ARCHST 4860: Programming for Thesis Design Studio**

Develop written comprehensive program for thesis design studio project.

**Credit Hour:** 1

**Prerequisites or Corequisites:** ARCHST 4814 or ARCHST 4824

**Prerequisites:** ARCHST 2620

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**ARCHST 4940: Internship in Environmental Design**

Field experience in design under professional and educational supervision. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ARCHST 4960: Readings in Architectural Studio**

Readings in recent research materials.

**Credit Hour:** 1-99

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**ARCHST 4961: Design Research and Service Design**

(cross-leveled with ARCHST 7961). Provides an overview of applied research methods for design and development of products, services and environments. Introduces human-centered approach to design research and Communication of research findings to informed design concepts.

**Credit Hours:** 3

**Recommended:** senior standing

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**ARCHST 4962: Information Visualization and Visual Analytics**

(cross-leveled with ARCHST 7962). Foundation for information visualization and deals with external representation and interactive manipulation of information, data or artifacts using digital tools to enhance communication, analytical reasoning and decision-making.

**Credit Hours:** 3

**Recommended:** senior standing

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**ARCHST 4963: Human Factors Research for Design**

(cross-leveled with ARCHST 7963). Investigate effect of people's physical psychological, social functions in environments of differing scales. Use research techniques of photo-interviewers, mapping, and user analysis to develop an appropriate program for redesign.

**Credit Hours:** 3

**Recommended:** ARCHST 3860

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**ARCHST 4964: Design Thinking and Creative Process**

(cross-leveled with ARCHST 7964). Analysis of how designers think, solve design problems, and engage in the creative process. Includes design methods, design cognition computations, and design protocol studies.

**Credit Hours:** 3

**Recommended:** ARCHST 4813 or ARCHST 4823

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**ARCHST 4990: Thesis Design Studio**

Comprehensive studio project as a synthesis of previous work in addressing a design problem defined in ARCHST 4860.

**Credit Hours:** 4

**Prerequisites:** ARCHST 3230, ARCHST 4860, ARCHST 4814 or ARCHST 4824

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**ARCHST 7001: Topics in Environmental Design**

Selected current topics in field of interest.

**Credit Hour:** 1-99

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**ARCHST 7085: Problems in Environmental Design**

Supervised independent work.

**Credit Hour:** 1-99

**Prerequisites:** 3000-level course in field of problem and instructor's consent

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**ARCHST 7230: Computer Graphic Application for Design I**

Applications of computer graphics for design and art; includes visualization, animation and creative development. May repeat up to 12 credit hours maximum.

**Credit Hours:** 3

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**ARCHST 7232: Graduate Design Communication I**

Studio course in techniques and conventions of graphic communication as an aid in the design process of built forms.

**Credit Hours:** 3

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**ARCHST 7310: Graduate Building Systems**

Integrated building systems; structure construction, technology, comfort; including voice-communications, safety, floor, wall, ceiling, mechanical, electrical, and plumbing systems, project estimating and management.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or MATH 1120

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**ARCHST 7315: Graduate Systems Laboratory**

Experimental learning setting involving building construction systems, renovation, materials and finishes testing and experimentation. Focus on hands-on opportunities investigating building technology properties in detail. Laboratory 3 hrs/week.

**Credit Hour:** 1-9

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**ARCHST 7320: Materials, Methods and Products**

Inherent qualities of materials used in the design of interior environments. Manufacturing, application, and installation methods. Focus on environmentally sensitive materials.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or MATH 1120

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**ARCHST 7323: Sustainable Technologies and Systems**

An in-depth study of ecologically-sensitive and energy-efficient strategies used in buildings and interiors.

**Credit Hours:** 3

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**ARCHST 7325: Energy-Efficient Building Design**

This course is a broad study of energy use and energy-efficient strategies for buildings. The course will cover the fundamentals of climate-based

design, energy-efficient heating/cooling/daylighting strategies, alternative energy systems applicable to buildings, energy auditing/modeling/verification, applicable building energy codes, and high performance building technologies. Recommended for graduate students with undergraduate degrees and experience in engineering, architecture, and/or building science.

**Credit Hours:** 3

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**ARCHST 7333: Compliance and Specifications**

Application of laws, codes, regulations, standards in specifying for life safety, barrier-free and universal design, lighting, human factors, and contract documents.

**Credit Hours:** 3

**Prerequisites:** T\_A\_M 2100 and MATH 1100 or MATH 1120

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**ARCHST 7355: Recent Trends in Digital Media I**

Recent Trends in Digital Media I

**Credit Hour:** 2-4

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**ARCHST 7430: Guiding Design with Historic Preservation**

(cross-leveled with ARCHST 4430). Approaches to historic preservation; historic roots of architecture and interiors; regulations and design guidelines governing intervention; assessing significance of historic properties.

**Credit Hours:** 3

**Prerequisites:** American History or Government or Art History or instructor's consent

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**ARCHST 7440: Design Precedents: Architecture, Interiors and Furniture since the Industrial Revolution**

(cross-leveled with ARCHST 4440). Analysis of historical exemplars of architecture, interiors and furniture design offering strategies for approaching contemporary design problems. Covers design precedents from industrial revolution to contemporary design.

**Credit Hours:** 3

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**ARCHST 7555: Recent Trends in Environmental Design**

Upper-division students seeking additional knowledge in specific subject matter areas including digital media software.

**Credit Hour:** 1-99

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**ARCHST 7620: Environment and Behavior**

Evaluate relationships between human behavior and environmental design. Survey of environment and behavior theoretical foundations examining how these concepts translate into a more responsive theory of design.

**Credit Hours:** 3

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**ARCHST 7630: Shaping Human Settlements**

Review classic designs and designers, key concepts and enduring issues of community design within the overall framework of environmental design.

**Credit Hours:** 3

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**ARCHST 7650: Psychosocial Function and Older Adults**

(same as F\_C\_MD 7751, HMI 7751, H\_D\_FS 7751, NURSE 7751, P\_HLTH 7751 and SOC\_WK 7751). This course takes an Interdisciplinary approach to understanding the psychosocial function of older adults and explores approaches to alleviate disabling conditions that interfere with psychosocial function and quality of life in old age. Graded on A-F basis only.

**Credit Hours:** 3

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**ARCHST 7700: Place-Making in Community Design**

Ideologies, case studies and participatory methods on place-making in community design. Use processes to design a place-making scheme in actual community project.

**Credit Hours:** 3

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**ARCHST 7840: Graduate Design Studio**

Advanced graduate level design experience emphasizing project complexity, design skill refinement, and optional development of thesis project strategies.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARCHST 7940: Internship in Environmental Design**

Field experience in design under professional and educational supervision. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ARCHST 7960: Readings in Environmental Design**

Readings in recent research materials.

**Credit Hour:** 1-99

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**ARCHST 7961: Design Research and Service Design**

(cross-leveled with ARCHST 4961). Provides an overview of applied research methods for design and development of products, services and environments. Introduces human-centered approach to design research and communication of research findings to inform design concepts.

**Credit Hours:** 3

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**ARCHST 7962: Information Visualization and Visual Analytics**

(cross-leveled with ARCHST 4962). Foundation for information visualization and deals with external representation and interactive manipulation of information, data or artifacts using digital tools to enhance communication, analytical reasoning and decision-making.

**Credit Hours:** 3

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**ARCHST 7963: Human Factors Research for Design**

(cross-leveled with ARCHST 4963). Investigate effect of people's physical psychological, social functions in environments of differing scales. Use research techniques of photo-interviewers, mapping, and user analysis to develop an appropriate program for redesign.

**Credit Hours:** 3

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**ARCHST 7964: Design Thinking and Creative Process**

(cross-leveled with ARCHST 4964). Analysis of how designers think, solve design problems, and engage in the creative process. Includes design methods, design cognition and computations, and design protocol studies.

**Credit Hours:** 3

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**ARCHST 8001: Topics in Environmental Design**

Selected current topics in field of interest.

**Credit Hour:** 1-99

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**ARCHST 8050: Research Methods in Environmental Design**

A comparative study of quantitative and qualitative methods in environmental design with emphasis on research results and analyses. Lectures and seminar discussions.

**Credit Hours:** 3

**Prerequisites:** 12 hours advanced design

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**ARCHST 8085: Problems in Environmental Design**

**Credit Hour:** 1-99

**Prerequisites:** 4000-level course in field of problem and instructor's consent

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**ARCHST 8090: Master's Research in Environmental Design**

Independent research leading to a creative project. Graded on S/U basis only.

**Credit Hour:** 1-99

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**ARCHST 8230: Computer Graphic Application for Design II**

Creative computer graphic modeling, rendering and animation projects related to the academic background and interests of individual students. May be repeated to 6 hours maximum.

**Credit Hours:** 3

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**ARCHST 8600: Graduate Environmental Analysis**

Analysis of design principles and organizational factors operating in a building by means of dissection. Volumetric disposition, circulation pattern, axes, structural system, materials, purpose, and symbolism.

**Credit Hours:** 3

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**ARCHST 8630: Philosophy of Environmental Design Research**

Formal environmental design theory concerning historical precedents, current aesthetic trends, and design processes. Assignments investigate philosophical influences, architectonic vocabularies, and communication of idea and artifact. May be repeated up to 12 credit hours.

**Credit Hours:** 3

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**ARCHST 8633: Theoretical Perspectives of Design Computing**

Key theoretical ideas underlying the relationship between design and computing. Main research topics relevant to current discourse in design computing.

**Credit Hours:** 3

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**ARCHST 8820: Graduate Digital Design Studio**

Graduate level design experience emphasizing project complexity, design skill refinement, and use of digital media for design representation.

**Credit Hour:** 1-99

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**ARCHST 8830: Digital Design Studio II**

Advanced graduate level design experience emphasizing design, documentation, and representation using digital media. Optional development of graduate thesis project may be scheduled in this studio.

**Credit Hours:** 4

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**ARCHST 8840: Graduate Design Studio**

Advanced graduate level design experience emphasizing project complexity, design skill refinement, and optional development of thesis project strategies.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ARCHST 8850: Seminar in Environmental Design**

Reports, discussion of recent work in area of concentration.

**Credit Hour:** 1-4

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**ARCHST 8887: Environment and Behavior II**

Synthesis of environment and behavior themes in design research and application to professional practice. Research on socio-behavioral phenomena, user groups, places. Emphasis on integrated interactive character of elements.

**Credit Hours:** 3

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**ARCHST 8950: Qualitative Research Methods**

Explores qualitative research methods as foundation for subsequent study. Focuses on qualitative research of the built environment. Course may be repeated for credit.

**Credit Hours:** 3

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**ARCHST 8960: Readings in Environmental Design**

Readings in recent research materials.

**Credit Hour:** 1-99

**Prerequisites:** ARCHST 4960 or ARCHST 7960

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**ARCHST 8990: Thesis Project Proposal**

The formal opportunity to express the intent and scope of the thesis project.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**ARCHST 9085: Problems in Environmental Design**

**Credit Hour:** 1-99

**Prerequisites:** 4000-level course in field of problem and instructor's consent

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**ARCHST 9090: Doctoral Research in Environmental Design**

Independent research leading to thesis or dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**ARCHST 9555: Recent Trends in Environmental Design**

For students seeking additional knowledge and understanding in specific subject matter areas.

**Credit Hour:** 1-99

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**ARCHST 9990: Dissertation Proposal**

A formal dissertation proposal is written and presented to the dissertation committee for approval.

**Credit Hour:** 1-9

**Prerequisites:** instructor's consent

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**ARCHST 9995: Pilot Project for Dissertation**

Working with advisor, student proposes, conducts, and reports the findings from a pilot study germane to the dissertation topic in preparation for the dissertation research.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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## Art Ceramics - Visual Studies Courses

**ARTCE\_VS 2100: Beginning Ceramics**

Exploration of ceramic art as an expressive, communicative medium. Study of ceramic design, technique and historic and contemporary models within the context of the creative process. Group critiques, slides, demonstrations. Expendable materials fee.

**Credit Hours:** 3

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**ARTCE\_VS 3100: Intermediate Ceramics**

Continuation of ARTCE\_VS 2100 with emphasis on wheel throwing and the vessel format. Further exploration of glazing and firing techniques. Group and individual critiques, demonstrations, slide lectures and visiting artists. Expendable materials fee.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARTCE\_VS 4100: Advanced Ceramics**

Individual directed exploration of ceramic form and concept. Includes advanced problems in firing, clay and glaze technology, forming and ornamentation. Payment of expendable materials fee required. May be repeated to 15 hours maximum.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARTCE\_VS 4110: Ceramics Sculpture**

Individual directed exploration of sculptural forms in ceramics. Includes advanced problems in firing, clay and glaze technology, forming and ornamentation. Payment of expendable materials expense is required. May be repeated to 15 hours maximum.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**ARTCE\_VS 4185: Problems in Ceramics**

Problems in Ceramics.

**Credit Hour:** 1-3

**Prerequisites:** Instructor consent required

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**ARTCE\_VS 7100: Graduate Ceramics**

Advanced study of ceramic form, surface and concept with emphasis on directed development of individual work. Payment of expendable materials expense is required. May be repeated to 18 hours maximum.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required

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**ARTCE\_VS 7110: Graduate Ceramic Sculpture**

Directed development of individual work. Payment of expendable materials expense is required. May be repeated to 18 hours maximum.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required

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**ARTCE\_VS 7185: Problems in Ceramics**

Graduate level work in ceramics.

**Credit Hour:** 1-3

**Prerequisites:** ARTCE\_VS 7100 and ARTCE\_VS 7110 and instructor's consent required

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**ARTCE\_VS 8100: Graduate Ceramics II**

Continuation of ARTCE\_VS 7100. Repeatable to 15 hours.

**Credit Hours:** 3

**Prerequisites:** ARTCE\_VS 7100 or equivalent

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## Art Drawing - Visual Studies Courses

**ARTDR\_VS 1050: Drawing: Materials and Methods**

This course focuses on the fundamentals of visual hierarchy, composition, and pictorial space in drawing. Emphasis on linear perspective and the language of light and shadow using black and white media (graphite, charcoal and/or conte crayon). Development of skills and concepts in drawing based on historical models, lectures, demonstrations and critiques. Expendable materials fee required.

**Credit Hours:** 3

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**ARTDR\_VS 1050H: Drawing: Materials and Methods - Honors**

This course focuses on the fundamentals of visual hierarchy, composition, and pictorial space in drawing. Emphasis on linear perspective and the language of light and shadow using black and white media (graphite, charcoal and/or conte crayon). Development of skills and concepts in drawing based on historical models, lectures, demonstrations and critiques. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**ARTDR\_VS 2210: Beginning Color Drawing**

Beginning Color Drawing is a second level drawing course that places emphasis on practice and materials with a focus on forming a basic understanding of how color works in practical application. Students will craft projects meant to orient them to the material action of colored pencils, chalk pastels, oil pastels, and other media. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ARTDR\_VS 1050

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**ARTDR\_VS 3200: Portrait Drawing**

Development of drawing techniques with an emphasis on the portrait. May be repeated to 15 hours maximum. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ARTDR\_VS 1050 and ARTDR\_VS 2210

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**ARTDR\_VS 3210: Intermediate Color Drawing**

Continuation of ARTDR\_VS 2210 with emphasis on design and organization. May be repeated to 9 hours maximum. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ARTDR\_VS 1050 and ARTDR\_VS 2210

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**ARTDR\_VS 3220: Anatomical Drawing**

Anatomical structure of human figure as it relates to art. Drawing from live model; emphasis on gross anatomy as defined by skeletal and muscular structure. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ARTDR\_VS 1050 and ARTDR\_VS 2210

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**ARTDR\_VS 3230: Beginning Illustration**

An introduction to visual problem solving from initial concept through final execution. Emphasis in drawing and painting skills and exploration of mixed media techniques including drawing from the model. Graded on A-F basis only. Expendable materials fee.

**Credit Hours:** 3

**Prerequisites:** ARTDR\_VS 1050 and ARTDR\_VS 2210

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**ARTDR\_VS 3240: The Graphic Novel**

This drawing course focuses on sequential narrative art and its relationship to the graphic novel. The term, 'graphic novel' represents a broad range of styles, formats and genres from simple comics to highly rendered illustrations. Lectures provide an introduction to some of the most highly respected works from the early twentieth century onward. Expendable materials fee required. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ARTDR\_VS 1050 and ARTDR\_VS 2210

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**ARTDR\_VS 4200: Drawing IV**

This course will provide an intensive experience in the development of a portfolio of artwork. Students will explore the connections between their work and contemporary art. May be repeated 3 times. Expendable Materials Fee Required.

**Credit Hours:** 3



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**Prerequisites:** ARTDR\_VS 1050, ARTDR\_VS 2200 and ARTDR\_VS 3200

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**ARTDR\_VS 4210: Advanced Color Drawing**

Continuation of ARTDR\_VS 3210 with emphasis on the expressive properties of color in figural compositions. Repeatable to 15 hours. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ARTDR\_VS 1050, ARTDR\_VS 2210 and ARTDR\_VS 3210

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**ARTDR\_VS 4220: Advanced Anatomical Drawing**

Continuation of ARTDR\_VS 3220 with and emphasis on formal analysis of the figure in drawing based on superficial and deep anatomical structure. May be repeated to 15 hour maximum. Expendable materials fee required.

**Credit Hours:** 3

**Recommended:** ARTDR\_VS 2210 and ARTDR\_VS 3200 before taking this class

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**ARTDR\_VS 4230: Advanced Illustration**

Further development of conceptual problem solving skills and technical proficiency through self generated assignments. Emphasis is placed on portfolio development by exploring sequential and narrative themes. Topics include contract, copyrights, and the art of freelancing. Students are advised to take the course a minimum of two times. May be repeated to 15 hours maximum. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ARTDR\_VS 1050 and ARTDR\_VS 2210

**Recommended:** ARTDR\_VS 3230

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**ARTDR\_VS 4285: Problems in Drawing**

Problems in Drawing.

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent required

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**ARTDR\_VS 7200: Graduate Drawing**

Drawing with emphasis on individual creative expression. May repeat to 18 hours maximum. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** graduate Art major

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**ARTDR\_VS 7285: Problems in Drawing**

**Credit Hour:** 1-3

**Prerequisites:** ARTDR\_VS 7200 and departmental consent

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**ARTDR\_VS 8200: Advanced Graduate Drawing**

Continuation of ARTDR\_VS. Repeatable to 15 hours.

**Credit Hours:** 3

**Prerequisites:** ARTDR\_VS 7200 or equivalent

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**ARTDR\_VS 8270: Graduate Drawing - Theory and Context**

Contextualizing artwork in culture, history, and theory, May be repeated to 18 hours for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Graduate Art Majors

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## Art Fibers - Visual Studies Courses

**ARTFI\_VS 2300: Beginning Fibers**

Introduction to fibers emphasizing surface design (dyeing, textile printing), embroidery, papermaking and artists' books. Expendable materials fee required.

**Credit Hours:** 3

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**ARTFI\_VS 3300: Intermediate Fibers**

Continuation of ARTFI\_VS 2300 with emphasis on weaving, papermaking, and artists' books. Rigorous critical dialogue communicates social and political discourse intertwined to the Fibers discipline. Analog and digital technologies, global textile production, gender and sexuality, craftivism, community and sustainable making are topics explored and techniques taught inform visual communication for all art media. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ARTFI\_VS 2300

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**ARTFI\_VS 4300: Advanced Fibers**

Exploration of aesthetic concepts, development of creative research and instruction in advanced fiber techniques within medium selected by student. Expendable materials fee required. May repeat to 15 hours maximum.

**Credit Hours:** 3

**Prerequisites:** ARTFI\_VS 3300 or instructor approval

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**ARTFI\_VS 4385: Problems in Fibers**

Supervised research in creative fibers. Expendable materials fee required.

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent required

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**ARTFI\_VS 7300: Graduate Fibers**

Advanced technical and aesthetic study in medium of choice with emphasis on development of the individual student's ideas and goals. Expendable materials fee required. May repeat to 15 hours maximum.

**Credit Hours:** 3

**Prerequisites:** ARTFI\_VS 4300

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**ARTFI\_VS 7385: Problems in Fibers**

Graduate level work in fibers.

**Credit Hour:** 1-3

**Prerequisites:** ARTFI\_VS 7300 and departmental consent

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**ARTFI\_VS 8300: Graduate Fibers II**

Continuation of ART\_FIBR 7300. Repeatable to 15 hours.

**Credit Hours:** 3

**Prerequisites:** ARTFI\_VS 7300 or equivalent

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## Art General - Visual Studies Courses

### ARTGE\_VS 1020: Introduction to Visual Studies

Introduction to the many ways material culture and visual media fashion, construct, preserve, and challenge cultural beliefs and values.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000 may be required on some sections

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### ARTGE\_VS 1020H: Introduction to Visual Studies - Honors

Introduction to the many ways material culture and visual media fashion, construct, preserve, and challenge cultural beliefs and values. Prerequisites: Honors eligibility required.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000 may be required on some sections

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### ARTGE\_VS 1020HW: Introduction to Visual Studies - Honors/Writing Intensive

Introduction to the many ways material culture and visual media fashion, construct, preserve, and challenge cultural beliefs and values. Prerequisites: Honors eligibility required.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000 may be required on some sections

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### ARTGE\_VS 1020W: Introduction to Visual Studies - Writing Intensive

Introduction to the many ways material culture and visual media fashion, construct, preserve, and challenge cultural beliefs and values.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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### ARTGE\_VS 1030: 2-D Materials and Methods

(Art Foundations) Study of the basic principles and elements of two-dimensional composition in art. These principles of organization are the bases for expression and critical analysis of the visual arts. Students will create several studio projects exploring design variables, while employing a range of tools and materials from drawing to digital methods.

**Credit Hours:** 3

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### ARTGE\_VS 1040: 3-D Materials and Methods

A foundational course designed to familiarize students with the elements and principles of three-dimensional design as well as some of the materials, tools, processes and techniques used in the creation of sculptural art. Study and development of formal aesthetic ideas, conceptual vocabulary and technical skills is emphasized. Expendable materials fee required.

**Credit Hours:** 3

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### ARTGE\_VS 1920: Introduction to Digital Media Production

(same as ENGLSH 1880, FILMS\_VS 1880, DST\_VS 1880, COMMUN 1880). Introduction to concepts and skills for Digital Storytelling, including media literacy and forms of narrative manifested historically and currently across a range of media. This course focuses on theories and concepts that support the critical analysis and creation of contemporary narrative in digital form with particular attention to audio, visual and written communication. Graded on A-F basis only.

**Credit Hours:** 3

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**Prerequisites:** BA/BFA art majors only through early registration

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### ARTGE\_VS 2000: Color Theory

An investigation of various color systems and their application to art.

**Credit Hours:** 3

**Prerequisites:** ARTGE\_VS 1030

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### ARTGE\_VS 2001: Topics in Art

Special studies in studio art; covers subjects not included in regularly offered courses. Topics course are repeatable for up to 6 credits per individual topic.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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### ARTGE\_VS 2005: Topics in Art - Humanities

Special studies in studio art; covers subjects not included in regularly offered courses. Topics courses are repeatable for up to six credits per individual topic.

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent

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### ARTGE\_VS 2005H: Topics in Art - Humanities - Honors

Special studies in studio art; covers subjects not included in regularly offered courses. Topics courses are repeatable for up to six credits per individual topic. Enrollment limited to students with Honors Eligibility.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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### ARTGE\_VS 2020: International Summer Study Abroad in Art

A three-week study abroad in studio art with required participation in scheduled excursions to art-related sites. Students create original art for review at schedule critiques in The Netherlands. May be repeated once for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** consent of the instructor

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### ARTGE\_VS 2030: Context and Culture

The purpose of this course is to give journalism students a framework for engaging with the visual arts, with a focus on the 20th century and today. Our goal is to conduct a foundation for thinking, talking and writing about the visual arts, especially works and movements that might be challenging for the novice to understand.

**Credit Hours:** 3

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### ARTGE\_VS 2030H: Context and Culture - Honors

The purpose of this course is to give journalism students a framework for engaging with the visual arts, with a focus on the 20th century and today. Our goal is to conduct a foundation for thinking, talking and writing about the visual arts, especially works and movements that might be challenging for the novice to understand.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**ARTGE\_VS 2040: Sophomore Seminar**

This course is a bridge between contemporary art practices and developing a strong independent studio practice. Students develop a foundational sense of being a visual artist from the perspective of studio practice, professional application and creating an artistic identity through contemporary theory and short critical writings. Students will learn how to document and create a digital platform for their work, as well as search for internships, residencies and other professional arts opportunities. Through lectures, demonstrations, student collaborations, and visits with the local arts community, students will create a sphere of professional influences. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ARTGE\_VS 1030, ARTGE\_VS 1040 and ARTDR\_VS 1050

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**ARTGE\_VS 3001: Topics in Art**

Special studies in studio art; covers subjects not included in regularly offered courses. Topics courses are repeatable for up to 6 credits per individual topic. Enrollment limited to students with junior standing.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ARTGE\_VS 3005: Topics in Art - Humanities**

Special studies in studio art; covers subjects not included in regularly offered courses. Topics courses are repeatable for up to six credits per individual topic.

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent

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**ARTGE\_VS 3005H: Topics in Art - Humanities Honors**

Special studies in studio art; covers subjects not included in regularly offered courses. Topics courses are repeatable for up to six credits per individual topic. Enrollment limited to students with Honors Eligibility.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ARTGE\_VS 3020: International Summer Study Abroad in Art**

A three-week study abroad in studio art with required participation in scheduled excursions to art-related sites. Students create original art for review at schedule critiques in The Netherlands. May be repeated once for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** consent of the instructor

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**ARTGE\_VS 3030: Undergraduate Internship in Art**

Special learning situations not covered by coursework. Credit standards pre-arranged with dept. Limit on total hours of problems courses applies. Enrollment limited to Art and Art Education majors with Junior Standing.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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**ARTGE\_VS 4001: Topics in Art**

Special studies in studio art; covers subjects not included in regularly offered courses. Topics courses are repeatable for up to 6 credits per individual topic.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ARTGE\_VS 4001H: Topics in Art - Honors**

Special studies in studio art; covers subjects not included in regularly offered courses. Topics courses are repeatable for up to 6 credits per individual topic. Enrollment limited to students with Honors Eligibility.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ARTGE\_VS 4005H: Topics in Art - Humanities Honors**

Special studies in studio art; covers subjects not included in regularly offered courses. Topics courses are repeatable for up to six credits per individual topic. Enrollment limited to students with Honors Eligibility.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ARTGE\_VS 4030: Video Art and the Moving Image**

(same as FILMS\_VS; cross-leveled with ARTGE\_VS 7030). Video as a fine art form intersecting with sculpture, experimental filmmaking, DIY and Internet culture. Theoretical and historical knowledge is integrated with studio practice. Students create video works in Adobe Premiere Pro, demonstrating technical ability and aesthetic vision. May be repeated up to 9 hours maximum.

**Credit Hours:** 3

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**ARTGE\_VS 4040: 2-D Portfolio Development**

This course will provide an intensive experience in the development of a portfolio of personal work outside the traditional media boundaries. Students will explore media relevant to their particular needs and begin to explore the connections between their work and contemporary art and culture through readings, discussions and critiques. Expendable Materials Fee Required. May be repeated t 6 credits. Enrollment limited to students with Junior Standing. Recommended: 3000-level or above course in one of the following media areas: Drawing, Painting or Printmaking.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**ARTGE\_VS 4050: Performance Art**

(cross-leveled with ARTGN\_VS 7050). This studio art course will survey the practices in Performance Art and its intersections with visual and media-based art, experimental theater, music and dance. Modules will include performance and: the object, culture, the mediatized body and alternative spaces. Graded on A-F basis only. May be repeated up to 9 hours maximum.

**Credit Hours:** 3

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**ARTGE\_VS 4975: Senior Seminar in Art**

A capstone course for the undergraduate art degree with emphasis on the production of a written statement relating to the students' visual research.

**Credit Hours:** 3

**Prerequisites:** senior standing and ENGLISH 1000

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**ARTGE\_VS 4975W: Senior Seminar in Art - Writing Intensive**

A capstone course for the undergraduate art degree with emphasis on the production of a written statement relating to the students' visual research.

**Credit Hours:** 3

**Prerequisites:** senior standing and ENGLISH 1000

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**ARTGE\_VS 4976: Design - Senior Seminar**

Capstone for undergraduate art students who are interested in graphic design. Emphasis placed on research and writing about the theory and practice of design. Students connect with Graphic Design Alumni who are working in the field of design. All students will participate in a final, formal portfolio review.

**Credit Hours:** 3

**Prerequisites:** senior standing and ENGLISH 1000

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**ARTGE\_VS 4976W: Design - Senior Seminar - Writing Intensive**

Capstone for undergraduate art students who are interested in graphic design. Emphasis placed on research and writing about the theory and practice of design. Students connect with Graphic Design Alumni who are working in the field of design. All students will participate in a final, formal portfolio review.

**Credit Hours:** 3

**Prerequisites:** senior standing and ENGLISH 1000

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**ARTGE\_VS 7000: Graduate Art - Studio Practice and Critique**

Art studio practice emphasis on individual creative expression. Course may be repeated for up to 15 credit hours. Expendable materials fee required. Graded on A-F basis only. Prerequisites: Graduate Art Major

**Credit Hours:** 3

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**ARTGE\_VS 7001: Topics in Art**

Special studies in studio art at the graduate level; covers subjects not included in regularly offered courses. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARTGE\_VS 7005: Topics in Art - Humanities**

Special studies in graduate level studio art; covers subjects not included in regularly offered courses. Topics courses are repeatable for up to 6 credits per individual topics.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ARTGE\_VS 7020: International Summer Study Abroad in Art**

A three-week study abroad in studio art with required participation in scheduled excursions to art-related sites. Students create original art for review at schedule critiques in The Netherlands. May be repeated once for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** consent of the instructor

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**ARTGE\_VS 7030: Video Art and the Moving Image**

(cross-leveled with ARTGE\_VS 4030). Video as a fine art form intersecting with sculpture, experimental filmmaking, DIY and Internet culture. Theoretical and historical knowledge is integrated with studio practice. Students create video works in Adobe Premiere Pro, demonstrating technical ability and aesthetic vision. May be repeated up to 9 hours maximum.

**Credit Hours:** 3

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**ARTGE\_VS 7050: Performance Art**

(cross-leveled with ARTGe\_VS 4050) This studio art course will survey the practices in Performance Art and its intersections with visual and media-based art, experimental theater, music and dance. Modules will include performance and: the object, culture, the mediatized body body, culture and alternative spaces. Graded on A-F basis only.

**Credit Hours:** 3

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**ARTGE\_VS 7085: Problems in Art**

Individual study in a subject area to be proposed by the student and approved by the instructor. The student will meet periodically on a regular basis with the instructor to review progress on the work assigned. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** for students with strong preparation in Art; departmental consent

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**ARTGE\_VS 8000: Graduate Art - Advanced Studio Practice and Critique**

Continuation of ARTGE\_VS 7000. Art studio practice with emphasis on individual creative expression. Course may be repeated for up to 15 credit hours. Expendable materials fee required. Graded on A-F basis only. Prerequisites: Graduate Art Major

**Credit Hours:** 3

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**ARTGE\_VS 8001: Topics in Art**

Special studies in graduate level studio art; covers subjects not included in regularly offered courses. Topics courses are repeatable for up to 6 credits per individual topic.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ARTGE\_VS 8070: Graduate Art - Theory and Context**

Contextualizing artwork in culture, history, and theory. May be repeated up to 18 hours for credit. Graded on A-F basis only

**Credit Hours:** 3

**Prerequisites:** Graduate Art standing

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**ARTGE\_VS 8090: MFA Thesis Exhibition Documentation**

Preparation of materials deemed necessary to document in a permanent form the thesis exhibition. Credit will be granted upon the satisfactory completion of the document, which will be retained by the Department of Art. Required of all MFA candidates. Graded on S/U basis only.

**Credit Hour:** 1

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**ARTGE\_VS 9010: Graduate Studio Seminar**

Practical and philosophical concerns of the visual artist. Mandated for all MFA candidates.

**Credit Hours:** 2

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**Art Graphic Design - Visual Studies Courses**

**ARTGD\_VS 1400: Beginning Digital Imaging**

Class will cover the basic tools used in digital imaging software. A variety of different software may be offered. Course may be repeated for up to 3 hours with the consent of instructor. Graded on S/U basis only.

**Credit Hour:** 1

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**ARTGD\_VS 2400: Advanced Digital Imaging**

Class will cover the basic tools used in digital imaging software. A variety of different software may be offered. Course may be repeated for up to 3 hours with the consent of instructor. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** ARTGD\_VS 1400

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**ARTGD\_VS 2410: Graphic Design I**

Emphasis on developing a design language and vocabulary. Projects explore visual images in two-dimensional space, each one focusing on a specific set of relationships. Introduction to methodological and research practices for designers. Course concludes with portfolio review for admission to ARTGD\_VS2420 and further Graphic Design Courses. Payment of expendable materials fee is required.

**Credit Hours:** 3

**Prerequisites:** ARTGE\_VS 1030, ARTDR\_VS 1050

**Recommended:** ARTGE\_VS 1040

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**ARTGD\_VS 2420: Graphic Design II**

Introduction to the discipline, function and tradition of typography. Topics include communication, text intensive documents, legibility/readability, movement, language sequence and information hierarchy. Payment of expendable materials fee is required. Enrollment is limited to students who have completed ARTGD\_VS 2410 and successful completion of the graphic design portfolio review.

**Credit Hours:** 3

**Prerequisites:** consent of instructor

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**ARTGD\_VS 2430: Calligraphy and Hand Lettering**

Technical and historical instruction on several calligraphic alphabets. Application of hand lettering to both two and three-dimensional design projects. Emphasis placed on both technical mastery of letters, development of personal style and creative expression in projects.

**Credit Hours:** 3

**Prerequisites:** ARTGE\_VS 1030, ARTDR\_VS 1050 or instructor's consent

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**ARTGD\_VS 2440: Basic Design and Visual Communications**

This course is a hands-on course that utilizes lectures, readings, exercises and projects to help non-majors explore graphic design and improve their ability to communicate using design. Students will be introduced to topics including graphic design in society, visual hierarchy,

grid, typography, color theory, image usage, UI, UX, digital platforms and organizing principles of design. This course is intended for students who have an interest in design but do not plan on becoming practicing designers, there are no prerequisites.

**Credit Hours:** 3

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**ARTGD\_VS 3410: Graphic Design III**

Digital media and motion graphics are explored through the development of interactive presentations and web site design. Students experiment with the computer as a medium for delivery of communication. New, practical and conceptual skills will be discussed in order to develop meaningful, interactive user experiences. Payment of expendable materials fees is required.

**Credit Hours:** 3

**Prerequisites:** ARTGD\_VS 2420

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**ARTGD\_VS 3430: Advanced Calligraphy and Hand Lettering**

Continuation of ARTGD\_VS 2430. Students will expand their skills including study of more complex alphabets and further their personal style. Emphasis placed on both mastery of letters and creative exploration in projects. Repeatable to 6 credits.

**Credit Hours:** 3

**Prerequisites:** ARTGD\_VS 2430

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**ARTGD\_VS 3440: Packaging Design**

This course will look at the discipline of packaging design from a three-dimensional perspective. By gaining an understanding of the materials and processes that relate to packaging, students will develop a selection of packaging solutions for a variety of different clients. Payment of expendable material fee is required. Repeatable to 6 credits.

**Credit Hours:** 3

**Prerequisites:** ARTGD\_VS 3410

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**ARTGD\_VS 3441: The History of Graphic Design**

Broad overview of the history of graphic design. Topics will range from the history of printing, the beginnings of the profession, major movements and developments to the practice of design. Also looks at how the history of design and printing apply to today's visual communication.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARTGD\_VS 3442: Design for Corporate Identity and Branding**

Planning, strategy, and design of the visual components necessary to create a corporate identity. Course will focus on how cohesive design programs function across various mediums and engage specific audiences. Payment of expendable materials fees is required. Repeatable to 6 credits.

**Credit Hours:** 3

**Prerequisites:** ARTGD\_VS 3410

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**ARTGD\_VS 3443: Letterpress**

This course is about creating conceptual design solutions using the letterpress printing process. Projects are very broad, conceptual and highly individual with the opportunity to explore letterpress printing

processes using several different presses and printing techniques. Each project will require a limited edition print run. Repeatable to 9 hours.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**ARTGD\_VS 4400: Graphic Design IV**

Goal directed graphic design problem solving stressing the integration of theory and practical applications while sharpening conceptual, computer, and research skills. Topics include current design theory, advanced typographic study, production methods and design/client interaction. Payment of expendable materials fee is required.

**Credit Hours:** 3

**Prerequisites:** ARTGD\_VS 3410

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**ARTGD\_VS 4410: Graphic Design V**

Directed research, study and critical analysis in graphic design. Emphasis placed on research, writing, problem solving, aesthetic perception, conceptual thinking skills and technical proficiency. Students will focus on portfolio preparation and are advised to take the course a minimum of two times. May be repeated to 15 hours maximum. Payment of expendable materials fee is required.

**Credit Hours:** 3

**Prerequisites:** ARTGD\_VS 3420

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**ARTGD\_VS 4485: Problems in Graphic Design**

Problems in Graphic Design.

**Credit Hour:** 1-3

**Prerequisites:** nstructor's consent required

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**ARTGD\_VS 7400: Graduate Graphic Design**

Graduate level work in graphic design. Emphasis on self-directed research and critical analysis. Students are encouraged to focus on conceptual development of their design work. Instruction is tailored to the student's individual investigations. Repeatable to 15 hours maximum.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARTGD\_VS 7485: Problems in Graphic Design**

Graduate level work in graphic design.

**Credit Hour:** 1-3

**Prerequisites:** ARTGD\_VS 4410 and departmental consent

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**ARTGD\_VS 8400: Graduate Graphic Design II**

Continuation of ARTGD\_VS 7400. Repeatable to 15 hours.

**Credit Hours:** 3

**Prerequisites:** ARTGD\_VS 7400 or equivalent

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## Art History - Visual Studies Courses

**ARH\_VS 1005: Undergraduate Topics in Visual Studies - Art History - Humanities**

Special studies in Visual Studies - Art History.

**Credit Hour:** 1

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**ARH\_VS 1010: Introduction to Museum of Art and Archaeology, UMC**

This course is a brief introduction to the Museum of Art and Archaeology on Francis Quadrangle. Special attention will be given to the history of the Museum, to its operation and to its collection. Guest lecturers from the from the Museum will provide first hand accounts of their contributions to the day-to-day operations of the Museum and to the academic mission of the University.

**Credit Hour:** 1

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**ARH\_VS 1020: Giotto and the Arena Chapel**

This course is a brief introduction to one of the major monuments of western art, the Area (or Scrovegni) Chapel of Giotto di Bondone. Special attention will be given to stories about him by Renaissance authors.

**Credit Hour:** 1

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**ARH\_VS 1020H: Giotto and the Arena Chapel - Honors**

This course is a brief introduction to one of the major monuments of western art, the Area (or Scrovegni) Chapel of Giotto di Bondone. Special attention will be given to stories about him by Renaissance authors.

**Credit Hour:** 1-11

**Prerequisites:** Honors eligibility required

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**ARH\_VS 1030: Early Works of Michelangelo**

This course is a brief introduction to the life and work of Michelangelo. Special attention will be given to his early works and to stories about him, especially those by Giorgio Vasari in his Lives of the Artist, Florence, 1568.

**Credit Hour:** 1

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**ARH\_VS 1040: Rembrandt**

This course is a brief introduction to the life and work of the seventeenth-century Dutch painter Rembrandt van Rijn. Special attention is give to the appreciation of his art by his contemporaries.

**Credit Hour:** 1

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**ARH\_VS 1105: Undergraduate Topics in Visual Studies - Art History - Humanities**

Special studies in Visual Studies - Art History.

**Credit Hours:** 3

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**ARH\_VS 1110: Ancient and Medieval Art**

Introductory survey of the architecture, sculpture and painting of the ancient Near East, Greece, Rome, Byzantium and Medieval Europe.

**Credit Hours:** 3

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**ARH\_VS 1110H: Ancient and Medieval Art - Honors**

Introductory survey of the architecture, sculpture and painting of the ancient Near East, Greece, Rome, Byzantium and Medieval Europe.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**ARH\_VS 1110W: Ancient and Medieval Art - Writing Intensive**

Introductory survey of the architecture, sculpture and painting of the ancient Near East, Greece, Rome, Byzantium and Medieval Europe.

**Credit Hours:** 3

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**ARH\_VS 1120: Renaissance through Modern Art**

Introductory survey of architecture, sculpture and painting of Europe and America from the Renaissance to Modern times.

**Credit Hours:** 3

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**ARH\_VS 1120H: Renaissance through Modern Art - Honors**

Introductory survey of architecture, sculpture and painting of Europe and America from the Renaissance to Modern times.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**ARH\_VS 1120W: Renaissance through Modern Art - Writing Intensive**

Introductory survey of architecture, sculpture and painting of Europe and America from the Renaissance to Modern times.

**Credit Hours:** 3

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**ARH\_VS 1130: Introduction to the History of Art**

Introduction to the history of art, including a survey of major historical eras and global contexts, discussion of prominent works of art and methods of analysis.

**Credit Hours:** 3

**Recommended:** ARTGE\_VS 1020, or its equivalent

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**ARH\_VS 1130W: Introduction to the History of Art - Writing Intensive**

Introduction to the history of art, including a survey of major historical eras and global contexts, discussion of prominent works of art and methods of analysis.

**Credit Hours:** 3

**Recommended:** ARTGE\_VS 1020, or its equivalent

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**ARH\_VS 1230: Introduction to Asian Arts**

(same as HIST 1820, REL\_ST 1820, S\_A\_ST 1152). This course is an introduction to the literature and visual arts of Asia through selected master works. It focuses principally on India and China and investigates the distinctive features of their cultures.

**Credit Hours:** 3

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**ARH\_VS 2005: Topics in Visual Studies - Art History - Humanities**

Study of special topics in Visual Studies - Art History.

**Credit Hour:** 1-3

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**ARH\_VS 2005W: Topics in Visual Studies - Art History - Humanities - Writing Intensive**

Study of special topics in Visual Studies - Art History.

**Credit Hour:** 1-3

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**ARH\_VS 2150: The Art of the Book**

Introduction to the illustrated book as a locus of artistic style, cultural currency, and visual literacy.

**Credit Hours:** 3

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**ARH\_VS 2150W: The Art of the Book - Writing Intensive**

Introduction to the illustrated book as a locus of artistic style, cultural currency, and visual literacy.

**Credit Hours:** 3

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**ARH\_VS 2720: African-American Visual Culture**

(same as BL\_STU 2720) This course introduces students to African-American art history, visual culture, and material culture in the cultural, political, and historical contexts. Specific focuses may include Harlem Renaissance, the Black Arts Movement, and other topics.

**Credit Hours:** 3

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**ARH\_VS 2720W: African-American Visual Culture - Writing Intensive**

(same as BL\_STU 2720) This course introduces students to African-American art history, visual culture, and material culture in the cultural, political, and historical contexts. Specific focuses may include Harlem Renaissance, the Black Arts Movement, and other topics.

**Credit Hours:** 3

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**ARH\_VS 2830: American Art and Architecture**

Architecture, sculpture, painting of America from 17th century to present day.

**Credit Hours:** 3

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**ARH\_VS 2830W: American Art and Architecture - Writing Intensive**

Architecture, sculpture, painting of America from 17th century to present day.

**Credit Hours:** 3

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**ARH\_VS 2850: Introduction to Visual Culture**

Introduction to the problems of understanding, analyzing, and writing about visual culture.

**Credit Hours:** 3

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**ARH\_VS 2850H: Introduction to Visual Culture - Honors**

Introduction to the problems of understanding, analyzing, and writing about visual culture.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**ARH\_VS 2850HW: Introduction to Visual Culture - Honors/Writing Intensive**

Introduction to the problems of understanding, analyzing, and writing about visual culture.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**ARH\_VS 2850W: Introduction to Visual Culture - Writing Intensive**

Introduction to the problems of understanding, analyzing, and writing about visual culture.

**Credit Hours:** 3

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**ARH\_VS 2860: The Lives of Objects**

Introduction to the problems of understanding, analyzing and writing about decorative arts, design history, and material culture.

**Credit Hours:** 3

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**ARH\_VS 2860W: The Lives of Objects - Writing Intensive**

Introduction to the problems of understanding, analyzing and writing about decorative arts, design history, and material culture.

**Credit Hours:** 3

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**ARH\_VS 2960: Special Readings in Visual Studies - Art History**

Independent readings and research selected in consultation with supervisory faculty.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ARH\_VS 3005: Topics in Visual Studies - Art History**

Selected studies in various facets of a Visual Studies - Art History.

**Credit Hour:** 1-3

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**ARH\_VS 3005H: Topics in Visual Studies - Art History- Humanities - Honors**

Selected studies in various facets of Visual Studies - Art History. Enrollment limited to students with Honor's eligibility.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ARH\_VS 3530: Late Medieval Art**

General survey of European art and architecture from the 11th through the 14th centuries.

**Credit Hours:** 3

**Recommended:** ARH\_VS 1110 or equivalent

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**ARH\_VS 3530W: Late Medieval Art - Writing Intensive**

General survey of European art and architecture from the 11th through the 14th centuries.

**Credit Hours:** 3

**Recommended:** ARH\_VS 1110 or equivalent

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**ARH\_VS 3620: Italian Renaissance Art**

General survey of the architecture, painting and sculpture of Italy from the 14th through the 16th century.

**Credit Hours:** 3

**Recommended:** ARH\_VS 1110 or ARH\_VS 1120 or equivalent

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**ARH\_VS 3630: Northern Renaissance Art**

General survey of northern European art and architecture from the late 14th through the late 16th century.

**Credit Hours:** 3

**Recommended:** ARH\_VS 1120 or equivalent

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**ARH\_VS 3630W: Northern Renaissance Art - Writing Intensive**

General survey of northern European art and architecture from the late 14th through the late 16th century.

**Credit Hours:** 3

**Recommended:** ARH\_VS 1120 or equivalent

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**ARH\_VS 3640: Baroque Art**

General survey of 17th century European architecture, painting and sculpture.

**Credit Hours:** 3

**Recommended:** ARH\_VS 1120 or equivalent

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**ARH\_VS 3720: Cities in the Western Imagination**

Interdisciplinary introduction to the forms, functions, and meanings of cities in Europe and the Americas from ancient to modern times; plans and predictions for the future also considered. Emphasis is placed on cities as fields for imaginative activity on the part of those who have designed, built, used, and interpreted them.

**Credit Hours:** 3

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**ARH\_VS 3730: Eighteenth Century European Art**

General survey of 18th-century European painting, sculpture and architecture.

**Credit Hours:** 3

**Recommended:** ARH\_VS 1120 or equivalent

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**ARH\_VS 3730W: Eighteenth Century European Art - Writing Intensive**

General survey of 18th-century European painting, sculpture and architecture.

**Credit Hours:** 3

**Recommended:** ARH\_VS 1120 or equivalent

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**ARH\_VS 3740: Nineteenth-Century European Art**

General survey of 19th-century European painting, sculpture and architecture.

**Credit Hours:** 3

**Recommended:** ARH\_VS 1120 or equivalent

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**ARH\_VS 3740W: Nineteenth-Century European Art - Writing Intensive**

General survey of 19th-century European painting, sculpture and architecture.

**Credit Hours:** 3

**Recommended:** ARH\_VS 1120 or equivalent

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**ARH\_VS 3750: Modern Art in Europe and America**

General survey of international directions in painting, sculpture, and architecture from 1885 to ca. 1940.

**Credit Hours:** 3



**Recommended:** ARH\_VS 1120 or equivalent

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**ARH\_VS 3760: Contemporary Art**

General survey of painting, sculpture, and architecture from the Second World War to the present.

**Credit Hours:** 3

**Recommended:** ARH\_VS 1120 or equivalent

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**ARH\_VS 3780: Architecture in Film**

(same as FILMS\_VS 3780) Filmmakers use architecture to convey meaning on symbolic, psychological, and ideological levels. Using architectural history and theory, in conjunction with weekly film screenings from a variety of genres, this course explores how architecture operates within film.

**Credit Hours:** 3

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**ARH\_VS 3785: Arts and Artists on Film**

(same as FILMS\_VS 3785) This course explores representations of art and artists in film, including documentary films, fictionalized films, and films made by artists.

**Credit Hours:** 3

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**ARH\_VS 3790: Indian Cinema**

1(same as ANTHRO 3490, S\_A\_ST 3490, FILMS\_VS 3490). Indian Cinema provides an overview of the key genres and themes of Indian film, including Bollywood, art cinema/parallel cinema, Indian regional cinemas, and diasporan cinema. The course combines film studies, anthropological, historical, and visual culture analyses to provide a holistic view of Indian culture and society through cinema.

**Credit Hours:** 3

**Recommended:** Sophomore standing or higher

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**ARH\_VS 3830: American Art and Culture, 1500-1820**

General survey of American visual culture - painting, sculpture, architecture-between 1500 and 1820.

**Credit Hours:** 3

**Recommended:** ARH\_VS 1120 or equivalent

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**ARH\_VS 3840: American Art and Culture, 1820-1913**

General survey of American visual culture - painting, sculpture, architecture, photography - between 1820-1913.

**Credit Hours:** 3

**Recommended:** ARH\_VS 1120 or ARH\_VS 2830 or equivalent

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**ARH\_VS 3850: American Art and Culture, 1913-Present**

General survey of American visual culture - painting, sculpture, architecture, photography, advertising, film, new media - between 1913 and the present.

**Credit Hours:** 3

**Recommended:** ARH\_VS 1120 or ARH\_VS 2830 or equivalent

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**ARH\_VS 4005: Topics in Visual Studies - Art History-Humanities**

Special studies in art history/archaeology; covers subjects not included in regularly offered courses.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ARH\_VS 4120: Gender and the Arts**

(same as WGST 4120; cross-leveled with WGST 7120, VS\_ARH 7120). Exploration of the relationship between the visual arts and constructions of gender and sexuality in selected eras.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 4160: Global Encounters in Art History**

(cross-leveled with ARH\_VS 7160). This course explores art created as a result of contact between geographical regions across the globe. It contributes to the project of globalizing art history, namely reorienting art history's traditionally Euro-American focus to an approach that involves cultures from diverse regions of the world.

**Credit Hours:** 3

**Prerequisites:** ARH\_VS 1110, ARH\_VS 1120, ARH\_VS 1130 or consent of instructor

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**ARH\_VS 4530: Romanesque Art and Architecture**

(cross-leveled with ARH\_VS 7530). Exploration of topics in the art and architecture of Europe from the 10th through the 12th centuries.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 4540: Gothic Art and Architecture**

(cross-leveled with ARH\_VS 7540). Exploration of topics in the art and architecture of the 12th through the 14th century.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 4630: The Renaissance Artist**

(cross-leveled with VS\_ARH 7630). Lectures, readings, discussions and a research paper related to the Renaissance artist. Focus will be on representations of the artist in art and literature from ca. 1300 to ca. 1650.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 4640: Renaissance and Baroque Architecture**

(cross-leveled with ARH\_VS 7640). Problems in European architectural history from the 15th through the 18th century.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 4650: Venetian Painting**

(cross-leveled with ARH\_VS 7650). Survey of Venetian Painting from the 14th through the 18th century.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 4660: Art and Ideas in the Northern Renaissance**

(cross-leveled with ARH\_VS 7660). Discussion of selected topics in painting and sculpture and their artistic and cultural relationships from the 14th through the 16th century in northern Europe.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 4710: The Arts of the Rococo**

(cross-leveled with ARH\_VS 7710). This course explores European Art from approximately 1710 to 1770, focusing on art associated with two different social sectors: The early modern aristocratic court culture whose artistic predilections had formed the European norm, and the increasingly powerful merchant classes whose newfound wealth enabled new artistic genres and styles to proliferate. Our inquiry begins with an exploration of the rococo as an ornamental style; we examine its origins in Italian garden architecture and subsequent transformation into a decoration for both French palatial interiors and German Churches. We then launch a succession of case studies of important artists, media, and objects in order to assess the varied ways that diverse social identities were deflected through the periods' art an architecture. Students will pursue a research topic on rococo art for their semester project.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 4720: Revolution and Romanticism: Art C. 1800**

(cross-leveled with ARH\_VS 7720). This course examines European art from circa 1780 to 1820, focusing on art made in conjunction with the major events of the French Revolution, its aftermath, and its global repercussions. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 4740: Modern Architecture**

(cross-leveled with ARH\_VS 7740). Problems in the history of architecture from the late 18th century to the present.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 4750: Contemporary World Architecture**

(cross-leveled with ARH\_VS 7750). This course will study key themes, events, and figures in architectural theory and practice from around the world since the 1960s. As with any course treating such a large body of material, this one will be selective topical rather than comprehensive in nature. The format will include lectures, discussions based on reading, writing, and research assignments, films, and field trips. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 4760: Modern Sculpture**

(cross-leveled with ARH\_VS 7760). Sculpture in Europe and the U.S. ca. 1880 to the present, with special emphasis on changing definitions of the medium.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 4780: Advanced Course in Contemporary Art**

(cross-leveled with ARH\_VS 7780). Topics in European and American painting and sculpture after 1950.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 4820: American Material Culture**

(cross-leveled with ARH\_VS 7820). An exploration of American material culture from a multidisciplinary perspective.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 4840: American Architecture**

(cross-leveled with ARH\_VS 7840). An exploration of architecture and urbanism from the colonial period to the present.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 4960: Special Readings in Visual Studies - Art History**

Independent readings and research selected in consultation with supervisory faculty.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ARH\_VS 4970: Capstone: Visual Studies - Art History**

Students will write an expanded, guided research paper. The Capstone student will consult on a regular basis with the professor responsible for the course and will make an oral presentation of the paper in the course. Must be taken in conjunction with a 4000-level Art History and Archaeology course.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**ARH\_VS 4980: Internship**

A one-semester or full summer intensive internship for departmental majors with specific projects and responsibilities to be arranged by the student in cooperation with a faculty member and an appropriate agent of the museum involved. May be taken as an elective only. May be repeated for a maximum of 6 hours credit.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 4996: Honors Proseminar I**

Research methods, bibliography, use and criticism of source material.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 4999: Honors Reading and Research I**

Individual research projects in preparation of senior thesis.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 7005: Topics in Visual Studies - Art History**

Special studies in Visual Studies - Art History; covers subjects not included in regularly offered courses.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ARH\_VS 7120: Gender and the Arts**

(same as WGST 7120; cross-leveled with WGST 4120, ARH\_VS 4120). Exploration of the relationship between the visual arts and constructions of gender and sexuality in selected eras.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 7130: Museum Studies**

Functions and history of museums and interrelations among departments, including those of director, curator, registrar, education, conservation, and marketing. Topics include acquisitions policies; public outreach; role of architecture; and philosophical and legal issues pertaining to administration of museums.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 7160: Global Encounters in Art History**

(cross-leveled with ARH\_VS 4160). This course explores art created as a result of contact between geographical regions across the globe. It contributes to the project of globalizing art history, namely reorienting art history's traditionally Euro-American focus to an approach that involves cultures from diverse regions of the world.

**Credit Hours:** 3

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**ARH\_VS 7170: Historic Preservation**

(same as HIST 7450; cross-leveled with HIST 4540). Survey of the historic preservation movement and techniques by faculty and guest speakers active in the field.

**Credit Hour:** 3-9

**Prerequisites:** instructor's consent

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**ARH\_VS 7530: Romanesque Art and Architecture**

(cross-leveled with VS\_ARH 4530). Exploration of topics in the art and architecture of Europe from the 10th through the 12th centuries.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 7540: Gothic Art and Architecture**

(cross-leveled with VS\_ARH 4540). Exploration of topics in the art and architecture of the 12th through the 14th century.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 7630: The Renaissance Artist**

(cross-leveled with VS\_ARH 4630). Lectures, readings, discussions and a research paper related to the Renaissance artist. Focus will be on representations of the artist in art and literature from ca. 1300 to ca. 1650.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 7640: Renaissance and Baroque Architecture**

(cross-leveled with VS\_ARH 4640). Problems in European architectural history from the 15th through the 18th century.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**ARH\_VS 7650: Venetian Painting**

(cross-leveled with VS\_ARH 4650). Survey of Venetian painting from the 14th through the 18th century.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 7660: Art and Ideas in the Northern Renaissance**

(cross-leveled with VS\_ARH 4660). Discussion of selected topics in painting and sculpture and their artistic and cultural relationships from the 14th through the 16th century in northern Europe.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 7670: Baroque Figural Arts**

(cross-leveled with VS\_ARH 4670). Painting and sculpture of Italy in the 17th century.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 7710: The Arts of the Rococo**

(cross-leveled with VS\_ARH 4710). This course explores European art from 1710 to 1770, beginning with an exploration of the rococo as an ornamental language and then moving to case studies of artists, media, and objects in order to assess how social identities were expressed through design.

**Credit Hours:** 3

**Prerequisites:** VS\_ARH 8110 and instructor's consent

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**ARH\_VS 7720: Revolution and Romanticism: Art Circa 1800**

(cross-leveled with VS\_ARH 4720). This course examines European art from circa 1780 to 1820, focusing on art made in conjunction with the major events of the French Revolution, its aftermath, and its global repercussions.

**Credit Hours:** 3

**Prerequisites:** VS\_ARH 8110 and instructor's consent

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**ARH\_VS 7730: Realism Through Post-Impressionism**

(cross-leveled with VS\_ARH 4730). Styles and issues in nineteenth-century art.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 7740: Modern Architecture**

(cross-leveled with VS\_ARH 4740). Problems in the history of architecture from the late 18th century to the present.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 7750: Contemporary World Architecture**

(cross-leveled with VS\_ARH 4750). This course will study key themes, events, and figures in architectural theory and practice from around the world since the 1960s. As with any course treating such a large body of material, this one will be selective, topical rather than comprehensive in nature. The format will include lectures, discussions based on reading, writing, and research assignments, films and field trips. Graded A-F only.

**Credit Hours:** 3

**Prerequisites:** VS\_ARH 1120 and instructor's consent

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**ARH\_VS 7760: Modern Sculpture**

(cross-leveled with VS\_ARH 4760). Sculpture in Europe and the U.S. ca. 1880 to the present, with special emphasis on changing definitions of the medium.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**ARH\_VS 7780: Advanced Course in Contemporary Art**

(cross-leveled with ARH\_VS 4780). Topics in European and American painting and sculpture after 1950.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 7820: American Material Culture**

(cross-leveled with VS\_ARH 4820). An exploration of American material culture from a multidisciplinary perspective.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 7840: American Architecture**

(cross-leveled with VS\_ARH 4840). An exploration of architecture from the colonial period to the present.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 7960: Special Readings in Art History or Archaeology**

Independent readings and research selected in consultation with supervisory faculty.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ARH\_VS 7980: Internship in Art History and Archaeology**

A one semester or full summer intensive internship with specific projects and responsibilities to be arranged by the student and the program director.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 8070: Master's Tutorial**

Consultation with faculty advisory and preparation of a scholarly essay based on a graduate research paper. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** VS\_ARH 8110, and other graduate courses in Art History & Archaeology

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**ARH\_VS 8080: Readings for MA Thesis in Art History and Archaeology**

Reading, critical evaluation of literature of special fields of art history and/or archaeology.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ARH\_VS 8090: Master's Thesis Research and Thesis**

Individual research leading to preparation of the M.A. thesis Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ARH\_VS 8110: Introduction to Graduate Study**

Research methods, bibliography, use and criticism of source material. Required of graduate students in Art History and Archaeology who have not had VS\_ARH 4996.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**ARH\_VS 8120: Theories and Methodologies in Art History and Archaeology**

Literature of art and archaeology in terms of works of leading European and American art historians, archaeologists.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 8130: Museum Studies Seminar**

Appropriate means for care and display of artifacts. Topics include: accessioning, cataloging, retrieval of information, and laws and ethics of collecting; the museum environment and its monitoring; condition reports, shipping and storage, and conservation. Field trips.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 8170: Historic Preservation Seminar**

Research techniques to solve research problems and conduct field recording in historic preservation, material culture, historic architecture, and cultural heritage studies.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 8520: Seminar in Medieval Art and Archaeology**

Specific subjects of study will be assigned to students for presentation in relation to broader questions of the cultural/ historical phenomena of the time, from ca 700 to ca 1400.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ARH\_VS 8620: Seminar in Renaissance Art**

Special subjects of study assigned for Northern or Southern Renaissance for individual research, discussion of reports by seminar members.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 8710: Seminar in 18th Century Art**

Special subjects of study in 18th century art assigned for individual research; reports to be presented and discussed by seminar members.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ARH\_VS 8750: Seminar in Modern and Contemporary Art**

Special subjects of study assigned for individual research; discussion of reports by seminar members.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ARH\_VS 8800: Seminar in American Art**

Special subjects of study assigned for individual research; discussion of reports by seminar members.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ARH\_VS 9080: Readings for PhD Dissertation in Art History and Archaeology**

Reading, critical evaluation of literature of special fields of art history and/or archaeology.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ARH\_VS 9090: Doctoral Dissertation Research in Art History**

Individual research leading to preparation of the Ph.D. dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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## Art Painting - Visual Studies Courses

**ARTPA\_VS 2500: Beginning Painting**

Introduces primary techniques of painting. Emphasis on conceptualization of visual perception (understanding how we see) and the creative processes (understanding how we create). Sections either in oil or acrylic; contact instructor. Expendable material fee required.

**Credit Hours:** 3

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**ARTPA\_VS 2510: Beginning Watercolor Painting**

Theory, practice of painting in water color from still life, landscape, figure. Expendable materials fee required.

**Credit Hours:** 3

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**ARTPA\_VS 3500: Intermediate Painting**

This is course provides a bridge between beginning and advanced painting. Student work will build on the structured assignments in the

beginning course (ARTPA\_VS 2500) to the more self-directed work expected in advanced art courses. Students will develop skills and critical thinking around how to make paintings that are visually dynamic yet also conceptually interesting and innovative. This course begins the process of creating a cohesive project in painting and a body of work as a professional artist. May be repeated to 9 hours maximum. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ARTPA\_VS 2500

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**ARTPA\_VS 3510: Intermediate Watercolor Painting**

Continuation of ARTPA\_VS 2510. Theory and practice of painting in watercolor. May be repeated to 9 hours maximum. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ARTPA\_VS 2510

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**ARTPA\_VS 4500: Advanced Painting: Portfolio**

This course will provide an intensive experience in the development of a portfolio of artwork in painting. Students will explore the connections between their work and contemporary art. May be repeated to 15 hours maximum. Cross-listed with other advanced art classes so students may be working in a range of media. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ARTPA\_VS 3500

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**ARTPA\_VS 4510: Advanced Watercolor Painting**

(cross-leveled with ART\_PNT 7510). Advanced problems in watercolor. May repeat to 15 hours maximum. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ART\_PNT 3510

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**ARTPA\_VS 4585: Problems in Painting**

Problems in Painting. Enrollment limited to students who have taken ARTPA\_VS 4500.

**Credit Hour:** 1-3

**Prerequisites:** Instructor consent

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**ARTPA\_VS 7500: Graduate Painting**

Advanced study. Emphasis on individual creative expression. May repeat to 18 hours maximum. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** graduate Art major

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**ARTPA\_VS 7585: Problems in Painting**

**Credit Hour:** 1-3

**Prerequisites:** ART\_PNT 7500 and departmental consent

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**ARTPA\_VS 8500: Advanced Graduate Painting**

Continuation of ART\_PNT 7500. Repeatable to 15 hours.

**Credit Hours:** 3

**Prerequisites:** ART\_PNT 7500 or equivalent

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**ARTPA\_VS 8570: Graduate Painting - Theory and Context**

Contextualizing artwork in culture, history, and theory. Repeatable to 18 hours for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Graduate Art standing

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**ARTPA\_VS 8585: Problems in Painting II**

Advanced independent studio practice including critical evaluation of student's creative work. Individual study in painting is to be proposed by the student and approved by the instructor. The student will meet on a regular basis with the instructor to review student progress. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** For students with strong preparation in Art; departmental consent; ART\_PNT 7585

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## Art Photo - Visual Studies Courses

**ARTPH\_VS 2600: Beginning Photography**

Introduction to photography within an art context; digital workflow including use of camera, software, and digital output methods; and a survey of both contemporary and historical topics related to visual and conceptual concerns. Digital camera with RAW capability and manual aperture + shutter controls required. DSLR recommended. Payment of expendable materials fee required.

**Credit Hours:** 3

**Recommended:** ARTGE\_VS 1030, ARTGE\_VS 1040, ARTDR\_VS 1050

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**ARTPH\_VS 3600: Intermediate Photography**

Exploration of black and white film photography centering on the 4x5 inch large format camera. All camera and darkroom equipment is provided by the program. Students will learn traditional analog developing and printing as well as methods for digitizing film and large format inkjet printing from scanned negatives. Additionally, students transition to more independently conceived artwork. Payment of expendable material fee is required.

**Credit Hours:** 3

**Prerequisites:** ARTPH\_VS 2600

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**ARTPH\_VS 4600: Advanced Photography**

Advanced studio course in photography focuses on a process of production, critique, and revision. Students pursue a self-directed body of work made in direct relationship to photography's expanding definition; its past and present position within the the arts; and within the diverse landscape of imaging practices and visual culture. Payment of expendable material fee is required. May repeat up to 15 hours maximum.

**Credit Hours:** 3

**Prerequisites:** ARTPH\_VS 2600 and ARTPH\_VS 3600

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**ARTPH\_VS 4685: Problems in Photography**

Supervised research in creative photography.

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent

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**ARTPH\_VS 7600: Graduate Photography**

Advanced technical study with emphasis on development of the individual student's creative ideas. Payment of expendable materials expense is required. May repeat to 15 hours maximum.

**Credit Hours:** 3

**Prerequisites:** ART\_PHOT 3600 and consent required

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**ARTPH\_VS 7685: Problems in Photography**

Supervised research in creative photography.

**Credit Hour:** 1-3

**Prerequisites:** ART\_PHOT 4410

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**ARTPH\_VS 8600: Graduate Photography II**

Continuation of ART\_PHOT 7600. Repeatable to 15 hours.

**Credit Hours:** 3

**Prerequisites:** ART\_PHOT 7600 or equivalent

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## Art Printmaking - Visual Studies Courses

**ARTPR\_VS 2700: Introduction to Etching and Relief Printmaking**

Introduction to etching and relief printing techniques to create original works of art. Processes include copper and laser etching, linocut, woodcut, drypoint, collography, mezzotint, and color printing. This course engages concepts of originality, reproduction, pop culture and the cultural record. Expendable materials fee required.

**Credit Hours:** 3

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**ARTPR\_VS 2730: Introduction to Screen Printing**

Introduction to large format screen printing to create original works of art. Processes include CMYK reduction, photo-based screen printing, screen building and registration. Students will be exposed to an historical focus on the history of screen-printing as central to Pop Art and social critique. Expendable materials fee required.

**Credit Hours:** 3

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**ARTPR\_VS 3700: Intermediate Printmaking**

Intermediate printmaking focuses on strengthening all printmaking processes (Etching, Relief, Screen Printing, Lithography, Photo mechanics, Collagraphy and Monotype) towards an emphasis in concept, critique and portfolio building. Expendable materials fee required

**Credit Hours:** 3

**Recommended:** ART\_PRNT 2700, ART\_PRNT 2730

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**ARTPR\_VS 4700: Advanced Printmaking**

An advanced study of all printmaking processes with an emphasis in experimentation towards finalizing a fully realized fine art portfolio for a career in art. This class focuses on the refinement of all printmaking processes, critique and individual creative expression. May be repeatable to 15 hours. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ART\_PRNT 2700 or ART\_PRNT 2730 and ART\_PRNT 3700

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**ARTPR\_VS 4785: Problems in Printmaking**

An intense independent study of printmaking processes designed around the student's particular academic goals.

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent required

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**ARTPR\_VS 7700: Graduate Printmaking**

Graduate level study in all processes of printmaking with a focus on exploring thesis themes within the history and concept of print based art. May repeat to 15 hours maximum. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**ARTPR\_VS 7785: Problems in Printmaking**

An intense independent study designed around the graduate student's particular academic goals.

**Credit Hour:** 1-3

**Prerequisites:** ART\_PRNT 7700 and departmental consent

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**ARTPR\_VS 8700: Graduate Printmaking II**

Continuation of ART\_PRNT 7700. Repeatable to 15 hours.

**Credit Hours:** 3

**Prerequisites:** ART\_PRNT 7700 or equivalent

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## Art Sculpture - Visual Studies Courses

**ARTSC\_VS 2800: Beginning Sculpture**

Principles of sculptural organization, figure studies, modeling techniques, simple plaster casting. Payment of expendable materials expense is required.

**Credit Hours:** 3

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**ARTSC\_VS 2810: Experimental Media I**

Ordering and structuring materials into compositional forms, using various media, traditional as well as new. Subject matter will vary each semester.

**Credit Hours:** 3

**Prerequisites:** permission of instructor

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**ARTSC\_VS 2820: Beginning Welding And Casting**

This course is intended to foster critical thinking, creative problem solving, and cultural/visual literacy through the introduction of sculptural welding and metal casting techniques. Projects will address the sculptural methods of manipulation, addition, and substitution as well as the principles of three-dimensional design. Students will become conversant with MIG and gas welding as well as centrifugal and ceramic shell casting. The relationship of form and content will be discussed during class critiques. Graded on A-F basis only.

**Credit Hours:** 3

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**ARTSC\_VS 3800: Intermediate Sculpture**

Continuation of ART\_SCUL 2800. This course is designed to allow the student to pursue self-initiated imagery and ideas through the manipulation of mass and volume in time/space. A wide range of materials and techniques are available including the following: substitution casting (resin or bronze), subtraction (stone or wood),

manipulation (terra-cotta or plaster), addition (welding, mixed media or assemblage) and/or time (video or performance). The relationship of form and content will be discussed during class critiques.

**Credit Hours:** 3

**Prerequisites:** ART\_SCUL 2800 or ART\_SCUL 2820

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**ARTSC\_VS 4800: Advanced Sculpture**

This course will build skills acquired in ART\_SCUL 3800. Includes welding, casting, carving and assemblage with emphasis on the development of a personal visual language. May repeat to 15 hours maximum.

**Credit Hours:** 3

**Prerequisites:** ART\_SCUL 3800

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**ARTSC\_VS 4810: Experimental Media III**

Continuation of ART\_SCUL 3810. May repeat to 15 hours maximum.

**Credit Hours:** 3

**Prerequisites:** ART\_SCUL 3810

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**ARTSC\_VS 4885: Problems in Sculpture**

Problems in Sculpture.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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**ARTSC\_VS 7800: Graduate Sculpture**

Payment of expendable materials expense is required. May repeat to 15 hours maximum.

**Credit Hours:** 3

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**ARTSC\_VS 7885: Problems in Sculpture**

Problems in Sculpture.

**Credit Hour:** 1-3

**Prerequisites:** ARTSC\_VS 7800 and instructor's consent required

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**ARTSC\_VS 8800: Graduate Sculpture II**

Continuation of ARTSC\_VS 7800. Repeatable to 15 hours.

**Credit Hours:** 3

**Prerequisites:** ARTSC\_VS 7800 or instructor's consent required

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## Astronomy Courses

**ASTRON 1010: Introduction to Astronomy**

Survey of methods of astronomy; description of the solar system, stellar astronomy, structure of the galaxy and the universe. Three hours of lecture and one hour of lab per week (scheduled by the instructor). Satisfies physical science laboratory requirement. Laboratory section: Survey of astronomical methods, instruments, observations and measurement techniques.

**Credit Hours:** 4

**Recommended:** MATH 1100 or MATH 1120 or equivalent

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**ASTRON 1020: Introduction to Laboratory Astronomy**

Laboratory supplement to Astronomy 1010. Satisfies physical science laboratory requirement. Survey of astronomical methods, instruments, observations and measurement techniques.

**Credit Hours:** 2

**Recommended:** MATH 1100 or MATH 1120

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**ASTRON 1200: History of Astronomy**

Astronomy is the oldest and yet the newest science discipline that has far-reaching impact on our civilization. This course aims to provide a brief historical account of the major milestones in Astronomy that have led to our current understanding of the universe. Graded on A-F basis only.

**Credit Hours:** 3

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**ASTRON 3010: Introduction to Modern Astrophysics**

(same as PHYSCS 3010). Elements of stellar, and galactic astrophysics. Interpretation of observations and physical conditions of various astronomical objects including stars, gaseous nebulae and, galaxies.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**ASTRON 4020: Astrophysical Techniques**

(same as PHYSCS 4020; cross-leveled with PHYSCS 7020. ASTRON 7020). Elements of modern astronomical instruments, observations and analysis, with the emphasis in the optical regime. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**ASTRON 4180: Solar System Science**

(same as PHYSCS 4180, GEOL 4180; cross-leveled with GEOL 7180). Investigates physical states, interior structures and comparative geology of solar system bodies: planets, moons, asteroids, comets, sun. Solar system formation and evolution.

**Credit Hours:** 3

**Prerequisites:** ASTRON 3010

**Recommended:** MATH 1700

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**ASTRON 4210: Contributions to Science from Under-represented Groups**

(same as PHYSCS 4210; cross-leveled with ASTRON 7210, PHYSCS 7210). STEM fields are amongst the areas of human endeavor that struggle with increasing their human diversity. Teaching of science rarely discusses the contributions or marginalizations of under-represented groups. Meanwhile, many women and indigenous cultures have contributed to progress in STEM but are often not recognized. In this course we will investigate these contributions, and the lack of recognition both historically and in the present day. The aim is to provide students with a better understanding of the advantages of and challenges in inclusive, diverse science. Initially the course will use astronomy as its frame of reference because the sky was one of the earliest laboratories and consequently it has a long history with many indigenous cultures developing their own cosmologies and ways of studying the sky. As we discuss the role of Indigenous peoples, people of color, and women, we will investigate the role of power structures as well as systemic biases in the marginalization of these groups. This class will be strongly

discussion oriented, with assessment based on the development throughout the semester, of a final project. As many students will be pursuing graduate school in STEM fields, the final project will be to develop a Broader Impact statement. Many federal funding agencies request or even require that research grants include a component aimed at 'broadening participation', i.e. making STEM more inclusive and diverse. Student will work on a multipart assignment that will culminate in a Broader Impact statement - that may well be directly applicable to an NSF GRFP (Graduate Research Fellowship Program) or NSF Post-Doctoral Fellowship. In addition to the Broader Impact statement - students will give presentations and learn how to be more inclusive in their presentation design, following the principles of Inclusive Design for Learning. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760 or PHYSCS 1200 or instructors consent

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**ASTRON 4250: Stellar Astrophysics**

(same as PHYSCS 4250). Basic astrophysics of stable and unusual stars, stellar systems. Investigates stellar dimensions, radiation, spectra, energy, evolution, populations; interstellar medium, stellar motions and aggregation.

**Credit Hours:** 3

**Prerequisites:** ASTRON 3010

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**ASTRON 4350: Galactic Astronomy**

(same as PHYSCS 4350; cross-leveled with ASTRON 7350). Observational properties of normal galaxies and clusters of galaxies, Seyfert and emission-line structure and dynamics of galaxies; interacting galaxies, quasi-stellar objects. Introduction to cosmology.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**ASTRON 4360: Extragalactic Astronomy**

(same as PHYSCS 4360; cross-leveled with ASTRON 7360, PHYSCS 7360). This course introduces students to the most basic knowledge of extragalactic astronomy, starting from Milky Way and extending to the most distant universe. Topics covered will include galaxy morphology and classification, groups and clusters of galaxies, active galactic nuclei, and galaxy formation and evolution.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**ASTRON 4460: Interstellar Medium**

(same as PHYSCS 4460). The course discusses observational properties and physical and chemical processes occurring in the interstellar medium. Topics include interstellar diffuse and molecular clouds, HII regions, dust grains, interstellar chemistry, star formation, supernova remnants, and interstellar shock waves.

**Credit Hours:** 3

**Prerequisites:** ASTRON 3010

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**ASTRON 4550: Cosmochemistry**

(same as PHYSCS 4550; cross-leveled with ASTRON 7550, PHYSCS 7550). Cosmic dust, stardust, spectra, energy, interstellar medium, meteorites, astromineralogy.

**Credit Hours:** 3



**Prerequisites:** ASTRON 3010

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**ASTRON 4950: Undergraduate Research in Astronomy**

Special studies in astronomy; covers subjects not included in courses regularly offered.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ASTRON 4960: Senior Thesis in Astronomy**

Special studies for senior undergraduate students in astronomy. The course requires an oral or poster presentations, or faculty-guided writing of a senior thesis involving independent research. Departmental consent required for repetition. Enrollment limited to students who have completed 3 credit hours of ASTRON 4950 or PHYSICS 4950.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ASTRON 7020: Astrophysical Techniques**

(same as PHYSICS 7020; cross-leveled with PHYSICS 4020, ASTRON 4020). Elements of modern astronomical instruments, observations and analysis, with the emphasis in the optical regime. Graded on A-F basis only.

**Credit Hours:** 3

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**ASTRON 7180: Solar System Science**

(same as PHYSICS 7180, GEOL 7180; cross-leveled with ASTRON 4180, PHYSICS 4180, GEOL 4180). Investigates physical states, interior structures and comparative geology of solar systems bodies: planets, moons, asteroids, comets, sun. Solar system formation and evolution.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 1220 or PHYSICS 2760 or instructor's consent

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**ASTRON 7210: Contributions to Science from Under-represented Groups**

(same as PHYSICS 7210; cross-leveled with PHYSICS 4210, ASTRON 4210). STEM fields are amongst the areas of human endeavor that struggle with increasing their human diversity. Teaching of science rarely discusses the contributions or marginalizations of under-represented groups. Meanwhile, many women and indigenous cultures have contributed to progress in STEM but are often not recognized. In this course we will investigate these contributions, and the lack of recognition both historically and in the present day. The aim is to provide students with a better understanding of the advantages of and challenges in inclusive, diverse science. Initially the course will use astronomy as its frame of reference because the sky was one of the earliest laboratories and consequently it has a long history with many indigenous cultures developing their own cosmologies and ways of studying the sky. As we discuss the role of Indigenous peoples, people of color, and women, we will investigate the role of power structures as well as systemic biases in the marginalization of these groups. This class will be strongly discussion oriented, with assessment based on the development throughout the semester, of a final project. As many students will be pursuing graduate school in STEM fields, the final project will be to develop a Broader Impact statement. Many federal funding agencies request or even require that research grants include a component aimed at 'broadening participation', i.e. making STEM more inclusive and

diverse. Student will work on a multipart assignment that will culminate in a Broader Impact statement that may well be directly applicable to an NSF GRFP (Graduate Research Fellowship Program) or NSF Post-Doctoral Fellowship. In addition to the Broader Impact statement - students will give presentations and learn how to be more inclusive in their presentation design, following the principles of Inclusive Design for Learning. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 2760 or PHYSICS 1200 or instructors consent

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**ASTRON 7350: Galactic Astronomy**

(cross-leveled with PHYSICS 4350, ASTRON 4350). The course aims to introduce students to the basic knowledge of our Galaxy: how it looks like, how it might be formed, and how we have gained knowledge about it through observations. The main topics include distance measurement of stars, evolution of stars, interstellar medium, star clusters, the structure of Galaxy. The course will also briefly touch on 'Near-field Cosmology' (sometimes referred to as 'Galactic Archeology'), i.e., what we can infer from our Galaxy the general picture of galaxy formation and evolution.

**Credit Hours:** 3

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**ASTRON 7360: Extragalactic Astronomy**

(same as PHYSICS 7360; cross-leveled with ASTRON 4360, PHYSICS 4360). This course introduces students to the most basic knowledge of extragalactic astronomy, starting from Milky Way and extending to the most distant universe. Topics covered will include galaxy morphology and classification, groups and clusters of galaxies, active galactic nuclei, and galaxy formation and evolution.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 2760

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**ASTRON 7550: Cosmochemistry**

(same as PHYSICS 7550; cross-leveled with ASTRON 4550, PHYSICS 4550). Cosmic dust, stardust, spectra, energy, interstellar medium, meteorites, astromineralogy.

**Credit Hours:** 3

**Prerequisites:** ASTRON 3010

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**ASTRON 7750: Interstellar Medium**

(same as PHYSICS 7750; cross-leveled with ASTRON 4750, PHYSICS 4750). The course discusses observational properties and physical and chemical processes occurring in the interstellar medium. Topics include interstellar diffuse and molecular clouds, HII regions, dust grains, interstellar chemistry, star formation, supernova remnants, and interstellar shock waves.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 1220 or PHYSICS 2760

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**ASTRON 8550: Stellar Structure and Evolution**

(same as PHYSICS 8550). Reviews of atomic and molecular spectra. Investigates quantum radiation law, emission and absorption processes, radiation transfer theory, continuous and discrete line spectra of stars, stellar composition.

**Credit Hours:** 3

**Prerequisites:** ASTRON 4250, PHYSICS 4800, or instructor's consent

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## Athletic Training Courses

### **ATHTRN 1100: Athletic Training Skills I**

Introduction to athletic training skills. Clinical observation hours required. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to Pre-Athletic Training majors only

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### **ATHTRN 1200: Athletic Training Skills II**

Continuation of athletic training skills. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Pre-Athletic Training majors; Completion of ATHTRN 1100 with minimum grade of B-

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### **ATHTRN 2001: Topics in Athletic Training**

Organized study of selected topics in Athletic Training. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-15

**Prerequisites:** Instructor's consent

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### **ATHTRN 2100: Principles and Fundamentals of Athletic Training**

Introduces students to the common principles and fundamentals associated with the profession of athletic training. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Pre-Athletic Training majors

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### **ATHTRN 2150: Athletic Training Practicum I**

The first in a sequence of practical/clinical experiences under the direct supervision of a Preceptor. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors; ATHTRN 1100, ATHTRN 1200, and ATHTRN 2100

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### **ATHTRN 2250: Athletic Training Practicum II**

The second in a sequence of practical/clinical experiences under the direct supervision of a Preceptor. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors; Completion of ATHTRN 2150 with minimum grade of B-

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### **ATHTRN 2500: Elementary Human Anatomy**

Analysis of the structure and function of cells, tissue, and organ systems. Emphasis is placed on the muscular, skeletal, and nervous systems as they relate to human movement. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Pre-Athletic Training majors only

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### **ATHTRN 2550: Examination of Cadaveric Human Anatomy**

Study of the human body utilizing cadaver specimens. Special emphasis will be placed upon the skeletal, muscular and nervous systems. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Restricted to Athletic Training majors; Completion of ATHTRN 2500 with a minimum grade of C

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### **ATHTRN 2600: Human Physiology**

Investigation into the structure, function, physiology, and biochemistry of the cardiovascular, lymphatic, respiratory, digestive, urinary, endocrine, and reproductive systems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors only; Completion of ATHTRN 2500 with a minimum grade of C

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### **ATHTRN 3100: Mental Health in Athletic Training**

Study of psychosocial strategies, mental health referral policies and clinical application to athletic training. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors; PSYCH 1000

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### **ATHTRN 3150: Athletic Training Practicum III**

The third in a sequence of practical/clinical experiences under the direct supervision of a Preceptor. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors only; Completion of ATHTRN 2250 with a minimum grade of B-

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### **ATHTRN 3200: Therapeutic Modalities**

Study of therapeutic modalities utilized in the treatment and rehabilitation of athletic injuries. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Restricted to Athletic Training majors; Completion of ATHTRN 2250 with a minimum grade of B-

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### **ATHTRN 3250: Athletic Training Practicum IV**

The fourth in a sequence of practical/clinical experiences under the direct supervision of a Preceptor. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors; Completion of ATHTRN 3150 with a minimum grade of B-

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### **ATHTRN 3300: Injury Assessment I**

A systematic approach to injury evaluation of the lower extremity and spine. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Restricted to Athletic Training majors; Completion of ATHTRN 2100 with a minimum grade of B- and ATHTRN 2500 and ATHTRN 2550 with a minimum grade of C

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### **ATHTRN 3400: Injury Assessment II**

A systematic approach to injury evaluation of the upper extremity, spine and head. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Restricted to Athletic Training majors; Completion of ATHTRN 3300 with a minimum grade of B-

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**ATHTRN 3500: Rehabilitation of Athletic Injuries**

Study of rehabilitation principles and techniques used to return active individuals to their sport/activity. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Restricted to Athletic Training majors; Completion of ATHTRN 3200 with a minimum grade of B-

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**ATHTRN 3600: Administration of Athletic Training**

Examines the organizational and administrative aspects of Athletic Training. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors

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**ATHTRN 3800: General Medical Conditions**

Examination of illness and disease found within the athletic population. Course graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors only, Completion of ATHTRN 3150 with a minimum grade of B-

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**ATHTRN 4150: Athletic Training Practicum V**

The fifth in a sequence of practical/clinical experiences under the direct supervision of a Preceptor. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors; Completion of ATHTRN 3250 with a minimum grade of B-

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**ATHTRN 4250: Athletic Training Practicum VI**

The sixth in a sequence of practical/clinical experiences under the direct supervision of a Preceptor. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors; Completion of ATHTRN 4150 with a minimum grade of B-

---

**ATHTRN 4500: Nutrition for Athletic Performance and Rehabilitation**

Nutritional study examining how nutrition impacts sports performance. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors; PH\_THR 4420

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**ATHTRN 4800: Medical Diagnostics and Procedures in Athletic Training**

Study of advanced medical and clinical athletic training skills. Emphasis is placed on diagnostic testing and procedural skills used in medical and athletic training facilities. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic training majors; Completion of ATHTRN 4150 with a minimum grade of B-

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**ATHTRN 4970: Seminar in Athletic Training**

Capstone senior athletic training course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors; Completion of ATHTRN 3250 with a minimum grade of B-

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**ATHTRN 4970W: Seminar in Athletic Training - Writing Intensive**

Capstone senior athletic training course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors; Completion of ATHTRN 3250 with a minimum grade of B-

---

**ATHTRN 7110: Examination of Cadaveric Human Anatomy**

Study of the human body utilizing cadaver specimens. This course will have didactic work as well as laboratory work in the School of Medicine Anatomy Lab. Special emphasis will be placed up on the skeletal, muscular and nervous systems. Graded on an A-F basis.

**Credit Hours:** 4

**Prerequisites:** Admission into the Graduate Athletic Training Program

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**ATHTRN 7120: Introduction to Athletic Training Practice**

This course provides a foundation for understanding professional development as students evolve into athletic training practitioners. Students are provided an introduction to professional associations, legislative processes affecting athletic training practice, and requirements for initial and ongoing professional certification, and licensure. It will include an introduction to health care practice and how the profession of athletic training integrates into patient care. Included are basic psychomotor skills of athletic training required for prevention and management of injury. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Admission into the graduate athletic training program

---

**ATHTRN 7130: Scientific Foundations of Therapeutic Interventions**

This course will introduce students to theories of pain modulation, physiologic effects of physical trauma and the healing process, and the effect inflammation has on quality of life. Students will develop introductory rehabilitation practices with the goals of therapeutic intervention. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Admission to the Athletic Training Program

---

**ATHTRN 7210: Clinical Experience I**

The first in a sequence of clinical experiences under the direct supervision of a preceptor to further advance clinical skills and understand the practice of athletic training. This experience will occur at a traditional (college or secondary school) clinical site. Graded on S/U basis only.

**Credit Hours:** 4

**Prerequisites:** Meet all Athletic Training Program retention requirements as detailed in the Athletic Training Program Handbook

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**ATHTRN 7220: Assessment and Management in Athletic Training I**

This course will focus on a systematic approach to injury evaluation, assessment, and diagnosis. Examination techniques for a variety of injuries and conditions will be explored using both patient based and clinician based measures. Additionally, evidence-based injury management strategies and therapeutic interventions will be discussed in relation to the treatment and rehabilitation of various conditions. This course will also focus on a patient-centered care approach to the

assessment and management of athletic injury. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites:** Meet all Athletic Training Program retention requirements as detailed in the Athletic Training Program Handbook

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#### **ATHTRN 7230: Emergency Management**

This course will prepare students in the acute evaluation, recognition, and management of emergent and life threatening injury and illness. An emphasis will be placed on preventing catastrophic injury and sudden death during activity. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Meet all Athletic Training Program retention requirements as detailed in the Athletic Training Program Handbook

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#### **ATHTRN 7240: Evidence Based Practice In Health Care**

In this course, the student will learn the importance of integrating scientific evidence into clinical decision-making. This course applies evidence-based practice concepts, including literature appraisal, to clinical scenarios and patient populations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Meet all program retention requirements as detailed in the Athletic Training Program Handbook

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#### **ATHTRN 7340: Health and Wellness Across the Lifespan**

This course will introduce students to the adaptations of the human body to mental and physical interventions to improve the well-being of the physically active across the lifespan. Graded on an A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Meet all program retention requirements as detailed in the Athletic Training Program Handbook

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### **Atmospheric Science Courses**

#### **ATM\_SC 1050: Introductory Meteorology**

(same as GEOG 1050). Physical processes of atmosphere in relation to day-to-day changes in weather.

**Credit Hours:** 3

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#### **ATM\_SC 1050H: Introductory Meteorology - Honors**

(same as GEOG 1050H). Physical processes of atmosphere in relation to day-to-day changes in weather.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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#### **ATM\_SC 2150: Natural Hazards**

A survey of natural hazards, including severe thunderstorms, tornadoes, flooding, tropical storms, ocean movements, earthquakes, tsunamis, volcanoes, asteroids, solar weather, managing risk and human impacts. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 1050 or equivalent, or instructor's consent

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#### **ATM\_SC 2720: Weather Briefing**

Student participation in daily discussions of current weather patterns and forecasts and their applications to weather sensitive activities including aviation, agriculture and industry.

**Credit Hours:** 2

**Prerequisites:** ATM\_SC 1050

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#### **ATM\_SC 2792: Weather Communication**

Methods of surface and upper air weather observation. How such data are distributed to users in the meteorological community is also addressed.

**Credit Hour:** 1

**Prerequisites:** ATM\_SC 1050; sophomore standing

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#### **ATM\_SC 3000: Independent Study in Atmospheric Science**

Independent study of a topic dealing with meteorological theory or application of meteorological science to the solution of relevant problem.

**Credit Hour:** 1-3

**Prerequisites:** ATM\_SC 1050

**Recommended:** Upper level standing

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#### **ATM\_SC 3600: Climates of the World**

(same as GEOG 3600). A study of the world distribution of climates based on 'cause and effect' relationships. Special attention is given to the impacts of climate on humanity.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 1050 or graduate standing

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#### **ATM\_SC 4001: Topics in Atmospheric Science**

Development of theory and applications for selected topics in atmospheric science.

**Credit Hour:** 1-99

**Prerequisites:** junior standing and instructor's consent

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#### **ATM\_SC 4110: Broadcast Meteorology I**

An introduction to broadcast meteorology including the business of media, use of meteorological data to produce a forecast, and television and radio presentation skills. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** ATM\_SC 1050, ATM\_SC 2720, or equivalents

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#### **ATM\_SC 4310: Atmospheric Thermodynamics**

(cross-leveled with ATM\_SC 7310). Thermodynamics of dry and moist air, atmospheric hydrostatics, convection, and development of the fundamental equations of geophysical fluid dynamics.

**Credit Hours:** 4

**Prerequisites:** ATM\_SC 1050, MATH 1700 (C or better), and one physics course

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#### **ATM\_SC 4320: Atmospheric Dynamics**

(cross-leveled with ATM\_SC 7320). Dynamics and kinematics of atmospheric flow. Manipulation of fundamental equations, numerical modeling of atmosphere.

**Credit Hours:** 4

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**Prerequisites:** ATM\_SC 4310 or ATM\_SC 7310

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**ATM\_SC 4350: Mesoscale Meteorology and Dynamics**

(cross-leveled with ATM\_SC 7350). Survey of mesoscale phenomena, observing systems, analysis techniques, and modeling. Topics include fronts, jet streaks, gravity waves, organized convection, tornadoes, and severe local storm forecasting and structure.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4720 or ATM\_SC 7720 and MATH 2300

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**ATM\_SC 4400: Micrometeorology**

(cross-leveled with ATM\_SC 7400). Study of transport processes in the surface boundary layer. Important applications in pollution will be discussed.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4310 or PHYSICS 2760, MATH 2300

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**ATM\_SC 4510: Remote Sensing for Meteorology and Natural Resources**

(cross-leveled with ATM\_SC 7510). Principles of remote sensing with emphasis on the properties of atmosphere and the earth's surface from airborne and satellite sensors. The techniques for using geosynchronous and orbiting satellite platforms for assessing weather and natural resource features.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 1050, MATH 1500, junior standing or instructor's consent

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**ATM\_SC 4520: Environmental Biophysics**

(same as GEOG 4520; cross-leveled with ATM\_SC 7520, GEOG 7520). Students will learn techniques and principles used to describe the microenvironment of living organisms and use quantitative expressions to estimate missing values, and mass transfer laws to estimate flux of energy, water and gas.

**Credit Hours:** 3

**Prerequisites:** College Physics and Calculus I

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**ATM\_SC 4550: Physical Meteorology**

(cross-leveled with ATM\_SC 7550). Physics of atmospheric nucleation-condensation, cloud droplet and precipitation formation, associated electrical phenomena, radiation transfer and remote sensing.

**Credit Hours:** 3

**Prerequisites:** MATH 1500

**Recommended:** 1 year of college Physics, CHEM 1320

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**ATM\_SC 4590: Radar Meteorology**

(cross-leveled with ATM\_SC 7590). Course concerns the theory and application of radar in meteorology. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 1110, MATH 1700, PHYSICS 2750

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**ATM\_SC 4650: Long-Range Forecasting**

(cross-leveled with ATM\_SC 7650). Physical-dynamical principles of long-range forecasting from a month to a year. Empirical and numerical approaches in forecast practice.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4050 or ATM\_SC 7050 or ATM\_SC 3600

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**ATM\_SC 4710: Synoptic Meteorology I**

(cross-leveled with ATM\_SC 7710). Meteorological Data. Basic techniques for surface and upper air analysis, using selected examples of weather patterns.

**Credit Hours:** 4

**Prerequisites:** ATM\_SC 1050, MATH 1700 (C or better)

**Recommended:** one physics course

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**ATM\_SC 4720: Synoptic Meteorology II**

(cross-leveled with ATM\_SC 7720). Graphical analysis and interpretation of physical, kinematical and dynamical properties of the atmosphere. Analysis techniques applicable to atmospheric research.

**Credit Hours:** 4

**Prerequisites:** ATM\_SC 4710 or ATM\_SC 7710

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**ATM\_SC 4720W: Synoptic Meteorology II - Writing Intensive**

(cross-leveled with ATM\_SC 7720). Graphical analysis and interpretation of physical, kinematical and dynamical properties of the atmosphere. Analysis techniques applicable to atmospheric research.

**Credit Hours:** 4

**Prerequisites:** ATM\_SC 4710 or ATM\_SC 7710

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**ATM\_SC 4730: Advanced Forecasting Laboratory**

Advanced principles of weather forecasting will be addressed via online electronic modules and weekly laboratory exercises. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4720

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**ATM\_SC 4800: Numerical Methods in Atmospheric Science and Natural Resources**

(cross-leveled with ATM\_SC 7800). Examines numerical methods used in solving differential equations, filtering data sets, and Fourier decomposition of discrete data sets.

**Credit Hours:** 3

**Prerequisites:** senior standing

**Recommended:** Math through Calculus III

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**ATM\_SC 4949: Internship in Meteorology**

Practical professional work experience with professional or scientific meteorologists in off-campus work environment. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** junior standing

**Recommended:** Math through Calculus III

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**ATM\_SC 4950: Undergraduate Research in Atmospheric Science**

Research apprenticeship with a faculty mentor. Students are expected to develop initial concept for the research, design experiments, collect data, and analyze data with faculty input, oversight, and guidance.

**Credit Hour:** 1-4

**Prerequisites:** STAT 1400, MATH 1500

**Recommended:** 10 hours of Atmospheric Science courses

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**ATM\_SC 7310: Atmospheric Thermodynamics**

(cross-leveled with ATM\_SC 4310). Thermodynamics of dry and moist air, atmospheric hydrostatics, convection, and development of the fundamental equations of geophysical fluid dynamics.

**Credit Hours:** 4

**Prerequisites:** ATM\_SC 1050, MATH 1700 (C or better), and one physics course

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**ATM\_SC 7320: Atmospheric Dynamics**

(cross-leveled with ATM\_SC 4320). Dynamics and kinematics of atmospheric flow. Manipulation of fundamental equations, numerical modeling of atmosphere.

**Credit Hours:** 4

**Prerequisites:** ATM\_SC 4310 or ATM\_SC 7310

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**ATM\_SC 7350: Mesoscale Meteorology and Dynamics**

(cross-leveled with ATM\_SC 4350). Survey of mesoscale phenomena, observing systems, analysis techniques, and modeling. Topics include fronts, jet streaks, gravity waves, organized convection, tornadoes, and severe local storm forecasting and structure.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4720 or ATM\_SC 7720 and MATH 2300

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**ATM\_SC 7400: Micrometeorology**

(cross-leveled with ATM\_SC 4400). Study of transport processes in the surface boundary layer. Important applications in pollution will be discussed.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4050 or ATM\_SC 7050

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**ATM\_SC 7510: Remote Sensing for Meteorology and Natural Resources**

(cross-leveled with ATM\_SC 4510). Principles of remote sensing with emphasis on the properties of atmosphere and the earth's surface from airborne and satellite sensors. The techniques for using geosynchronous and orbiting satellite platforms for assessing weather and natural resource features. Graduate student credit is dependent upon completion of additional advanced research assignments. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 1050, MATH 1500, junior standing or instructor's consent

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**ATM\_SC 7520: Environmental Biophysics**

(same as GEOG 7520; cross-leveled with ATM\_SC 4520, GEOG 4520). Students will learn techniques and principles used to describe the microenvironment of living organisms and use quantitative expressions to estimate missing values, and mass transfer laws to estimate flux of energy, water, and gas.

**Credit Hours:** 3

**Prerequisites:** college physics, calculus I

---

**ATM\_SC 7550: Physical Meteorology**

(cross-leveled with ATM\_SC 4550). Physics of atmospheric nucleation-condensation, cloud droplet and precipitation formation, associated electrical phenomena, radiation transfer and remote sensing.

**Credit Hours:** 3

**Prerequisites:** MATH 1500

**Recommended:** 1 year of college Physics, CHEM 1320

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**ATM\_SC 7590: Radar Meteorology**

(cross-leveled with ATM\_SC 4590). Course concerns the theory and application of radar in meteorology. Graduate students will be required to conduct an independent research project using radar, in addition to the undergraduate requirements for the class. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** MATH 1700, PHYSICS 2760

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**ATM\_SC 7650: Long-Range Forecasting**

(cross-leveled with ATM\_SC 4650). Physical-dynamical principles of long-range forecasting from a month to a year. Empirical and numerical approaches in forecast practice.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4050 or ATM\_SC 7050 or ATM\_SC 3600

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**ATM\_SC 7710: Synoptic Meteorology I**

(cross-leveled with ATM\_SC 4710). Meteorological Data. Basic techniques for surface and upper air analysis, using selected examples of weather patterns.

**Credit Hours:** 4

**Prerequisites or Corequisites:** one physics course

**Prerequisites:** ATM\_SC 1050, MATH 1700 (C or better)

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**ATM\_SC 7720: Synoptic Meteorology II**

(cross-leveled with ATM\_SC 4720). Graphical analysis and interpretation of physical, kinematical and dynamical properties of the atmosphere. Analysis techniques applicable to atmospheric research.

**Credit Hours:** 4

**Prerequisites:** ATM\_SC 4710 or ATM\_SC 7710

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**ATM\_SC 7800: Numerical Methods in Atmospheric Science and Natural Resources**

(cross-leveled with ATM\_SC 4800). Examines numerical methods used in solving differential equations, filtering data sets, and Fourier decomposition of discrete data sets.

**Credit Hours:** 3

**Prerequisites:** Math through Calculus III

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**ATM\_SC 8001: Topics in Atmospheric Science**

Development of the theory with its application for selected topics in atmospheric science.

**Credit Hours:** 3

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**ATM\_SC 8085: Problems in Atmospheric Science**

Independent study by graduate students in atmospheric science.

**Credit Hour:** 1-99

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**ATM\_SC 8090: Masters Research in Atmospheric Science**

Original investigation in atmospheric science in support of a master's thesis. Graded on S/U basis only.

**Credit Hour:** 1-99

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**ATM\_SC 8200: Meteorological Statistics**

Applies theory of probability and frequency distribution to meteorological variables.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4050 or ATM\_SC 7050 or STAT 4710 or instructor's consent

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**ATM\_SC 8400: Atmospheric General Circulation**

Comprehensive review of dynamical theories of general circulation with intensive discussion of current problems.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4320 or ATM\_SC 7320

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**ATM\_SC 8450: Tropical Meteorology**

Study of the synoptic and dynamic character of the atmosphere in the tropical regions, including an examination of the general circulation and tropical storms.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4710 or ATM\_SC 7710, ATM\_SC 4720 or ATM\_SC 7720 and MATH 2300; instructor's consent. Graded on A-F basis only

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**ATM\_SC 8500: Radiation in the Atmosphere**

Physics of solar and infrared radiative transfer in the atmosphere, including energy conversion effects, atmospheric optics, and photochemical processes.

**Credit Hours:** 3

**Prerequisites:** one year College Physics and MATH 1700

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**ATM\_SC 8550: Nowcasting**

Students will learn the science of nowcasting through the study of the various methods used and apply their knowledge in the design of the elements of a nowcast system and practical nowcasting exercises.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 8500, instructor's consent

---

**ATM\_SC 8600: Advanced Climate Dynamics**

Study of global climate; application of large scale atmospheric dynamics; conservation of various forms of energy, climatic evaluation, large scale climatic modification.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4320 or ATM\_SC 7320 and ATM\_SC 8400 or ATM\_SC 3600

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**ATM\_SC 9085: Problems in Atmospheric Science**

Independent study by graduate students in atmospheric science.

**Credit Hour:** 1-99

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**ATM\_SC 9087: Seminar in Atmospheric Science**

Seminar in Atmospheric Science.

**Credit Hour:** 1-99

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**ATM\_SC 9090: Doctoral Research in Atmospheric Science**

Original investigation in atmospheric science in support of a doctoral dissertation. Graded on S/U basis only.

**Credit Hour:** 1-99

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**ATM\_SC 9300: Introduction to Chaos Theory**

Atmospheric predictability and related topics are examined as they relate to governing equations of motion and their non-linear solutions.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4320 or ATM\_SC 7320, MATH 4100

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**ATM\_SC 9350: Advanced Dynamic Meteorology**

Application of perturbation dynamics, advanced dynamics, and numerical methods to study of atmospheric circulations.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4320 or ATM\_SC 7320

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**ATM\_SC 9590: Advanced Applications of Weather Radar**

This course will investigate quantitative uses of weather radar data that go beyond standard reflectivity and velocity image interpretation, particularly those that use new techniques such as dual-polarization. Students will develop methods to analyze and display meteorological radar data. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

**Recommended:** MATH 1700, PHYSCS 2760, INFOTC 1040 or equivalent, ATM\_SC 4590

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**ATM\_SC 9700: Advanced Synoptic Meteorology**

Detailed examination of vertical motions, their forcing, and how each is diagnosed (quasigeostrophic theory, the Trenberth approximation, Q-vectors). Current issues in synoptic meteorology and operational forecasting are discussed.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4720 or ATM\_SC 7720

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**ATM\_SC 9712: Convection and Lightning**

Cumulus convection and cloud physics topics that will facilitate a deeper understanding of cloud electrification and lightning production are studied. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4710 or ATM\_SC 7710, ATM\_SC 4720 or ATM\_SC 7720, MATH 2300; instructor's consent

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**ATM\_SC 9800: Numerical Weather Prediction**

Examination of finite difference and objective analysis techniques, basic physical concepts, and parameterization of physical processes. Experience with a range of models (1-D cloud to operational PE models) stressed.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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## Biochemistry Courses

### **BIOCHM 1090: Introduction to Biochemistry**

Fundamental concepts in biochemistry and molecular biology: structure function relationships, reactivity, thermodynamics, gene expression. Professional skills for biomedical careers. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** CHEM 1320

**Prerequisites:** MATH 1100 or MATH 1160 or MATH 1500 and Freshman or Sophomore standing

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### **BIOCHM 1094: Introductory Biochemistry Laboratory**

Techniques course involving analytical experiments with carbohydrates, lipids, proteins, nucleic acids; use of instrumentation in biochemistry; purification and kinetics of enzymes, PCR and cloning. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** BIOCHM 1090; Biochemistry majors only

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### **BIOCHM 2110: The Living World: Molecular Scale**

Survey of modern biochemistry and biotechnology. Structure and function of DNA, proteins, lipids and carbohydrates. The role of biopolymers in life processes and everyday living is emphasized.

**Credit Hours:** 3

**Prerequisites:** for non-Biochemistry majors only

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### **BIOCHM 2112: Biotechnology in Society**

Biotechnology in a social context covers three areas: introduction to terminology and concepts, specific biotechnological applications to modern problems, and ethical questions.

**Credit Hours:** 3

**Prerequisites:** for non-biochemistry majors only

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### **BIOCHM 2112H: Biotechnology in Society - Honors**

Biotechnology in a social context covers three areas: introduction to terminology and concepts, specific biotechnological applications to modern problems, and ethical questions.

**Credit Hours:** 3

**Prerequisites:** for non-biochemistry majors only

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### **BIOCHM 2480: Introduction to Macromolecular Structure and Function**

The function of biochemical macromolecules is directly related to their structure. The three-dimensional structures of proteins, nucleic acids, polysaccharides and membranes are each explored in the context of their functions and their microenvironments within living organisms. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** C- or higher in BIOCHM 1090

**Corequisites:** CHEM 2100 or CHEM 2110

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### **BIOCHM 2484: Macromolecular Techniques Laboratory**

The laboratory experiments include DNA isolation, DNA cloning, PCR, plasmid transformation, protein expression, affinity-tagged chromatography, SDS-polyacrylamide gel electrophoresis, enzyme isolation, enzyme assay, buffer preparation, and Michaelis-Menten kinetics. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** sophomore standing; restricted to Biochemistry majors only

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### **BIOCHM 2484H: Macromolecular Techniques Laboratory - Honors**

The laboratory experiments include DNA isolation, DNA cloning, PCR, plasmid transformation, protein expression, affinity-tagged chromatography, SDS-polyacrylamide gel electrophoresis, enzyme isolation, enzyme assay, buffer preparation, and Michaelis-Menten kinetics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing; Biochemistry majors only. Honors eligibility required

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### **BIOCHM 2484HW: Macromolecular Techniques Laboratory - Honors/ Writing Intensive**

The laboratory experiments include DNA isolation, DNA cloning, PCR, plasmid transformation, protein expression, affinity-tagged chromatography, SDS-polyacrylamide gel electrophoresis, enzyme isolation, enzyme assay, buffer preparation, and Michaelis-Menten kinetics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing; Biochemistry majors only. Honors eligibility required

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### **BIOCHM 2950: Undergraduate Research in Biochemistry**

Research for students in which independent research is less than 50% of total. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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### **BIOCHM 3630: General Biochemistry**

Survey of biochemistry; static/dynamic aspects of carbohydrates, lipids, proteins, nucleic acid. Discussion of metabolic pathways, energy production, and metabolic regulatory mechanism.

**Credit Hours:** 3

**Prerequisites:** CHEM 2030 or CHEM 2100

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### **BIOCHM 4001: Topics in Biochemistry**

Experimental courses; highly specialized topics taught infrequently or courses taught by visiting professors.

**Credit Hour:** 1-99

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### **BIOCHM 4120: Medicinal Plant Science**

Presentation of core topics, including an overview of plant groups with medicinal properties, botanical nomenclature, important biochemical pathways, exposure to journals, texts, and online databases that facilitate evidence-based research involving medicinal plants. Content of world-wide application. Has an international flavor. The course facilitates



students to be independent learners and critical thinkers in this important knowledge area (of value to diverse academic backgrounds). The important role of collaborative inter-disciplinary studies will also be emphasized. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CHEM 1100 or CHEM 1320

**Recommended:** BIO\_SC 1200 or BIO\_SC 1500 or BIOCHM 1090

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#### **BIOCHM 4270: Biochemistry**

(cross-leveled with BIOCHM 7270). First semester of comprehensive biochemistry course: metabolic pathways, amino acids/proteins, carbohydrates, lipids, nucleic acids, kinetics, energy requirements, metabolic regulation in living cells.

**Credit Hours:** 3

**Prerequisites:** CHEM 2110

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#### **BIOCHM 4272: Biochemistry**

(cross-leveled with BIOCHM 7272). Second semester of a comprehensive biochemistry course, including metabolism of carbohydrates, fatty acids, steroids, amino acid synthesis and metabolism, molecular genetics, hormones, photosynthesis and integrated metabolism.

**Credit Hours:** 3

**Prerequisites:** C- or higher in BIOCHM 4270

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#### **BIOCHM 4300: Physical Chemistry of Biological Systems**

To present fundamental principles of physical chemistry in the context of the structure and function of biological macromolecules. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** BIOCHM 4270

**Prerequisites:** MATH 1500 and PHYSCS 1210 or PHYSCS 2750

**Recommended:** MATH 1700 and PHYSCS 1220 or PHYSCS 2760

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#### **BIOCHM 4376: Computer Assisted Sequence Analysis and Molecular Modeling**

(cross-leveled with BIOCHM 7376). Employs the use of computer-based interactive molecular graphics and sequence analysis software to analyze the three dimensional structures of macromolecules.

**Credit Hours:** 3

**Prerequisites:** CHEM 2110

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#### **BIOCHM 4385: Problems in Biochemistry**

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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#### **BIOCHM 4510: Single Molecule Biophysics**

(same as PHYSCS 4510; cross-leveled with BIOCHM 7510, PHYSCS 7510). The course provides an overview of the biophysics of enzymes, nucleic acids and the cytoskeleton. Topics covered will include diffusion, molecular motors, polymerization and the cytoskeleton and the polymer properties of nucleic acids and microtubules.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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#### **BIOCHM 4950: Advanced Undergraduate Research in Biochemistry**

Research credit for students doing an independent research project under the guidance of a faculty member. Project must be arranged by student and faculty member prior to registration. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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#### **BIOCHM 4964: Industrial Internship with ABC Laboratories**

This 5-credit course is a school and field-based learning experience combining the study, observation, and employment with ABC Laboratories in Columbia, MO. The internship provides opportunities to apply skills, concepts and theories about biochemistry and analytical chemistry in a practical context. The purpose of the internship experience is to provide the intern with the opportunity to develop knowledge and skills deemed desirable for a career in the biotechnology industries. During the time indicated in this agreement for the internship experience, the intern is expected to become a productive employee of ABC Laboratories. This course will provide technical instruction on commonly used laboratory skills and instrumentation at the University of Missouri followed by technical instruction on software and instrumentation at ABC Laboratories. After the training period, the interns will have the opportunity to work at ABC Laboratories full time for the summer.

**Credit Hours:** 5

**Prerequisites or Corequisites:** BIOCHEM 4272, CHEM 3200

**Prerequisites:** BIOCHM 1090, BIOCHM 2484, BIOCHM 4270

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#### **BIOCHM 4970: Senior Capstone in Biochemistry**

Problem-based course on fundamental concepts of biochemistry. Requires written and oral presentations. One of two capstone courses required for biochemistry majors. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Departmental consent required

**Recommended:** Corequisite of BIOCHM 4974

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#### **BIOCHM 4974: Biochemistry Laboratory**

(cross-leveled with BIOCHM 7274). Techniques course involving analytical experiments with carbohydrates, lipids, proteins, nucleic acids; use of instrumentation in biochemistry; purification and kinetics of enzymes. One of two capstone courses required for biochemistry majors.

**Credit Hours:** 5

**Prerequisites or Corequisites:** BIOCHM 4272

**Corequisites:** BIOCHM 4970

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#### **BIOCHM 4974H: Biochemistry Laboratory - Honors**

(cross-leveled with BIOCHM 7274). Techniques course involving analytical experiments with carbohydrates, lipids, proteins, nucleic acids; use of instrumentation in biochemistry; purification and kinetics of enzymes. One of two capstone courses required for biochemistry majors.

**Credit Hours:** 5

**Prerequisites or Corequisites:** BIOCHM 4272; Honors eligibility required

**Corequisites:** BIOCHM 4970

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**BIOCHM 4974W: Biochemistry Laboratory - Writing Intensive**

(cross-leveled with BIOCHM 7274). Techniques course involving analytical experiments with carbohydrates, lipids, proteins, nucleic acids; use of instrumentation in biochemistry; purification and kinetics of enzymes. One of two capstone courses required for biochemistry majors.

**Credit Hours:** 5

**Prerequisites or Corequisites:** BIOCHM 4272

**Corequisites:** BIOCHM 4970

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**BIOCHM 4978: Cancer Biology**

(same as BIO\_SC 4978; cross-leveled with BIOCHM 7978, BIO\_SC 7978). The cellular and molecular basis of cancer, with emphasis on the application of genomics, proteomics, and genetic manipulations in model organisms to the study of cancer biology.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200 and BIO\_SC 2300 or BIOCHM 4270

**Recommended:** BIO\_SCI 4976 or BIOCHM 4272

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**BIOCHM 4996H: Honors Thesis Research in Biochemistry**

Laboratory research for honors students doing an honors thesis research project in their final two semesters. Enrollment limited to Honors eligible students with senior standing who have CAFNR honors approval. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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**BIOCHM 7085: Problems in Biochemistry**

Problems in Biochemistry.

**Credit Hour:** 1-6

**Prerequisites:** Consent of Director of Graduate Studies required

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**BIOCHM 7270: Biochemistry**

(cross-leveled with BIOCHM 4270). First semester of comprehensive biochemistry course: metabolic pathways, amino acids/proteins, carbohydrates, lipids, nucleic acids, kinetics, energy requirements, metabolic regulation in living cells.

**Credit Hours:** 3

**Prerequisites:** CHEM 2110

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**BIOCHM 7272: Biochemistry**

(cross-leveled with BIOCHM 4272). Second semester of a comprehensive biochemistry course, including metabolism of carbohydrates, fatty acids, steroids, amino acid synthesis and metabolism, molecular genetics, hormones, photosynthesis and integrated metabolism.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 7270

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**BIOCHM 7274: Biochemistry Laboratory**

Techniques course involving analytical experiments with carbohydrates, lipids, proteins, nucleic acids; use of instrumentation in biochemistry; radioisotope tracers in metabolism; isolation, purification and kinetics of enzymes.

**Credit Hours:** 5

**Corequisites:** concurrent enrollment in BIOCHM 7270

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**BIOCHM 7376: Computer Assisted Sequence Analysis and Molecular Modeling**

(cross-leveled with BIOCHM 4376). This course uses advanced computer graphics and computational techniques to analyze protein and nucleic acid sequences and their three-dimensional structures.

**Credit Hours:** 2

**Prerequisites:** CHEM 2110

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**BIOCHM 7510: Single Molecule Biophysics**

(same as PHYSICS 7510; cross-leveled with BIOCHM 4510, PHYSICS 4510). The course provides an overview of the biophysics of enzymes, nucleic acids and the cytoskeleton. Topics covered will include diffusion, molecular motors, polymerization and the cytoskeleton and the polymer properties of nucleic acids and microtubules.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 2760

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**BIOCHM 7978: Cancer Biology**

(same as BIO\_SC 7978). The course will cover major molecular and cellular aspects of cancer. Students will read original research articles, present overviews and lead class discussions.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 4270, BIO\_SC 2300 and BIO\_SC 4976

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**BIOCHM 8060: Ethical Conduct of Research**

(same as BIO\_SC 8060). Discussion of ethical issues in biological research, including the rules and conventions for appropriate research conduct. Graded on S/U basis only.

**Credit Hour:** 1

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**BIOCHM 8090: Research in Biochemistry**

Research in biochemistry for qualified students, with counsel of faculty. Includes preparation of dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** Consent of Director of Graduate Studies required

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**BIOCHM 8120: Advanced Medicinal Plant Science**

Presentation of core topics in pharmacognosy, including an overview of plant groups with medicinal properties, essentials of botanical nomenclature, Overview of pharmacological activities of plant-sourced products and evidence-based research, phytochemical variation and significance, important biochemical pathways, origins of secondary metabolites, some major groups of phytochemicals, observations on economic and social trends in the use of medicinal plant products in developed and developing countries, overview of modern technology, high throughput screening, bioinformatics. Considerable exposure to key articles in journals, based on internationally accepted text (Trease & Evans), exposure to online databases - all sources of information that facilitate evidence-based research involving medicinal plants. Content of world-wide application. Has considerable international flavor and directly applicable to medicinal flora world-wide. The course facilitates students to be independent learners and critical thinkers in this important knowledge area (of value to diverse academic backgrounds). The important role of collaborative inter-disciplinary studies is also emphasized. Graded on A-F basis only.

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**Credit Hours:** 3

**Prerequisites:** CHEM 1100 or CHEM 1320 or BIOCHM 1090 and BIO\_SC 1200 or BIO\_SC 1500 or the equivalent of these courses for non-MU students

**Recommended:** A Freshman level course in the Life Sciences or General Botany will also be advantageous but not essential

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**BIOCHM 8130: Commercial Use of Biodiversity**

Biological diversity/biodiversity - provides the basis for life on earth. The variability among living organisms and among the ecological complexes of which they are part - forms the basis of many commercial products and underpins our very existence by providing essential ecosystem services e.g. water purification, prevention of soil erosion and floods, and regulation of the climate. But biodiversity is declining. The rapidly growing demand for access to genetic resources, is raising the commercial value of biological diversity (especially plant diversity) for providing new genetic resources for enhancing existing crops species, developing new crops, phytopharmaceuticals, botanical medicines, horticulture - via GMO and plant breeding technologies. The course will address the commercial use of biodiversity - access to genetic resources and benefit-sharing via the following topics: Regulating access to genetic resources and benefit-sharing (legal aspects); Natural products and the pharmaceutical industry; Botanical medicine industry; Development of major crops by the seed industry; Horticulture; Crop protection; Biotechnology in fields other than healthcare and agriculture; Natural personal care and cosmetics industry; Industry and the Convention on Biodiversity (CBD). The areas of Technical Barriers to Trade (TBT) and the Regulatory Frameworks that govern the release of new crops and other plant-based products will also be addressed. Course is of world-wide appeal, facilitated by being 100% online and asynchronous (independent of time zones). This course is recommended (as an elective) for students desiring more understanding of the complexities associated with the commercial use of biodiversity (specifically the commercial use of genetic resources). Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Experience in some undergraduate course work in the life-science area would be advantageous

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**BIOCHM 8240: Introduction to Graduate Biochemistry I**

Introduction to biochemistry for life science graduate students. Core course for Biochemistry students. Structures and interactions of biological macromolecules including thermodynamics, binding, enzyme action and biological membranes as well as techniques of analysis and structure determination.

**Credit Hours:** 4

**Prerequisites:** Undergraduate organic chemistry plus undergraduate biochemistry or molecular biology, their equivalent or permission of instructor

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**BIOCHM 8260: Macromolecular Systems Integration**

To introduce graduate students to biochemistry at the graduate level with particular emphasis on genomics/gene expression and replication; proteomics/cell signaling and metabolism. Course graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** BIOCHM 8240

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**BIOCHM 8362: Introduction to Plant Metabolism**

(same as PLNT\_S 8362 and BIO\_SC 8362). This course is part of a series that aims to provide a solid conceptual foundation in interdisciplinary plant biology for graduate students with a research emphasis in plant biology. This course examines the basic concepts and techniques used to understand plant metabolism. Graded on A-F basis only.

**Credit Hours:** 2

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**BIOCHM 8365: Introduction to Molecular Cell Biology**

(same as BIO\_SC 8365 and PLNT\_S 8365). This course is part of a series that aims to provide a solid conceptual foundation in interdisciplinary plant biology for graduate students with a research emphasis on plant biology. This course examines the basic concepts and techniques used to understand molecular cell biology. Graded on A-F basis only.

**Credit Hours:** 2

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**BIOCHM 8432: Enzymology and Metabolic Regulation**

A basic introduction to the study of enzymes and their role in intermediary metabolism. Topics include enzyme kinetics, mechanisms of enzymatic catalysis and control of metabolic pathways.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 7272

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**BIOCHM 8434: Signaling in Molecular Cell Biology**

The objective of this course is to provide important foundations in cellular signaling in the context of biochemistry and cell biology for first and second year graduate students. The course focuses on cell-to-cell communication and intracellular signaling via different classes of cell surface receptors using specific receptor paradigms from human, other animals, plants, yeast and E.coli. Primary literature will be used for in-class discussions and homework assignments to highlight key experiments and introduce students to relevant experimental techniques. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** BIO\_SC 2300, BIOCHM 4270

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**BIOCHM 8450: Rotation Research**

Introductory laboratory research. Graded on A-F basis only. Normally 1 hour per advisor per semester, two-1 hour sections can be taken per semester.

**Credit Hour:** 1-2

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**BIOCHM 9001: Topics in Biochemistry**

Experimental courses, highly specialized topics taught infrequently or courses taught by visiting professors.

**Credit Hour:** 1-9

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**BIOCHM 9087: Seminar in Biochemistry**

Review of current literature; individual presentation of research or classical science topics.

**Credit Hour:** 1

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**BIOCHM 9090: Research in Biochemistry**

Research in biochemistry for qualified students, with counsel of faculty. Includes preparation of dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**BIOCHM 9432: Molecular Biology II**

(same as MICROB and BIO\_SC 9432) Detailed experimental analysis of eukaryotic cellular and molecular biology relevant to cellular and viral gene expression, post-transcriptional and post-translational modifications and genome replication. Models for developmental genetic analysis and genetic determinants controlling developmental processes utilizing the current literature will be examined.

**Credit Hours:** 4

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**BIOCHM 9462: Hormone Action**

A lecture course with weekly assigned readings. Topics will include: a description of selected polypeptide, steroid and other hormones and their biological effects; receptors; second messengers; protein phosphorylation in hormone mediation; growth factors; cellular oncogenes.

**Credit Hours:** 2

**Prerequisites:** BIOCHM 7272

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**BIOCHM 9468: Molecular Biology of Plant Growth and Development**

(same as BIO\_SC 9468). Molecular biology of plant hormones, signal transduction, environmental signals.

**Credit Hours:** 3

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## Biological Engineering Courses

**BIOL\_EN 1000: Introduction to Biological Engineering**

For first semester engineering students. Develop appreciation for professional engineering. Students will participate with senior design students to conceptualize a case-study problem.

**Credit Hour:** 1-2

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**BIOL\_EN 2000: Professional Development in Engineering**

(same as BME 2000). A review of professional opportunities, registration, ethics, and societies. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** sophomore standing

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**BIOL\_EN 2007: World of Neuroscience**

(same as BME 2007, CMP\_SC 2007, ECE 2007). This in-class course will introduce undergraduates to the growing area of neuroscience from the perspectives of three disciplines: engineering, biology and psychology. Topics in the course will span multiple levels of neuroscience including genomic, genetic, molecular, cellular, systems, behavioral and clinical levels. Due to the interdisciplinary nature of the neuroscience, the classes will cover diverse topics. The topics will range from overviews of the key neurobiology areas, to lab sessions involving how to analyze your own brain signals (EEG), and to visits to brain imaging center and EEG lab. The overall goal is to provide a broad exposure to the fascinating world of interdisciplinary neuroscience. Graded on A-F basis only.

**Credit Hour:** 1

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**BIOL\_EN 2080: Introduction to Programming for Engineers**

(same as BME 2080). This course teaches how to write scientific programs for analysis of data and simulation of physical phenomena using Matlab. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1500

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**BIOL\_EN 2180: Engineering Analysis of Bioprocesses**

(same as BME 2180). Material and Energy Balances. Integrating principles of physics, chemistry and mathematics to analyze steady state and transient biological/biomedical processes. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1700, CHEM 1320, PHYSICS 2750. Restricted to Biological Engineering students only

**Recommended:** BIOL\_EN 2080

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**BIOL\_EN 2600: Sustainability Foundations: An Introduction to Sustainability**

(same as ENV\_SC 2600). This course introduces fundamental concepts of sustainability from sustainable development to sustainability science. It focuses on human-environment systems, the characteristics of these systems, and patterns of change. Course materials interrogate taken-for-granted assumptions that shape human relationships with the natural world. You will learn to identify common dynamics leading to social and environmental problems with the aim of identifying alternative actions (solutions) for transitioning towards sustainability. Sustainability integrates the social and biophysical sciences; and implementing solutions requires the integration of the social justice, the arts, and humanities. Through a variety of interdisciplinary perspectives and frameworks, you will learn about current sustainability research and be able to develop an understanding of what sustainability means to you and your field of study. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**BIOL\_EN 2600H: Sustainability Foundations: An Introduction to Sustainability - Honors**

(same as ENV\_SC 2600). This course introduces fundamental concepts of sustainability from sustainable development to sustainability science. It focuses on human-environment systems, the characteristics of these systems, and patterns of change. Course materials interrogate taken-for-granted assumptions that shape human relationships with the natural world. You will learn to identify common dynamics leading to social and environmental problems with the aim of identifying alternative actions (solutions) for transitioning towards sustainability. Sustainability integrates the social and biophysical sciences; and implementing solutions requires the integration of the social justice, the arts, and humanities. Through a variety of interdisciplinary perspectives and frameworks, you will learn about current sustainability research and be able to develop an understanding of what sustainability means to you and your field of study. Graded on A-F basis only. Honors eligibility required

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**BIOL\_EN 3070: Biological Fluid Mechanics**

(same as BME 3070). Basic principles of fluid mechanics applied to transport processes in biological systems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2750 and MATH 1700

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**BIOL\_EN 3075: Introduction to Materials Engineering**

(same as BME 3075, CH\_ENG 3075). Course covers concepts and techniques in materials engineering from an engineering design perspective, materials requirements for design, and fundamentals; intended for undergraduate engineering students. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** One of the following BIOL\_EN 3180, CH\_ENG 3234, MAE 4231, MAE 4300, or instructor consent

**Prerequisites:** MATH 2300, ENGINR 1200

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**BIOL\_EN 3170: Biomaterials**

(same as BME 3170). Engineering sciences and design will be leverage for the study and design of biomaterials. Understanding the structure-property relationship between biomaterials and tissue will be addressed for implant design.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 3075 or BME 3075

**Corequisites:** BIOL\_EN 2180, ENGINR 2200 or instructor's consent

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**BIOL\_EN 3170W: Biomaterials - Writing Intensive**

(same as BME 3170W). Engineering sciences and design will be leverage for the study and design of biomaterials. Understanding the structure-property relationship between biomaterials and tissue will be addressed for implant design.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 3075 or BME 3075

**Corequisites:** BIOL\_EN 2180, ENGINR 2200 or instructor's consent

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**BIOL\_EN 3180: Heat and Mass Transfer in Biological Systems**

(same as BME 3180). Principles of heat and mass transfer and their applications in biomedical, bioenvironmental, and bioprocessing engineering.

**Credit Hours:** 3

**Prerequisites or Corequisites:** ENGINR 2300 or CH\_ENG 3261

**Prerequisites:** BIOL\_EN 2180 or CH\_ENG 2225

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**BIOL\_EN 4001: Topics in Biological Engineering**

Current and new technical developments in biological engineering.

**Credit Hour:** 3-9

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**BIOL\_EN 4001H: Topics in Biological Engineering - Honors**

Current and new technical developments in biological engineering.

**Credit Hour:** 3-9

**Prerequisites:** Honors eligibility required

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**BIOL\_EN 4070: Bioelectricity**

(cross-leveled with BIOL\_EN 7070). Application of engineering approaches to understand bioelectricity at the cellular level including the equivalent circuit of cell membranes and the electronic design of patch-clamp amplifiers.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760 and BIOL\_EN 3180

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**BIOL\_EN 4075: Brain Signals and Brain Machine Interfaces**

(same as BME 4075; cross-leveled with BIOL\_EN 7075). The course introduces state-of-the-art technologies for monitoring and manipulating brain activity, as well as the design principles of modern brain-machine interfaces (BMIs) for interacting with the brain in health and disease. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 4070 or instructor's consent

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**BIOL\_EN 4085: Problems in Biological Engineering**

Supervised independent study at the undergraduate level.

**Credit Hour:** 1-5

**Prerequisites:** instructor's consent

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**BIOL\_EN 4150: Soil and Water Conservation Engineering**

(same as CV\_ENG 4710; cross-leveled with BIOL\_EN 7150, CV\_ENG 7710). Urban and rural run-off and erosion analysis. Design and layout of erosion control structures.

**Credit Hours:** 3

**Recommended:** BIOL\_EN 2180 or CV\_ENG 3200

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**BIOL\_EN 4160: Food Process Engineering**

(cross-leveled with BIOL\_EN 7160). Food engineering is an interdisciplinary field that connects agricultural and biological engineering, chemical engineering, food science, biochemistry, human nutrition, and other fields involving food systems to improve the health of people and planet. The course introduces underlying engineering principles in food processing, and unit operations in food industries. Topics include fluid flow, heat transfer in food processing, preservation process, dehydration, refrigeration, food freezing, psychrometrics, food packaging, emerging technologies, and sustainability.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 3180

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**BIOL\_EN 4170: Biomaterials Interfaces of Implantable Devices**

(same as BME 4170; cross-leveled with BIOL\_EN 7170). Surface structures and properties to improve biocompatibility will be studied. Engineering sciences and design will be leverage in the design of an improved biocompatible surface.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 3170

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**BIOL\_EN 4231: Transport Phenomena in Materials Processing**

(same as MAE 4231; cross-leveled with BIOL\_EN 7231, MAE 7231). Applications of fluid flow, heat transfer, and mass transfer in steady-state and unsteady-state materials processing with applications to metals, polymers, and ceramics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MAE 4300

**Prerequisites:** C- or better in Math 4100

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**BIOL\_EN 4250: Irrigation and Drainage Engineering**

(same as CV\_ENG 4740; cross-leveled with BIOL\_EN 7250). Soil, water, plant relationships. Water supplies and design of surface, sprinkler and drip irrigation systems. Surface and tile drainage.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3700 or MAE 3400 or BIOL\_EN 2180

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**BIOL\_EN 4270: Design of Experiments and Statistical Quality Control for Process Engineers**

(same as CH\_ENG 4270; cross-leveled with BIOL\_EN 7270, CH\_ENG 7270). A practical statistical tool box for experimenters including comparison of process means, effects of variables, design and interpretation of factorial experiments, and statistical quality control.

**Credit Hours:** 3

**Recommended:** experience with Excel or instructor's consent

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**BIOL\_EN 4310: Feedback Control Systems**

(same as ECE 4310, MAE 4750; cross-leveled with BIOL\_EN 7310, ECE 7310, MAE 7750). System modeling and time and frequency response, closed loop control, stability, continuous system design, introduction to discrete time control, software and hardware experiments on compensator design and PID control. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 4100 and junior/senior standing

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**BIOL\_EN 4315: Principles of Biochemical Engineering**

(same as CH\_ENG 4315; cross-leveled with BIOL\_EN 7315, CH\_ENG 7315). This course serves as an introduction to the application of biological, biochemical, and engineering fundamentals for biochemical processing. Topics include biological basics, enzyme kinetics, metabolic pathways, cell growth kinetics, analysis of intracellular flux, thermodynamics of biological reactions, and bioreactor design and modeling. Analyses proceed through the use of mass balances, energy balances, and empirical or theoretical models.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 2180 (for Biological Engineering students) or CH\_ENG 2225 (for Chemical Engineering students) or Instructor's consent

**Recommended:** BIOL\_EN 3180 (for Biological Engineering students) or CH\_ENG 3234 (for Chemical Engineering students) as a prerequisite or a co-requisite

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**BIOL\_EN 4316: Biomass Refinery Operations**

(same as CH\_ENG 4316; cross-leveled with BIOL\_EN 7316, CH\_ENG 7316). Design and operation of processes for conversion and/or fractionation of biomass and associated upstream and downstream unit operations. Emphasis on separations and product recovery.

**Credit Hours:** 3

**Recommended:** BIOL\_EN 2180 or CH\_ENG 2225 (for Chemical Engineering students) or instructor's consent

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**BIOL\_EN 4350: Watershed Modeling Using GIS**

(same as CV\_ENG 4720; cross-leveled with BIOL\_EN 7350, CV\_ENG 7720). Watershed evaluation using AVSWAT for hydrology, sediment yield, water quality; includes USLE, MUSLE, WEPP. Procedures for model calibration/sensitivity data analysis.

**Credit Hours:** 3

**Recommended:** BIOL\_EN 2180 or CV\_ENG 3200 or instructor's consent

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**BIOL\_EN 4360: Biomufacturing Technologies**

(same as BME 4360). This course is an introduction to biomufacturing technologies and processes for manufacturing biological products (e.g., vaccine, antibodies, and therapeutic proteins). It mainly covers process development, unit operations, product evaluation, facilities, and regulatory compliance. It is an interdisciplinary course of biochemistry, microbiology, and engineering. The purpose of this course is to help the students acquire the knowledge of modern biomufacturing and prepare them for rapidly growing fields in biomufacturing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 2180 and BIOL\_EN 3180 (for biological engineering students) -or- CH\_ENG 2225 and CH\_ENG 3234 (for chemical engineering students) -or- Consent of instructor

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**BIOL\_EN 4370: Orthopaedic Biomechanics**

(same as BME 4370; cross-leveled with BIOL\_EN 7370). Engineering sciences will be leverage to create a comprehensive study of orthopaedic biomechanics. The tissue mechanics of bone and soft tissue will be studied along with applying structural analysis of the musculoskeletal system. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 3075

**Recommended:** ENGINR 1200 and BIOL\_EN 3170

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**BIOL\_EN 4380: Applied Electronic Instrumentation**

(same as BME 4380; cross-leveled with BIOL\_EN 7380). Fundamental concepts and theories, basic electronics, analog and digital circuits, signal conditioning, computer interfacing, measurement principles and techniques used in developing computer-based instrumentation systems. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** PHYSCS 2750

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**BIOL\_EN 4420: Introduction to Biomedical Imaging**

(same as BME 4420, PHYSCS 4420; cross-leveled with BIOL\_EN 7420, PHYSCS 7420). This course offers a broad introduction to medical imaging. Topics to be covered include the physics basics and instrumentation of X-ray CT, PET, SPECT, ultrasound, MRI and Optical Imaging, as well as recent developments in biomedical imaging.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**BIOL\_EN 4470: Biomolecular Engineering and Nanobiotechnology**

(same as BME 4470; cross-leveled with BIOL\_EN 7470). Generation of biotechnological products, devices through integration of engineering approaches with contemporary biology, chemistry and nanotechnology starting at the molecular level. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1700, PHYSCS 2760, CHEM 2100

**Recommended:** Senior/graduate standing or instructor's consent

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**BIOL\_EN 4470H: Biomolecular Engineering and Nanobiotechnology - Honors**

(cross-leveled with BIOL\_EN 7470). Generation of biotechnological products, devices through integration of engineering approaches with contemporary biology, chemistry and nanotechnology starting at the molecular level. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1700, PHYSCS 2760, CHEM 2100. Honors eligibility required

**Recommended:** Senior/graduate standing or instructor's consent

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**BIOL\_EN 4480: Physics and Chemistry of Materials**

(same as PHYSCS 4190, CHEM 4490, NU\_ENG 4319 BME 4480; cross-leveled with BIOL\_EN 7480, PHYSIC 7190, CHEM 7490, NU\_ENG 7319). Physics and Chemistry of Materials is a 3 credit hours course offered every spring semester for students from Physics, Chemistry, Engineering and Medical Departments and consists of lectures, laboratory demonstrations, two mid-term and one final exam. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2750, CHEM 1320 or equivalent, or instructor's consent

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**BIOL\_EN 4540: Neural Models and Machine Learning**

(same as BME 4540, CMP\_SC 4540, ECE 4540; cross-leveled with CMP\_SC 7540, ECE 7540, BIOL\_EN 7540). The projects-based course has three inter-linked components: (I) math models of neurons and neural networks, (II) machine learning in neuroscience, after a brief introduction to python and (III) software automation and cyberinfrastructure to support neuroscience. Extensive projects focusing on software automation and machine learning components, with brief in-class presentations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1500 or consent of instructor

**Recommended:** Introductory software programming, and introductory cell biology or consent of instructor

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**BIOL\_EN 4570: Fluorescent Imaging**

(same as BME 4570; cross-leveled with BIOL\_EN 7570). Principles and applications of fluorescent imaging. The course covers: Image formation in microscope; Fundamentals of fluorescence and fluorescent microscopy; molecular and cellular fluorescent imaging.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1500 and BIOL\_EN 2180 or instructor's consent

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**BIOL\_EN 4590: Computational Neuroscience**

(same as BIO\_SC 4590, ECE 4590, BME 4590; cross-leveled with BIOL\_EN 7590, BIO\_SC 7590, ECE 7590). An interdisciplinary course with a strong foundation in quantitative science for students in biological-behavioral sciences. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1010, BIO\_SC 1500; MATH 1500

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**BIOL\_EN 4770: Biomedical Optics**

(same as BME 4770, cross-leveled with BIOL\_EN 7770). Essential concepts and methods for applying optical techniques to biomedical

diagnosis and therapy will be covered with major application examples being discussed.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

**Recommended:** BIOL\_EN 3180

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**BIOL\_EN 4940: Engineering Internship**

(same as BME 4940). Problem course following prior approved work experience. Problem selected by internship company representative, faculty problem adviser and student. Supervised by faculty problem advisor and presented in engineering report form. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** advisor's consent

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**BIOL\_EN 4970: Nuclear Magnetic Resonance and Magnetic Resonance Imaging**

(same as BME 4970). Nuclear Magnetic Resonance (NMR) is one of the most powerful methods of investigating the structure, composition, and dynamics of atoms and molecules. It is now ubiquitous in chemistry and engineering labs, and has blossomed into one of the most successful medical imaging modalities - Magnetic Resonance Imaging (MRI). This course is an in-depth examination of the relevant physical principles behind this technology: basic spin physics, spectrometer design and implementation, what it can be used to measure, and how it is currently being used in laboratory and clinical settings. In particular, students will gain a working knowledge of basic nuclear physics, spin precession, T1 and T2 weighting mechanisms, the pulse/acquire NMR experiment, the influence of magnetic field gradients, Fourier theory and k-space, imaging principles, and the many pulse sequences currently employed in NMR/MRI research labs around the world. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Senior Standing or Instructor Consent

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**BIOL\_EN 4980: Bioengineering Design I**

(same as BME 4980). Capstone design course for Biological Engineering or Biomedical Engineering major. Design of devices or processes for biological or biomedical applications.

**Credit Hours:** 3

**Prerequisites:** ENGINR 1100 or MAE 1100, ENGINR 2200, and BIOL\_EN 3180 or BME 3180, or instructor's consent

**Corequisites:** BIOL\_EN 4380 or BME 4380

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**BIOL\_EN 4980W: Bioengineering Design I - Writing Intensive**

(same as BME 4980W). Capstone design course for Biological Engineering or Biomedical Engineering major. Design of devices or processes for biological or biomedical applications.

**Credit Hours:** 3

**Prerequisites:** ENGINR 1100 or MAE 1100, ENGINR 2200, and BIOL\_EN 3180 or BME 3180, or instructor's consent

**Corequisites:** BIOL\_EN 4380 or BME 4380

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**BIOL\_EN 4985: Bioengineering Design II**

(same as BME 4985). Second term of capstone, senior design course for the Biomedical Engineering major. Design of biological system devices

or processes. Includes prototyping and testing of design. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** BIOL\_EN 4980 or BME 4980

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**BIOL\_EN 4990: Undergraduate Research in Biological Engineering**

Supervised independent study at the undergraduate level.

**Credit Hour:** 1-5

**Prerequisites:** instructor's consent

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**BIOL\_EN 4995: Undergraduate Honors Research in Biological Engineering**

Open only to honor students in Biological Engineering. Independent investigation in biological engineering to be presented as a thesis.

**Credit Hour:** 1-5

**Prerequisites:** advisor's consent

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**BIOL\_EN 4995H: Undergraduate Honors Research in Biological Engineering**

Open only to honor students in Biological Engineering. Independent investigation in biological engineering to be presented as a thesis.

**Credit Hour:** 1-5

**Prerequisites:** advisor's consent. Honors eligibility required

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**BIOL\_EN 7001: Topics in Biological Engineering**

Study of advanced developments in biological engineering.

**Credit Hour:** 1-3

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**BIOL\_EN 7070: Bioelectricity**

(cross-leveled with BIOL\_EN 4070). Application of engineering approaches to understand bioelectricity at the cellular level including the equivalent circuit of cell membranes and the electronic design of patch-clamp amplifiers. Prerequisites: PHYSCS 2760 and BIOL\_EN 3180 or instructor's consent

**Credit Hours:** 3

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**BIOL\_EN 7075: Brain Signals and Brain Machine Interfaces**

(cross-leveled with BIOL\_EN 4075, BME 4075). The course introduces state-of-the-art technologies for monitoring and manipulating brain activity, as well as the design principles of modern brain-machine interfaces (BMIs) for interacting with the brain in health and disease. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**BIOL\_EN 7150: Soil and Water Conservation Engineering**

(same as CV\_ENG 7710; cross-leveled with BIOL\_EN 4150, CV\_ENG 4150). Urban and rural run-off and erosion analysis. Design and layout of erosion control structures.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 2180 or CV\_ENG 3200, or instructor's consent

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**BIOL\_EN 7160: Food Process Engineering**

(cross-leveled with BIOL\_EN 4160). Food engineering is an interdisciplinary field that connects agricultural and biological engineering, chemical engineering, food science, biochemistry, human nutrition, and other fields involving food systems to improve the health of people and planet. The course introduces underlying engineering principles in food processing, and unit operations in food industries. Topics include fluid flow, heat transfer in food processing, preservation process, dehydration, refrigeration, food freezing, psychrometrics, food packaging, emerging technologies, and sustainability.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 3180 or instructor's consent

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**BIOL\_EN 7170: Biomaterials Interfaces of Implantable Devices**

(cross-leveled with BIOL\_EN 4170, BME 4170). Surface structures and properties to improve biocompatibility will be studied. Engineering sciences and design will be leverage in the design of an improved biocompatible surface.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 3170 or instructor's consent

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**BIOL\_EN 7250: Irrigation and Drainage Engineering**

(cross-leveled with BIOL\_EN 4250). Soil, water, plant relationships. Water supplies and design of surface, sprinkler and drip irrigation systems. Surface and tile drainage.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3700 or MAE 3400 or BIOL\_EN 2180

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**BIOL\_EN 7310: Feedback Control Systems**

(same as ECE 7310, MAE 7750; cross-leveled with ECE 4310, BIOL\_EN 4310, MAE 4750). System modeling and time and frequency response, closed loop control, stability, continuous system design, introduction to discrete time control, software and hardware experiments on compensator design and PID control. Graded A-F only. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** MATH 4100

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**BIOL\_EN 7315: Introduction to Bioprocess Engineering**

(same as CH\_ENG 7315; cross-leveled with BIOL\_EN 4315, CH\_ENG 4315). This course serves as an introduction to the application of biological, biochemical, and engineering fundamentals for biochemical processing. Topics include biological basics, enzyme kinetics, metabolic pathways, cell growth kinetics, analysis of intracellular flux, thermodynamics of biological reactions, and bioreactor design and modeling. Analyses proceed through the use of mass balances, energy balances, and empirical or theoretical models.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 2180 (for Biological Engineering students) or CH\_ENG 2225 (for Chemical Engineering students) or Instructor's consent

**Recommended:** BIOL\_EN 3180 (for Biological Engineering students) or CH\_ENG 3234 (for Chemical Engineering students) as a prerequisite or a co-requisite

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**BIOL\_EN 7316: Biomass Refinery Operation**

(same as CH\_ENG 7316; cross-leveled with BIOL\_EN 4316, CH\_ENG 4316). Design and operation of processes for conversion and/or fractionation of biomass and associated upstream and downstream unit operations. Emphasis on separations and product recovery.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 2180 or CH\_ENG 2225 or instructor's consent

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**BIOL\_EN 7350: Watershed Modeling Using GIS**

(same as CV\_ENG 7720; cross-leveled with BIOL\_EN 4350, CV\_ENG 4720). Watershed evaluation using AVSWAT for hydrology, sediment yield, water quality; includes USLE, MUSLE, WEPP, Procedures for model calibration/sensitivity data analysis.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 2180 or CV\_ENG 3200 or instructor's consent

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**BIOL\_EN 7370: Orthopaedic Biomechanics**

(same as V\_M\_S 7370; cross-leveled with BIOL\_EN 4370) . Engineering sciences will be leverage to create a comprehensive study of orthopaedic biomechanics. The tissue mechanics of bone and soft tissue will be studied along with applying structural analysis of the musculoskeletal system. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGINR 1200 and BIOL\_EN 3170, instructor's consent required

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**BIOL\_EN 7380: Applied Electronic Instrumentation**

(cross-leveled with BIOL\_EN 4380; BME 4380). Fundamental concepts and theories, basic electronics, analog and digital circuits, signal conditioning, computer interfacing, measurement principles and techniques used in developing computer-based instrumentation systems. Graded on A-F basis only..

**Credit Hours:** 4

**Prerequisites:** PHYSCS 2750

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**BIOL\_EN 7420: Introduction to Biomedical Imaging**

(same as PHYSCS 7420; cross-leveled with BIOL\_EN 4420, BME 4420, PHYSCS 4420). This course offers a broad introduction to medical imaging. Topics to be covered include the physics basics and instrumentation of X-ray CT, PET , SPECT, ultrasound, MRI and Optical Imaging, as well as recent developments in biomedical imaging, as well as recent developments in biomedical imaging.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**BIOL\_EN 7450: Environmental Hydrology**

(same as ENV\_SC 7450; cross-leveled with ENV\_SC 4450, BIOL\_EN 4450). This course provides an understanding, and the roles of natural processes and anthropogenic factors influencing the occurrence and the movement of water. Students will learn the quantitative basis of hydrology, which will help them to appreciate the scientific approach to understanding the observed phenomena. The material presented will provide sufficient knowledge for students to evaluate hydrologic processes associated with environmental systems and to develop conceptual evaluations that are part of water and natural resource assessments. Learning objectives: 1. Describe basic mechanisms and

variables of hydrologic fluxes and states 2. Describe and define different mathematical formulations of hydrologic fluxes and states 3. Understand key components of a watershed model 4. Analyze, synthesize and interpret hydrologic data.

**Credit Hours:** 3

**Prerequisites:** MATH 1100, MATH 1400 and STAT 1300 or consent of the instructor

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**BIOL\_EN 7470: Biomolecular Engineering and Nanobiotechnology**

(cross-leveled with BIOL\_EN 4470; BME 4470). Generation of biotechnological products, devices through integration of engineering approaches with contemporary biology, chemistry and nanotechnology starting at the molecular level. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1700, PHYSCS 2760, CHEM 2100

**Recommended:** Senior/graduate standing or instructor's consent

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**BIOL\_EN 7480: Physics and Chemistry of Materials**

(same as PHYSCS 7190, NU\_ENG 7319, CHEM 7490; cross-leveled with BIOL\_EN 4480, PHYSCS 4190, NU\_ENG 4319, CHEM 4490, BME 4480). Physics and Chemistry of Materials is a 3 credit hours course offered every spring semester for students from Physics, Chemistry, Engineering and Medical Departments and consists of lectures, laboratory demonstrations, two mid-term and one final exam. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2750, CHEM 1320 or equivalent, or instructor's consent

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**BIOL\_EN 7540: Neural Models and Machine Learning**

(same as CMP\_SC 7540, ECE 7540; cross-leveled with BIOL\_EN 4540, CMP\_SC 4540, ECE 4540). The projects-based course has three inter-linked components: (I) math models of neurons and neural networks, (II) machine learning in neuroscience, after a brief introduction to python and (III) software automation and cyberinfrastructure to support neuroscience. Extensive projects focusing on software automation and machine learning components, with brief in-class presentations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1500 + at least Junior standing, or consent of instructor

**Recommended:** Introductory software programming, and introductory cell biology or consent of instructor

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**BIOL\_EN 7560: Observing the Earth from Space**

(same as ENV\_SC 7560; cross-leveled with BIOL\_EN 4560, ENV\_SC 4560). This course provides an understanding of the theory and application of earth observing satellite remote sensing as a tool for environmental engineering and science. The topics include the fundamentals of electromagnetic radiation, satellite and sensor technology, integration of satellite and GIS data and digital image analysis. The lectures and homework assignments at the beginning of the course provide the necessary foundation to work with satellite imagery. Students will receive training with advanced image processing software and data acquisition techniques. The course will also cover case studies using remote sensing and image analysis techniques to answer real-world problems. The lectures and homework assignments

include applications in forest management, land use change detection, monitoring agricultural activities, water and air quality monitoring, climate studies, and ecology and infectious diseases. The course will cover lectures on advanced remote sensing techniques towards the end of the course. Students will work on their independent projects during the last three weeks, applying remote sensing techniques to satellite images.

**Credit Hours:** 3

**Prerequisites:** MATH 1100, MATH 1400 and STAT 1300 or consent of the instructor

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#### **BIOL\_EN 7570: Fluorescent Imaging**

(cross-leveled with BIOL\_EN 4570, BME 4570). Principles and applications of fluorescent imaging. The course covers: Image formation in microscope; Fundamentals of fluorescence and fluorescent microscopy; molecular and cellular fluorescent imaging. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1500 and BIOL\_EN 2180 or instructor's consent

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#### **BIOL\_EN 7590: Computational Neuroscience**

(same as BIO\_SC 7590, ECE 7590; cross-leveled with BIOL\_EN 4590, BIO\_SC 4590, ECE 4590; BME 4590). An interdisciplinary course with a strong foundation in quantitative science for students in biological-behavioral science. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1010, BIO\_SC 1500; MATH 1500

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#### **BIOL\_EN 7770: Biomedical Optics**

(cross-leveled with BIOL\_EN 4770 and BME 4770). Essential concepts and methods for applying optical techniques to biomedical diagnosis and therapy will be covered with major application examples being discussed.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 2760 and BIOL\_EN 3180; or instructor's consent

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#### **BIOL\_EN 8000: Scientific Discovery Leading to Life Science Innovations**

(same as MPP 8000). The goal of this course is to provide participants with a conceptual and practical understanding of how life science research is conducted in a modern research institution in the US and the pathways involved in translating fundamental discoveries into products and services that affect healthcare. We will cover the transitions from initial discovery concepts to first-in-human studies, clinical trials, healthcare guidelines and policy to product development. We will provide an introduction to essential disciplines and interactions that enable scientific discoveries to move forward into novel device and drug therapies. Participants will come away with a very complete picture of how medical research happens, including: how it is funded; what is required to make discoveries and record and protect intellectual property that is created; how to advance innovations to clinical practice, how to navigate the regulatory and bioethical environment, and how discoveries reach practitioners and benefit patients. The Course is the first in a three course sequence leading to a Graduate Certificate in Life Science Innovation and Entrepreneurship. Graded on A-F basis only.

**Credit Hours:** 3

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**Prerequisites:** Must be Graduate Standing or receive certificate program director's approval

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#### **BIOL\_EN 8001: Advanced Topics in Biological Engineering**

Study of advanced developments in biological engineering.

**Credit Hour:** 1-3

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#### **BIOL\_EN 8004: Regulatory Issues in Clinical Research and Clinical Trials**

(same as MPP 8004). The goal of the course is to highlight key FDA regulatory issues for conducting human clinical trials and clinical research. For clinical trials, FDA has set up several compliance programs and guidance documents as a part of human subject protection (HSP)/ Bioresearch Monitoring (BIMO) initiatives. The aim of the program was to strengthen FDA oversight and protection of subjects in clinical trials and to preserve confidentiality of data. The HSP/BIMO initiative comprehends all FDA regulated clinical trials including human drugs and biological drug products, devices, foods, and veterinary medicine. The course is designed for students in medical professions, management, biomedical engineering, and related areas. Adequate knowledge regarding FDA guidance in conducting human clinical trials and clinical research will help professionals steer drug/device development and commercialization in their respective field. This course will be offered online only. An introduction to essential disciplines for conducting clinical trials and clinical research will be provided. The basics of good clinical practices (GCPs), biostatistics and clinical epidemiology in relation to clinical trials will be presented. Several relevant case studies for conducting clinical trials, both nationally and internationally, will be discussed. The importance of data collection and data management while conducting clinical trials will be explained. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Knowledge in biomedical sciences, clinical sciences

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#### **BIOL\_EN 8085: Problems in Biological Engineering**

Supervised individual study at the graduate level.

**Credit Hour:** 1-99

**Prerequisites:** departmental consent

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#### **BIOL\_EN 8087: Seminar in Biological Engineering**

Recent investigations in biological engineering and related fields. Discussion of current literature; preparation and presentation of papers.

**Credit Hour:** 1

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#### **BIOL\_EN 8100: Design and Development of Biomedical Innovations**

(same as ENGINR 8100, MPP 8100). The overarching goal of this course is to help participants understand the design and development (drug or device) process in biomedical innovation. This course will help participants to understand the process of choosing unmet clinical needs, articulate a need statement without integrating solution, design and develop a solution. Participants will learn to assess the commercial potential of clinical needs by performing market analysis and valuing customer needs. A conceptual understanding about development of a prototype for a device and also drug development by different brainstorming process will be provided. Details of regulatory, reimbursement, patenting process required for product development will be explained with examples. An overview about how to evaluate

preliminary designs, define product specifications, comply with manufacturing principles and methods, costs, cGMP requirements will be explained. Quality control and Quality assurance necessities for drug/device will be elucidated with case studies. Participants will gain knowledge about different business models for drug and devices, estimate market penetration and how to make profitable, patient-driven products. Graded on A-F basis only.

**Credit Hours:** 3

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#### **BIOL\_EN 8170: Sensors and Biosensors**

The course covers basic principles of chemical and biological sensors, such as immobilization techniques, transducers (optical, electrical, etc.) and performance factors.

**Credit Hours:** 3

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#### **BIOL\_EN 8180: Numerical Methods in Engineering Research**

Numerical techniques and case studies in Biological Engineering. Topics include basic numerical methods, mathematical representation of data, matrix algebra, ordinary and partial differential equations.

**Credit Hours:** 3

**Prerequisites:** MATH 4100

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#### **BIOL\_EN 8200: Commercialization of Life Science Innovations**

(same as MANGMT 8200). This course will provide educational content and experiences that equip course participants to navigate the main pathways for commercialization of biomedical innovations. Students will also learn how to access sources of capital for R&D and develop an understanding of the role of FDA approval and the processes for approval of different types of biomedical products. Students will become familiar with quality assurance programs required in the biomedical industry. Students will also become familiar with the most common business models for biomedical companies and the importance of product development and commercialization alliances.

**Credit Hours:** 3

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#### **BIOL\_EN 8230: Advanced Ceramic Materials**

(same as CH\_ENG 8230, MAE 8230). To provide an advanced level understanding between processing, properties, and microstructure of ceramic materials. Topics include crystallography, defect chemistry, transport properties, microstructure, and forming methods. Graded on A-F basis only.

**Credit Hours:** 3

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#### **BIOL\_EN 8250: Water Management Theory**

Advanced studies in erosion control, irrigation, and drainage. Water resources engineering.

**Credit Hours:** 3

**Prerequisites:** MATH 1500, Computer Engineering and Computer Science course, SOIL 4307 or SOIL 7307 and Soil Conservation course

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#### **BIOL\_EN 8280: Advanced Biological Transport Processes**

Principles of fluid flow, heat transfer, and mass transfer applied to (a) understanding of how the human body functions (from the cellular up to the system level) and (b) designing biomedical devices. An independent project/case-study of a relevant research topic also required.

**Credit Hours:** 3

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#### **BIOL\_EN 8370: Materials Characterization Techniques**

Concepts and techniques in characterizing materials, including bulk and surface analyses. Techniques are presented in terms of use, sample requirements, and the engineering principles. Topics include: contact angle measurement, XPS, SEM, TEM, STM, AFM, XRD, and thermal analyses.

**Credit Hours:** 3

**Prerequisites:** at least one undergraduate course in material science, engineer, or design

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#### **BIOL\_EN 8402: Research Methods**

(same as F\_S 8402). Review of literature; planning research projects; publication procedures.

**Credit Hours:** 2

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#### **BIOL\_EN 8470: Ultrasensitive Biodetection**

Multiplexing single-molecule, single-cell, nanobiotech analytical techniques to improve disease diagnosis, treatment, and understanding of biophenomena (membrane transport, gene expression, enzyme activities, cell communications). Graded A-F only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required

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#### **BIOL\_EN 8570: Microscopic Imaging**

Advanced topics in microscopic imaging with focus on applications of molecular and cellular imaging using fluorescent microscopy.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 7570 or instructor's consent

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#### **BIOL\_EN 8670: Orthopaedic Failure Modes and Effect Analysis**

Engineering sciences will be leveraged provide a comprehensive study of failure modes and related effects for orthopaedic devices, orthopaedic tissue repair, and surgical interventions. Clinical case studies will be analyzed to introduce real world problems of orthopaedic failures. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 3170 or ENGINR 1200, BIOL\_EN 4370 or BIOL\_EN 7370 or instructor consent

**Recommended:** For department majors

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#### **BIOL\_EN 8870: Molecular and Cell Mechanics**

Application of mechanics and engineering principles to biological systems at the cellular and molecular levels. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGINR 2200

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#### **BIOL\_EN 8990: Masters Thesis Research in Biological Engineering**

Independent investigation to be presented as a thesis. Graded on S/U basis only.

**Credit Hour:** 1-15

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**BIOL\_EN 9990: Doctoral Dissertation Research in Biological Engineering**

Independent investigation to be presented as a thesis. Graded on S/U basis only.

**Credit Hour:** 1-99

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## Biological Sciences Courses

**BIO\_SC 1001: Topics in Biological Science - General**

Selected topics not covered in current offerings. May not be used in partial fulfillment of requirements for a biological science in general education. May be graded on A-F or S/U basis.

**Credit Hour:** 1-3

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**BIO\_SC 1002: Topics in Biological Sciences - Biological Sciences**

Selected topics not in regularly offered courses. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-3

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**BIO\_SC 1006: Topics in Biological Sciences - Mathematical Sciences**

Selected topics not in regularly offered courses. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-31

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**BIO\_SC 1007: Topics in Biological Sciences - Physical Sciences**

Selected topics not in regularly offered courses. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-3

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**BIO\_SC 1010: General Principles and Concepts of Biology**

Emphasizes connections and applications to society and the human condition, science literacy, and critical thinking skills. A discussion of general principles and fundamental concepts of living things. This course is intended for non-science majors. No more than 5 credits for BIO\_SC 1010, BIO\_SC 1020, and BIO\_SC 1030.

**Credit Hours:** 3

**Recommended:** MATH 1100

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**BIO\_SC 1020: General Biology Laboratory**

Laboratory exercises dealing with representative organisms and methods of modern biological sciences. This course is intended for non-science majors. No more than 5 credits for BIO\_SC 1010, BIO\_SC 1020, and BIO\_SC 1030.

**Credit Hours:** 2

**Prerequisites or Corequisites:** BIO\_SC 1010

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**BIO\_SC 1030: General Principles and Concepts of Biology with Laboratory**

Survey of general principles and basic concepts of life science, emphasizing applications to society and the human condition. Lectures address science literacy and critical thinking and laboratory exercises use representative organisms to complement lecture topics. This course is intended for non-science majors. No more than 5 credits for BIO\_SC 1010, BIO\_SC 1020, and BIO\_SC 1030.

**Credit Hours:** 5

**Recommended:** MATH 1100 or concurrent enrollment

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**BIO\_SC 1060: Basic Environmental Studies**

Considers the ecosystem, energy and biogeochemical cycles and population dynamics; relation of the environment to agriculture and technology, pollution, power and food production; politico-economic considerations; moral and ethical issues. For non-science majors.

**Credit Hours:** 3

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**BIO\_SC 1200: General Botany with Laboratory**

Introduction to study of plants. Emphasis on structure, growth, physiology, genetics and reproduction of plants.

**Credit Hours:** 5

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**BIO\_SC 1400: Evolution for Everyone**

This course will explore the application of evolutionary theory to modern human affairs. We will study the processes involved in evolution and investigate evolutionary interpretations of human social behavior (e.g., psychology, mate choice, economics, religion, and morality). No credit if student has received credit for BIO\_SC 2060 or BIO\_SC 4600.

**Credit Hours:** 3

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**BIO\_SC 1500: Introduction to Biological Systems with Laboratory**

Basic concepts and principles of the structure and function of living systems, from cells to populations. Foundation course for science students intending to complete a 3-semester sequence that also includes genetics and cell biology.

**Credit Hours:** 5

**Recommended:** MATH 1100 or sufficient ALEKS score

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**BIO\_SC 1500H: Introduction to Biological Systems with Laboratory Honors**

Basic concepts and principles of the structure and function of living systems, from cells to populations. Foundation course for science students intending to complete a 3-semester sequence that also includes genetics and cell biology.

**Credit Hour:** 3-5

**Prerequisites:** MATH 1100 and high school chemistry. Honors eligibility required

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**BIO\_SC 2001: Topics in Biological Sciences - General**

Selected topics not covered in current offerings. May not be used in partial fulfillment of requirements for a biological science in general education. May be graded on A-F or S/U basis.

**Credit Hour:** 1-3

**Recommended:** One course in Biology

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**BIO\_SC 2002: Topics in Biological Sciences- Biological Sciences**

Selected topics not covered in regularly offered courses. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-3

**Recommended:** a course in general biology

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**BIO\_SC 2002H: Topics in Biological Sciences- Biological Science - Honors**

Selected topics not covered in regularly offered courses. Recommended: a course in biology

**Credit Hour:** 1-3

**Prerequisites:** Honors eligibility required

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**BIO\_SC 2006: Topics in Biological Sciences- Mathematical Sciences**

Selected topics not covered in regularly offered courses. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-3

**Recommended:** a course in general biology

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**BIO\_SC 2006H: Topics in Biological Sciences- Mathematical Science - Honors**

Selected topics not covered in regularly offered courses. Recommended: a course in biology

**Credit Hour:** 1-3

**Prerequisites:** Honors eligibility required

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**BIO\_SC 2007: Topics in Biological Sciences- Physical Sciences**

Selected topics not covered in regularly offered courses. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-3

**Recommended:** a course in general biology

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**BIO\_SC 2007H: Topics in Biological Sciences- Physical Science - Honors**

Selected topics not covered in regularly offered courses. Recommended: a course in biology

**Credit Hour:** 1-3

**Prerequisites:** Honors eligibility required

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**BIO\_SC 2010: Undergraduate Seminar in Biological Sciences**

Discussion and critical evaluation of current topics in biological sciences for intermediate-level students. Some sections may be graded on either A-F or S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing

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**BIO\_SC 2015: Biological Career Explorations**

Students will learn about career options and choices, construct career portfolios, and interact with current biological professionals. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Departmental consent

**Recommended:** Sophomore standing

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**BIO\_SC 2020: How the Brain Works**

Basic structure and function of the brain; left and right brain studies; gender differences; learning and memory; brain disorders..

**Credit Hour:** 1

**Prerequisites:** C- or above in BIO\_SC 1010 or BIO\_SC 1500

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**BIO\_SC 2030: Life of the Cell**

This course will help students understand basic concepts of biomolecular structure, cell organization, cell membranes, energy and metabolism, cellular communication, and cell division. This course is intended for non-science majors and may not be used to satisfy requirements for either a major or a minor in biological sciences.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1010

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**BIO\_SC 2060: Community Biology**

Principles of population biology, ecology, and evolution, including consideration of human impacts on biological communities and ecosystems.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1010 or equivalent. Not open to biology majors

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**BIO\_SC 2100: Infectious Diseases**

An introduction to the basic science of bacterial, viral, protozoan, fungal and helminth infections, including discussions of how illness has influenced or been affected by public policy and culture.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1010, BIO\_SC 1200 or BIO\_SC 1500. Not open to Biology Majors

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**BIO\_SC 2150: Genetic Diseases**

This course will discuss the biological basis for genetic diseases, including inherited diseases and non-inherited diseases such as cancer. The units will include an introduction providing necessary background information, as section studying the technology used to study genetic diseases and several units discussing specific diseases and their impact on history and society. This course is intended for non-science majors. Cannot be used to satisfy degree requirements for biology major or biology minor.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1010

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**BIO\_SC 2200: General Genetics**

Principles of inheritance in plants and animals; structure and use of genetic material, transmission of genetic information, linkage, modification of genetic information, regulation of genetic activity, population genetics.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1100, BIO\_SC 1200 or BIO SC 1500 and CHEM 1320 (or concurrent enrollment)

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**BIO\_SC 2200H: General Genetics - Honors**

Principles of inheritance in plants and animals; structure and use of genetic material, transmission of genetic information, linkage, modification of genetic information, regulation of genetic activity, population genetics. Prerequisites:

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1100, BIO\_SC 1200 or BIO SC 1500 and CHEM 1320 (or concurrent enrollment). Honors eligibility required

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**BIO\_SC 2300: Introduction to Cell Biology**

Analysis of cellular organization and function at the molecular level. The mechanisms underlying cellular trafficking, cell motility, and signaling within cells and between cells and their environment will be emphasized.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 2200

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**BIO\_SC 2300H: Introduction to Cell Biology- Honors**

Analysis of cellular organization and function at the molecular level. The mechanisms underlying cellular trafficking, cell motility, and signaling within cells and between cells and their environment will be emphasized.

**Credit Hours:** 5

**Prerequisites:** BIO\_SC 2200 or 2200H. Honors eligibility required

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**BIO\_SC 2300HW: Introduction to Cell Biology - Honors/Writing Intensive**

Analysis of cellular organization and function at the molecular level. The mechanisms underlying cellular trafficking, cell motility, and signaling within cells and between cells and their environment will be emphasized.

**Credit Hours:** 5

**Prerequisites:** BIO\_SC 2200 or 2200H. Honors eligibility required

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**BIO\_SC 2940: Internship in Biological Science**

Work experience in a non-profit, for profit, or governmental organization relevant to the biological sciences. Intended for students doing internships in which independent research is less than 50% of the experience. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

**Recommended:** junior standing, 12 hours of biological science and 2.70 GPA

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**BIO\_SC 2950: Directed Independent Research**

Participation in faculty research activities. May not be used to satisfy degree requirements for BA or BS in biological sciences or the minor in biological sciences.

**Credit Hour:** 1-3

**Prerequisites:** Departmental consent

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**BIO\_SC 2960: Readings in Biological Science**

Supervised reading in biological literature. May be repeated up to six hours total credit. Selected sections of this course may be graded either on A-F or S/U basis only. May not be used in partial fulfillment of Arts and Science foundation requirement.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**BIO\_SC 2965H: Honors Readings in Biological Literature**

Selected readings in biological literature for Honors, in consultation with instructor. May not be used in partial fulfillment of Arts and Science foundation requirement.

**Credit Hour:** 1-3

**Prerequisites:** overall 3.3 GPA; instructor's consent. Honors eligibility required

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**BIO\_SC 3002: Topics in Biological Sciences - Biological Sciences**

Selected topics not in regularly offered courses. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-3

**Recommended:** Junior Standing

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**BIO\_SC 3002H: Topics in Biological Sciences- Biological Sciences - Honors**

Selected topics not offered in regular curriculum.

**Credit Hour:** 1-3

**Prerequisites:** Honors eligibility required

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**BIO\_SC 3002W: Topics in Biological Sciences- Biological Sciences - Writing Intensive**

Selected topics not in regularly offered courses. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-3

**Recommended:** Junior Standing

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**BIO\_SC 3006: Topics in Biological Sciences - Mathematical Sciences**

Selected topics not in regularly offered courses. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-3

**Recommended:** Junior Standing

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**BIO\_SC 3006H: Topics in Biological Sciences- Mathematical Sciences - Honors**

Selected topics not offered in regular curriculum.

**Credit Hour:** 1-3

**Prerequisites:** Honors eligibility required

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**BIO\_SC 3006W: Topics in Biological Sciences- Mathematical Sciences - Writing Intensive**

Selected topics not in regularly offered courses. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-3

**Recommended:** Junior Standing

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**BIO\_SC 3007: Topics in Biological Sciences - Physical Sciences**

Selected topics not in regularly offered courses. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-3

**Recommended:** Junior Standing

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**BIO\_SC 3007H: Topics in Biological Sciences- Physical Sciences - Honors**

Selected topics not offered in regular curriculum.

**Credit Hour:** 1-3

**Prerequisites:** Honors eligibility required

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**BIO\_SC 3007W: Topics in Biological Sciences- Physical Sciences - Writing Intensive**

Selected topics not in regularly offered courses. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-3

**Recommended:** Junior Standing

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**BIO\_SC 3010: Professional Skills**

This course will focus on application and interview skills for students interested in medical school. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

**Recommended:** junior standing; 3.4 GPA, and biological sciences majors

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**BIO\_SC 3050: Genetics and Society**

Introduction to genetics, emphasizing the impact of genetics on human society. Human evolution, molecular genetics, genetic engineering in medicine and agriculture. An intensive writing course.

**Credit Hours:** 3

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**BIO\_SC 3050W: Genetics and Society - Writing Intensive**

Introduction to genetics, emphasizing the impact of genetics on human society. Human evolution, molecular genetics, genetic engineering in medicine and agriculture. An intensive writing course.

**Credit Hours:** 3

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**BIO\_SC 3075: The Human Microbiome**

This course examines the astonishing diversity and medical significance of the microbes that inhabit our bodies. Interactive discussions explore scientific and ethical dimensions of topics ranging from probiotics and 'poop transplants' to the role of microbes in asthma and obesity.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200

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**BIO\_SC 3075W: The Human Microbiome - Writing Intensive**

This course examines the astonishing diversity and medical significance of the microbes that inhabit our bodies. Interactive discussions explore scientific and ethical dimensions of topics ranging from probiotics and 'poop transplants' to the role of microbes in asthma and obesity.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200

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**BIO\_SC 3210: Plant Systematics**

Principles of classification of plants; survey of diversity in flowering plant families; identification of local flora; use of keys. Includes lab.

**Credit Hours:** 4

**Recommended:** 8 hours of Biological Sciences

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**BIO\_SC 3210W: Plant Systematics - Writing Intensive**

Principles of classification of plants; survey of diversity in flowering plant families; identification of local flora; use of keys. Includes lab.

**Credit Hours:** 4

**Recommended:** 8 hours of Biological Sciences

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**BIO\_SC 3260: Invertebrate Zoology**

Structure, ecology and phylogeny of the invertebrate phyla. Includes lab.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1100 or BIO\_SC 1500

**Recommended:** Junior Standing

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**BIO\_SC 3260W: Invertebrate Zoology - Writing Intensive**

Structure, ecology and phylogeny of the invertebrate phyla. Includes lab.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1100 or BIO\_SC 1500

**Recommended:** Junior Standing

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**BIO\_SC 3360: Herpetology**

The biology, ecology, taxonomy, and distribution of amphibians and reptiles. Some Saturday field trips.

**Credit Hours:** 4

**Recommended:** 8 hours Biological Sciences or equivalent

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**BIO\_SC 3400: Evolution and Ecology**

Introduction to principles of evolution and ecology. Topics include natural selection, adaptation, phylogenetic analysis, human evolution, population growth and regulation, population interactions, ecosystem ecology, and human impacts on ecological processes. No credit for this course if either BIO\_SC 3650 or BIO\_SC 4600 already completed; may not co-enroll in this course and BIO\_SC 4600.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200

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**BIO\_SC 3510: Biology of Fungi**

(same as PLNT\_S 3510). The diverse roles of fungi in the biosphere will be explored by considering fungi we eat, fungi which destroy our food, fungi in folklore and fungi as global nutrient recyclers. Includes lab.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1200 or BIO\_SC 1500 or equivalent

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**BIO\_SC 3650: General Ecology**

Principles of populations, coevolution, density factors, competition; physical environment; concept of community, trophic structure, biotic succession; characterization of biomes, man in ecosystem. Biology majors having completed BIO\_SC 3100: 2 hours credit.

**Credit Hours:** 5

**Prerequisites:** junior standing

**Recommended:** 10 hours in Biology

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**BIO\_SC 3650W: General Ecology - Writing Intensive**

Principles of populations, coevolution, density factors, competition; physical environment; concept of community, trophic structure, biotic succession; characterization of biomes, man in ecosystem. Biology majors having completed BIO\_SC 3100: 2 hours credit.

**Credit Hours:** 5

**Prerequisites:** junior standing

**Recommended:** 10 hours in Biology

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**BIO\_SC 3655: Tropical Ecology: Methods and Applications**

Field study of tropical community; additional fee for transportation and accommodations required.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3650 or BIO\_SC 4600 or BIO\_SC 4660

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**BIO\_SC 3700: Animal Physiology**

Introduces concepts of vertebrate organ function and homeostatic control emphasizing mammalian physiology. Some comparisons to function in other vertebrates and strategies for coping with environmental stresses introduced. Includes lab.

**Credit Hours:** 5

**Prerequisites:** BIO\_SC 2300

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**BIO\_SC 3710: Introductory Entomology**

(same as PLNT\_S 3710). Emphasizes the role insects play in the scheme of life. Topics include insect structure, development, diversity, ecology, communication and behavior, and management. Prerequisites: Completion of 60 credit hours and one of the following: BIO\_SC 1100 (or F\_W 1100) or BIO\_SC 1200, or BIO\_SC 1500.

**Credit Hours:** 3

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**BIO\_SC 3715: Insect Diversity**

(same as PLNT\_S 3715). Laboratory exercises emphasizing external insect anatomy, classification, and identification (to family level). Preparation of an insect collection is required.

**Credit Hours:** 2

**Prerequisites:** PLNT\_S 3710 (or BIO\_SC 3710) or concurrent registration

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**BIO\_SC 3750: General Microbiology**

Explores the diversity and adaptive capabilities of microbial life. Topics include bacterial cell structure, metabolism, genetics, and ecology.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200 and BIO\_SC 2300

**Recommended:** grades in C range for prerequisites

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**BIO\_SC 3760: Microbiology Laboratory**

This is a hands-on microbiology lab course which provides students with training in microbiology techniques, data collection and analysis, writing a research proposal and completing an independent project.

**Credit Hours:** 2

**Prerequisites or Corequisites:** BIO\_SC 3750 or MICROB 3200 or concurrent enrollment in BIO\_SC 3750

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**BIO\_SC 3780: Genetics Laboratory**

Experimental genetic studies of *Drosophila*, corn and microorganisms.

**Credit Hours:** 2

**Prerequisites:** C range grade or better in BIO\_SC 2200 or instructor's consent

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**BIO\_SC 4002: Topics in Biological Science - Biological Science**

Selected topics not in regularly offered courses. May be repeated up to 2 times for credit.

**Credit Hour:** 1-3

**Prerequisites:** senior standing

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**BIO\_SC 4006: Topics in Biological Science - Mathematical Science**

Selected topics not in regularly offered courses. May be repeated up to 2 times for credit.

**Credit Hour:** 1-3

**Prerequisites:** senior standing

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**BIO\_SC 4007: Topics in Biological Science - Physical Science**

Selected topics not in regularly offered courses. May be repeated up to 2 times for credit.

**Credit Hour:** 1-3

**Prerequisites:** senior standing

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**BIO\_SC 4085: Problems in Biological Sciences**

Individual supervised work to supplement regularly organized courses in biology; introduction to research. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

**Recommended:** Junior Standing

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**BIO\_SC 4085W: Problems in Biological Sciences - Writing Intensive**

Individual supervised work to supplement regularly organized courses in biology; introduction to research. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

**Recommended:** Junior Standing

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**BIO\_SC 4320: Molecular Plant Physiology**

(same as PLNT\_S 4320; cross-leveled with BIO\_SC 7320, PLNT\_S 7320). Modern physiology of higher plants using common cultivated plants as examples.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1200 or BIO\_SC 1500 and CHEM 1320

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**BIO\_SC 4328: Introductory Radiation Biology**

(same as NU\_ENG 4328, RADIOL 4328; cross-leveled with BIO\_SC 7328, NU\_ENG 7328, RADIOL 7328). Concepts of ionizing radiations, their actions on matter through effects on simple chemical systems, biological molecules, cell, organisms, man.

**Credit Hours:** 3

**Prerequisites:** junior standing, Sciences/Engineering; one course in Biological Sciences and Physics/Chemistry; or instructor's consent

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**BIO\_SC 4400: Plant Anatomy**

(same as PLNT\_S 4400; cross-leveled with BIO\_SC 7400, PLNT\_S 7400). Comparative structure, growth of meristems; development, structure of important cell types, tissues, tissue systems; comparative anatomy of stem, root, leaf. Emphasizes anatomy of gymnosperms, angiosperms. Includes lab.

**Credit Hours:** 4



**Prerequisites:** BIO\_SC 1200 or BIO\_SC 1500

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**BIO\_SC 4500: Neurobiology**

(cross-leveled with BIO\_SC 7500). Vertebrate and invertebrate neurobiology, including cell and molecular biology of the neuron, neurophysiology, neuroanatomy, neuroethology and developmental neurobiology.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2300 or instructor's consent

**Recommended:** BIO\_SC 3700

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**BIO\_SC 4560: Sensory Physiology and Behavior**

(cross-leveled with BIO\_SC 7560). Basic principles of coding and integration of sensory stimuli; neural correlates of animal behavior; environmental influences on postnatal sensory development. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 4500

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**BIO\_SC 4590: Computational Neuroscience**

(same as ECE 4590, BIOL\_EN 4590, BME 4590; cross-leveled with ECE 7590, BIOL\_EN 7590, BIO\_SC 7590). An interdisciplinary course with a strong foundation in quantitative sciences for students in biological and behavioral science and an introduction to experimental methods for students from quantitative sciences.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1010 or BIO\_SC 1500; MATH 1500

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**BIO\_SC 4600: Evolution**

Surveys various processes in organic evolution and underlying genetic mechanisms.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200

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**BIO\_SC 4640: Behavioral Biology**

(cross-level with BIO\_SC 7640). Comparative study of animal ethology. Principles of animal ethology illustrated in different animal phyla. May be taken with Laboratory for 4 credits.

**Credit Hour:** 3-4

**Prerequisites:** BIO\_SC 1500

**Recommended:** one additional upper-level course in Biological Sciences or Psychology

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**BIO\_SC 4642: Animal Communication**

Physical properties of sensory stimuli, receptor mechanisms, functional significance of communication behavior, and multidisciplinary and experimental approaches to current research in animal communication.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3400 or BIO\_SC 4600

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**BIO\_SC 4642W: Animal Communication - Writing Intensive**

Physical properties of sensory stimuli, receptor mechanisms, functional significance of communication behavior, and multidisciplinary and experimental approaches to current research in animal communication.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3400 or BIO\_SC 4600

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**BIO\_SC 4670: Avian Ecology**

(cross-level with BIO\_SC 7670). Advanced examination of ecological patterns in birds. Explores the environmental factors affecting the evolution of avian behavior, morphology, community structure and distribution.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2600 or BIO\_SC 3650

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**BIO\_SC 4950: Undergraduate Research in Biology**

Individually directed field or laboratory research for upperclass students under faculty supervision. Project must be arranged by student and faculty member prior to registration. May be repeated to a maximum of 6 hours.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

**Recommended:** Overall GPA 2.75; 20 hours of Biological Sciences and/or Chemistry

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**BIO\_SC 4950H: Honors Research in Biology**

Individually directed field or laboratory research for upper-level Honors students, in consultation with a faculty member. Project must be arranged by student and faculty member prior to registration. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** overall GPA 3.3; instructor's consent; biology or microbiology major. Honors eligibility required

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**BIO\_SC 4952: Undergraduate Research in Biology**

Individually directed field or laboratory research for upperclass students under faculty supervision. Project must be arranged by student and faculty member prior to registration. May be repeated to a maximum of 6 hours.

**Credit Hour:** 1-3

**Prerequisites:** BIO\_SC 4950; overall GPA 2.75; instructor's consent

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**BIO\_SC 4952H: Honors Research in Biology**

Continuation of research program. Successful completion requires public presentation and leads to degree with Honors in biological sciences. May be repeated for credit for maximum of 6 hours. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** BIO\_SC 4950H; overall GPA 3.3; instructor's consent. Honors eligibility required

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**BIO\_SC 4960: Special Readings in Biological Sciences**

Independent readings and discussions of topics in biology selected in consultation with supervising faculty member. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** senior standing in Biological Sciences and instructor's consent

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**BIO\_SC 4972: Developmental Biology**

Analysis of the molecular, genetic, cellular, and morphological processes responsible for phenotypic changes in developing organisms. A variety of experimental systems are discussed to identify common mechanisms used by developing organisms.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200, BIO\_SC 2300, CHEM 2100

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**BIO\_SC 4972W: Developmental Biology**

Analysis of the molecular, genetic, cellular, and morphological processes responsible for phenotypic changes in developing organisms. A variety of experimental systems are discussed to identify common mechanisms used by developing organisms.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200, BIO\_SC 2300, CHEM 2100

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**BIO\_SC 4976: Molecular Biology**

(cross-leveled with BIO\_SC 7976). Molecular mechanisms of DNA replication, mutation, recombination and gene expression in prokaryotes, eukaryotes, and their viruses; gene fine structure; genetic engineering.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200 and BIO\_SC 2300

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**BIO\_SC 4978: Cancer Biology**

(same as BIOCHM 4978; cross-leveled with BIO\_SC 7978, BIOCHM 7978). The cellular and molecular basis of cancer, with emphasis on the application of genomics, proteomics, and genetic manipulations in model organisms to the study of cancer biology.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200 and BIO\_SC 2300

**Recommended:** BIO\_SC 4976 or BIOCHM 4270 and BIOCHM 4272

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**BIO\_SC 4982: Human Inherited Diseases**

(cross-leveled with BIO\_SC 7982). Advances in molecular genetics have led to a revolution in our understanding of human disease. This course will examine how molecular technologies, combined with detailed information on cell biology and biochemistry, have been used to unravel the causes of human inherited disease. In addition, we will examine how this new understanding is being used to design therapies for the diseases, and we will discuss some of the ethical and moral questions that have been generated by recent scientific progress.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200 and BIO\_SC 2300

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**BIO\_SC 4982W: Human Inherited Diseases - Writing Intensive**

(cross-leveled with BIO\_SC 7982). Advances in molecular genetics have led to a revolution in our understanding of human disease. This course will examine how these technologies, combined with detailed information on cell biology and biochemistry, have been used to unravel the causes of human inherited disease. In addition, we will examine how this new understanding is being used to design therapies for the diseases, and we will discuss some of the ethical and moral questions that have been generated by recent scientific progress. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200 and BIO\_SC 2300

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**BIO\_SC 4983: Molecular Ecology**

Application of molecular genetic techniques to topics in ecology and population biology such as sex ratios, dispersal, mating systems, biogeography and conservation genetics.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 3400 or BIO\_SC 2200 and BIO\_SC 3650

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**BIO\_SC 4984: Mammalian Reproductive Biology**

Adult reproductive anatomy, physiology and behavior; gametogenesis and fertilization; placentation; sexual differentiation; parturition; maternal behavior and lactation; puberty; reproductive aging; reproductive ecology.

**Credit Hours:** 3

**Prerequisites:** junior standing

**Recommended:** 15 hours of Biological Sciences

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**BIO\_SC 4986: Neurology of Motor Systems**

(cross-leveled with BIO\_SC 7986). Examination of the function of neural networks at all levels, from properties of single neurons to large collections of neural elements.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3700 or instructor's consent

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**BIO\_SC 4988: Nerve Cells and Behavior**

The cellular basis of behavior. Molecular and cellular properties of nerve cells, as related to behavior, will be represented and discussed.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3700 or instructor's consent

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**BIO\_SC 4990: Vertebrate Histology and Microscopic Anatomy**

Microscopic anatomy of vertebrate tissues and organs. Includes lab.

**Credit Hours:** 5

**Prerequisites:** junior standing

**Recommended:** BIO\_SC 3700, or equivalent

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**BIO\_SC 4994: Senior Seminar**

Readings and critical evaluation of selected problems and theories in biology. Offered in one or more sections, with specialized subdisciplinary emphasis.

**Credit Hours:** 3

**Prerequisites:** Biological Sciences major, senior standing

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**BIO\_SC 4994H: Senior Seminar - Honors**

Readings and critical evaluation of selected problems and theories in biology. Offered in one or more sections, with specialized sub disciplinary emphasis.

**Credit Hours:** 3

**Prerequisites:** Biological Sciences major, senior standing; Honors eligibility required

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**BIO\_SC 4994HW: Senior Seminar - Honors/Writing Intensive**

Readings and critical evaluation of selected problems and theories in biology. Offered in one or more sections, with specialized sub disciplinary emphasis.

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**Credit Hours:** 3

**Prerequisites:** Biological Sciences major, senior standing; Honors eligibility required

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**BIO\_SC 4994W: Senior Seminar - Writing Intensive**

Readings and critical evaluation of selected problems and theories in biology. Offered in one or more sections, with specialized subdisciplinary emphasis.

**Credit Hours:** 3

**Prerequisites:** Biological Sciences major, senior standing

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**BIO\_SC 7002: Topics in Biological Sciences**

Advanced topics not in regularly offered courses. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1-6

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**BIO\_SC 7320: Molecular Plant Physiology**

(same as PLNT\_S 7320; cross-leveled with BIO\_SC 4320, PLNT\_S 4320). Modern physiology of higher plants using common cultivated plants as examples. May be taken with or without laboratory.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1200 or BIO\_SC 1500 and 5 hours Chemistry

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**BIO\_SC 7328: Introductory Radiation Biology**

(same as NU\_ENG 7328, RADIOL 7328, V\_M\_S 7328; cross-leveled with BIO\_SC 4328, NU\_ENG 4328, RADIOL 4328). Concepts of ionizing radiations, their actions on matter through effects on simple chemical systems, biological molecules, cell, organisms, man.

**Credit Hours:** 3

**Prerequisites:** Sciences/Engineering; one course in Biological Sciences and Physics/Chemistry; or instructor's consent

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**BIO\_SC 7400: Plant Anatomy**

(same as PLNT\_S 7400; cross-leveled with BIO\_SC 4400, PLNT\_S 4400). Comparative structure, growth of meristems; development, structure of important cell types, tissues systems; comparative anatomy of stem root, leaf. Emphasizes anatomy of gymnosperms, angiosperms. Includes lab. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1200 or equivalent

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**BIO\_SC 7490: Vertebrate Histology and Microscopic Anatomy**

Microscopic anatomy of vertebrate tissues and organs. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites:** BIO\_SC 2300 and BIO\_SC 3700, or equivalent

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**BIO\_SC 7500: Neurobiology**

(cross-leveled with BIO\_SC 4500). Vertebrate and invertebrate neurobiology, including cell and molecular biology of the neuron, neurophysiology, neuranatomy, neurothology and developmental biology. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2300 or BIO\_SC 3700

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**BIO\_SC 7560: Sensory Physiology and Behavior**

(cross-leveled with BIO\_SC 4560). Basic principles of coding and integration of sensory stimuli; neural correlates of animal behavior; environmental influences on postnatal sensory development.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 4500 or equivalent

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**BIO\_SC 7590: Computational Neuroscience**

(same as BIOL\_EN 7590, ECE 7590; cross-leveled with BIO\_SC 4590, BIOL\_EN 4590, ECE 4590, BME 4590). An interdisciplinary course with a strong foundation in quantitative sciences for students in biological and behavioral sciences and an introduction to experimental methods for students from quantitative sciences.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1010 or BIO\_SC 1500, MATH 1500

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**BIO\_SC 7640: Behavioral Biology**

(cross-leveled with BIO\_SC 4640). Comparative study of animal ethology. Principles of animal ethology illustrated in different animal phyla.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1500 and one additional upper-level course in Biological Sciences or Psychology

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**BIO\_SC 7670: Avian Ecology**

(cross-leveled with BIO\_SC 4670). Advanced examination of ecological patterns in birds. Explores the environmental factors affecting the evolution of avian behavior, morphology, community structure and distribution.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2060 or BIO\_SC 3650; BIO\_SC 2600

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**BIO\_SC 7976: Molecular Biology**

(cross-leveled with BIO\_SC 4976). Molecular mechanisms of DNA replication, mutation, recombination and gene expression in prokaryotes, eukaryotes, and their viruses; gene fine structure; genetic engineering.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200 and BIO\_SC 2300

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**BIO\_SC 7978: Cancer Biology**

(same as BIOCHM 7978; cross-leveled with BIO\_SC 4978, BIOCHM 4978). The course will cover major molecular and cellular aspects of cancer. Students will read original research articles, present overviews and lead class discussions.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 4270, BIO\_SC 2300 and BIO\_SC 4976 or equivalent

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**BIO\_SC 7982: Human Inherited Diseases**

(cross-leveled with BIO\_SC 4982). Advances in molecular genetics have led to a revolution in our understanding of human disease. This course will examine how molecular technologies, combined with detailed information on cell biology and biochemistry, have been used to unravel the causes of human inherited disease. In addition, we will examine how this new understanding is being used to design therapies for the

diseases, and we will discuss some of the ethical and moral questions that have been generated by recent scientific progress. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200 and instructor's consent

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**BIO\_SC 7986: Neurology of Motor Systems**

(cross-leveled with BIO\_SC 4986). Examination of the function of neural networks at all levels, from properties of single neurons to large collections of neural elements. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3700

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**BIO\_SC 7990: Non-thesis Research**

Independent research not leading to a thesis. Some sections may be offered on either A-F or S/U grading basis.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**BIO\_SC 8002: Topics in Biological Sciences- Biological/Physical/Mathematics**

Advanced topics not in regularly offered courses.

**Credit Hour:** 1-6

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**BIO\_SC 8050: Professional Survival Skills**

Introduction to resources, facilities, and communication skills for professional careers in biological sciences. Topics include computer resources, accessing scientific literature, making slides and figures, grantsmanship, resume preparation, manuscript review, and research presentation.

**Credit Hours:** 2

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**BIO\_SC 8060: Ethical Conduct of Research**

(same as BIOCHM 8060). Discussion of ethical issues in biological research, including the rules and conventions for appropriate research conduct. Graded on S/U basis only.

**Credit Hour:** 1

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**BIO\_SC 8070: Professional Communication Development**

The purpose of this course is to develop professional communication skills in students that are planning to attend (or are in their first year of) graduate training. Some sections may be offered with A-F or S/U grading option.

**Credit Hour:** 1-2

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**BIO\_SC 8085: Problems in Biological Sciences**

Research not expected to terminate in thesis, or individual advanced study in special subjects.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**BIO\_SC 8087: Seminar**

Current topics in the biological sciences. Open to all graduate students. Graded S/U basis only.

**Credit Hour:** 1

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**BIO\_SC 8090: Research in Biological Sciences**

Research leading to thesis. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**BIO\_SC 8187: Seminar in Areas of Specialization**

Offered each semester in one or more specialized sections followed by the topic title of the seminar. Graded on S/U basis only.

**Credit Hour:** 1

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**BIO\_SC 8300: Advanced Plant Genetics**

Genetic approaches to molecular and biochemical studies in maize, wheat, and Arabidopsis.

**Credit Hours:** 3

**Prerequisites:** General Genetics and course in Cell Biology or Plant Physiology

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**BIO\_SC 8310: Fungal Genetics and Biology**

Introduction to fungal research, with an emphasis on genetics, biochemistry, cell and molecular biology, and pathogenicity of fungi. Graded A-F only.

**Credit Hours:** 3

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**BIO\_SC 8320: Developmental Genetics**

An overview of various developing systems amenable to classical and molecular genetic analysis. Specific developmental phenomena will be introduced in particular model systems, with an emphasis on experimental approaches used to address the underlying mechanisms.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200 and BIOCHM 7270, BIOCHM 7272, or equivalent

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**BIO\_SC 8440: Integrative Neuroscience I**

(same as NEUROSCI 8440). Organization, development and function of the nervous system focusing on cellular and molecular processes. Graded on A-F basis only.

**Credit Hours:** 3

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**BIO\_SC 8442: Integrative Neuroscience II**

(same as NEUROSCI 8442). Organization and function of the nervous system at the systems level to examine processes of behavior and cognition. Graded on A-F basis only.

**Credit Hours:** 3

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**BIO\_SC 8460: Advanced Cancer Biology**

A study of the molecular basis of cancer, including topics in tumor cell biology, interactions between cancer cells and normal cells, mechanisms of metastasis, and novel approaches to development of new chemotherapies.

**Credit Hours:** 3

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**BIO\_SC 8505: Introduction to Plant Stress Biology**

(same as PLNT\_S 8505). This course is part of a series that aims to provide a solid conceptual foundation to interdisciplinary plant biology for graduate students with a research emphasis in plant biology. This course examines the basic concepts and techniques used to understand plant stress biology. Graded on A-F basis only

**Credit Hours:** 2

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**BIO\_SC 8600: Design of Ecological Experiments**

Principles of experimental design in the context of ecological, behavioral, and evolutionary research.

**Credit Hours:** 2

**Prerequisites:** STAT 1400

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**BIO\_SC 8610: Current Concepts in Conservation Biology**

Survey of current concepts in conservation biology literature. Discussions will provide students with an appreciation of the historical development of concepts, the interdisciplinary nature of conservation problems, and the research required for effective solutions.

**Credit Hours:** 2

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**BIO\_SC 8633: Molecular and Network Evolution**

(same as AN\_SCI 8633). Evolution of biological macromolecules and networks, including sequence analysis algorithms and theory, phylogenetics, gene duplication, genome evolution, principles of biological networks. Development of computational skills emphasized.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required

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**BIO\_SC 8700: Ecological Genetics**

Population genetics and evolutionary theory, with emphasis on studies of natural populations.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200, BIO\_SC 3100 or BIO\_SC 3650, and STAT 1400 or equivalent

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**BIO\_SC 8720: Speciation**

Advanced discussion of species concepts and the processes of formation of species.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200 and BIO\_SC 4600

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**BIO\_SC 8724: College Science Teaching**

(same as LTC 8724, PHYSCS 8310, ASTRON 8310). Study of learner characteristics, teaching strategies, and research findings related to teaching science at the post-secondary level.

**Credit Hours:** 3

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**BIO\_SC 8725: Science Outreach: Public Understanding of Science**

(same as AN\_SCI 8725, PHYSCS 8350, LTC 8725). Development of presentations to adult audiences on the science underlying issues of current interest. May be repeated for credit.

**Credit Hour:** 1-2

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**BIO\_SC 8726: Integrating Science with Outreach**

(same as LTC 8726). This course provides an opportunity for students to earn credit for outreach activities in the community. Students will capitalize on their area of study and scientific expertise in developing, implementing, and evaluating related outreach activities. May be repeated for credit.

**Credit Hour:** 1-6

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**BIO\_SC 8740: Plant/Animal Interactions**

Discussion and lectures on herbivory, pollination biology, and dynamics of fruit and seed dispersal from ecological and evolutionary perspectives.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3650 or BIO\_SC 4660 or equivalent

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**BIO\_SC 9090: Research in Biological Sciences**

Research leading to dissertation. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**BIO\_SC 9432: Molecular Biology II**

(same as MICROB 9432, BIOCHM 9432) Detailed experimental analysis of eukaryotic cellular and molecular biology relevant to cellular and viral gene expression, post-transcriptional and post-translational modifications and genome replication. Models for developmental genetic analysis and genetic determinants controlling processes utilizing the current literature will be examined.

**Credit Hours:** 4

**Prerequisites:** MICROB 9430

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**BIO\_SC 9468: Molecular Biology of Plant Growth and Development**

(same as BIOCHM 9468). Molecular biology of plant hormones, signal transduction, environmental signals.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 4976

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## Biomedical Engineering Courses

**BME 2000: Professional Development in Engineering**

(same as BIOL\_EN 2000). A review of professional opportunities, registration, ethics, and societies. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Sophomore standing

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**BME 2007: World of Neuroscience**

(same as BIOL\_EN 2007, CMP\_SC 2007, ECE 2007). This in-class course will introduce undergraduates to the growing area of neuroscience from the perspectives of three disciplines: engineering, biology and psychology. Topics in the course will span multiple levels of neuroscience including genomic, genetic, molecular, cellular, systems, behavioral and clinical levels. Due to the interdisciplinary nature of the neuroscience, the classes will cover diverse topics. The topics will range from overviews of the key neurobiology areas, to lab sessions involving how to analyze your own brain signals (EEG), and to visits to brain imaging center and EEG lab. The overall goal is to provide a broad exposure to the fascinating world of interdisciplinary neuroscience. Graded on A-F basis.

Credit Hour: 1

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**BME 2080: Introduction to Programming for Engineers**

(same as BIOL\_EN 2080). This course teaches how to write scientific programs for analysis of data and simulation of physical phenomena using MATLAB. Graded on A-F basis only.

Credit Hours: 3

Prerequisites: MATH 1500

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**BME 2180: Engineering Analysis of Bioprocesses**

(same as BIOL\_EN 2180). Material and Energy Balances. Integrating principles of physics, chemistry and mathematics to analyze steady state and transient biological/biomedical processes. Graded on A-F basis only.

Credit Hours: 3

Recommended: MATH 1700, CHEM 1320, PHYSCS 2750

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**BME 3070: Biological Fluid Mechanics**

(same as BIOL\_EN 3070). Basic principles of fluid mechanics applied to transport processes in biological systems. Graded on A-F basis only.

Credit Hours: 3

Prerequisites: PHYSCS 2750 and MATH 1700

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**BME 3075: Introduction to Materials Engineering**

(same as BIOL\_EN 3075, CH\_ENG 3075). Course covers concepts and techniques in materials engineering from an engineering design perspective, materials requirements for design, and fundamentals; intended for undergraduate engineering students. Graded on A-F basis only.

Credit Hours: 3

Prerequisites or Corequisites: One of the following BIOL\_EN 3180, CH\_ENG 3234, MAE 4231, MAE 4300, or instructor consent

Prerequisites: MATH 2300, ENGINR 1200, ENGINR 2200, or instructor's consent

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**BME 3170: Biomaterials**

(same as BIOL\_EN 3170). Engineering sciences and design will be leverage for the study and design of biomaterials. Understanding the structure-property relationship between biomaterials and tissue will be addressed for implant design. Graded on A-F basis only.

Credit Hours: 3

Prerequisites or Corequisites: BIOL\_EN 2180, ENGINR 2200, or instructor's consent

Prerequisites: BIOL\_EN 3075 or BME 3075

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**BME 3170W: Biomaterials - Writing Intensive**

(same as BIOL\_EN 3170W). Engineering sciences and design will be leverage for the study and design of biomaterials. Understanding the structure-property relationship between biomaterials and tissue will be addressed for implant design. Graded on A-F basis only.

Credit Hours: 3

Prerequisites or Corequisites: BIOL\_EN 2180, ENGINR 2200, or instructor's consent

Prerequisites: BIOL\_EN 3075 or BME 3075

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**BME 3180: Heat and Mass Transfer in Biological Systems**

(same as BIOL\_EN 3180). Principles of heat and mass transfer and their applications in biomedical, bioenvironmental, and bioprocessing engineering. Graded on A-F basis only.

Credit Hours: 3

Prerequisites or Corequisites: ENGINR 2300 or CH\_ENG 3261

Prerequisites: BIOL\_EN 2180 or CH\_ENG 2225

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**BME 4001: Topics in Biomedical Engineering**

Current and new technical developments in biomedical engineering.

Credit Hour: 3-9

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**BME 4002: Scientific Discovery Leading to Life Science Innovations**

The overarching goal of this course is to introduce the concept of biomedical innovation and the pathways to succeed in drug or device product development. The importance of identifying appropriate unmet clinical needs, understanding stake holder perspectives, recording and protecting their ideas, and the commercialization potential of a product will be explained. The recent, innovation-based, life science research that is carried out in academic institutions, as well as the pathways involved in translating those fundamental discoveries into products and services that affect healthcare, will be explained. We will provide an outline about drug-discovery, device development, intellectual property protection, conflict of interests, ethical perspectives, and regulatory issues, as well as the transitions from initial discovery concepts to product development. An introduction to essential disciplines and interactions that enable scientific discoveries to move forward into novel drug and device development will be provided. Graded on A-F basis only.

Credit Hours: 3

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**BME 4003: Design and Development of Biomedical Innovation**

The overarching goal of this course is to help participants understand the design and development (drug or device) process in biomedical innovation. This course will help participants to understand the process of choosing unmet clinical needs, articulate a need statement without integrating solution, design and develop a solution. Participants will learn to assess the commercial potential of clinical needs by performing market analysis and valuing customer needs. A conceptual understanding about development of a prototype for a device and also drug development by different brainstorming process will be provided. Details of regulatory, reimbursement, patenting process required for product development will be explained with examples. An overview about how to evaluate preliminary designs, define product specifications, comply with manufacturing principles and methods, costs, cGMP requirements will be explained. Quality control and Quality assurance necessities for drug/device will be elucidated with case studies. Participants will gain knowledge about different business models for drug and devices, estimate market penetration and how to make profitable, patient-driven products. Graded on A-F basis only.

Credit Hours: 3

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**BME 4004: Regulatory Issues in Clinical Trials**

The overarching goal of this course is to help participants understand the essentials of compliance issues as it is related to conducting clinical trials using drugs and devices that have been or yet to be approved by FDA. This course will also help biomedical innovators recognize the importance of Human Subject Protection (HSP) and abide by the FDA regulations to

conduct clinical trials with the new drugs/devices that are being designed to advance patient-care. The course will describe regulatory standpoints for human subject protection, how to obtain approvals and develop clinical protocols for conducting clinical trials. An overview about clinical epidemiology, biostatistics and data management and analysis will be provided. Graded on A-F basis only.

**Credit Hours:** 3

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**BME 4075: Brain Signals and Brain Machine Interfaces**

(same as BIOL\_EN 4075; cross-leveled with BIOL\_EN 7075). The course introduces state-of-the-art technologies for monitoring and manipulating brain activity, as well as the design principles of modern brain-machine interfaces (BMIs) for interacting with the brain in health and disease. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 4070 or instructor's consent

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**BME 4085: Problems in Biomedical Engineering**

Supervised independent study at the undergraduate level.

**Credit Hour:** 1-5

**Prerequisites:** instructor's consent

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**BME 4170: Biomaterials Interfaces of Implantable Devices**

(same as BIOL\_EN 4170; cross-leveled with BIOL\_EN 7170). This course introduces students to implantable devices and tissue engineering and the effects of biocompatibility of the performance of the devices and tissue engineered scaffolds. A number of implantable devices will be studied including VADs (ventricular assist devices), drug delivery systems and tissue engineered constructs/scaffolds. Special emphasis is placed on investigating the techniques to enhance biocompatibility of the devices/scaffolds and integration of host tissue. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 3170

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**BME 4360: Biomanufacturing Technologies**

(same as BIOL\_EN 4360). This course is an introduction to biomanufacturing technologies and processes for manufacturing biological products (e.g., vaccine, antibodies, and therapeutic proteins). It mainly covers process development, unit operations, product evaluation, facilities, and regulatory compliance. It is an interdisciplinary course of biochemistry, microbiology, and engineering. The purpose of this course is to help the students acquire the knowledge of modern biomanufacturing and prepare them for rapidly growing fields in biomanufacturing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 2180 and BIOL\_EN 3180 (for biological engineering students) -or- CH\_ENG 2225 and CH\_ENG 3234 (for chemical engineering students) -or- Consent of instructor

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**BME 4370: Orthopaedic Biomechanics**

(same as BIOL\_EN 4370; cross-leveled with BIOL\_EN 7370). Engineering sciences will be leveraged to create a comprehensive study of orthopaedic biomechanics. The tissue mechanics of bone and soft tissue will be studied along with applying structural analysis of the musculoskeletal system. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 3170, ENGINR 1200, or instructor's consent

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**BME 4380: Applied Electronic Instrumentation**

(same as BIOL\_EN 4380; cross-leveled with BIOL\_EN 7380).

Fundamental concepts and theories, basic electronics, analog and digital circuits, signal conditioning, computer interfacing, measurement principles and techniques used in developing computer-based instrumentation systems. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** PHYSCS 2750

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**BME 4420: Introduction to Biomedical Imaging**

(same as BIOL\_EN 4420, PHYSCS 4420; cross-leveled with BIOL\_EN 7420, PHYSCS 7420). This course offers a broad introduction to medical imaging. Topics to be covered include the physics basics and instrumentation of X-ray CT, PET, SPECT, ultrasound, MRI and Optical Imaging, as well as recent developments in biomedical imaging.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**BME 4470: Biomolecular Engineering and Nanobiotechnology**

(same as BIOL\_EN 4470; cross-leveled with BIOL\_EN 7470). Generation of biotechnological products, devices through integration of engineering approaches with contemporary biology, chemistry and nanotechnology starting at the molecular level. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1700, PHYSCS 2760, CHEM 2100

**Recommended:** Senior/graduate standing or instructor's consent

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**BME 4470H: Biomolecular Engineering and Nanobiotechnology - Honors**

(same as BIOL\_EN 4470H; cross-leveled with BIOL\_EN 7470).

Generation of biotechnological products, devices through integration of engineering approaches with contemporary biology, chemistry and nanotechnology starting at the molecular level. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1700, PHYSCS 2760, CHEM 2100. Honors eligibility required

**Recommended:** Senior/graduate standing or instructor's consent

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**BME 4480: Physics and Chemistry of Materials**

(same as BIOL\_EN 4480, PHYSCS 4190, NU\_ENG 4319, CHEM 4490; cross-leveled with BIOL\_EN 7480, PHYSCS 7190, CHEM 7490, NU\_ENG 7319). Physics and Chemistry of Materials is a 3 credit hours course offered every spring semester for students from Physics, Chemistry, Engineering and Medical Departments and consists of lectures, laboratory demonstrations, two mid-term and one final exam. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2750, CHEM 1320 or equivalent, or instructor's consent

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**BME 4540: Neural Models and Machine Learning**

(same as ECE 4540, CMP\_SC 4540, BIOL\_EN 4540; cross-leveled with ECE 7540, BIOL\_EN 7540, CMP\_SC 7540). The projects-based course

has three inter-linked components: (I) math models of neurons and neural networks, (II) machine learning in neuroscience, after a brief introduction to python and (III) software automation and cyberinfrastructure to support neuroscience. Extensive projects focusing on software automation and machine learning components, with brief in-class presentations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1500 or consent of instructor

**Recommended:** Introductory software programming, and introductory cell biology or consent of instructor

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#### **BME 4570: Fluorescent Imaging**

(same as BIOL\_EN 4570; cross-leveled with BIOL\_EN 7570). Principles and applications of the modern technology of fluorescent imaging.

The course covers image formation in microscope; Fundamentals of fluorescence and fluorescent microscopy; Fluorescent probe and applications of molecular and cellular fluorescent imaging in life science research. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1500, BIO\_SC 2180

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#### **BME 4590: Computational Neuroscience**

(same as BIOL\_EN 4590, BIO\_SC 4590, ECE 4590; cross-leveled with BIOL\_EN 7590, BIO\_SC 7590, ECE 7590). An interdisciplinary course with a strong foundation in quantitative science for students in biological-behavioral sciences. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1010, BIO\_SC 1500; MATH 1500

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#### **BME 4770: Biomedical Optics**

(same as BIOL\_EN 4770; cross-leveled with BIOL\_EN 7770). Essential concepts and methods for applying optical techniques to biomedical diagnosis and therapy will be covered with major application examples being discussed.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

**Recommended:** BIOL\_EN 3180

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#### **BME 4940: Engineering Internship**

(same as BIOL\_EN 4940). Problem course following prior approved work experience. Problem selected by internship company representative, faculty problem adviser and student. Supervised by faculty problem advisor and presented in engineering report form. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** advisor's consent

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#### **BME 4970: Nuclear Magnetic Resonance and Magnetic Resonance Imaging**

(same as BIOL\_EN 4970). Nuclear Magnetic Resonance (NMR) is one of the most powerful methods of investigating the structure, composition, and dynamics of atoms and molecules. It is now ubiquitous in chemistry and engineering labs, and has blossomed into one of the most successful medical imaging modalities - Magnetic Resonance Imaging (MRI). This course is an in-depth examination of the relevant physical principles behind this technology: basic spin physics, spectrometer design and

implementation, what it can be used to measure, and how it is currently being used in laboratory and clinical settings. In particular, students will gain a working knowledge of basic nuclear physics, spin precession, T1 and T2 weighting mechanisms, the pulse/acquire NMR experiment, the influence of magnetic field gradients, Fourier theory and k-space, imaging principles, and the many pulse sequences currently employed in NMR/MRI research labs around the world.

**Credit Hours:** 3

**Prerequisites:** Senior Standing or instructor consent

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#### **BME 4980: Biomedical Engineering Design**

(same as BIOL\_EN 4980). Capstone design course for the biomedical engineering major. Design of biomedical devices or processes. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGINR 1100 or MAE 1100, and ENGINR 2200, and BIOL\_EN 3180 or BME 3180, or instructor's consent

**Corequisites:** BIOL\_EN 4380 or BME 4380

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#### **BME 4980W: Biomedical Engineering Design - Writing Intensive**

(same as BIOL\_EN 4980W). Capstone design course for the biomedical engineering major. Design of biomedical devices or processes. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGINR 1100 or MAE 1100, and ENGINR 2200, and BIOL\_EN 3180 or BME 3180, or instructor's consent

**Corequisites:** BIOL\_EN 4380 or BME 4380

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#### **BME 4985: Bioengineering Design II**

(same as BIOL\_EN 4985). This course is intended to serve as the second term of our capstone, or senior design experience, for the Bachelor of Science in Biological Engineering or Biomedical Engineering degree programs. During this term, students will be expected to continue the design project begun by their team in the fall semester, carrying it through to prototyping, testing, and redesign. Students will continue their project under the advisement of the same faculty mentor and industrial cooperator who led their first term capstone experience. Graded on A-F basis only.

**Credit Hour:** 1-5

**Prerequisites:** BIOL\_EN 4980 or BME 4980

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#### **BME 4990: Undergraduate Research in Biomedical Engineering**

Supervised independent study at the undergraduate level. Graded on A-F basis only.

**Credit Hour:** 1-6

**Prerequisites:** Department consent

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#### **BME 4995H: Undergraduate Honors Research in Biomedical Engineering**

(same as BIOL\_EN 4995H). Open only to honor students in Biological Engineering and Biomedical Engineering. Independent investigation in biological engineering to be presented as a thesis.

**Credit Hour:** 1-5

**Prerequisites:** Instructor consent, Honors eligibility required

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## Biomedical Sciences Courses

### BIOMED 1010: Biomedical Career Explorations

An introduction to the variety of career possibilities within the growing field of biomedical sciences. Graded on A-F basis only.

**Credit Hour:** 1

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### BIOMED 2110: Biomedical Terminology

Life science etymology (Greek for 'true meaning', means the study of word derivation) taught by classroom presentation and discussion. The course organization is based primarily on common themes of Greek and Latin terms along with historical reasons for current usage. The application of these terms is for all biomedical sciences and life sciences. Graded on A-F basis only.

**Credit Hours:** 3

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### BIOMED 2111: Veterinary Medical Terminology

Veterinary Medical Terminology is an extension of Biomedical Sciences 2110, Biomedical Terminology. The course organization is lecture, based primarily on domestic species and common themes of Greek and Latin terms. In addition, major veterinary medical eponyms, acronyms, and medical and surgical instruments are included. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** BIOMED 2110 or instructor's consent

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### BIOMED 2120: Essentials of Animal Handling and Physical Restraint

Fundamentals of handling and physical restraint of domestic large and small animals, laboratory animals, and common non-domestic pets. Graded on A-F basis only.

**Credit Hours:** 2

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### BIOMED 2130: Introduction to Veterinary Anatomy and Physiology

This introductory anatomy and physiology course describes the body and its functions from a systemic approach. Suitable for a student with no previous coursework in anatomy and physiology. Graded on A-F only.

**Credit Hours:** 3

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### BIOMED 2140: Companion Animals

(same as AN\_SCI 2140). Companion animals form an important part of our society. They serve us, provide companionship and many become members of our families. This class focuses primarily on dogs, cats, and horses. Topics covered include: the pet industry, breeds, wellness, management, care, training, zoonotic diseases, evolution and domestication, toxicology, nutrition, reproduction, genetics, human animal interactions, companion animal enterprise, and biomedical research. Students may enroll in one of two sections: service learning section or traditional course section.

**Credit Hours:** 3

**Recommended:** sophomore standing

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### BIOMED 2230: Animal Sanitation and Disease Prevention

Preventative measures for diseases and parasites of farm animals.

**Credit Hours:** 3

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### BIOMED 2940: Internship in Biomedical Sciences

Supervised work experience to develop technical skills and enhance student knowledge in an area of biomedical science. Not intended for more than 50% independent research. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** sophomore standing and instructor's consent

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### BIOMED 3000: Specialty Careers for Veterinary Technicians

Specialty careers for veterinary technicians are jobs which required knowledge and skills beyond those needed in primary care clinical veterinary practice. This course will explore veterinary technician specialties, the education required, and the advantages of advanced academic training. Course graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** AAS degree in veterinary technology or instructor's consent required

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### BIOMED 3001: Topics in Biomedical Sciences

Topics in Biomedical Sciences.

**Credit Hour:** 1-99

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### BIOMED 3100: Biomedical Pathophysiology

Pathophysiology is the study of changes in the body resulting from disease. This course requires knowledge of normal anatomy and physiology. A comparative approach is used involving both domestic animal and human examples. Course graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 3254 or BIO\_SC 3700 or equivalent, AAS or equivalent degree from AVMA-accredited program or instructor's consent

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### BIOMED 3200: Comparative Hematology

Hematology is the study of blood cells in health and disease. Emphasis in this course is placed on the changes associated with disease. Transfusion medicine and coagulation disorders will also be included. Course graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 3254 or BIO\_SC 3700 or equivalent, AAS or equivalent degree from AVMA-accredited program or instructor's consent

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### BIOMED 3219: Elements of Comparative Anatomy

This course is designed to give students an introduction to and appreciation for comparative anatomy of various species encountered in animal science, veterinary technology and veterinary medicine. Detailed and labeled photos of dissected specimens are used to aid instruction. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** five hours of biological science or zoology or equivalent or instructor's consent or an AAS degree in veterinary technology

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### BIOMED 3250: Parasitology

Parasitism is considered as a fundamental type of interspecies interaction. Identifying characteristics, life cycle, and resulting disease caused by the common parasites of domestic animals, common laboratory animals, selected wildlife, and humans are described. Special

emphasis is given to parasites that can be transmitted from animals to man.

**Credit Hours:** 3

**Prerequisites:** 8 hours of biology or instructor's consent

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#### **BIOMED 3300: Animal Welfare and Ethics**

An introductory examination of ethical issues related to animal welfare, including animal use for food, research, and companionship, plus contemporary issues affecting companion animals, farm animals, and horses. Topics related to animal pain and legal status will also be discussed. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** junior standing

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#### **BIOMED 3326: Principles of Veterinary Pharmacology**

An introduction to the study of veterinary pharmacology. Topics to be covered include terminology, calculations, basic physiology, and basic pharmacokinetics and pharmacodynamics. Both small and large animal organ systems are discussed. Basic medicolegal aspects of pharmacology are also reviewed.

**Credit Hours:** 3

**Prerequisites:** an AAS degree in veterinary technology or AN\_SCI 3254 or BIO\_SC 3700, or equivalent, or instructor's consent

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#### **BIOMED 3400: Domestic Animal Behavior in Veterinary Practice**

Students will be introduced to the key characteristics of behavior among common domestic animals such as dogs, pigs, cats, horses, cattle, sheep and goats. Topics include communication, aggression, biological rhythms, reproductive behavior, learning and development, ingestive behavior and genetics. This course will enable students to gain a thorough understanding of assessing animal behavior, as well as how to utilize the assessment to better the animal's health. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Junior standing

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#### **BIOMED 4001: Topics in Biomedical Sciences**

Topics in Biomedical Sciences.

**Credit Hour:** 1-99

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#### **BIOMED 4100: Veterinary Clinical Chemistry**

(cross-leveled with V\_PBIO 7100). This course is designed to hone the skills of the practicing veterinary technician, veterinary student, or veterinarian and assumes some basic knowledge of normal serum chemistry and urinalysis results. The review of normal will be minimal and emphasis will be placed on clinical serum chemistry and urinalysis findings associated with diseases. The graduate level course will include discussion of ancillary tests and more extensive case interpretations.

**Credit Hours:** 3

**Prerequisites:** An AAS or equivalent degree in veterinary technology from an American Veterinary Medical Association accredited programs; Undergraduate physiology on mammals (AN\_SCI 3254, BIO\_SC 3700, or equivalent

**Recommended:** BIOMED 2110 and BIOMED 3200 or instructor's consent

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#### **BIOMED 4110: Veterinary Cytology**

(cross-leveled with V\_PBIO 7110). This course of Veterinary Cytology is designed to hone the skills of the practicing Veterinary Technician, Veterinary Student, or Veterinarian and assumes some basic knowledge of microscope usage and normal hematology. The review of normal cells will be minimal and emphasis will be placed on findings associated with inflammatory and neoplastic diseases. The graduate level course will include discussion of ancillary tests, special stains and treatment alternatives. The focus will be on canine and feline diseases but some common equine and bovine disease. Prerequisites: An AAS or equivalent degree in veterinary technology from an American Veterinary Medical Association-accredited program, or instructor's consent

**Credit Hours:** 2

**Recommended:** BIOMED 3200 and BIOMED 2110

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#### **BIOMED 4120: Principles of Toxicology**

(cross-leveled with V\_PBIO 7120). This course will provide an introduction to the general principles of toxicology, including the history and scope of the field; risk assessment and management; mechanisms of toxicology; the disposition of toxicants; non-target organ-directed toxicity; toxic responses of specific target organs; and various toxicological application, such as environmental toxicology.

**Credit Hours:** 3

**Prerequisites:** one year of college chemistry and biology, each or instructor's consent

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#### **BIOMED 4210: Animal Issues in Disasters**

(cross-leveled with V\_PBIO 7210). This course describes the various aspects of responding to disasters that involve animals. Government involvement, legal requirements, effects on the human-animal bond, preparation for disasters of different kinds, and impacts on animal-related businesses will be discussed.

**Credit Hour:** 1

**Prerequisites:** an AAS in veterinary technology from an American Veterinary Medical Association accredited program, or equivalent training, or instructor's consent

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#### **BIOMED 4300: Clinical Veterinary Neurology**

Clinical veterinary neurology will review the neurologic examination, common neurologic diseases and techniques to properly care for the neurologic patient. The course organization is based primarily on neuroanatomic localization of disease. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AAS in Veterinary Technology or BIOMED 3219 and 3100 or instructor's consent; junior or senior standing

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#### **BIOMED 4320: Fundamentals of Small Animal Emergency and Critical Care**

(cross-leveled with V\_BSCI 7320). This course will provide students with the knowledge and skills to assist in small animal medical emergency and critical care facilities.

**Credit Hours:** 3

**Prerequisites:** An AAS in veterinary technology from an American Veterinary Medical Association accredited program, or equivalent training, or instructor's consent

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**BIOMED 4333: Veterinary Cell Biology**

(same as V\_BSCI 5506). Course material stresses cell biology as related to animal health and medical issues. A comprehensive course overviewing molecular and biochemical issues of cell function especially as related to medicine and the underlying molecular causes of disease.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1500, or equivalent, 1 course in biochemistry or 4 credit hours in chemistry; or instructor's consent

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**BIOMED 4400: Veterinary Surgical Nursing**

Veterinary Surgical Nursing will enable the student to properly identify, care for, and maintain surgical equipment. The course will also prepare the student to learn surgical anatomy as well as the potential complications of common clinical setting surgeries. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIOMED 2111, BIOMED 3219, and BIOMED 3100, or instructor's consent

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**BIOMED 4410: Small Animal Physical Rehabilitation**

This course will review the science of veterinary rehabilitation, assessment of rehabilitation patients, and the techniques used to treat these patients. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AAS degree in veterinary technology or BIOMED 2110 or HTH\_PR 2190 or equivalent, plus BIOMED 3219 or PTH\_AS 2201 or equivalent, or instructor's permission

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**BIOMED 4500: Equine Critical Care and Nursing**

This course provides advanced information for veterinary technicians, veterinary assistants, and pre-veterinary students wishing to enhance and focus their understanding of equine critical care and nursing concepts. Course graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 2095 and AN\_SCI 3254 or BIO\_SC 3700 or equivalents, AAS or equivalent degree from AVMA-accredited program or instructor's consent

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**BIOMED 4510: Equine Clinical Anatomy: Forelimbs**

(cross-leveled with V\_BSCI 7510). Basic foundation in selected aspects of equine clinical anatomy from veterinary technicians, pre-veterinary students, and other students wishing to enhance their understanding of anatomical structures of the horse's forelimbs.

**Credit Hour:** 1

**Prerequisites:** five hours of biologic science or zoology, or equivalent, or instructor's consent, or an AAS or equivalent degree in veterinary technology from an American Veterinary Medical Association accredited program

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**BIOMED 4520: Equine Clinical Practice**

This course is an introduction to a common medical conditions of the horse. Emphasis will be placed on the presenting complaint and the veterinarians approach to diagnosis, treatment, and prognosis.

**Credit Hour:** 1

**Prerequisites:** BIOMED 2110, BIOMED 2111 and AN\_SCI 4977 or their equivalents, or an associate's degree in veterinary technology, or instructor's consent

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**BIOMED 8100: Veterinary Online Course Development and Teaching**

Best practices of online teaching in veterinary medicine are taught. Emphasis is placed on proper course objectives, productive instructor and student interactions, appropriate student assessments, and essentials of course alignment. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** ED\_LPA 9456

**Prerequisites:** ED\_LPA 9448

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**BIOMED 8310: Advanced Topics in Stress Physiology**

An in-depth study of the causes and physiological responses to internal and external stress conditions that affect animals throughout life. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Admission to the MS in Biomedical Sciences program

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**BIOMED 8311: Clinical Veterinary Physiology Review Series A: Cells, Circulation, Musculoskeletal, Renal, Immune**

This course will provide graduate level instruction to review cellular, circulation, musculoskeletal, renal, and immune physiology, and apply concepts to the veterinary patient. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Acceptance into program

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**BIOMED 8312: Clinical Veterinary Physiology Review Series B: Respiration, Neurological, Gastrointestinal, Metabol**

This course will provide graduate level instruction to review respiratory, neurological, gastrointestinal, metabolic, and endocrine physiology, and apply concepts to the veterinary patient. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** admission into program

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**BIOMED 8700: Principles of Veterinary Pain Management**

Pain pathophysiology, assessment, and management in veterinary patients. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Admission to the MS in Biomedical Sciences program

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**BIOMED 8710: Essentials of Radiation Biology**

Essentials of Radiation Biology begins with an overview of pertinent medical physics and cell biology, then continues with the biologic, cellular and systemic responses to ionizing radiation. This course also includes a presentation of the early and late somatic and genetic effects of ionizing radiation. Required radiation protection guidelines and regulations will be taught as well as methods and techniques to reduce whole body and organ occupational radiation exposure. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Successful completion of undergraduate Biology; admission into the program

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**BIOMED 8900: Small Animal Wound Management and Reconstructive Surgery**

This course addresses wound physiology, management and reconstructive surgery in small animal patients. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Admission to program

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**Black Studies Courses**

**BL\_STU 1000: Introduction to Black Studies**

An interdisciplinary introduction to the basic concepts and literature in the disciplines covered by Black Studies. The role of historical, political, social, and economic forces in shaping cultural expression will be stressed. This course prepares students at all levels with a good foundation for advancement in Black Studies but also with a useful set of guidelines for further achievement in the humanities, behavioral and the social sciences.

**Credit Hours:** 3

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**BL\_STU 1250: World Theatre Workshop**

(same as THEATR 1250). Provides a diverse ensemble of student performers, writers, and technicians with an intensive immersion in the process of theatrical production through the public presentation of dramatic literature that focuses on global issues of ethnicity and culture.

**Credit Hours:** 2

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**BL\_STU 1335: Introduction to Soul and Country**

(same as MUSIC\_NM 1335). Examination of musical cultures signified by 'soul' and 'country'. Study of the evolution and aesthetics of these genres and how they deal with concepts like identity, class, race, and ethnicity; gender and sexuality; politics and patriotism.

**Credit Hours:** 3

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**BL\_STU 1410: African American History**

(same as HIST 1410). Survey of social, political and economic development to the African American people in American life from 1619 to the present.

**Credit Hours:** 3

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**BL\_STU 1700: Black Studies in Gender, Race, Sexuality, and Class: Introduction**

This course introduces students to basic terminology, historical and contemporary dimensions of social inequality centered in race, gender, class and sexuality. Using multidisciplinary lenses to examine social, cultural, political and economic experiences of diverse Black populations, communities and individuals to learn core concepts: race, class, gender, and sexuality toward understanding the implications of socially-constructed identities for distinct groups of Black societies navigating various gendered modes of being. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** BL\_STU 1000

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**BL\_STU 1704: Introduction to Black Politics**

(same as POL\_SC 1704). This course is oriented toward the development of concepts and theory in the study of black politics. The readings in the course are divided into political science categories such as ideology, electoral participation, movement politics and public policy. In addition, major periods in black political history are examined in the light of the behavioral and theoretical concerns prominent in political science. Black Politics seeks an increased understanding of Black Diaspora history as a group and the various political effects of the history of slavery and racism; and (2) studies Black Diaspora struggles for racial justice, civil rights, political equality, and fundamental respect in the face of both explicit and structural or systematic racism. Graded on A-F basis only.

**Credit Hours:** 3

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**BL\_STU 1705: Introduction to Black Studies in Culture**

Introduction to the concepts, terms, themes, and practices in the study of the African diaspora cultures, through readings in literature, music, and the arts that demonstrate concepts, terms, themes, and practices. Recommended for prospective Black Studies Majors. Program consent for repetition.

**Credit Hours:** 3

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**BL\_STU 1705H: Introduction to Black Studies in Culture - Honors**

Introduction to the concepts, terms, themes, and practices in the study of the African diaspora cultures, through readings in literature, music, and the arts that demonstrate concepts, terms, themes, and practices. Recommended for prospective Black Studies Majors. Program consent for repetition.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**BL\_STU 1720: African-American Theatre History**

(same as THEATR 1720). A historical and critical analysis of the evolution of African American cultural performance in the American theatre and entertainment industry.

**Credit Hours:** 3

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**BL\_STU 1790: History of Early Africa**

(same as HIST 1790). This course introduces students to the early history of Africa. It focuses on political, social, economic and cultural developments based on primary and secondary sources available in print and online.

**Credit Hours:** 3

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**BL\_STU 1800: History of Modern Africa**

(same as HIST 1800). This course introduces students to the recent history of Africa. It provides them with an opportunity to understand the main challenges Africans faced since colonial times based on primary and secondary sources.

**Credit Hours:** 3

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**BL\_STU 1801: Introduction to the Black Diaspora**

This course introduces students to the content and contours of Diaspora Studies as a field of study--its genealogy, development, and

future challenges. The course focuses on historic and contemporary experiences of African-descended peoples in the Americas, particularly the United States, the Caribbean, and Latin America. We will also give some attention to how members of the Diaspora remember and encounter Africa, and to how Africans respond to the history of enslavement, colonialism, apartheid, racism and globalization. In addition to literature and research, film, music, photography, and artwork will be used to develop a critical understanding of the African Diaspora. These non-written texts will make abstract readings come to life while stimulating the development of critical thinking skills. Students are encouraged to draw connections between these visual/audio representations and the ideas and issues that we uncover from course readings. Graded on A-F basis only.

**Credit Hours:** 3

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**BL\_STU 2001: Undergraduate Topics in Black Studies-General**

Organized study of selected topics. Subjects and credits may vary from semester to semester. Program consent for repetition.

**Credit Hour:** 1-3

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**BL\_STU 2001H: Undergraduate Topics in Black Studies-General - Honors**

Organized study of selected topics. Subjects and credits may vary from semester to semester. Program consent for repetition.

**Credit Hour:** 1-3

**Prerequisites:** Honors eligibility required

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**BL\_STU 2003: Undergraduate Topics in Black Studies-Behavioral Science**

Organized study of selected topics. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to 6 hours with program consent.

**Credit Hours:** 3

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**BL\_STU 2003W: Undergraduate Topics in Black Studies-Behavioral Science - Writing Intensive**

Organized study of selected topics. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to 6 hours with program consent.

**Credit Hours:** 3

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**BL\_STU 2004: Topics in Black Studies-Social Science**

Organized study of selected topics. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to 6 hours with departmental consent.

**Credit Hours:** 3

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**BL\_STU 2004W: Topics in Black Studies-Social Science - Writing Intensive**

Organized study of selected topics. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to 6 hours with departmental consent.

**Credit Hours:** 3

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**BL\_STU 2005: Topics in Black Studies - Humanities**

Organized study of selected topics focusing on Black history and culture. Specific content may vary from semester to semester and will be announced in advance.

**Credit Hours:** 3

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**BL\_STU 2200: Social Inequalities**

(same as SOCIOL 2200). Survey of inequalities based upon criteria such as race, ethnicity, sex, age, religion and social class in contemporary societies. Focus on dynamics by which privilege and inequality are structured.

**Credit Hours:** 3

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**BL\_STU 2210: The Black Americans**

(same as SOCIOL 2210.) Analysis of history of blacks in the United States. Assessment of contemporary black community in terms of its institutions, style of life, patterns of work and intergroup relations.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 1000 or equivalent or instructor's consent

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**BL\_STU 2303: Studies in Black Relationships**

This course examines constructions of Black American coupling and therefore, gender, race, sexuality, and class in the 20th and 21st centuries. Blackness has been and continues to be reconstructed via marriage, dating, and other forms of coupling. Emphasis will be placed on the role of socialization, institutions, mass media, myth, and individual and group practices. Students will have the opportunity to explore their own socialization and personal construction through assigned readings, self-reflection, experiential activities, and small group presentations.

**Credit Hours:** 3

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**BL\_STU 2400: Introduction to African Diaspora Literature**

(same as ENGLSH 2400). Introduces students to African Diaspora literature with an emphasis on literature written originally in English. No more than six hours may be taken in the Introduction to African Diaspora Literature series.

**Credit Hours:** 3

**Recommended:** ENGLSH 1000

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**BL\_STU 2409: Introduction to African Diaspora Literature, 1890-Present**

(same as ENGLSH 2409). See BL\_STU 2400 for course description.

**Credit Hours:** 3

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**BL\_STU 2410: African American Women in History**

(same as HIST 2410 and WGST 2410). African American Women in history is a topics course covering major issues affecting black women since their introduction into english-speaking North America to the present.

**Credit Hours:** 3

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**BL\_STU 2425: Race and the American Story**

(same as POL\_SC 2425, CNST\_DEM 2425). This course represents a collaboration between the University of Missouri's Department of Black

Studies and the Kinder Institute on Constitutional Democracy. Building upon the existing Citizenship@Mizzou program, the course aims to carry forward the goals of the Citizenship program and to further solidify and magnify its impact on campus. In so doing, the course will also serve as a model for improving diversity education on campuses across the country and contribute to a more informed and unified national culture. The core syllabus will consist in readings that tell the story of the confrontation between American political principles and the practice of racial injustice throughout our history. Students will read and discuss the Declaration of Independence, the slavery clauses in the Constitution, the poetry of Phillis Wheatley, and the speeches of Frederick Douglass, Abraham Lincoln, and Martin Luther King, Jr., among others. They will achieve a greater understanding of how diversity relates to humanity, and will learn to dialogue productively and civilly with others who may not share their background or opinions.

**Credit Hours:** 3

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**BL\_STU 2601: Languages of Africa**

(same as ENGLISH 2601 and LINGST 2601). Introduction to the diversity of the 2000+ African languages, including first-hand experience exploring a few in detail with native speakers. Features of African languages are compared with others of the world. Political and social aspects of language in Africa are discussed.

**Credit Hours:** 3

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**BL\_STU 2604: Caribbean History and Culture**

This course surveys the historical and cultural development of the Caribbean region from colonial times to the present. It emphasizes the colonial decimation of Amerindians and the evolution from plantation societies to slave societies, along with tracing the history of racial and gender relations, imperial rivalries, economic dependency, and ultimately nationalism and political independence.

**Credit Hours:** 3

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**BL\_STU 2700: Black Studies in Gender, Race, Sexuality, and Class: Intermediate**

This course explores the historical and contemporary dimensions of social inequality centered in gender, race, class and sexuality. Using an interdisciplinary lens and feminist analysis this course will analyze social, cultural, political and economic experiences of various individuals and communities. Readings, lectures, films and discussions will focus on diverse structures of power and inequality and their relationship to constructions of patriarchy, capitalism, heterosexism, racism, nationality, and ability. Emphasis will be placed on the socially constructed definitions of various groups and how these definitions affect individual and group experiences. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** BL\_STU 1000

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**BL\_STU 2704: African Political Thought**

This course investigates African political philosophy and debate throughout the period leading to decolonization and the reflective years of thought following independence. Course will focus on individual political thinkers and cultural phenomena beginning with indigenous African theoretical approaches. Topics will include African Nationalism, populism and Marxism, Pan-Africanism, and concludes with contemporary perspectives on democracy, development, and the African State.

**Credit Hours:** 3

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**BL\_STU 2715: Studies in Black Culture**

This course will survey selected forms of black cultural expression, from a range of U.S., Africa, and the African Diaspora cultures in various media including literature, music, film studies, as well as other related disciplines. Program consent for repetition.

**Credit Hours:** 3

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**BL\_STU 2715H: Studies in Black Culture - Honors**

This course will survey selected forms of black cultural expression, from a range of U.S., Africa, and the African Diaspora cultures in various media including literature, music, film studies, as well as other related disciplines. Program consent for repetition.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**BL\_STU 2804: Black Political Thought**

Black Political Thought develops a set of critical tools to help explain the distinctiveness of Black Politics. The distinctiveness of Black Political Thought first emerged from spaces of exclusion in Western nations and colonies. The thinking surrounding Black Political Thought originates in a standpoint, or perspective, profoundly different from that of mainstream Political Theory. Out of this encounter comes a deeper understanding of Black intellectual traditions as well as an enhanced understanding of Political Theory's core concepts. Black Political Thought uses the lens of the African diaspora to investigate the abiding concerns of Political Theory, i.e. the meanings of justice, freedom, and equality; the nature of power, obligation, and 'the good life.'

**Credit Hours:** 3

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**BL\_STU 2904: Black Studies in Slavery and Freedom**

(same as HIST 2904). This course provides study of historical background, economic, political and social implications of slavery and freedom in the African Diaspora (Americas, Africa, Europe, Asia) as well as the legal and extralegal struggles for and meaning of (global, local, and national) freedom.

**Credit Hours:** 3

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**BL\_STU 2940: African Religions**

(same as REL\_ST 2940). This course will serve as an introduction to various forms of religiosity in sub-Saharan Africa. Greater emphasis will be devoted to the indigenous religious traditions of the continent, but we will also examine Christianity and Islam as they are practiced on the continent. The aim of this class is to help students to better understand various aspects of African cultures by dismantling stereotypes and assumptions that have long characterized the study of religions in Africa. The readings and lectures will be drawn from historical, anthropological, sociological, and literary sources. Graded on A-F basis only.

**Credit Hours:** 3

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**BL\_STU 2975: Traditions and Concepts in Black Studies**

This course provides a broad understanding of the diverse theoretical traditions within the field of Black Studies, through a comparative examination of concepts, developments, and debates in humanities,

social and behavioral sciences, including literature, languages, and music, sociology, psychology, political science, women's and gender studies, and history. Course graded on A-F basis only.

**Credit Hours:** 3

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**BL\_STU 3001: Undergraduate Topics in Black Studies - General**

Organized study of selected topics. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to 6 hours with program consent.

**Credit Hours:** 3

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**BL\_STU 3003: Undergraduate Topics in Black Studies - Behavioral Sciences**

Organized study of selected topics focusing on Black history, culture, or other relevant disciplines. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to 6 hours with program consent.

**Credit Hour:** 1-3

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**BL\_STU 3004: Undergraduate Topics in Black Studies - Social Science**

Organized study of selected topics focusing on Black history, culture, or other relevant disciplines. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to 6 hours with program consent.

**Credit Hour:** 1-3

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**BL\_STU 3004W: Undergraduate Topics in Black Studies - Social Science - Writing Intensive**

Organized study of selected topics focusing on Black history, culture, or other relevant disciplines. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to 6 hours with program consent.

**Credit Hour:** 1-3

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**BL\_STU 3005: Undergraduate Topics in Black Studies - Humanities**

Organized study of selected topics focusing on Black history, culture, or other relevant disciplines. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to six credit hours with program consent.

**Credit Hour:** 1-3

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**BL\_STU 3100: African American Psychology**

(same as ESC\_PS 3100 and PSYCH 3880). The research, theories, and paradigms developed to understand the attitudes, behaviors, and psychosocial realities of African-Americans are discussed.

**Credit Hours:** 3

**Recommended:** PSYCH 1000

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**BL\_STU 3200: Black Freedom Movement, 1955-1973**

(same as HIST 3200). Examines the dismantling of American apartheid and its transformation into a new racial control system. It also explores how and why the Civil Rights Movement was converted into a struggle for Black Power.

**Credit Hours:** 3

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**BL\_STU 3230: Studies in Black Sexual Politics**

Course explores Black transnational politics of sex/sexuality and examines the theoretical, historical, and socio-cultural context that race, gender, and sexuality are used as analytical concepts. Students learn a transdisciplinary approach and apply this newly acquired information to analyze shifts in the field of Black sexuality studies. May be repeated for credit.

**Credit Hours:** 3

**Recommended:** sophomore standing required

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**BL\_STU 3303: Black Athletes**

This course examines Black Athletes in the 20th and 21st centuries. Emphasis will be placed on how Blacks entered competitive athletics and the role of racism and power, socialization, institutions, mass media, myth, and individual and group practices. Students will have the opportunity to explore their own socialization and personal construction through assigned readings, self-reflection, experiential activities, and small group presentations.

**Credit Hours:** 3

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**BL\_STU 3400: Survey of African American Literature, Beginnings to 1900**

(same as ENGLISH 3400). A survey of major authors and movements in African American literature from its beginnings to 1900.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**BL\_STU 3400W: Survey of African American Literature, Beginnings to 1900 - Writing Intensive**

(same as ENGLISH 3400). A survey of major authors and movements in African American literature from its beginnings to 1900.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**BL\_STU 3410: Survey of African American Literature, 1900-Present**

(same as ENGLISH 3410). A survey of major authors and movements in African American literature from 1900 to the present.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**BL\_STU 3605: The History of Blacks in Germany**

(same as GERMAN 3605). This course investigates the history of Africans and African Americans in Germany and Central Europe, from Antiquity to today. Special focus on Medieval Africans in Europe, travelling African American intellectuals around 1900, and African American GIs in occupied Germany. This course will challenge your understanding of race and racism.

**Credit Hours:** 3

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**BL\_STU 3605H: The History of Blacks in Germany - Honors**

(same as GERMAN 3605). This course investigates the history of Africans and African Americans in Germany and Central Europe, from Antiquity to today. Special focus on Medieval Africans in Europe,

travelling African American intellectuals around 1900, and African American GIs in occupied Germany. This course will challenge your understanding of race and racism.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**BL\_STU 3624: Comparative Approaches to Black Studies in History**

(same as HIST 3624). Comparative approach to the study of Black Diaspora history that focuses on the theory, method, structure, and application of modes of cultural production within the history of Black Diaspora cultures. Recommended for students with an interest in Black Studies or majors in the Humanities field. Program consent for repetition.

**Credit Hours:** 3

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**BL\_STU 3624W: Comparative Approaches to Black Studies in History - Writing Intensive**

(same as HIST 3624). Comparative approach to the study of Black Diaspora history that focuses on the theory, method, structure, and application of modes of cultural production within the history of Black Diaspora cultures. Recommended for students with an interest in Black Studies or majors in the Humanities field. Program consent for repetition.

**Credit Hours:** 3

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**BL\_STU 3700: Black Studies in Gender, Race, Sexuality, and Class: Advanced**

This course provides in-depth study, reading, analysis, and application of key of race, class, gender, and sexuality, and related systemic racism, sexism, classism, and homophobia that impact social institutions, histories and cultural practices for diverse groups of Black people across the gender, color, age, and ability spectrums, with attention to intersecting modes of being that frame our understanding of Black culture, history, and societies and their implications for inequality and equity. Importantly the course examine the importance of social identities, oppression and privilege, social spaces and how differences and similarities historically, psychologically, and culturally construct symbolic and political Blackness that matters, to whom, for whom, and to what end, by exposing students to culturally-specific forms of internal and external oppression and suppression of voices and the responses of underrepresented, oppressed, and/or exploited groups to recover narratives of empowerment and effect change within their diverse communities and societies. Students will engage in diverse disciplinary methods for studying historical, cultural, and sociological phenomena in Black studies such as double-consciousness and internalized racism, and critique existing models and develop new ways of thinking about, engaging, and critically challenging socially constructed and reconstructed notions of Black gendered monolithic otherness. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** BL\_STU 1000

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**BL\_STU 3703: Themes in Black Society**

Examines various themes, issues, and perspectives in political science, psychology, sociology, and other related disciplines related to social and historical institutions in the U.S., Africa, and the African Diaspora. Recommended for Black Studies or Behavioral Science Majors. Program consent for repetition.

**Credit Hours:** 3

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**BL\_STU 3705: Themes in Black Culture**

Examines various themes, issues and perspective in literature, music, the arts, and other related disciplines related to social and historical institutions in the U.S., Africa, and the African Diaspora. Recommended for Black Studies Majors. Program consent required for repetition.

**Credit Hours:** 3

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**BL\_STU 3804: Resistance in the Black Atlantic**

Enslaved black people resisted slavery in the Americas in a variety of ways. From everyday forms of resistance to the planning of revolts, enslaved people displayed an unwillingness to yield to slavery, assertions of their freedom built on political, philosophical, and economic concepts about society and the rights of human beings. Resistance in what is known as the black Atlantic can be divided into nonviolent and violent forms, but within each of these categories were scores of activities validating the claim that the enslaved never accepted slavery or lost their sense of freedom as human beings. By focusing on nonviolent, violent, everyday and periodic forms of resistance, this course examines how the agency of the enslaved served as a foundation for the culture of freedom in the Americas. Resistance is used to explore the influence of blacks on the historical evolution of the Americas, and the overall aim of this course is to give students an understanding of black resistance as one of the most important sources of the progress of the Atlantic world.

**Credit Hours:** 3

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**BL\_STU 3805: Hip-Hop: Global Music and Culture**

Hip-Hop has captured the minds of youth worldwide, spawning themes, trends, attitudes, and behaviors that are similar to but distinct from the manifestation of hip-hop in the US. This course is designed as an intellectual excursion to explore the US and global creation and consumption of hip-hop through the lens of cultural studies. The class will study processes of imitation, appropriation, translation, and customization and their impact on themes of gender, hegemony, commercialism, sexuality, race, and identity.

**Credit Hours:** 3

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**BL\_STU 3977: Black Studies Methodologies**

Advanced research, writing, and application of knowledge and critical paradigms in Black Studies, through study of such topics as slavery, colonialism, urbanization and migration, environment, gender, race, identity, intellectual movements, cultural studies and popular culture. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** BL\_STU 2975

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**BL\_STU 4001: Undergraduate Topics in Black Studies-General**

Organized study of selected topics. Subjects and credit may vary from semester to semester. Program consent for repetition.

**Credit Hour:** 1-3

**Prerequisites:** junior standing

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**BL\_STU 4001W: Undergraduate Topics in Black Studies-General - Writing Intensive**

Organized study of selected topics. Subjects and credit may vary from semester to semester. Program consent for repetition.

**Credit Hour:** 1-3

**Prerequisites:** junior standing

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**BL\_STU 4003: Topics in Black Studies-Behavioral Science**

Organized study of selected topics. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to 6 hours with departmental consent.

**Credit Hours:** 3

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**BL\_STU 4004: Topics in Black Studies-Social Science**

Organized study of selected topics. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to 6 hours with departmental consent.

**Credit Hours:** 3

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**BL\_STU 4005: Topics in Black Studies-Humanities**

Organized study of selected topics. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to 6 hours with departmental consent.

**Credit Hours:** 3

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**BL\_STU 4020: Studies in Black Feminist Thought**

(same as WGST 4020; cross-leveled with BL\_STU 7020, WGST 7020). Examines recent problems and critical debates within feminist theory. May be repeated for credit (up to 6 credits) with different semester themes.

**Credit Hours:** 3

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**BL\_STU 4040: Slavery and the Crisis of the Union: The American Civil War Era**

(same as HIST 4040, CNST\_DEM 4040). This class explores the history of the Civil War era, a transformative moment in both U.S. and world history. Our goal is to explore and answer a number of questions of great historical significance: How and why did slavery persist in an age of liberal democracy? Why did the pre-war Union prove unable to tolerate the plural visions and diverse institutions of its people? Was the descent into war more a measure of institutional weakness than of the intensity of moral conflict? What were the constituent elements of the competing wartime 'nationalisms' that evolved in both north and south? How and why did a war that began to restore the Union become one for emancipation? How was it the forerunner of modern, 'total' warfare? Did the governmental, socio-economic and racial changes wrought by war constitute a 'second American revolution'? Were the limits or the achievements of post-war Reconstruction more notable? And, last but certainly not least, how did the triumph of the Union condition the political and economic development of a rapidly globalizing world?

**Credit Hours:** 3

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**BL\_STU 4130: African-American Politics**

(same as POL\_SC 4130). Surveys political participation of African-Americans in American politics. Analyzes their public lives in the context

of elections, behavior of political organizations, social movements, parties, and level of government.

**Credit Hours:** 3

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**BL\_STU 4210: African-American Religion**

(same as REL\_ST 4210). Examines the organization of major African American Christian denominations, Islam and religious movements. Twentieth century issues will be discussed, including sexism, classism and homophobia in church communities.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**BL\_STU 4230: Women, Development, and Globalization**

(same as SOCIOL 4230, WGST 4230, PEA\_ST 4230; cross-leveled with BL\_STU 7230, SOCIOL 7230, WGST 7230). Examines the history and structure of 'development' discourse and practices. Stresses the interconnections and impact on women globally. Reviews women's strategies in defining and instituting programs to improve quality of life in communities.

**Credit Hours:** 3

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**BL\_STU 4270: African-Americans in the Twentieth Century**

(same as HIST 4270; cross-leveled with BL\_STU 7270, HIST 7270). Surveys the African-American experience from 1900 to the present. Attention is given to economic, political, social, and cultural trends.

**Credit Hours:** 3

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**BL\_STU 4300: The Black Family: Past, Present & Future**

(same as H\_D\_FS 4300; cross-leveled with BL\_STU 7300, H\_D\_FS 7300). Emphasis is on the unique social, economic, religious, educational and political environments that have affected the structure and function of the black family.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**BL\_STU 4303: Black Studies in Race, Class, Gender, and U.S. Policy**

(same as HIST 4303; cross-leveled with BL\_STU 7303, HIST 7303). Examines the causes and effects of the vast social and economic inequalities that exist between blacks and whites in US society, including the role federal, state and local government play in creating and addressing such inequalities as financial, tax, environmental, trade, and foreign policies as well as issues of human and social welfare.

**Credit Hours:** 3

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**BL\_STU 4335: The Wire: Race, Urban Inequality, and the 'Crisis' of the American City**

(same as HIST 4235; cross-leveled with BL\_STU 7335, HIST 7235). The HBO series 'The Wire', a crime drama based on the border city of Baltimore, exposed the interlocking, structural realities giving shape to the landscapes, neighborhoods, and lived experiences of urban America during the early twenty-first century. Through vivid storytelling, 'The Wire' complicates understandings of the 'urban crisis' through a focus on the inner workings of major institutions such as the media, public schools, politics, underground economies, public housing, and the criminal justice system and on the ways in which poor and working-class black residents

negotiate power and survival. Using the cable series as a lens, this class offers students the opportunity to critically examine the historical, economic, social, and political dimensions of urban inequality.

**Credit Hours:** 3

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**BL\_STU 4352: Historical Studies in African Music**

(same as MUS\_H\_LI 4352). Ethnomusicological introduction to the music and culture of countries and ethnic groups in Africa. Traditional and contemporary popular styles are explored, and influences of Islamic invasions, missionary arrivals, colonial conquests, neo-colonial trends, and globalization.

**Credit Hours:** 3

**Prerequisites:** Open to upper-level undergraduate students with instructor's consent

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**BL\_STU 4400: Studies in African Diaspora Literature**

(same as ENGLISH 4400; cross-leveled with BL\_STU 7400, ENGLISH 7400). Topics (e.g., African American Poetry, African Diaspora Drama) announced at time of registration. No more than six hours may be taken in the Studies in African Diaspora Literature series.

**Credit Hours:** 3

**Recommended:** junior standing

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**BL\_STU 4409: Studies in African Diaspora Literature, 1890 to Present**

(same as ENGLISH 4409; cross-leveled with BL\_STU 7409, ENGLISH 7409). See BL\_STU 4400 for course description.

**Credit Hours:** 3

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**BL\_STU 4415: African Americans and American Justice**

(same as HIST 4415; cross-leveled with BL\_STU 7415, HIST 7415). This course provides opportunities to review and discuss selected court cases and legislation in which black men, women, or children were plaintiffs and defendants or affected by the laws.

**Credit Hours:** 3

**Prerequisites:** senior standing required

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**BL\_STU 4415W: African Americans and American Justice - Writing Intensive**

(same as HIST 4415; cross-leveled with BL\_STU 7415, HIST 7415). This course provides opportunities to review and discuss selected court cases and legislation in which black men, women, or children were plaintiffs and defendants or affected by the laws.

**Credit Hours:** 3

**Prerequisites:** senior standing required

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**BL\_STU 4420: Africana Womanism**

(same as ENGLISH 4420; cross-leveled with BL\_STU 7420, ENGLISH 7420). An intensive study of Africana Womanism, focusing on selected Africana women writers. May be repeated to six hours with departmental consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**BL\_STU 4480: Major African Diaspora Women Writers**

(same as WGST 4480, ENGLISH 4480; cross-leveled with BL\_STU 7480, WGST 7480, ENGLISH 7480). Study of selected Africana Diaspora women writers, focusing on texts originally in English. Repeatable with department's consent. Maximum of 6 hours for Black Studies 4180 and 4480.

**Credit Hours:** 3

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**BL\_STU 4488: Major African Diaspora Women Writers, 1789 to 1890**

(same as WGST 4488, ENGLISH 4488; cross-leveled with BL\_STU 7488, WGST 7488, ENGLISH 7488). See BL\_STU 4480 for course description.

**Credit Hours:** 3

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**BL\_STU 4489: Major African Diaspora Women Writers, 1890 to Present**

(same as WGST 4489, ENGLISH 4489; cross-leveled with BL\_STU 7489, WGST 7489, ENGLISH 7489). See BL\_STU 4480 for course description.

**Credit Hours:** 3

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**BL\_STU 4489W: Major African Diaspora Women Writers, 1890 to Present - Writing Intensive**

(same as WGST 4489W, ENGLISH 4489W; cross-leveled with BL\_STU 7489, WGST 7489, ENGLISH 7489). See BL\_STU 4480 for course description.

**Credit Hours:** 3

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**BL\_STU 4500: Special Problems in Black Studies**

Independent project or paper, not leading to dissertation.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**BL\_STU 4604: Advanced Studies in Black Politics**

(cross-leveled with BL\_STU 7604). This is an advanced undergraduate, graduate cross-level course exploring political systems through the lens of the Black cultural and political experience. The overall goal of the course is to get students to think about and understand the importance of politics. The issues that will be focused upon are ones that are of specific importance to Black politics. This course is a challenging one in the sense that students will be required to think and write critically and thoughtfully about the issues. It will also be an interesting one given that all students keep up with the readings and participate actively and regularly. This course is intended to sharpen analytical thinking about Black politics, discuss contemporary issues and problems with respect to political systems, examine various avenues of political expression, and raise questions and new ideas pertaining to the exploration of Black politics. Graded on A-F basis only.

**Credit Hours:** 3

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**BL\_STU 4640: African Politics**

(same as POL\_SC 4640). A general comparative course focusing on post-independent Africa. Theories and concepts related to decolonization, nationalism, democratization, and ethnicity; also institutional forms and organizations: political parties, parliaments, and executives.

**Credit Hours:** 3

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**BL\_STU 4704: Religion and Black Freedom**

(same as REL\_ST 4704). In this course, we will explore the role of religion in the shaping of the African diaspora in the Americas through discussions of the readings. We will focus on the use of religion to pursue emancipation from enslavement and the concept of full freedom. Research and theories from mainly history, religious studies, and literature will be used to examine some of the ways in which black people have improved their condition through religion. The main objective of this course is to study the connections between religion and the fashioning of black resistance to slavery and systems of domination after slavery.

**Credit Hours:** 3

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**BL\_STU 4705: Advanced Studies and Themes in Black Culture**

(cross-leveled with BL\_STU 7705). This cross-level course provides students with an advanced understanding of the cultural traditions and social organization of Black communities across the African Diaspora. The selected topics covered include family structure, social institutions, religious forms, musical genres, folklore and oral histories. The course explores the cultural continuities from a shared African heritage and emphasizes the regionally distinctive cultural practices resulting from local transformations through cultural adaptation. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** The Department recommends students complete BL\_STU 3977 or another approved methods or writing intensive course prior to registering for this course

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**BL\_STU 4710: Themes in African Diaspora Folklore**

(same as ANTHRO 4160 and ENGLSH 4710.) Intensive study in a selected area of African Diaspora Folklore: folk narrative, folk song, myth, proverb, etc., folklore and literature, or the folklore of a particular group. 4710 may be repeated for a maximum of six hours with instructor's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**BL\_STU 4773: Pan Africanism**

(cross-leveled with BL\_STU 7773). Geographically this course will focus heavily on Pan-Africanism in the United States and the U.K. as well as Africa and the Caribbean. The course will also touch briefly on Pan-Africanism in Latin America and Asia. In addition to the concept of Pan-Africanism, we will explore related themes such as Black Nationalism, Ethiopianism, and Negritude while situating key figures of the African diaspora within the intellectual genealogy of Pan-African thought. Lectures will be supplemented with documentary films and other multimedia sources. Graded on A-F basis only. **Recommended:** The department recommends that students complete BLSTU\_3977: Methodologies or another writing intensive course.

**Credit Hours:** 3

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**BL\_STU 4804: Historical Studies of Black Women**

This course offers a comprehensive examination of the origins, developments, and productions of the specified time period with emphases on black women as creative artists, activists, performers, musicians, and writers.

**Credit Hours:** 3

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**BL\_STU 4875: Black Studies: Study Abroad-Humanities**

This interdisciplinary study abroad course provides students with global experience within the African Diaspora, the opportunity to study in a foreign culture, augment their 'global competencies,' and support their study and/or career development.

**Credit Hours:** 3

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**BL\_STU 4877: Black Studies: Study Abroad-Social Science**

This interdisciplinary study abroad course provides students with global experience within the African Diaspora, the opportunity to study in a foreign culture and augment their 'global competencies' and support their study and/or career development. Graded A-F basis only.

**Credit Hours:** 3

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**BL\_STU 4904: Historical and Contemporary Slavery**

(same as HIST 4904). An exploration of slavery in both its historical and contemporary context, focusing on the origins, characteristics, and struggles to abolish the practice. Historical slavery examined using African enslavement in the Americas, and contemporary slavery using human trafficking and forced labor in the developed and developing world.

**Credit Hours:** 3

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**BL\_STU 4977: Black Studies Capstone**

This course is designed to permit students to integrate general and specialized knowledge within the three Black Studies tracks (History, Society, Culture) using an interdisciplinary approach. Topics vary according to instructor and core discipline. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Junior standing

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**BL\_STU 7020: Studies in Black Feminist Thought**

(same as WGST 7020; cross-leveled with BL\_STU 4020 and WGST 4020). Examines recent problems and critical debates within black feminist theory.

**Credit Hours:** 3

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**BL\_STU 7270: African-Americans in the Twentieth Century**

(same as HIST 7270). Surveys the African-American experience from 1900 to the present. Attention is given to economic, political, social, and cultural trends.

**Credit Hours:** 3

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**BL\_STU 7300: The Black Family: Past, Present & Future**

(same as H\_D\_FS 7300). Emphasis is on the unique social, economic, religious, educational and political environments that have affected the structure and function of the black family.

**Credit Hours:** 3

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**BL\_STU 7303: Black Studies in Race, Class, Gender, and U.S. Policy**

(same as HIST 7303; cross-leveled with BL\_STU 4303, HIST 4303). Examines the causes and effects of the vast social and economic

inequalities that exist between blacks and whites in US society, including the role federal, state and local government plays in creating and addressing such inequalities as financial, tax, environmental, trade and foreign policies as well as issues of human and social welfare.

**Credit Hours:** 3

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**BL\_STU 7335: The Wire: Race, Urban Inequality, and the 'Crisis' of the American City**

(same as HIST 7235; cross-leveled with HIST 4235, BL\_STU 4335). The HBO series 'The Wire', a crime drama based on the border city of Baltimore, exposed the interlocking, structural realities giving shape to the landscapes, neighborhoods, and lived experiences of urban America during the early twenty-first century. Through vivid storytelling, 'The Wire' complicates understandings of the 'urban crisis' through a focus on the inner workings of major institutions such as the media, public schools, politics, underground economies, public housing, and the criminal justice system and on the ways in which poor and working-class black residents negotiate power and survival. Using the cable series as a lens, this class offers students the opportunity to critically examine the historical, economic, social, and political dimensions of urban inequality.

**Credit Hours:** 3

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**BL\_STU 7420: Africana Womanism**

(same as ENGLSH 7420). An intensive study of Africana Womanism, focusing on selected Africana women writers. May be repeated to six hours with departmental consent.

**Credit Hours:** 3

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**BL\_STU 7480: Major African Diaspora Women Writers**

(same as WGST 7480 and ENGLSH 7480). Study of selected African Diaspora women writers, focusing on texts originally in English. May be repeated for credit with departmental consent. Maximum of 6 hours for Black Studies 7180 and 7480.

**Credit Hours:** 3

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**BL\_STU 7604: Advanced Studies in Black Politics**

(cross-leveled with BL\_STU 4604). This is an advanced undergraduate, graduate cross-level course exploring political systems through the lens of the Black cultural and political experience. The overall goal of the course is to get students to think about and understand the importance of politics. The issues that will be focused upon are ones that are of specific importance to Black politics. This course is a challenging one in the sense that students will be required to think and write critically and thoughtfully about the issues. It will also be an interesting one given that all students keep up with the readings and participate actively and regularly. This course is intended to sharpen analytical thinking about Black politics, discuss contemporary issues and problems with respect to political systems, examine various avenues of political expression, and raise questions and new ideas pertaining to the exploration of Black politics. Graded on A-F basis only.

**Credit Hours:** 3

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**BL\_STU 7705: Advanced Studies and Themes in Black Culture**

(cross-leveled with BL\_STU 4705). This cross-level course provides students with an advanced understanding of the cultural traditions and social organization of Black communities across the African Diaspora.

The selected topics covered include family structure, social institutions, religious forms, musical genres, folklore and oral histories. The course explores the cultural continuities from a shared African heritage and emphasizes the regionally distinctive cultural practices resulting from local transformations through cultural adaptation. Graded on A-F basis only.

**Credit Hours:** 3

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**BL\_STU 7773: Pan Africanism**

(cross-leveled with BL\_STU 4773). Geographically this course will focus heavily on Pan-Africanism in the United States and the U.K. as well as Africa and the Caribbean. The course will also touch briefly on Pan-Africanism in Latin America and Asia. In addition to the concept of Pan-Africanism, we will explore related themes such as Black Nationalism, Ethiopianism, and Negritude while situating key figures of the African diaspora within the intellectual genealogy of Pan-African thought. Lectures will be supplemented with documentary films and other multimedia sources.

**Credit Hours:** 3

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**BL\_STU 8000: Independent Readings in Black Studies**

Readings on selected topics in Black Studies, with emphasis on the implications of the interdisciplinary and intersecting areas of History, Society, and Culture. May be repeated to a maximum of six hours.

**Credit Hours:** 3

**Prerequisites:** Department Consent Required

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**BL\_STU 8001: Graduate Seminar in Black Studies**

This research seminar introduces students to the central themes, traditions, and scholarly work in Black Studies on a graduate level. It also emphasizes critical thinking, research, and writing in order to prepare students for undertaking effective and successful scholarly writing projects. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** This course is designed for graduate and professional students

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**BL\_STU 8400: Seminar in African Diaspora Literature**

(same as ENGLSH 8400). Topic (e.g., Autobiography, Black Women Writers) announced at time of registration. May be repeated to 12 hours with departmental consent.

**Credit Hours:** 3

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**BL\_STU 8510: Ecology, Conservation, and Environmental Justice**

(same as F\_W 8510). The goal of this course is to introduce graduate students in natural resource management and conservation biology to the ecological and management concepts that underlie environmental justice issues, and to explain how broader environmental justice concepts are relevant to natural resource and conservation fields. Graded on A-F basis only. Prerequisites: One undergraduate course from the following list of disciplines: ecology, natural resource management, conservation biology, sociology or equivalent.

**Credit Hours:** 2

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**BL\_STU 8901: Graduate Topics in Black Studies**

Graduate seminar arranged by topics or themes related to Black Studies. Graded on A-F basis only.

**Credit Hours:** 3

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**Business Administration Courses****BUS\_AD\_0501: College of Business Study Abroad Pre-departure required on-Campus Information Session**

Place holder Course for required per-departure on campus information sessions Zero credit and billing hours No term finalization

**Credit Hours:** 0

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**BUS\_AD 1500: Foundations of Business and Professional Development Principles**

This course will provide students the opportunity to learn how to be successful in the Trulaske College of Business (TCoB) as they prepare for a career in business. Students will be led through an exploration of opportunities in our college as well as their personal strengths and how those strengths match with various business academic and career paths. Further, students will learn competencies that are necessary for both academic and professional success. This course is offered as a component of the college's unique Professional Development Program. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to freshman and sophomore students during early registration

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**BUS\_AD 2500: Intermediate Professional Development Principles**

Introduction to Professional Development in Business, will provide students the opportunity to learn about professional interpersonal dynamics - understanding and working with others. Students will learn skills imperative to forming and nurturing professional relationships and will have the opportunity to practice these skills via field experience. Throughout the course, students will continue to develop the professional competencies necessary for career success. This course is offered as a component of the college's unique Professional Development Program. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** 27 credit hours

**Corequisites:** BUS\_AD 1500 or MNGMT 1050

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**BUS\_AD 3500: Advanced Professional Development Principles**

Provides a discussion of professional competencies important for success as a business professional. Includes the assessment, communication and development of competencies valued by employers. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Must be a BSBA or ACCT\_BSACC major

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**BUS\_AD 4500: Professional Development Program - Internship**

This course is designed to help students practice professional core competencies in the workplace. Students will secure a professional-level work experience and apply classroom knowledge and interpersonal skills. This course is a graduation requirement for students seeking the BSBA degree. Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites:** BUS\_AD 3500; Restricted to Upper Level Business Majors who have had their internship approved by the Professional Development Program

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**BUS\_AD 7050: MBA Communications Practice**

Special laboratory instruction in oral and written communication skills with an emphasis on business communications.

**Credit Hours:** 3

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**BUS\_AD 7340: Business Ethics and Leadership**

Case studies, discussion, and readings used to integrate critical thinking about ethical issues into business decision. Development and application of ethical decision making frameworks.

**Credit Hour:** 1.5

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**BUS\_AD 8001: Topics in Business Administration**

Selected topics in administration offered on experimental basis.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**BUS\_AD 8010: MBA Seminar**

Integration of business executives and real world problem solving, career preparation, and professional growth activities. Assignments emphasize teamwork and group productivity. May be repeated. Some sections may be graded on A-F or S/U basis.

**Credit Hour:** 1-3

**Prerequisites:** MBA students only

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**BUS\_AD 8020: MBA Seminar**

Integration of business executives and real world problem solving, career preparation, and professional growth activities. Assignments emphasize teamwork and group productivity. May be repeated. Some sections may be graded on A-F or S/U basis.

**Credit Hour:** 1-3

**Prerequisites:** MBA students only

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**BUS\_AD 8030: MBA Seminar**

Integration of business executives and real world problem solving, career preparation, and professional growth activities. Assignments emphasize teamwork and group productivity. Some sections may be graded A-F or S/U only. May be repeated.

**Credit Hour:** 1-3

**Prerequisites:** MBA students only

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**BUS\_AD 8500: Business Problem Analysis: Field Project**

Application of functional areas of business to real-world cases in business planning. Students will prepare and present business plan for an organization as a team project in a supervised experience.

**Credit Hours:** 3

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**BUS\_AD 8600: Business Consulting**

Students work in a team consulting capacity, with medium to large organizations, identifying and defining relatively complex and often

ambiguous business problems such as needs assessment, quality management, systems management, policy/strategy formulation and similar areas.

**Credit Hours:** 3

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#### **BUS\_AD 8730: International Study Abroad**

Study abroad opportunities in one or more countries. Focuses on selected international business issues, cultural differences, and visiting businesses on-site. Some sections may be graded on A-F or S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** consent required

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## **Chemical Engineering Courses**

#### **CH\_ENG 1000: Introduction to Chemical Engineering**

Orientation course for freshmen-level students. Introduction to careers and opportunities in chemical engineering, basic engineering principles, simple calculations.

**Credit Hours:** 2

**Prerequisites or Corequisites:** MATH 1500, CHEM 1320

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#### **CH\_ENG 1000H: Introduction to Chemical Engineering - Honors**

Orientation course for freshmen-level students. Introduction to careers and opportunities in chemical engineering, basic engineering principles, simple calculations.

**Credit Hours:** 2

**Prerequisites or Corequisites:** MATH 1500, CHEM 1320. Honors eligibility required

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#### **CH\_ENG 2225: Mass and Energy Balance**

Industrial stoichiometry, material and energy balances, thermophysics, thermochemistry; related topics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** PHYSCS 2750, CHEM 1330

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#### **CH\_ENG 2225H: Mass and Energy Balance - Honors**

Industrial stoichiometry, material and energy balances, thermophysics, thermochemistry; related topics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** PHYSCS 2750, CHEM 1330

**Prerequisites:** Honors eligibility required

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#### **CH\_ENG 2226: Engineering Process Computations**

Introduction to the effective use of computer software with emphasis on chemical engineering applications, which include solutions for systems of algebraic equations using matrix methods; solutions of ordinary differential equations and partial differential equations and visualization of those solutions; linear, multilinear, and nonlinear regression for data analysis; 2D and 3D plotting, symbolic calculations, process control simulations, and text processing.

**Credit Hours:** 3

**Prerequisites or Corequisites:** CH\_ENG 2225, MATH 2300

**Prerequisites:** MATH 1700

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#### **CH\_ENG 3075: Introduction to Materials Engineering**

(same as BIOL\_EN 3075, BME 3075). Course covers concepts and techniques in materials engineering from an engineering design perspective, materials requirements for design, and fundamentals; intended for undergraduate engineering students. Graded on A-F basis only. Prerequisites or Corequisites: One of the following: BIOL\_EN 3180, BME 3180, CH\_ENG 3234, MAE 4231, MAE 4300, or instructor's consent.

**Credit Hours:** 3

**Prerequisites:** MATH 2300, ENGINR 1200 (or instructor's consent)

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#### **CH\_ENG 3233: Chemical Engineering Fluid Dynamics**

Introductory-level continuum mechanics of fluid flow (first in a two-course series on transport phenomena). Topics emphasized include buoyancy; stress; integral and differential conservation of mass, momentum, and energy; the viscous stress equations of motion; Newtonian fluids, viscosity, creeping flow, and the Navier-Stokes equations; turbulence; dimensionless parameters and correlations; and solutions to partial differential equations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MATH 4100

**Prerequisites:** PHYSCS 2750, MATH 2300, and a grade of C- or better in CH\_ENG 2225

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#### **CH\_ENG 3234: Momentum, Heat, and Mass Transfer**

Fluid flow, heat and mass transfer. A comprehensive treatment of the transport processes related to chemical engineering operations, with focus on both theory and applications.

**Credit Hours:** 4

**Prerequisites or Corequisites:** MATH 4100

**Prerequisites:** grade of C- or better in CH\_ENG 2225; PHYSCS 2750, MATH 2300

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#### **CH\_ENG 3235: Separation Processes**

Separation processes in chemical engineering, including: Evaporation, absorption, distillation, extraction, leaching, membrane separation, and drying.

**Credit Hours:** 3

**Prerequisites or Corequisites:** CH\_ENG 3262

**Prerequisites:** CH\_ENG 2225, CH\_ENG 2226

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#### **CH\_ENG 3243: Chemical Engineering Laboratory I**

Laboratory study of some principal unit operations of chemical engineering.

**Credit Hours:** 3

**Prerequisites or Corequisites:** CH\_ENG 3235, CH\_ENG 4363

**Prerequisites:** CH\_ENG 2226, CH\_ENG 3234, PHYSCS 2760

**Recommended:** CH\_ENG 4370 or concurrent enrollment

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#### **CH\_ENG 3243W: Chemical Engineering Laboratory I - Writing Intensive**

Laboratory study of some principal unit operations of chemical engineering. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** CH\_ENG 3235, CH\_ENG 4363

**Prerequisites:** CH\_ENG 2226, CH\_ENG 3234

**Recommended:** CH\_ENG 4370 or concurrent enrollment

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**CH\_ENG 3261: Chemical Engineering Thermodynamics I**

Introduction to classical thermodynamics with chemical engineering applications. Heat, work, and energy; Application of the Laws of Thermodynamics to closed systems, open systems, and power and refrigeration cycles; Thermochemical calculations; Equations of state; Phase equilibrium properties of pure fluids.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MATH 2300

**Prerequisites:** PHYSICS 2750; grade of C or better in CH\_ENG 2225

---

**CH\_ENG 3262: Chemical Engineering Thermodynamics II**

Chemical thermodynamics, with emphasis on mixtures. Multicomponent systems and phase diagrams; residual and excess properties; chemical potential, fugacity, and activity; models of non-ideal mixtures; phase and surface equilibria; chemical reaction equilibria.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3261, MATH 2300

**Recommended:** CHEM 2110 or concurrent enrollment

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**CH\_ENG 3307: Chemical Process Safety and Professional Ethics**

A course focused on important technical fundamentals of chemical process safety and their application including professional ethics considerations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 2225

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**CH\_ENG 4001: Topics in Chemical Engineering**

Current and new technical developments in chemical engineering.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**CH\_ENG 4085: Problems in Chemical Engineering**

Directed study of chemical engineering problems.

**Credit Hour:** 2-4

**Prerequisites:** instructor's consent

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**CH\_ENG 4220: Hazardous Waste Management**

(same as CV\_ENG 4220; cross-leveled with CH\_ENG 7220, CV\_ENG 7220). Engineering principles involved in handling, collection, transportation, processing and disposal of hazardous waste, waste minimization, legislation on hazardous wastes and groundwater contamination.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**CH\_ENG 4232: Ceramic Materials and Processing**

(same as MAE 4232; cross-leveled with MAE 7232, CH\_ENG 7232). Treatment of ceramics materials, structure, and ceramic processing with hands-on demonstration/labs.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 2200, BIOL\_EN 3075, BME 3075, or CH\_ENG 3075

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**CH\_ENG 4270: Design of Experiments and Statistical Quality Control for Process Engineers**

(same as BIOL\_EN 4270; cross-leveled with CH\_ENG 7270, BIOL\_EN 7270). A practical statistical tool box for experimenters: process means, effects of variables, factorial experiments, and statistical quality control.

**Credit Hours:** 3

**Recommended:** experience with Excel or instructor's consent

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**CH\_ENG 4285: Pollution Prevention**

Identify, analyze, and solve energy, water, and raw materials inefficiencies common to industrial processes and facilities. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Thermodynamics (ENGINR 2300, MAE 2300, or CH\_ENG 3261); Sophomore standing

**Recommended:** CHEM 1320

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**CH\_ENG 4306: Advanced Engineering Math**

(same as NU\_ENG 4306). Applies ordinary and partial differential equations to engineering problems; Fourier's series; determinants and matrices; Laplace transforms; analog computer techniques.

**Credit Hours:** 3

**Prerequisites:** MATH 4100

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**CH\_ENG 4311: Chemodynamics**

(cross-leveled with CH\_ENG 7311). Environmental movement of chemicals in air, water, and soil; designed to introduce students to the basic principles and techniques useful for the prediction of the movement and fate chemicals in ecosystems.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3234 or instructor's consent

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**CH\_ENG 4312: Air Pollution Control**

(cross-leveled with CH\_ENG 7312). Modeling of urban air pollution and control techniques. Topics treated are plume dispersion theories, photochemistry, methods of monitoring, methods of industrial abatement and legal aspects.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3234 or instructor's consent

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**CH\_ENG 4315: Principles of Biochemical Engineering**

(same as BIOL\_EN 4315; cross-leveled with CH\_ENG 7315, BIOL\_EN 7315). This course serves as an introduction to the application of biological, biochemical, and engineering fundamentals for biochemical processing. Topics include biological basics, enzyme kinetics, metabolic pathways, cell growth kinetics, analysis of intracellular flux, thermodynamics of biological reactions, and bioreactor design and modeling. Analyses proceed through the use of mass balances, energy balances, and empirical or theoretical models.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 2180 (for Biological Engineering students) or CH\_ENG 2225 (for Chemical Engineering students) or Instructor's consent

**Recommended:** BIOL\_EN 3180 (for Biological Engineering students) or CH\_ENG 3234 (for Chemical Engineering students) as a prerequisite or a co-requisite

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**CH\_ENG 4316: Biomass Refinery Operations**

(same as BIOL\_EN 4316; cross-leveled with CH\_ENG 7316, BIOL\_EN 4316). Design and operation of processes for conversion and/or fractionation of biomass and associated upstream and downstream unit operations. Emphasis on separations and product recovery.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 2180 (for Biological Engineering students) or CH\_ENG 2225 (for Chemical Engineering students) or instructor's consent

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**CH\_ENG 4317: Chemical Processing in Semiconductor Device**

(cross-leveled with CH\_ENG 7317). This course covers the current plasma processing methods used to produce semiconductor devices with emphasis on memory devices. The physics and chemistry of how plasmas are formed, sustained and interact with the semiconductor wafers being processed. Plasma chemistry and the chemical reactions used in plasma etching are discussed.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760, CHEM 1320, and MATH 4100 or MATH 7100

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**CH\_ENG 4318: Energy Technology and Sustainability**

An introductory course on energy technology, resources, practices, and common calculations used for energy analysis. May be repeated for credit. Recommended: at least one thermodynamics or physical chemistry course (examples: CHEM 3310, CH\_ENG 3261, ENGINR 2300, MAE 2300, PHYSCS 4120) or instructor's consent.

**Credit Hours:** 3

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**CH\_ENG 4319: Introduction to Polymers**

(cross-leveled with CH\_ENG 7319). This course provides a general introduction to polymer materials and their engineering applications. The course centers on two aspects: (i) fundamental knowledge about polymer properties and synthesis; and (ii) an introduction of some emerging polymer materials, including polymer nanocomposites, conductive polymers, biodegradable polymers, self-healing polymers, and hydrogels. Examples from current literature are also introduced to expose students to the frontier research in the field.

**Credit Hours:** 3

**Prerequisites or Corequisites:** CH\_ENG 4363

**Prerequisites:** CHEM 2110, CH\_ENG 3234, CH\_ENG 3262

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**CH\_ENG 4335: Intermediate Transport Phenomena**

(cross-leveled with CH\_ENG 7335). Integrated study of momentum, heat and mass transport.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3234, and MATH 4100 or MATH 7100

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**CH\_ENG 4363: Chemical Reaction Engineering and Technology**

Reactor design and optimization; rate equations; thermal effects in reactor.

**Credit Hours:** 3

**Prerequisites:** CHEM 1330, CH\_ENG 2226, CH\_ENG 3234

**Recommended:** CH\_ENG 3262

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**CH\_ENG 4370: Process Control**

State-space modeling, simulation, and experimental validation; stability analysis; feedback design and experimental studies; methods for disturbance rejection.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 2225, CH\_ENG 2226, MATH 4100

**Recommended:** CH\_ENG 3261, MATH 4140

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**CH\_ENG 4385: Chemical Engineering Design I**

The course presents optimum design methods, cost estimation, material selection and other relevant areas for the design of chemical plants. In addition, chemical safety and risk assessment will be covered. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** CH\_ENG 4363

**Prerequisites:** CH\_ENG 2226, CH\_ENG 3234, CH\_ENG 3235, CH\_ENG 3262, CHEM 2110

**Recommended:** CH\_ENG 4370 or concurrent enrollment

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**CH\_ENG 4401: Finite Element Methods in Chemical Engineering**

(cross-leveled with CH\_ENG 7401). The numerical solution of engineering problems in heat and mass transport, computational fluid dynamics, and chemical reactions including electromagnetic effects are treated in full detail using finite element methods and computational software to solve problems in one, two, and three dimensional spaces. Both time dependent and steady state solutions are considered. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MATH 4100

**Prerequisites:** CHEM 1330, CH\_ENG 2226

**Recommended:** CH\_ENG 3234 and CH\_ENG 4363, or concurrent enrollment

---

**CH\_ENG 4464: Electrochemical Reaction Engineering Science**

(cross-leveled with CH\_ENG 7464). Phenomenological behavior of electrochemical processes (battery emphasis). Theoretical interpretations of diffusion and reaction processes including system modeling. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3261 or MAE 2300 or CHEM 4310 or instructor's consent

**Recommended:** A course in thermodynamics or physical chemistry

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**CH\_ENG 4980: Process Synthesis and Design**

(cross-leveled with CH\_ENG 7980). Continuation of CH\_ENG 4385: application of chemical analysis and modeling to a capstone design project.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3262, CH\_ENG 4363, CH\_ENG 4385

**Recommended:** CH\_ENG 4370 or concurrent enrollment

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**CH\_ENG 4980W: Process Synthesis and Design - Writing Intensive**  
(cross-leveled with CH\_ENG 7980). Continuation of CH\_ENG 4385: application of chemical analysis and modeling to a capstone design project.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3262, CH\_ENG 4363, CH\_ENG 4385

**Recommended:** CH\_ENG 4370 or concurrent enrollment

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**CH\_ENG 4990: Undergraduate Research in Chemical Engineering**  
Directed study of chemical engineering problems.

**Credit Hour:** 2-4

**Prerequisites:** instructor's consent

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**CH\_ENG 4995: Undergraduate Research in Chemical Engineering - Honors**

Individual research for a senior thesis; research is supervised by the chemical engineering faculty. The thesis is to be defended before the departmental Honors committee.

**Credit Hour:** 3-6

**Prerequisites:** senior standing

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**CH\_ENG 7001: Topics in Chemical Engineering**

Current and new technical developments in chemical engineering.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**CH\_ENG 7220: Hazardous Waste Management**

(same as CV\_ENG 7220; cross-leveled with CH\_ENG 4220, CV\_ENG 4220). Engineering principles involved in handling, collection transportation, processing and disposal of hazardous waste minimization, legislation on hazardous wastes and groundwater contamination.

**Credit Hours:** 3

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**CH\_ENG 7232: Ceramic Materials and Processing**

(same as MAE 7232; cross-leveled with CH\_ENG 4232, MAE 4232). Treatment of ceramics materials, structure, and ceramic processing with hands-on demonstration/labs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MAE 2200 or equivalent course

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**CH\_ENG 7270: Design of Experiments and Statistical Quality Control for Process Engineers**

(same as BIOL\_EN 7270; cross-leveled with CH\_ENG 4270, BIOL\_EN 4270). A practical statistical tool box for experimenters: process means, effects of variables, factorial experiments, and statistical quality control.

**Credit Hours:** 3

**Prerequisites:** experience with Excel or instructor's consent

---

**CH\_ENG 7311: Chemodynamics**

(cross-leveled with CH\_ENG 4311). Environmental movement of chemicals in air, water, and soil; designed to introduce students to the basic principles and techniques useful for the prediction of the movement and fate chemicals in ecosystems.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3234 or instructor's consent

---

**CH\_ENG 7312: Air Pollution Control**

(cross-leveled with CH\_ENG 4312). Modeling of urban air pollution and control techniques. Topics treated are plume dispersion theories, photochemistry, methods of monitoring, methods of industrial abatement and legal aspects.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3234 or instructor's consent

---

**CH\_ENG 7315: Principles of Biochemical Engineering**

(same as BIOL\_EN 7315; cross-leveled with CH\_ENG 4315, BIOL\_EN 4315). This course serves as an introduction to the application of biological, biochemical, and engineering fundamentals for biochemical processing. Topics include biological basics, enzyme kinetics, metabolic pathways, cell growth kinetics, analysis of intracellular flux, thermodynamics of biological reactions, and bioreactor design and modeling. Analyses proceed through the use of mass balances, energy balances, and empirical or theoretical models.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 2180 (for biological engineering students) or CH\_ENG 2225 (for chemical engineering students) or Instructor's consent

**Recommended:** BIOL\_EN 3180 (for Biological Engineering students) or CH\_ENG 3234 (for Chemical Engineering students) as a prerequisite or a co-requisite

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(same as BIOL\_EN 7316; cross-leveled with CH\_ENG 4316, BIOL\_EN 4316). Design and operation of processes for conversion and/or fractionation of biomass and associated upstream and downstream unit operations. Emphasis on separations and product recovery.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 2180 or CH\_ENG 2225 or instructor's consent

---

**CH\_ENG 7317: Chemical Processing in Semiconductor Device**

(cross-leveled with CH\_ENG 4317). This course covers the current plasma processing methods used to produce semiconductor devices with emphasis on memory devices. The physics and chemistry of how plasmas are formed, sustained and interact with the semiconductor wafers being processed. Plasma chemistry and the chemical reactions used in plasma etching are discussed.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 2760, CHEM 1320, and MATH 4100 or MATH 7100

---

**CH\_ENG 7319: Introduction to Polymers**

(cross-leveled with CH\_ENG 7319). This course provides a general introduction to polymer materials and their engineering applications. The course centers on two aspects: (i) fundamental knowledge about polymer properties and synthesis; and (ii) an introduction of some emerging polymer materials, including polymer nanocomposites, conductive polymers, biodegradable polymers, self-healing polymers, and hydrogels. Examples from current literature are also introduced to expose students to the frontier research in the field.

**Credit Hours:** 3

**Prerequisites or Corequisites:** CH\_ENG 4363

**Prerequisites:** CHEM 2110, CH\_ENG 3234, CH\_ENG 3262

---

**CH\_ENG 7335: Intermediate Transport Phenomena**

(cross-leveled with CH\_ENG 4335). Integrated study of momentum, heat and mass transport.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3234, and MATH 4100 or MATH 7100

---

**CH\_ENG 7401: Finite Element Methods in Chemical Engineering**

(cross-leveled with CH\_ENG 4401). The numerical solution of engineering problems in heat and mass transport, computational fluid dynamics, and chemical reactions including electromagnetic effects are treated in full detail using finite element methods and computational software to solve problems in one, two, and three dimensional spaces. Both time dependent and steady state solutions are considered. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MATH 4100

**Prerequisites:** CHEM 1330, CH\_ENG 2226

**Recommended:** CH\_ENG 3234 and CH\_ENG 4363, or concurrent enrollment

---

**CH\_ENG 7464: Electrochemical Reaction Engineering Science**

(cross-leveled with CH\_ENG 4464). Phenomenological behavior of electrochemical processes (battery emphasis). Theoretical interpretations of diffusion and reaction processes including system modeling. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3261 or MAE 2300 or CHEM 4310 or instructor's consent

**Recommended:** A course in thermodynamics or physical chemistry

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**CH\_ENG 7980: Synthesis and Design of Chemical Process**

(cross-leveled with CH\_ENG 4980). This is a heuristics-based design course intended to assist students in bringing together capabilities from previous course. An emphasis is placed on the creation process of design. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3262, CH\_ENG 4363, CH\_ENG 4385

**Recommended:** CH\_ENG 4370 or concurrent enrollment

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**CH\_ENG 8001: Advanced Topics in Chemical Engineering**

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**CH\_ENG 8029: Advanced Plasma Processing**

Concepts and techniques in novel plasma processing: plasma characteristics, plasma sputtering, plasma enhanced chemical vapor deposition (PECVD), plasma etching, plasma treatment, plasma fabrication of nano-structured materials and diamondlike films, biomedical applications.

**Credit Hours:** 3

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**CH\_ENG 8085: Problems in Chemical Engineering**

Supervised investigation in chemical engineering to be presented in the form of a report.

**Credit Hour:** 1-5

**Prerequisites:** instructor's consent

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**CH\_ENG 8087: Seminar in Chemical Engineering**

Reviews investigations and projects of importance in chemical engineering.

**Credit Hour:** 1

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**CH\_ENG 8230: Advanced Ceramic Materials**

(same as BIOL\_EN 8230 and MAE 8230). To provide an advanced level understanding between processing, properties, and microstructure of ceramic materials. Topics include crystallography, defect chemistry, transport properties, microstructure, and forming methods. Graded on A-F basis only.

**Credit Hours:** 3

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**CH\_ENG 8336: Advanced Heat and Momentum Transfer**

Advanced study of these transport phenomena.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3235 or instructor's consent

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**CH\_ENG 8337: Advanced Mass Transfer**

Advanced study of mass transfer.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 4336 or instructor's consent

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**CH\_ENG 8338: Analysis of Equilibrium Stage Processes**

Advanced study of stage processes.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 2226, CH\_ENG 3235 and CH\_ENG 3262

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**CH\_ENG 8451: Advanced Chemical Engineering Thermodynamics I**

Advanced thermodynamics; particular reference to its application to chemical engineering.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3262 or instructor's consent

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**CH\_ENG 8452: Advanced Chemical Engineering Thermodynamics II**

Introduction to the methods of statistical thermodynamics and statistical mechanics. The method of ensembles, Maxwell-Boltzmann statistics, the kinetic theory of gases, and theories of liquids. Applications of statistical mechanics to the prediction of physical and chemical properties such as rate coefficients, diffusion coefficients, and conductivities. Graded A-F only.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 8451 or instructor's consent

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**CH\_ENG 8463: Chemical Reaction Engineering Science**

Phenomenological behavior of catalysts. Theoretical interpretations for heterogeneous and homogeneous catalysts.

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**Credit Hours:** 3

**Prerequisites:** CH\_ENG 4363

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**CH\_ENG 8470: Mathematical Studies of Chemical Engineering Operation**

Analytical methods applied to solution of chemical engineering problems.

**Credit Hours:** 3

**Prerequisites:** MATH 4100

---

**CH\_ENG 8990: Research-Masters Thesis in Chemical Engineering**

Independent investigation in chemical engineering, to be presented as a thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** Masters candidate

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**CH\_ENG 9990: Research-Doctoral Dissertation in Chemical Engineering**

Independent investigation in chemical engineering, to be presented as a thesis. Graded on a S/U basis only. candidate

**Credit Hour:** 1-99

**Prerequisites:** Ph.D

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## Chemistry Courses

**CHEM 1000: Introductory Chemistry**

Introductory course for students with no high school background in chemistry. Covers fundamental principles of scientific measurement, stoichiometry, solutions, basic atomic structure, gases. No credit if taken after CHEM 1100 or CHEM 1320 .

**Credit Hours:** 2

**Prerequisites or Corequisites:** MATH 1100 or MATH 1120

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**CHEM 1100: Atoms and Molecules with Lab**

One-semester introduction for non-science majors to the basic concepts and important applications of chemistry. Satisfies A&S requirement for a laboratory science. No credit if taken after CHEM 1000, CHEM 1310 or CHEM 1320.

**Credit Hours:** 3

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**CHEM 1100H: Atoms and Molecules with Laboratory - Honors**

One-semester introduction for non-science majors to the basic concepts and important applications of chemistry. Satisfies A&S requirement for a laboratory science. No credit if taken after CHEM 1310.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**CHEM 1320: College Chemistry I**

First of two-course sequence emphasizing principles and applications of modern chemical sciences. Covers chemical nomenclature, stoichiometry, kinetic molecular theory, atomic structure, periodic properties, and molecular structure and bonding. Satisfies laboratory science requirement. Math Reasoning Proficiency Course.

**Credit Hours:** 4

**Prerequisites:** MATH 1100. MATH 1050 is NOT an appropriate substitution for College Algebra

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**CHEM 1320H: College Chemistry I - Honors**

First of a two-course sequence emphasizing principles and applications of modern chemical sciences. Covers chemical nomenclature, stoichiometry, kinetic molecular theory, atomic structure, periodic properties, and molecular structure and bonding. Satisfies laboratory science requirement. Math Reasoning Proficiency Course.

**Credit Hours:** 4

**Prerequisites:** MATH 1100 or equivalent. Honors eligibility required. MATH 1050 does not satisfy the math requirement

---

**CHEM 1330: College Chemistry II**

Continuation of CHEM 1320. Covers intermolecular forces, solutions, kinetics, acid-base chemistry, electrochemistry, nuclear chemistry, thermodynamics. Satisfies requirement for a laboratory science. May be taken concurrently with CHEM 2030 or CHEM 2100.

**Credit Hours:** 4

**Prerequisites:** grade of C- or better in CHEM 1320 or CHEM 1320H

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**CHEM 1330H: College Chemistry II- Honors**

Continuation of CHEM 1320H. Covers equilibria, kinetics, electrochemistry, nuclear chemistry, thermodynamics. Satisfies requirement for a laboratory science. May be taken concurrently with CHEM 2030 or CHEM 2100.

**Credit Hours:** 4

**Prerequisites:** grade of C- or better in CHEM 1320 or CHEM 1320H. Honors eligibility required

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**CHEM 2030: Survey of Organic Chemistry**

One-semester introduction to structure and bonding, functional group chemistry, principles of reactivity, reaction mechanisms, the molecules of life.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in CHEM 1320 or CHEM 1320H or equivalent. Recommended CHEM 1330, or CHEM 1330 concurrently

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**CHEM 2100: Organic Chemistry I**

First course of a two-semester sequence. Structure and bonding; chemistry of hydrocarbons, alkyl halides, alcohols and ethers; reaction mechanisms; principles of reactivity and synthesis; IR and NMR spectroscopy. Only 1 hour credit if taken after CHEM 2030 or equivalent.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CHEM 1320 or equivalent or CHEM 1330 concurrently

**Recommended:** CHEM 1330

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**CHEM 2110: Organic Chemistry II**

Continuation of CHEM 2100. Aromatic hydrocarbons, carbonyls, amines; chemistry of carbanions; reactions of polar double bonds; nucleic acids, proteins, carbohydrates and fats.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CHEM 2100 or equivalent, or departmental consent

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**CHEM 2130: Organic Laboratory I**

Basic lab techniques, functional group manipulations, and short syntheses. Pre-lab and post-lab writing assignments. 1 hour recitation, 3 hours lab per week.

**Credit Hours:** 2

**Recommended:** Concurrent enrollment in CHEM 2110 or CHEM 2030. No credit for students who have previous organic laboratory credit

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**CHEM 2130H: Organic Laboratory I - Honors**

Basic lab techniques, functional group manipulations, and short syntheses. Pre-lab and post-lab writing assignments. 1 hour recitation, 3 hours lab per week.

**Credit Hours:** 2

**Prerequisites:** Honors eligibility required

**Recommended:** Concurrent enrollment in CHEM 2110 or CHEM 2030. No credit for students who have previous organic laboratory credit

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**CHEM 2140: Organic Laboratory II**

Continuation of CHEM 2130. Preparation and identification of organic compounds; application of instrumental techniques. 2 lab sessions, 1 recitation session per week.

**Credit Hours:** 2

**Prerequisites:** grade of C- or better in CHEM 2110 and CHEM 2130 or equivalent

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**CHEM 2170H: Honors Organic Chemistry II with Lab - Honors**

Continuation of CHEM 2160H; includes laboratory. Content and structure similar to CHEM 2110, but with increased depth and breadth.

**Credit Hours:** 5

**Prerequisites:** honors eligibility, grade of B or better in CHEM 2160H or instructor's permission

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**CHEM 2400: Fundamentals of Inorganic Chemistry with Lab**

A systematic introduction with laboratory to inorganic and organometallic compounds, reactions, and periodic properties.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CHEM 2130

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**CHEM 2950: Undergraduate Research in Chemistry**

A laboratory research project and/or preparation of compounds with a written final report. Cannot be substituted for other chemistry courses required for a B.S. or B.A. degree. No more than 6 hrs. total credit.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing, 2.75 GPA and/or instructor's consent

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**CHEM 3200: Quantitative Methods of Analysis with Lab**

Principles and practice of quantitative analysis, including the basic principles of modern instrumental methods.

**Credit Hours:** 4

**Prerequisites:** CHEM 1330 or CHEM 1500H

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**CHEM 3300: Fundamentals of Physical Chemistry**

Survey of physical chemistry. Satisfies physical chemistry prerequisite for BIOCHM 8430.

**Credit Hours:** 3

**Prerequisites:** MATH 1700, a course in organic chemistry; PHYSCS 1210 and PHYSCS 1220 or PHYSCS 2750, or PHYSCS 2760

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**CHEM 3700: Undergraduate Seminar in Chemistry**

Methods for locating and presenting chemical information, data analysis techniques, professional issues.

**Credit Hours:** 3

**Prerequisites:** CHEM 1330 and CHEM 2100

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**CHEM 3700W: Undergraduate Seminar in Chemistry - Writing Intensive**

Methods for locating and presenting chemical information, data analysis techniques, professional issues.

**Credit Hours:** 3

**Prerequisites:** CHEM 1330 and CHEM 2100

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**CHEM 3800: Internship in Chemistry**

Cannot be substituted for other chemistry courses required for B.S. or B.A. degree.

**Credit Hour:** 1-6

**Prerequisites:** departmental consent

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**CHEM 4001: Topics in Chemistry - General**

Organized study designed to broaden the knowledge base of students. Subjects on analytical, inorganic, organic and physical chemistry covered.

**Credit Hour:** 1-99

**Prerequisites:** departmental consent

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**CHEM 4010: Advanced Chemistry Laboratory**

Advanced methods for the synthesis and characterization of organic, inorganic, and organometallic compounds.

**Credit Hours:** 3

**Prerequisites:** CHEM 2400, CHEM 2140, or CHEM 2190H, CHEM 3200, CHEM 4330 (or CHEM 4330 corequisite)

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**CHEM 4050: Problems in Chemistry**

Individual study under the direction of a faculty member that supplements regular course work.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**CHEM 4160: Intermediate Organic Chemistry**

Stresses synthetic organic chemistry at an intermediate level.

**Credit Hours:** 3

**Prerequisites:** at least one year organic chemistry

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**CHEM 4170: Medicinal Chemistry**

Chemical mechanisms of drug action. Topics include drug metabolism and action, chemical toxicology and medicines, enzyme activity, and specific drug case studies.

**Credit Hours:** 3

**Prerequisites:** CHEM 2110 or instructor's consent

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**CHEM 4200: Instrumental Methods of Analysis with Lab**

(cross-leveled with CHEM 7200). Chemical instrumentation methods including electrochemistry, spectroscopy, and advanced separations techniques.

**Credit Hours:** 3

**Prerequisites:** CHEM 3200, a semester of physical chemistry

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**CHEM 4280: Environmental Chemistry**

Surveys the chemistry of air and water environments; discusses the chemistry of waste treatment.

**Credit Hours:** 3

**Prerequisites:** 8 hours chemistry including organic and analytical

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**CHEM 4310: Physical Chemistry I**

Lecture only. Topics include the kinetic theory of gases, chemical kinetics, thermodynamics and chemical equilibrium.

**Credit Hours:** 3

**Prerequisites:** CHEM 2100, MATH 1700, and PHYSICS 1220 or 2760

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**CHEM 4330: Physical Chemistry II**

Lecture only. Covers wave mechanics, bonding, molecular spectroscopy and statistical mechanics.

**Credit Hours:** 3

**Prerequisites:** MATH 2300 or instructor approval. May be taken independently of CHEM 4310

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**CHEM 4330H: Physical Chemistry II - Honors**

Covers wave mechanics, bonding, molecular spectroscopy and statistical mechanics.

**Credit Hours:** 3

**Prerequisites:** MATH 2300 or instructor approval. May be taken independently of CHEM 4310. Honors eligibility required

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**CHEM 4340: Physical Chemistry Laboratory**

This course is intended to introduce the practice of experimental physical chemistry including applying the principles of thermodynamics, kinetics, and spectroscopy in experiments.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in CHEM 3200; CHEM 4330 or CHEM 4330 concurrently

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**CHEM 4400: Inorganic Chemistry**

(cross-leveled with CHEM 7400). Atomic and molecular structure, bonding, kinetics and mechanism, ligand field theory, coordination compounds, acids and bases.

**Credit Hours:** 3

**Prerequisites:** CHEM 2400

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**CHEM 4490: Physics and Chemistry of Materials**

(same as NU\_ENG 4319, PHYSICS 4190, BIOL\_EN 4480; BME 4480; cross-leveled with CHEM 7490, NU\_ENG 7319, PHYSICS 7190,

BIOL\_EN 7480). Physics and Chemistry of Materials is a 3 credit hours course offered every spring semester for students from Physics, Chemistry, Engineering and Medical Departments and consists of lectures, laboratory demonstrations, two mid-term and one final exam. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 2750, CHEM 1320 or equivalent, or instructor's consent

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**CHEM 4600: Introduction to Radiochemistry with Lab**

Introduces application of radio-tracer techniques to chemical research.

**Credit Hours:** 3

**Prerequisites:** CHEM 1330

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**CHEM 4800: Chemistry Teaching Practicum**

Provides practical experience teaching introductory chemistry in discussion and laboratory settings. For students pursuing dual degrees in chemistry and secondary education. For students pursuing simultaneous dual degrees in chemistry and secondary education. Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites:** senior standing; departmental consent required

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**CHEM 4950: Senior Research**

A laboratory research project with approved written goals and a final written report. It may be taken twice.

**Credit Hours:** 3

**Prerequisites:** a 2.75 GPA, departmental consent

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**CHEM 4990H: Senior Honors Research I**

A laboratory research experience with a student-instructor prepared outline approved by the Honors Director, a final written report and a final oral presentation and examination. May replace CHEM 4950 in ACS Certification Track or 4000+ level elective requirement for Medicinal Chemistry track. Must take CHEM 4990H and CHEM 4991H for departmental honors.

**Credit Hours:** 3

**Prerequisites:** a 3.33 GPA, departmental consent, and approval of project outline. Honors eligibility required

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**CHEM 4991H: Senior Honors Research II**

A laboratory research experience with a student-instructor prepared outline approved by the Honors Director, a final written report and a final oral presentation and examination.

**Credit Hours:** 3

**Prerequisites:** a 3.33 GPA, departmental consent, approval of project outline. Honors eligibility required

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**CHEM 7087: Seminar in Chemistry for Beginning Graduate Students**

Seminar in Chemistry for Beginning Graduate Students

**Credit Hour:** 1

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**CHEM 7200: Instrumental Methods of Analysis with Lab**  
(cross-leveled with CHEM 4200). Chemical instrumentation methods including electrochemistry, spectroscopy, and advanced separations techniques.

**Credit Hours:** 3

**Prerequisites:** CHEM 3200, a semester of physical chemistry

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**CHEM 7300: Intermediate Physical Chemistry**  
Treatment of atomic and molecular, structure and spectroscopy based on quantum concepts. Designed to provide a broad base of knowledge in these fundamental areas to beginning graduate students in chemistry.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**CHEM 7400: Inorganic Chemistry**  
(cross-leveled with CHEM 4400). Atomic and molecular structure, bonding, kinetics and mechanism, ligand field theory, coordination compounds, acids and bases.

**Credit Hours:** 3

**Prerequisites:** CHEM 2400

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**CHEM 7490: Physics and Chemistry of Materials**  
(same as NU\_ENG 7319, PHYSCS 7190, BIOL\_EN 7480; cross-leveled with CHEM 4490, NU\_ENG 4319, PHYSCS 4190, BIOL\_EN 4480, BME 4480). Physics and Chemistry of Materials is a 3 credit hours course offered every spring semester for students from Physics, Chemistry, Engineering and Medical Departments and consists of lectures, laboratory demonstrations, two mid-term and one final exam. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2750, CHEM 1320 or equivalent, or instructor's consent

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**CHEM 8003: Topics in Chemistry - Natural Science**  
Organized study of selected topics. Subjects and earned credit may vary from semester to semester. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**CHEM 8050: Non-Thesis Research in Chemistry**  
Does not lead to dissertation.

**Credit Hour:** 1-99

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**CHEM 8085: Topics in Chemistry**  
Organized study of selected topics. Subjects and earned credit may vary from semester to semester. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**CHEM 8087: Seminar in Chemistry**  
Seminar in Chemistry

**Credit Hour:** 1

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**CHEM 8090: Thesis/Dissertation (pre-candidacy) Research in Chemistry**

Research leading to thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**CHEM 8150: Organic Reaction Mechanisms**  
Organic reaction mechanisms are discussed within a framework of structure-reactivity relationships. Particular attention directed to the chemistry of reactive intermediates and the application of stereochemical and molecular orbital concepts.

**Credit Hours:** 3

**Prerequisites:** 1 year of Organic Chemistry and Physical Chemistry

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**CHEM 8160: Organic Spectroscopy**  
Structural analysis of organic compounds involving problem solving using modern NMR, IR, UV-VIS, MS CD/ORD and other spectroscopic techniques.

**Credit Hours:** 3

**Prerequisites:** CHEM 3330 or equivalent or instructor's consent

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**CHEM 8170: Applications of the Reactions of Organic Chemistry**  
**Credit Hours:** 3

**Prerequisites:** CHEM 8150

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**CHEM 8210: Analytical Measurement**  
Fundamental and applied aspects of scientific measurements. Topics include: Statistics, signal-to-noise, frequency analysis, sources of noise, digital and analog filtering, time vs. frequency domain measurements, Fourier transformation, sampling, convolution/deconvolution, autocorrelation and cross-correlation. Directed toward entering graduate students.

**Credit Hours:** 3

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**CHEM 8230: Separations and Chromatography**  
Classical and instrumental methods of separation: gas, paper, thin film, and column chromatography; ion exchange.

**Credit Hours:** 3

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**CHEM 8240: Mass Spectrometry**  
This course will cover various aspects of modern mass spectrometry. Topics will include instrumentation, theory, uses and interfaces to mass spectrometry. Graded on A-F basis only.

**Credit Hours:** 3

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**CHEM 8250: Analytical Spectroscopy**  
Selected topics dealing with recent advances in analytical chemistry.

**Credit Hours:** 3

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**CHEM 8260: Surface Analysis and Characterization**  
Covers various aspects of modern methods of surface analysis and characterization. Topics include instrumentation, theory, and data reduction methods. Major sections include electron spectroscopy, microscopy, and vibrational spectroscopy as applied to surfaces. Graded on A-F basis only.

**Credit Hours:** 3

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**CHEM 8265: Fluorescence Spectroscopy**

Advanced analytical chemistry course that explores the fundamental principles and uses of modern fluorescence spectroscopy in biology, materials science, chemistry, physics and engineering. Special emphasis is placed on the methodologies used to obtain specific information about a particular chemical system. Graded on A-F basis only.

**Credit Hours:** 3

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**CHEM 8270: Advanced Analytical Chemistry**

Continuation of CHEM 8250.

**Credit Hours:** 3

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**CHEM 8280: Bioanalytical Chemistry**

This course is aimed at introducing students to the instrumental and theoretical principles by which biological molecules are measured in vivo and in vitro. The course explores how protein, DNA and metabolite structures and quantities are determined in the laboratory with an emphasis on understanding historical methods up through cutting edge approaches in each field. The theory of measurement techniques, separation techniques and related instrumentation are explored in the context of understanding the chemical equilibria that govern each instance. Students will leave this course with a broad understanding for how many biological molecules are measured and what the limitations of various techniques may be. Graded on A-F basis only.

**Credit Hours:** 3

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**CHEM 8285: Nanochemistry**

Covers various aspects of nanochemistry. Topics include synthesis and characterization of nonmaterial, nanotoxicity, and catalysis. Graded on A-F basis only.

**Credit Hours:** 3

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**CHEM 8310: Quantum Chemistry**

Introduction to formal quantum mechanical theory, quantum measurement, simple model problems having exact solutions, angular momenta, approximation methods (perturbation theory, variation principle, WKB), and the structure of many-electron atoms.

**Credit Hours:** 3

**Prerequisites:** CHEM 4330 or equivalent or instructor's consent

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**CHEM 8320: Chemical Kinetics**

Factors affecting rates, orders and mechanisms of chemical reactions, with emphasis on current theories and experimental techniques.

**Credit Hours:** 3

**Prerequisites:** CHEM 4330 or equivalent or instructor's consent

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**CHEM 8330: Computational Chemistry**

Theory and application of modern computational techniques (molecular mechanics, ab initio and semiempirical molecular orbital methods) for predicting the structures, energies, and properties of molecules and molecular systems.

**Credit Hours:** 3

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**Prerequisites:** CHEM 3300 or equivalent or instructor's consent

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**CHEM 8340: Statistical Mechanics**

Principles of statistical mechanics and their application to chemical systems; ensemble theory; condensed phases.

**Credit Hours:** 3

**Prerequisites:** CHEM 4330 or equivalent or instructor's consent

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**CHEM 8360: Atomic-Scale Simulations**

This course will provide an in-depth introduction to the methods and applications of atomic-scale simulation methods (mainly classical molecular dynamics, hereafter 'MD') for graduate students in chemistry, physics, materials science, and engineering. One of the beauties of MD methods is that, if applied judiciously and with skill, they provide exquisitely high-fidelity information about the fundamental properties and processes that occur on time scales ranging from femtoseconds to nanoseconds (or longer) and space scales ranging from Ångstroms to approximately microns. In many cases, this information can be used to guide or assess theoretical developments, interpret experiments, or provide insights or predictions for thermodynamic or non-equilibrium states that are not easily achieved or are difficult to probe experimentally. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor consent

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**CHEM 8410: Chemistry of the Main Group Elements**

Descriptive inorganic chemistry of the main group elements. Textbook material extensively supplemented with information from the current chemical literature.

**Credit Hours:** 3

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**CHEM 8420: Supramolecular Chemistry**

The basics of supramolecular chemistry will be covered, including host-guest complexes, reorganization, complementarity, thermodynamic interactions, self assembly and biochemical, molecular device and crystal engineering applications. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BS in Chemistry, Biochemistry or Chemical Engineering

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**CHEM 8430: Coordination Chemistry and Reactivity**

The chemistry of the transition elements (d-block) and their reactivity will be discussed, including bonding, coordination numbers, oxidation states, and reactivity (kinetics). Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CHEM 4400 or equivalent; graduate standing in chemistry or instructor's consent

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**CHEM 8440: Inorganic Structural Methods**

Chemical bonding, application of group theory, spectroscopy; diffraction as applied to structure determination; structural implications of dipole moment and magnetic susceptibility measurements.

**Credit Hours:** 3

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**CHEM 8450: Organometallics**

Condensations effected by organometallics; dissolving metal reductions; sandwich compounds and related organotransition metal derivatives.

**Credit Hours:** 3

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**CHEM 8470: Actinide Chemistry**

The course covers the inorganic and organometallic chemistry of the actinides. Graded on A-F basis only.

**Credit Hours:** 3

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**CHEM 8480: Chemistry of Nanomaterials**

This course will cover several aspects of nanomaterials including synthesis and processing of small particles, as well as their characterization by crystallography, scanning tunneling microscopy magnetism, and other optical properties. Also studied will be the application of quantum confinement to the electronic and optical properties of nanomaterials and the development of photonic materials. The nanostructure of organic polymers, micelles, and the process of biomineralization to make organic-inorganic hybrid materials will also be discussed.

**Credit Hours:** 3

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**CHEM 8600: Radiochemistry and Detection with Lab**

An introductory course in the applications of radionuclides in chemistry. Topics include radioactive decay, interactions of radiation with matter, radioactive tracers, and nuclear methods of analysis. Directed towards entering graduate students.

**Credit Hours:** 3

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**CHEM 8610: Advanced Radiochemistry**

Reviews current advances in radiochemistry, hot atom chemistry, radiation chemistry, nuclear spectrometry.

**Credit Hours:** 3

**Prerequisites:** CHEM 8600 or equivalent

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**CHEM 8630: Radiopharmaceutical Chemistry**

The radiotracer concept, history of nuclear medicine, radionuclide production, organic and inorganic chemistry of radiopharmaceutical chemistry, and applications will be discussed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** undergraduate organic and inorganic chemistry; graduate standing in chemistry or instructor's consent

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**CHEM 8640: Biological Radiochemistry**

(same as V\_M\_S 8640). Covers the interaction of radiation on biological material. The effects of radiation overdose is discussed along with the use of radiation in therapy. Graded on A-F basis only.

**Credit Hours:** 3

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**CHEM 9090: Post-candidacy Dissertation Research in Chemistry**

Research leading to Ph.D. dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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## Child Health Courses

**CH\_HTH 6000: Child Health Clerkship**

Students have the opportunity to learn about common illnesses and abnormalities in children. Emphasis also is placed on the importance of preventive and developmental aspects of child care. Lectures and case presentations correlate with the clinical experiences.

**Credit Hours:** 8

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**CH\_HTH 6010: Rural Child Health Clerkship**

Rural Child Health Clerkship

**Credit Hours:** 8

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**CH\_HTH 6020: Springfield Child Health Clerkship**

Students have the opportunity to learn about common illnesses and abnormalities in children. Emphasis also is placed on the importance of preventive and developmental aspects of child care. Lectures and case presentations correlate with the clinical experiences.

**Credit Hours:** 8

**Prerequisites:** Successful completion of the first two years of medical school

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**CH\_HTH 6037: SCC Pediatric Intensive Care**

Student will learn the initial approach and daily management of children requiring care in the Pediatric Intensive Care Unit. Students will learn the evaluation of and the management of critically ill or injured children focusing on airway and pulmonary physiology, cardiac physiology, neurological diseases, traumatic injuries, acute overdoses, endocrine emergencies, basic fluid management, and the medically complex child. Pharmacologic and nutritional management of the critically ill or injured child will also be reviewed.

**Credit Hours:** 5

**Prerequisites:** Successful completion of 5 of the 7 core clerkships. One of the 5 must be the Child Health clerkship. CH\_HTH 6000, 6010, 6020, or 6100

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**CH\_HTH 6043: SCC Pediatric Allergy and Immunology**

This subspecialty elective emphasizes experience in the evaluation and management of common clinical problems in allergy and immunology. The learner will assist in the diagnosis and management of asthma, rhinitis/conjunctivitis/rhinosinusitis, atopic dermatitis, contact dermatitis, urticaria, angioedema, anaphylaxis and adverse reactions to foods, drugs and stinging insects. Additional experience in immunodeficiency disorders, as well as experience in allergy skin testing, administration of allergen immunotherapy, performance and interpretation of pulmonary function tests, and performance of food challenges and/or drug challenges/desensitizations may also be provided. Outpatients will be evaluated by the student under supervision of the faculty physician. In addition, it is expected that the learner will complete recommended readings, participate in selected on-line learning activities and complete both pre-test and post-test assessments.

**Credit Hours:** 5

**Recommended:** Successful completion of the Child Health clerkship

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**CH\_HTH 6045: SCC Neonatal Intensive Care Unit Selective**

Students will gain experience in the evaluation, diagnosis, and management of sick newborns, and in the performance of specialized procedures necessary for ICU care.

**Credit Hours:** 5

**Prerequisites:** Successful completion of 5 of the 7 core clerkships. One of the 5 must be Child Health clerkship

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**CH\_HTH 6055: Springfield Pediatric Endocrinology**

This rotation is primarily an outpatient experience, though the student may be asked to do inpatient consultations with the attending physician. This elective will present an in-depth experience of diabetes/endocrinology as a subspecialty, including but not limited to exposure to disorders in growth and puberty, obesity, abnormalities in thyroid function, and managing blood glucose levels in patients with type 1 diabetes. Additional teaching methods used may include mini-lectures and readings relevant to this subspecialty.

**Credit Hours:** 5

**Prerequisites:** Successful completion of the first two years of medical school. Completion of M3 CH clerkship suggested but not required

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**CH\_HTH 6100: Remediation Child Health Clerkship**

Enrolled students are those who received an unsatisfactory grade in a Child Health Clerkship at any Mizzou Med location or site. This course gives them the opportunity to rectify a deficiency.

**Credit Hours:** 8

**Prerequisites:** CH\_HTH 6000 Child Health Clerkship, received unsatisfactory grade

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**CH\_HTH 6221: Advanced Biomedical Science Medicine Problem Premature Infant**

Advanced Biomedical Science Medicine Problem Premature Infant

**Credit Hours:** 5

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**CH\_HTH 6223: ABS Child Health Research**

ABS Child Health Research

**Credit Hour:** 5-10

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**CH\_HTH 6225: ABS Child Health Research and Review**

ABS Child Health Research and Review

**Credit Hour:** 5-10

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**CH\_HTH 6425: Child Health Genetics**

Goals/Objectives: To develop an understanding of medical genetics, including genetic diagnosis, cytogenetics, metabolic genetic diseases, teratology, and the genetics literature, and computer databases. CURRICULUM: During the block, each student will see patients in consultation and in the genetics clinics (general genetics, metabolic, PKU, autism, Down Syndrome, outreach) where they will work up the patients and prepare a report and discussion of the diagnosis or diagnostic differential. Each student will also prepare a literature review around a specific patient or problem. For interested students, cytogenetics or metabolic problems are available.

**Credit Hours:** 5

**Prerequisites:** Child Health clerkship

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**CH\_HTH 6426: Child Health Infectious Disease**

Child Health Infectious Disease

**Credit Hours:** 5

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**CH\_HTH 6427: Pediatric Hematology/Oncology**

Pediatric Hematology/Oncology

**Credit Hours:** 5

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**CH\_HTH 6428: Pediatric Diabetes and Endocrinology**

Goals/Objectives: 1) To understand the pathophysiology of endocrine and metabolic diseases in childhood. 2) To understand the fundamentals of growth processes in infancy, childhood, and adolescence. CURRICULUM: The Department of Child Health has a large patient care and research program for children with diabetes mellitus. In addition, the Department has a busy general endocrinology program. Thus, students on the elective can participate in the care of patients with a wide spectrum of endocrine and metabolic diseases. Students can carry out specific clinical or laboratory projects relating to specific aspects of either diabetes or endocrine disease, deepen their understanding of pathophysiology of disease and gain a better understanding of the impact of a chronic disorder on the child and his/her family.

**Credit Hours:** 5

**Prerequisites:** Child Health Clerkship

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**CH\_HTH 6429: Developmental Pediatrics**

Developmental Pediatrics

**Credit Hours:** 5

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**CH\_HTH 6430: Pediatric Cardiology**

Goals/Objectives: Clinical and laboratory material is available to achieve the following objectives: 1) Develop skills in auscultation, resuscitation, treatment of congestive heart failure, and recognition of congenital heart disease in infants. 2) Adequate exposure to pediatric electrocardiography, echocardiography, cineangiography, and interpretation of cardiac catheterization data. 3) Proficiency in the management of postoperative cardio-vascular patients.

**Credit Hours:** 5

**Prerequisites:** Child Health Clerkship

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**CH\_HTH 6431: Pediatric Pulmonology**

Goals/Objectives: To gain experience in the treatment of asthma, bronchopulmonary dysplasia, cystic fibrosis, sleep disorders, and other respiratory diseases and to learn about pulmonary function testing in children.

**Credit Hours:** 5

**Prerequisites:** Child Health Clerkship

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**CH\_HTH 6432: Pediatric Gastroenterology**

Goals/Objectives: 1) Gain experience in GI diseases of children noting the difference and similarities with adult diseases. 2) To introduce the student to some of the most commonly encountered diagnoses in pediatrics and to its management. 3) To learn to focus on physical diagnosis skills. CURRICULUM: Preceptorship with a pediatric

subspecialist for four weeks will include inpatient and outpatient service activities.

**Credit Hours:** 5

**Prerequisites:** Child Health Clerkship

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**CH\_HTH 6434: Child Adolescent Medicine**

Goals/Objectives: To teach 4th year students the intricacies of care of the adolescent patient. Specifically, the rotation will address the adolescent interview, important considerations in the adolescent 'check-up', and managing the varied problems in adolescents, from attention deficit disorder to eating disorders and gynecological issues. The student will leave the rotation with a better understanding of the care of adolescents.

CURRICULUM: These objectives will be met in the following manner: 1) Student will actively participate in adolescent medicine clinic with both clinical attendings. He/she will be responsible for the initial evaluation of the patients in the clinic, will actively participate in clinical decision-making, and will be responsible for helping with patient write-ups and referral letters (at the discretion of the attending). The student will be expected to function on an extern level, following up on laboratory evaluations and checking in with patients seen, when needed. 2) The student will participate in the adolescent interview practice sessions with the interact teen theatre with the residents on the rotation. This process will help to improve interviewing skills with adolescents. 3) The student will be responsible for helping with any inpatient care, including consultations and/or admissions. 4) The student will be asked to identify particular areas of interest to be used as topics for interactive discussion with one of the attendings or for a short paper.

**Credit Hours:** 5

**Prerequisites:** Child Health Clerkship

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**CH\_HTH 6435: Ped Renal and Rheumatology**

4th year elective for renal/rheumatology rotation, four weeks.

**Credit Hours:** 5

**Prerequisites:** 3rd year Pediatrics/Child Health or Internal Medicine rotation

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**CH\_HTH 6726: Child Health Rural Elective**

Students will enhance their knowledge about patient-centered care of children through active participation in a primarily outpatient clinical experience. Limited inpatient experience may be offered as well.

**Credit Hours:** 5

**Prerequisites:** CH\_HTH 6000; restricted to medical students only

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**CH\_HTH 6825: General Child Health - Inpatient**

Goals/Objectives: To provide additional experience in general pediatrics in inpatient care. CURRICULUM: The student will function as a member of the house staff team assuming many of the roles of the first year resident in patient care. This includes working up of patient's management plans, rounding, staffing, conferences, etc. Night coverage with supervision is included.

**Credit Hours:** 5

**Prerequisites:** Child Health Clerkship

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**CH\_HTH 6826: General Child Health - Outpatient**

Goals/Objectives: To provide additional experience in general pediatrics in outpatient care. CURRICULUM: The student will function as a member

of the healthcare team. This includes taking histories, performing physical exams, and working up patient management plans. This may require working evening clinic and Saturday clinic in addition to regular daytime clinics.

**Credit Hours:** 5

**Prerequisites:** Child Health Clerkship

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**CH\_HTH 6827: Neonatology/Neonatal Intensive Care Unit**

Goals/Objectives: To gain experience: 1) in the evaluation, diagnosis, and management of sick newborns, and 2) in the performance of specialized procedures necessary for ICU care. CURRICULUM: The student will function as a first-year house officer, with his/her own neonatal ICU patients for initial work-up and management, under the supervision of the PL-2 or PL-3 and attending staff. (rotation at Columbia Regional Hospital)

**Credit Hours:** 5

**Prerequisites:** Child Health Clerkship

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**CH\_HTH 6828: Pediatric Intensive Care Unit**

Goals/Objectives: 1) To provide the student with the initial approach and management of children requiring care in the Pediatric Intensive Care Unit. 2) To provide the student with the basics of airway management in children. 3) To provide the student with an understanding of the preoperative assessment with preparation of pediatric patients. 4) To provide the student with an introduction to the perioperative management of common pediatric surgical problems. CURRICULUM: Students in this elective will spend time in both the Pediatric ICU and the operating rooms. They will be required to participate in daily rounds in the PICU and follow the medical/surgical patients admitted to the PICU.

**Credit Hours:** 5

**Prerequisites:** Child Health Clerkship

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**CH\_HTH 6829: Pediatric Neurology**

Pediatric Neurology

**Credit Hours:** 5

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**CH\_HTH 6912: Introduction to Adolescent Medicine**

The rotation is primarily an outpatient experience, though the student may be asked to do inpatient consultations with the attending physician on service. In addition to learning and practicing primary care of adolescent patients the elective will present an in-depth experience of adolescent medicine as a subspecialty, including, but not limited to, conditions such as eating disorders, disorders of puberty and menstruation, obesity, ADHD, and substance abuse. Additional teaching methods used include a pre-post test, lectures, and readings relevant to adolescent medicine. Completion of the Child Health Clerkship: CH\_HTH 6000 and CH\_HTH 6010.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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**CH\_HTH 6913: Introduction to Pediatric Endocrinology**

The rotation is primarily an outpatient experience, though the student may be asked to do inpatient consultations with the attending physician on service. The elective will present an in-depth experience of diabetes/endocrinology as a subspecialty, including, but not limited to, exposure to

disorders in growth and puberty, obesity, abnormalities in thyroid function and managing blood glucose levels in patients with type 1 diabetes. Additional teaching methods used may include lectures and readings relevant to this subspecialty.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

**Recommended:** Completion of the Child Health Clerkship (CH\_HTH 6000 or CH\_HTH 6010) is suggested but not required

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#### **CH\_HTH 6951: SCC Pediatric Allergy and Immunology 2 week**

This subspecialty elective emphasizes an introductory experience in the evaluation and management of common clinical problems in allergy and immunology. The learner will assist in the diagnosis and management of asthma, rhinitis/conjunctivitis/rhinosinusitis, atopic dermatitis, contact dermatitis, urticaria, angioedema, anaphylaxis and adverse reactions to foods, drugs and stinging insects. Additional experience in immunodeficiency disorders, as well as experience in allergy skin testing, administration of allergen immunotherapy, performance and interpretation of pulmonary function tests, and performance of food challenges and/or drug challenges/desensitizations may also be provided. Outpatients will be evaluated by the student under supervision of the faculty physician. In addition, it is expected that the learner will complete recommended readings, participate in selected on-line learning activities and complete both pre-test and post-test assessments.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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#### **CH\_HTH 6953: SCC Neonatal Intensive Care Unit 2-Week**

The course goals are for the student to gain the knowledge and experience in the evaluation, diagnosis, and management of sick newborns, and in the performance of specialized procedures necessary for ICU care. The student will demonstrate an introductory level working understanding of these areas.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school and a core rotation in family medicine or pediatrics

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## **Chinese Courses**

#### **CHINSE 1100: Elementary Chinese I**

For beginners with no prior knowledge of Chinese. Five hours of classroom instruction, with one hour lab work weekly.

**Credit Hours:** 6

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#### **CHINSE 1200: Elementary Chinese II**

This course is a continuation of Elementary Chinese I, consisting of 5 hours of classroom instruction and 1 hour of lab work weekly.

**Credit Hours:** 6

**Prerequisites:** C- or better in CHINSE 1100 or equivalent

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#### **CHINSE 2100: Everyday Spoken Chinese Level I**

Reinforces and extends ability to use Chinese language for spoken communication. Studies situation-specific Chinese in real-life situations.

Intended to supplement, not replace, Chinese language courses taught on MU campus. Students must be enrolled in MU China Study Abroad.

**Credit Hours:** 3

**Prerequisites:** C- or better in CHINSE 1200

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#### **CHINSE 2160: Intermediate Chinese I Conversation and Composition**

This course builds on Chinese language learned in the elementary Chinese Language Sequences I & II through conversation and writing.

**Credit Hours:** 3

**Prerequisites:** C- or better in CHINSE 1200 or equivalent

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#### **CHINSE 2310: Chinese Civilization I**

Survey of Chinese culture and arts. No knowledge of Chinese is required. No foreign language credit.

**Credit Hours:** 3

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#### **CHINSE 2330: Chinese Language and Culture**

Presents information about the development of Chinese language over time, the variety of dialects spoken in China, and around the world. Explores relationship between Chinese language and culture. Considers different genres of Chinese literature. Visits to sites significant to development of Chinese language and literature. Introduction to calligraphy and basic daily Chinese.

**Credit Hours:** 3

**Prerequisites:** Must be enrolled in MU China Study Abroad; sophomore standing required

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#### **CHINSE 3001: Topics in Chinese - General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** Sophomore standing and instructor consent

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#### **CHINSE 3005: Topics in Chinese - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Some sections may be graded on A-F or S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing and instructor's consent

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#### **CHINSE 3005H: Topics in Chinese - Humanities - Honors**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Some sections may be graded on A-F or S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing and instructor's consent, Honors eligibility required

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#### **CHINSE 3085: Problems in Chinese**

Supervised study in Chinese language and/or culture.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**CHINSE 3160: Intermediate Chinese II Conversation and Composition**

Continuation of CHINSE 2160. Introduces more complex grammatical constructions and extends ability to use those constructions for written and oral communication. Successful completion of course will enable students to communicate in Mandarin Chinese regarding everyday topics, with a vocabulary of just over 1900 words, and about 380 sentence patterns.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CHINSE 2160

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**CHINSE 3170: Everyday Spoken Chinese Level II**

For students who have completed 18 credits college-level Chinese. Reinforces and extends ability to use Chinese language for Spoken communication. Class-time spent studying situation-specific Chinese in real-life situations. Intended to supplement, not replace, Chinese language courses taught on UMC campus. Students must be enrolled in MU China Study Abroad.

**Credit Hours:** 3

**Prerequisites:** C- or better in CHINSE 3160 or consent of instructor

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**CHINSE 3180: Advanced Chinese I**

Improves vocabulary, listening, spoken and written Chinese Skills. Discusses basic cultural ideas. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CHINSE 3160, or equivalent

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**CHINSE 3190: Advanced Chinese II**

Students will build on grammatical patterns and vocabulary learned in Advanced Chinese 1, and will be able to use the Chinese language to discuss, read, and write about topics related to Chinese culture and modern society. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or above in CHINSE 3180, or equivalent

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**CHINSE 3300: Chinese Traditions and Global Integration**

Focuses on developments in China's International relations that have led to prominence on world stage, and the impact of modernization and integration into world community on China's sense of national identity, shape of Chinese culture, and lives of the people. Visits to cultural and business sites, guest lectures, and conversations with Chinese people.

**Credit Hours:** 3

**Prerequisites:** Must be enrolled in MU China Study Abroad; sophomore standing required

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**CHINSE 3300H: Chinese Traditions and Global Integration - Honors**

Focuses on developments in China's International relations that have led to prominence on world stage, and the impact of modernization and integration into world community on China's sense of national identity, shape of Chinese culture, and lives of the people. Visits to cultural and business sites, guest lectures, and conversations with Chinese people.

**Credit Hours:** 3

**Prerequisites:** Must be enrolled in MU China Study Abroad; sophomore standing required. Honors eligibility required

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**CHINSE 3310: Chinese Poetry**

This is an introductory course to Chinese poetry, both classical and contemporary, in English. It will explore issues in the intercultural and interlingual interpretation of foreign literature through the study of Western translations of and scholarship on selected Chinese poets.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing

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**CHINSE 3320: Modern and Contemporary Chinese Fiction (in translation)**

Studies Chinese fiction from 1920s to 1990s. Preceded by a brief historical survey of Chinese literature. Analyzes works by authors like Lu Xun, Ba Jin, Lao She, Wang Meng and many others of the younger generation. Readings and lectures in English.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing

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**CHINSE 3400: Negotiating Chinese Culture**

As political, business, religious, and personal encounters between Chinese and Americans increase, so also does the need for competence in negotiating these cross-cultural interactions. Whether hosting Chinese guests, visiting China for business or as a scholar, or simply trying to understand current events, a clear understanding of cultural differences and similarities can be quite valuable. Students will be introduced to multiple perspectives on American and Chinese cultural differences along with narratives of cross-cultural experiences. Course address issues related to American and Chinese cross-cultural communication in five spheres of interaction: political, religious, business, interpersonal, education. Through related readings, discussions, and structured conversations with Chinese, students will explore how this information and a deeper understanding of Chinese and American culture can be applied to more fruitful and positive cross-cultural interactions in multiple contexts.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**CHINSE 3880: Contemporary Chinese Film**

(same as FILMS\_VS 3880). Introduces development of 20th century Chinese film and popular genres, including review of earlier times. Explores how present day Chinese understand their own history, and issues they face in drive toward modernization in a global context. Films and readings in English or with English subtitles. No previous knowledge of the culture or language required.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**CHINSE 4730: Chinese Teaching Methods**

(same as GERMAN 4730). Supervised introduction to the methodology of the teaching of elementary-level language; conducted in a classroom environment.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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## Civil Engineering Courses

### CV\_ENG 1001: Experimental Course

For freshman-level students. Content and number of credit hours to be listed in Schedule of Courses.

**Credit Hour:** 1-99

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### CV\_ENG 2001: Experimental Course

For sophomore-level students. Content and number of credit hours to be listed in Schedule of Courses.

**Credit Hour:** 1-99

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### CV\_ENG 2080: Introduction to Dynamics

Basic fundamentals of particle and rigid body dynamics; energy and momentum methods.

**Credit Hours:** 3

**Prerequisites:** ENGINR 1200

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### CV\_ENG 3010: Decision Methods for Civil Engineering Design

Essential features of civil engineering including the design process, design teams, experimental and computational tools, engineering economy, communication skills, and ethical considerations.

**Credit Hours:** 3

**Prerequisites or Corequisites:** ENGINR 1200

**Prerequisites:** grade of C- or better in ENGLSH 1000

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### CV\_ENG 3010W: Decision Methods for Civil Engineering Design - Writing Intensive

Essential features of civil engineering including the design process, design teams, experimental and computational tools, engineering economy, communication skills, and ethical considerations.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in ENGLSH 1000

**Corequisites:** ENGINR 1200

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### CV\_ENG 3050: Introduction to Geographic Information Systems GIS

(same as GEOG 3040) Introduces theory, concepts and techniques related to the creation, manipulation, processing, and basic analysis of spatial data using GIS. Data management, current data models, GIS applications and course topics are reinforced through hands-on computer laboratory exercises.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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### CV\_ENG 3100: Fundamentals of Transportation Engineering

Covers fundamentals of transportation engineering including geometric design, traffic engineering, pavements, and planning.

**Credit Hours:** 4

**Prerequisites or Corequisites:** CV\_ENG 3010

**Prerequisites:** grade of C- or better in ENGINR 1100

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### CV\_ENG 3200: Fundamentals of Environmental Engineering

Fundamentals of water quality engineering and water resources, water and wastewater treatment, solid and hazardous and radioactive waste

management, air pollution, environmental regulation, and environmental ethics.

**Credit Hours:** 4

**Prerequisites or Corequisites:** CV\_ENG 3010

**Prerequisites:** grade of C- or better in CHEM 1320 or equivalent

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### CV\_ENG 3250: Pollutant Fate and Transport

(same as ENV\_SC 3250). Introduction to concepts governing pollutant fate and transport in the environment, including pollutant interactions within and migration through environmental systems, as well as analytical techniques and tools necessary to quantify conditions and movement.

**Credit Hours:** 3

**Prerequisites:** ENV\_SC 1100 or SOIL 2100 or CV\_ENG 3200; and

CHEM 1320; or instructor's permission

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### CV\_ENG 3300: Structural Analysis I

Analysis of statically determinate beams, frames; shear and moment diagrams; influence line diagrams; beam deflections. Analysis of statically indeterminate structures; moment distribution; energy methods. Introduction to matrix analysis.

**Credit Hours:** 4

**Prerequisites:** grade of C- or better in ENGINR 1200 and ENGINR 2200

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### CV\_ENG 3300H: Structural Analysis I - Honors

Analysis of statically determinate beams, frames; shear and moment diagrams; influence line diagrams; beam deflections. Analysis of statically indeterminate structures; moment distribution; energy methods. Introduction to matrix analysis.

**Credit Hours:** 4

**Prerequisites:** grade of C- or better in ENGINR 1200 and ENGINR 2200.

Honors Eligibility required

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### CV\_ENG 3312: Reinforced Concrete Design

Basic principles of reinforced concrete design. Design of beams for flexure and shear; design of short and slender columns. Prerequisites: CV\_ENG 3300;

**Credit Hours:** 3

**Prerequisites or Corequisites:** CV\_ENG 3600

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### CV\_ENG 3313: Structural Steel Design

Basic principles of structural steel design. Design of beams, axially loaded members, columns, and bolted and welded connections.

**Credit Hours:** 3

**Corequisites:** CV\_ENG 3300 and CV\_ENG 3600

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### CV\_ENG 3400: Fundamentals of Geotechnical Engineering

Detailed study of physical and mechanical properties of soil governing its behavior as an engineering material.

**Credit Hours:** 4

**Prerequisites:** grade of C- or better in ENGINR 2200; Restricted to Civil Engineering major students only

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**CV\_ENG 3600: Civil Engineering Materials**

Introduces composition, structure, properties, behavior, and selection of civil engineering materials.

**Credit Hours:** 4

**Prerequisites or Corequisites:** CV\_ENG 3010

**Prerequisites:** grade of C- or better in ENGINR 2200 or instructor's consent

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**CV\_ENG 3700: Fluid Mechanics**

Statics and dynamics of fluids, principles of continuity, momentum and energy, pipe flow.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better PHYSCS 2750

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**CV\_ENG 3702: Hydrology**

Fundamental concepts of hydrology in engineering; quantitative estimation of stream-flow magnitude and frequency; and open channel flow considerations from stream-flow. Fluid Mechanics lab with lab reports.

**Credit Hours:** 4

**Prerequisites:** grade of C- or better MATH 2300 and CV\_ENG 3200 and CV\_ENG 3700

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**CV\_ENG 4001: Topics in Civil Engineering**

Study of current and new technical developments in civil engineering.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**CV\_ENG 4006: Computational Methods in Civil Engineering**

(cross-leveled with CV\_ENG 7006). Use of numerical methods for solution of engineering problems involving roots of equations, simultaneous equations, curve fitting, integration, optimization, differentiation, and differential equations. The numerical methods are demonstrated through computer implementation and application to engineering design problems.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

**Corequisites:** MATH 4100

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**CV\_ENG 4008: Risk and Reliability for Civil Engineers**

(cross-leveled with CV\_ENG 7008). This course focuses on how to use probability and statistics to quantify uncertainties and consider risks when making civil engineering decisions and designing civil engineering systems.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3010 or other introductory probability/statistics course

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**CV\_ENG 4085: Problems in Civil and Environmental Engineering**

Directed investigation of civil engineering.

**Credit Hour:** 2-4

**Prerequisites:** instructor's consent

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**CV\_ENG 4100: Traffic Engineering**

(cross-leveled with CV\_ENG 7100). Characteristics and studies associated with highway traffic. Capacity analysis and evaluation of freeways, rural highways, and urban streets. Traffic signal control and coordination.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3100

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**CV\_ENG 4104: Pavement Materials and Design**

(cross-leveled with CV\_ENG 7104). Properties of materials used in roads, airports and other pavement construction. Design methods for rigid and flexible pavements.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in ENGINR 2200

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**CV\_ENG 4105: Asphalt Materials and Mixture Design**

(cross-leveled with CV\_ENG 7105). This course consists of a combination of interactive classroom lectures and discussions, group activities, hands-on laboratory exercises, laboratory demonstrations, and field trips (live and/or recorded) to observe asphalt binder and mixture design, production, and control. Upon completion of the course, the student will be able to: (1) select, specify, and design an asphalt paving mixture for specific climatic and traffic conditions using the SUPERPAVE mixture design system; (2) understand the sources, types, and manufacturing aspects of asphalt binders and aggregates; (3) understand the key elements of asphalt mixture construction, process control, and acceptance; (4) perform key SUPERPAVE laboratory tests for asphalt binders, aggregates, and mixtures and master the analysis and interpretation of data collected; (5) understand contemporary concepts and approaches in sustainable asphalt mixture design and construction; (6) understand and mathematically describe fundamental properties of asphalt binders and mixtures, which is a critical step in mastering mixture/pavement design, evaluation, and rehabilitation, and; (7) understand and describe the key types and uses of special asphalt binder and mixture products, including emulsions, cutbacks, polymer-modified binders, warm-mix asphalt, other additives, and mixtures containing recycled asphalt pavement (RAP) and recycled asphalt shingles (RAS). Graded on A-F only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** CV\_ENG 3600

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**CV\_ENG 4106: Intelligent Transportation Systems**

(cross-leveled with CV\_ENG 7106). This is an introductory course in Intelligent Transportation Systems (ITS). Topics include the theory of transportation networks and systems optimization, current implementations of ITS, and practical issues and implications of ITS.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3100

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**CV\_ENG 4110: Transportation Simulation**

(cross-leveled with CV\_ENG 7110). Theory and application of simulation in transportation engineering.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3100

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**CV\_ENG 4120: Airport Engineering**

(cross-leveled with CV\_ENG 7120). Airport systems planning, design, and management.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3100

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**CV\_ENG 4125: Transportation Legal Issues**

(cross-leveled with CV\_ENG 7125). This course discusses some of the legal issues that transportation engineers encounter throughout the course of their careers.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3100

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**CV\_ENG 4130: Transportation Safety**

(cross-leveled with CV\_ENG 7130). This course is an introduction to transportation safety. The focus will be on surface transportation. The student is expected to analyze safety data and to devise engineering solutions to safety problems.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3100

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**CV\_ENG 4145: Civil and Environmental Engineering Legal Issues**

(cross-leveled with CV\_ENG 7145). Discussion of legal issues facing civil engineers including right of way, risk and liability, environment, financing public works, contracting and ethics.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3100

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**CV\_ENG 4155: Transportation Geography**

(same as GEOG 4850; cross-leveled with CV\_ENG 7155; GEOG 7850). Introduction to fundamental concepts and modes of analysis in transportation geography. Focus on descriptive, explanatory, as well as normative approaches. Topics reviewed include spatial organization, transportation economics, spatial interaction, network analysis, location/allocation, and urban transportation planning.

**Credit Hours:** 3

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**CV\_ENG 4175: The Geospatial Science in National Security**

(Same as GEOG 4130; cross-leveled with CV\_ENG 4175, GEOG 7130). This course explores the critical contribution of the geospatial sciences in the collection processing, visualization and analysis of geospatial information related to national security. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

**Recommended:** junior standing

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**CV\_ENG 4185: Location Analysis/Site Selection**

(same as GEOG 4740; cross-leveled with CV\_ENG 7185; GEOG 7740). An overview of location analysis in regional planning and spatial decision support, this course focuses on the use of Geographic Information Science (GIS) and location analysis methods in addressing regional service needs. Maybe be repeated for credit.

**Credit Hours:** 3

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**CV\_ENG 4190: Infrastructure Project Development**

(cross-leveled with CV\_ENG 7190). Students will learn how the key elements of major civil engineering infrastructure projects fit together. The course will focus on the horizontal integration of: financing - planning - environment - right of way - design - construction - operations - maintenance. Engineering is important but so are a lot of other things. Graded on A-F basis only. Prerequisites: junior standing

**Credit Hours:** 3

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**CV\_ENG 4220: Hazardous Waste Management**

(same as CH\_ENG 4220; cross-leveled with CV\_ENG 7220, CH\_ENG 7220). Engineering principles involved in handling, collection, transportation, processing and disposal of hazardous wastes, waste minimization, legislation on hazardous wastes and groundwater contamination.

**Credit Hours:** 3

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**CV\_ENG 4230: Introduction to Water Quality**

(cross-leveled with CV\_ENG 7230). Methods for determining and characterizing water quality, effects of pollution on streams and lakes, and an introduction to engineered systems for the distribution, collection and treatment of water and wastewater.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**CV\_ENG 4232: Water and Wastewater Treatment Facilities**

(cross-leveled with CV\_ENG 7232). Physical, chemical, and biochemical processes for treating drinking water supplies and wastewaters (domestic and industrial), with emphasis on planning and design of such facilities.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4230 or CV\_ENG 7230 or instructor's consent

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**CV\_ENG 4240: Water Quality Analysis**

(cross-leveled with CV\_ENG 7240). Chemical, physical and biological methods for analysis of streams, lakes, wastewaters and water supplies and their use in water quality management.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 4230 or instructor's consent

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**CV\_ENG 4245: Environmental Chemistry for Engineers**

(cross-leveled with CV\_ENG 7245). This course will cover the fundamentals of environmental chemistry. Physical, equilibrium, organic and colloid chemistry topics will be presented from an environmental perspective with a focus on their relevant engineering applications.

**Credit Hours:** 3

**Prerequisites:** CHEM 1320 or CV\_ENG 3200

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**CV\_ENG 4250: Environmental Regulatory Compliance**

(cross-leveled with CV\_ENG 7250). Systems of water law; provisions of major federal environmental laws and regulations; development of regulations at the federal, state, and local levels; regulatory frameworks; permits; and enforcement.

**Credit Hours:** 3

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**CV\_ENG 4270: Environmental Engineering Microbiology**

(cross-leveled with CV\_ENG 7270). Theory and application of fundamental principles of microbiology, ecology, and aquatic biology of the microorganisms of importance to sanitary engineers.

**Credit Hours:** 3

**Prerequisites:** senior standing or instructor's consent

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**CV\_ENG 4286: Environmental Sustainability**

(cross-leveled with CV\_ENG 7286). This course will present an introduction to sustainability in engineering, tools for assessing sustainability and principles of sustainable design practices. Topics include climate change, energy and renewable resources, limits to growth, risk assessment, life cycle assessments, water and energy footprints, green buildings, and the water-food-energy-nexus. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3200

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**CV\_ENG 4290: Wastewater Treatment and Process Design**

(cross-leveled with CV\_ENG 7290). Selection and use of wastewater and sludge treatment processes, disposal methods, sustainable wastewater treatment including anaerobic treatment of wastewater reuse.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3200. Instructor's consent required

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**CV\_ENG 4300: Advanced Structural Steel Design**

(cross-leveled with CV\_ENG 7300). Design of steel structures and bridges. Topics include composite beams, plate girder design, and moment resistant connections.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3313

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**CV\_ENG 4302: Prestressed/Advanced Reinforced Concrete**

(cross-leveled with CV\_ENG 7302). Principles of prestressing. Constituent materials, loading and allowable stresses. Working and ultimate stress analysis and design. Shear and torsion. Deflections. Prestress losses. Continuous beams. Composite beams. Compression members. Footings.

**Credit Hours:** 3

**Prerequisites or Corequisites:** CV\_ENG 3312

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**CV\_ENG 4320: Energy Methods in Mechanics**

(cross-leveled with CV\_ENG 7320). Variational mechanics including practical examples. Topics include calculus of variation of boundary value problems, energy methods such as Ritz and Galerkin methods, approximate solutions methods such as the finite element and finite difference, and eigenvalue problems.

**Credit Hours:** 3

**Prerequisites:** senior or graduate standing required

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**CV\_ENG 4330: Structural System Design**

(cross-leveled with CV\_ENG 7330). Design of buildings in steel and reinforced concrete, including estimation of loads and design of gravity and lateral force resisting systems.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3312 and CV\_ENG 3313

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**CV\_ENG 4350: Matrix Methods of Structural Analysis**

(cross-leveled with CV\_ENG 7350). An introduction to the fundamentals of stiffness and flexibility methods for analysis of truss and frame structures. Application of the STRUDL and NASTRAN programs to three dimensional structures.

**Credit Hours:** 3

**Prerequisites:** senior standing; grade of C- or better in CV\_ENG 3300

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**CV\_ENG 4360: Bridge Engineering**

(cross-leveled with CV\_ENG 7360). Review of Highway Bridge Analysis and Design Fundamentals. Study of Influence Line Diagrams and Shear and Moment Envelopes. Design of Medium- and Short-Span Girder Bridges based on AASHTO LRFD specs.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3312 and CV\_ENG 3313

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**CV\_ENG 4404: Geotechnical Earthquake Engineering**

(cross-leveled with CV\_ENG 7404). This course provides an introduction to geotechnical aspects of earthquake engineering. Topics include: basic seismology, seismic hazard analysis, dynamic soil properties, site response analysis and soil liquefaction.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3400 or instructor's consent

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**CV\_ENG 4406: Geotechnics of Landfill Design**

(cross-leveled with CV\_ENG 7406). This course will focus on geotechnical and construction aspects in the analysis, design and construction of waste containment facilities (landfills) including expansions of existing facilities.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**CV\_ENG 4410: Foundation Engineering**

(cross-leveled with CV\_ENG 7410). Subsurface exploration. Design of basic foundation structures, shallow foundations, retaining walls, deep foundations.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3400

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**CV\_ENG 4412: Applied Geotechnical Engineering**

(cross-leveled with CV\_ENG 7412). Study of concepts, theories, and design procedures for modern earthwork engineering including: compaction and densification of soils and soil improvement, seepage and drainage, slope stability and performance, and earth retaining structures.

**Credit Hours:** 3



**Prerequisites:** grade of C- or better in CV\_ENG 3400

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**CV\_ENG 4500: Introduction to Construction Management**  
(cross-leveled with CV\_ENG 7500). Structure of the construction industry; construction drawings and specifications; estimating and bidding; construction contracts, bonds and insurance; planning and scheduling of construction operations; project management; computer techniques.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**CV\_ENG 4600: Advanced Mechanics of Materials**  
(same as MAE 4600; cross-leveled with CV\_ENG 7600 and MAE 7600). Analysis of more complicated problems in stresses, strains.

**Credit Hours:** 3

**Prerequisites:** C- or better in ENGINR 2200, MAE 3200 and Junior standing

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**CV\_ENG 4610: Sensors and Experimental Stress Analysis**  
(cross-leveled with CV\_ENG 7610). Sensors and instrumentation for stress analysis, mechanical measurement and health monitoring of civil structures. Application and design of data acquisition systems, basic digital signal processing. Electronics and instrumentation circuits.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in ENGINR 2200 and PHYSCS 2760

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**CV\_ENG 4660: Vibration Analysis**  
(same as MAE 4660; crossleveled with CV\_ENG 7660, MAE 7660). Vibration theory and its application to mechanical systems. Topics include free and forced vibration analysis of single- and multi-degree of freedom systems.

**Credit Hours:** 3

**Prerequisites:** C- or better in MATH 4100 and MAE 2600

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**CV\_ENG 4692: Introduction to Structural Dynamics**  
(cross-leveled with CV\_ENG 7692). Theory of structural response to dynamic loads. Computation of dynamic response of structures to dynamic loads like blast and earthquake. Modal analysis and single degree of freedom methods will be covered.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3300

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**CV\_ENG 4700: Hydraulics of Open Channels**  
(cross-leveled with CV\_ENG 7700). Gradually varied flow and theory of the hydraulic jump. Slowly varied flow involving storage; rating curves.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3700

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**CV\_ENG 4710: Soil and Water Conservation Engineering**  
(same as BIOL\_EN 4150; cross-leveled with CV\_ENG 7710, BIOL\_EN 7150). Urban and rural run-off and erosion analysis. Design and layout of erosion control structures.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 2180 or CV\_ENG 3200

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**CV\_ENG 4720: Watershed Modeling Using GIS**  
(same as BIOL\_EN 4350). Watershed evaluation using AVSWAT for hydrology, sediment yield, water quality; includes USLE, MUSLE, WEPP, Procedures for model calibration/sensitivity data analysis.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 2180 or CV\_ENG 3200

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**CV\_ENG 4730: Hydraulic Design**  
(cross-leveled with CV\_ENG 7730). Design of hydraulic infrastructure utilizing principles of both pressure conduits and open channels. Hand calculations and use of commercial design software for water distribution (quantity and quality), stormwater collection and sanitary sewer systems, and detention basins. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3700 or equivalent

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**CV\_ENG 4740: Irrigation and Drainage Engineering**  
(same as BIOL\_EN 4250; cross-leveled with CV\_ENG 7740). Soil, water, plant relationships. Water supplies and design of surface, sprinkler and drip irrigation systems. Surface and tile drainage.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3700 or MAE 3400 or BIOL\_EN 2180

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**CV\_ENG 4980: Civil Engineering Systems Design**  
Design of civil engineering systems.

**Credit Hours:** 3

**Prerequisites:** senior standing in Civil Engineering at the University of Missouri-Columbia or written consent of Chairman

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**CV\_ENG 4980W: Civil Engineering Systems Design - Writing Intensive**  
Design of civil engineering systems.

**Credit Hours:** 3

**Prerequisites:** senior standing in Civil Engineering at the University of Missouri-Columbia or written consent of Chairman

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**CV\_ENG 4990: Undergraduate Research in Civil and Environmental Engineering**  
Independent investigation or project in Civil Engineering. May be repeated to 6 hours. Enrollment limited to seniors in Civil and Environmental Engineering.

**Credit Hour:** 1-4

**Prerequisites:** instructor's consent

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**CV\_ENG 4995: Research in Civil and Environmental Engineering- Undergraduate Honors**  
Independent project, supervised by the honors advisor, to be presented as a formal written report.

**Credit Hour:** 1-3

**Prerequisites:** Civil Engineering students only

**Recommended:** participation in the Civil and Environmental Engineering Departmental Honors Program

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**CV\_ENG 7001: Topics in Civil Engineering**

Study of current and new technical developments in civil engineering.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**CV\_ENG 7002: Analysis of Civil Engineering Decisions**

Formulates and analyzes probabilistic models of civil engineering systems and their environment. Elementary theory of decision making under uncertainty. Application to selected civil engineering problems.

**Credit Hours:** 3

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**CV\_ENG 7003: Optimization of Civil Engineering Systems**

Automated design techniques such as linear, nonlinear, and dynamic programming; gradient and random searching. Civil engineering applications emphasized throughout.

**Credit Hours:** 3

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**CV\_ENG 7004: Engineering Administration**

Cash flow analysis, financial analysis, managerial accounting and cost control, budgeting, organizational structure and behavior.

**Credit Hours:** 3

**Prerequisites:** MATH 1300 or MATH 1500, or instructor's consent

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**CV\_ENG 7006: Computational Methods in Civil Engineering**

(cross-leveled with CV\_ENG 4006). Use of numerical methods for solution of engineering problems involving roots of equations, simultaneous equations, curve fitting, integration, optimization, differentiation, and differential equations. The numerical methods are demonstrated through computer implementation and application to engineering design problems.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

**Corequisites:** MATH 4100

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**CV\_ENG 7007: Quality Management in Civil Engineering**

Quantitative and qualitative quality planning and analysis concepts, including statistical tools and total quality management techniques, control, measurement and assessment. Graded on A-F basis only.

**Credit Hours:** 3

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**CV\_ENG 7008: Risk and Reliability for Civil Engineers**

(cross-leveled with CV\_ENG 4008). This course focuses on how to use probability and statistics to quantify uncertainties and consider risks when making civil engineering decisions and designing civil engineering systems.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3010 or other introductory probability/statistics course

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**CV\_ENG 7080: Advanced Surveying**

(cross-leveled with CV\_ENG 4080). Celestial observations for determination of position; state coordinate systems, precise surveys, introduction to geodetic surveys, principles of photogrammetry. Theory of optical surveying instruments.

**Credit Hours:** 3

**Prerequisites:** MATH 1500

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**CV\_ENG 7082: Property Boundary Location**

Principles of real property ownership, deeds, property boundary surveying, legal principles of original and retracement surveys Missouri statutes and regulations affecting surveying, GLO corner restoration and re-establishment.

**Credit Hours:** 3

**Prerequisites:** ENGINR 1500 and CV\_ENG 2090

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**CV\_ENG 7100: Traffic Engineering**

(cross-leveled with CV\_ENG 4100). Characteristics and studies associated with highway traffic. Capacity analysis and evaluation of freeways, rural highways, and urban streets. Traffic signal control and coordination.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3100

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**CV\_ENG 7104: Pavement Materials and Design**

(cross-leveled with CV\_ENG 4104). Properties of materials used in roads, airports and other pavement construction. Design methods for rigid and flexible pavements.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in ENGINR 2200

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**CV\_ENG 7105: Asphalt Materials and Mixture Design**

(cross-leveled with CV\_ENG 4105). This course consists of a combination of interactive classroom lectures and discussions, group activities, hands-on laboratory exercises, laboratory demonstrations, and field trips (live and/or recorded) to observe asphalt binder and mixture design, production, and control. Upon completion of the course, the student will be able to: (1) select, specify, and design an asphalt paving mixture for specific climatic and traffic conditions using the SUPERPAVE mixture design system; (2) understand the sources, types, and manufacturing aspects of asphalt binders and aggregates; (3) understand the key elements of asphalt mixture construction, process control, and acceptance; (4) perform key SUPERPAVE laboratory tests for asphalt binders, aggregates, and mixtures and master the analysis and interpretation of data collected; (5) understand contemporary concepts and approaches in sustainable asphalt mixture design and construction; (6) understand and mathematically describe fundamental properties of asphalt binders and mixtures, which is a critical step in mastering mixture/pavement design, evaluation, and rehabilitation, and; (7) understand and describe the key types and uses of special asphalt binder and mixture products, including emulsions, cutbacks, polymer-modified binders, warm-mix asphalt, other additives, and mixtures containing recycled asphalt pavement (RAP) and recycled asphalt shingles (RAS). Graded on A-F only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** CV\_ENG 3600

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**CV\_ENG 7106: Intelligent Transportation Systems**

(cross-leveled with CV\_ENG 4106). This is an introductory course in Intelligent Transportation Systems (ITS). Topics include the

theory of transportation networks and systems optimization, current implementations of ITS, and its practical issues and implications of ITS.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3100

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**CV\_ENG 7109: Urban Development and Planning**

Introduction to planning processes; procedures and forces that shape urbanization.

**Credit Hours:** 3

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**CV\_ENG 7110: Transportation Simulation**

(cross-leveled with CV\_ENG 7110). Theory and application of simulation in transportation engineering.

**Credit Hours:** 3

**Prerequisites:** C- or better in CV\_ENG 3100

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**CV\_ENG 7120: Airport Engineering**

(cross-leveled with CV\_ENG 4120). Airport systems planning, design, and management.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3100

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**CV\_ENG 7125: Transportation Legal Issues**

(cross-leveled with CV\_ENG 4125). This course discusses some of the legal issues that transportation engineers encounter throughout the course of their careers.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3100

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**CV\_ENG 7130: Transportation Safety**

(cross-leveled with CV\_ENG 4130). This course is an introduction to transportation safety. The focus will be on surface transportation. The student is expected to analyze safety data and to devise engineering solutions to safety problems.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3100

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**CV\_ENG 7145: Civil and Environmental Engineering Legal Issues**

(cross-leveled with CV\_ENG 4125). Discussion of legal issues facing civil engineers including right of way, risk and liability, environment, financing public works, contracting and ethics.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3100

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**CV\_ENG 7155: Transportation Geography**

(same as GEOG 7850; cross-leveled with CV\_ENG 4155, GEOG 4850). Introduction to fundamental concepts and modes of analysis in transportation geography. Focus on descriptive, explanatory, as well as normative approaches. Topics reviewed include spatial organization, transportation economics, spatial interaction, network analysis, location/allocation, and urban transportation planning.

**Credit Hours:** 3

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**CV\_ENG 7165: Geographic Information Systems I**

Introduces concepts of computer analysis of geographic data and emphasizes the techniques for handling geographic data. Application of computer-based GIS systems in coursework.

**Credit Hours:** 3

**Prerequisites:** instructor's consent; GEOG 2840

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**CV\_ENG 7175: The Geospatial Sciences in National Security**

(Same as GEOG 7130; cross-leveled with CV\_ENG 4175, GEOG 4130). This course explores the critical contribution of the geospatial sciences in the collection, processing, visualization and analysis of geospatial information related to national security. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**CV\_ENG 7185: Location Analysis/Site Selection**

(same as GEOG 7740; cross-leveled with CV\_ENG 4185, GEOG 4740). An overview of location analysis in regional planning and spatial decision support, this course focuses on the use of Geographic Information Science (GIS) and location analysis methods in addressing regional service needs. May be repeated for credit.

**Credit Hours:** 3

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**CV\_ENG 7190: Infrastructure Project Development**

(cross-leveled with CV\_ENG 4190). Students will learn how the key elements of major civil engineering infrastructure projects fit together. The course will focus on the horizontal integration of: financing - planning - environment - right of way - design - construction - operations - maintenance. Engineering is important but so are a lot of other things. Graded on A-F basis only.

**Credit Hours:** 3

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**CV\_ENG 7200: Remote Sensing of the Environment**

(cross-leveled with CV\_ENG 4200). Principles, characteristics and applications of remote sensing in engineering, geosciences, agriculture and environmental projects. Topics: basic concepts, photographic, thermal multispectral and microwave systems, satellite remote sensing and digital image processing.

**Credit Hours:** 3

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**CV\_ENG 7220: Hazardous Waste Management**

(same as CH\_ENG 7220; cross-leveled with CV\_ENG 4220, CH\_ENG 4220). Engineering principles involved in handling, collection, transportation, processing and disposal of hazardous wastes, waste minimization, legislation on hazardous wastes and groundwater contamination.

**Credit Hours:** 3

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**CV\_ENG 7230: Introduction to Water Quality**

(cross-leveled with CV\_ENG 4230). Methods for determining and characterizing water quality, effects of pollution on streams and lakes, and an introduction to engineered systems for the distribution, collection and treatment of water and wastewater.

**Credit Hours:** 3

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**CV\_ENG 7232: Water and Wastewater Treatment Facilities**

(cross-leveled with CV\_ENG 4232). Physical, chemical, and biochemical processes for treating drinking water supplies and wastewaters (domestic and industrial), with emphasis on planning and design of such facilities.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4230 or CV\_ENG 7230 or instructor's consent

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**CV\_ENG 7240: Water Quality Analysis**

(cross-leveled with CV\_ENG 4240). Chemical, physical and biological methods for analysis of streams, lakes, wastewaters and water supplies and their use in water quality management.

**Credit Hours:** 3

**Prerequisites:** C- or better in CV\_ENG 4230 or instructor's consent

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**CV\_ENG 7245: Environmental Chemistry for Engineers**

(cross-leveled with CV\_ENG 4245). This course will cover the fundamentals of environmental chemistry. Physical, equilibrium, organic and colloid chemistry topics will be presented from an environmental perspective with a focus on their relevant engineering applications. Graded on A-F basis only.

**Credit Hours:** 3

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**CV\_ENG 7250: Environmental Regulatory Compliance**

(cross-leveled with CV\_ENG 4250). Systems of water law; provisions of major federal environmental laws and regulations; development or regulations at the federal, state, and local levels; regulatory frameworks; permits; and enforcement.

**Credit Hours:** 3

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**CV\_ENG 7260: Environmental Public Policy**

(cross-leveled with CV\_ENG 4260). Engineering and economic aspects of environmental policy. Basic understanding of environmental statutes and case law. Graded on A-F basis.

**Credit Hours:** 3

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**CV\_ENG 7270: Environmental Engineering Microbiology**

(cross-leveled with CV\_ENG 4270). Theory and application of fundamental principles of microbiology, ecology, and aquatic biology of the microorganisms of importance to sanitary engineers.

**Credit Hours:** 3

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**CV\_ENG 7286: Environmental Sustainability**

(cross-leveled with CV\_ENG 4286). This course will present an introduction to sustainability in engineering, tools for assessing sustainability and principles of sustainable design practices. Topics include climate change, energy and renewable resources, limits to growth, risk assessment, life cycle assessments, water and energy footprints, green buildings, and the water-food-energy-nexus. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3200

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**CV\_ENG 7290: Wastewater Treatment and Process Design**

(cross-leveled with CV\_ENG 4290). Selection and use of wastewater and sludge treatment processes, disposal methods, leading to rational design of overall wastewater treatment systems. Sustainable wastewater treatment including advanced processes in nutrient removal, anaerobic treatment for wastewater reuse. Graded on A-F basis only.

**Credit Hours:** 3

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**CV\_ENG 7300: Advanced Structural Steel Design**

(cross-leveled with CV\_ENG 4300). Design of steel structures and bridges. Topics include composite beams, plate girder design, and moment resistant connections.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3313

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**CV\_ENG 7302: Prestressed/Advanced Reinforced Concrete**

(cross-leveled with CV\_ENG 4302). Principles of prestressing. Constituent materials, loading and allowable stresses. Working and ultimate stress analysis and design. Shear and torsion. Deflections. Prestress losses. Continuous beams. Composite beams. Compression members. Footings.

**Credit Hours:** 3

**Corequisites:** CV\_ENG 3312

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**CV\_ENG 7310: Structural Design and Analysis**

(cross-leveled with CV\_ENG 7310). Design and analysis of building frames and bridges in steel and concrete using case studies. Economic selection of structural type and material. Basic methods of analysis for statically indeterminate structures.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 4300

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**CV\_ENG 7320: Energy Methods in Mechanics**

(cross-leveled with CV\_ENG 4320). Variational mechanics including practical examples. Topics include calculus of variation of boundary value problems, energy methods such as Ritz and Galerkin methods, approximate solutions methods such as the finite element and finite difference, and eigenvalue problems.

**Credit Hours:** 3

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**CV\_ENG 7330: Structural System Design**

(cross-leveled with CV\_ENG 4330). Design of buildings in steel and reinforced concrete, including estimation of loads and design of gravity and lateral force resisting systems.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3312 and CV\_ENG 3313

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**CV\_ENG 7350: Matrix Methods of Structural Analysis**

(cross-leveled with CV\_ENG 4350). An introduction to the fundamentals of stiffness and flexibility methods for analysis of truss and frame structures. Application of the STRUDL and NASTRAN programs to three dimensional structures.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3300

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**CV\_ENG 7360: Bridge Engineering**

(cross-leveled with CV\_ENG 4360). Review of Highway Bridge Analysis and Design Fundamentals. Study of Influence Line Diagrams and shear and Moment Envelopes. Design of medium-and Sort-Span Girder Bridges based on AASHTO LRFD Specs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in CV\_ENG 3312 and CV\_ENG 3313

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**CV\_ENG 7404: Geotechnical Earthquake Engineering**

(cross-leveled with CV\_ENG 4404). This course will provide an introduction to topics relating to geotechnical aspects of earthquake engineering. Topics to be covered include; basic seismology, seismic hazard analysis, dynamic soil properties, site response analysis and soil properties, site response analysis and soil liquefaction. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in CV\_ENG 3400 or instructor's consent

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**CV\_ENG 7410: Foundation Engineering**

(cross-leveled with CV\_ENG 4410). Subsurface exploration. Design of basic foundation structures: shallow foundations, retaining walls, deep foundations.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in CV\_ENG 3400

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**CV\_ENG 7412: Applied Geotechnical Engineering**

(cross-leveled with CV\_ENG 4412). Study of concepts, theories, and design procedures for modern earthwork engineering including: compaction and densification of soils and soil improvement, seepage and drainage, slope stability and performance, and earth retaining structures.

**Credit Hours:** 3

**Prerequisites:** grade or C- or better in CV\_ENG 3400

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**CV\_ENG 7500: Introduction to Construction Management**

(cross-leveled with CV\_ENG 4500). Structure of the construction industry; construction drawings and specifications; estimating and bidding; construction contracts, bonds and insurance; planning and scheduling of construction operations; project management; computer techniques.

**Credit Hours:** 3

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**CV\_ENG 7510: Construction Methods and Equipment**

Selection and use of construction equipment, planning construction operations, equipment economics and operations analyses.

**Credit Hours:** 3

**Prerequisites:** MATH 1300 or MATH 1500, or instructor's consent

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**CV\_ENG 7600: Advanced Mechanics of Materials**

(same as MAE 7600; cross-leveled with CV\_ENG 4600 and MAE 4600). Analysis of more complicated problems in stresses, strains.

**Credit Hours:** 3

**Prerequisites:** C- or better in ENGINR 2200, MAE 3200

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**CV\_ENG 7610: Sensors and Experimental Stress Analysis**

(cross-leveled with CV\_ENG 4610). Sensors and instrumentation for stress analysis, mechanical measurement and health monitoring of civil structures. Application and design of data acquisition systems, digital signals and basic digital signal processing. Electronics and instrumentation circuits.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in ENGINR 2200 and PHYSCS 2760

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**CV\_ENG 7660: Vibration Analysis**

(same as MAE 7660; cross-leveled with CV\_ENG 4660, MAE 4660). Vibration theory with application to mechanical systems.

**Credit Hours:** 3

**Prerequisites:** C- or better in MATH 4100 and MAE 2600

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**CV\_ENG 7692: Introduction to Structural Dynamics**

(cross-leveled with CV\_ENG 4692). Theory of structural response to dynamics loads. Computation of dynamic response of structures to dynamic loads like blast and earthquake. Modal analysis and single degree of freedom methods will be covered. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in CV\_ENG 3300

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**CV\_ENG 7700: Hydraulics of Open Channels**

(cross-leveled with CV\_ENG 4700). Gradually varied flow and theory of the hydraulic jump. Slowly varied flow involving storage; rating curves.

**Credit Hours:** 3

**Prerequisites:** graduate standing and Grade of C- or better in CV\_ENG 3700

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**CV\_ENG 7702: Pipeline Engineering**

Theoretical and practical aspects of pipeline engineering including pipeline transport of natural gas and various solids such as coal, sand and solid wastes.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3700 and MAE 3400

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**CV\_ENG 7703: Applied Hydrology**

(cross-leveled with CV\_ENG 4703). Modern methods of applied hydrologic analysis and synthesis of hydrologic records.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3700 and CV\_ENG 3702, or instructor's consent

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**CV\_ENG 7710: Soil and Water Conservation Engineering**

(same as BIOL\_EN 7150; cross-leveled with CV\_ENG 4710, BIOL\_EN 4150). Urban and rural run-off and erosion analysis. Design and layout of erosion control structures.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 3200 or CV\_ENG 3200 or instructor's consent

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**CV\_ENG 7720: Watershed Modeling Using GIS**

(same as BIOL\_EN 7350). Watershed evaluation using AVSWAT for hydrology, sediment yield, water quality; includes USLE, MUSLE, WEPP. Procedures for model calibration/sensitivity data analysis.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 2180 or CV\_ENG 3200 or instructor's consent

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**CV\_ENG 7730: Hydraulic Design**

(cross-leveled with CV\_ENG 4730). Design of hydraulic infrastructure utilizing principles of both pressure conduits and open channels. Hand calculations and use of commercial design software for water distribution (quantity and quality), stormwater collection and sanitary sewer systems, and detention basins. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3700 or equivalent

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**CV\_ENG 7740: Irrigation and Drainage Engineering**

(same as BIOL\_EN 7250; cross-leveled with CV\_ENG 4740). Soil, water, plant relationships. Water supplies and design of surface, sprinkler and drip irrigation systems. Surface and tile drainage.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3700 or MAE 3400 or BIOL\_EN 2180

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**CV\_ENG 7792: Analysis of Water-Resource Systems**

(cross-leveled with CV\_ENG 4792). Applies hydrology, hydraulic and sanitary engineering, and economics to water-resource design problems considering man and his environment. Uses methods of systems analysis.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**CV\_ENG 8001: Advanced Topics in Civil Engineering**

New and current technical developments in civil engineering.

**Credit Hour:** 1-3

**Prerequisites:** CV\_ENG 4006 or equivalent

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**CV\_ENG 8002: Directed Reading In Civil Engineering**

Faculty supervised readings course.

**Credit Hour:** 1-3

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**CV\_ENG 8085: Problems in Civil Engineering**

Supervised investigation in civil engineering to be presented in the form of a report.

**Credit Hour:** 1-6

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**CV\_ENG 8100: Transportation Planning and Models**

Regional and metropolitan transportation studies; land use, traffic generation, distribution and assignment models.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4002 or CV\_ENG 4003

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**CV\_ENG 8106: Advanced Intelligent Transportation Systems**

This course is intended to be an introductory course in Intelligent Transportation Systems (ITS). This course includes the background of

ITS, current implementations, sample deployments, and practical issues and implications.

**Credit Hours:** 3

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**CV\_ENG 8107: Transportation Safety Modeling**

This course covers the transportation safety modeling process and focuses on the modeling of crash frequencies. Class topics include background, the Highway Safety Manual, exploratory data analysis, curve-fitting, safety-performance functions, model optimization, goodness-of-fit measures, variable introduction, and model equation. Graded on A-F basis only.

**Credit Hours:** 3

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**CV\_ENG 8110: Theory of Traffic Flow**

Scientific approach to study of traffic phenomena with emphasis on applications. Deterministic and stochastic models of traffic flow; optimization of intersection controls; computer simulation of traffic problems.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4002 or instructor's consent

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**CV\_ENG 8140: Highway Transportation**

Economics of transportation on highways. Comparison of vehicle operation costs. Project studies of highway problems in general.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4103 or equivalent

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**CV\_ENG 8150: Transportation Networks**

This course presents techniques used in equilibrium analysis of transportation networks. The details of traffic assignment algorithms will be discussed along with theory and practical algorithms.

**Credit Hours:** 3

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**CV\_ENG 8160: Advanced Research Methods in Transportation Engineering**

This course will cover advanced research methods used in transportation. A special focus will be on the state-of-art approaches in traffic engineering. Mathematical and analytical models will be reviewed in detail. This is a reading intensive course where students are expected to review research articles on various topics. The methods used in the articles and a critical review of the article findings will be discussed in an interactive manner in the class. Graded on A-F basis only.

**Credit Hours:** 3

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**CV\_ENG 8187: Seminar in Transportation Engineering**

Review of research in progress in the area of transportation engineering.

**Credit Hour:** 1

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**CV\_ENG 8200: Water Quality Modeling**

Derivation and application of models for describing oxygen budget, nutrient exchange, and biological productivity in streams, lakes and estuaries.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 7230

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**CV\_ENG 8215: Environmental Transport Phenomena**

Fundamental processes that control the transport of constituents substances in fluids, and the implications of these processes for a variety of important applications in natural and engineered systems.

**Credit Hours:** 3

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**CV\_ENG 8220: Advanced Hazardous Waste Treatment Processes**

Course includes some introductory materials about hazardous waste regulations followed by advanced treatment methods such as air stripping, soil-vapor extraction, chemical oxidation, membrane processes, in-situ and ex-situ biotreatment methods, solidification and thermal processes.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4220

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**CV\_ENG 8225: Aquatic Chemistry**

Principles of chemical thermodynamics and equilibrium applied to processes in natural water and water and wastewater treatment systems. Emphasis on quantitative analyses of acid/base, complexation/dissociation, precipitation/dissolution, and reduction/oxidation reactions. Graded on A-F basis only.

**Credit Hours:** 3

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**CV\_ENG 8230: Unit Process Laboratory**

Studies chemical and physical relationships as applied to unit processes of water and wastewater.

**Credit Hours:** 3

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**CV\_ENG 8240: Physiochemical Treatment Processes**

Fundamental principles, analysis and modeling of physical and chemical processes for water and wastewater treatment.

**Credit Hours:** 3

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**CV\_ENG 8245: Particles in the Environment**

This course is an introduction to interfacial and colloid science, with an emphasis on aqueous systems of natural colloids and engineered nanomaterials. Graded on A-F basis only.

**Credit Hours:** 3

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**CV\_ENG 8250: Biochemical Treatment Processes**

Biochemical principles, kinetic models and energy considerations in the design of biological wastewater treatment processes.

**Credit Hours:** 3

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**CV\_ENG 8260: Environmental Biotechnology**

Major biochemical reactions relevant to environmental engineering. Theory and application of fundamental principles of attached and suspended microbial growth and process engineering for sanitary engineering and biodegradation.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 8250 or instructor's consent

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**CV\_ENG 8270: Design of Water and Wastewater Treatment Facilities**

Development of design criteria and their application to the design of water and wastewater treatment facilities.

**Credit Hours:** 3

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**CV\_ENG 8287: Seminar in Environmental Engineering**

Review of research in progress in the area of environmental engineering.

**Credit Hour:** 1

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**CV\_ENG 8295: Environmental Regulatory Policy**

Discussion of the various policy aspects of environmental regulation: economic and non-economic impacts of degradation; risk assessment and management; distribution of environmental risks; regulatory tools; federal vs. state; disclosure; enforcement. Relation to environmental laws. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4250 or CV\_ENG 7250 or equivalent

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**CV\_ENG 8303: Behavior of Reinforced Concrete Members**

The design philosophy, constitutive laws, creep rate sensitivity and aging, shrinkage. Nonlinear response of reinforced concrete members. Deflection computation and control. Bond and anchorage.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3312

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**CV\_ENG 8311: Nondestructive Evaluation Engineering**

This course will present the interaction of nondestructive evaluation (NDE) technologies and engineering decision-making. Theory and application NDE technologies will be presented in the context of the engineering analysis required to effectively utilize the technologies. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760, ENGINR 1200, MATH 4100

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**CV\_ENG 8312: Advanced Structural Analysis**

Current trends in structural analysis. Elastic analysis of curved beams, arches and suspensions. Finite element and nonlinear methods of analysis.

**Credit Hours:** 3

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**CV\_ENG 8313: Random Vibration**

Analysis of random vibrations including topics in stationary, ergodic and nonstationary random processes, with application to single-degree of freedom, discrete and continuous mechanical systems.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4606

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**CV\_ENG 8320: Continuum Mechanics**

(same as MAE 8320). Introductory course in the mechanics of continuous media. Basic concepts of stress, strain, constitutive relationships; conservation laws are treated using Cartesian tensor notation. Examples from both solid and fluid mechanics investigated.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3700, MATH 7100, ENGINR 2200

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**CV\_ENG 8330: Theory of Elasticity**

(same as MAE 8330). Stress and strain at a point. General equations of elasticity. Plane stress, plain strain problems; torsion of prismatic bars. Energy methods.

**Credit Hours:** 3

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**CV\_ENG 8340: Theory of Plates and Shells**

(same as MAE 8340). Rectangular and circular plates. Variational methods in the analysis of plates and shells. Plates of unusual shape. Shear deformation effects. Large deformation analysis. Analysis of cylindrical shells.

**Credit Hours:** 3

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**CV\_ENG 8342: Space Mechanics**

Rigid body dynamics analysis of satellites, space vehicles. Trajectories, time of flight optimization.

**Credit Hours:** 3

**Prerequisites:** MAE 3600 or equivalent, and MATH 4100

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**CV\_ENG 8350: Theory of Elastic Stability**

(Same as MAE 8350). Buckling of Columns, frames, arches and other structural systems. Kinematic approach to stability. Large deflections. Energy approach to buckling. Plate and shell buckling. Inelastic buckling of columns. Creep buckling.

**Credit Hours:** 3

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**CV\_ENG 8360: Theory of Plasticity**

(same as MAE 8360). Plastic yield conditions and stress-strain relations. Behavior of elastic-perfectly plastic members. Plain strain in plastic members.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 8330 or instructor's consent

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**CV\_ENG 8372: Reinforced Concrete Theory and Design**

Advanced design of reinforced concrete structures; review of standard codes and specifications and their influence.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4350 or equivalent

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**CV\_ENG 8380: Nonlinear Mechanical Analysis**

Analysis of behavior of nonlinear mechanical systems. Nonlinear phenomena of importance in mechanical design.

**Credit Hours:** 3

**Prerequisites:** MAE 3600 or equivalent and MATH 4100

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**CV\_ENG 8387: Seminar in Structural Engineering**

Review of research in progress in the area of structural engineering.

**Credit Hour:** 1

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**CV\_ENG 8390: Advanced Topics Structural Analysis**

Computer implementation and application of finite element analysis. Material and geometric nonlinearities. Plastic analysis of structures. Code provisions for analysis of seismic and wind loadings.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4350

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**CV\_ENG 8392: Dynamics of Structures**

(same as MAE 8392). Study of the dynamic behavior of structures. Analysis of equivalent lumped parameter systems for the design of structures in a dynamic environment.

**Credit Hours:** 3

**Prerequisites:** MAE 2600 and MATH 4100 or MATH 7100

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**CV\_ENG 8402: Advanced Shear Strength of Soils**

Theoretical soil mechanics as applied to solution of specific engineering problems.

**Credit Hours:** 3

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**CV\_ENG 8403: Consolidation and Settlement**

Settlement of soil, Theory of Consolidation, consolidation testing, settlements of earth fills and embankments, stress distribution in soils, elastic settlement, bearing capacity of shallow foundations, shallow foundations design.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3400

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**CV\_ENG 8404: Seepage in Soils**

General principles that govern flow of water through soils and specific procedures for analysis and design of filtration and drainage media in geotechnical and geoenvironmental applications.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3400 or instructor's consent

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**CV\_ENG 8407: Soil Behavior**

Detailed study of composition, fabric, and geotechnical and hydrologic properties of soils that consist partly or wholly of clay. Emphasizes physico-chemical factors governing volume change and shear strength. Expansive clay behavior is examined in detail.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3400 or instructor's consent

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**CV\_ENG 8408: Soil Dynamics**

Cover topics relating to the response of soils to dynamic loading. Topics to be covered include: lab and field methods, cyclic soil models, foundation vibrations, and wave propagation through soil. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3400 and instructor's consent

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**CV\_ENG 8410: Advanced Foundation Engineering**

Foundation design beyond simple spread footings, special footings and beams on an elastic foundations, mat foundations, pile foundations -



static capacity, lateral loads, bucklin, dynamic analysis load tests, pile groups, drilled piers.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4410

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**CV\_ENG 8412: Stability and Performance of Earth Slopes**

Principles, mechanics and procedures for analyzing the stability of earth slopes and landfills under short-term, long-term, rapid drawdown, and earthquake conditions.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3400 or instructor's consent

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**CV\_ENG 8413: Design and Analysis of Earth Retaining Structures**

General principals and specific procedures for analysis and design of earth retention systems including consideration of soil-structure interaction.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3400 or instructor's consent

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**CV\_ENG 8487: Seminar in Geotechnical Engineering**

Review of research in progress in the area of geotechnical engineering.

**Credit Hour:** 1

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**CV\_ENG 8610: Materials and Measurement**

About 25% of the course is devoted to the physical measurement of strain, force, displacement and motion. Remainder of course is devoted to advanced study of the behavior of steel and concrete with emphasis on brittle fracture in steel.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3600 or equivalent

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**CV\_ENG 8620: Advanced Dynamics**

(same as MAE 8620). Fundamental principles of advanced rigid body dynamics with applications. Special mathematical techniques including Lagrangian and Hamiltonian methods.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 2080 and MATH 4100

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**CV\_ENG 8630: Vibrations of Distributed Parameter Systems**

(same as MAE 8630). Vibration analysis of strings, cables, bars, rods, shafts, beams, membranes, plates, circular rings, frames; free and forced oscillation; miscellaneous loading; various boundary conditions; effect of damping; energy methods; method of difference equations.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4660

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**CV\_ENG 8720: Hydrotechnical Practicum**

Application of advanced analysis and design techniques to practical problems in hydrotechnical engineering. Collaborative group investigations that may include experimental and computer aided studies. No more than 6 practicum hours may be applied toward the MS degree. Graded on A-F basis only.

**Credit Hour:** 2-4

**Prerequisites:** graduate standing in Civil Engineering

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**CV\_ENG 8990: Research-Masters Thesis in Civil & Environmental Engineering**

Independent investigation in the field of civil engineering to be presented in the form of a thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**CV\_ENG 9990: Research-Doctoral Dissertation Civil & Environmental Engineering**

Independent investigation in the field of civil engineering to be presented in the form of a thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

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## Clinical & Diagnostic Sciences Courses

**CDS 2190: Medical Terminology**

Medical terminology based on a word building system. This course is intended for students majoring in health professions, nursing and other helping professions, pre-med and biology.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**CDS 3200: Essentials of Pathology**

Provides basic foundation for understanding etiology of disease with emphasis on systemic pathology for non-medical students.

**Credit Hours:** 2

**Recommended:** general biology and one course in either physiology or anatomy

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**CDS 3460: Cardiovascular and Pulmonary Diagnostic Applications I**

(same as RA\_SCI 3460). Interdisciplinary small group, case-based study of common cardiovascular, pulmonary and other diseases. Pathophysiology, diagnosis and treatment from the perspective of allied health professionals. Emphasis on critical thinking, teamwork skills.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program

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**CDS 3460W: Cardiovascular and Pulmonary Diagnostic Applications I - Writing Intensive**

(same as RA\_SCI 3460). Interdisciplinary small group, case-based study of common cardiovascular, pulmonary and other diseases. Pathophysiology, diagnosis and treatment from the perspective of allied health professionals. Emphasis on critical thinking, teamwork skills.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program

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**CDS 4085: Problems in Clinical and Diagnostic Sciences**

Supervised investigation in an aspect of Clinical and Diagnostic Sciences usually culminating in a written report.

**Credit Hour:** 1-5

**Prerequisites:** instructor's consent

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**CDS 4328: Radiation Safety and Biology**

Regulations and procedures for safe uses of radiation to heighten student understanding of radiation physics, radiation biology, and radiation safety. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Junior standing

**Recommended:** One course in Biological Sciences and Physics/Chemistry

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**CDS 4440: Organization and Administration**

(same as RA\_SCI 4440 and RS\_THR 4440). Examines design and operation of allied health service departments and educational programs, including facilities, personnel procedures, record systems, ethics, medical-legal aspects, interdepartmental relations and curriculum development.

**Credit Hours:** 3

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**CDS 4460: Cardiovascular and Pulmonary Diagnostic Applications II**

Interdisciplinary study of cardiac dysrhythmias, MI, stroke. Application of current American Heart Association Advanced Cardiac Life Support (AHA ACLS) algorithms. Successful completion of this course fulfills AHA ACLS Provider requirements.

**Credit Hours:** 3

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**CDS 4480: Clinical Ethics**

(same as HLTH\_SCI 4480). Exploration of bioethics issues in health care with emphasis on issues related to patient choice and provider responsibility. Topics include philosophical theories, principles and models for ethical and lawful decision making in healthcare.

**Credit Hours:** 3

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**CDS 4480W: Clinical Ethics - Writing Intensive**

(same as HLTH\_SCI 4480W). Exploration of bioethics issues in health care with emphasis on issues related to patient choice and provider responsibility. Topics include philosophical theories, principles and models for ethical and lawful decision making in healthcare.

**Credit Hours:** 3

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**CDS 4500: Emergency and Disaster Management in Healthcare**

This course will provide the student with an orientation the principles of disaster management in the community (both state and federal levels) and the acute care facility. Topics include biological agents, allocation of resources and ethical considerations. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Restricted to students in the Undergraduate Academic Program of Health Professions

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**CDS 4840: Asthma Education**

This course will provide the student with a multi-faceted approach to caring for the patient with asthma. Topics include pathophysiology, pharmacology, patient/family education, patient assessment and management. Assists students to take the Asthma Educator Credentialing Exam. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**CDS 4955: Introduction to Research**

(same as RS\_THR 4955). An interdisciplinary course designed to promote undergraduate allied health research. Includes identifying and designing research problems through formulating relevant questions, learning to systematically search for answers, and methods for searching the literature.

**Credit Hours:** 3

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**CDS 4955W: Introduction to Research - Writing Intensive**

(same as RS\_THR 4955). An interdisciplinary course designed to promote undergraduate allied health research. Includes identifying and designing research problems through formulating relevant questions, learning to systematically search for answers, and methods for searching the literature.

**Credit Hours:** 3

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**CDS 4985: Healthcare Organization and Leadership**

In this course, students will explore leadership principles as they relate to the student's focus area, combining previous expertise in the field with an interdisciplinary perspective within the healthcare community. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Senior standing

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**CDS 4985W: Healthcare Organization and Leadership - Writing Intensive**

In this course, students will explore leadership principles as they relate to the student's focus area, combining previous expertise in the field with an interdisciplinary perspective within the healthcare community. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Senior standing

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**CDS 7025: CDS Electronic Communication and Informatics**

The course presents an overview of healthcare informatics pertaining to all clinical and diagnostic sciences (CDS) constituent programs and of medical informatics. The course introduces all possible electronic communication avenues and methods used in clinical and diagnostic sciences. It provides a comprehensive introduction to the applications of information systems in a range of healthcare environments including clinical and diagnostic sciences education, clinical research, and diverse clinical settings where students will be employed upon graduation. It includes extensive readings and critical discussions of relevant professional research literature. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Program and instructor's consent

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**CDS 7027: Techniques for Teaching CDS Courses Traditionally or Online**

Clinical and Diagnostic Sciences (CDS) is a new model that integrates multiple dissimilar programs in the allied health and medical fields. This course is designed to prepare CDS professionals to design, organize, conduct and evaluate professional educational offerings, including pre-professional didactic and clinical coursework, in-service trainings, and continuing professional education sessions conducted through traditional

and/or online formats. The course will guide the student in developing critical thinking and problem solving strategies necessary in the clinical, therapeutic and diagnostic imaging modalities, as well as the relationship between theoretical and practical aspects of teaching techniques specific to CDS. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Program and instructor's consent

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#### **CDS 7110: Management Approaches in CDS**

Clinical and Diagnostic Sciences (CDS) is a multiple discipline program in allied health sciences and medical fields. This course is designed to prepare CDS professionals to effectively explore the variety of styles and effective approaches of management. The course will guide the student in developing critical thinking and problem solving strategies necessary in the clear understanding of the strategic avenues required by the appropriate management methods that lead to a harmonic decorum of integration between multiple programs and departments in CDS. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Program and instructor's consent

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#### **CDS 7112: Leadership Styles in CDS**

The course is designed to prepare clinical and diagnostic sciences (CDS) professionals from various integrated programs of CDS fields to understand and apply effective leadership styles and methods in order to be efficient, dynamic, and successful leader. The course will guide the students in developing critical thinking and problem solving strategies necessary to expand their strategic leadership knowledge and skills to function in diverse environments of the CDS fields as integrated units or separately. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Program and instructor's consent

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#### **CDS 7113: Practical Multidiscipline Laboratory Organization in CDS**

The course is designed to prepare clinical and diagnostic sciences (CDS) professionals from various integrated programs of CDS fields to understand and effectively apply practical organizational skills when dealing with multidisciplinary clinical laboratory settings. The course will guide the students to explore all available practical methods in order to construct an efficient, dynamic, and flowchart accessible laboratory within the CDS department and the fields. The outcome of this course will augment the student's abilities to develop critical thinking and problem solving strategies necessary to function in diverse laboratory environments within the CDS integrated fields. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Program and instructor's consent

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#### **CDS 7114: Organizational Design and Dynamics in CDS**

The course is designed to prepare clinical and diagnostic sciences (CDS) professionals from various integrated programs of CDS fields to understand and conceptualize the most appropriate model of structure design of an organization as part of the CDS constituent fields and holistically integrated CDS organization as a whole. Students will learn and be instructed to understand the dynamics that occur within the CDS organizational design. The course will guide the students as they explore various examples available for designs of a CDS organization. The outcome of this course will enhance the student's abilities to develop

critical thinking and problem solving strategies necessary to function in diverse clinical and diagnostic environments within the CDS integrated fields. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Program and instructor's consent

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#### **CDS 7116: Administration of Educational Programs in CDS**

Clinical and Diagnostic Sciences (CDS) is a new model that integrates multiple dissimilar programs in the allied health and medical fields. This course is designed to prepare CDS professionals to effectively administer and articulate with educational programs. The course will guide the student in developing critical thinking and problem solving strategies necessary to implement strategic plans, institute clinical affiliation agreements, establish thoughtful and consistent policies and procedures, evaluate student selection criteria and pursue accreditation for education programs in CDS. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Program and instructor's consent

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#### **CDS 7118: Telecommunication and Reporting in CDS**

Clinical and Diagnostic Sciences (CDS) is a new model that integrates multiple dissimilar programs in the allied health and medical fields. This course will introduce and prepare CDS professionals to telecommunication avenues of interacting, transmitting, and mobilizing the data and pertinent information to the countless outlets of information distribution areas. The course will provide the professional student with the tools and means to understand how to report all the relevant data and information essential to the process to interact and disseminate significant events and results used within the CDS constituent programs. The course will guide the student in developing critical thinking and problem solving strategies necessary in the clinical, therapeutic, and diagnostic imaging modalities in the process of telecommunication skills and reporting methods among all the CDS fields. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Program and instructor's consent

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#### **CDS 7840: Asthma Education**

This course will provide the student with a multi-faceted approach to caring for the patient with asthma. Topics include pathophysiology, pharmacology, patient/family education, patient assessment and management. Assists students to take the Asthma Educator Credentialing Exam. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** instructor's consent required

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#### **CDS 8001: Topics in Clinical and Diagnostic Sciences**

This course is designed to explore, through selected themes assigned by the instructor, advanced clinical and diagnostic sciences (CDS) topics in psychosocial, professional, educational, and technical areas. The organized study of a specific CDS topic will be conducted in a holistic manner. Graded on A-F basis only.

**Credit Hour:** 1-3

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**CDS 8050: Research in Clinical and Diagnostic Sciences**

This course is designed for the clinical and diagnostic sciences (CDS) programs' graduates and health science degree holders who wish to explore advanced opportunities in CDS through a research component and scientific investigations. It will allow the students to formulate appropriate reasons for pursuing a specific area of interest. The course will provide knowledge about research methodology in CDS, the operation of, and how to conduct a research in a CDS department and in a clinical setting. It will guide the student to develop appropriate research qualities associated with the CDS constituent programs. The course guides the students in developing independent study and scientific investigation skills. The course does not lead to a thesis or dissertation. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** Program and instructor's consent

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**CDS 8085: Problems in Clinical and Diagnostic Sciences**

Clinical and Diagnostic Sciences (CDS) field is still an emerging profession in the medical field. This course is designed to provide a broad overview of multiple 'problems' faced by CDS in the health care context. Through a variety of themes exploring theoretical and clinical aspects of the constituent professions, the course will guide the student in developing critical thinking and problem solving strategies necessary in the analysis of the controversial aspects of a chosen subject. Issues will include, but not limited to the role and function of CDS in health care in general and clinical and diagnostic imaging in special, the relationship between theoretical and practical aspects of the imaging modality and clinical aspects (fast pace of advancing technology versus slow pace of clinical application, education, literature of specialty, etc.), ethical and legal issues in the CDS constituent professions, problems faced by a clinical and diagnostic educational program, CDS graduates' role in diagnosis, education, management, and CDS clinical applications. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** Program and instructor's consent

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**CDS 8090: Research in Clinical and Diagnostic Sciences**

This course is designed for the clinical and diagnostic sciences (CDS) constituents programs and health science graduates who wish to explore through the methods of scientific research any area of interest in CDS fields. It leads to a thesis or dissertation. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** Program and instructor's consent

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**CDS 8430: Clinical Leadership**

Leadership theory for practicing clinical and diagnostic health professionals. Exploration of theoretical foundations and models of leadership. Emphasis given to clinical practice trends, reflective self-assessment. Analysis of leadership cases in hospitals/clinics, industry, and entry-into-practice educational settings. Graded on A-F basis only.

**Credit Hours:** 2

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**CDS 8920: Applied Research Methodologies in Clinical and Diagnostic Sciences**

Practical research application of clinical and diagnostic sciences (CDS) in a real time clinical environment: exploring the various methods of applied clinical research and how they relate to decision making, patient

handling, technical applications, instrumentation and image processing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BHS degree in CDS and or allied health professions, and Program and instructor's consent

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**Clinical Laboratory Sciences Courses****CL\_L\_S 1000: Orientation to Clinical Laboratory Science**

The class is designed to give prospective Clinical Laboratory Science students clinical experience in the field of Clinical Laboratory Science. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** HLTH\_SCI 1000

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**CL\_L\_S 4407: Clinical Laboratory Operations**

This course provides a basic introduction to the theory, practical application, technical performance and evaluation of laboratory skills specific to the practice of clinical laboratory science. Laboratory safety; microscopy; pipetting; general laboratory equipment; quality control; mathematics; phlebotomy; pre-analytic, analytic and post-analytic processes, including specimen collection, processing and transport to maintain test result integrity, will be addressed. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Restricted to Clinical Laboratory Students only

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**CL\_L\_S 4408: Introduction to Clinical Hematology**

This course introduces the theory, practical application, technical performance and evaluation of hematological and hemostasis procedures. Correlation of laboratory data with the diagnosis of erythrocyte, leukocyte and bleeding/clotting disorders will be introduced. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Restricted to Clinical Laboratory Students only

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**CL\_L\_S 4409: Introduction to Clinical Microbiology**

This course introduces the theory, practical application, technical performance and evaluation of procedures for isolation, identification and susceptibility testing of infectious disease organisms in humans. The course primarily focuses on bacteriology, but will include introductory coverage of parasitology, mycology and virology. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Restricted to Clinical Laboratory Students only

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**CL\_L\_S 4410: Introduction to Clinical Chemistry and Urinalysis**

This course introduces the theory, practical application, technical performance and evaluation of basic laboratory skills and methods in clinical chemistry and urinalysis. The course focuses on the correlation of laboratory data with the diagnosis of renal conditions, but will include introductory coverage of carbohydrate, liver and protein conditions, as well as enzymes. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Restricted to Clinical Laboratory Students only

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**CL\_L\_S 4411: Introduction to Clinical Immunohematology**

This course introduces the theory, practical application, technical performance and evaluation of immunohematology procedures required to provide compatible blood components for transfusion. Methods for collection, processing, storage and transfusion of blood and blood components will be presented. Immunohematology procedures that assist in the diagnosis and management of hemolytic conditions will be introduced. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Restricted to Clinical Laboratory Students only

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**CL\_L\_S 4412: Clinical Laboratory Science Theory, Application and Correlation**

Application, evaluation and correlation of laboratory procedures used in the diagnosis and treatment of common disease states. Opportunities for building critical thinking, problem solving, and leadership skills are provided in small group clinical case discussions. Course may be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites:** departmental consent, accepted in into the Medical Technology Program

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**CL\_L\_S 4413: Clinical Endocrinology and Toxicology**

This course introduces the theory, practical application, and evaluation of clinical chemistry laboratory procedures. Correlation of clinical laboratory data with the diagnosis and treatment of endocrine disorders, toxicology disturbances and therapeutic drug monitoring is emphasized. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Restricted to Clinical Laboratory Students only

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**CL\_L\_S 4414: Clinical Chemistry and Urinalysis I**

This course expands on the theory, practical application, and evaluation of basic laboratory procedures introduced in CL\_L\_S 4407 Clinical Laboratory Operations and CL\_L\_S 4410 Introduction to Clinical Chemistry and Urinalysis, with an emphasis on common automated methodologies used in clinical chemistry and urinalysis laboratories. This course will focus on the interpretation, evaluation and correlation of clinical laboratory data with the diagnosis and treatment monitoring of carbohydrate, renal, hepatic, protein, cardiac, lipid/lipoprotein, major and minor electrolyte, enzyme, pancreatic-gastrointestinal and acid-base disorders. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Clinical Lab Sci (Medical Technology) Program students only

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**CL\_L\_S 4415: Clinical Chemistry and Urinalysis II**

This course expands on the theory, practical application, and evaluation of laboratory procedures introduced in CL\_L\_S 4414 Clinical Chemistry and Urinalysis I and CL\_L\_S 4444 Clinical Core Laboratory Practical I. Correlation of clinical laboratory data with the diagnosis and treatment monitoring of carbohydrate, renal, hepatic, cardiac, lipid/lipoprotein, protein, major and minor electrolyte, trace element, enzyme, pancreatic-gastrointestinal and acid-base disorders; tumor markers; and inborn errors of metabolism is emphasized. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Clinical Lab Sci (Medical Technology) Program students only

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**CL\_L\_S 4416: Clinical Hematology I**

Introduction to the theory, practical application, technical performance and evaluation of hematological and coagulation procedures. Emphasis on correlations of clinical laboratory data with the diagnosis and treatment of anemia, leukemia, and bleeding/clotting disorders. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** departmental consent, accepted into the Medical Technology Program

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**CL\_L\_S 4417: Clinical Hematology II**

This course expands on the theory, practical application, and evaluation of hematological and hemostasis procedures introduced in CL\_L\_S 4416 Clinical Hematology I and CL\_L\_S 4444 Clinical Core Laboratory Practicum I, and includes the analysis of cerebrospinal, synovial and serous fluids. Correlation of clinical laboratory data with the diagnosis and treatment of erythrocyte, leukocyte and bleeding/clotting disorders will be emphasized. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Clinical Lab Sci (Medical Technology) Program students only

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**CL\_L\_S 4418: Clinical Microbiology I**

This course includes the theory, practical application, and evaluation of immunological components and infection disease serology. The principles and methodologies used in the assessment of immunologically related disorders, including hypersensitivity reactions, autoimmune, Immunoproliferative, immunodeficient disorders and infectious disease are included. The course emphasizes the correlation of clinical laboratory data with the patient's diagnosis and treatment. The theory and application of molecular diagnostic tools, such as polymerase chain reaction (PCR), nucleic acid probes, and microarrays are also addressed. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Clinical Lab Sci (Medical Technology) Program students only

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**CL\_L\_S 4419: Clinical Microbiology II**

This course builds on the theory, practical application and evaluation of the procedures for isolation, identification and susceptibility testing of infectious disease organisms in humans introduced in CL\_L\_S 4418 Clinical Microbiology I and CL\_L\_S 4448 Clinical Microbiology Laboratory Practicum I. This course includes bacteriology, mycology, parasitology, and virology content, and will emphasize the correlation of clinical laboratory data with the patient's diagnosis and treatment. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Clinical Lab Sci (Medical Technology) Program students only

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**CL\_L\_S 4420: Clinical Immunology and Molecular Diagnostics**

This course includes the theory, practical application, and evaluation of immunological components and infection disease serology. The

principles and methodologies used in the assessment of immunologically related disorders, including hypersensitivity reactions, autoimmune, Immunoproliferative, immunodeficient disorders and infectious disease are included. The course emphasizes the correlation of clinical laboratory data with the patient's diagnosis and treatment. The theory and application of molecular diagnostic tools, such as polymerase chain reaction (PCR), nucleic acid probes, and microarrays are also addressed. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Clinical Lab Sci (Medical Technology) Program students only

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#### **CL\_L\_S 4422: Immunohematology I**

Introduction to the theory, practical application, technical performance and evaluation of blood bank procedures required for transfusion of blood and blood components and for handling and storage of blood and blood components. May be repeated for credit. Graded on A/F basis only.

**Credit Hour:** 1-4

**Prerequisites:** departmental approval, accepted into the Medical Terminology Program

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#### **CL\_L\_S 4423: Clinical Immunohematology II**

This course expands on the theory, practical application, and evaluation of immunohematology procedures presented in CL\_L\_S 4422 Clinical Immunohematology I and CL\_L\_S 4442 Clinical Immunohematology Laboratory Practicum I. There is an emphasis on the application of immunohematology procedures used for the resolution of complex immunohematology problems. Proper selection of immunohematology procedures that assist in the diagnosis and management of hemolytic conditions will be discussed. Concepts in patient blood management and the adverse effects of transfusion will be presented. Quality management as it applies to transfusion medicine will be addressed. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Clinical Lab Sci (Medical Technology) Program students only

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#### **CL\_L\_S 4424: Phlebotomy**

Theory, practical application, technical performance and evaluation of procedures used in collecting, handling and processing blood specimens. May be repeated for credit. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** departmental approval, accepted into the Medical Technology Program

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#### **CL\_L\_S 4426: Body Fluid Analysis**

Theory, practical application, technical performance and evaluation of procedures used in the analysis of urine and other body fluids, including cerebrospinal, synovial, serous, seminal, amniotic and feces. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** departmental consent, accepted into the Medical Technology Program

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#### **CL\_L\_S 4442: Clinical Immunohematology Laboratory Practicum I**

This course provides practical application in a clinical laboratory setting for the technical performance and evaluation of clinical immunohematology procedures and preparation of blood components. Course content will include new skills and procedures, in addition to the skills and procedures presented in CL\_L\_S 4407 Clinical Laboratory Operations and CL\_L\_S 4411 Introduction to Clinical Immunohematology. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Restricted to Clinical Laboratory Students only

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#### **CL\_L\_S 4443: Clinical Immunohematology Laboratory Practicum II**

This course provides practical application in a clinical laboratory setting for the technical performance and evaluation of clinical immunohematology procedures and preparation of blood components. Course content will include new skills procedures, in addition to the skills and procedures presented in CL\_L\_S 4442 Clinical Immunohematology Laboratory Practicum I. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Restricted to Clinical Laboratory Students only

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#### **CL\_L\_S 4444: Clinical Core Laboratory Practicum**

This course provides practical application in a clinical laboratory setting for the technical performance and evaluation of clinical hematology/hemostasis, chemistry and urinalysis procedures. Course content will include new skills and procedures and the application of automation and automatic verification techniques, building on the skills and procedures presented in CL\_L\_S 4407 Clinical Laboratory Operations, CL\_L\_S 4408 Introduction to Clinical Hematology and CL\_L\_S 4410 Introduction to Clinical Chemistry and Urinalysis. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Restricted to Clinical Laboratory Students only

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#### **CL\_L\_S 4445: Clinical Core Laboratory Practicum II**

This course provides practical application in a clinical laboratory setting for the technical performance and evaluation of clinical hematology/hemostasis, chemistry and urinalysis procedures. Course content will include new skills and procedures, in addition to the skills and procedures presented in CL\_L\_S 4444 Clinical Core Laboratory Practicum. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Restricted to Clinical Laboratory Students only

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#### **CL\_L\_S 4448: Clinical Microbiology Laboratory Practicum I**

This course provides practical application in a clinical laboratory setting for the technical performance and evaluation of clinical microbiology procedures. Course content will include new skills and procedures, in addition to the skills and procedures presented in CL\_L\_S 4407 Clinical Laboratory Operations and CL\_L\_S 4409 Introduction to Clinical Microbiology. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Restricted to Clinical Laboratory Students only

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#### **CL\_L\_S 4449: Clinical Microbiology Laboratory Practicum II**

This course provides practical application in a clinical laboratory setting for the technical performance and evaluation of clinical microbiology

procedures. Course content will include new skills and procedures, in addition to the skills and procedures presented in CL\_L\_S 4448 Clinical Microbiology Laboratory Practicum I. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Restricted to Clinical Laboratory Students only

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#### **CL\_L\_S 4970: Clinical Laboratory Management I**

This course introduces the theory, practical application and evaluation of laboratory management principles in healthcare, including safety, research, educational methodology, quality control, ethics, laboratory operations, point-of-care testing, scope of practice, and the job application process. Opportunities for building critical thinking, problem-solving, research, communication, professionalism, management and leadership skills are provided. Graded on A-F basis only. May be repeated for credit.

**Credit Hours:** 2

**Prerequisites:** Clinical Lab Sci (Medical Technology) Program students only

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#### **CL\_L\_S 4980: Clinical Lab Management II**

Continuation of Clinical Lab Management I. Theory, practical application, and evaluation of laboratory management principles and associated models in compliance and regulatory issues, human resource management, method evaluation, professionalism and laboratory quality. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CL\_L\_S 4970 or departmental consent

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#### **CL\_L\_S 4980W: Clinical Lab Management II - Writing Intensive**

Continuation of Clinical Lab Management I. Theory, practical application, and evaluation of laboratory management principles and associated models in compliance and regulatory issues, human resource management, method evaluation, professionalism and laboratory quality. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CL\_L\_S 4970 or departmental consent

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## **Communication Courses**

#### **COMMUN 1200: Public Speaking**

Principles, process of speech communication in small group and public speaking situations.

**Credit Hours:** 3

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#### **COMMUN 1200H: Public Speaking - Honors**

Principles, process of speech communication in small group and public speaking situations.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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#### **COMMUN 1880: Introduction to Digital Media Production**

(same as DST\_VS 1880, FILMS\_VS 1880, ENGLSH 1880, ARTGE\_VS 1920). Introduction to concepts and skills for Digital Storytelling, including media literacy and forms of narrative manifested historically and currently across a range of media. This course focuses on theories and concepts

that support the critical analysis and creation of contemporary narrative in digital form with particular attention to audio, visual and written communication. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor

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#### **COMMUN 2100: Media Communication in Society**

An introduction to the development and impact of media communications and its technologies on American society. Emphasis on contemporary industry developments, their historical antecedents, as well as contemporary issues related to the influence and impact of media communication on society.

**Credit Hours:** 3

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#### **COMMUN 2100H: Media Communication in Society - Honors**

An introduction to the development and impact of media communications and its technologies on American society. Emphasis on contemporary industry developments, their historical antecedents, as well as contemporary issues related to the influence and impact of media communication on society.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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#### **COMMUN 2200: Video Workshop: Sports Broadcast Production**

A hands-on workshop; students will learn live sports video production theory and techniques from Mizzou Athletics broadcast professionals. Students will participate in all phases of video production (camera operations, directing, graphics, video replay, and live audio production and digital editing) in a variety of live sports projects. The class will help produce games for SEC Network Plus. There is no requirement of previous production experience or course work. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Communication majors

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#### **COMMUN 2315: Basic Audio Production and Performance**

Radio speaking in varied types of programs; console operations, tape editing, microphone techniques.

**Credit Hours:** 3

**Prerequisites:** may be restricted to Communication majors only during early registration

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#### **COMMUN 2500: Introduction to Communication**

Introduction to four main areas of the field of communication, interpersonal, organizational, political, and mass communication.

**Credit Hours:** 3

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#### **COMMUN 2530: Screenwriting I**

(same as FILMS\_VS 2530). Analyze various script formats and apply different writing techniques and styles to create screenplays and teleplays. Work inside a creative critique environment to craft vivid storytelling and character elements while developing viable loglines and pitches for their stories. Screenwriting concepts include the three-act structure and the timing and placement of plot points. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor Permission

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**COMMUN 2701: Topics in Communication - General**

Topics in Communication - General.

**Credit Hours:** 3

**Prerequisites:** may be restricted to Communication majors only during early registration

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**COMMUN 2703: Topics in Communication - Behavioral Science**

Topics in Communication - Behavioral Science.

**Credit Hours:** 3

**Prerequisites:** may be restricted to Communication majors only during early registration

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**COMMUN 2703W: Topics in Communication - Behavioral Science - Writing Intensive**

Topics in Communication - Behavioral Science.

**Credit Hours:** 3

**Prerequisites:** may be restricted to Communication majors only during early registration

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**COMMUN 2705: Topics in Communication - Humanities/Fine Arts**

Topics in Communication - Humanities/Fine Arts.

**Credit Hours:** 3

**Prerequisites:** may be restricted to Communication majors only during early registration

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**COMMUN 2810: Story Development**

(same as DST\_VS 2810). In this course students will learn about storytelling across time and media, beginning with definitions and fundamentals of narrative and oral storytelling, theories of narrative and its cultural functions, and basic narrative analysis. The course then turns to the close study of structure, narration, character, plot, action, dialogue, and other narrative elements, with a wide variety of examples and prompts. Throughout the course, students practice the development of their own stories in multiple versions and formats, with attention to the ways that formal structures such as blogs, tweets, podcasts, and scripts affect their storytelling strategies. By the end of the course, students will produce a short shooting script or equivalent project ready for production. Thus, the course functions as preparation for audio-visual production courses in Communication, Film Studies, Media Studies, Film and Media Arts, and Digital Storytelling degree programs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor

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**COMMUN 2880: Digital Storytelling Production I**

(same as ENGLSH 2880, DST\_VS 2880). Digital Storytelling Production I teaches agility with digital video technology through applied experiences. Assignments in digital video production emphasize how video narratives are created and how images and audio enhance the structure, mood, and theme of the narrative. Instruction will focus on planning a video production and developing the tools and practices in lighting, sound recording, image capturing, and editing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** COMMUN 1880 and consent of instructor

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**COMMUN 3050: Survey of Communication Studies**

A survey of four main areas of the field communication, interpersonal, organizational, political, and mass communication.

**Credit Hours:** 3

**Prerequisites:** May be restricted to Communications majors through early registration

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**COMMUN 3050W: Survey of Communication Studies - Writing Intensive**

A survey of four main areas of the field communication, interpersonal, organizational, political, and mass communication.

**Credit Hours:** 3

**Prerequisites:** May be restricted to Communications majors through early registration

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**COMMUN 3310: Message Design and Writing for the Media**

This course introduces students to writing for the media in various contexts including television, film and new media (e.g., websites and social media).

**Credit Hours:** 3

**Prerequisites:** COMMUN 2100. May be restricted to Communication majors only during early registration

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**COMMUN 3390: Digital Production I**

Focus on building familiarity with video cameras, microphones, lighting, editing as well as the fundamentals of visual composition, (framing, camera angles, story boards, and ways to visualize information) and processes and procedures for producing and directing.

**Credit Hours:** 3

**Prerequisites:** sophomore standing. May be restricted to Communication majors only during early registration

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**COMMUN 3395: Digital Production II**

Focus on advanced production work; more elaborate projects including digital shorts, music videos, and short documentaries; advanced editing, storyboards, and emphasis on developing narrative structure.

**Credit Hours:** 3

**Prerequisites:** COMMUN 3390 or instructor's consent. May be restricted to Communication majors only during early registration

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**COMMUN 3422: Communication Research Methods**

Focuses on writing and administering surveys, conducting field research, and designing experimental studies.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and COMMUN 1200. May be restricted to Communication majors only during early registration

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**COMMUN 3441: Nonverbal Communication**

Analysis of form and content of nonverbal communication. Emphasis on role of nonverbal cues in interpersonal communication.

**Credit Hours:** 3



**Prerequisites:** sophomore standing and COMMUN 1200. May be restricted to Communication majors only during early registration

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**COMMUN 3460: Organizational Advocacy**

Theory and analysis of communication to promote organizational culture and image.

**Credit Hours:** 3

**Prerequisites:** sophomore standing. May be restricted to Communication majors during early registration

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**COMMUN 3470: Culture as Communication**

(same as ANTHRO 3470, LINGST 3470). Study of the influence of culture on communication processes. Examines topics such as the impact of values, languages, and nonverbal behavior on intercultural interaction.

**Credit Hours:** 3

**Prerequisites:** sophomore standing. May be restricted to Communication majors only during early registration

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**COMMUN 3490: Media Effects**

Survey of the topics, research, and theories in the study of media effects.

**Credit Hours:** 3

**Prerequisites:** COMMUN 2100 or senior standing. May be restricted to Communication majors only during early registration

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**COMMUN 3525: Conflict and Communication**

Theory and analysis of communication in conflict situations across a variety of contexts.

**Credit Hours:** 3

**Prerequisites:** sophomore standing required. May be restricted to Communication majors only during early registration

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**COMMUN 3561: Relational Communication**

Analysis of communication influences on relational identities and development.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and COMMUN 1200. May be restricted to Communication majors only during early registration

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**COMMUN 3570: Performance of Literature**

(same as ENGLSH 3570 and THEATR 3200). Analysis and oral interpretation of literary works. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**COMMUN 3571: Group Decision Making Processes**

(same as PEA\_ST 3521). Procedures and techniques for interpersonal communication and decision making in small groups.

**Credit Hours:** 3

**Prerequisites:** sophomore standing. May be restricted to Communication majors only during early registration

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**COMMUN 3572: Argument and Advocacy**

Critical analysis and production of argument emphasizing evidence, reasoning, and refutation.

**Credit Hours:** 3

**Prerequisites:** COMMUN 1200. May be restricted to Communication majors only during early registration

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**COMMUN 3575: Business and Professional Communication**

Principles and practice of speech communication in business and professional settings. Emphasis on interviews, group conferences and personal presentations.

**Credit Hours:** 3

**Prerequisites:** sophomore standing. May be restricted to Communication majors only during early registration

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**COMMUN 3575W: Business and Professional Communication - Writing Intensive**

Principles and practice of speech communication in business and professional settings. Emphasis on interviews, group conferences and personal presentations.

**Credit Hours:** 3

**Prerequisites:** sophomore standing. May be restricted to Communication majors only during early registration

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**COMMUN 3580: Crisis Communication**

The theory and practice of corporate and political communication responses to crisis situations.

**Credit Hours:** 3

**Prerequisites:** sophomore standing. May be restricted to Communication majors only during early registration

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**COMMUN 3701: Topics in Communication-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent required for repetition.

**Credit Hours:** 3

**Prerequisites:** COMMUN 1200 and COMMUN 2100. May be restricted to Communication majors only during early registration

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**COMMUN 3701W: Topics in Communication - General - Writing Intensive**

Topics in Communication - General.

**Credit Hours:** 3

**Prerequisites:** may be restricted to Communication majors only during early registration

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**COMMUN 3703: Topics in Communication-Behavioral Sciences**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent required for repetition.

**Credit Hour:** 1-99

**Prerequisites:** junior standing and instructor's consent, May be restricted to Communication majors only during early registration

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**COMMUN 3705: Topics in Communication-Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent required for repetition.

**Credit Hour:** 1-99

**Prerequisites:** junior standing and instructor's consent. May be restricted to Communications majors only during early registration

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**COMMUN 4395: Professional Seminar in Television Production**

Application of principles to advanced television production, direction.

**Credit Hours:** 3

**Prerequisites:** COMMUN 3390 and instructor's consent. May be restricted to Communication majors only during early registration

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**COMMUN 4412: Gender, Language, and Communication**

(same as LINGST 4412, ANTHRO 4412; cross-leveled with COMMUN 7412, LINGST 7412, ANTHRO 7412). Relationship among gender, language, nonverbal communication, and culture.

**Credit Hours:** 3

**Prerequisites:** junior standing or departmental consent. May be restricted to Communication majors only during early registration

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**COMMUN 4440: Ethical Issues in Communication**

(same as PEA\_ST 4440; cross-leveled with COMMUN 7440). Exploration and analysis of ethical dimensions intrinsic to human communication.

**Credit Hours:** 3

**Prerequisites:** junior standing or departmental consent. May be restricted to Communication majors only during early registration

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**COMMUN 4473: Political Communication**

(cross-leveled with COMMUN 7473). Study of role and impact of communication in political campaigns; historical and contemporary study of influence by communication; case studies and practicum.

**Credit Hours:** 3

**Prerequisites:** junior standing or departmental consent. May be restricted to Communication majors only during early registration

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**COMMUN 4474: Theory and Research in Persuasion**

(cross-leveled with COMMUN 7474). Studies the persuasive process, attitude formation, modification.

**Credit Hours:** 3

**Prerequisites:** junior standing and COMMUN 1200. May be restricted to Communication majors only during early registration

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**COMMUN 4476: Organizational Communication**

(cross-leveled with COMMUN 7476). Theories of communication systems and processes in organizational structures; study of communication behavior in formal and informal organizational settings.

**Credit Hours:** 3

**Prerequisites:** junior standing and COMMUN 1200. May be restricted to Communication majors only during early registration

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**COMMUN 4478: Communication Competencies for a Diverse Workplace**

Review of communication skills that can help students provide leadership around diversity and inclusion issues in the workplace, work more effectively in diverse work environments, and make workplaces more welcoming and inclusive for everyone. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Junior standing. May be restricted to Communication majors only during early registration

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**COMMUN 4491: Political Public Address**

Course focuses on the rhetorical criticism of public address; which involves analyzing the use of symbolic communication - primarily persuasive argument - in public settings on issues of political, social and cultural significance. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** COMMUN 1200

**Recommended:** COMMUN 3572

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**COMMUN 4510: Children's Communication**

Course focuses on the nature of children's communication. Students will examine the communicative abilities, practices, and behaviors of children ranging across preschool and school age years. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Junior standing or departmental consent. May be restricted to Communication majors only during early registration

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**COMMUN 4520: Family Communication**

(same as H\_D\_FS 4680; cross-leveled with COMMUN 7520, H\_D\_FS 7680). Analysis of the functions and processes of communication within families.

**Credit Hours:** 3

**Prerequisites:** junior standing or departmental consent. May be restricted to Communication majors only during early registration

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**COMMUN 4530: Health Communication**

(cross-leveled with COMMUN 7530). A general overview of the impact of communication on health, including doctor/patient communication and health campaigns. Graded on A-F basis only.

**Credit Hours:** 3

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**COMMUN 4628: Children, Adolescents and the Media**

Focus on social scientific research concerning the mass media and social media in the lives of children and adolescents. The course centers on media effects literature and controversies relevant to child and adolescent media users. Course involves readings, lectures, discussions of theories, concepts, methods, and findings. We will also consider social implication and personal choices in media use. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** junior standing required

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**COMMUN 4638: New Technologies and Communication**

(cross-leveled with COMMUN 7638). Explores the social implications of new technologies designed for communication. Assumes basic computer knowledge.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent. May be restricted to Communication Majors only during early registration

---

**COMMUN 4648: Race, Ethnicity, and the Media**

Presents an overview of how social identities of race and ethnicity are constructed within the media landscape. Provides an overview of the effects of stereotypical imagery and prosocial representations on users across a variety of media. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** COMMUN 2100

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**COMMUN 4701: Topics in Communication-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent required for repetition.

**Credit Hour:** 1-99

**Prerequisites:** junior standing and instructor's consent. May be restricted to Communication majors only during early registration

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**COMMUN 4705: Topics in Communication-Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent for repetition.

**Credit Hour:** 1-99

**Prerequisites:** junior standing and instructor's consent. May be restricted to Communication majors only during early registration

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**COMMUN 4880: Digital Storytelling Production II**

(same as ENGLISH 4880, DST\_VS 4880). Digital Storytelling Production II introduces students to advanced techniques in digital storytelling production, while further developing skills in script writing, storyboarding, Adobe Premiere Pro, and video production with DSLR cameras. Assignments in digital video production emphasize how video narratives are created and how images and audio enhance the structure, mood, and theme of the narrative. Instruction will focus on planning a video production and developing the tools and practices in lighting, sound recording, image capturing, and editing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor

**Recommended:** COMMUN 1880 and COMMUN 2880

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**COMMUN 4940: Internship**

Directed professional experience within and outside the University in communication-related fields or organizations. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** Admission to department, junior standing, instructor's consent, 2.5 GPA

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**COMMUN 4950: Research Project**

Student contributes to a research project with approved goals and a final written report. As part of the project, student will read articles in the

communication research literature. Project can be independent or in conjunction with a faculty research project. Course may be repeated once for credit. Graded on A-F basis only

**Credit Hour:** 1-3

**Prerequisites:** COMMUN 3050; junior standing and instructor's consent. Approval by a faculty member who will serve as project supervisor

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**COMMUN 4960: Directed Reading**

Independent reading, reports.

**Credit Hour:** 1-99

**Prerequisites:** junior standing or instructor's consent

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**COMMUN 4970: Communication Practicum**

Special applied instruction in an advanced area of communication or media. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** COMMUN 1200, COMMUN 3050, Communication major with junior standing and GPA of 2.5

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**COMMUN 4974: Senior Project**

Integration and adaptation of communication theories to an applied communication problem. Required for all majors.

**Credit Hours:** 3

**Prerequisites:** admission to department, senior standing, and departmental consent

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**COMMUN 7412: Gender, Language, and Communication**

(same as LINGST 7412, ANTHRO 7412; cross-leveled with COMMUN 4412, LINGST 4412, ANTHRO 4412). Relationship among gender, language, nonverbal communication, and culture.

**Credit Hours:** 3

---

**COMMUN 7473: Political Communication**

(cross-leveled with COMMUN 4473). Study of role and impact of communication in political campaigns; historical and contemporary study of influence by communication; case studies and practicum.

**Credit Hours:** 3

**Prerequisites:** graduate standing or departmental consent

---

**COMMUN 7530: Health Communication**

A general overview of the impact of communication on health, including doctor/patient communication and health campaigns. Graded on A-F basis only.

**Credit Hours:** 3

---

**COMMUN 7638: New Technologies and Communication**

Explores the social implications of new technologies designed for communication. Assumes basic computer knowledge.

**Credit Hours:** 3

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**COMMUN 8000: Pro-Seminar in Communication**

Obtaining a graduate degree requires that students become excellent researchers, teachers, and colleagues. To support learning toward these proficiencies, the Pro-Seminar course supplements classroom learning

and faculty mentoring through formal departmental offerings. Graded on S/U basis only.

**Credit Hour:** 1

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**COMMUN 8001: Topics in Communication-General**

Study of selected topics in communication. Topic and credit may vary semester to semester. Repeatable upon consent of department.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**COMMUN 8085: Problems**

Individual study not leading to thesis or dissertation.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**COMMUN 8090: Master's Thesis Research in Communication**

Research leading to thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**COMMUN 8110: Introduction to Graduate Study in Communication**

Orientation to the field. Introduction to research methods. Production of research proposal. Emphasizes scholarly style of writing.

**Credit Hours:** 3

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**COMMUN 8120: Introduction to Communication Research Methods**

Introduction to communication research, including research design and academic writing.

**Credit Hours:** 3

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**COMMUN 8130: Topics in Qualitative Research Methods**

Examination of assumptions and techniques of qualitative methods adopting an interpretive framework for analyzing communication phenomena. May be repeated for credit.

**Credit Hours:** 3

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**COMMUN 8140: Content Analysis**

Introduction to content analysis as a method. Students will learn about issues of sampling, codebook construction, intercoder reliability, validity, and analysis of content analytic data, including computer assisted content analysis.

**Credit Hours:** 3

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**COMMUN 8160: Rhetorical Criticism**

Principles, practice criticism (description, analysis, evaluation) of rhetorical artifacts.

**Credit Hours:** 3

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**COMMUN 8170: Seminar in Quantitative Methods in Communication II**

The focus of this course will be the study and practice of various multivariate statistical methods commonly used in communication research. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** COMMUN 8120; instructor's consent required

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**COMMUN 8180: Advanced Topics in Quantitative Methods**

Seminar in advanced topics in quantitative methods and statistics. Topics will vary. Course may be repeated up to two times for a total of six credit hours. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** COMMUN 8120

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**COMMUN 8310: Seminar in Interpersonal Communication**

Examines theory and research concerning face-to-face dyadic interactions. Emphasis on context of interpersonal communication events and processes of interactional management.

**Credit Hours:** 3

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**COMMUN 8410: Seminar in Organizational Communication Theory**

Exploration of the theoretical foundations of interpersonal communication in the organization, groups and team development, leadership, organizational decision making, motivation and power, bureaucracy, new information technologies, organizational effectiveness and the change process.

**Credit Hours:** 3

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**COMMUN 8510: Seminar in Mediated Communication Theory**

This course will offer graduate students a broad overview of extant theories employed in the study of mediated communication. The class will be a survey of theory from foundation to modern conceptions of the study of mediated communication, from mass communication to interactive media contexts.

**Credit Hours:** 3

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**COMMUN 8610: Survey of Political Communication**

Survey of theory and research on political communication; emphasis on messages and audience responses to messages.

**Credit Hours:** 3

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**COMMUN 9050: Research**

Completes comprehensive exams and writes a literature review.

**Credit Hour:** 1-9

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**COMMUN 9090: Doctoral Dissertation Research in Communication**

Research leading to dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**COMMUN 9170: Research Practicum**

Student conducts research under close supervision of faculty mentor. Goal: produce research report suitable for submission as convention paper, article, or book chapter. May be repeated once for credit.

**Credit Hours:** 3

**Prerequisites:** consent of mentor required; for advanced graduate students

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**COMMUN 9280: Seminar in Communication Theory**

Examines the nature of theory, the assumptions underlying theoretical approaches to communication, and surveys themes in contemporary communication theories.

**Credit Hours:** 3

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**COMMUN 9310: Seminar in Family Communication**

Examines research and theory of family communication; focus on family communication patterns and processes, emphasis on key conceptual, methodological and theoretical aspects of family communication scholarship and research on family forms, processes and outcomes. Graded on A-F basis only.

**Credit Hours:** 3

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**COMMUN 9330: Topics in Interpersonal and Family Communication**

The course will review theory and research on topics related to the study of family communication and/or interpersonal communication. Subjects will rotate and include areas such as relational conflict, gender communication, narrative theory, family diversity, or intercultural communication.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**COMMUN 9430: Topics in Organizational Communication**

Examination of theory and research in selected areas of organizational communication. Topics vary by semester. Topics may include socialization, power, gender, emotions, and others. May be repeated for credit.

**Credit Hours:** 3

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**COMMUN 9460: Topics in Political Communication**

Examination of theory and research in selected areas of political communication. Topics vary by semester. Topics may include political polarization, political socialization, politics and the media, political advertising, politics and new media.

**Credit Hours:** 3

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**COMMUN 9520: Seminar in Media Processes and Effects**

Explores current research in the processes and effects of mediated communication. Readings pertain to the current social and psychological effects of media on users.

**Credit Hours:** 3

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**COMMUN 9530: Topics in Mediated Communication**

Examination of theory and research in selected areas of mediated communication. Topics vary by semester. Topics include mass media and social relationships, digital media, social identity and media, health and media, and media diversity. May be repeated two times for credit.

**Credit Hours:** 3

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**COMMUN 9610: Seminar in Disaster, Crisis, and Risk**

This course examines several lines of research from multiple disciplines that influence communication during disasters, crises, and emergencies.

Topics may include federal government paradigms for disaster communication, crisis communication perspectives, risk perception, resilience, social media and emerging technologies in disasters, and media coverage of disasters.

**Credit Hours:** 3

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**COMMUN 9620: Political Campaign Debates**

Theory and research on political campaign debates applied to analyses of candidate debates. Focus on primary and general presidential debates.

**Credit Hours:** 3

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**COMMUN 9630: Political Advertising**

Theory and research on political advertising applied to analyses of candidate advertisements. Focus on primary and general presidential television spots and web pages.

**Credit Hours:** 3

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## Computer Science Courses

**CMP\_SC 1000: Introduction to Computer Science**

This course introduces the Computer Science field, including the history of computers, career opportunities, and ethical/social issues. There will be lectures given by MU Computer Science faculty to discuss exciting fields as well as career advisement given by Computer Science industry representatives. Prerequisites: Restricted to freshman/sophomore students who are BS Computer Science, BS Information Technology and Undeclared Engineering or Pre-Engineering may enroll in the class without permission

**Credit Hour:** 1

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**CMP\_SC 1001: Topics in Computer Science**

Topic and credit may vary from semester to semester. May be repeated upon consent of department.

**Credit Hour:** 1-99

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**CMP\_SC 1050: Algorithm Design and Programming I**

This course provides experience in developing algorithms, designing, implementing programs. Topics include syntax/semantics, flow control, loops, recursion, I/O, arrays, strings and pointers.

**Credit Hours:** 4

**Prerequisites:** C- or higher in MATH 1100 or MATH 1160 or MATH 1500. May be restricted to Engineering majors only

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**CMP\_SC 1050H: Algorithm Design and Programming I - Honors**

This course provides experience in developing algorithms, designing, implementing programs. Topics include syntax/semantics, flow control, loops, recursion, I/O, arrays, strings and pointers.

**Credit Hours:** 4

**Prerequisites:** C- or higher in MATH 1100 or MATH 1160 or MATH 1500. Honor eligibility required. May be restricted to Engineering majors only

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**CMP\_SC 2001: Topics in Computer Science**

Topic and credit may vary from semester to semester. May be repeated upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** departmental consent

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**CMP\_SC 2007: World of Neuroscience**

(same as BIOL\_EN 2007, BME 2007, ECE 2007). This in-class course will introduce undergraduates to the growing area of neuroscience from the perspectives of three disciplines: engineering, biology and psychology. Topics in the course will span multiple levels of neuroscience including genomic, genetic, molecular, cellular, systems, behavioral and clinical levels. Due to the interdisciplinary nature of the neuroscience, the classes will cover diverse topics. The topics will range from overviews of the key neurobiology areas, to lab sessions involving how to analyze your own brain signals (EEG), and to visits to brain imaging center and EEG lab. The overall goal is to provide a broad exposure to the fascinating world of interdisciplinary neuroscience. Graded on A-F basis only.

**Credit Hour:** 1

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**CMP\_SC 2010: Intellectual Property for Engineers**

The objective of the course is to enable students to understand and develop informed opinions about issues relating to IP and its increasing influence on the control and use of information in society. A secondary objective is to provide a practical understanding of how to establish copyright, trademark, and/or patent protection for IP. Particular emphasis will be given to the complexities associated with IP in the fields of information technology and computer science.

**Credit Hours:** 3

**Recommended:** Any 1000 level Engineering course or instructor permission

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**CMP\_SC 2050: Algorithm Design and Programming II**

A study of fundamental techniques and algorithms for representing and manipulating data structures. Topics include data abstraction, recursion, stacks, queues, linked lists, trees, efficient methods of sorting and searching, and Big-O analysis.

**Credit Hours:** 4

**Prerequisites:** C or higher in CMP\_SC 1050. May be restricted to Engineering majors only

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**CMP\_SC 2085: Problems in Computer Science**

Independent investigation or project in Computer Science. May be repeated to up 6 hours.

**Credit Hour:** 1-6

**Prerequisites:** C or higher in CMP\_SC 1050

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**CMP\_SC 2111: Production Languages**

The study of the syntax, semantics, and applications of one programming language suitable for large scale scientific or commercial projects, such as FORTRAN, COBOL, PL/1, C, or ADA. May be taken more than once for credit.

**Credit Hour:** 1-3

**Prerequisites:** C- or higher in CMP\_SC 2050 or INFOTC 2040

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**CMP\_SC 2270: Introduction to Logic Systems**

(same as ECE 2210). Basic tools, methods and procedures to design combinational and sequential digital circuits and systems, including number systems, boolean algebra, logic minimization, circuit design, memory elements, and finite state machine design.

**Credit Hours:** 3

**Prerequisites:** C or higher in CMP\_SC 1050 or INFOTC 1040

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**CMP\_SC 2830: Web Application Development I**

(same as INFOTC 2830). This course will attempt to provide a comprehensive understanding of the evolution, the technologies, and the tools of the Internet. In particular, issues pertaining to the World Wide Web and Multimedia (HTML, CGI, Web based applications) will be discussed in detail.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2050 or INFOTC 2040

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**CMP\_SC 3050: Advanced Algorithm Design**

This class surveys fundamental algorithms and data structures that have wide practical applicability, including search trees and graph algorithms. Emphasis is placed on techniques for efficient implementation and good software development methodologies.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050 with a C or higher

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**CMP\_SC 3280: Computer Organization and Assembly Language**

(same as ECE 3280). Introduces computer architectures, programming concepts including parameter passing, I/O, interrupt handling, DMA, memory systems, cache, and virtual memory. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C or higher in CMP\_SC 2270 or ECE 2210 or ECE 1210, and C or higher in CMP\_SC 2050

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**CMP\_SC 3330: Object Oriented Programming**

(same as INFOTC 3330). This course focuses on object-oriented programming concepts: abstraction, polymorphism, encapsulation, inheritance, interfaces, abstract classes, files, streams, and object serialization. Topics such as GUI and event-driven programming are also tackled.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050 or INFOTC 2040 with a C or higher grade

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**CMP\_SC 3380: Database Applications and Information Systems**

Covers fundamental topics of database management systems (DBMS) and database-enabled applications. Topics include a brief history of secondary storage and databases, data modeling, introductory SQL, an overview of current database trends, and current popular database systems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C or higher in CMP\_SC 2050 or INFOTC 2040

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**CMP\_SC 3530: UNIX Operating System**

(same as INFOTC 3530). This course is an introduction to UNIX and UNIX-like operating systems and interfaces, to include the file system, command shells, text editors, pipes and filters, input/output system, shell

scripting and Regular Expressions. The course will also incorporate an aspect of programming in a UNIX environment, cloud computing, containers and an introduction to System Administration. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2050 or INFOTC 2040

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#### **CMP\_SC 3940: Internship in Computer Science**

Computer-related experience in business or industry jointly supervised by faculty and computer professionals. Students should apply one semester in advance for consent of the supervising professor. Graded on a S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** CMP\_SC 2050

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#### **CMP\_SC 4001: Topics in Computer Science**

Topic and credit may vary from semester to semester. May be repeated upon consent of department.

**Credit Hour:** 1-99

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#### **CMP\_SC 4050: Design and Analysis of Algorithms I**

(cross-leveled with CMP\_SC 7050). This course reviews and extends earlier work with linked structures, sorting and searching algorithms, and recursion. Graph algorithms, string matching, combinatorial search, geometrical algorithms and related topics are also studied.

**Credit Hours:** 3

**Prerequisites:** C or higher in CMP\_SC 3050 and MATH 2320

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#### **CMP\_SC 4060: String Algorithms**

(cross-leveled with CMP\_SC 7060). This course provides an introduction to algorithms that efficiently compute patterns in strings. Topics covered include basic properties of strings, data structures for processing strings, string decomposition, exact and approximate string matching algorithms.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 4050

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#### **CMP\_SC 4070: Numerical Methods for Science and Engineering**

(same as ECE 4070; cross-leveled with CMP\_SC 7070, ECE 7070). This course introduces the basic numerical methods that are widely used by computer scientists and engineers. Students will learn how to use the MATLAB platform to find the computational solution of various problems arising in many real world applications. By completing this course, students will be able to master algorithms, compare their performances and critically assess which ones are viable options for the particular problem at hand. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2050 and junior standing or instructor's consent

**Recommended:** Students are expected to have basic knowledge in discrete math and algorithms

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#### **CMP\_SC 4080: Parallel Programming for High Performance Computing**

(cross-leveled with CMP\_SC 7080) This course will provide in-depth treatment of the evolution high performance computing architectures

and parallel programming techniques for those architectures. We will cover topics such as: multi-process and multi-threaded programming; multi-node system architectures (clusters, grids, and clouds) and distributed programming; and general purpose GPU programming. To reinforce lecture topics, programming projects will be completed using multi-process and multi-threaded techniques for modern multicore, multiprocessor workstations; parallel and distributed programming techniques for modern multi-node systems; and general purpose GPU programming. Parallel algorithms will be investigated, selected, and then developed for various scientific data processing problems. Programming projects will be completed using C and C++ APIs and language extensions, e.g. threads (pthreads, Boost/C++), TBB, CILK, OpenMP, OpenMPI, CUDA and OpenCL.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 3280 or ECE 3210 and C- or higher in CMP\_SC 3050 or ECE 3220

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#### **CMP\_SC 4085: Problems in Computer Science**

Independent investigation or project in Computer Science. May be repeated to up 6 hours.

**Credit Hour:** 1-6

**Prerequisites:** senior standing in Computer Science

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#### **CMP\_SC 4270: Computer Architecture**

(same as ECE 4270; cross-leveled with CMP\_SC 7270, ECE 7270). Advanced computer architectures and programming; memory, memory management and cache organizations, parallel processing, graphical processor units for general programming.

**Credit Hours:** 4

**Prerequisites:** C or higher in CMP\_SC 2050 and CMP\_SC 3280 or ECE 3280

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#### **CMP\_SC 4280: Network Systems Architecture**

(same as ECE 4280; cross-leveled with CMP\_SC 7280, ECE 7280). The course covers network systems (interconnects and switch fabrics, network considerations) and relevant networking applications at the network, transport and application layer.

**Credit Hours:** 4

**Prerequisites:** C- or higher in CMP\_SC 2050 or ECE 3220 and C- or higher in CMP\_SC 3280 or ECE 3210

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#### **CMP\_SC 4320: Software Engineering I**

(cross-leveled with CMP\_SC 7320). Overview of software life cycle, including topics in systems analysis and requirements specification, design, implementation testing and maintenance. Uses modeling techniques, project management, peer review, quality assurance, and system acquisition.

**Credit Hours:** 3

**Prerequisites:** C or higher in CMP\_SC 3380

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#### **CMP\_SC 4320W: Software Engineering I - Writing Intensive**

(cross-leveled with CMP\_SC 7320). Overview of software life cycle, including topics in systems analysis and requirements specification, design, implementation testing and maintenance. Uses modeling techniques, project management, peer review, quality assurance, and system acquisition.

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**Credit Hours:** 3

**Prerequisites:** C or higher in CMP\_SC 3380

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**CMP\_SC 4330: Object Oriented Design I**

(cross-leveled with CMP\_SC 7330). Building on a prior knowledge of program design and data structures, this course covers object-oriented design, including classes, objects, inheritance, polymorphism, and information hiding. Students will apply techniques using a modern object-oriented implementation language.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 3330

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**CMP\_SC 4350: Big Data Analytics**

(cross-leveled with CMP\_SC 7350). Big Data Analytics represents a new era of computing, where data in any format maybe processed and exploited to extract insights for industries and organizations to make informed decisions, whether that data is in-place, in-motion or at-rest, in large volume, structured or unstructured. More and more companies are embracing open source Big Data technologies, such as Hadoop and extending it into an enterprise ready Big Data Platform. This course will cover advanced analytics technologies and techniques that enable industries to extract insights from data with sophistication, speed and accuracy. You will learn practical industry best practices to bridge the gap between classroom learning and real world; and have access to cloud services for labs/projects.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 3330 and CMP\_SC 3380

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**CMP\_SC 4380: Database Management Systems I**

(cross-leveled with CMP\_SC 7380). Fundamental concepts of current database systems with emphasis on the relational model. Topics include entity-relationship model, relational algebra, query by example, indexing, query optimization, normal forms, crash recovery, web-based database access, and case studies. Project work involves a modern DBMS, such as Oracle, using SQL.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 3380

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**CMP\_SC 4405: iOS App Development I**

(same as INFOTC 4405). This is a first in a series of courses on developing iOS applications using Xcode, and the Swift programming language on the macOS platform.

**Credit Hours:** 3

**Prerequisites:** INFOTC 1040 or CMP\_SC 1050, or consent of instructor

**Recommended:** Prior experience programming in any programming language. The student should understand basic language concepts such as variables, data structures, control structures, and functions

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**CMP\_SC 4410: Theory of Computation I**

(cross-leveled with CMP\_SC 7410). An introductory study of computation and formal languages by means of automata and related grammars. The theory and applications of finite automata, regular expressions, context free grammars, pushdown automata and Turing machines are examined. May not be counted toward Computer Science MS/PHD.

**Credit Hours:** 3

**Prerequisites:** C- or higher in MATH 2320

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**CMP\_SC 4430: Compilers I**

(cross-leveled with CMP\_SC 7430). Introduction to the translation of programming languages by means of interpreters and compilers. Lexical analysis, syntax specification, parsing, error-recovery, syntax-directed translation, semantic analysis, symbol tables for block structured languages, and run-time storage organization. May not be counted toward Computer Science MS/PHD.

**Credit Hours:** 3

**Prerequisites:** C- or higher in MATH 2320, CMP\_SC 3280 and CMP\_SC 4450

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**CMP\_SC 4440: Malware Analysis and Defense**

(cross-leveled with CMP\_SC 7440). Malicious software or 'malware' is a security threat. This course teaches students to understand the nature and types of viruses and how they are threats; teaches techniques used to prevent, detect, repair and defend against viruses and worms; teaches program binary examination tools to detect malicious code; and teaches ethical issues surrounding computer security violations.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 3280 or ECE 3210

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**CMP\_SC 4450: Principles of Programming Languages**

(cross-leveled with CMP\_SC 7450). An introduction to the structure, design and implementation of programming languages. Topics include syntax, semantics, data types, control structures, parameter passing, run-time structures, and functional and logic programming. May not be counted toward Computer Science MS/PHD.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2050

---

**CMP\_SC 4460: Introduction to Cryptography**

(cross-leveled with CMP\_SC 7460). Cryptography is an important technique used to achieve security goals in an untrusted and possibly adversarial environment. The goals of this course are: (1) to provide students with a solid background with basic cryptographic techniques and their applications, (2) to impart knowledge of standard cryptographic algorithms and (3) to foster understanding of the correct use of cryptographic techniques.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 3050 and MATH 2320

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**CMP\_SC 4520: Operating Systems I**

(cross-leveled with CMP\_SC 7520). Basic concepts, theories and implementation of modern operating systems including process and memory management, synchronization, CPU and disk scheduling, file systems, I/O systems, security and protection, and distributed operating systems.

**Credit Hours:** 3

**Prerequisites:** C or higher in CMP\_SC 3050, CMP\_SC 3280 and MATH 1700

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**CMP\_SC 4530: Cloud Computing**

(cross-leveled with CMP\_SC 7530). This course covers principles that integrate computing theories and information technologies with the design, programming and application of distributed systems. The



course topics will familiarize students with distributed system models and enabling technologies; virtual machines and virtualization of clusters, networks and data centers; cloud platform architecture with security over virtualized data centers; service-oriented architectures for distributed computing; and cloud programming and software environments.

Additionally, students will learn how to conduct some parallel and distributed programming and performance evaluation experiments on applications within available cloud platforms. Finally we will survey research literature and latest technology trends that are shaping the future of high performance, distributed and cloud computing.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 3330 or instructor's consent

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#### **CMP\_SC 4540: Neural Models and Machine Learning**

(same as ECE 4540, BME 4540, BIOL\_EN 4540; cross-leveled with CMP\_SC 7540, ECE 7540, BIOL\_EN 7540). The projects-based course has three inter-linked components: (I) math models of neurons and neural networks, (II) machine learning in neuroscience, after a brief introduction to python and (III) software automation and cyberinfrastructure to support neuroscience. Extensive projects focusing on software automation and machine learning components, with brief in-class presentations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1500 or consent of instructor

**Recommended:** Introductory software programming, and introductory cell biology or consent of instructor

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#### **CMP\_SC 4590: Computational Neuroscience**

(same as BIO\_SC 4590, BIOL\_EN 4590, ECE 4590, BME 4590; cross-leveled with BIO\_SC 7590, ECE 7590, BIOL\_EN 7590). Interdisciplinary course in biology and quantitative sciences with laboratory and modeling components. Explores basic computational and neurobiological concepts at the cellular and network level. Introduction to neuronal processing and experimental methods in neurobiology; modeling of neurons and neuron-networks. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** MATH 1500 or equivalent

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#### **CMP\_SC 4610: Computer Graphics I**

(cross-leveled with CMP\_SC 7610). Basic concepts and techniques of interactive computer graphics including hardware, software, data structures, mathematical manipulation of graphical objects, the user interface, and fundamental implementation algorithms.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 3050 and MATH 1500 or C- or higher in CMP\_SC 3050 and MATH 1300 and MATH 1400

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#### **CMP\_SC 4620: Physically Based Modeling and Animation**

(cross-leveled with CMP\_SC 7620). This course introduces students to physically based modeling and animation methodology for computer graphics and related fields such as computer vision, visualization, biomedical imaging and virtual reality. We will explore current research issues and will cover associated computational methods for simulating various visually interesting physical phenomena. This course should be appropriate for graduate students in all areas as well as advanced undergraduate students.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 4610

**Recommended:** Good knowledge of C or C++ programming, no physics background necessary

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#### **CMP\_SC 4630: Game Development**

(same as INFOTC 4630). The course focuses on rapid game prototyping and development utilizing the Unity game engine and C#. tools. You will learn the fundamentals of game programming and also a platform which is actually used to make published games across multiple platforms (Mac, PC, web, iOS, Android etc). Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOTC 3630 or CMP\_SC 2050 with a C- or Higher

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#### **CMP\_SC 4650: Digital Image Processing**

(same as ECE 4655; cross-leveled with CMP\_SC 7650, ECE 7655). Fundamentals of digital image processing hardware and software including digital image acquisition, image display, image enhancement, image transforms and segmentation.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2050 and STAT 4710 or instructor's consent

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#### **CMP\_SC 4670: Digital Image Compression**

(same as ECE 4675; cross-leveled with ECE 7675, CMP\_SC 7670). Covers digital image formation, information theory concepts, and fundamental lossless and lossy image compression techniques including bit plane encoding, predictive coding, transform coding, block truncation coding, vector quantization, subband coding and hierarchical coding.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2050

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#### **CMP\_SC 4720: Introduction to Machine Learning and Pattern Recognition**

(same as ECE 4720; cross-leveled with ECE 7720, CMP\_SC 7720) This course provides foundations and methods in machine learning and pattern recognition that address the problem of programming computers to optimize performance by learning from example data or expert knowledge. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2050 and STAT 4710 or instructor consent

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#### **CMP\_SC 4730: Building Intelligent Robots**

(same as ECE 4340; cross-leveled with CMP\_SC 7730, ECE 7340). Covers the design and development of intelligent machines, emphasizing topics related to sensor-based control of mobile robots. Includes mechanics and motor control, sensor characterization, reactive behaviors and control architectures.

**Credit Hours:** 4

**Prerequisites:** junior standing

**Recommended:** programming experience in one of the following programming languages - Basic, C, C++, or Java

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**CMP\_SC 4740: Interdisciplinary Introduction to NLP**

(same as LINGST 4740; cross-leveled with CMP\_SC 7740; LINGST 7740). The goal of this course is to enable students to develop substantive NLP applications. Focus on current structural and statistical techniques for the parsing and interpretation of texts.

**Credit Hours:** 3

**Prerequisites:** senior standing

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**CMP\_SC 4750: Artificial Intelligence I**

(cross-leveled with CMP\_SC 7750). This course is intended to be a general introduction to the field of Artificial Intelligence (AI). It will provide exposure to a range of core AI topics including intelligent agent, problem solving by search and game playing, constraint satisfaction problems, propositional and first-order logic, probability in AI, and machine learning. The topics covered in this course are closely related to the common core of Computing & Information education -- about C&I know-how and the ways of thinking and problem solving that characterize C&I community: a system view of the world, a focus on mathematical and computational representation of systems, information representation and transformation, and so forth.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 3050 and junior standing

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**CMP\_SC 4770: Introduction to Computational Intelligence**

(same as ECE 4870; cross-leveled with CMP\_SC 7770, ECE 7870). Introduction to the concepts, models and algorithms for the development of intelligent systems from the standpoint of the computational paradigms of neural networks, fuzzy set theory and fuzzy logic, evolutionary computation and swarm optimization.

**Credit Hours:** 3

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**CMP\_SC 4830: Web Application Development II**

(same as INFOTC 4830; cross-leveled with CMP\_SC 7830). This course will study the science and engineering of the World Wide Web. We will study the languages, protocols, services and tools that enable the web. Emphasis will be placed on basics and technologies.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2830

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**CMP\_SC 4850: Computer Networks I**

(cross-leveled with CMP\_SC 7850). Introduction to concepts and terminology of data communications and computer networking. Basic protocols and standards, applications of networking, routing algorithms, congestion avoidance, long-haul and local networks.

**Credit Hours:** 3

**Prerequisites:** C or higher in CMP\_SC 2270 or ECE 2210 and C- or higher in MATH 2320

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**CMP\_SC 4910: Digital Forensics**

(same as INFOTC 4910). This course introduces an overview of basic Digital Forensics procedures and techniques to enable students to perform a digital investigation of physical storage media and volume analysis, including preservation, analysis and acquisition of artifacts that resides in hard disk and random access memory, for Linux and Windows systems. Work is completed in Unix/Linux environments and in Microsoft Windows environment. Students will need to setup a virtual

private infrastructure to perform multiple tasks. The course emphasizes 'learning by doing' and has a 90% hands-on and 10% theory. Much of this information consists of skills and abilities that employers want and expect in the real world of IT - in a small to medium size organization. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOTC 2910 and INFOTC 3910

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**CMP\_SC 4970: Senior Capstone Design I**

Communication skills, and prototyping. Covers professional ethics, intellectual property/patenting, knowledge of engineering literature, safety, economic and environmental impact of technology. Essays, oral and written reports.

**Credit Hours:** 3

**Prerequisites:** C or higher in CMP\_SC 4320 and senior standing

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**CMP\_SC 4970W: Senior Capstone Design I - Writing Intensive**

Communication skills, and prototyping. Covers professional ethics, intellectual property/patenting, knowledge of engineering literature, safety, economic and environmental impact of technology. Essays, oral and written reports.

**Credit Hours:** 3

**Prerequisites:** C or higher in CMP\_SC 4320 and senior standing

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**CMP\_SC 4980: Senior Capstone Design II**

Course entails completion of CMP\_SC 4970 design project. Design prototyping, testing, evaluation, presentation, and preparation of documentation.

**Credit Hours:** 3

**Prerequisites:** C or higher in CMP\_SC 4970

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**CMP\_SC 4990: Undergraduate Research in Computer Science**

Independent investigation or project in Computer Science. May be repeated to 6 hours.

**Credit Hour:** 0-6

**Prerequisites:** senior standing in Computer Science

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**CMP\_SC 4995: Undergraduate Research in Computer Science - Honors**

Independent investigation to be presented as an undergraduate honors thesis.

**Credit Hour:** 1-6

**Prerequisites:** honors student in Computer Science

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**CMP\_SC 7001: Topics in Computer Science**

Topic and credit may vary from semester to semester. May be repeated upon consent of department.

**Credit Hour:** 1-99

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**CMP\_SC 7010: Computational Methods in Bioinformatics**

(same as INFOINST 7010) Introduces the fundamental concepts and basic computational techniques for mainstream bioinformatics problems. Emphasis will be placed on the computational aspect of bioinformatics, including formulation of a biological problem in a computable problem,

design of scoring functions and algorithms, confidence assessment of prediction results and software development.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4050 and STAT 4710

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#### **CMP\_SC 7050: Design and Analysis of Algorithms I**

(cross-leveled with CMP\_SC 4050). This course reviews and extends earlier work with linked structures, sorting and searching algorithms, and recursion. Graph algorithms, string matching, combinatorial search, geometrical algorithms and related topics are also studied. Cannot be counted toward CS MS/PHD.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 3050 and MATH 2320

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#### **CMP\_SC 7060: String Algorithms**

(cross-leveled with CMP\_SC 4060). This course provides an introduction to algorithms that efficiently compute patterns in strings. Topics covered include basic properties of strings, data structures for processing strings, string decomposition, exact and approximate string matching algorithms.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4050

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#### **CMP\_SC 7070: Numerical Methods for Science and Engineering**

(cross-leveled with CMP\_SC 4070). This course introduces the basic numerical methods that are widely used by computer scientists and engineers. Students will learn how to use the MATLAB platform to find the computational solution of various problems arising in many real world applications. By completing this course, students will be able to master algorithms, compare their performances and critically assess which ones are viable options for the particular problem at hand. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2050 or instructor's consent

**Recommended:** Students are expected to have basic knowledge in discrete math and algorithms

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#### **CMP\_SC 7080: Parallel Programming for High Performance Computing**

(cross-leveled with CMP\_SC 4080). This course will provide in-depth treatment of the evolution high performance computing architectures and parallel programming techniques for those architectures. We will cover topics such as: multi-process and multi-threaded programming; multi-node system architectures (clusters, grids, and clouds) and distributed programming; and general purpose GPU programming. To reinforce lecture topics, programming projects will be completed using multi-process and multi-threaded techniques for modern multicore, multiprocessor workstations; parallel and distributed programming techniques for modern multi-node systems; and general purpose GPU programming. Parallel algorithms will be investigated, selected, and then developed for various scientific data processing problems. Programming projects will be completed using C and C++ APIs and language extensions, e.g. threads (pthreads, Boost/C++), TBB, CILK, OpenMP, OpenMPI, CUDA and OpenCL.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 3280 or ECE 3210 and CMP\_SC 3050 or ECE 3220

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#### **CMP\_SC 7270: Computer Architecture**

(same as ECE 7270; cross-leveled with CMP\_SC 4270, ECE 4270). Advanced computer architectures and programming; memory, memory management and cache organizations, parallel processing, graphical processor units for general programming.

**Credit Hours:** 4

**Prerequisites:** C or higher in CMP\_SC 2050 and CMP\_SC 3280 or ECE 3280

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#### **CMP\_SC 7320: Software Engineering I**

(cross-leveled with CMP\_SC 4320). Overview of software life cycle, including topics in systems analysis and requirements specification, design, implementation testing and maintenance. Uses modeling techniques, project management, peer review, quality assurance, and system acquisition. May not be counted toward CS MS/PHD.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 3380

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#### **CMP\_SC 7330: Object Oriented Design I**

(cross-leveled with CMP\_SC 4330). Building on a prior knowledge of program design and data structures, this course covers object-oriented design, including classes, objects, inheritance, polymorphism, and information hiding. Students will apply techniques using a modern object-oriented implementation language.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 3330

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#### **CMP\_SC 7350: Big Data Analytics**

(cross-leveled with CMP\_SC 4350). Big Data Analytics represents a new era of computing, where data in any format maybe processed and exploited to extract insights for industries and organizations to make informed decisions, whether that data is in-place, in-motion or at-rest, in large volume, structured or unstructured. More and more companies are embracing open source Big Data technologies, such as Hadoop and extending it into an enterprise ready Big Data Platform. This course will cover advanced analytics technologies and techniques that enable industries to extract insights from data with sophistication, speed and accuracy. You will learn practical industry best practices to bridge the gap between classroom learning and real world; and have access to cloud services for labs/projects.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 3330 and CMP\_SC 3380

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#### **CMP\_SC 7380: Database Management Systems I**

(cross-leveled with CMP\_SC 4380). Fundamental concepts of current database systems with emphasis on the relational model. Topics include entity-relationship model, relational algebra, query by example, indexing, query optimization, normal forms, crash recovery, web-based database access, and case studies. Project work involves a modern DBMS, such as Oracle, using SQL.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050

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**CMP\_SC 7410: Theory of Computation I**

(cross-leveled with CMP\_SC 4410). An introductory study of computation and formal languages by means of automata and related grammars. The theory and applications of finite automata, regular expressions, context free grammars, pushdown automata and Turing machines are examined. May not be counted toward CS MS/PHD.

**Credit Hours:** 3

**Prerequisites:** MATH 2320

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**CMP\_SC 7430: Compilers I**

(cross-leveled with CMP\_SC 4430). Introduction to the translation of programming languages by means of interpreters and compilers. Lexical analysis, syntax specification, parsing, error-recovery, syntax-directed translation, semantic analysis, symbol tables for blockstructured languages, and run-time storage organization. May not be counted toward CS MS/PHD.

**Credit Hours:** 3

**Prerequisites:** MATH 2320 and CMP\_SC 3280 and CMP\_SC 4450

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**CMP\_SC 7440: Malware Analysis and Defense**

(cross-leveled with CMP\_SC 4440). Malicious software or 'malware' is a security threat. This course teaches students to understand the nature and types of viruses and how they are threats; teaches techniques used to prevent, detect, repair and defend against viruses and worms; teaches program binary examination tools to detect malicious code; and ethical issues surround computer security violations.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 3280, ECE 3210 or equivalent

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**CMP\_SC 7450: Principles of Programming Languages**

(cross-leveled with CMP\_SC 4450). An introduction to the structure, design and implementation of programming languages. Topics include syntax, semantics, data types, control structures, parameter passing, run-time structures, and functional and logic programming. May not be counted toward CS MS/PHD.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050

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**CMP\_SC 7460: Introduction to Cryptography**

(cross-leveled with CMP\_SC 4460). Cryptography is an important technique used to achieve security goals in an untrusted and (possibly) adversarial environment. The goals of this course are: (1) to provide students with a solid back-ground with basic cryptographic techniques and their applications, (2) impart knowledge of standard cryptographic algorithms and (3) foster understanding of the correct use of cryptographic techniques.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 3050 and MATH 2320

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**CMP\_SC 7520: Operating Systems I**

(cross-leveled with CMP\_SC 4520). Basic concepts, theories and implementation of modern operating systems including process and memory management, synchronization, CPU and disk scheduling, file systems, I/O systems, security and protection, and distributed operating systems. Cannot be counted toward CS MS/PHD.

**Credit Hours:** 3

**Prerequisites:** C or higher in CMP\_SC 3050, CMP\_SC 3280 and MATH 1700

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**CMP\_SC 7530: Cloud Computing**

(cross-leveled with CMP\_SC 4530). This course covers principles that integrate computing theories and information technologies with the design, programming and application of distributed systems. The course topics will familiarize students with distributed system models and enabling technologies; virtual machines and virtualization of clusters, networks and data centers; cloud platform architecture with security over virtualized data centers; service-oriented architectures for distributed computing; and cloud programming and software environments. Additionally, students will learn how to conduct some parallel and distributed programming and performance evaluation experiments on applications within available cloud platforms. Finally we will survey research literature and latest technology trends that are shaping the future of high performance, distributed and cloud computing.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 3330 or instructor's consent

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**CMP\_SC 7540: Neural Models and Machine Learning**

(same as ECE 7540, BIOL\_EN 7540; cross-leveled with ECE 4540). The projects-based course has three inter-linked components: (I) math models of neurons and neural networks, (II) machine learning in neuroscience, after a brief introduction to python and (III) software automation and cyberinfrastructure to support neuroscience. Extensive projects focusing on software automation and machine learning components, with brief in-class presentations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1500 or consent of instructor

**Recommended:** Introductory software programming, and introductory cell biology or consent of instructor

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**CMP\_SC 7590: Computational Neuroscience**

(same as BIOL\_EN 7590, BIO\_SC 7590, ECE 7590; cross-leveled with BIO\_SC 4590). Interdisciplinary course in biology and quantitative sciences with laboratory and modeling components. Explores basic computational and neurobiological concepts at the cellular and network level. Introduction to neuronal processing and experimental methods in neurobiology; modeling of neurons and neuron-networks. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** MATH 1500 or equivalent

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**CMP\_SC 7610: Computer Graphics I**

(cross-leveled with CMP\_SC 4610). Basic concepts and techniques of interactive computer graphics including hardware, software, data structures, mathematical manipulation of graphical objects, the user interface, and fundamental implementation algorithms.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 3050 and either MATH 1500 or MATH 1300 and MATH 1400

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**CMP\_SC 7620: Physically Based Modeling and Animation**

(cross-leveled with CMP\_SC 4620). Introduces fundamental algorithms and techniques including interpolation, quaternions, rigid body dynamics,

kinematics, particle systems, free form and dynamic deformations, spring and damper systems and computational natural phenomena simulation.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4610 or CMP\_SC 7610

**Recommended:** Good knowledge of C or C++ programming, no physics background necessary

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**CMP\_SC 7650: Digital Image Processing**

(same as ECE 7655; cross-leveled with CMP\_SC 4650, ECE 4655). Fundamentals of digital image processing hardware and software including digital image acquisition, image display, image enhancement, image transforms and segmentation.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050, STAT 7710 or instructor's consent

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**CMP\_SC 7670: Digital Image Compression**

(same as ECE 7675; cross-leveled with CMP\_SC 4670, ECE 4675). Covers digital image formation, information theory concepts, and fundamental lossless and lossy image compression techniques including bit plane encoding, predictive coding, transform coding, block truncation coding, vector quantization, subband coding and hierarchical coding.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050

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**CMP\_SC 7720: Introduction to Machine Learning and Pattern Recognition**

(same as ECE 7720; cross-leveled with CMP\_SC 4720, ECE 4720). This course provides foundation knowledge and methods in machine learning and pattern recognition that address the problem of programming computers to optimize performance by learning from example data or expert knowledge. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050 and STAT 4710 or instructor's consent

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**CMP\_SC 7730: Building Intelligent Robots**

(same as ECE 7340; cross-leveled with CMP\_SC 4730, ECE 4730). Covers the design and development of intelligent machines, emphasizing topics related to sensor-based control of mobile robots. Includes mechanics and motor control, sensor characterization, reactive behaviors and control architectures. Prerequisites: programming experience in one of the following programming languages: Basic, C, C++, or Java.

**Credit Hours:** 4

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**CMP\_SC 7740: Interdisciplinary Introduction to Natural Language Processing**

(same as LINGST 7740; cross-leveled with CMP\_SC 4740; LINGST 4740). The goal of this course is to enable students to develop substantive NLP applications. Focus on current structural and statistical techniques for the parsing and interpretation of text.

**Credit Hours:** 3

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**CMP\_SC 7750: Artificial Intelligence I**

(cross-leveled with CMP\_SC 4750). This course is intended to be a general introduction to the field of Artificial Intelligence (AI). It will provide exposure to a range of core AI topics including intelligent agent, problem

solving by search and game playing, constraint satisfaction problems, propositional and first-order logic, probability in AI, and machine learning. The topics covered in this course are closely related to the common core of Computing & Information education -- about C&I know-how and the ways of thinking and problem solving that characterize C&I community: a system view to the world, a focus on mathematical and computational representation of systems, information representation and transformation, and so forth.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 3050

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**CMP\_SC 7770: Introduction to Computational Intelligence**

(same as ECE 7870; cross-leveled with CMP\_SC 4770, ECE 4870). Introduction to the concepts, models and algorithms for the development of intelligent systems from the standpoint of the computational paradigms of neural networks, fuzzy set theory and fuzzy logic, evolutionary computation and swarm optimization.

**Credit Hours:** 3

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**CMP\_SC 7830: Web Application Development II**

(cross-leveled with CMP\_SC 4830). This course will study the science and engineering of the World Wide Web. We will study the languages, protocols, services and tools that enable the web. Emphasis will be placed on basics and technologies.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 3330 and CMP\_SC 2830

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**CMP\_SC 7850: Computer Networks I**

(cross-leveled with CMP\_SC 4850). Introduction to concepts and terminology of data communications and computer networking. Basic protocols and standards, applications of networking, routing algorithms, congestion avoidance, long-haul and local networks.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2270 or ECE 1210 and MATH 2320

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**CMP\_SC 8001: Advanced Topics in Computer Science**

Topic may vary from semester to semester. May be repeated upon consent of department.

**Credit Hours:** 3

**Prerequisites:** varies by topic

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**CMP\_SC 8050: Design and Analysis of Algorithms II**

Techniques for the design and analysis of correct, efficient algorithms. Topics include graph, geometric, and algebraic/ numeric algorithms, NP-completeness, and parallel algorithms.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4050

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**CMP\_SC 8060: Survey of Advanced Algorithm Techniques**

This class provides a survey of important algorithmic techniques, some of which are emerging right now, and show that they are much easier to understand than they first appear. The class will create a renewed appreciation for what makes Computer Science such a fun/interesting discipline.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4050

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**CMP\_SC 8085: Problems in Computer Science**

Independent study project work with a professor in computer science.

**Credit Hour:** 1-4

**Prerequisites:** instructor consent

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**CMP\_SC 8130: Computational Genomics**

(same as INFOINST 8310). This course introduces computational concepts and methods of genomics to students. The course covers genome structure, database, sequencing, assembly, annotation, gene and RNA finding, motif and repeats identification, single nucleotide polymorphism, and epigenomics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOINST 7010 or CMP\_SC 7010

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**CMP\_SC 8150: Integrative Methods in Bioinformatics**

(same as INFOINST 8150). Introduces the most popular experimental methods from the point of view of the information sources that can be used. Students will use data obtained directly from biological experiments and learn how to suggest new experiments to improve results. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOINST 7010 or CMP\_SC 7010

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**CMP\_SC 8160: Content Management in Biomedical Informatics**

(same as INFOINST 8860). This course introduces theory and techniques for content extraction, indexing, and retrieval of biomedical media databases. Topics include biomedical media databases, feature extraction methods, advanced database indexing structures, query methods, and result visualization. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 7380, INFOINST 7010

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**CMP\_SC 8170: Computational Modeling of Molecular Structures**

This course uses a problem solving paradigm to investigate common principles, data structures, algorithms, challenges, and solutions in computationally modeling (constructing) 3D structures of proteins, RNAs, chromosomes, and genomes.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 7010

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**CMP\_SC 8180: Machine Learning Methods for Biomedical Informatics**

(same as INFOINST 8880). Teaches statistical machine learning methods and applications in biomedical informatics. Covers theories of advanced statistical machine learning methods and how to develop machine learning methods to solve biomedical problems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 7050 and INFOINST 7010 or CMP\_SC 7010 or INFOINST 7005

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**CMP\_SC 8190: Computational Systems Biology**

(same as INFOINST 8390). This course covers current theories and methods in the modeling and analysis of high-throughput experiments such as microarrays, proteomics, and metabolomics. Topics include the inference of causal relations from experimental data and reverse engineering of cellular systems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOINST 7010 or CMP\_SC 7010; INFOINST 8010

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**CMP\_SC 8370: Data Mining and Knowledge Discovery**

Course topics include an introduction to fundamental concepts, data mining techniques from machine learning and pattern recognition areas, association rules, web mining, spatial mining, temporal mining, multimedia/multimodal database mining, and database mining, and geospatial information mining.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 7380

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**CMP\_SC 8440: Information Security: A Language-Based Approach**

This course focuses on language-based techniques for information flow security. Students will gain a solid background in information security, be encouraged to do further research and be exposed to important/promising trends in state-of-the-art computer security.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4450 or CMP\_SC 7450

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**CMP\_SC 8450: Formal Engineering Methods for Software and Security**

Designing scalable exhaustive methods to ensure reliability of computer systems is an important challenge in computer science as even simple errors can have serious socio-economic-political consequences. This challenge is the focus of the field of automated verification techniques which draws techniques from complexity theory, automata theory, programming languages and logic, and provides tools to ensure that the computer systems are reliable. Computer-assisted techniques for verifying hardware implementations are regularly employed in the industry, and are also being increasingly adopted in the software industry as the costs of software bugs and security flaws escalate. The goals of this course are: (1) to provide students with a solid background in the fundamental techniques used in this field, (2) to encourage further research in software and security verification, and (3) to introduce students to important upcoming trends in verifying security protocols. The students will get theoretical background as well as learn to use some standard tools in this field. Students will also explore topics of particular interest to them through the performance of a significant semester project.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4450 or CMP\_SC 7450 or CMP\_SC 4430 or CMP\_SC 7430 or instructor's consent. A reasonable level of mathematical maturity and significant programming experience is expected

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**CMP\_SC 8530: Cloud Computing II**

This course covers advanced principles of distributed system models and enabling technologies relating to cloud computing; latest advances in management and security of virtual machines and virtualization of clusters, networks, and data centers will be studied; additionally, students

will survey research literature and perform cloud programming as well as performance evaluation experiments on applications within available cloud platforms. Students will learn project-based: problem solving, collaborative programming, technical writing and presentation skills. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4530 or CMP\_SC 7530 or instructor's consent

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#### **CMP\_SC 8570: Neural Dynamics and Communication**

(same as ECE 8570). Properties of nerve cells including membrane potential, action potential, ion channel dynamics, GHK equation, dynamical properties of excitable membranes, neuronal communication and plasticity. Entrainment, synchronization and oscillations in neuronal networks, and their functional significance. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 4590/CMP\_SC 4590 or consent of instructor

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#### **CMP\_SC 8580: Machine Learning in Neuroscience**

(same as ECE 8580). Basics of neuronal and network dynamics including spikes and communication between regions, including via competing hypotheses. Machine learning fundamentals including linear, logistic and artificial neural network mappings. Integration of data-driven and theory-driven models, with emphasis on insights into neuroscience via XAI approaches. Software automation in neuroscience including python notebooks and cyberinfrastructure tools for interacting with software repositories and HPC resources. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 4590/CMP\_SC 4590 or consent of instructor

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#### **CMP\_SC 8610: Computer Graphics II**

Further study of computer graphics, focused on 3-D graphics, transformations, geometric and surface modeling, color models, visible surface determination, lighting and shading, standard graphics software (Phigs/OpenGL). Selected current topics in graphics such as visualization, animation and realism.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 7610

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#### **CMP\_SC 8620: Physically Based Modeling and Animation II**

This course introduces students to physical based modeling and animation methodology for computer graphics and related fields such as computer vision, visualization, biomedical imaging and virtual reality. We will explore current research issues and will cover associated computational methods for simulating various visually interesting physical phenomena. This course should be appropriate for graduate students in all areas as well as advanced undergraduate students.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4610 or CMP\_SC 7610

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#### **CMP\_SC 8630: Data Visualization**

Data visualization broadly covers transforming multidimensional and timevarying datasets to dynamic visual representations and encodings that facilitate exploratory data mining, knowledge discovery, improved understanding, summarization, structural modeling, collaboration and decision making using interactive methods.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4610 or CMP\_SC 7610 or instructor's consent

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#### **CMP\_SC 8650: Advanced Image Processing**

(same as ECE 8855). This course covers advanced topics in image understanding including multispectral multimodal imaging, motion estimation, texture analysis, geometric level set methods.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4650 or CMP\_SC 7650 or instructor's consent

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#### **CMP\_SC 8660: Multimedia Security**

This course offers a comprehensive coverage of the theoretical foundation of multimedia security technologies, including encryption, authentication, digital watermarking, key management, copy control, fingerprinting/tracing, digital media forensics, and biometrics, provides an in-depth study of the state-of-the-art digital rights management systems and the underlying security technologies. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4670 or CMP\_SC 4650; instructor's consent

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#### **CMP\_SC 8675: Biomedical Image Processing**

(same as ECE 8675). This course introduces students to the fundamentals of biomedical image processing and analysis with an emphasis on cellular and tissue microscopy along with anatomical imaging. The course will cover image and video processing techniques and pipelines for image enhancement, restoration, registration, detection, segmentation, classification, and motion analysis that are tailored for biomedical image informatics. This course will provide a rich exposure to a broad range of imaging datasets from the molecular to the anatomical; and train students to implement algorithms for moderately complex tasks in biomedical image analysis. This course is suitable for graduate students in all fields of engineering and science who are interested in understanding and implementing biomedical and biological image analytics and are seeking pointers to the broad literature in the field.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4650 or CMP\_SC 7650, ECE 4655 or ECE 7655 or instructor's consent

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#### **CMP\_SC 8680: 3-D Computer Vision**

This course introduces students to a central problem in computer vision - how to recover 3-D structure and motion from a collection of 2-D images, using techniques drawn mainly from linear algebra and matrix theory. The main focus is on developing a unified framework for studying the geometry of multiple images of a 3-D scene and reconstructing geometric models from those images. The course also covers relevant aspects of image formation, basic image processing, and feature extraction.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4650 or CMP\_SC 7650

**Recommended:** Good knowledge of C or C++ programming, linear algebra and data structures

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#### **CMP\_SC 8690: Computer Vision**

(same as ECE 8690). This course introduces students to the fundamental problems of computer vision, the main concepts and the techniques used to solve such problems. It will enable graduate and advanced undergraduate students to solve complex problems and make sense of the literature in the area. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 4655 or ECE 7655 or CMP\_SC 4650 or CMP\_SC 7650 or instructor's consent

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**CMP\_SC 8725: Supervised Learning**

(same as ECE 8725). This course introduces the theories and applications of advanced supervised machine learning methods. It covers hidden Markov model and expectation maximization (EM) algorithms, probabilistic graphical models, non-linear support vector machine and kernel methods. The course emphasizes both the theoretical underpinnings of the advanced supervised learning methods and their applications in the real world. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4720 or CMP\_SC 7720 or ECE 4720 or ECE 7720 or instructor's consent

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**CMP\_SC 8735: Unsupervised Learning**

(same as ECE 8735). Theoretical and practical aspects of unsupervised learning including topics of expectation maximization (EM), mixture decomposition, clustering algorithms, cluster visualization, and cluster validity. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4720 or CMP\_SC 7720 or ECE 4720 or ECE 7720 or instructor's consent

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**CMP\_SC 8740: Advanced Natural Language Processing**

What do Google, the New York Times, Facebook, Cerner, and other big companies know that you don't? Natural language processing. This course considers open and compelling problems in contemporary research in the processing and analysis of text, focusing on both the underlying theory and its practical application. The goal is to help students understand the nature of these problems, the current approaches to them, the strengths and weaknesses of those approaches, and other possible ways forward.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4740 or CMP\_SC 7740

**Recommended:** CMP\_SC 2050; students should be facile in programming at least one high-level language. Good knowledge of univariate, parametric statistics

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**CMP\_SC 8750: Artificial Intelligence II**

Further discussion of theories and techniques of artificial intelligence. Investigating state-of-the-art systems with capabilities to perceive, reason, learn and react intelligently to their environment.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4750 or CMP\_SC 7750 or instructor's consent

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**CMP\_SC 8770: Neural Networks**

(same as ECE 8890). The course will consider computing systems based on neural networks and learning models along with implementations and applications of such systems.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4870 or CMP\_SC 7870 or instructor's consent

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**CMP\_SC 8780: Advanced Topics in Computational Intelligence**

(same as ECE 8875). This course is a continuation of ECE 7870/ CMP\_SC 7770 Introduction to Computational Intelligence in the concepts, models, and algorithms for the development of intelligent systems from the standpoint of the computational paradigms of neural networks, fuzzy set theory and fuzzy logic, evolutionary computation, and swarm intelligence. Advanced topics in these areas will be discussed with a focus on applications of these technologies.

**Credit Hours:** 3

**Prerequisites:** ECE 4870 or ECE 7870 or CMP\_SC 4770 or CMP\_SC 7770

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**CMP\_SC 8790: Filtering, Tracking and Data Fusion**

This course will cover theory and applications of rigorous and efficient techniques for determining the state of an observed system from a series of imperfect observations or measurements. Specific topics to be covered include semidefinite matrix theory, the Kalman filter, the Unscented Transform, Covariance Intersection and related techniques. Applications of these techniques include head and hand tracking in virtual reality systems, robotics, and distributed information fusion.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050, MATH 2300 or Linear Algebra or Matrix Theory

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**CMP\_SC 8850: Computer Networks II**

In-depth analysis and evaluation of computer networking architectures, protocols and algorithms, network security, distributed database and computational networks, routing and congestion control, domains and internetworking.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 7850

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**CMP\_SC 8860: Parallel and Distributed Processing**

This course covers basic issues of parallel and distributed processing, including parallel and distributed architectures and models, parallel programming, and parallel algorithms and applications.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4050

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**CMP\_SC 8870: Modeling and Management of Uncertainty**

(same as ECE 8870). Theoretical and practical issues in the modeling and management of uncertainty. Topics include probabilistic uncertainty, belief theory and fuzzy set theory. Applications to computer vision, pattern recognition and expert systems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 4870 or ECE 7870 or CMP\_SC 4770 or CMP\_SC 7770 or instructor's consent

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**CMP\_SC 8980: Research Masters Project in Computer Science**

Investigation and research of a topic, not leading to a thesis. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** departmental consent

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**CMP\_SC 8990: Research-Masters Thesis Computer Science**

Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** advisor's consent

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**CMP\_SC 9990: Research-Doctoral Dissertation Computer Science**

Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** advisor's consent

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**Constitutional Democracy Courses****CNST\_DEM 2004: Topics in Constitutional Democracy - Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent. Graded on A-F basis only.

**Credit Hour:** 1-6

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**CNST\_DEM 2100: The Revolutionary Transformation of Early America**

(same as HIST 2100). In the broadest of terms, this is a course on origins. On one hand, we will devote significant class time to discussing 'the causes which impelled' the colonies to throw off the yoke of British rule. We will examine this on both a practical and a more abstract level, focusing first on writings that delineate why colonists grew to perceive the economic, social, and political conditions of British rule as insufferable, and then on how they translated these practical concerns into a more ideological justification of violent revolution.

**Credit Hours:** 3

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**CNST\_DEM 2100H: The Revolutionary Transformation of Early America - Honors**

(same as HIST 2100H). In the broadest of terms, this is a course on origins. On one hand, we will devote significant class time to discussing 'the causes which impelled' the colonies to throw off the yoke of British rule. We will examine this on both a practical and a more abstract level, focusing first on writings that delineate why colonists grew to perceive the economic, social, and political conditions of British rule as insufferable, and then on how they translated these practical concerns into a more ideological justification of violent revolution.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**CNST\_DEM 2120: The Young Republic**

(same as CNST\_DEM 2120). This course examines the early years of the United States under the (then) new Constitution, an important historical period with which present-day Americans are increasingly unfamiliar. Our focus will be on abandoning our preconceptions about the nation's early history and thoroughly understanding the choices that were posed and made in the years after 1789 and that would determine what type of nation the U.S. would become.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**CNST\_DEM 2120H: The Young Republic - Honors**

(same as HIST 2120H). This course examines the early years of the United States under the (then) new Constitution, an important historical period with which present-day Americans are increasingly unfamiliar. Our focus will be on abandoning our preconceptions about the nation's early history and thoroughly understanding the choices that were posed and made in the years after 1789 and that would determine what type of nation the U.S. would become.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**CNST\_DEM 2150: The American Civil War: A Global History**

(same as HIST 2150). In this class students will study the American Civil War from the perspective of global history. The familiar actors and events will be covered - the debate over slavery, the secession of the South, the rise of Abraham Lincoln, the great battles and generals, etc. But these familiar episodes will take on different meanings when viewed in relation to global structures of politics, economics, social relations, and ideology. The 1860s was at once a formative moment in the history of globalization and the key decade for the formation and consolidation of modern nations.

**Credit Hours:** 3

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**CNST\_DEM 2210: Twentieth Century America**

(same as HIST 2210). Survey of American development from 1900 to present. For students who have not taken advanced courses in American history, especially HIST 4210, HIST 4220, or HIST 4230.

**Credit Hours:** 3

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**CNST\_DEM 2425: Race and the American Story**

(same as BL\_STU 2425, POL\_SC 2425). This course represents a collaboration between the University of Missouri's Department of Black Studies and the Kinder Institute on Constitutional Democracy. Building upon the existing Citizenship@Mizzou program, the course aims to carry forward the goals of the Citizenship program and to further solidify and magnify its impact on campus. In so doing, the course will also serve as a model for improving diversity education on campuses across the country and contribute to a more informed and unified national culture. The core syllabus will consist in readings that tell the story of the confrontation between American political principles and the practice of racial injustice throughout our history. Students will read and discuss the Declaration of Independence, the slavery clauses in the Constitution, the poetry of Phillis Wheatley, and the speeches of Frederick Douglass, Abraham Lincoln, and Martin Luther King, Jr., among others. They will achieve a greater understanding of how diversity relates to humanity, and will learn to dialogue productively and civilly with others who may not share their background or opinions.

**Credit Hours:** 3

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**CNST\_DEM 2445: American Constitutional Democracy**

(same as POL\_SC 2445, HIST 2445). This course offers an introduction to American constitutional democracy. On the one hand, this course will strive to set the development of America's constitutional democracy into its historical context and to explain it in relation to larger social, political, military, and economic events. A second emphasis is on the nature and character of the American democratic system. Graded on A-F basis only.

**Credit Hours:** 3

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**CNST\_DEM 2450: The Intellectual World of the American Founders**

(same as POL\_SC 2450). This course demonstrates that truly understanding the American constitutional and democratic traditions begins with acknowledging and studying how, in framing the Constitution and in imagining the new nation, the Founders drew on the work and cobbled together the ideas of thinkers from multiple eras and continents and, moreover, thinkers of vastly different political ideologies and disciplinary expertise.

**Credit Hours:** 3

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**CNST\_DEM 2450H: The Intellectual World of the American Founders - Honors**

(same as POL\_SC 2450H). This course demonstrates that truly understanding the American constitutional and democratic traditions begins with acknowledging and studying how, in framing the Constitution and in imagining the new nation, the Founders drew on the work and cobbled together the ideas of thinkers from multiple eras and continents and, moreover, thinkers of vastly different political ideologies and disciplinary expertise.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**CNST\_DEM 2455: Constitutional Debates**

(same as POL\_SC 2455). While we will make reference to the work of canonical political thinkers from the Western tradition during the semester - and while we will also, at times, take a broadly philosophical approach to describing certain of the Founders' theses on governance--this is not a course in 'high theory.' Instead, our examination of the process of drafting and ratifying the United States Constitution will be more pragmatic in nature, focusing on the practical problems and questions concerning national governance that shaped the final design of the Constitution. At the same time, this description of the class as one that addresses the Constitution in terms of the practical problems that the Founders saw it solving drastically understates the complexity and contentiousness of the subject matter that we will be examining. Specifically, the readings for the course will allow us to identify the ways in which, and reasons for which, the Founders disagreed not only on how to solve the problems of governance that the nation faced in 1787 but, moreover, on what these problems actually were. With regard to this task of understanding the principles underlying the heated debates that arose during the drafting and ratification process, it should be noted that this is not a class in Framer-worship. While we will discuss why the Federalists ultimately 'won the day,' we will also devote significant attention to how the Anti-Federalists both profoundly influenced how we understand constitutional democracy in the United States and provided an intellectual lineage that still informs contemporary political debate. We will, that is, give each side their due. In addition, we will conclude the semester by considering the Constitution's post-ratification history, looking at a handful of Supreme Court decisions and constitutional amendments in order to think about some of the questions that the 1787 Constitution left un-answered and some of the problems that it left un-solved.

**Credit Hours:** 3

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**CNST\_DEM 2455H: Constitutional Debates - Honors**

(same as POL\_SC 2455H). While we will make reference to the work of canonical political thinkers from the Western tradition during the semester--and while we will also, at times, take a broadly philosophical approach to describing certain of the Founders' theses on governance--this is not a course in 'high theory'. Instead, our examination of the process of drafting and ratifying the United States Constitution will be more pragmatic in nature, focusing on the practical problems and questions concerning national governance that shaped the final design of the Constitution. At the same time, this description of the class as one that addresses the Constitution in terms of the practical problems that the Founders saw it solving drastically understates the complexity and contentiousness of the subject matter that we will be examining. Specifically, the readings for the course will allow us to identify the ways in which, and reasons for which, the Founders disagreed not only on how to solve the problems of governance that the nation faced in 1787 but, moreover, on what these problems actually were. With regard to this task of understanding the principles underlying the heated debates that arose during the drafting and ratification process, it should be noted that this is not a class in Framer-worship. While we will discuss why the Federalists ultimately 'won the day,' we will also devote significant attention to how the Anti-Federalists both profoundly influenced how we understand constitutional democracy in the United States and provided an intellectual lineage that still informs contemporary political debate. We will, that is, give each side their due. In addition, we will conclude the semester by considering the Constitution's post-ratification history, looking at a handful of Supreme Court decisions and constitutional amendments in order to think about some of the questions that the 1787 Constitution left un-answered and some of the problems that it left un-solved.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required; POL\_SC 1100

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**CNST\_DEM 2570: The First World War and its Aftermath**

(same as HIST 2570). This course examines the experience of Europeans in the turbulent years during and immediately following the First World War. After investigating the origins and nature of WWI, we will then examine the political, social and cultural climate of the interwar years.

**Credit Hours:** 3

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**CNST\_DEM 2800: Liberty, Justice and the Common Good**

(same as POL\_SC 2800). Selected great political theorists and their contemporary relevance. How to think critically about political ideas and ideologies.

**Credit Hours:** 3

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**CNST\_DEM 4000: Age of Jefferson**

(same as HIST 4000). Political, constitutional, cultural, and economic developments in United States during formative period of Republic, 1787-1828. Special attention to Constitutional Convention, formation of national political institutions.

**Credit Hours:** 3

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**CNST\_DEM 4040: Slavery and the Crisis of the Union: The American Civil War Era**

(same as BL\_STU 4040, HIST 4040; cross-leveled with HIST 7040). This class explores the history of the Civil War era, a transformative

moment in both U.S. and world history. Our goal is to explore and answer a number of questions of great historical significance: How and why did slavery persist in an age of liberal democracy? Why did the pre-war Union prove unable to tolerate the plural visions and diverse institutions of its people? Was the descent into war more a measure of institutional weakness than of the intensity of moral conflict? What were the constituent elements of the competing wartime 'nationalisms' that evolved in both north and south? How and why did a war that began to restore the Union become one for emancipation? How was it the forerunner of modern, 'total' warfare? Did the governmental, socio-economic and racial changes wrought by war constitute a 'second American revolution'? Were the limits or the achievements of post-war Reconstruction more notable? And, last but certainly not least, how did the triumph of the Union condition the political and economic development of a rapidly globalizing world?

**Credit Hours:** 3

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**CNST\_DEM 4075: Global History in Oxford**

(same as HIST 4075). This course examines global and transnational history in the 'modern' period since 1400. It includes an embedded week of study abroad at Oxford University (United Kingdom) over spring break.

**Credit Hours:** 4

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**CNST\_DEM 4080: American Foreign Policy from Colonial Times to 1898**

(same as HIST 4080, PEA\_ST 4080). This class probes the entwined development of the U.S. nation and empire, to the backdrop of accelerating structures of global economic integration, technological innovation, and the hardening of national, racial, and ideological formations.

**Credit Hours:** 3

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**CNST\_DEM 4100: American Cultural and Intellectual History to 1865**

(same as HIST 4100). Origins and growth of American values and ideas considered in their social context. Topics include: the work ethic, republican politics, revivalism, reform movements, sexual attitudes, literature in the marketplace, Afro-American and slave-holding subcultures.

**Credit Hours:** 3

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**CNST\_DEM 4130: African-American Politics**

(same as POL\_SC 4130, BL\_STU 4130). Surveys political participation of African-Americans in American politics. Analyzes their public lives in the context of elections, behavior of political organizations, social movements, parties, and level of government.

**Credit Hours:** 3

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**CNST\_DEM 4400: History of American Law**

(same as HIST 4400). American law from English origins to present. Reviews common law, codification, legal reform movements, slavery law, administrative state, formalism, legal realism, jurisprudential questions concerning rule of law.

**Credit Hours:** 3

**Recommended:** HIST 1100, HIST 1200, or HIST 1400

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**CNST\_DEM 4800: Political Thought in Classical and Christian Antiquity**

(same as POL\_SC 4800, AMS 4800). Reading and discussion of Greek, Roman, and Early Christian treatises on politics and political life. Survey of the political institutions and procedures of the Greek city states and Roman Republic and Empire. Examination of contemporary Christian responses and adaptations.

**Credit Hours:** 3

**Recommended:** AMS 1060 and junior standing

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**CNST\_DEM 4810: Modern Political Theory**

(same as POL\_SC 4810). Great political theorists from Machiavelli through Marx on the nation state, capitalism, liberalism, conservatism, and Marxism.

**Credit Hours:** 3

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**CNST\_DEM 4830: Democracy in America (and Elsewhere)**

(same as POL\_SC 4830). This course focuses on the dynamics of democracy. We will explore various topics in the history, development, and practice of democracy through an examination of the writings of Alexis de Tocqueville, one of the most insightful and prescient observers of American political culture.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**CNST\_DEM 4840: Developing Dynamics of Democracy**

(same as POL\_SC 4840). This course examines developments in the theory and practice of democracy from the ancient Greeks to the present. Beginning with the origins of democracy in the Hellenic city states, we consider the transformation of democratic concepts in the classical liberal period, review the development of democratic institutions in the United States and Europe, examine the emergence of supra-national democratic institutions such as the European Union, and assess the future of democratization in the 21st century.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**CNST\_DEM 4850: Scots and the Making of America**

(same as POL\_SC 4850). This class is on the influence of the Scottish Enlightenment on the founding of the United States. The Scottish Enlightenment refers to uniquely Scottish advances in social, political, scientific and literary thought that transpired in the 18th and early 19th centuries. This line of thought, especially in its social and political dimensions, was especially influential in shaping the founding of the United States.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**CNST\_DEM 4900: Beltway History and Politics: American Constitutional Democracy in Theory and Practice**

(same as HIST 4900, POL\_SC 4900). This course is an experiential overview of American political history for students participating in the Kinder Forum's Washington internship program, showing how American constitutional democracy was developed and implemented right here on the Potomac, as much as possible in the actual places where the events occurred. Emphasis will be placed on the interplay between

constitutional theory and actual political experience over time, and the tensions and institutional changes that emerged as Americans and their government coped with cataclysmic social changes, unparalleled economic development, and fearsome international challenges.

**Credit Hours:** 3

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**CNST\_DEM 4975: Journal on Constitutional Democracy**

(same as HIST 4975, POL\_SC 4975). The Journal is sponsored by the Kinder Institute on Constitutional Democracy and staffed by current and former participants in the Institute's undergraduate Society of Fellows program. Each volume of the Journal is organized around a student-selected idea or era central to the historical development and philosophical foundations of constitutional democracy in the United States. Student-authored essays address this theme via arguments and historical overviews crafted from the close reading and analysis of primary source documents, with the exception being that participating in the Journal will relate back to and advance students' study of American political thought and history.

**Credit Hour:** 1-3

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**CNST\_DEM 4996: Thesis in Constitutional Democracy**

At the end of their junior year, students majoring in Constitutional Democracy can apply to be a part of one of two, ten-person thesis cohorts who enroll in CNST\_DEM 4996 during the following fall semester (for two credit hours) and the following spring semester (for one credit hour). Students will complete their thesis over the course of this year by hitting certain writing benchmarks along the way and meeting on a consistent basis with their individual advisors as well as their thesis cohort and course instructor. Course meetings will happen once per month during both the fall and spring semesters, at a to be determined time that fits with all thesis cohort members. Graded on A-F basis only.

**Credit Hour:** 1-2

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**CNST\_DEM 7004: Topics in Constitutional Democracy - Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent. Graded on A-F basis only.

**Credit Hour:** 1-6

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**CNST\_DEM 8041: The Making of the Atlantic World**

(same as HIST 8041). Commerce, colonization, enslavement, and warfare connected western Europe, West Africa, and the Americas into an Atlantic world from the fifteenth to the eighteenth century. This course introduces students to several key themes in the scholarship of the Atlantic world: contact and imperial conquest, migration, slavery, servitude, and race, and the interaction of law and society. We will focus on the British Atlantic, and also engage with other framings, including the Iberian and African Atlantics. Graded on A-F basis only.

**Credit Hours:** 3

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**CNST\_DEM 8042: From the Age of Revolutions to the Age of Nation-States, 1760-1900**

(same as HIST 8042). This course will immerse students in the history and historiography of the nineteenth century Atlantic World. The key arc that students will trace is the move from the age of revolutions to

the formation of modern, bureaucratic nation-states, a process which unfolded across the Atlantic basin. Graded on A-F basis only.

**Credit Hours:** 3

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**CNST\_DEM 8045: Atlantic History and Politics**

(same as HIST 8045). In this interdisciplinary graduate course, students will examine some of the most significant texts of the Atlantic world c. 1750-present. They will track the evolution of ideas of liberty, natural rights, politics, and empire that have conditioned the historical development of the Atlantic basin. Graded on A-F basis only.

**Credit Hours:** 3

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**CNST\_DEM 8050: Britain and the World**

(same as HIST 8050). In this course students will engage with the rich and dynamic global history of Great Britain. The core of the course will be daily guest lectures delivered by faculty members of Oxford University. The course also includes three excursions to sites of historical significance within England. Graded on A-F basis only.

**Credit Hours:** 3

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**CNST\_DEM 8060: Kinder Institute Colloquia**

(same as HIST 8060). In this year-long course, students will actively participate in the regular events put on by the Kinder Institute on Constitutional Democracy. The core of the course will be the public lectures, seminar presentations/discussions, workshops, and annual conference sponsored by the Kinder Institute. In addition to actively participating in these events, students will produce reaction papers that provide their assessment and analysis. Graded on A-F only.

**Credit Hours:** 3

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## Data Science Courses

**DATA\_SCI 4001: Topic in Data Science and Analytics**

This course will act as a placeholder for departmental topics course in Data Science and Analytics. The topics and credits may vary, but will pertain to core instructional or emphasis area topics. Graded on A-F basis only.

**Credit Hour:** 1-6

**Prerequisites:** Instructor consent

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**DATA\_SCI 4085: Problems in Data Science and Analytics**

Directed study on a topic in data science and analytics.

**Credit Hour:** 1-6

**Prerequisites:** Instructor's consent

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**DATA\_SCI 4087: Seminar in Data Science and Analytics**

Directed study on a topic in data science and analytics.

**Credit Hour:** 1-6

**Prerequisites:** Instructor's consent

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**DATA\_SCI 7001: Topics in Data Science and Analytics**

Topics and credit may vary from semester to semester. Can be repeated with departmental approval. Graded on A-F basis only.

**Credit Hour:** 1-6

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**DATA\_SCI 7002: Python Programming Boot Camp**

This course teaches students how to program in Python, including use of auxiliary libraries various Python ecosystems. Students are introduced to the iPython notebooks from the SciPy ecosystem, as well Python's use across the spectrum of Data Science courses and topics. Many activities are focus on data ingestion, cleaning, manipulation, and restructuring (e.g., ETL). Graded on A-F basis only.

**Credit Hour:** 1

**Recommended:** Instructor consent

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**DATA\_SCI 7003: Database Basics and SQL Boot Camp**

This course covers a core concepts to heterogeneous data management, including relational databases, NoSQL databases, and other data storage systems. The focus is on making students quickly productive in the use of multiple types of database management systems available on the market for data science work. This includes traditional relational databases, NOSQL databases and graph databases. This course is a 1 credit hour course using the JupyterHub learning environment. Graded on A-F basis only.

**Credit Hour:** 1

**Recommended:** Instructor consent

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**DATA\_SCI 7004: R Statistical Programming Boot Camp**

This course teaches students how to program in R, including use of auxiliary libraries in R focused on various statistical and visualization oriented techniques. Students are introduced to R's use across the spectrum of Data Science courses and topics. Many activities focus on the development of statistical tests, and the use of R for statistical exploration. This course teaches students how to program in R, including use of auxiliary libraries in R focused on various statistical and visualization oriented techniques. Students are introduced to R's use across the spectrum of Data Science courses and topics. Many activities focus on the development of statistical tests, and the use of R for statistical exploration. Graded on A-F basis only.

**Credit Hour:** 1

**Recommended:** Instructor consent

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**DATA\_SCI 7005: Introduction to Statistics for Data Analytics Boot Camp**

This course explores the use of inferential and predictive statistics for data modeling and analytics. Single--variate and multivariate statistical concepts are discussed, as well as intermediate exposure to statistical modeling. Students learn to evaluate model effectiveness and conduct results driven model selection. Statistical and modeling techniques focus on high dimensional data analytics. Topics related to dimensionality reduction are also covered, such as principal component analysis and factor analysis. Graded on A-F basis only.

**Credit Hours:** 2

**Recommended:** Instructor consent

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**DATA\_SCI 7010: Introduction to Data Analytics**

(cross-leveled with DATA\_SCI 4010). An introductory course in data science and analytics. The objective of the course is to give students a broad overview of the various aspects of data analytics such as accessing, cleansing, modeling, visualizing, and interpreting data.

Students will perform hands-on learning of data analytic topics, using technologies such as Python, R, and open source analytic tools. Two Big Data cyberinfrastructure platforms will be introduced through case studies, allowing students to perform data analytical learning modules on modern cloud infrastructure and other relevant technologies. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Basic programming and basic database experience including R, Python, and SQL

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**DATA\_SCI 7011: Introduction to Data Science**

This course is an introduction to the NGA Program of Study in Data Science (PSDS), the concentration areas, and the role of each concentration area in data science. Participants will learn how to receive, if desired, an accredited Graduate Certificate and/or a Master of Science degree in Data Science and Analytics from the University of Missouri. Participants will receive an introduction to software, tools, and resources to be utilized throughout the program. Participants will learn of systematic methodologies for data science projects and the data science pipeline through review of case studies. Graded on S/U basis only.

**Credit Hours:** 2

**Recommended:** Enrollment in NGA Training Program or instructor consent

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**DATA\_SCI 7020: Statistical and Mathematical Foundations for Data Analytics**

(cross-leveled with DATA\_SCI 4020). An intermediate statistics class designed to build the mathematical foundation for students dealing with Big Data phenomena. Topics include discussions of probability, data sampling, data summarization, sampling distributions, statistical inference, statistical pattern analysis, hypothesis testing, regression, and nonparametric inference over multidimensional data collections. Students will engage in Big Data projects using various publicly available data sets and leveraging modern Data Science tools, techniques, and cyberinfrastructure. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Basic understanding of mathematical principles of vectors and matrices, and basic course in probability and statistics

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**DATA\_SCI 7030: Database and Analytics**

(cross-leveled with DATA\_SCI 4030). Covers the Fundamental concepts of current database systems and query methods with emphasis on relational model and non-relational techniques in Big Data environments. Topics include entity-relationship model, relational algebra, indexing, query optimization, normal forms, tuning, security, NoSQL, and data analytics skills in both relational and non-relational environments. Project work involves modern relational DBMS systems and NoSQL environments. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Basic understanding of mathematical principles of vectors and matrices, and basic course in probability and statistics

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**DATA\_SCI 7040: Big Data Visualization**

(cross-leveled with DATA\_SCI 4040). Covers the fundamental concepts of current visualization concepts and technologies. Unlike many data visualization courses, this one focuses on principles of visualization design and the grammar of graphics. These principles are then

implemented in popular contemporary visualization technologies. Students will develop an advanced knowledge of the appropriate selection, modeling, and evaluation of data visualizations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DATA\_SCI 7010 and DATA\_SCI 7030 or instructor's consent

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#### **DATA\_SCI 7263: Digital Strategy II**

This course provides hands on experience using several digital platforms such as Facebook Insights, Google AdWords, Google Analytics, Adobe Analytics, Clarabridge and Topsy. In this course you'll learn digital advertising terminology and jargon, the importance of digital analytics, the role of analysts, qualities of effective analysts, the digital optimization process, web metrics and key performance indicators, as well as the essentials of collaboration and generating support and buy-in while gaining your executive's attention. Graded on A-F basis only.

**Credit Hours:** 3

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#### **DATA\_SCI 8000: Data and Information Ethics**

Introduces the ethics related to Big Data in industry, business, academia, and research settings. Students will learn the social, ethical, legal and policy issues that underpin the big data phenomenon. Discussions and case studies will help guard against the repetition of known mistakes and inadequate preparation. The course content will follow the guidelines to be developed by the Council for Big Data, Ethics, and Society. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** DATA\_SCI 7010 and DATA\_SCI 7040 or instructor's consent

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#### **DATA\_SCI 8001: Advanced Topics in Data Science and Analytics**

Topics and credit may vary from semester to semester. Can be repeated with departmental approval. Graded on A-F basis only.

**Credit Hour:** 1-6

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#### **DATA\_SCI 8010: Data Analytics from Applied Machine Learning**

This course leverages the foundations in statistics and modeling to teach applied concepts in machine learning. Participants will learn various classes of machine learning and modeling techniques, and gain an in-depth understanding how to select appropriate techniques for various data science tasks. Topics cover a spectrum from simple Bayesian modeling to more advanced algorithms such as support vector machines, decision trees/forests, and neural networks. Students learn to incorporate machine learning workflows into data-intensive analytical processes. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DATA\_SCI 7020 or instructor's consent

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#### **DATA\_SCI 8020: Big Data Security**

This course provides an overview of state-of-the-art topics in Big Data Security, looking at data collection (smartphones, sensors, the Web), data storage and processing (scalable relational databases, Hadoop, Spark, etc.), extracting structured data from unstructured data, systems issues (exploiting multicore, security). Securing sensitive data, personal

data and behavioral data while ensuring a respect for privacy will be a focus point in the course Graded on A-F only.

**Credit Hours:** 3

**Prerequisites:** DATA\_SCI 7010 and DATA\_SCI 7030 or instructor's consent

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#### **DATA\_SCI 8080: Big Data Analysis Case Study**

Using a case-study approach, students will engage in discussions on a variety of big data topics relevant to their emphasis area and the realm of Big Data. This course will help students generate ideas and prepare them for the Big Data Capstone. Course work will be performed in small teams, mentored by faculty and/or industry advisors. Teams will research, cultivate, curate, and leverage large data sets. Students will gain hands-on experience applying relevant data science and analytical technology and techniques to gain insight and information from these real-world data sets. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DATA\_SCI 8410, DATA\_SCI 8020, and DATA\_SCI 7040 or instructor's consent

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#### **DATA\_SCI 8085: Problems in Data Science and Analytics**

Directed study on a topic in data science and analytics. Graded on A-F basis only.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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#### **DATA\_SCI 8090: Big Data Capstone**

This course provides an opportunity for participants to tackle a real-world data science project, delivered as a problem-based exercise. Participants will perform the full data science lifecycle methodology on a relevant challenge problem as final learning activity that draws upon all the foundational data science concepts and technologies, as well as specialized technologies and concepts relative to a particular concentration area. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DATA\_SCI 8080 or instructor's consent

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#### **DATA\_SCI 8110: Genomics Analytics**

This course will introduce the foundational concepts of genomics and bioinformatics. Genomics is a combination of biological and computational methods that explore the roles of DNA, genes, and proteins on a very large scale. However, understanding how to interpret and understand the results depends (at least) on a basic understanding of biology. The course does not assume a student has a biological background and it will cover the concepts necessary to implement genomics methods. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DATA\_SCI 7010 or instructor's consent

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#### **DATA\_SCI 8120: Multi-Omics Analytics**

The integration of multiple types of omics data set such as genomics, epigenomics, transcriptomic, proteomic and metabolomics are very important to understand the pathophysiology of human complex diseases. This course will describe the basic concepts of Multiple types of Omics datasets and databases. This course will also focus on various tools and its application in knowledge discovery from multi-omics data set

and its challenges related to preprocessing, analysis and visualization. Hands-on computer experience will be provided through web resources and Jupyter notebook environment. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DATA\_SCI 8110 or instructor's consent

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**DATA\_SCI 8130: Data Science for Health Care**

This course covers the basic concepts surrounding the analysis of health data. Topics include ethics and regulations of protected health data, healthcare data standards, and statistical analysis and dissemination techniques suitable for health care settings. Project work involves accessing and analyzing real (de-identified) health care data. This course focuses on health data analysis that is done in industry, insurance, hospitals and research. Practical, hands-on course with focus on fundamental data science skillsets such as programming in Python and data carpentry. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DATA\_SCI 7010, DATA\_SCI 7030, DATA\_SCI 7040, or instructor's consent

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**DATA\_SCI 8140: Advanced Methods in Health Data Science**

This course covers advanced topics in health data analysis. Students will learn about research informatics and clinical trials, and advanced statistical methods used in health data analysis. Additionally, students will be exposed to new forms of health data processing such as free text data, image data, and longitudinal data. Students will explore the use of machine learning and AI in health care settings, and applied clinical informatics in the form of decision support. Project work involves accessing and analyzing real (de-identified) health care data. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DATA\_SCI 8130 or instructor's consent

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**DATA\_SCI 8150: Precision Medicine Analytics**

This course will provide a wealth of knowledge about understanding translational research and its application in precision medicine. Students will also learn how to leverage the multi-omics data set to improve the clinical outcome and advance the precision medicine strategies by accounting individuals' biological variability. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DATA\_SCI 8110 and DATA\_SCI 8130 or instructor's consent

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**DATA\_SCI 8160: Population Health Analytics**

This course provides an introduction to population health analytics, with a focus on Big Data ecosystem skillsets. Students will gain hands-on experience with large-scale population health data and will prepare original quantitative analysis for presentation. Instructors' lectures are delivered by video and face-to-face interaction. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DATA\_SCI 8130 or instructor's consent

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**DATA\_SCI 8220: Communication Network Analytics**

This course is intended to review theoretical, conceptual, and analytic issues associated with network perspectives on communicating and

organizing. The course will review scholarship on the science of networks in communication across a wide array of disciplines in order to take an in-depth look at theories, methods, and tools to examine the structure and dynamics of networks. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DATA\_SCI 7010 or instructor's consent

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**DATA\_SCI 8230: Streaming Social Media Data Management and Analytics**

An intermediate data wrangling and analysis class designed to provide students with an in-depth overview of collecting and analyzing Twitter data. Computational topics include composing, sending, and receiving Hypertext Transfer Protocol (HTTP) messages. Data wrangling topics include parsing json files, navigating recursively nested structures, and processing textual data. Analysis methods include machine learning, network analysis, topic modeling, time series, etc. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DATA\_SCI 7010 or Instructor's consent

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**DATA\_SCI 8310: Advanced Visualization I**

Covers the fundamental concepts of current visualization concepts and technologies, adding in Infographic and Interactive Visualization Design. Unlike many data visualization courses, this one focuses on principles of visualization design and the grammar of graphics as they can be applied to combining art and technology to tell data stories. These principles are then implemented in popular contemporary visualization technologies. Students will develop an advanced knowledge of the appropriate selection, modeling, and evaluation of data visualizations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DATA\_SCI 7010 or instructor's consent

**Recommended:** Instructor consent

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**DATA\_SCI 8320: Advanced Visualization II**

Covers the fundamental concepts of animated visualization design that build on Infographic and Interactive Visualization Design techniques. Unlike many data visualization courses, this one focuses building animations and highly interactive representations of data. These principles are then implemented in popular contemporary visualization technologies. Students will develop an advanced knowledge of the appropriate selection, modeling, and evaluation of data visualizations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DATA\_SCI 8310 or instructor's consent

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**DATA\_SCI 8410: Data Mining and Information Retrieval**

The course introduces the main concepts and techniques of data mining and information retrieval. It covers a variety of data mining topics and methods to extract hidden and predictive patterns from large data collections. Furthermore, theory and techniques for the modeling, indexing, and retrieval of relational, nonrelational, textbased and multimedia databases is covered. Topics include introduction to data mining process, mining frequent patterns, and pattern analysis, as well as different information retrieval models and evaluation, query languages and operations, and indexing/searching methods. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DATA\_SCI 7010 and DATA\_SCI 7030 or instructor's consent

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**DATA\_SCI 8420: Cloud Computing for Data Analytics**

This course introduces students to cluster and cloud computing big data ecosystems. Topics include a survey of cloud computing platforms, architectures, and use-cases. Students will examine scaling data science techniques and algorithms using a variety of cluster and cloud paradigms, such as those built atop Hadoop (Map-Reduce) concepts, and others. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DATA\_SCI 7020 and DATA\_SCI 7030 or instructor's consent

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**DATA\_SCI 8430: Parallel Computing for Data Analytics**

This course will provide in-depth treatment of the evolution of high performance, parallel computing architectures and how these architectures and computational ecosystems support data science. We will cover topics such as: parallel algorithms for numerical processing, parallel data search, and other parallel computing algorithms which facilitate advanced analytics. To reinforce lecture topics, learning activities will be completed using parallel computing techniques for modern multicore and multi-node systems. Parallel algorithms will be investigated, selected, and then developed for various scientific data analytics problems. Programming projects will be completed using Python and R, leveraging various parallel and distributed computing infrastructure such as AWS Elastic Map Reduce and Google Big Query. Students will research emerging parallel and scalable architectures for data analytics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DATA\_SCI 7020 and DATA\_SCI 7030 or instructor's consent

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**DATA\_SCI 8510: Geospatial Data Engineering**

This course provides an overview of theoretical and practical issues encountered when working with geospatial data for both the vector and raster data models with a focus on incorporating geospatial data into the data science lifecycle. Data access, indexing, retrieval, and other technical concepts are investigated. Important data storage paradigms such as enterprise geospatial databases and desktop GIS systems are explored along with scalable computational tools beyond desktop computing for Geospatial Big Data. Core issues in geospatial data storage, management, exploitation, and multi-data set entity resolution / correlation are examined. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DATA\_SCI 7030 or instructor's consent

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**DATA\_SCI 8520: Spatial and Geostatistical Analysis**

This course will provide a practical overview of key issues encountered when working with and analyzing spatial data as well as an overview of major spatial analysis approaches. Discussions and laboratory work will focus on implementation, analysis, and interpretive issues given constraining factors that commonly arise in practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DATA\_SCI 8510 or instructor's consent

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**DATA\_SCI 8530: Remote Sensing Data Analytics**

Introduction to the principles of remote sensing of the environment leading to information extraction from remote sensing geospatial raster data sets. Examines theoretical and practical issues associated with digital imagery from spacecraft and airborne systems, thermal imaging, and microwave remote sensing. Covers standard processing techniques, including preprocessing and normalization, pixel-level feature extraction, information extraction, and structural/object extraction. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DATA\_SCI 8510 or instructor's consent

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## Dermatology Courses

**DERM 6047: SCC Dermatology Elective**

The Dermatology rotation is designed to provide the medical student with a broad general base in clinical dermatology. Dermatology Clinic is an integral part of the student's experience on this rotation. Students participate in the evaluation of patients with skin disease at a community based clinic. Students may participate in the evaluation and management of patients with complex, often serious, dermatologic conditions under the supervision of the attending physician. Students may also participate in Dermatologic inpatient consultations. Students may also assist in Dermatologic procedures.

**Credit Hours:** 5

**Prerequisites:** Successful completion of the first two years of medical school. Successful completion of the Medicine Clerkship

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**DERM 6233: ABS Dermatology Research**

ABS Dermatology Research

**Credit Hours:** 5

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**DERM 6450: Dermatology I**

The Dermatology rotation is designed to provide the medical student with a broad general base in clinical dermatology for the non-dermatologist. During the rotation the student should: Enhance the visual diagnostic skills and related reasoning used in dermatology; Become familiar with a select list of dermatologic conditions commonly seen and best treated by the non-dermatologist; Gain familiarity with certain dermatologic conditions which require a high index of suspicion by all physicians because of their danger to life or risks to public health; Become familiar with dermatologic treatment regimens for the non-dermatologist and guidelines for appropriate referral of cases; Learn appropriate use of both systemic and topical dermatologic medications; Learn basic punch, shave, and excisional biopsy techniques; Become proficient in skin surveillance, especially early detection of skin cancer. Students are evaluated using a standard evaluation. The student's knowledge of subject matter is evaluated in the following settings: informal discussion during clinics, ward rounds, inpatient consultation rounds and scheduled conferences.

**Credit Hours:** 5

**Prerequisites:** Internal Medicine Clerkship

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**DERM 6750: Dermatology I - Rural**

The Dermatology rotation is designed to provide the medical student with a broad general base in clinical dermatology for the non-dermatologist. During the rotation the student should: Enhance the visual diagnostic skills and related reasoning used in dermatology. Become familiar with a select list of dermatologic conditions commonly seen and best treated by the non-dermatologist. Gain familiarity with certain dermatologic conditions which require a high index of suspicion by all physicians because of their danger to life or risks to public health. Become familiar with dermatologic treatment regimens for the non-dermatologist and guidelines for appropriate referral of cases. Learn appropriate use of both systemic and topical dermatologic medications. Learn basic punch, shave, and excisional biopsy techniques. Become proficient in skin surveillance, especially early detection of skin cancer.

**Credit Hours:** 5

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**DERM 6856: Dermatology II**

This elective rotation is an expansion of the objective goals outlined for Dermatology I. The student is expected to expand the depth and breadth of his/her dermatology experiences and knowledge. Enhance the visual diagnostic skills and related reasoning used in dermatology. Become familiar with a select list of dermatologic conditions commonly seen and best treated by the non-dermatologist. Gain familiarity with certain dermatologic conditions which require a high index of suspicion by all physicians because of their danger to life or risks to public health. Become familiar with dermatologic treatment regimens for the non-dermatologist and guidelines for appropriate referral of cases. Learn appropriate use of both systemic and topical dermatologic medications. Learn basic punch, shave, and excisional biopsy techniques. Become proficient in skin surveillance, especially early detection of skin cancer. As Dermatology II is an extension of the Dermatology I curriculum, Dermatology II students are expected to master the above objectives. In addition, they are expected to expand their clinical skills related to the diagnosis and treatment of dermatologic diseases and they will have increased responsibilities for patient education. It is expected that they will further their surgical skills including biopsies, simple excisions, and basic cryotherapy. They will also become proficient in basic laboratory procedures including KOH and scabies prep.

**Credit Hours:** 5

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**DERM 6901: SCC Dermatology 2-week**

The two-week elective in Dermatology will allow students to participate in a wide breadth of general, pediatric, and surgical dermatology. Students will also complete the American Academy of Dermatology online student modules and the self-evaluation that is provided.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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**DERM 6910: Clinical Dermatology Elective**

The 2 week elective in Dermatology will allow students to participate in a wide breadth of general, pediatric, and surgical dermatology. Students will participate in clinics and in weekly didactic sessions. Students will also complete the American Academy of Dermatology online student modules and the self-evaluation that is provided.

**Credit Hours:** 2

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**Prerequisites:** Successful completion of the first two years of medical school. Must have completed at least 1 core clinical rotation

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## Diagnostic Medical Ultrasound Courses

**DMU 1000: Introduction to Diagnostic Medical Ultrasound**

Introduction to the profession of diagnostic medical ultrasound. Imaging characteristics, educational requirements, professional trends. Observation opportunities. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Departmental consent required

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**DMU 3212: Sectional Anatomy**

A study of human anatomy using the sectional approach; anatomical structures will be related to modern medical imaging techniques. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 3309: Normal Ultrasound Clinical**

Integration of ultrasound instrumentation and clinical practice in a laboratory setting. Interaction between the sonographer, equipment and patient.

**Credit Hours:** 5

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 3313: Ultrasound Physics**

Principles of diagnostic ultrasound physics. Sound wave characteristics, tissue interaction, power intensity, and Doppler physics.

**Credit Hours:** 3

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 3315: Ultrasound Instrumentation**

Integration of ultrasound physics and instrumentation components in a laboratory setting. Practice in modes of operation and safety.

**Credit Hours:** 3

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 3322: Superficial Organs Ultrasound**

Ultrasound evaluation and diagnosis of normal and abnormal superficial organs; thyroid gland, testes, breasts, soft tissues and musculoskeletal.

**Credit Hours:** 3

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 4001: Topics in Diagnostic Medical Ultrasound**

Organized study of selected topics in medical ultrasound. Topics may vary. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1-99

**Prerequisites:** restricted to Diagnostic Medical Ultrasound undergraduate students

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**DMU 4001W: Topics in Diagnostic Medical Ultrasound - Writing Intensive**

Organized study of selected topics in medical ultrasound. Topics may vary. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1-99

**Prerequisites:** restricted to Diagnostic Medical Ultrasound undergraduate students

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**DMU 4085: Problems in Diagnostic Medical Ultrasound**

Independent study leading to a special project or paper. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1-99

**Prerequisites:** restricted to Diagnostic Medical Ultrasound undergraduate students only

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**DMU 4085W: Problems in Diagnostic Medical Ultrasound - Writing Intensive**

Independent study leading to a special project or paper. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1-99

**Prerequisites:** restricted to Diagnostic Medical Ultrasound undergraduate students only

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**DMU 4200: Principles of Diagnostic Medical Ultrasound**

Principles and history of ultrasound, ultrasound equipment, sonographic techniques, aspects of patient care.

**Credit Hours:** 3

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students only

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**DMU 4234: Clinical Pathophysiology**

(cross-leveled with DMU 7234). Abnormal function of organ systems in the presence of disease; clinical manifestations and medical management.

**Credit Hours:** 3

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**DMU 4234W: Clinical Pathophysiology - Writing Intensive**

Abnormal function of organ systems in the presence of disease; clinical manifestations and medical management.

**Credit Hours:** 3

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**DMU 4311: Pathological Images of Ultrasound**

(cross-leveled with DMU 7311). Disease presentation in ultrasound imaging. Practical aspects of ultrasound scanning techniques in pathology.

**Credit Hours:** 3

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 4314: Abdominal Ultrasound**

(cross-leveled with DMU 7314). Differentiation between normal and pathological ultrasound studies of the abdomen. Differential diagnosis of pathological states.

**Credit Hours:** 5

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 4318: Gynecology Ultrasound**

(cross-leveled with DMU 7318). Study of normal and abnormal gynecological ultrasound anatomy. Distinction between normal and pathological states and ultrasound differential diagnosis.

**Credit Hours:** 3

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 4320: Obstetrics Ultrasound**

(cross-leveled with DMU 7320). Study of normal and abnormal obstetrical ultrasound anatomy. Distinction between normal and pathological OB ultrasound studies with emphasis on differential diagnosis.

**Credit Hours:** 3

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 4325: Ultrasound Clinical Pharmacology and Contrast Agents**

(cross-leveled with DMU 7325). Study of the biophysical, biochemical and complete action of ultrasound contrast agents and other drugs used in Diagnostic Medical Ultrasound and their pharmacodynamics.

**Credit Hours:** 3

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound

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**DMU 4326: Vascular Ultrasound Physics, Instrumentation and Hemodynamics**

(cross-leveled with DMU 7326). Study of vascular principles and fundamentals including physics and instrumentation. Emphasis on ultrasound wave characteristics, Doppler principles, tissue interaction and hemodynamics.

**Credit Hours:** 3

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 4330: Vascular Ultrasound Lab**

(cross-leveled with DMU 7330). Vascular ultrasound scanning techniques, protocols, measurements, film/video critique, and Plethysmography in a clinical lab setting.

**Credit Hours:** 3

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 4332: Vascular Ultrasound**

(cross-leveled with DMU 7332). Vascular ultrasound for normal and pathological processes: study of disease, correlation of patients' clinical data and ultrasound findings used in differential diagnosis.

**Credit Hours:** 4

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 4342: Adult Cardiac Ultrasound**

(cross-leveled with DMU 7342). Provides principles of diagnostic adult cardiac ultrasound in relation to pathology, further presenting the practical aspects of scanning techniques, exam critique, patient care in relation to cardiac US exams. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites:** DMU 3313, DMU 3315 and DMU 4338; instructor's consent

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**DMU 4941: Ultrasound Clinical I**

(cross-leveled with DMU 7941). Application of medical ultrasound in supervised clinical settings. Decisions regarding diagnosis, patient handling and imaging.

**Credit Hours:** 7

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 4943: Ultrasound Clinical III**

(cross-leveled with DMU 7943). Final clinical application of general medical ultrasound practicum in supervised clinical settings. Further enhancement of practice, decision making, patient handling, image processing and case studies.

**Credit Hours:** 6

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 4944: Vascular Ultrasound Clinical IV**

(cross-leveled with DMU 7944). Application of diagnostic vascular ultrasound in supervised clinical settings: practice, decision making, patient handling and image processing.

**Credit Hours:** 7

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 4945: Cardiac Ultrasound Clinical V**

(cross-leveled with DMU 7945). Application of ultrasonography in real clinical settings for learning, practicing and decision making regarding, patient handling and imaging process with students supervised in a clinical setting. Graded on A-F basis only.

**Credit Hours:** 6

**Prerequisites:** DMU 3313, DMU 3315, and DMU 4944. Instructor and Departmental permission required

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**DMU 4946: Cardiac Ultrasound Clinical VI**

(cross-leveled with DMU 7946). Further application of ultrasonography for continuation of learning, practicing and decision making, patient handling and imaging process with students supervised in a clinical setting. Graded on A-F basis only.

**Credit Hours:** 6

**Prerequisites:** DMU 3313, DMU 3315, DMU 4338 and DMU 4945. Instructor and Departmental permission required

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**DMU 4993: Ultrasound Clinical II**

(cross-leveled with DMU 7993). Application of medical ultrasound in supervised clinical settings with practice and decision making related to ultrasound diagnosis, patient handling and image processing.

**Credit Hours:** 8

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 7200: Diagnostic Medical Ultrasound Principles and Patient Care**

Introduction diagnostic medical ultrasound principles including history, development, ultrasound physics - equipment fundamentals. Provides introduction to concepts of sonographic techniques, positioning, image critique, aspects of patient care and professional organizations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Graduate Diagnostic Medical Ultrasound students

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**DMU 7234: Clinical Pathophysiology**

(cross-leveled with DMU 4234). Abnormal function of organ systems in the presence of disease; clinical manifestations and medical management.

**Credit Hours:** 3

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**DMU 7309: Normal Ultrasound Clinical**

Integration of ultrasound instrumentation and clinical practice in a laboratory setting. Interaction between the sonographer, equipment and patient.

**Credit Hours:** 5

**Prerequisites:** admitted to the DMU program

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**DMU 7311: Pathological Images Ultrasound**

(cross-leveled with DMU 4311). Disease presentation in ultrasound imaging. Practical aspects of ultrasound scanning techniques in pathology.

**Credit Hours:** 3

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 7312: Sectional Anatomy**

(same as RA\_SCI 7110; cross-leveled with RA\_SCI 4110). A study of human anatomy using the sectional approach; anatomical structures will be related to modern medical imaging techniques.

**Credit Hours:** 3

**Prerequisites:** Restricted to Graduate Diagnostic Medical Ultrasound students

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**DMU 7313: Ultrasound Physics**

Principles of diagnostic ultrasound physics. Sound wave characteristics, tissue interaction, power intensity, and Doppler physics.

**Credit Hours:** 3

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

---

**DMU 7314: Abdominal Ultrasound**

(cross-leveled with DMU 4314). Differentiation between normal and pathological ultrasound studies of the abdomen. Differential diagnosis of pathological states.

**Credit Hours:** 5

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

---

**DMU 7315: Ultrasound Instrumentation**

Integration of ultrasound physics and instrumentation components in a laboratory setting. Practice in modes of operation and safety.

**Credit Hours:** 3

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 7318: Gynecology Ultrasound**

(cross-leveled with DMU 4318). Study of normal and abnormal gynecological ultrasound anatomy. Distinction between normal and pathological states and ultrasound differential diagnosis.

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**Credit Hours:** 3

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 7320: Obstetrics Ultrasound**

(cross-leveled with DMU 4320). Study of normal and abnormal obstetrical ultrasound anatomy. Distinction between normal and pathological OB ultrasound studies with emphasis on differential diagnosis.

**Credit Hours:** 3

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 7322: Superficial Organs Ultrasound**

Ultrasound evaluation and diagnosis of normal and abnormal superficial organs; thyroid gland, testes, breasts, soft tissues and musculoskeletal.

**Credit Hours:** 3

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 7325: Ultrasound Clinical Pharmacology and Contrast Agents**

(cross-leveled with DMU 4325). Study of the biophysical, biochemical and complete action of ultrasound contrast agents and other drugs used in DMU and their pharmacodynamics.

**Credit Hours:** 3

**Prerequisites:** Restricted to Graduate Diagnostic Medical Ultrasound majors

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**DMU 7326: Vascular Ultrasound Physics, Instrumentation and Hemodynamics**

(cross-leveled with DMU 4326). Study of vascular principles and fundamentals including physics and instrumentation. Emphasis on ultrasound wave characteristics, Doppler principles, tissue interaction and hemodynamics.

**Credit Hours:** 3

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 7330: Vascular Ultrasound Lab**

(cross-leveled with DMU 4330). Vascular ultrasound scanning techniques, protocols, measurements, film/video critique, and Plethysmography in a clinical lab setting.

**Credit Hours:** 3

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 7332: Vascular Ultrasound**

(cross-leveled with DMU 4332). Vascular ultrasound for normal and pathological processes: study of disease, correlation of patients' clinical data and ultrasound findings used in differential diagnosis.

**Credit Hours:** 4

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 7338: Cardiac Ultrasound, Principles and Hemodynamics**

(cross-leveled with DMU 4338). Study of cardiac ultrasound fundamentals including: wave characteristics, principles of 2-D/3-D/4-D imaging, M-mode, and Doppler, cardiac anatomy and physiology, embryology, evaluation methods and hemodynamics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 7342: Adult Cardiac Ultrasound**

(cross-leveled with DMU 4342). Study of adult cardiac ultrasound for normal and pathological processes. Differential diagnosis of cardiac disease through correlation of patients' clinical data and ultrasound findings.

**Credit Hours:** 5

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 7941: Ultrasound Clinical I**

(cross-leveled with DMU 4941). Application of medical ultrasound in supervised clinical settings. Decisions regarding diagnosis, patient handling and imaging.

**Credit Hours:** 7

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 7943: Ultrasound Clinical III**

(cross-leveled with DMU 4943). Final clinical application of general medical ultrasound practicum in supervised clinical settings. Further enhancement of practice, decision making, patient handling, image processing and case studies.

**Credit Hours:** 6

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 7944: Vascular Ultrasound Clinical IV**

(cross-leveled with DMU 4944). Application of diagnostic vascular ultrasound in supervised clinical settings: practice, decision making, patient handling and image processing.

**Credit Hours:** 7

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 7945: Cardiac Ultrasound Clinical V**

(cross-leveled with DMU 4945). Application of diagnostic cardiac ultrasound in supervised clinical settings: practice and decision making regarding echocardiography, patient handling and image processing.

**Credit Hours:** 6

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 7946: Cardiac Ultrasound Clinical VI**

(cross-leveled with DMU 4946). Further enhancement of diagnostic cardiac ultrasound in supervised clinical settings: practice and decision making regarding echocardiography, patient handling and image processing.

**Credit Hours:** 6

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 7993: Ultrasound Clinical II**

(cross-leveled with DMU 4993). Application of medical ultrasound in supervised clinical settings with practice and decision making related to ultrasound diagnosis, patient handling and image processing.

**Credit Hours:** 8

**Prerequisites:** Restricted to Graduate Diagnostic Medical Ultrasound students

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**DMU 8001: Topics in Diagnostic Medical Ultrasound**

Organized study of selected topics. Topic may vary.

**Credit Hour:** 1-3

**Prerequisites:** restricted to students enrolled in the Diagnostic Medical Ultrasound program only

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**DMU 8050: Research in Diagnostic Medical Ultrasound**

Research not leading to a thesis or dissertation. Graded on an A-F basis only.

**Credit Hour:** 1-99

**Prerequisites:** restricted to students enrolled in the Diagnostic Medical Ultrasound program only

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**DMU 8085: Problems in Diagnostic Medical Ultrasound**

Independent study of a special project involving clinical applications or research. Topic may vary.

**Credit Hour:** 1-99

**Prerequisites:** restricted to students enrolled in the Diagnostic Medical Ultrasound program only

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**DMU 8346: Pediatric Cardiac Ultrasound**

Study of pediatric cardiac ultrasound for normal and pathological processes. Differential diagnosis of cardiac disease through correlation of patients' clinical data and ultrasound findings.

**Credit Hours:** 4

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 8947: Applied Clinical Research & Practicum**

Clinical research application of cardiovascular & general ultrasound in clinical environment: clinical research, practicum, decision making, patient handling, and image processing. Graded on A-F basis only.

**Credit Hour:** 5-8

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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## Digital Storytelling-Visual Studies Courses

**DST\_VS 1800: Introduction to Film Studies**

(same as FILMS\_VS 1800, ENGLSH 1800). Introduction to terms and concepts for film analysis, including mise-en-scene, cinematography, editing, sound, narrative, genre, and other elements. No credit for students who have completed FILMS\_VS 2810. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Freshmen and sophomores only or instructor's consent

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**DST\_VS 1880: Introduction to Digital Media Production**

(same as ENGLSH 1880, FILMS\_VS 1880, ARTGE\_VS 1920, COMMUN 1880). Introduction to concepts and skills for Digital Storytelling, including media literacy and forms of narrative manifested historically and currently across a range of media. This course focuses on theories and concepts that support the critical analysis and creation of contemporary narrative in digital form with particular attention to audio, visual and written communication. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Enrollment limited to declared DST majors during early registration

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**DST\_VS 1880H: Introduction to Digital Media Production - Honors**

(same as ENGLSH 1880, FILM\_S 1880, ARTGE\_VS 1920, COMMUN 1880). Introduction to concepts and skills for Digital Storytelling, including media literacy and forms of narrative manifested historically and currently across a range of media. This course focuses on theories and concepts that support the critical analysis and creation of contemporary narrative in digital form with particular attention to audio, visual and written communication. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Enrollment limited to declared DST majors during early registration; Honors eligibility required

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**DST\_VS 2001: Topics in Digital Storytelling**

Organized study of selected topics in Digital Storytelling. Subject may vary from semester to semester. May be repeated with consent of instructor. Graded on A-F basis only.

**Credit Hours:** 3

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**DST\_VS 2005: Topics in Digital Storytelling**

Organized study of selected topics in Digital Storytelling. Subject may vary from semester to semester. May be repeated with consent of instructor. Graded on A-F basis only.

**Credit Hours:** 3

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**DST\_VS 2005H: Topics in Digital Storytelling - Honors**

Organized study of selected topics in Digital Storytelling. Subject may vary from semester to semester. May be repeated with consent of instructor. Graded on A-F basis only. Prerequisites: Honors eligibility required

**Credit Hours:** 3

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**DST\_VS 2810: Story Development**

(same as COMMUN 2810). In this course students will learn about storytelling across time and media, beginning with definitions and fundamentals of narrative and oral storytelling, theories of narrative and its cultural functions, and basic narrative analysis. The course then turns to the close study of structure, narration, character, plot, action, dialogue, and other narrative elements, with a wide variety of examples and prompts. Throughout the course, students practice the development of their own stories in multiple versions and formats, with attention to the ways that formal structures such as blogs, tweets, podcasts, and scripts affect their storytelling strategies. By the end of the course, students will produce a short shooting script or equivalent project ready for production. Thus, the course functions as preparation for audio-visual production courses in Film Studies, Media Studies, Film and Media Arts, and Digital Storytelling degree programs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Enrollment limited to declared DST majors during early registration

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**DST\_VS 2820: Immersive Storytelling**

(same as THEATR 2220). This class introduces the student to the basic principles of immersive theatre and immersive storytelling. Students

learn about the history, practice, theory, and critical issues related to immersive theatre and immersive storytelling, including performance art, environmental theatre, happenings, interactive theatre, site specific performance, installation art, video art, projection art, multimedia, intermediality, mediatization, 3D video, 360 video, augmented reality, virtual reality, and mixed reality. Projects provide opportunities for experiences in immersive theatre and immersive storytelling.

**Credit Hours:** 3

**Recommended:** DST\_VS 1880

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#### **DST\_VS 2830: Video Art I**

Video as a fine art form intersecting with sculpture, experimental filmmaking, and Internet culture. Theoretical and historical knowledge is integrated with studio practice. Students create video works in Adobe Premiere Pro, demonstrating technical ability and aesthetic vision. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DST\_VS 1880, FILMS\_VS 1880, ENGLSH 1880 or ARTGE\_VS 1920

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#### **DST\_VS 2860: Film Themes and Genres**

(same as ENGLSH 2860, FILMS\_VS 2860). Topics (e.g. film noir, African-American filmmakers, food and film, the western) announced at time of registration.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1800 or FILMS\_VS 1800

**Recommended:** ENGLSH 1000

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#### **DST\_VS 2880: Digital Storytelling Production I**

(same as ENGLSH 2880, COMMUN 2880). Digital Storytelling Production I teaches agility with digital video technology through applied experiences. Assignments in digital video production emphasize how video narratives are created and how images and audio enhance the structure, mood, and theme of the narrative. Instruction will focus on planning a video production and developing the tools and practices in lighting, sound recording, image capturing, and editing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DST\_VS 1880 or ENGLSH 1880 or FILMS\_VS 1880 or ARTGE\_VS 1920 or consent of instructor. Enrollment limited to declared DST majors during early registration

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#### **DST\_VS 2885: Digital Storytelling Animation Production I**

(same as ENGLSH 2885). Introduction to all aspects of digital animation and elements of the 3D computer animation production pipeline, including story drafting and production planning, polygonal modeling and texturing, rigging, key framing, lighting, compositing rendered images, and editing into a short finished film. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DST\_VS 1880 or ENGLSH 1880 or FILMS\_VS 1880 or ARTGE\_VS 1920 or instructor consent. Enrollment limited to declared DST majors during early enrollment

**Recommended:** ENGLSH 1000

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#### **DST\_VS 3001: Topics in Digital Storytelling**

Organized study of selected topics in Digital Storytelling. Subject may vary from semester to semester. May be repeated with consent of instructor. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Sophomore standing

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#### **DST\_VS 3005: Topics in Digital Storytelling**

Organized study of selected topics in Digital Storytelling. Subject may vary from semester to semester. May be repeated with consent of instructor. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Sophomore standing

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#### **DST\_VS 3005W: Topics in Digital Storytelling**

Organized study of selected topics in Digital Storytelling. Subject may vary from semester to semester. May be repeated with consent of instructor. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Sophomore standing

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#### **DST\_VS 3510: Think Global: Fundamentals of Globalization and Digital Technology**

(same as GERMAN 3510, JOURN 3510, PEA\_ST 3510, T\_A\_M 3010). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

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#### **DST\_VS 3510H: Think Global: Fundamentals of Globalization and Digital Technologies - Honors**

(same as GERMAN 3510H, JOURN 3510H, PEA\_ST 3510H, T\_A\_M 3010H). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing; 2.75 GPA or instructor's consent. Honors eligibility required

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#### **DST\_VS 3510HW: Think Global: Fundamentals of Globalization and Digital Technologies - Honors/Writing Intensive**

(same as JOURN 3510HW, T\_A\_M 3010HW, PEA\_ST 3510HW, GERMAN 3510HW). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing; 2.75 GPA or instructor's consent. Honors eligibility required

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**DST\_VS 3510W: Think Global: Fundamentals of Globalization and Digital Technology - Writing Intensive**

(same as GERMAN 3510W, JOURN 3510W, PEA\_ST 3510W, T\_A\_M 3010W). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

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**DST\_VS 3855: Documentary Film**

(same as ENGLISH 3855, FILMS\_VS 3855). Surveys the history of documentary film including the development of subgenres, sound and voice over in documentary, re-enactment, ethical issues in documentary film production, and more. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**DST\_VS 3860: Special Themes in Digital Storytelling**

Themes (e.g., Indigenous digital studies, folklore and the internet) announced at time of registration. No more than six hours may be taken in the Special Themes in Digital Storytelling. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**DST\_VS 3880: Writing and Theory for Digital Media**

(same as ENGLISH 3880). Writing and Theory for Digital Media teaches the skills, methods and theoretical frameworks needed to write for new media. Students will study and practice writing for web-based and digital media platforms, including short-form modes such as Twitter and various social media sites; longer-form modes such as blogs, vlogs and podcasts; and the emerging possibilities of locative and interactive media. Assignments emphasize the professional and creative possibilities of new media production. In addition to the hands-on creation for audio, screen-based, networked, and hybrid forms of digital media, students will also read, discuss, and write about work by new media theorists. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DST 1880 or ENGLISH 1880 or FILM\_S 1880 or ART\_GNRL 1920 or instructor consent. Enrollment limited to declared DST majors during early enrollment

**Recommended:** Sophomore standing or above; ENGLISH 1000

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**DST\_VS 3880W: Writing and Theory for Digital Media - Writing Intensive**

(same as ENGLISH 3880W). Writing and Theory for Digital Media teaches the skills, methods and theoretical frameworks needed to write for new media. Students will study and practice writing for web-based and digital media platforms, including blogs, podcasts, vlogs, and the emerging possibilities of locative and interactive media. Assignments emphasize the professional and creative possibilities of new media production. In addition to the hands-on creation for audio, screen-based, networked,

and hybrid forms of digital media, students will also read, discuss, and write about work by new media theorists. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DST\_VS 1880 or ENGLISH 1880 or FILMS\_VS 1880 or ARTGE\_VS 1920 or instructor consent. Enrollment limited to declared DST majors during early enrollment

**Recommended:** Sophomore standing or above; ENGLISH 1000

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**DST\_VS 3885: Audio Storytelling**

Students in this course explore the skills, methods and theoretical frameworks needed to produce audio for new media and to understand the relationship between audio and digital culture. Students will study and practice writing and producing for web-based and digital media platforms. Assignments emphasize the professional and creative possibilities of new media production with an emphasis on audio. In addition to the hands-on creation of audio for radio, podcast, as well as screen-based, networked, and hybrid forms of digital media, students will also read, discuss, and write about work by producers and radio historians and theorists. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DST\_VS 1880/ENGLISH 1880/FILMS\_VS 1880/ARTGE\_VS 1920 or consent of instructor

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**DST\_VS 3885W: Audio Storytelling - Writing Intensive**

Students in this course explore the skills, methods and theoretical frameworks needed to produce audio for new media and to understand the relationship between audio and digital culture. Students will study and practice writing and producing for web-based and digital media platforms. Assignments emphasize the professional and creative possibilities of new media production with an emphasis on audio. In addition to the hands-on creation of audio for radio, podcast, as well as screen-based, networked, and hybrid forms of digital media, students will also read, discuss, and write about work by producers and radio historians and theorists. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DST\_VS 1880/ENGLISH 1880/FILMS\_VS 1880/ARTGE\_VS 1920 or consent of instructor

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**DST\_VS 4005: Topics in Digital Storytelling**

Advanced study of selected topics in Digital Storytelling. Subject may vary from semester to semester. May be repeated with consent of instructor. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Sophomore standing

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**DST\_VS 4005W: Topics in Digital Storytelling - Humanities - Writing Intensive**

Advanced study of selected topics in Digital Storytelling. Subject may vary from semester to semester. May be repeated with consent of instructor. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Sophomore standing

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**DST\_VS 4805: Case Studies in an Inter/Multicultural World**

(same as GERMAN 4810, PEA\_ST 4810, T\_A\_M 4810). This interdepartmental course examines the ways in which people across the

globe are affected every day by an unprecedented array of linkages that defy geographic and political boundaries. Also serves as one of the seminars for the certificate in Digital Global Studies. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing

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**DST\_VS 4810: Film Theory**

(same as ENGLISH 4810, FILMS\_VS 4810). This course explores contemporary trends in film theory. Topics may include: psychoanalysis, feminism, Marxism, cultural studies, queer theory, audience and star studies, post colonialism, among others.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and ENGLISH 1800 or FILMS\_VS 1800; junior standing

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**DST\_VS 4830: Video Art II**

Video as a fine art form intersecting with sculpture, experimental filmmaking, and Internet culture. Theoretical and historical knowledge is integrated with studio practice. Students create more advanced video works in Adobe Premiere Pro, demonstrating technical ability and aesthetic vision. Projections and video installation works will be emphasized. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DST\_VS 1880, FILMS\_VS 1880, ENGLISH 1880 or ARTGE\_VS 1920 and DST\_VS 2830 or ARTGE\_VS 4030

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**DST\_VS 4840: Culture and Media**

(same as ENGLISH 4840, FILMS\_VS 4840). Topics (e.g. Cinema and Imperialism, Indigenous Media, Ethnographic Documentary) announced at time of registration.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and ENGLISH 1800 or FILMS\_VS 1800; junior standing or instructor's consent required

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**DST\_VS 4880: Digital Storytelling Production II**

(same as ENGLISH 4880, COMMUN 4880). Digital Storytelling Production II introduces students to advanced techniques in digital storytelling production, while further developing skills in script writing, storyboarding, Adobe Premiere Pro, and video production with DSLR cameras. Assignments in digital video production emphasize how video narratives are created and how images and audio enhance the structure, mood, and theme of the narrative. Instruction will focus on planning a video production and developing the tools and practices in lighting, sound recording, image capturing, and editing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and DST\_VS 1880 or ENGLISH 1880 or FILMS\_VS 1880 or ARTGE\_VS 1920 and DST\_VS 2880 or ENGLISH 2880 and sophomore standing, or consent of instructor. Enrollment is limited to declared DST majors during early registration

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**DST\_VS 4885: Digital Storytelling Animation Production II**

Advanced instruction in various aspects of digital animation and elements of the 3D computer animation production pipeline, including story drafting and production planning, polygonal modeling and texturing, rigging, key

framing, lighting, compositing rendered images, and editing into a short finished film. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and DST 1880 or ENGLISH 1880 or FILM\_S 1880 or ART\_GNRL 1920 and DST 2885 or ENGLISH 2885 and sophomore standing, or consent of instructor. Enrollment limited to DST majors during early registration

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**DST\_VS 4930: Digital Storytelling Practicum**

This course provides an opportunity for experiential learning in digital storytelling practice. Students will receive hands-on training through an intensive master class. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** Instructor's consent

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**DST\_VS 4940: Digital Storytelling Internship**

Students work in an agency or institution using their digital storytelling skills for one to three credit hours. Graded on an S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** Program consent

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**DST\_VS 4955: Independent Research in Digital Storytelling**

Development of a carefully considered research project under close supervision of a faculty member. Open to undergraduate students only. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** Instructor consent required

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**DST\_VS 4970: Digital Storytelling Capstone**

For students in their senior year who have completed the core requirements for the Digital Storytelling program, this course focuses on advanced studies in the field and a major project involving the processes of selection, research, and production or writing leading to its completion. May include a professional component. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DST\_VS 1880, and DST\_VS 2880 or DST\_VS 2885, and DST\_VS 4880 or DST\_VS 4885

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## Economics Courses

**ECONOM 1000: General Economics for Journalists**

One semester course covering similar material as ECONOM 1014 and ECONOM 1015, but for Journalism majors. Topics include opportunity costs, gains from trade, efficiency and markets, non-competitive markets, game theory, government spending and taxation, economic growth, monetary and fiscal policy, unemployment and inflation, exchange rates. Includes applications for Journalism students. Not open to students who have completed ECONOM 1014, ECONOM 1024, or ECONOM 1051. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites:** Open to majors and pre-majors in Journalism; also open to majors outside of Arts and Sciences and Business

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**ECONOM 1014: Principles of Microeconomics**

A broad survey of microeconomics, from the basic market model and its many applications to market failures and policy responses. Topics include potential trade offs between efficiency and equity in competition and trade policy; determinants of wage differentials, poverty and inequality; and evaluation of the benefits and costs of government interventions in markets. Not open to students who have completed ECONOM 1000, ECONOM 1024 or ECONOM 1051.

**Credit Hours:** 3

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**ECONOM 1014H: Principles of Microeconomics-Honors**

A broad introduction to microeconomics that is similar in coverage to ECONOM 1014, but with a more rigorous and quantitative approach. Not open to students who have completed ECONOM 1000, ECONOM 1024, or ECONOM 1051. Math Reasoning Proficiency Course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required and a grade of 'C' or higher in MATH 1050, MATH 1100, MATH 1400, MATH 1500 or earn sufficient MyMathTest College Algebra score of 70% or higher

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**ECONOM 1015: Principles of Macroeconomics**

An introduction to the study of how macroeconomic forces and public policy affect the welfare of a nation. Topics include understanding the business cycle, economic growth, inflation, interest rates, and unemployment, as well as the effects of fiscal and monetary policy. Not open to students who have completed ECONOM 1000 or ECONOM 1051. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1014 or ABM 1041

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**ECONOM 1015H: Principles of Macroeconomics - Honors**

A broad introduction to macroeconomics that is similar in coverage to ECONOM 1015, but with a more rigorous approach. Not open to students who have completed ECONOM 1000 or ECONOM 1051. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1014, ECONOM 1024, or ABM 1041 or equivalent; Honors eligibility required

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**ECONOM 1051H: General Economics - Honors**

One semester course covering similar material as covered in ECONOM 1014 and ECONOM 1015. Topics include opportunity costs, gains from trade, efficiency and markets, non-competitive markets, game theory, government spending and taxation, economic growth, monetary and fiscal policy, unemployment and inflation, exchange rates. Not open to students who have completed ECONOM 1014 or ECONOM 1024 and ECONOM 1015. Math Reasoning Proficiency Course.

**Credit Hours:** 5

**Prerequisites:** Honors eligibility required and C- or higher in MATH 1050 or MATH 1100

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**ECONOM 2004: Undergraduate Topics in Economics - Social Science**

Organized study of selected topics in Economics; applied or theoretical economics; covers subjects not included in regularly offered courses.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ECONOM 2004H: Undergraduate Topics in Economics - Social Science - Honors**

Organized study of selected topics in Economics; applied or theoretical economics; covers subjects not included in regularly offered courses.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent; honors eligibility required

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**ECONOM 2004W: Undergraduate Topics in Economics - Social Science - Writing Intensive**

Organized study of selected topics in Economics; applied or theoretical economics; covers subjects not included in regularly offered courses.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ECONOM 3224: Introduction to International Economics**

A topical course which emphasizes the application of basic economic analysis to real and current international economic issues. Topics include free trade, protectionism, free trade areas, multilateral trade negotiations, trade and development, exchange rates, the International Monetary System, and economic integration.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1000, ECONOM 1014, ECONOM 1024 or ECONOM 1051

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**ECONOM 3229: Money, Banking and Financial Markets**

Operation of the U.S. financial and economic system. Covers interest rates, banking regulation, the money supply process and the conduct of the Federal Reserve, inflation and the macroeconomy, exchange rates and the international financial system, rational expectations, and efficient markets.

**Credit Hours:** 3

**Prerequisites:** (ECONOM 1014 or ABM 1041) and (ECONOM 1015 or ABM 1042); or ECONOM 1000 or ECONOM 1051

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**ECONOM 3229H: Money, Banking and Financial Markets - Honors**

Operation of the U.S. financial and economic system. Covers interest rates, banking regulation, the money supply process and the conduct of the Federal Reserve, inflation and the macroeconomy, exchange rates and the international financial system, rational expectations, and efficient markets.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1014 and ECONOM 1015; or ECONOM 1000; or ECONOM 1051; or ABM 1041 and ABM 1042. Honors eligibility required

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**ECONOM 3251: Managerial Economics**

Theory of rational behavior in consumption, production, and pricing decisions of households and firms. Topics include the economics of the firm in the context of partial equilibria in product and factor markets under competition, monopoly, oligopoly and monopolistic competition as well as game theory. No credit for students who have completed ECONOM 4351.

**Credit Hours:** 3

**Prerequisites:** MATH 1400 or MATH 1500 or equivalent and (ECONOM 1000 or ECONOM 1014 or ABM 1041)

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**ECONOM 3271: Introduction to Applied Econometric Practice**

Introduction to the use of regression analysis of economic data, including simple and multiple regression, dummy variables. Econometric problems considered include heteroscedasticity, autocorrelation, multicollinearity and simultaneous equation issues.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1014 or ECONOM 1024 and ECONOM 1015, or ECONOM 1051H and STAT 2500

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**ECONOM 3323: Capitalism, Democracy and Society**

This is a one-credit seminar course for students interested in careers involving social science research and analysis; topics covered will be a selection of classic and contemporary debates in the social sciences.

**Credit Hour:** 1

**Prerequisites:** ECONOM 1014 and ECONOM 1015, or ECONOM 1051

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**ECONOM 3367: Law and Economics**

This course is a survey of economic analyses of American legal institutions. Students will apply basic microeconomics, game theoretic and statistical concepts to the study of property, contracts, torts, the legal process, crime, and the judiciary.

**Credit Hours:** 3

**Prerequisites:** (ECONOM 1014 or ECONOM 1024 or ABM 1041) and (STAT 1200 or STAT 2500) or equivalent

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**ECONOM 3367W: Law and Economics - Writing Intensive**

This course is a survey of economic analyses of American legal institutions. Students will apply basic microeconomics, game theoretic and statistical concepts to the study of property, contracts, torts, the legal process, crime, and the judiciary.

**Credit Hours:** 3

**Prerequisites:** (ECONOM 1014 or ECONOM 1024 or ABM 1041) and (STAT 1200 or STAT 2500) or equivalent

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**ECONOM 3940: Internship**

Internship experience for students interested in economics. Supervised internship work with approval of Director of Undergraduate Studies and academic adviser. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** ECONOM 1014 or ECONOM 1000 or ECONOM 1051

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**ECONOM 3950: Practicum in Economics**

Practical experience in consulting, teaching or research guided by faculty advisor. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** consent of Director of Undergraduate Studies and faculty advisor

**Recommended:** Grade of B or higher in ECONOM 4351 and ECONOM 4371

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**ECONOM 4004: Topics in Economics- Social Science**

Study in applied or theoretical economics; covers subjects not included in regularly offered courses.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ECONOM 4004W: Topics in Economics- Social Science - Writing Intensive**

Study in applied or theoretical economics; covers subjects not included in regularly offered courses.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ECONOM 4311: Labor Economics**

(cross-leveled with ECONOM 7311). Surveys theoretical explanations of wage and employment determination in contemporary labor markets.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351

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**ECONOM 4311W: Labor Economics - Writing Intensive**

Surveys theoretical explanations of wage and employment determination in contemporary labor markets.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351

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**ECONOM 4315: Public Economics**

(cross-leveled with ECONOM 4315). Analyzes economic effects of government expenditures, taxes and debt. Expenditure and taxation principles, tax reform, cost-benefit analysis, fiscal policy.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351

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**ECONOM 4315W: Public Economics - Writing Intensive**

Analyzes economic effects of government expenditures, taxes and debt. Expenditure and taxation principles, tax reform, cost-benefit analysis, fiscal policy.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351

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**ECONOM 4317: Urban Economics**

(cross-leveled with ECONOM 7317). This is a class in urban economics. Topics covered include: formation of cities, land markets, housing markets, economics of transportation and commuting, cities as engines of growth and issues affecting cities such as crime, poverty and migration. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351

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**ECONOM 4317W: Urban Economics - Writing Intensive**

(cross-leveled with ECONOM 7317). This is a class in urban economics. Topics covered include: formation of cities, land markets, housing markets, economics of transportation and commuting, cities as engines of growth and issues affecting cities such as crime, poverty and migration. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351

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**ECONOM 4320: History of Economic Thought**

(cross-leveled with ECONOM 7320). Origins of modern economic thought in the context of social and intellectual environment of the time in which they originated, their contribution to their period and to modern thought.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1014 and ECONOM 1015; or ECONOM 1000 or ECONOM 1051

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**ECONOM 4320W: History of Economic Thought**

Origins of modern economic thought in the context of social and intellectual environment of the time in which they originated, their contribution to their period and to modern thought.

**Credit Hours:** 3

**Prerequisites:** (ECONOM 1014 or ECONOM 1024) and ECONOM 1015, or ECONOM 1051

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**ECONOM 4326: Economics of International Trade**

(cross-leveled with ECONOM 7326). The microeconomic theory of international trade. Topics include comparative advantage, the theory of commercial policy, economic integration, trade with less developed countries and the trade effects of economic growth.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351

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**ECONOM 4326W: Economics of International Trade - Writing Intensive**

(cross-leveled with ECONOM 7326). The microeconomic theory of international trade. Topics include comparative advantage, the theory of commercial policy, economic integration, trade with less developed countries and the trade effects of economic growth.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351

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**ECONOM 4329: The Banking System and the Money Market**

(cross-leveled with ECONOM 7329). Organization of the money market; credit control procedures and aims, effect of bank expansion and contraction on money market and national income deregulation.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1015 or ABM 1042 or ECONOM 1000 or ECONOM 1051

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**ECONOM 4329W: The Banking System and the Money Market - Writing Intensive**

Organization of the money market; credit control procedures and aims, effect of bank expansion and contraction on money market and national income deregulation.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1015 or ABM 1042 or ECONOM 1000 or ECONOM 1051

---

**ECONOM 4340: Introduction to Game Theory**

(cross-leveled with ECONOM 7340). An introduction to the theory of games, viewed as a set of tools used widely in economics to study situations in which decision-makers (consumers, firms, governments, etc.) interact. The course introduces the basic theory, emphasizing the concepts and their economic applications.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351

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**ECONOM 4345: Economics of Education**

(cross-leveled with ECONOM 7345). Economic theory is used to analyze the market for educational services and education policy. Topics include: human capital theory, cost and performance measures for public and private schools, market based approaches to school reform, school finance, higher education cost and access.

**Credit Hours:** 3

**Prerequisites:** (ECONOM 1014 or ECONOM 1024 or ABM 1041 or ECONOM 1000) and (STAT 2200 or STAT 2500) or equivalent

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**ECONOM 4345W: Economics of Education - Writing Intensive**

Economic theory is used to analyze the market for educational services and education policy. Topics include: human capital theory, cost and performance measures for public and private schools, market based approaches to school reform, school finance, higher education cost and access.

**Credit Hours:** 3

**Prerequisites:** (ECONOM 1014 or ECONOM 1024 or ABM 1041 or ECONOM 1000) and (STAT 2200 or STAT 2500) or equivalent

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**ECONOM 4351: Intermediate Microeconomics**

(cross-leveled with ECONOM 7351). Theory of rational behavior in consumption, production, and pricing decisions of households and firms. Partial equilibria in product and factor markets under competition, monopoly, oligopoly and monopolistic competition. A brief introduction to general equilibrium and welfare economics is provided. Calculus is employed. No credit for students who have completed ECONOM 3251.

**Credit Hours:** 3

**Prerequisites:** (ECONOM 1014 or ABM 1041 or ECONOM 1000 or ECONOM 1051) and (MATH 1400 or MATH 1500) or equivalent

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**ECONOM 4351H: Intermediate Microeconomics - Honors**

Theory of rational behavior in consumption, production, and pricing decisions of households and firms. Partial equilibria in product and factor markets under competition, monopoly, oligopoly and monopolistic competition. A brief introduction to general equilibrium and welfare economics is provided. Calculus is employed. No credit for students who have completed ECONOM 3251.

**Credit Hours:** 3

**Prerequisites:** (ECONOM 1014 or ECONOM 1024 or ABM 1041) and MATH 1400 or equivalent. Honors eligibility required

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**ECONOM 4353: Intermediate Macroeconomics**

(cross-leveled with ECONOM 7353). The study of the structure and performance of national economics. Topics include: long-term economic growth, aggregate economic fluctuations, unemployment, and inflation;

consequences for national economies of being part of the global economic system; government policies and macroeconomic performance.

**Credit Hours:** 3

**Prerequisites:** (ECONOM 1000 or ECONOM 1015 or ABM 1042) and (MATH 1400 or MATH 1500) or equivalent

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**ECONOM 4355: Industrial Organization and Competitive Strategy** (cross-leveled with ECONOM 7355). Analyzes the structure of industry, its impact on the operations of the firm and significance for public policy. The focus is on strategic interaction among firms with market power. Topics include oligopoly, competition, collusion, price discrimination, product differentiation, advertising, entry and exit.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351

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**ECONOM 4355W: Industrial Organization and Competitive Strategy - Writing Intensive**

Analyzes the structure of industry, its impact on the operations of the firm and significance for public policy. The focus is on strategic interaction among firms with market power. Topics include oligopoly, competition, collusion, price discrimination, product differentiation, advertising, entry and exit.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351

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**ECONOM 4357: Health Economics**

(cross-leveled with ECONOM 7357, PUB\_AF 7357). Analyzes the economics of health care in the United States with particular attention paid to the role of government. It examines the demand for health care and the structure and consequences of public and private health insurance; the supply of health care, including professional training, licensure, specialization and compensation, hospital competition and finance, and the determinants and consequences of technical change in medicine and health care reform.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351 and (STAT 2200 or STAT 2500) or equivalent

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**ECONOM 4357W: Health Economics - Writing Intensive**

Analyzes the economics of health care in the United States with particular attention paid to the role of government. It examines the demand for health care and the structure and consequences of public and private health insurance; the supply of health care, including professional training, licensure, specialization and compensation, hospital competition and finance, and the determinants and consequences of technical change in medicine and health care reform.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351 and (STAT 2200 or STAT 2500) or equivalent

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**ECONOM 4370: Quantitative Economics**

(cross-leveled with ECONOM 7370). The aim of this course is to provide an introduction to the mathematical language of economic theory. Topics include linear models, matrix algebra, rules of differentiation and comparative static analysis, optimization.

**Credit Hours:** 3

**Prerequisites:** MATH 1300 and MATH 1400 or MATH 1500 or equivalent

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**ECONOM 4371: Introductory Econometrics**

(cross-leveled with ECONOM 7371). Study methods for quantitative analysis of economic data. Estimation techniques, tests of significance, prediction and forecasting reviewed with respect to problems presented by economic data and information demands of economic decision models.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351 and (STAT 2200 or STAT 2500) or equivalent

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**ECONOM 4385: Problems in Economics**

Directed readings in advanced economics. Students develop and complete a directed readings program on a focused economics topic that covers content appropriate for an advanced undergraduate economics course under the guidance of a faculty mentor. Credit arranged by the instructor.

**Credit Hour:** 1-3

**Prerequisites:** ECONOM 4351, ECONOM 4371, and instructor's consent. Not open to non-majors

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**ECONOM 4775: Dynamic Optimization and its Applications to the Natural Sciences and Economics**

(cross-leveled with ECONOM 7775). Development of Calculus of Variations and Optimal Control Theory. Applications. Extensions to stochastic and robust control.

**Credit Hour:** 1-3

**Prerequisites:** ECONOM 4370 or instructor's consent

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**ECONOM 4940: Internship in Economics**

Internship experience for Economics majors. 40 hours of supervised internship work with approval of Director of Undergraduate Studies and academic advisor. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** C or higher in ECONOM 4351 and ECONOM 4371; Declared economics majors who have a minimum overall CUM GPA of 2.75 and have junior or senior standing

**Recommended:** Students must have completed at least 15 credit hours at MU

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**ECONOM 4965: Independent Research in Economics**

Development of a carefully considered research project under close supervision of a faculty member. Credit arranged by instructor.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ECONOM 4970: Senior Seminar in Economics**

Seminar for graduating seniors who are majoring in economics. Multiple writing assignments will emphasize synthesis of theoretical, empirical, and institutional economics. Not open to non-majors.

**Credit Hours:** 3

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**ECONOM 4995: Honors Thesis**

Not open to non-majors. Capstone course required for Economics honors students.

**Credit Hours:** 3

**Prerequisites:** ECONOM 4351

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**ECONOM 7001: Topics in Economics - General**

Study in applied or theoretical economics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ECONOM 7311: Labor Economics**

(cross-leveled with ECONOM 4311). Surveys theoretical explanations of wage and employment determination in contemporary labor markets.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 7351

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**ECONOM 7315: Public Economics**

(cross-leveled with ECONOM 4315). Analyzes economic effects of government expenditures, taxes and debt. Expenditure and taxation principles, tax reform, cost-benefit analysis, fiscal policy.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351

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**ECONOM 7317: Urban Economics**

(cross-leveled with ECONOM 4317). This is a class in urban economics. Topics covered include: formation of cities, land markets, housing markets, economics of transportation and commuting, cities as engines of growth and issues affecting cities such as crime, poverty and migration. Graded on A-F basis only.

**Credit Hours:** 3

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**ECONOM 7320: History of Economic Thought**

(cross-leveled with ECONOM 4320). Origins of modern economic thought in the context of social and intellectual environment of the time in which they originated, their contribution to their period and to modern thought.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1014 or ECONOM 1024 and ECONOM 1015 or ECONOM 1051H

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**ECONOM 7326: Economics of International Trade**

(cross-leveled with ECONOM 4326). The microeconomic theory of international trade. Topics include comparative advantage, the theory of commercial policy, economic integration, trade with LDC's and the trade effects of economic growth.

**Credit Hours:** 3

**Prerequisites:** ECONOM 7351 or instructor's consent

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**ECONOM 7329: The Banking System and the Money Market**

(cross-leveled with ECONOM 4329) Organization of the money market; credit control procedures and aims, effect of bank expansion and contraction on money market and national income deregulation.

**Credit Hours:** 3

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**Prerequisites:** ECONOM 1015 or ABM 1042 or ECONOM 1000 or ECONOM 1051

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**ECONOM 7340: Introduction to Game Theory**

(cross-leveled with ECONOM 4340). An introduction to the theory of games, viewed as a set of tools used widely in economics to study situations in which decision-makers (consumers, firms, governments, etc.) interact. The course introduces the basic theory, emphasizing the concepts and their economic applications.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 7351 or instructor's consent

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**ECONOM 7345: Economics of Education**

(cross-leveled with ECONOM 4345). Economic theory is used to analyze the market for educational services and education policy. Topics include: human capital theory, cost and performance measures for public and private schools, market based approaches to school reform, school finance, higher education cost and access.

**Credit Hours:** 3

**Prerequisites:** (ECONOM 1014 or ECONOM 1024 or ABM 1041 or ECONOM 1000) and (STAT 2200 or STAT 2500) or equivalent

---

**ECONOM 7351: Intermediate Microeconomics**

(cross-leveled with ECONOM 4351). Theory of rational behavior in consumption, production, and pricing decisions of households and firms. Partial equilibria in product and factor markets under competition, monopoly, oligopoly and monopolistic competition. A brief introduction to general equilibrium and welfare economics is provided. Calculus is employed. No credit for students who have completed 3251.

**Credit Hours:** 3

**Prerequisites:** (ECONOM 1014 or ECONOM 1051) and MATH 1400 or equivalent

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**ECONOM 7353: Intermediate Macroeconomics**

(cross-leveled with ECONOM 4353). The study of the structure and performance of national economics. Topics include: long-term economic growth, aggregate economic fluctuations, unemployment, and inflation; consequences for national economies of being part of the global economic system; government policies and macroeconomic performance.

**Credit Hours:** 3

**Prerequisites:** (ECONOM 1000 or ECONOM 1015 or ABM 1042) and (MATH 1400 or MATH 1500) or equivalent

---

**ECONOM 7355: Industrial Organization and Competitive Strategy**

(cross-leveled with ECONOM 4355). Analyzes the structure of industry, its impact on the operations of the firm and significance for public policy. The focus is on strategic interaction among firms with market power. Topics include oligopoly, competition, collusion, price discrimination, product differentiation, advertising, entry and exit.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 7351

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**ECONOM 7357: Health Economics**

(same as PUB\_AF 7357; cross-leveled with ECONOM 4357). Analyzes the economics of health care in the United States with particular attention paid to the role of government. It examines the demand for health

care and the structure and consequences of public and private health insurance; the supply of health care, including professional training, licensure, specialization and compensation, hospital competition and finance, and the determinants and consequences of technical change in medicine: and examination of recent proposals and initiatives for health care reform.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351 and (STAT 2200 or STAT 2500) or equivalent

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### **ECONOM 7361: Comparative Economic Systems**

(cross-leveled with Econom 4361). Study of capitalism, market socialism, and central planning.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3229 and ECONOM 3251 or ECONOM 4351

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### **ECONOM 7370: Quantitative Economics**

(cross-leveled with ECONOM 4370). The aim of this course is to provide an introduction to the mathematical language of economic theory. Topics include linear models, matrix algebra, rules of differentiation and comparative static analysis, optimization.

**Credit Hours:** 3

**Prerequisites:** MATH 1300 and MATH 1400 or MATH 1500 or equivalent

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### **ECONOM 7371: Introductory Econometrics**

(cross-leveled with ECONOM 4371). Study methods for quantitative analysis of economic data. Estimating techniques, tests of significance, prediction and forecasting reviewed with respect to problems presented by economic data and information demands of economic decision models.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351 and (STAT 2200 or STAT 2500) or equivalent

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### **ECONOM 7775: Dynamic Optimization and its Applications to the Natural Sciences and Economics**

(cross-leveled with ECONOM 4775). Development of Calculus of Variations and Optimal Control Theory. Applications. Extensions to stochastic and robust control.

**Credit Hour:** 1-3

**Prerequisites:** ECONOM 7370 or instructor's consent

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### **ECONOM 8001: Topics in Economics- General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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### **ECONOM 8085: Problems in Economics**

Graduate students may select topics for study and investigation subject to approval by supervising faculty.

**Credit Hour:** 1-99

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### **ECONOM 8340: Game Theory**

Game theory is the study of strategic behavior by agents who perceive themselves as 'large' relative to the market and who therefore consider the effect of their behavior on others. This course examines the rigorous theory of strategic interaction of rational agents. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** ECONOM 4351 or equivalent; MATH 1320 or equivalent. . Graded on A-F basis only

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### **ECONOM 8370: Mathematics for Economics**

The aim of this course is to cover essential mathematics used in economics. Topics include introductory linear algebra, multivariate calculus, comparative statics analysis, unconstrained optimization, and equality constrained optimization. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** ECONOM 4351 or equivalent; MATH 1320 or equivalent. Graded on A-F basis only

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### **ECONOM 8413: Research Workshop I**

Required course for economics MA students. Combines instruction, student presentations, and seminar participation to introduce research methods and practice. A major research paper are required.

**Credit Hours:** 3

**Prerequisites:** ECONOM 8451, ECONOM 8453, and ECONOM 8473 or instructor's consent

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### **ECONOM 8451: Microeconomic Theory**

MA-level course in microeconomic theory. The course relies extensively on calculus to survey theories of: rational behavior in consumption, production, and pricing decisions of households and firms; partial equilibria in product and factor markets under competition, monopoly, oligopoly and monopolistic competition; and general equilibrium and welfare.

**Credit Hours:** 3

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### **ECONOM 8453: Macroeconomic Theory**

Basic models in macroeconomics will be covered with emphasis on assumptions and on how hypotheses can be tested. Course is an introductory survey for students intending to develop ability for research in macroeconomics.

**Credit Hours:** 3

**Prerequisites:** ECONOM 4353 or equivalent; at least concurrent enrollment in ECONOM 8451. Instructor's consent required for non graduate level students

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### **ECONOM 8472: Econometric Methods I**

Familiarizes students with fundamental techniques found and used in applied economic research. Topics include: ordinary least squares, generalized least square, instrumental variables, maximum likelihood estimation, and generalized methods of moments.

**Credit Hours:** 3

**Prerequisites:** STAT 7710 or instructor's consent

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**ECONOM 8473: Applied Econometrics**

Topics include: nonlinear least squares, numerical optimization, maximum likelihood and basic panel data and time series methods. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECONOM 7371 and MATH 7140 or equivalent, or instructor's consent

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**ECONOM 9001: Topics in Economics**

Selected current topics in economics.

**Credit Hours:** 3

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**ECONOM 9085: Problems in Economics**

Graduate students may select topics for study and investigation subject to approval by supervising faculty.

**Credit Hour:** 1-99

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**ECONOM 9090: Research in Economics**

Thesis research for Ph.D. degree. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**ECONOM 9413: Research Workshop II**

Introduces doctoral students to practices of preparing scholarly economic research by moving through the process of selecting a topic, identifying relevant literature, and communicating results. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** ECONOM 9452, ECONOM 9454 and ECONOM 9474; PhD standing

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**ECONOM 9430: Advanced Money and Banking**

The working and structure of institutional arrangements, welfare aspects of structural policies, operation of money and credit markets, and behavior of returns on assets.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9452 or instructor's consent

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**ECONOM 9431: Central Banking Policies**

Examines central banking procedures, policies and the role they play in maintaining economic stability. Special attention to connection of Federal Reserve System with money and capital markets.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9452 or instructor's consent

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**ECONOM 9446: Advanced Empirical Methods**

Empirical and modeling techniques for evaluation of microeconomic policy questions.

**Credit Hours:** 3

**Prerequisites:** ECONOM 8451, ECONOM 8473

**Recommended:** Concurrent enrollment in ECONOM 8473 or ECONOM 9473

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**ECONOM 9447: Topics in Microeconomic Policy Analysis**

(same as PUB\_AF 9447). Applies the methods and techniques of microeconomics and to specific timely policy questions. Taught by

applied-microeconomics faculty and focuses on current topics in labor economics, public economics, the economics of education, health economics, and other applied areas of microeconomics.

**Credit Hours:** 3

**Prerequisites:** ECONOM 8451, ECONOM 8473

**Recommended:** Concurrent enrollment in ECONOM 8473 or ECONOM 9473

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**ECONOM 9451: Advanced Microeconomic Theory I**

The theory of rational behavior and partial equilibrium in markets. Topics include consumer behavior, theory of the firm, decisions making under uncertainty, perfect competition, monopoly and monopsony, and imperfect competition. Graded on A/F basis only.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9451 or instructor's consent; PhD standing

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**ECONOM 9452: Advanced Microeconomic Theory II**

Survey of equilibrium theory and market failures in economics. Topics include the structure and modeling of games, and cooperative and non-cooperative equilibrium concepts.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9451 or instructor's consent

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**ECONOM 9453: Advanced Macroeconomic Theory I**

Aggregate models of life-cycle microfoundations, of macroeconomics fluctuations and growth. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** departmental consent; PhD standing

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**ECONOM 9454: Advanced Macroeconomic Theory II**

Analyzes topics in income analysis, including capital theory and economic dynamics.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9453 or instructor's consent

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**ECONOM 9455: Monopoly and Competition**

A survey of the theoretical and empirical literature on the organization of industries. Includes study of monopolized markets, competitive markets, and strategic interaction among firms in imperfectly competitive markets. Both the rationale and practice of anti-trust policy are studied.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9452 and ECONOM 9471 or instructor's consent

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**ECONOM 9457: Computational Economics**

Covers numerical and computational methods to solve economic models at the research frontier. Emphasis is on practical applications to prepare students for independent research. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECONOM 8451 and ECONOM 8453 and ECONOM 8472

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**ECONOM 9471: Advanced Game Theory**

Presents core concepts in game theory and illustrates their uses with a range of applications.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9452 or instructor's consent

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**ECONOM 9472: Econometric Theory I**

Analysis of linear regression models from an advanced statistical perspective.

**Credit Hours:** 3

**Prerequisites:** Department consent required

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**ECONOM 9473: Econometric Theory II**

Analysis of nonlinear regression models and other essential econometric tools not covered in ECONOM 9472 from an advanced statistical perspective.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9472 or instructor's consent

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**ECONOM 9474: Advanced Topics in Econometrics I**

Equips students with some essential tools for conducting publishable econometric research. Topics at the discretion of the instructor - typically time series analysis. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9473 or instructor's consent

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**ECONOM 9476: Advanced Topics in Econometrics II**

Equips students with some essential tools for conducting publishable econometric research. Topics at the discretion of the instructor - typically microeconometrics.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9473 or instructor's consent

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**ECONOM 9477: Advanced Topics in Econometrics III**

Equips students with some essential tools for conducting publishable econometric research. Topics at the discretion of the instructor - typically the second semester of a two-semester time series sequence beginning with ECONOM 9474 or a two-semester microeconometrics sequence beginning with ECONOM 9476.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9473 or instructor's consent

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## Education Honors Courses

**EDUC\_H 4996H: Undergraduate Reading Honors**

This course is designed to introduce students to a variety of readings from a broad array of research, historical, contemporary and philosophical documents and writings. Selection of topics and additional readings are determined by the faculty instructor for the course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent; Honors eligibility required

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**EDUC\_H 4997H: Honors Undergraduate Seminar I**

This class will consist of a 1 credit hour seminar. The class is designed to allow undergraduates to develop the skills necessary to engage in practical research for application within the field of teaching and education. The culminating assignment for the class is a proposal for a

research poster or presentation to be presented at the undergraduate research fair held each year in May. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** instructor's consent; Honors eligibility required

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**EDUC\_H 4998H: Honors Undergraduate Seminar II**

The class will consist of a 1 credit hour seminar. The class is designed to allow undergraduates to develop the skills necessary to engage in practical research for application within the field of teaching and education. The culminating assignment for the class is the production of a research poster or presentation at the undergraduate research fair held each year in May. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** instructor's consent; GPA of 3.5 or higher. Honors eligibility required

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**EDUC\_H 4999H: Honors Undergraduate Research Seminar**

This class will be offered over 2 academic semesters and will consist of a 1-2 credit hour lab each semester with a College of Education faculty member working on an undergraduate research project. This course is designed as part of the Honors sequence. Graded on A-F only. Corequisites: EDUC\_H 4997H and EDUC\_H 4998H

**Credit Hour:** 1-2

**Prerequisites:** instructor's consent; Honors eligibility required

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## Educational Leadership and Policy Analysis Courses

**ED\_LPA 3100: Foundations of Education**

Focus on developing a theoretical and conceptual knowledge of leadership. In addition, skill building-exercises will take place through group case studies and role playing exercises allowing each student to identify and achieve methods for personal development.

**Credit Hour:** 1-3

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**ED\_LPA 3450: Introduction to Research in Educational Settings**

(same as IS\_LT 3450). This course provides an introduction to quantitative, qualitative, and mixed methods research, with an emphasis on how various forms of data collection and prior research can inform and improve practice. Students will: (1) develop skills in locating research relevant to their professional interests; (2) understand multiple forms of data collection strategies; and (3) identify ethical considerations associated with research. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 4060: Inquiring into Schools, Community and Society II**

(same as ED\_LPA 7060). Required 3 hour course for students pursuing teacher certification. Designed to transition students into the teaching internship through study of teacher roles, school organizations and cultures, and community contexts.

**Credit Hours:** 3

**Prerequisites:** LTC 2040

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**ED\_LPA 4100: ELPA Undergraduate Seminar**

Seminar in ELPA on a special topic. Graded on A-F basis only.



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**Credit Hours:** 3

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**ED\_LPA 4115: Introduction to Learning Spaces**

(cross-leveled with ED\_LPA 7115). Learning takes place in a variety of settings beyond the classroom. This course highlights the teaching and learning at play within professional, community, educational, and organizational spaces. Students will explore the interaction between individuals and their learning environments to determine how the learning environments vary based upon how the organization transmits knowledge and the opportunities that individuals have within the environment for understanding. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 4151: Leading Educational Organizations in Global Contexts**

(cross-leveled with ED\_LPA 7151). Through equity-focused, critical and comparative analyses, this course centers on developing locally relevant understandings of educational organizations in the global context. The course will cover theories of effective leadership; organizational theory, structure, and analysis; and leading reform and innovation in response to changes in culture, technology, and globalization in various national and regional contexts. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 4152: Leadership for Student Learning in a Global Context**

(cross-leveled with ED\_LPA 7152). This course explores learning, curriculum, and assessment for globally-minded, multicultural, and equitable education. Topics include curriculum design and articulation, integration of state standards with international curricular frameworks, globally-minded instructional design, authentic assessment, and reporting student learning and progress to diverse students. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** ED\_LPA 4151

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**ED\_LPA 4153: Leading Professional Development in Global Contexts**

(cross-leveled with ED\_LPA 7153). This course examines the role of professional development in the continuous improvement of educational organizations from a global perspective. Inquiry activities and readings will explore equitable practices for building collaborative learning communities; planning professional development; and developing leadership capacity, inclusive decision-making processes, and performance evaluations in globally-minded schools. Students will be asked to contribute locally relevant theories and best practices to enhance the scope of cross-cultural understanding. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** ED\_LPA 4151

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**ED\_LPA 4154: Leadership for School-Community Partnerships in a Global Context**

(cross-leveled with ED\_LPA 7154). This course develops globally-minded leadership capacity by building knowledge in five interrelated domains: 1) school-home relationships; 2) locally relevant legal and political environments; 3) external relations and communications; 4)

community participation; and 5) inter-institutional alliances. Authentic inquiry assignments will prepare students to build effective and equitable community partnerships based on reciprocity and mutual respect. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** ED\_LPA 4151

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**ED\_LPA 4428: Curriculum Leadership**

(cross-leveled with ED\_LPA 7428). This course is a study of research, theory, and skills necessary for curriculum leadership in educational organizations. This course includes generic curriculum management processes, design trends, controversial curriculum, issues, multimedia, innovative instructional techniques, and program evaluation. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 4481: Undergraduate Administrative Internships**

(cross-leveled with ED\_LPA 7481). These administrative internships are designed for students in the Bachelor's of Educational Studies (BES) degree program and those students who are a part of the Dean of Students Internship Program. It may also serve as an elective for any undergraduate student at the University of Missouri. The intent of this course is to integrate practice, theory, and ethical standards within a supervised education setting called an internship. Specific activities during the internship may vary greatly from one field placement to another in that different students may have different learning needs and desires, and different settings will offer different learning opportunities. In some circumstances and situations, an off-campus/off-site setting for an internship is also possible. The course may be repeated depending on student interests, internship site availability, and additional experiences needed by the student. Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**ED\_LPA 4975: Educational Studies Senior Capstone**

The senior capstone course is designed to allow a rigorous and in depth study area of inquiry within the field of education. The area of inquiry is cumulative and includes critical analysis and theoretical and/or pragmatic integration of scholarly materials. The course of study is individualized under the guidance of a faculty member. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Senior Standing, 90+ credit hours, Bachelor of Educational Studies major

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**ED\_LPA 7060: Inquiring into Schools, Community and Society II**

(same as ED\_LPA 4060). Required 3 hours course for students pursuing teacher certification. Designed to transition students into the teaching internship through study of teacher roles, school organizations and cultures, and community contexts.

**Credit Hours:** 3

**Prerequisites:** LTC 2040 and LTC 7040

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**ED\_LPA 7115: Introduction to Learning Spaces**

(cross-leveled with ED\_LPA 4115). Learning takes place in a variety of settings beyond the classroom. This course highlights the teaching and learning at play within professional, community, educational, and

organizational spaces. Students will explore the interaction between individuals and their learning environments to determine how the learning environments vary based upon how the organization transmits knowledge and the opportunities that individuals have within the environment for understanding. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 7151: Leading Educational Organizations in Global Contexts**

(cross-leveled with ED\_LPA 4151). Through equity-focused, critical and comparative analyses, this course centers on developing locally relevant understandings of educational organizations in the global context. The course will cover theories of effective leadership; organizational theory, structure, and analysis; and leading reform and innovation in response to changes in culture, technology, and globalization in various national and regional contexts. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 7152: Leadership for Student Learning in a Global Context**

(cross-leveled with ED\_LPA 4152). This course explores learning, curriculum, and assessment for globally-minded, multicultural, and equitable education. Topics include curriculum design and articulation, integration of state standards with international curricular frameworks, globally-minded instructional design, authentic assessment, and reporting student learning and progress to diverse students. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** ED\_LPA 7151

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**ED\_LPA 7153: Leading Professional Development in Global Contexts**

(cross-leveled with ED\_LPA 4153). This course examines the role of professional development in the continuous improvement of educational organizations from a global perspective. Inquiry activities and readings will explore equitable practices for building collaborative learning communities; planning professional development; and developing leadership capacity, inclusive decision-making processes, and performance evaluations in globally-minded schools. Students will be asked to contribute locally relevant theories and best practices to enhance the scope of cross-cultural understanding. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** ED\_LPA 7151

---

**ED\_LPA 7154: Leadership for School-Community Partnerships in a Global Context**

(cross-leveled with ED\_LPA 4154). This course develops globally-minded leadership capacity by building knowledge in five interrelated domains: 1) school-home relationships; 2) locally relevant legal and political environments; 3) external relations and communications; 4) community participation; and 5) inter-institutional alliances. Authentic inquiry assignments will prepare students to build effective and equitable community partnerships based on reciprocity and mutual respect. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** ED\_LPA 7151

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**ED\_LPA 7428: Curriculum Leadership**

(cross-leveled with ED\_LPA 4428). A study of research, theory, and skills necessary for curriculum leadership in educational organizations. Course includes generic curriculum management processes, design trends, controversial issues multi-media, innovative instructional techniques, and program evaluation. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 7439: Applying Higher Education Research to Practice**

This course introduces quantitative, qualitative, and mixed within a student affairs context. Students will become familiar with, and able to critique research. Course graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 7452: Overview of Higher Education**

This course provides an overview of American Higher education. Emphasis is placed on how these institutions currently operate and what issues dominate current discussions of academe. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 7458: Sociology of Education**

(same as SOCIOL 7410; cross-leveled with SOCIOL 4410). Contexts, structures and processes of schooling; effects on class, race, ethnicity and gender; social change, educational policy, and organizational dynamics; higher education and the economy.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 1000 or equivalent

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**ED\_LPA 7481: Graduate Administrative Internships**

(cross-leveled with ED\_LPA 4481). For students pursuing the MEd with a concentration in Student Affairs Leadership, the Council for the Advancement of Standards in Higher Education requires students to complete 300 hours of practical experience. To meet this requirement, students must take a 150-hour internship course and either work in a higher education position or have an assistantship. If students are not working in higher education during their academic program, they must complete a second 150-hour internship course. The base time commitment is one credit for 50 clock hours of internship experience. This course may also serve as an elective for graduate students from around the university, and particularly those in the Higher Education Administration graduate certificate and the MEd with a concentration in Higher Education Leadership. The intent of this course is to integrate professional practice, theory, and ethical standards within a supervised student affairs leadership setting called an internship. Specific activities during the internship may vary greatly from one field placement to another in that different students may have different learning needs and desires, and different settings will offer different learning opportunities. In some circumstances and situations, an off-campus/off-site setting for an internship is also possible. The course may be repeated depending on student interests, internship site availability, and additional experiences needed by the student. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** departmental consent

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**ED\_LPA 8408: Introduction to Ethics and PK-12 Policymaking**

This course examines the interplay of ethics and Pk-12 policymaking. Educational leaders today are practicing in a policy environment that continues to grow in complexity. Within this environment, leaders make choices that have ethical implications for richly diverse school communities. Values drive both ethical choices and the setting of policy goals. The intentions behind a policy may be 'good,' or 'right,' but are policies and how they are implemented unequivocally ethical? Are ethics and ethical policy conflated? History is replete with examples of policy, laws, and programs that haven't necessarily been ethical (e.g. doctrine of 'separate but equal') - and have had to be changed. Together, we will examine the intersections of ethics and policy. We will start at the beginning with a bit of philosophy for this introductory course, asking ourselves, 'what is the purpose of education?' From there, we will move toward defining our own personal and professional ethical leadership approaches and put it in relation to understandings of policy, questioning the values steering modern-day education policy. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 8409: Learning, Curriculum and Assessment for School Leaders**

Addresses assessment, learning and curriculum and the integration of the instructional and assessment processes. Topics include authentic assessment, curriculum alignment, cognition and learning, instructional approaches, and application of student learning theory to the curriculum.

**Credit Hours:** 3

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**ED\_LPA 8410: Learning Cultures**

Integrates the themes of building a common purpose to enhance school culture, empowering teachers and students, and diversity. Topics include importance of shared mission and vision, the use of group processes and collaboration, the intricacies of school culture, and ethical and moral leadership.

**Credit Hours:** 3

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**ED\_LPA 8411: Professional Development for Learning**

Focuses on the professional development and reflection on practice. Topics include organizational actions and personal responsibility, life-long learning, and public education in a democratic society.

**Credit Hours:** 3

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**ED\_LPA 8412: School Improvement**

This course addresses the topics of organizational management and personal inquiry. It covers issues such as organizational effectiveness, organizing for an effective school environment, legal and fiscal decision-making and responsibilities of school leaders, creating an environment where stakeholders acquire and utilized data to inform decisions and practice, and where action research methods are utilized to evaluate and inform practice.

**Credit Hours:** 3

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**ED\_LPA 8416: Foundations of School Leadership**

School leader knowledge of student learning theory and related instructional practices is the focus of this course. The problem-based learning format will include topics on school culture, leadership

communication, technology, and conflict resolution. Issues concerning professional relationships are also addressed.

**Credit Hours:** 3

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**ED\_LPA 8417: Site-Level Organization and Leadership**

Student will study state and national regulations that affect Missouri school policies. The student will develop a database on various legal issues. A study of middle level education will conclude with on-site evaluation of a local middle school.

**Credit Hours:** 3

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**ED\_LPA 8418: Supervision for Learning Environments**

Students are prepared to articulate, recognize, and support classroom practices that reflect the most current principles of learning. Effective instructional strategies that link this knowledge to practice will be entered into a computer database.

**Credit Hours:** 3

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**ED\_LPA 8419: Structures and Processes for Effective Schools**

Emphasis is placed on the Missouri Comprehensive Guidance Program and positive strategies for working with challenging students. A continuation of the study of state and national legal and policy issues will focus on special programs and services.

**Credit Hours:** 3

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**ED\_LPA 8423: Advanced Leadership for Learning Environments**

Students will demonstrate their understanding of instructional improvement for all teachers and students by designing and defending a comprehensive strategy for instructional changes in a simulated school. The ongoing study of learning principles and effective instructional practices will be concluded.

**Credit Hours:** 3

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**ED\_LPA 8424: Education Politics and Policymaking**

This course examines the politics and policymaking process of education in the United States, paying particular attention to the influence of various institutions and actors at local, state, and federal levels. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 8430: School Law and Finance for Principal Leadership**

Designed to engage learners in examination of the legal (judicial and legislative) system, school law, and finance policies that govern public schools and their fiscal resources in the United States and the State of Missouri. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 8431: Leadership for Data-Driven Change**

This course instructs school leaders on how to use data for school improvement. Students will: identify reliable sources of data; develop, implement, and monitor strategic School Improvement Plans using data; analyze data using technology; and describe evidence-based strategies that respond to data analysis. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 8653: Education Toward Bi/Multilingualism: Theory, Policy, and Practice**

(same as LTC 8653). Overview of the theory, policy, and practice of using at least two languages in education to develop children's bi/multilingualism. Key topics include: (1) models of bilingual/multilingual education; (2) policy and politics of language education in the U.S. and international contexts; (3) psycholinguistic and sociocultural perspectives on bi/multilingual language development, as related to schooling; and (4) evaluation and assessment issues in bi/multilingual education.

**Credit Hours:** 3

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**ED\_LPA 8951: Grounded Theory and Situated Inquiry**

(same as LTC 8951). For qualitative researchers attempting to understand social processes, Grounded Theory (GT) offers a way of developing theory empirically, 'from the bottom up.' In fact, this is what most distinguishes GT from other methods. It is explicitly emergent. It does not test a hypothesis. It provides useful tools to learn about participants' understandings and experiences of a social issue, process, or phenomena and to discover and construct theory to account for the social processes being studied. In this course, we will consider the theoretical underpinnings and practices of classic and contemporary GT methodologies. Importantly, we will conduct research and a GT analysis of data. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ED\_LPA 8957, LTC 8957, or ESC\_PS 8957

**Recommended:** ED\_LPA 9620, LTC 9620, or ESC\_PS 9620

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**ED\_LPA 8955: Discourse Analysis in Education**

(same as LTC 8955). This course introduces the theories and methods of discourse analysis, including conversation, critical discourse, and multimodal. Students will analyze the role of context and ethics, as they transcribe and analyze discourse, especially from analytical settings. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8957 and ESC\_PS 9620

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**ED\_LPA 8957: Qualitative Methods in Educational Research I**

(same as LTC 8957 and ESC\_PS 8957). This course provides a practical introduction to qualitative research and its applications in education and social sciences. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 9000: ELPA EdD Outgoing Visiting Student**

This class is a placeholder for students in their Statewide Cooperative EdD Program who take classes at their regional site during the fall and spring. There is 0 billing hours and it is not term finalized.

**Credit Hours:** 4

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**ED\_LPA 9090: Research in Educational Leadership and Policy Analysis**

Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** departmental consent

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**ED\_LPA 9095: Problems in Educational Leadership and Policy Analysis**

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ED\_LPA 9400: Social Theory in Education**

Students will examine the relationship of society and education through a variety of theoretical perspectives and empirical studies. These theories deal with the relation of education to society as a whole, and the relation between education and the state. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 9401: Educational Leadership**

Critical examination of key leadership theories and their application to various educational contexts. Includes consideration of research methods and designs appropriate for the study of leadership and the spectrum of lenses through which educational leadership is studied.

**Credit Hours:** 3

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**ED\_LPA 9402: Educational Policy Analysis**

Course centers on developing multiple understandings of the education policy making process. Theoretical constructs used to advance those understandings are eclectic in nature, drawing from the fields of political science, history, sociology and economics.

**Credit Hours:** 3

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**ED\_LPA 9403: Organizational Analysis**

Analysis of organizational characteristics and principles in educational organizations. Topics include: Organizational theories and models, organizational culture, communication, innovation, planning, leadership, power and influence, and external environment influences.

**Credit Hours:** 3

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**ED\_LPA 9404: Inquiry into Educational Leadership and Policy Analysis**

A critical overview of theory development, research paradigms, and research ethics in the department of Educational Leadership and Policy Analysis. Required for all ELPA Ph.D. students.

**Credit Hours:** 3

**Recommended:** for students who have completed at least 2 semesters of coursework

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**ED\_LPA 9405: Seminar in Educational Leadership and Policy Analysis**

Seminar in Educational Leadership and Policy Analysis

**Credit Hour:** 1-99

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**ED\_LPA 9406: Seminar in Educational Administration**

Seminar in Educational Administration

**Credit Hour:** 1-99

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**ED\_LPA 9407: Seminar in Educational Policy**

Seminar in Educational Policy

**Credit Hour:** 1-99

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**ED\_LPA 9408: Seminar in Higher Education**

Seminar in Higher Education

**Credit Hour:** 1-99

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**ED\_LPA 9409: Introduction to Research Design**

This course provides an introduction to quantitative, qualitative, and mixed methods research, with an emphasis on the epistemological and ontological issues that inform our choice of research methods. This course is intended for first year doctoral students. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 9410: Proseminar in Educational Leadership and Policy Analysis**

The purpose of the proseminar course is twofold. First, students will gain an understanding of the systems, processes, and procedures associated with graduate studies, particularly the ELPA department's PhD program. Students will gain experience with critical writing and analysis, using library and electronic resources, and engaging faculty and peers in scholarly dialogues. Second, the course will allow students to engage in preliminary discussions around educational research, including literature, theories, and methodologies related to educational leadership and policy. Students will have the opportunity to begin working on their own research and sharpen their analytic skills through academic writing. We will also discuss educational topics, problems, and policies of current importance. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** This course is required and appropriate for all ELPA PhD students

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**ED\_LPA 9420: Superintendent: Fiscal Leadership and Management**

This course focuses on a critical task for superintendents and school leaders: managing district revenues, expenditures, and facilities. This course covers the history of school finance, state funding formula, school district budgeting, development of facility plans, and the impact of financial decisions. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 9424: Superintendent: Instructional Leadership**

Effective superintendents understand educational core knowledge of curriculum, instructional and assessment. They establish an exception for the use of best instructional practices for all students among both the educational and public communities. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 9429: Superintendent: Communication, Team Leadership**

Effective superintendents negotiate political and cultural challenges to lead diverse, socially-just school systems. Reflective practices that enhance competence in public board member, and district personnel relationships are essential skills. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 9430: Superintendent: Fiscal, Legal Leadership**

Effective superintendents efficiently manage finances and ensure that rules, regulations, and policies adhere to statutory/case law. Fiscal and legal practices ensure equity of educational experiences for all students. Open to all graduate students. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 9435: Superintendent: Legal Leadership and Management**

This course focuses on the necessary legal knowledge superintendents must have to guide their school districts in adherence to statutory and case law. This course examines the legal system, lawful and wise use and allocation of district resources, management and evaluation of personnel, and equity issues. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 9440: Race, Gender, and Ethnicity in Higher Education**

(same as WGST 9440). Historical and current issues of race, gender, and ethnicity in colleges and universities in the U.S. Issues include: students, faculty, and staff experiences of diversity, access and equity, and salience of diversity in a higher education setting.

**Credit Hours:** 3

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**ED\_LPA 9442: Curriculum Philosophy and Development in Higher Education**

A study of the philosophical foundations of postsecondary curricula, current trends and issues, and approaches to curriculum reforms and revisions.

**Credit Hours:** 3

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**ED\_LPA 9444: Program Planning in Higher Education**

Analysis of program planning and evaluation in higher education. Topics include: conceptualizations of program planning, situational analysis, needs assessment, priority setting, marketing and promotion, and program evaluation.

**Credit Hours:** 3

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**ED\_LPA 9445: College Student Development**

Emphasis on college student development theory and its application in student affairs work.

**Credit Hours:** 3

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**ED\_LPA 9446: Student Affairs Administration**

History, philosophy, theory, and issues pertinent to student affairs work.

**Credit Hours:** 3

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**ED\_LPA 9447: College Student Culture and Environment**

This course examines the characteristics and outcomes of American undergraduates, and the aspects of the college environment the differentially influence students. Topics include: theoretical models of students change, campus climate and cultures, learning communities, institutional differences, and conditions for success.

**Credit Hours:** 3

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**ED\_LPA 9448: College Teaching**

Designed to introduce students to theories and practices central to teaching in a higher education setting. Teaching related to institutional contexts and disciplines will be considered. Teaching and learning theories will be introduced.

**Credit Hours:** 3

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**ED\_LPA 9449: History of Higher Education in the United States**

A study of the transformation of the English college tradition to what higher education is currently in the United States. The emphasis is on how institutions of higher learning changed to meet the needs of the nation or failed to do so.

**Credit Hours:** 3

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**ED\_LPA 9450: Administration and Governance of Higher Education**

Principles of administration, academic culture and environment, and structures of governance of higher education will be explored.

**Credit Hours:** 3

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**ED\_LPA 9451: Higher Education Finance**

How students pay for college and how institutions finance their operations is explored through the lens of economics. Topics include: Theories of student access, tuition and financial aid policy, institutional costs and revenue patterns, and resource allocation models.

**Credit Hours:** 3

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**ED\_LPA 9454: Introduction to Post-Secondary Law**

Examination of the legal structure within which higher education operates. Includes consideration of legal analysis of case law, institutional responsibilities under the law, and analysis of legal issues within postsecondary education.

**Credit Hours:** 3

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**ED\_LPA 9455: The Community College**

An overview of the community college. Topics include historical roots and development of the community college, organization and governance, finance, students, faculty, administrators, curriculum, social role, and recurring and emerging issues.

**Credit Hours:** 3

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**ED\_LPA 9456: The Professoriate**

Overview of faculty roles and work in U.S. colleges and universities. Explores institutional and disciplinary differences and seeks to prepare future faculty for academic life.

**Credit Hours:** 3

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**ED\_LPA 9457: Higher Education Policy**

An overview of current higher education policy issues facing governmental bodies and institutions. An emphasis is placed on investigating both the policy-making and policy-evaluation processes through multiple theoretical lenses. Specific topics explored include access, equity, and accountability within the higher education setting.

**Credit Hours:** 3

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**ED\_LPA 9458: Helping Skills for Student Affairs**

This course is designed to prepare student affairs professionals with the basic awareness, knowledge, and helping skills needed to respond appropriately and effectively with students experiencing distress. The course will introduce students to general helping skills that are appropriate for the types of relationships, interactions, and contexts that they will commonly encounter in their work. Thus, students in this course will learn how to identify students experiencing different types of distress, consider and respond to immediate needs, and make appropriate referrals. The course will provide opportunities for students to observe and practice individual helping skills. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 9459: Comparative and International Education**

Theories, methods and issues in the field of comparative and international education. Topics cover PK-16 education and include globalization, centralization and decentralization, equity and equity, teaching and student learning, and social context of education.

**Credit Hours:** 3

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**ED\_LPA 9461: Ethics in Education**

Explores the ethical dimensions of work within and related to educational settings focusing on dilemmas that occur in professional practice, theories that inform thinking about ethical issues, and frameworks that guide ethical decision making.

**Credit Hours:** 3

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**ED\_LPA 9462: History of U.S. Education Policy**

Provides overview of major US education issues (primary K-12), explores analytic tools for studying history of education and introduces multiple ways of constructing the history of a particular movement reform or era in education.

**Credit Hours:** 3

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**ED\_LPA 9463: Politics of Education**

Focuses on politics of education in the United States, attending to the influence of various institutions and actors at local, state, and federal levels. Students will examine current reforms in PK-12 education and their impact on the future of education.

**Credit Hours:** 3

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**ED\_LPA 9465: Policy Analysis Using Large Data Bases**

Intends to develop students' capacity to process national level large databases and to conduct policy-related research.

**Credit Hours:** 3

**Prerequisites:** an understanding of inferential statistics and experience with SPSS and SAS program

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**ED\_LPA 9466: College Access**

This course examines theories and research on issues related to college going behaviors and inequalities in college access. The course will address college access through different levels of analyses: individual levels (e.g. race, ethnicity, gender, status, ability, social class, and transnational), organizational levels (e.g., geography, K-12 schools,

postsecondary institutions), and field levels (e.g., policy, media, admissions). Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 9467: International Higher Education**

The purpose of this class is to learn the major trends and issues facing postsecondary education around the world and critically engage in comparative analysis with emphasis on lessons for the U.S. higher education system. In particular, this course will cover global trends around governance, accountability, funding, and internationalization. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 9468: Educational Policy Implementation**

This course provides the theories and tools to understand and study the implementation of educational policies in K-12 schools and higher education. Drawing from various disciplinary perspectives, students will analyze and apply multiple approaches, including but not limited to technical-rational, street-level bureaucracy, sense-making, and policy enactment. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** ED\_LPA 9402 or the equivalent (including prior courses or relevant experiences) is recommended as a prerequisite

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**ED\_LPA 9469: Education Leadership Inquiry IV**

Developing and writing research proposals and conducting pilot studies. Knowledge and skills in writing the research report and sharing research with others.

**Credit Hour:** 1

**Prerequisites:** ED\_LPA 9471, ED\_LPA 9472 and ED\_LPA 9473. Open only to students in Ed.D. Program in Educational Leadership

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**ED\_LPA 9470: Organizational Analysis for Educational Leadership**

Schools of organizational theory, six frames to analyze organizations and their underlying concepts, organizational change and leadership for change, and rationale for reframing organizations.

**Credit Hours:** 4

**Prerequisites:** Open only to students in Ed.D. program in Educational Leadership

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**ED\_LPA 9471: Educational Leadership Inquiry I**

Introductory seminar on evaluating research using, APA Publication guidelines, writing scholarly publications, and using computer technology for literature searches.

**Credit Hours:** 2

**Prerequisites:** Open only to students in Ed.D. Program in Educational Leadership

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**ED\_LPA 9472: Educational Leadership Inquiry II**

MU Graduate School policies related to doctoral research, use of multiple search sources, human subjects review process, and research ethics.

**Credit Hour:** 1

**Prerequisites:** Open only to students in Ed.D. program in Educational Leadership

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**ED\_LPA 9473: Educational Leadership Inquiry III**

This advanced seminar assists scholarly practitioners in developing strategies for collecting, organizing, and outlining literature reviews. This course builds upon previous instruction in identifying problems of practice and the development of research questions. Course topics include selecting topics, searching databases, organizing resources, writing summaries, critiquing research, and crafting arguments. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Open only to students in EdD Program in Educational Leadership

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**ED\_LPA 9474: Professional Seminar I**

Focuses on diversity and ethics in educational leadership and educational organizations. Students learn about professional development, professional practice, and professional service. May be repeated for credit.

**Credit Hour:** 1

**Prerequisites:** Open only to students in Ed.D. Program in Educational Leadership

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**ED\_LPA 9475: Professional Seminar II**

This advanced course builds on previous coursework related to leaders and data to include considerations such as survey development, effective communication of findings, and data-driven decision making. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Open only to students in EdD Program in Educational Leadership

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**ED\_LPA 9476: Leadership Theory and Practice**

An advanced study of leadership theories, concepts, and inquiry as applied to educational organizations. Explores power and authority in organizations, leader effectiveness, and organizational reform.

**Credit Hours:** 3

**Prerequisites:** Open only to students in Ed.D. Program in Educational Leadership

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**ED\_LPA 9477: Leadership Theory and Practice Application**

Focuses on building understanding of the conduct of leadership in organizations through application and extension of leadership theories in practice.

**Credit Hour:** 1

**Prerequisites:** Open only to students in Ed.D. Program in Educational Leadership

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**ED\_LPA 9478: Policy Analysis for Educational Leadership**

Analysis and investigation of educational policy utilizing various knowledge bases; organizational politics and culture's impact on policy processes; interpretation and application of policy-making activities.

**Credit Hours:** 4

**Prerequisites:** Open only to students in Ed.D. Program in Ed. Leadership

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**ED\_LPA 9479: Content and Context of Learning**

Students develop the knowledge and skills for examining designing, and implementing organizational, classroom, and training conditions that support quality learning experiences for learners.

**Credit Hours:** 3

**Prerequisites:** Open only to students in Ed.D. Program in Educational Leadership

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**ED\_LPA 9480: Team Building and Group Dynamics**

Stages of group development, team building and maintenance, team/group structures, team performance, problem-based learning as team process, and empowerment through development of self-managed teams.

**Credit Hour:** 1

**Prerequisites:** Open only to students in Ed.D. Program in Educational Leadership

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**ED\_LPA 9481: Internship in Educational Leadership and Policy Analysis**

Some sections may be graded on A-F or S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** departmental consent

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**ED\_LPA 9482: Quantitative Tools for Applied Research in Educational Leadership**

General introduction to quantitative methods of data analysis. Develop concepts of measurement, design, and analysis. The focus is on data driven decision making and using various quantitative methods to investigate problems of educational leadership practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Only students in the Statewide Cooperative Ed.D. program in Educational Leadership can enroll

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**ED\_LPA 9483: Qualitative Tools for Applied Research in Educational Leadership**

Students will learn about a number of qualitative research designs that leaders can use to critically examine research questions in their practice. They will also learn to analyze educational issues and execute processes to effectively explore those issues. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to students in the Statewide Cooperative Ed.D. Program in Educational Leadership

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**ED\_LPA 9484: Program Evaluation and Planning for Educational Leaders**

Participants develop thorough knowledge of theoretical underpinnings of selected approaches to program planning and evaluation and their necessary integration. Affords participants the opportunity to plan, conduct and deliver the results of a program evaluation to actual client. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Only students in the Statewide Cooperative Ed.D. Program in Educational Leadership can enroll

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**ED\_LPA 9485: Assessment in Higher Education**

Accountability and accreditation on the local, state, and national levels make understanding how institutions work more important than ever. Higher education leaders need strong data to support decision making. Assessment and program planning live at the intersection of higher education policy and applied research design, analysis, and presentation. Assessment supports organizational effectiveness by providing timely and accurate information to both internal and external constituencies. This course is designed to help students understand the vital role of assessment, and planning and evaluation in the contemporary landscape of higher education by providing an introduction to the theoretical underpinnings and practical applications of the work. The course is relevant for students across higher education functions, particularly those interested in pursuing careers in institutional research and assessment and evaluation. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 9620: Qualitative Methods in Educational Research II**

(same as ESC\_PS 9620 and LTC 9620). This course constructs a conceptual and methodological bridge between the understandings of qualitative research developed in Qualitative Methods I and more advanced study of theories, designs, and methods. The focus is on theory, approaches to data analysis, and interpretation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8957

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## Educational, School and Counseling Psychology Courses

**ESC\_PS 2000: Experiencing Cultural Diversity in the United States**

The purpose of this course is to examine cultural diversity in U.S. Society, to increase self-awareness related to worldviews and beliefs about diversity issues, and to increase understanding of the intersections of multiple group identities. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 2010: Inquiry Into Learning I**

This course is designed to focus students on the central themes of learning and teaching. Emphasis will be placed on the interaction of theory, philosophy and practice as related to the field of education. Required for Phase II of the certification program.

**Credit Hours:** 3

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**ESC\_PS 2014: Inquiry into Learning I - Field Experience**

This field experience course supports the Inquiry into Learning I, component of Phase I. Graded on S/U basis only.

**Credit Hour:** 1

**Recommended:** departmental consent

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**ESC\_PS 2014H: Inquiry into Learning I - Field Experience - Honors**

This field experience course supports the Inquiry into Learning I, component of Phase I. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Honors eligibility required

**Recommended:** Departmental consent



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**ESC\_PS 2100: Career Explorations**

Contribution of career development theory to choice of career and/or major. Exploration of personal and social determinants of career choice. Class consists of lecture, laboratory experiences, and use of facilities at the Career Planning and Placement Center. Some sections may be graded on either A-F basis or S/U basis only.

**Credit Hour:** 1-3

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**ESC\_PS 2400: Learning and Instruction**

The nature of human learning processes with implications for instruction. Emphasis on bases of and readiness for learning, types of learning, memory forgetting and transfer, and related topics.

**Credit Hours:** 2

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**ESC\_PS 2500: Child Development**

The psychological, intellectual, social, and physical development of children.

**Credit Hours:** 3

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**ESC\_PS 2700: Psychological Perspectives in Sport**

Survey of sport psychology literature with focus upon such topics as personality, positive and negative affect, cognitive and behavioral intervention, motivation, aggression, audience effects, team cohesion, team building, leadership, exercise, and multicultural issues.

**Credit Hours:** 3

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**ESC\_PS 3085: Problems in Educational, School, and Counseling Psychology**

**Credit Hour:** 1-3

**Recommended:** instructor's consent

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**ESC\_PS 3100: African-American Psychology**

(same as BL\_STU 3100 and PSYCH 3880). The research, theories and paradigms developed to understand the attitudes, behaviors and psychosocial realities of African-Americans are discussed.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**ESC\_PS 3200: Black Feminism**

This course outlines the basic principles and practices of Black feminism in the United States. Examination of the multiple systems of oppression on Black women's lives and Black women's collective actions against social structures will occur.

**Credit Hours:** 3

**Recommended:** PSYCH 1000 or instructor's consent

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**ESC\_PS 4087: Seminar in Educational, School, and Counseling Psychology**

**Credit Hour:** 1-3

**Recommended:** instructor's consent

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**ESC\_PS 4115: Human Learning**

An introduction to the basic principles of learning. Focus is on principles of learning which have the greatest utility for professional educators. This course provides a foundation for more advanced courses in human learning.

**Credit Hours:** 3

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**ESC\_PS 4170: Introduction to Applied Statistics**

Introduces statistical techniques including descriptive statistics, correlation, simple regression and hypothesis testing. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Recommended:** College Algebra or equivalent

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**ESC\_PS 4185: Health Behavior: Drug and Sexuality Education**

Psychological, social, and physical factors related to drug taking and sexuality behaviors.

**Credit Hours:** 3

**Recommended:** instructor's consent

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**ESC\_PS 4200: Positive Psychology**

Using self-actualization and self-determination theory, the course builds on identifying personal strengths in people. An emphasis is placed on developing interventions that promote positive thinking. Some sections graded on either A-F or S/U basis only.

**Credit Hours:** 3

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**ESC\_PS 4460: Exploring Mental Health Issues in Schools**

This course is an introduction to the mental health challenges found in schools. It provides education professionals with the knowledge and basic skills to promote positive mental health practices in the schools.

**Credit Hours:** 3

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**ESC\_PS 4575: MU Youth Development Academy: Positive Youth Development in Practice**

(cross-leveled with ESC\_PS 7575). This course prepares students to apply principles of positive youth development to practice, including leading youth programs, developing organizational and community systems that support youth, and engaging others to create positive environments in which youth ages 5-19 grow, thrive, and make successful transitions to adulthood. Course topics include ages and stages of development, experiential learning, program planning, diversity and inclusion, youth/adult partnerships, volunteer systems, risk management, community partnerships, and creating environments for healthy relationships. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to upper level (junior/senior standing) students

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**ESC\_PS 7000: Foundation of Teacher Prep I**

Designed for graduate students seeking teacher certification, this course addresses content and application in comprehensive classroom management, development, behavior management, and diversity. Field work is required and integrated with course content.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**ESC\_PS 7087: Seminar in Educational, School, and Counseling Psychology**

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ESC\_PS 7115: Human Learning**

An introduction to the basic principles of learning. Focus is on principles of learning which have the greatest utility for professional educators. This course provides a foundation for more advanced courses in human learning. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 4100 or ESC\_PS 7100

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**ESC\_PS 7120: Theories and Techniques of Counseling**

Survey of contemporary theories underlying individual, feminist, family systems, and multicultural approaches to counseling. Introduction to professional and ethical issues in Counseling Psychology.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**ESC\_PS 7130: Parent Counseling and Consultation**

For personnel working with parents in professional settings. Examines current family needs and child-rearing practices. Basic skills in diagnosis, counseling, consultation, parent education are developed.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 4120 or ESC\_PS 7120

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**ESC\_PS 7160: Developmental Aspects of Human Learning**

Investigates aspects of human development that affect classroom learning. Topics include parenting style, divorce, friendship, mental health, attachment, play aggression, culture, and media. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 7170: Introduction to Applied Statistics**

Introduces statistical techniques including descriptive statistics, correlation, simple regression and hypothesis testing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** College Algebra or equivalent

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**ESC\_PS 7185: Health Behaviors: Drug and Sexuality Education**

Psychological, social and physical factors related to drug taking and sexuality behaviors.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7195; Restricted Positive Coaching degree seeking students (distance students) or permission of department

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**ESC\_PS 7195: Sport and Applied Coaching Psychology**

Sport and Applied Coaching Psychology is a fusion of positive psychology and sport psychology. Positive psychology teaches coaches a healthy approach based in positive motivation and behavior modeling. Sport psychology helps coaches identify with the mental training of

athletes and its role in delivering maximum performance. Course focus is on helping coaches maximize the potential of their athletes and teams, while also building upon their emotional and psychological wellbeing.

**Credit Hours:** 3

**Prerequisites:** Restricted Positive Coaching degree seeking students (distance students) or permission of department

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**ESC\_PS 7200: Positive Psychology**

Positive psychology explores what is positive, creative, and fulfilling in human behavior. It is the scientific study of well-being and flourishing: what people do right. This course will examine cornerstones and key concepts such as emotions, engagement, relationships, strengths, virtues, meaning, and purpose. Proven as a very effective application in the realms of organizations, governments, businesses, education, counseling, etc., it is best originally understood by applying it to oneself.

**Credit Hours:** 3

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**ESC\_PS 7260: Development of Character and Talent Strengths**

This course will explore the development and application of psychological strengths through the lens of positive psychology theory, research, and intervention. Lessons feature strengths topics including identification, leadership, flow and engagement, regulation, goal-setting and motivation. At the end of the course, students will be proficient in the languages of the StrengthsFinder and VIA Character Strengths assessments, exploration and development oriented activities, and basic facilitator techniques. Graded on A-F basis only.

**Credit Hour:** 1

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**ESC\_PS 7270: Motivation and Positive Psychology**

This course is designed to give you a better understanding of your own motivation and the motivations of others. We will explore the whether, the what, the why, and the how of motivation through the study of Self-Determination, Self-Concordance and Goal Systems, as well as Attribution and Achievement goal theories. In addition to conceptual knowledge, it is our hope that you broaden your personal knowledge, such as gain new insights on how to set and select self-appropriate goals. Additionally, we will explore techniques and recommendations for motivating others towards better performance, learning, and development. Graded on A-F basis only.

**Credit Hour:** 1

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**ESC\_PS 7280: Mindfulness, Meditation and Wellbeing**

This class explores both the historical roots and contemporary research related to mindfulness, meditation, and their impacts on wellbeing. Through readings, video presentations and applied practices students will expand their knowledge of meditation and Eastern influences on psychology. Students will also be encouraged to increase their personal awareness of the relationships between stress reduction, present moment and mind/ body awareness, and mindfulness practices. Students will be challenged to integrate a regular meditation practice into their daily routine and, through diverse readings, be introduced to cross-cultural perspectives on human health, psychology, and wellbeing. Graded on A-F basis only.

**Credit Hour:** 1

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**ESC\_PS 7460: Foundations of School Mental Health**

Explores the history, foundations, and implementation of an expanded framework of school mental health focusing on collaborative and interdisciplinary approaches to supporting the wellness and school success of youth. Introduces professional working in or with schools to the school mental health framework emphasizing a behavioral health continuum of care, links between mental health and academic performance, a comprehensive system of learning supports, and data-based decision-making.

**Credit Hours:** 3

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**ESC\_PS 7575: MU Youth Development Academy: Positive Youth Development in Practice**

(cross-leveled with ESC\_PS 4575). This course prepares students to apply principles of positive youth development to practice, including leading youth programs, developing organizational and community systems that support youth, and engaging others to create positive environments in which youth ages 5-19 grow, thrive, and make successful transitions to adulthood. Course topics include ages and stages of development, experiential learning, program planning, diversity and inclusion, youth/adult partnerships, volunteer systems, risk management, community partnerships, and creating environments for healthy relationships. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** restricted to graduate students (Master's and PhD)

**Recommended:** Prior course work in education, human development, family studies, sociology, social work, or other child and youth-related programs is highly preferred

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**ESC\_PS 8020: Overview of Research Methods**

Survey of research design and methods of data collection for masters, educational specialists, and doctoral students.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7170 or instructor's consent

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**ESC\_PS 8040: Counseling Methods and Practices**

Introduction to counseling microskills and techniques, with attention to case conceptualization, therapeutic alliance, and counseling process. Laboratory experience in demonstrating skills and the ability to form an effective counseling relationship is required.

**Credit Hours:** 3

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**ESC\_PS 8060: Lifespan Development**

A comprehensive analysis of normal development across the lifespan with a primary focus on children and adolescents. Will investigate the cognitive, affective, academic, physical, moral, social/cultural/racial, religious/spiritual and sexual domains. Examples of atypical development will be discussed.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 4100 or equivalent. Consent of instructor required

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**ESC\_PS 8070: Ethical and Legal Issues in Psychological Practice**

Legal and ethical concepts and issues relevant to the practice of psychology and student personnel services.

**Credit Hours:** 3

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**Prerequisites:** ESC\_PS 4120 or ESC\_PS 7120 or instructor's consent

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**ESC\_PS 8082: Foundations of Educational and Psychological Measurement**

Basic principles of educational and psychological measurement including test construction, validity, reliability, item analysis, and derived scores.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 4170 or ESC\_PS 7170 or instructor's consent

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**ESC\_PS 8085: Problems in Educational, School, and Counseling Psychology**

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ESC\_PS 8087: Seminar in Educational, School, and Counseling Psychology**

Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ESC\_PS 8090: Master's Thesis in Educational, School, and Counseling Psychology**

Independent research leading to Master's Thesis. Graded on S/U basis only. Prerequisites: advisor's consent

**Credit Hour:** 3-6

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**ESC\_PS 8095: Research in Educational, School, and Counseling Psychology**

Supervised research that is independent of master's thesis or doctoral dissertation. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** advisor's consent

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**ESC\_PS 8100: Psychological Assessment of Children and Adolescents: Cognitive Assessment**

Basic principles in intelligence theory and intermediate measurement concepts. Practice in administering, scoring, and interpretation of data from individually administered intelligence tests with school aged children and adolescents. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ESC\_PS 8110: Methods in Group Counseling**

Study of group counseling methods and techniques. Participation in a group is required.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8040, demonstrated knowledge of ethical principles and departmental consent

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**ESC\_PS 8120: Psychological Assessment of Children and Adolescents: Psychoeducational Assessment**

Practice in administering, scoring, and interpretation of data from academic achievement, nonverbal intelligence, memory, adaptive

behavior, and perceptual/motor assessments with school-age youth and adolescents.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8100 and instructor's consent

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**ESC\_PS 8125: Professional Iss. in Sch. Psych. I:Hist., Trends & Ethical Pract.**

For first-year doctoral students in school psychology. History, current issues, trends, professional organizations, legal-ethical standards of doctoral level school psychology are discussed. The scientist-practitioner model and scientific reasoning process as they apply to both science and practice are reviewed.

**Credit Hours:** 3

**Prerequisites:** Must be admitted to school psychology program

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**ESC\_PS 8130: Psychological Assessment of Adults**

Students develop and practice skills in writing psychological reports with special emphasis on assessing psychological social-vocational functioning.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8100

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**ESC\_PS 8135: Foundations of Career Psychology**

Theoretical orientations to counseling for career development; nature and structure of work, education, and leisure; work and family issues; career concerns of special populations; use of career information in counseling.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**ESC\_PS 8140: Psychological Assessment in Children and Adolescents: Behavior and Social Emotional Assessment**

This course introduces behavior theory, behavioral and social-emotional assessment techniques (including observations, interviewing, rating scales, and projective techniques) and their link to relevant interventions, with a primary focus on school-age youth and adolescents.

**Credit Hours:** 3

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**ESC\_PS 8145: Psychological Interventions with Children and Adolescents: Behavioral Intervention**

This course will emphasize behavioral theory, assessment, and intervention, including functional behavior assessment, positive behavior supports, and the conceptualization from an individual, systems, and public health perspective. Graded on A-F basis only

**Credit Hours:** 3

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**ESC\_PS 8155: Crisis Prevention, Intervention, and Response in Schools**

The course provides students with basic knowledge, theoretical frameworks, and skills/strategies for crisis prevention, intervention, response, and recovery in school and community settings, with a primary focus on addressing the mental health needs.

**Credit Hours:** 3

**Prerequisites:** Instructor consent

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**ESC\_PS 8160: Psychological Interventions with Children and Adolescents: Educational Instruction**

This course investigates models of school instruction in both general and special education, and how instruction can be adapted for learners who exhibit a range of academic and psychological problems and disabling conditions.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8100, ESC\_PS 8120 and instructor's consent

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**ESC\_PS 8165: Psychological Interventions with Children and Adolescents: Evidence-Based Therapies**

An introduction to evidence-based child and adolescent psychotherapies, including individual and group interventions. Various aspects will be considered including assessment, diagnosis, and treatment planning. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8175: Applied Behavior Analysis: Principles, Assessment, and Evaluation**

This course is designed to provide students with an understanding of operant conditioning principles and concepts, single-case design methodology, and behavior analytic assessments and evaluation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**ESC\_PS 8185: Health Promotion**

An overview of the important concepts of health promotion. Emphasis on specific health-related problems and issues, health behavior change, and the design, development implementation, and evaluation of comprehensive health promotion programs.

**Credit Hours:** 3

**Prerequisites:** LTC 1310 or equivalent or instructor's consent

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**ESC\_PS 8195: Applied Positive Coaching**

Explores concepts of sport, coaching and positive psychology, particularly the interventions and applications designed to further develop a coach's philosophy, communication skills, understanding of motivation, leadership skills, and the coach's and athlete's well-being.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7195; Restricted Positive Coaching degree seeking students (distance students) or permission of department

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**ESC\_PS 8200: Applied Positive Psychology**

This course will require students to implement positive psychology concepts from the introductory course into their personal, professional, and/or social lives. We will also study specific ways in which these concepts and theories are being applied throughout various realms of well-being. Among the topics in this course are therapeutic lifestyles, goal-setting and attainment, self-care, meaning making, transformational leadership, influence and sustainable happiness theory.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7200

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**ESC\_PS 8232: Foundations of Sport Performance**

Focuses on principles and methods to become an effective sport performance coach. Examines the development of athletes and education of basic sports nutrition, strength, and conditioning.

**Credit Hours:** 3

**Prerequisites:** Restricted Positive Coaching degree seeking students (distance students) or permission of department

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**ESC\_PS 8240: Sport in America**

Sociological perspectives of sport in America. Attention given to the influence of society on sport as in institution, and the role of sport as an agent of social change.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 1000 or PSYCH 1000

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**ESC\_PS 8250: School Psychology Practicum: Introduction**

This course is an intro practicum that exposes students to the organization and functions of schools. Students work with psychologists and other school personnel on academic and behavioral interventions to learn how schools serve children and their families. Graded on S/U basis only. May be repeated for credit.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**ESC\_PS 8255: Legal Aspects of Sport and Coaching**

Emphasis is to provide insight about how the law is applied in sport settings, the types of litigation involved, and the standard of care required. Fundamental terminology and concepts, and contemporary issues in sport law will be addressed.

**Credit Hours:** 3

**Prerequisites:** Restricted Positive Coaching degree seeking students (distance students) or permission of department

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**ESC\_PS 8260: School Psychology Practicum: Intermediate**

Intermediate School Psychology Practicum provides students with experience in school-based psychological service delivery. Students gain experience with psychoeducational assessment and diagnosis, intervention planning and delivery, consultation, and serving on multidisciplinary teams. Graded S/U basis only. May be repeated for credit.

**Credit Hour:** 1-6

**Prerequisites:** Instructor's consent

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**ESC\_PS 8265: Administration of Athletic Programs**

Examines methods, principles, and roles of athletic administrators. Also, examines the job responsibilities and competencies required of sport leaders in athletic administration.

**Credit Hours:** 3

**Prerequisites:** Restricted Positive Coaching degree seeking students (distance students) or permission of department

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**ESC\_PS 8270: Student-Athlete Wellbeing**

As a positive coach and career educator, your knowledge of student wellbeing is critical to support your students' physical, mental, and social health alongside their academic success and development beyond sport.

Although our semester will focus largely on the most critical components of student welfare, we will also frame our study of student wellbeing using the tenets of Positive Psychology, a discipline that champions a strengths-based approach to guide positive behaviors associated with health and wellbeing. Health promotion theory will also guide our course of study as we examine: (a) individual student-athlete wellbeing with a focus on physical, mental, and social health (b) wellbeing in the context of student services provided by the school or organization, and (c) program evaluation methodology to identify strengths and opportunities for program improvement to enhance wellbeing and welfare for all student-athletes. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted Positive Coaching degree seeking students (distance students) or permission of department

**Recommended:** ESC\_PS 7200 Positive Psychology

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**ESC\_PS 8280: Gender Issues in Sport**

Through a study of theory and applied practice, students will explore personal biases, understand intersecting identities and explore privilege and oppression at the individual, interpersonal, structural, and cultural level when considering gender awareness in sport.

**Credit Hours:** 3

**Prerequisites:** Restricted Positive Coaching degree seeking students (distance students) or permission of department

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**ESC\_PS 8290: Multicultural Issues in Sport**

The purpose of this course is to increase the level of multicultural awareness, knowledge, skills, and relationship of athletic coaches working with diverse student populations. Activities and assignments are designed to assist, encourage, and challenge each student to more fully develop awareness and knowledge of self, and to use this information to improve intercultural interactions with others in professional settings as well as other settings.

**Credit Hours:** 3

**Prerequisites:** Restricted Positive Coaching degree seeking students (distance students) or permission of department

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**ESC\_PS 8300: Positive Leadership in Sport**

A Positive Leadership philosophy requires Positive Leadership delivery. Course is designed to prepare leaders to bridge content knowledge to practical application. Students will use core competencies learned throughout their program to develop their leadership approach.

**Credit Hours:** 3

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**ESC\_PS 8320: Advanced Human Learning**

A study of behavioral and cognitive theories of learning with an emphasis on those greatest utility for educators. Experimental evidence forming the theoretical base for educational practice is examined.

**Credit Hours:** 3

**Recommended:** ESC\_PS 2400 or ESC\_PS 7100

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**ESC\_PS 8330: Motivating At-Risk and Diverse Students**

This course examines motivational concepts that apply to students of all ages. The course is designed to help teachers design classrooms and assignments that would improve the motivation of students, especially

at-risk students. The course pays special attention to issues of diversity relevant to motivation. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8340: Cultural Backgrounds and Learning**

The course explores the influence of culture on the process of learning. Topics and discussions will center on learning within the K-12 classroom. Readings and assignments are tailored to engage students in practical classroom applications of the information and discussions within the course. At the conclusion of the course students will have a deep understanding of how culture shapes thinking, learning, behavior, and the classroom environment. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8350: Cognition, Learning and Instruction**

Examines the topics of memory and cognition as they apply to the process of learning and instruction.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8320 or instructor's consent

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**ESC\_PS 8355: Cognition and Emotion**

This course looks at human cognition and emotions and their influence on learning, self-control, motivation, executive processes, and behavior change. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8360: Advanced Counseling Theories and Interventions**

Contemporary theories and interventions of counseling. Advanced study of efficacious techniques. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8040 or ESC\_PS 8342

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**ESC\_PS 8370: Social Emotional Learning**

The development and support of social emotional learning will be examined for K-12 age students. The course is both theoretical and application based and is appropriate for all levels of graduate students. Research strongly supports the importance of social emotional regulation in increasing and supporting academic achievement and well-being. Specific topics covered in the class include: the integration of SEL with related prevention approaches, SEL and student-teacher relationships, SEL in connection with PBIS, and accountability in SEL programs. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8380: Data-Driven Instructional Decisions**

This course explores the uses of assessments and evaluation techniques for practical applications within the classroom. Focus is on use of data gathering techniques to increase student academic performance and inform classroom instruction. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8400: Analysis of Research in Career Psychology**

Examination of career development theories, the research supporting the theories, and the practical application of these ideas in career counseling and career programs.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8135

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**ESC\_PS 8410: School Guidance Programs**

Provides knowledge and skills in the development and management of school guidance programs including program planning, structuring, implementing, and evaluating.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7120

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**ESC\_PS 8415: Program Evaluation for School Counselors**

Program Evaluation is a graduate seminar intended to provide students with the skills needed to evaluate comprehensive guidance and counseling programs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7120

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**ESC\_PS 8425: Effects of Maltreatment on Child and Adolescent Development**

Course topics to be covered include 1) definitions of child maltreatment, 2) incidence and prevalence rates, 3) possible causes and consequences associated with child maltreatment, 4) treatment of survivors and perpetrators, and 5) prevention efforts. Important legal and ethical issues will be discussed, such as children's competence and eyewitness abilities, false allegations of abuse, mandated reporting, and investigative interviewing of children. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8430: Mental, Emotional, and Behavioral Disorders in Youth**

The course will include an overview of normal development and an investigation into specific deviations in intensity, frequency, and/or duration of normal development which impact the individual in his or her home, school, and community.

**Credit Hours:** 3

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**ESC\_PS 8435: Wellness Management for School Personnel**

The current climate in schools places considerable demands on teachers and other school personnel. Often, those working in schools find themselves under enormous stress and pressure. In this course, school personnel will examine a variety of topics related to both identifying and effectively dealing with these pressures. Topics include communication skills, dealing with challenging individuals in the school system, recognizing and effectively managing stress, and recognizing burnout and re-energizing. The course will provide an overview of the research on these topics, as well as numerous effective strategies to deal with these pressures. Students in the course will have opportunities to apply learned strategies to real-life situations in the schools. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8440: School Mental Health: Policy, Law and Ethics**

This course is designed to familiarize school-based professionals with policies, laws and ethics associated with children and youth and schools.

**Credit Hours:** 3

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**ESC\_PS 8445: Building Resiliency and Optimism in Youth**

Examines risk and resiliency processes during childhood and adolescence. Focuses on defining resilience; sources of risks and protective factors within families, schools, and communities; prevention programs targeting early, middle childhood and adolescence. Promotion of one's own resilience and well-being discussed. Special topics include strengths-based models of resiliency, resilience and family difficulties, violence and maltreatment, poverty, dropout, and school/community-based prevention and intervention.

**Credit Hours:** 3

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**ESC\_PS 8450: Diversity Issues in School Mental Health**

The purpose of this course is to increase the level of multicultural awareness, knowledge, skills, and relationship of school personnel working with diverse student populations.

**Credit Hours:** 3

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**ESC\_PS 8455: Bully and Youth Violence: Prevention and Reduction**

This course is a survey of current issues in bullying and youth violence with an emphasis on applications in the school environment. The course will present effective strategies for bullying and violence prevention within the school and in collaboration with the community at large. Students are encouraged to apply the course concepts to their work environment and develop tools for future practice in schools and other youth-serving settings. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8460: Communication and Collaboration with Children and Families**

This course will provide education professionals with the knowledge and basic skills to address common mental health issues through positive and solution focused communication and collaboration.

**Credit Hours:** 3

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**ESC\_PS 8465: Vital Issues in School Mental Health**

The course is highly individualized in that students, as a group, will choose the specific topics to be covered. Readings and assignments have three foci: 1) improve understanding of each issue within a broader context of public mental health policy, prevention, intervention, and maintenance; 2) deepen student knowledge of the topic from practice and research-based sources; and 3) enable students to deal more effectively with those issues within relevant settings. Topics may include, but are not limited to: school dropout, substance use, self-injury/cutting, relational aggression, management of extreme behaviors, homelessness, divorce/death, eating disorders, pregnancy, ADHD, and many others. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8470: Preventions and Interventions in School Mental Health**

This course explores the role that educators and school mental health professionals play in promoting, prevention and early intervention practices for mental, emotional, and behavioral disorders in youth and considers the basic steps for designing, implementing and evaluating evidence based interventions.

**Credit Hours:** 3

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**ESC\_PS 8475: Proactive Behavior Management**

This course provides a framework to a prevention-focused model of classroom support and behavior management. Prevention is less time-consuming in the long run and leads to more opportunities for learning and social engagement because discipline problems are not interfering with teaching. This course will include evidence based strategies to structure proactive learning environments that promote students' academic skills and competencies as well as their social and emotional development. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8490: Mental Health in Schools Capstone Paper**

Course focuses on writing a capstone integration paper that is intended to be a culminating experience. Allows students to reflect on the content of their course work, evaluate the knowledge and skills acquired, and apply what they have learned into their professional practice.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**ESC\_PS 8515: Sport Psychology**

Current topics of research in sport psychology are examined. Topics include: sport personality, attention, activation and anxiety intervention, motivation, sport aggression, audience effects, team cohesion, leadership, and health psychology.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**ESC\_PS 8530: Developmental Psychopathology and Exceptionality**

An investigation into the presentation, diagnosis, and treatment of psychopathologies in individuals, emphasizing causal pathways, risks/resiliency, prevalence, incidence, and continuity/discontinuity of the disorders from research in the field of developmental psychopathology. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8550: Diversity and Multiculturalism II - Practical Application**

This course is part two in the Multicultural Education Certificate series of online courses designed for students working in a broad range of professions, such as health care, social work, education, school counseling, administration, etc. Students will examine various topics on diversity and multiculturalism to enhance their personal and professional development. To this end, the milieu of this course will be a safe online environment that is conducive to open dialogue, self-reflection, critical thinking, and questioning, and one in which students can actively engage in the learning process through affective and cognitive approaches. Postings, along with relevant readings and assignments, will be used as

the primary tools and resources for this collective learning experience.  
Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** ESC\_PS 8450

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**ESC\_PS 8555: African American Education - Historic and Current Issues**

Critical examination of the deculturalization of American educational system. Concepts of race, culture, and 'post racial society' are juxtaposed with social and systemic trends impacting African American students both in and out of the classroom. Pedagogical strategies are discussed. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** ESC\_PS 8450

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**ESC\_PS 8560: Immigrant Issues in Education**

The purpose of this course is to increase the level of cross-cultural awareness, knowledge, and skills of school personnel working with students who are immigrants. It is designed to be practically and experientially oriented. Activities and assignments in the class are designed to assist, encourage, and challenge each student to more fully develop awareness and knowledge of self, and to use this information to improve intercultural interactions with others in professional settings as well as other settings. The anticipated outcome includes improved skills in conceptualizing the unique needs of and responding with appropriate approaches to effectively assist students who are immigrants. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** ESC\_PS 8450

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**ESC\_PS 8565: Gay, Lesbian and Bisexual Issues in the Schools**

This online course seeks to expand your perspective, worldview, and knowledge of GLB individuals and in your work environments as well as an invitation to promote social justice to make positive changes for the benefit of GLB individuals. Individuals who identify as GLB face many unique experiences, challenges, and opportunities during their developmental life span including issues related to coming out, psychological well-being and mental health development, heterosexism and homophobia, stereotypes and myths, and sexual identity. These issues and more are discussed in the course. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** ESC\_PS 8450

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**ESC\_PS 8590: Multicultural Counseling Competencies: Theory and Research**

This course will introduce students to the current status of multicultural counseling theories and research issues and help students to increase their knowledge of cultural differences in counseling and psychology. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8640: Interviewing, Diagnosis, and Assessment**

Introduction to clinical, psychometric assessment, and diagnosis. Data-gathering methods include interviews and tests/inventories of intellectual functioning, abilities, personality, and interests. Students

utilize psychological reports to inform assessment, diagnosis and treatment.

**Credit Hours:** 3

**Prerequisites or Corequisites:** ESC\_PS 8082

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**ESC\_PS 8655: Item Response Theory**

Introduces modern scaling with Item Response Theory, and includes how it can be used to statistically specify information about latent variables and the stimuli (e.g., tests) used to represent them.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 9640 and ESC\_PS 9650

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**ESC\_PS 8690: Educational Planning and Evaluation**

This course addresses major issues and models used in educational program planning and evaluation, including the appropriate use of various evaluation models and different types of data.

**Credit Hours:** 3

**Prerequisites:** departmental inquiry course, ESC\_PS 8830 and/or ESC\_PS 8957

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**ESC\_PS 8700: Life/Career Coaching and Development**

Designed to teach life and career coaching strategies with roots in career psychology and positive psychology. It provides the tools and knowledge on how to coach people to achieve their personal and professional goals.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7200

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**ESC\_PS 8710: Meaning In Work**

Covers a broad look at meaning and vocation using theoretical and empirical frameworks. Also explores the influence of culture, environment, relationships and personal values on meaning development while providing a framework for working from a coaching/counseling standpoint to help others identify or develop meaningful vocations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7200

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**ESC\_PS 8720: Community and Stewardship**

Examines the concepts of community and stewardship, explores the literal roots of the word (common-unity) and our ability to respond (responsibility) to and build our communities. Also explores the connections between altruism, personal well-being, and social stewardship.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7200

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**ESC\_PS 8730: Positive Organizational Psychology**

Surveys the impact of positive organizational psychology research throughout professional organizations. Students will learn empirically defined elements of positive work environments and learn the building blocks associated with this field including: Appreciative Inquiry, the Abundance Approach, Strengths-Based Organizations, Positive Work Environments, and Employee Engagement and Satisfaction.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7200



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**ESC\_PS 8850: Quantitative Foundations in Educational Research**

This course is designed to provide students the fundamental and necessary quantitative methods skills in educational research. Topics include one-way and factorial analysis of variance (ANOVA), analysis of covariance (ANCOVA), repeated measures ANOVA, random-effects ANOVA, simple linear regression, multiple regression, regression diagnostics, introduction to logistic regression, and statistical power analysis. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7170

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**ESC\_PS 8860: Statistical Data Management and Analysis in Educational Research**

Good data management is a prerequisite for successful research, needed for reproducibility of results, and essential when collaborating with others. The focus of this course is the application of various techniques with different educational databases using R. By the end of the class, students should feel comfortable importing data using different formats, recoding/renaming variables, merging data from different sources, reshaping data, handling missing values, and creating graphs/tables/plots. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8940: Counseling Psychology Practicum**

Supervised practice of counseling in an approved counseling setting. May be repeated. Graded on S/U basis only.

**Credit Hour:** 3-9

**Prerequisites:** ESC\_PS 8040, ESC\_PS 8135, and ESC\_PS 8640 and consent of counseling area faculty

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**ESC\_PS 8943: Practicum in Multicultural Counseling Interventions**

Supervised practice of applied multicultural counseling interventions in a wide variety of approved community and university settings. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** ESC\_PS 8040 and either ESC\_PS 8570 or ESC\_PS 8590

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**ESC\_PS 8948: Field Placement in Counseling/Supervision**

Students will conduct counseling and/or supervision in approved community agencies under the supervision of licensed practitioners. Graded on S/U basis only.

**Credit Hour:** 1-12

**Prerequisites:** completion of 9 credit hours of ESC\_PS 8040, and consent of the Counseling Area Faculty

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**ESC\_PS 8957: Qualitative Methods in Educational Research I**

(same as LTC 8957 and ED\_LPA 8957). This course provides a practical introduction to qualitative research and its applications in education and social sciences. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8960: Interdisciplinary Child and Family Practicum**

This class includes a focus on child/family services with a systems/interdisciplinary approach. Students provide services via a mentorship model (strong supervision initially moving toward autonomy). Services include evaluations, therapy, consultation, psychiatric cross-training, and others. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** ESC\_PS 8040 and instructor's consent

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**ESC\_PS 8990: Career Development Theory for Women**

Consideration of the relevance of theories of career development for women, and their application to the counseling of women. Supervised clinical experience in the application of theories to counseling high school age women.

**Credit Hours:** 3

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**ESC\_PS 9000: Multicultural Issues in Counseling**

This course covers the research and theories of counseling racial/ethnic minorities and gays, lesbians, and bisexuals in the U.S. Examination of personal values and education about the interrelationship between race, class, gender, and sexuality are accomplished via structured activities.

**Credit Hours:** 3

**Recommended:** ESC\_PS 8340

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**ESC\_PS 9020: Psychology of Crossing Cultural Borders**

The primary purpose of the course is to promote the development of cross-cultural knowledge, awareness, and skills for applied psychologists. Students acquire knowledge of psychological processes associated with crossing cultural borders, and translate that knowledge into practical applications. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 9030: Social Bases of Behavior**

This courses provides an advanced level, broad overview of the field of social psychology in relation to applied psychology. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 9060: Advanced History and Systems of Psychology**

This course explores the origins of psychology in philosophy and the sciences, the development of the science of psychology in the 19th and 20th centuries, and current theoretical perspectives and research in relation to the enduring issues in psychology. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 9080: Biological Basis of Behavior**

This course is an advanced level doctoral seminar that provides a broad overview of biological bases for human behavior. It will examine the neurophysiological bases of 'normal' and 'abnormal' behavior using a developmental perspective. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 9090: Doctoral Dissertation Educational School & Counseling Psychology**

Independent research leading to dissertation. Graded on S/U basis only.

**Credit Hour:** 1-12

**Prerequisites:** departmental consent

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**ESC\_PS 9091: Internship in Counseling Psychology**

Supervised experience in counseling psychology on half- or full-time basis in approved internship station. May be repeated. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** departmental consent

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**ESC\_PS 9092: Internship in School Psychology**

Supervised practice in school psychology in an educational setting. May be repeated. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** departmental consent

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**ESC\_PS 9093: Doctoral Internship in School Psychology**

Supervised practice in doctoral-level school psychology in an institutional or applied setting. May be repeated. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** departmental consent

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**ESC\_PS 9100: Advanced Psychological Measurement and Assessment**

Introduction to the scientific and psychometric foundations of clinical assessment, including measurement theory, reliability, validity, and scale/test construction. Primary focus on the development and validation of evidence-based, psychometrically-sound assessment tools. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor consent

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**ESC\_PS 9125: Professional Iss. in Sch. Psych. II: Rsrch. Design & Application**

For first-year doctoral students in school psychology. Includes study of research design and methodological issues in the field of school psychology.

**Credit Hours:** 3

**Prerequisites:** Must be admitted to school psychology doctoral program

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**ESC\_PS 9126: Prevention Science Research Design and Analysis**

Prevention Science Research is a graduate seminar intended to provide students with the theoretical and empirical foundations of prevention science. In particular, students will learn how to conceptualize problems from a prevention science perspective and design and evaluate preventive interventions using advanced methodologies. Opportunities for community based participatory research including research design and analysis, papers and briefs, grantwriting, and community collaborations regarding prevention programming particularly pertaining to children's mental health.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ESC\_PS 9250: School Psychology Practicum: Advanced**

This course is an advanced practicum for students providing school psychology services. Students develop higher-level skills in the areas of case coordination, diagnostic decision-making, intervention, and systems change. Graded S/U basis only. May be repeated for credit.

**Credit Hour:** 1-6

**Prerequisites:** Instructor's consent

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**ESC\_PS 9260: Policy Practicum in Professional Psychology**

Policy Practicum is an advanced practicum focused on macro level skills for shaping policy and systems-level intervention. Students work within agencies that establish policy for special education, mental health, and other education/psychology-related issues. May be repeated for credit.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ESC\_PS 9400: Theories and Practices in Supervision**

Instruction and practice in the supervision of psychological services conducted in appropriate laboratories and agencies. Sections titled Counseling Psychology are graded on S/U basis only. Sections titled School Psychology are on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8940 or ESC\_PS 8944 and instructor's consent

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**ESC\_PS 9450: Motivation**

Investigates human motivation applied to performance in schools, athletics, and personal life. Topics include goals, attributions, self-efficacy, interest, cultural differences, and rewards. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8320 or equivalent

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**ESC\_PS 9530: Scientific Fdns of Counseling Psych I: Prof Iss &**

For first-year doctoral students in counseling psychology. This course focuses on the history of counseling psychology, in and scientific reasoning processes as they apply to both science and practice.

**Credit Hours:** 3

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**ESC\_PS 9540: Scientific Foundations of Counseling Psych II: Rsrch, Dsgn & Appl**

For first-year doctoral students in applied psychology. Includes study of research design and methodological issues in the field of counseling psychology.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 9530

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**ESC\_PS 9550: Scientific Writing in Counseling Psychology**

This course focuses on the technical skills needed for developing a scientific research proposal in counseling psychology.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 9530 and ESC\_PS 9540 and instructor's consent

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**ESC\_PS 9560: Psychological Consultation: Schools**

The individual psychological consultation process between the mental health professional and school personnel. Techniques, models, research roles, and responsibilities are discussed. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 9570: Psychological Consultation: Organizations**

This course provides an introduction to the theory and practical skills required to effectively consult at the organizational level in a variety of settings and contexts. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 9610: Applied Sport Psychology**

Building upon the knowledge base of sport psychology, this course integrates and synthesizes student's understandings of the wide array of concepts and theories of the field into meaningful applications and strategies aimed at enhancing the sport experience of others. A case study approach will be employed.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8515

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**ESC\_PS 9620: Qualitative Methods in Educational Research II**

(same as ED\_LPA 9620 and LTC 9620). This course constructs a conceptual and methodological bridge between the understandings of qualitative research developed in Qualitative Methods I and more advanced study of theories, designs, and methods. The focus is on theory, approaches to data analysis, and interpretation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8957

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**ESC\_PS 9640: Introduction to Theory of Educational Measurement**

Classical and modern test theory, including IRT, generalizability theory and test bias. Also covered are advanced strategies for investigating reliability and validity.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7170 and ESC\_PS 8082

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**ESC\_PS 9650: Application of Multivariate Analysis in Educational Research**

The focus of this course will be on applications of multivariate analysis in educational research.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8830 and ESC\_PS 8840 or equivalent and instructor's consent

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**ESC\_PS 9660: Generalized Linear Modeling**

This course is designed to introduce students to the theory and application of generalized linear models (GLMs). GLMs provide a flexible generalization of the ordinary linear regression model. While the latter is restricted to continuous dependent variables (with normal error term), the GLM framework has been developed to analyze dependent variables that are, e.g., binary, polytomous nominal, ordinal, counted, censored, or bounded continuous. Graded on A-F basis only.

**Credit Hours:** 3

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**Prerequisites:** ESC\_PS 8850

**Recommended:** Familiarity with the basics of the R statistical programming environment (see [www.r-project.org](http://www.r-project.org)) is assumed

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**ESC\_PS 9710: Structural Equation Modeling**

Simultaneous analysis of relationships among variables. Topics included are path analysis, confirmatory factor analysis, hybrid models, and special types of structural models involving longitudinal data, multiple groups and analysis of means. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7170, ESC\_PS 8830, ESC\_PS 8840, ESC\_PS 9650

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**ESC\_PS 9720: Hierarchical Linear Modeling**

Hierarchical Linear Modeling (HLM), including multilevel and longitudinal approaches, in applied research settings for the social, educational psychological, and health-related sciences. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7170, ESC\_PS 8830, ESC\_PS 8840, ESC\_PS 9650; consent required

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## Electrical And Computer Engineering Courses

**ECE 1000: Introduction to Electrical and Computer Engineering**

Introduction to the basic principles of electrical and computer engineering through hands-on activity. Course includes fundamentals of programming using Matlab, applied to electrical and computer engineering problems.

**Credit Hours:** 2

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**ECE 2001: Experimental Course**

For sophomore-level students. Content and number of credit hours to be listed in Schedule of Courses.

**Credit Hour:** 1-99

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**ECE 2007: World of Neuroscience**

(same as BIOL\_EN 2007, BME 2007, CMP\_SC 2007). This in-class course will introduce undergraduates to the growing area of neuroscience from the perspectives of three disciplines: engineering, biology and psychology. Topics in the course will span multiple levels of neuroscience including genomic, genetic, molecular, cellular, systems, behavioral and clinical levels. Due to the interdisciplinary nature of the neuroscience, the classes will cover diverse topics. The topics will range from overviews of the key neurobiology areas, to lab sessions involving how to analyze your own brain signals (EEG), and to visits to brain imaging center and EEG lab. The overall goal is to provide a broad exposure to the fascinating world of interdisciplinary neuroscience. Graded on A-F basis only.

**Credit Hour:** 1

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**ECE 2100: Circuit Theory I**

DC circuit analysis, inductors and capacitors, first order response, AC circuit analysis, single-phase AC power. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** A grade of C- or better in MATH 1700

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**ECE 2210: Introduction to Logic Systems**

(same as CMP\_SC 2270). Introduces basic tools, methods and procedures to design combinational and sequential digital circuits and systems. Topics include number systems, Boolean algebra, logic minimization, circuit design, memory elements, and finite state machine design. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C or higher in CMP\_SC 1050 or INFOTC 1040

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**ECE 3210: Microprocessor Engineering for Electrical Engineers**

Introduction to microprocessor architectures and programming; memory, memory management and cache organizations, bus configurations and timing implications; parallel I/O and serial communication interfaces.

**Credit Hours:** 4

**Prerequisites:** A grade of C or better in CMP\_SC 1050 and ECE 2210 or CMP\_SC 2270

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**ECE 3220: Software Design in C and C++**

Software/Hardware development for embedded systems, including memory, I/O and interrupts; an overview of C and C++, class structures in object oriented programming; software development with UML and testing and debugging strategies. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 3280 or CMP\_SC 3280 or ECE 3210 with a grade of C or better

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**ECE 3280: Computer Organization and Assembly Language**

(same as CMP\_SC 3280). Introduces computer architectures, programming concepts including parameter passing, I/O interrupt handling, DMA, memory systems, cache, and virtual memory. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C or higher in CMP\_SC 2270 or ECE 2210, and C or higher in CMP\_SC 2050

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**ECE 3410: Electronic Circuits and Signals I**

Electron Devices, modeling and applications to basic electronic circuits, including RC amplifiers and power supplies.

**Credit Hours:** 4

**Corequisites:** ECE 3810

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**ECE 3510: Electromagnetic Fields**

Elements of vector analysis, transmission line theory, electrostatics, magnetostatics, time varying fields and plane waves. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** A grade of C- or better in PHYSCS 2760 and a grade of C or better in ECE 2100

**Corequisites:** MATH 4100

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**ECE 3610: Semiconductors and Devices**

Crystal structure; quantum aspects of energy, radiation and matter; quantum mechanics and energy bands in solids; electronic and optical properties of semiconductors; p-n junctions and diodes; bipolar and field-effect transistors.

**Credit Hours:** 3

**Prerequisites:** A grade of C or better in ECE 3510

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**ECE 3810: Circuit Theory II**

Impulse and step responses, RLC circuits, classical differential equations solutions, complex plane stability, frequency and Bode Analysis, Resonance, Laplace transforms, two-port networks, mutual inductance and transformers. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** A grade of C or better in ECE 2100

**Corequisites:** MATH 4100

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**ECE 3830: Signals and Linear Systems**

Transform Analysis of Signals and Linear Systems. Laplace transforms, z-transforms, Fourier series and transforms.

**Credit Hours:** 3

**Prerequisites:** A grade of C or better in ECE 3810

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**ECE 3840: Measurement and Instrumentation**

Covers 1) theory and applications of measurement and instrumentation systems; 2) signal conditioning circuits; 3) software-controlled automatic test equipment (ATE); and 4) software-controlled data acquisition systems. Graded on an A-F basis only.

**Credit Hours:** 3

**Prerequisites:** A grade of C or better ECE 3210 or ECE 3280, ECE 3410, ECE 3830, and a grade of C- or better in STAT 4710

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**ECE 4001: Topics in Electrical and Computer Engineering**

Current and new technical developments in electrical engineering.

**Credit Hour:** 1-4

**Prerequisites:** senior standing

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**ECE 4020: Energy Systems and Resources**

(same as NU\_ENG 4315, MAE 4371; cross-leveled with ECE 7020, NU\_ENG 7315). Analysis of present energy usage in Missouri, USA and the world, evaluation of emerging energy technologies and trends for the future. Economics and environmental impact of the developed technologies.

**Credit Hours:** 3

**Prerequisites:** ENGINR 2300

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**ECE 4030: Introduction to Nuclear Reactor Engineering**

(same as NU\_ENG 4346; cross-leveled with ECE 7030, NU\_ENG 7346). Engineering principles of nuclear power systems, primarily for the production of electrical energy.

**Credit Hours:** 3

**Prerequisites:** ENGINR 1200, ENGINR 2300

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**ECE 4040: Introduction to Nuclear Physics**

(cross-leveled with ECE 7040). Introduction of Quantum mechanics for non-physics majors. Course topics include nuclear properties; alpha, beta and gamma radioactive decay; and nuclear reactions. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** senior standing or graduate standing in engineering or equivalent mathematical preparation

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**ECE 4070: Numerical Methods for Science and Engineering**

(same as CMP\_SC 4070; cross-leveled with ECE 7070, CMP\_SC 7070). This course introduces the basic numerical methods that are widely used by computer scientists and engineers. Students will learn how to use the MATLAB platform to find the computational solution of various problems arising in many real world applications. By completing this course, students will be able to master algorithms, compare their performances and critically assess which ones are viable options for the particular problem at hand. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050, junior standing, or Instructor's consent

**Recommended:** Students are expected to have basic knowledge in discrete math and algorithms

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**ECE 4085: Problems in Electrical and Computer Engineering**

Analytical or experimental problems pertaining to electric circuits, machines, fields or electronics.

**Credit Hour:** 1-3

**Recommended:** 12 hours Electrical and Computer Engineering credit or instructor's consent

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**ECE 4220: Real Time Embedded Computing**

(cross-leveled with ECE 7220). Embedded systems development with real time constraints including RTOS, task management and synchronization, real time scheduling algorithms, deadlocks, performance analysis and optimization, interfacing to external devices, and device drivers. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 3220

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**ECE 4250: VHDL and Programmable Logic Devices**

(cross-leveled with ECE 7250). Design techniques including module definition, functional partitioning, hardware design language descriptions and microprogramming; design examples include arithmetic units, programmable controllers, and microprocessors.

**Credit Hours:** 4

**Prerequisites:** ECE 3210 or ECE 3280 or CMP\_SC 3280 with a grade of C or better

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**ECE 4270: Computer Architecture**

(same as CMP\_SC 4270; cross-leveled with ECE 7270, CMP\_SC 7270). Advanced computer architectures and programming; memory, memory management and cache organizations, parallel processing, graphical processor units for general programming.

**Credit Hours:** 4

**Prerequisites:** CMP\_SC 2050 and ECE 3280 or CMP\_SC 3280 or ECE 3210 with a grade of C or better

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**ECE 4280: Network Systems Architecture**

(same as CMP\_SC 4280; cross-leveled with ECE 7280, CMP\_SC 7280). The course covers network systems interconnects and switch fabrics, network considerations: and relevant networking applications at the network, transport and application layer. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** C- or higher in CMP\_SC 2050 or ECE 3220 and C- or higher in CMP\_SC 3280 or ECE 3210

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**ECE 4310: Feedback Control Systems**

(same as BIOL\_EN 4310, MAE 4750; cross-leveled with BIOL\_EN 7310, ECE 7310, MAE 7750). System modeling and time and frequency response, closed loop control, stability, continuous system design, introduction to discrete time control, software and hardware experiments on compensator design and PID control. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 4100

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**ECE 4320: Architectural Robotics**

(cross-leveled with ECE 7320). Architectural robotics has been defined as 'intelligent and adaptable built environments (featuring embedded robotic components) that sense, plan, and act'. This course will cover the basic concepts required for understanding, developing, and testing embedded robotic systems for the built environment. Students will work together in teams in a studio-style format which emphasizes hands-on projects to develop working prototypes. The goal is to offer students an opportunity for creativity in an interdisciplinary setting. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** junior or senior standing

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**ECE 4330: Introduction to Mechatronics and Robotic Vision**

(cross-leveled with ECE 7330). Covers 1) mechatronic systems; 2) the mathematical tools used to model industrial and mobile robots; and 3) vision sensors, their underlying models and algorithms that allow us to control and interact with robots.

**Credit Hours:** 4

**Prerequisites:** ECE 3220 or ECE 4220

**Recommended:** a C/C++ languages

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**ECE 4340: Building Intelligent Robots**

(same as CMP\_SC 4730; cross-leveled with ECE 7340, CMP\_SC 7740). Covers the design and development of intelligent machines, emphasizing topics related to sensor-based control of mobile robots. Includes mechanics and motor control, sensor characterization, reactive behaviors and control architectures. Recommended: programming experience in one of the following programming languages: Basic, C, C++, or Java.

**Credit Hours:** 4

**Prerequisites:** junior standing

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**ECE 4350: Programmable Logic Controllers**

(cross-leveled with ECE 7350). Hardware and software aspects of PLC's; computer/PLC Communications; developing ladder logic programs; interfacing I/O devices, including sensors, to the PLC; labeling and documentation; utilizing analog capabilities; applications; developing Supervisory Control and Data Acquisitions (SCADA) applications.

**Credit Hours:** 4

**Prerequisites:** junior standing

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**ECE 4410: Power Electronics I**

(cross-leveled with ECE 7410). Power electronic device characteristics, important circuit and component concepts, loss mechanisms and thermal analysis, phase controlled rectifiers, dc-dc converters, and dc-ac inverters. Includes laboratory projects.

**Credit Hours:** 4

**Prerequisites:** ECE 3410

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**ECE 4430: Electronic Circuits and Signals II**

(cross-leveled with ECE 7430). Advanced study of electronic devices including frequency response of amplifiers, nonlinear effects in transistor amplifiers, oscillators, and feedback amplifiers.

**Credit Hours:** 3

**Prerequisites:** ECE 3830 and ECE 3410

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**ECE 4440: Power Systems Analysis**

(cross-leveled with ECE 7440). Selected topics related to modern power system analysis. Single and three-phase balanced power; Transformers and the per unit concept; Properties and analysis of transmission lines; power flow analysis; symmetrical and asymmetrical faults; system stability; power distribution; use of Powerworld software. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 3810 and MATH 4100 or instructor's consent

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**ECE 4460: Energy and Machines**

(cross-leveled with ECE 7460). Theory and applications of electric machines. Performance analysis of AC Synchronous, Induction and DC machines with emphasis on modern efficiency improvements. Fundamentals of electronic speed controls.

**Credit Hours:** 3

**Prerequisites:** ECE 3510

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**ECE 4470: Sustainable Electrical Energy Resources**

(cross-leveled with ECE 7470). Analysis of renewable electrical energy resources from both the utility and distributed resource perspective. Covers safety, metering and power quality issues associated with coupling distributed resources to the utility grid.

**Credit Hours:** 3

**Prerequisites:** ECE 2100 or ENGINR 2100

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**ECE 4510: Pulsed Power Engineering**

(cross-leveled with ECE 7510). Concepts of energy generation and storage systems used in pulse power engineering, high power opening and closing switches, high voltage engineering, grounding and shielding, high voltage safety.

**Credit Hours:** 3

**Prerequisites:** ECE 3510

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**ECE 4550: Introduction to Plasmas**

(same as NU\_ENG 4375; cross-leveled with ECE 7550, NU\_ENG 7375). Equations of plasma physics, interaction of waves and plasmas; plasma sheaths and oscillations; measurements and applications.

**Credit Hours:** 3

**Prerequisites:** ECE 3510

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**ECE 4590: Computational Neuroscience**

(same as BIOL\_EN 4590, BIO\_SC 4590, BME 4590; cross-leveled with ECE 7590, BIOL\_EN 7590, BIO\_SC 7590). Interdisciplinary course in biology and quantitative sciences with laboratory and modeling components. Explores basic computational and neurobiological concepts at the cellular and network level. Introduction to neuronal processing and experimental methods in neurobiology; modeling of neurons and neuron-networks. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** MATH 1500 or equivalent

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**ECE 4620: Introduction to BioMEMS**

(cross-leveled with ECE 7620). Study of BioMEMS devices and applications. Topics cover BioMEMS including overview of microfabrication techniques, common bioMEMS material, microfluidic principles, microfluidic devices, drug delivery, biomedical microdevices for neural implants, patch-clamping and single cell based analysis systems, microelectroporation, DNA microarrays, Polymerase Chain Reaction and biopolymers, chemical and gas sensors and biosensors. Graded on A-F basis only.

**Credit Hours:** 3

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**ECE 4630: Introduction to Optical Electronics**

(cross-leveled with ECE 7640). Principles, devices and materials used to generate, modulate, and detect optical radiation. Review of important properties of light and semiconductors. Light-emitting diodes and lasers. Electro-optic modulation. Thermal and quantum detection. Emphasis on semiconductor-based devices and application to fiber-optical communications.

**Credit Hours:** 3

**Prerequisites:** ECE 3610

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**ECE 4640: MEMS Laboratory**

(cross-leveled with ECE 7640). The main objective of this course is to provide hands-on skills for the interdisciplinary Microelectromechanical Systems (MEMS). It puts emphasis on the practical aspects of design, fabrication, test, and characterization of micro/nano devices and systems. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** PHYSCS 2760, CHEM 1320, or ECE 2100

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**ECE 4650: Semiconductor Device Theory**

(cross-leveled with ECE 7650). Band theory, equilibrium and non-equilibrium semiconductor electronics, junction theory, p-n junction devices, bipolar and field effect transistors including SPICE simulation.

**Credit Hours:** 3

**Prerequisites:** ECE 3610

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**ECE 4655: Digital image Processing**

(same as CMP\_SC 4650; cross-leveled with ECE 7655, CMP\_SC 7650). This course provides fundamentals of digital image processing hardware and software including digital image acquisition, image display, image enhancement, image transforms and segmentation.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2050 and STAT 4710 or instructor's consent

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**ECE 4670: Microelectronic Fabrication**

(cross-leveled with ECE 7670). Basic silicon integrated circuit fabrication processes, basic techniques of wafer processing, economics of fabrication and resulting devices properties, interdependence of process flow and device design. Accompanying laboratory.

**Credit Hours:** 4

**Prerequisites:** ECE 3610

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**ECE 4675: Digital Image Compression**

(same as CMP\_SC 4670; cross-leveled with ECE 7675, CMP\_SC 7670). This course provides basic concepts and theorems in information theory, discrete cosine transform, discrete wavelet transform, quantizer design, bit allocation, and rate-distortion analysis and practical coding and communication system design, (such as Huffman coding, arithmetic coding, variable length coding, motion estimation, JPEG.)

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2050

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**ECE 4710: Communications Systems**

(cross-leveled with ECE 7710). Concepts of communication systems, signal analysis and power spectrum density, signal transmission and filtering, linear modulation, exponential modulation, sampling, baseband digital communication, modulated digital communication, spread spectrum communication.

**Credit Hours:** 3

**Prerequisites:** ECE 3830

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**ECE 4720: Introduction to Machine Learning and Pattern Recognition**

(Same as CMP\_SC 4720; cross-leveled with ECE 7720, CMP\_SC 7720) This course provides foundation knowledge to the basic methods in machine learning and pattern recognition (MLPR). MLPR addresses the problems of programming computers to optimize certain performance criteria by using example data or expert knowledge and it has wide applications.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2050 and STAT 4710 or instructor consent

---

**ECE 4730: Introduction to Wireless Communication System**

(cross-leveled with ECE 7730). Principles of wireless communication analysis and design. Digital communication basics, cellular radio, wireless PCS communications, multiple access techniques, channel coding and equalization, and standards of digital cellular/PCS systems.

**Credit Hours:** 3

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**ECE 4830: Introduction to Digital Signal Processing**

(cross-leveled with ECE 7830). Concepts, analytical tools, design techniques used in computer processing of signals; signal representation, sampling, discrete-time systems analysis, recursive and non-recursive filters, design/implementation, discrete Fourier transform.

**Credit Hours:** 4

**Prerequisites:** ECE 2210, ECE 3830

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**ECE 4870: Introduction to Computational Intelligence**

(same as CMP\_SC 4770; cross-leveled with ECE 7870, CMP\_SC 7770). Introduction to the concepts, models, and algorithms for the development of intelligent systems from the standpoint of the computational paradigms of neural networks, fuzzy set theory and fuzzy logic, evolutionary computation and swarm optimization. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** some exposure to rigorous axiomatic mathematical development of a topic (as can be found in most senior/graduate level math or statistics courses) is needed to appreciate some of the development of the theory. Also, the ability to program (well) in some high level language is essential to perform the computer projects

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**ECE 4880: Micro/Nano Systems**

(cross-leveled with ECE 7880). Micro/nano systems covers various micro/nanotechnologies, micro sensors and actuators including digital light processors, accelerometers, gyroscopes, micro optical switches and components, micro speakers, RF switches, inertial/mechanical and acoustic M/NEMS and M/Nanofluidic systems. Major mechanisms/principles for micro/Nano devices and systems are also covered. The Micro/Nano Systems focuses on the miniaturization technologies that have important roles in materials, mechanical, and biomedical engineering practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 3610 or instructor's consent

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**ECE 4930: Intermediate Electromagnetics**

(cross-leveled with ECE 7930). Course covers transmission lines, waveguides, microstrip electromagnetic circuits, and radiating systems.

**Credit Hours:** 4

**Prerequisites:** ECE 3510

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**ECE 4940: Antenna Theory, Design and Laboratory**

(cross-leveled with ECE 7940). Introduction to antenna theory, design and laboratory. Emphasis on engineering aspects of antenna systems, transmitting and receiving antenna parameters, various antennas.

**Credit Hours:** 4

**Prerequisites:** ECE 3510

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**ECE 4960W: Senior Capstone Design I - Writing Intensive**

Lectures on safety, ethics, professionalism, intellectual property, product liability, contemporary issues, and project management. Provides the senior Capstone project proposal experience, incorporating multidisciplinary project design and project management skills. Oral presentations and written reports. Not for graduate credit. Graded A-F only. Recommended: Post-requisite: ECE 4980.

**Credit Hours:** 3

**Prerequisites:** Restricted to EECS Department students only, or instructor's consent

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**ECE 4970: Senior Capstone Design**

Group Design Projects. Design methodology, project management, development of specifications, examination of alternatives, preparation

of proposal. Lectures on safety, ethics, professionalism, and economics. Oral and written reports. Not for graduate credit.

**Credit Hours:** 3

**Prerequisites:** A grade of C or better in ECE 3110 or ECE 3840 and senior standing. Restricted to Electrical and Computer Engineering students only or instructor's consent

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#### **ECE 4970W: Senior Capstone Design - WI**

Group Design Projects. Design methodology, project management, development of specifications, examination of alternatives, preparation of proposal. Lectures on safety, ethics, professionalism, and economics. Oral and written reports. Not for graduate credit.

**Credit Hours:** 3

**Prerequisites:** A grade of C or better in ECE 3110 or ECE 3840 and senior standing. Restricted to Electrical and Computer Engineering students only or instructor's consent

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#### **ECE 4980: Senior Capstone Design II**

Provides the senior Capstone design experience where multidisciplinary teams reduce to practice a proposed product. Oral and written reports. Not for graduate credit. Graded A-F only.

**Credit Hours:** 3

**Prerequisites:** ECE 3840, ECE 4960, Senior standing, Restricted to EECS Department students only, or instructor's consent

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#### **ECE 4990: Undergraduate Research in Electrical Computer Engineering**

Supervised independent study or project in electrical or computer engineering, culminating in a written report.

**Credit Hour:** 1-3

**Prerequisites:** Undergraduate Program Director's consent

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#### **ECE 4995: Undergraduate Honors Research in Electrical Computer Engineering**

Independent investigation or project in electrical or computer engineering to be presented as an undergraduate honors thesis. Enrollment is limited to students participation in the Electrical and Computer Engineering Honors Program.

**Credit Hour:** 1-3

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#### **ECE 7001: Advanced Topics in Electrical and Computer Engineering**

Current and new technical developments in electrical engineering.

**Credit Hour:** 1-4

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#### **ECE 7010: Digital Computer Applications in Engineering**

Use of digital computer for solution of engineering problems involving roots of equations, simultaneous equations, curve fitting, integration, differentiation and differential equations.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

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#### **ECE 7020: Energy Systems and Resources**

(same as NU\_ENG 7315, MAE 7371; cross-leveled with ECE 4020, NU\_ENG 4315, MAE 4371). Analysis of present energy usage in

Missouri, USA and the world, evaluation of emerging energy technologies and trends for the future. Economics and environmental impact of the developed technologies.

**Credit Hours:** 3

**Prerequisites:** ENGINR 2300

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#### **ECE 7030: Introduction to Nuclear Reactor Engineering**

(same as NU\_ENG 7346; cross-leveled with ECE 4030, NU\_ENG 4346). Engineering principles of nuclear power systems, primarily for the production of electrical energy.

**Credit Hours:** 3

**Prerequisites:** graduate ENGINR 1200, ENGINR 2300

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#### **ECE 7040: Introduction to Nuclear Physics**

(cross-leveled with ECE 4040). Introduction of Quantum mechanics for non-physics majors. Course topics include nuclear properties; alpha, beta and gamma radioactive decay; and nuclear reactions. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** senior standing or graduate standing in engineering or equivalent mathematical preparation

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#### **ECE 7070: Numerical Methods for Science and Engineering**

(same as CMP\_SC 7070; cross-leveled with ECE 4070, CMP\_SC 4070). This course introduces the basic numerical methods that are widely used by computer scientists and engineers. Students will learn how to use the MATLAB platform to find the computational solution of various problems arising in many real world applications. By completing this course, students will be able to master algorithms, compare their performances and critically assess which ones are viable options for the particular problem at hand. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050, junior standing, or Instructor's consent

**Recommended:** Students are expected to have basic knowledge in discrete math and algorithms

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#### **ECE 7220: Real Time Embedded Computing**

(cross-level with ECE 4220). Embedded systems development with real time constraints including RTOS, task management and synchronization, realtime scheduling algorithms, deadlocks, performance analysis and optimization, interfacing to external devices, and device drivers. Graded A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 3220

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#### **ECE 7250: VHDL and Programmable Logic Devices**

(cross-leveled with ECE 4250). Design techniques including module definition, functional partitioning, hardware design language descriptions and microprogramming; design examples include arithmetic units, programmable controllers, and microprocessors.

**Credit Hours:** 4

**Prerequisites:** ECE 3210 or ECE 3280 or CMP\_SC 3280 with a grade of C or better

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**ECE 7270: Computer Architecture**

(same as CMP\_SC 7270; cross-leveled with ECE 4270, CMP\_SC 4270). Advanced computer architectures and programming; memory, memory management and cache organizations, parallel processing, graphical processor units for general programming.

**Credit Hours:** 4

**Prerequisites:** CMP\_SC 2050 and ECE 3280 or CMP\_SC 3280 or ECE 3210 with a grade of C or better

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**ECE 7280: Network Systems Architecture**

(same as CMP\_SC 7280; cross-leveled with ECE 4280, CMP\_SC 4280). The course covers network systems interconnects and switch fabrics, network considerations and relevant networking applications at the network, transport and application layer. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** CMP\_SC 2050 or ECE 3200 and CMP\_SC 3280 or ECE 3210

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**ECE 7310: Feedback Control Systems**

(same as BIOL\_EN 7310, MAE 7750; cross-leveled with ECE 4310, BIOL\_EN 4310, MAE 4750). System modeling and time and frequency response, closed loop control, stability, continuous system design, introduction to discrete time control, software and hardware experiments on compensator design and PID control.

**Credit Hours:** 3

**Prerequisites:** MATH 4100

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**ECE 7320: Architectural Robotics**

(cross-leveled with ECE 4320). Architectural robotics has been defined as "intelligent and adaptable built environments (featuring embedded robotic components) that sense, plan, and act". This course will cover the basic concepts required for understanding, developing, and testing embedded robotic systems for the built environment. Students will work together in teams in a studio-style format which emphasizes hands-on projects to develop working prototypes. The goal is to offer students an opportunity for creativity in an interdisciplinary setting. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** ECE 4970 or equivalent

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**ECE 7330: Introduction to Mechatronics and Robotic Vision**

(cross-leveled with ECE 4330). Introduces robotics; robot system characteristics; robot motive power systems; geometric structure of robots; sensors and feedback; control applications and algorithms; data acquisition and output actuation function; robots and AI; microprocessor applications. Lecture and Laboratory. Recommended: a C/C++ Language course.

**Credit Hours:** 4

**Prerequisites:** ECE 3220 or ECE 4220

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**ECE 7335: Nuclear Safeguards Science and Technology**

(same as NU\_ENG 7335). This course provides an overview of nuclear materials management and safeguards, including physical protection systems, material accounting and control, monitoring, and regulatory issues.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 4303 or NU\_ENG 7303

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**ECE 7340: Building Intelligent Robots**

(same as CMP\_SC 7730; cross-leveled with ECE 4340, CMP\_SC 4730). Covers the design and development of intelligent machines, emphasizing topics related to sensor-based control of mobile robots. Includes mechanics and motor control, sensor characterization, reactive behaviors and control architectures.

**Credit Hours:** 4

**Recommended:** some programming experience

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**ECE 7350: Programmable Logic Controllers**

(cross-leveled with ECE 4350). Hardware and software aspects of PLC's; computer/PLC Communications; developing ladder logic programs; interfacing I/O devices, including sensors, to the PLC; labeling and documentation; utilizing analog capabilities; applications; developing Supervisory Control and Data Acquisitions (SCADA) applications.

**Credit Hours:** 4

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**ECE 7370: Automatic Control System Design**

(cross-leveled with ECE 4370). Techniques for feedback system design and analysis; compensation using root locus and frequency-domain methods; state-variable design methods; techniques for nonlinear systems analysis and design; sample-data control systems.

**Credit Hours:** 3

**Prerequisites:** ECE 4310

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**ECE 7410: Power Electronics I**

(cross-leveled with ECE 4410). Power electronic device characteristics, important circuit and component concepts, loss mechanisms and thermal analysis, phase controlled rectifiers, dc-dc converters, and dc-ac inverters. Includes laboratory projects.

**Credit Hours:** 4

**Prerequisites:** ECE 3410

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**ECE 7430: Electronic Circuits and Signals II**

(cross-leveled with ECE 4430). Advanced study of electronic devices including frequency response of amplifiers, nonlinear effects in transistor amplifiers, oscillators, and feedback amplifiers.

**Credit Hours:** 3

**Prerequisites:** ECE 3830 and ECE 3410

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**ECE 7440: Power Systems Analysis**

(cross-leveled with ECE 4440). Selected Topics related to modern power system analysis. Single and three-phase balanced power; Transformers and the per unit concept; Properties and analysis of transmission lines; power flow analysis; symmetrical and asymmetrical faults; system stability; power distribution; use of Powerworld software. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 3810 and MATH 4100 or instructor's consent

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**ECE 7460: Energy and Machines**

(cross-leveled with ECE 4460). Theory and applications of electric machines. Performance analysis of AC synchronous induction and

DC machines with emphasis on modern efficiency improvements.  
Fundamentals of electronic speed controls.

**Credit Hours:** 3

**Prerequisites:** ECE 3510

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**ECE 7470: Sustainable Electrical Energy Resources**

(cross-leveled with ECE 4470). Analysis of renewable electrical energy resources from both the utility and distributed resource perspective. Covers safety, metering and power quality issues associated with coupling distributed resources to the utility grid.

**Credit Hours:** 3

**Prerequisites:** ECE 2100 or ENGINR 2100

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**ECE 7510: Pulsed Power Engineering**

(cross-leveled with ECE 4510). Concepts of energy generation and storage systems used in pulse power engineering, high power opening and closing switches, high voltage engineering, grounding and shielding, high voltage safety.

**Credit Hours:** 3

**Prerequisites:** ECE 3510

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**ECE 7540: Neural Models and Machine Learning**

(same as CMP\_SC 7540, BIOL\_en 7540; cross-leveled with BME 4540, CMP\_SC 4540, ECE 4540, BIOL\_EN 4540). The projects-based course has three inter-linked components: (I) math models of neurons and neural networks, (II) machine learning in neuroscience, after a brief introduction to python and (III) software automation and cyberinfrastructure to support neuroscience. Extensive projects focusing on software automation and machine learning components, with brief in-class presentations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1500 or consent of instructor

**Recommended:** Introductory software programming, and introductory cell biology or consent of instructor

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**ECE 7550: Introduction to Plasmas**

(same as NU\_ENG 7375; cross-leveled with ECE 4550, NU\_ENG 4375). Equations of plasma physics, interaction of waves and plasmas; plasma sheaths and oscillations; measurements and applications.

**Credit Hours:** 3

**Prerequisites:** ECE 4930

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**ECE 7590: Computational Neuroscience**

(same as BIOL\_EN 7590, BIO\_SC 7590; cross-leveled with BIOL\_EN 4590, BIO\_SC 4590, ECE 4590, BME 4590). Interdisciplinary course in biology and quantitative sciences with laboratory and modeling components. Explores basic computational and neurobiological concepts at the cellular and network level. Introduction to neuronal processing and experimental methods in neurobiology; modeling of neurons and neuron-networks. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** MATH 1500 or equivalent

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**ECE 7620: Introduction to BioMEMS**

(cross-leveled ECE 4620). BioMEMS materials, fabrication techniques, micro-fluidic principles and devices, drug delivery, biomedical micro-devices for neural implants, patch clamping and single cell based systems, micro-electroporation, DNA microarrays, Polymerase Chain Reaction, chemical/gas/bio-sensors. Graded on A-F basis only.

**Credit Hours:** 3

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**ECE 7630: Introduction to Optical Electronics**

(cross-leveled with ECE 4630). Principles, devices and materials used to generate, modulate, and detect optical radiation. Review of important properties of light and semiconductors. Light-emitting diodes and lasers. Electro-optic modulation. Thermal and quantum detection. Emphasis on semiconductor-based devices and application to fiber-optical communications.

**Credit Hours:** 3

**Prerequisites:** ECE 3610

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**ECE 7640: MEMS Laboratory**

(cross-leveled with ECE 4640). The main objective of this course is to provide hands-on skills for the interdisciplinary Microelectromechanical systems (MEMS). It puts emphasis on the practical aspects of design, fabrication, test, and characterization of micro/nano devices and systems. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** PHYSICS 2760, CHEM 1320 or ECE 2100; instructor's consent

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**ECE 7650: Semiconductor Device Theory**

(cross-leveled with ECE 4650). Band theory, equilibrium and non-equilibrium semiconductor electronics, junction theory, p-n junction devices, bipolar and field effect transistors including SPICE simulation.

**Credit Hours:** 3

**Prerequisites:** ECE 3610

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**ECE 7655: Digital Image Processing**

(same as CMP\_SC 7650; cross-leveled with ECE 4655, CMP\_SC 4650). The course provides fundamentals of digital image processing hardware and software including digital image acquisition, image display, image enhancement, image transforms and segmentation.

**Credit Hours:** 3

**Prerequisites:** STAT 4710 and CMP\_SC 2050 or instructor's consent

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**ECE 7670: Microelectronic Fabrication**

(cross-leveled with ECE 4670). Basic silicon integrated circuit fabrication processes, basic techniques of wafer processing, economics of fabrication and resulting devices properties, interdependence of process flow and device design. Accompanying laboratory.

**Credit Hours:** 4

**Prerequisites:** ECE 3610

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**ECE 7675: Digital Image Compression**

(same as CMP\_SC 7670; cross-leveled with ECE 4675, CMP\_SC 4670). This course provides basic concepts and theorems in information theory, discrete cosine transform, discrete wavelet transform, quantizer

design, bit allocation, and rate-distortion analysis and practical coding and communication system design, (such as Huffman coding, arithmetic coding, variable length coding, motion estimation, JPEG.)

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050

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**ECE 7690: Design and Simulation of VLSI Circuits**

(cross-leveled with ECE 4690). Design of CMOS integrated circuits with emphasis on analog applications. Device models are developed for circuit simulation. Lecture and laboratory.

**Credit Hours:** 4

**Prerequisites:** ECE 4670

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**ECE 7710: Communications Systems**

(cross-leveled with ECE 4710). Concepts of communication systems, signal analysis and power spectrum density, signal transmission and filtering, linear modulation, exponential modulation, sampling, baseband digital communication, modulated digital communication, spread spectrum communication.

**Credit Hours:** 3

**Prerequisites:** ECE 3830

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**ECE 7720: Introduction to Machine Learning and Pattern Recognition**

(same as CMP\_SC 7720; cross-leveled with ECE 4720, CMP\_SC 4720). This course provides foundation knowledge to the basic methods in machine learning and pattern recognition (MLPR). MLPR addresses the problem of programming computers to optimize certain performance criteria by using example data or expert knowledge and it has wide applications.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050 and STAT 4710 or instructor's consent

---

**ECE 7730: Introduction to Wireless Communication System**

(cross-leveled with ECE 4730). Principles of wireless communication analysis and design. Digital communication basics, cellular radio, wireless PCS communications, multiple access techniques, channel coding and equalization, and standards of digital cellular/PCS systems.

**Credit Hours:** 3

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**ECE 7810: Multimedia Engineering and Technology**

(same as CMP\_SC 7810). Survey of multimedia applications. Capture, coding, storage, transmission, and software tools for developing productions involving text, graphics, images, animation, sound and video. Term projects. Lecture and laboratory.

**Credit Hours:** 4

**Prerequisites:** ECE 3210 and ECE 3830

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**ECE 7830: Introduction to Digital Signal Processing**

(cross-leveled with ECE 4830). Concepts, analytical tools, design techniques used in computer processing of signals; signal representation, sampling, discrete-time systems analysis, recursive and non-recursive filters, design/implementation, discrete Fourier transform.

**Credit Hours:** 4

**Prerequisites:** ECE 2210, ECE 3830

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**ECE 7870: Introduction to Computational Intelligence**

(same as CMP\_SC 7770; cross-leveled with ECE 4870, CMP\_SC 4770). Introduction to the concepts, models, and algorithms for the development of intelligent systems from the standpoint of the computational paradigms of neural networks, fuzzy set theory and fuzzy logic, evolutionary computation and swarm optimization. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** some exposure to rigorous axiomatic mathematical development of a topic (as can be found in most senior/graduate level math or statistics courses) is needed to appreciate some of the development of the theory. Also, the ability to program (well) in some high level language is essential to perform the computer projects

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**ECE 7880: Micro/Nano Systems**

(cross-leveled with ECE 4880). Micro/Nano systems covers various micro/nanotechnologies, micro sensors and actuators including digital light processors, accelerometers, gyroscopes, micro optical switches and components, micro speakers, RF switches, inertial/mechanical and acoustic M/NEMS and M/Nanofluidic systems. Major mechanisms/principles for micro/Nano devices and systems are also covered. The Micro/Nano Systems focuses on the miniaturization technologies that have important roles in materials, mechanical, and biomedical engineering practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 3610 or instructor's approval

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**ECE 7930: Intermediate Electromagnetics**

(cross-leveled with ECE 4930). Course covers transmission lines, waveguides, microstrip electromagnetic circuits, and radiating systems

**Credit Hours:** 4

**Prerequisites:** ECE 3510

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**ECE 7940: Antenna Theory, Design and Laboratory**

(cross-leveled with ECE 4940). Introduction to antenna theory, design and laboratory. Emphasis on engineering aspects of antenna systems, transmitting and receiving antenna parameters, and various wire antennas.

**Credit Hours:** 4

**Prerequisites:** ECE 3510

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**ECE 7950: Microwave Principles**

(cross-leveled with ECE 4950). Maxwell's Equations, transmission lines, plane wave propagation and reflection, waveguides, resonant cavities, microwave devices and components, radiation, radio wave propagation. Lecture and laboratory.

**Credit Hours:** 4

**Prerequisites:** ECE 3510 and ECE 3410

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**ECE 8001: Advanced Topics in Electrical and Computer Engineering**

Advanced Topics in Electrical and Computer Engineering. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** may vary from semester to semester depending on topic

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**ECE 8010: Supervised Study in Electrical Engineering**

Supervised individual study at the graduate level to be completed within the course of one semester in the form of a brief report. Graded on S/U basis only

**Credit Hour:** 1-3

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**ECE 8011: Software and Cyber Automation in Neuroscience**

This seminar course will emphasize software and cyber automation tools in neuroscience to address the emerging needs of big data in neuroscience. Students will work in pairs to address such needs of various neuroscience Labs both within MU and with collaborators outside MU. The students pairs will be provided a list of automation projects to work on (one or maximum two) during the semester, under close supervision of the instructors. They will also be provided access to local cyberinfrastructure at MU, national cyberinfrastructure resources such as CyVerse ([www.cyverse.org](http://www.cyverse.org)) and Neuroscience Gateway (<https://www.nsgportal.org>), as well as public clouds such as XSEDE and Amazon Web Services. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Basic software programming, basic cell biology, or consent of instructor

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**ECE 8085: Problems in Electrical and Computer Engineering**

Supervised investigation of an electrical engineering problem for an MS project. Study culminates in a project report. Graded on a S/U basis only.

**Credit Hour:** 2-5

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**ECE 8110: Preparing Advanced Professionals - I**

Discussions on a variety of topics: Pedagogy - latest from cognitive science and learning theory, effective teaching, how a university functions, engineering teaching and research; how leading industries perform research and the importance of soft skills, etc. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** restricted to graduate Engineering majors only

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**ECE 8120: Preparing Advanced Professionals - II**

Continues format of ECE 8110 with group discussions and seminars by experts on how to write an effective proposal, including a review of model proposals, model proposal reviews, and a 'hands-on' proposal writing followed by globalization and its effects on professionals. Graded on A-F only.

**Credit Hour:** 1

**Prerequisites:** graduate engineering majors only

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**ECE 8270: Parallel Computer Architecture**

The course covers parallel computer architecture (general purpose multi-core and many-core processors, shared and distributed memory systems, clusters). Emphasis will be given to both architectural and programmability aspects. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 4270 or ECE 7270, ECE 4220 or ECE 7220 or CMP\_SC 4250 or CMP\_SC 7250

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**ECE 8320: Nonlinear Systems**

Nonlinear systems including topics such as limit cycles, phase plane analysis, bifurcation, Lyapunov stability, input-output stability, passivity. Topics from control such as feedback linearization, sliding control, and Lyapunov redesign. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 4310

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**ECE 8510: Advanced Electromagnetics**

Advanced theoretical electromagnetic theory. Investigation of summation problems with general boundary conditions, time varying fields, and time harmonic currents. Basic applications and relationships in classical and relativistic physics.

**Credit Hours:** 3

**Prerequisites:** ECE 3510

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**ECE 8520: Direct Energy Conversion Technologies**

Study of direct energy conversion technology and research trends in this area. Topics include energy storage techniques (mechanical, chemical, thermal, inductive, capacitive), thermoelectric generators, photovoltaic generators, thermionic generators, magnetohydrodynamic generators, piezoelectric generators, wind generators, fuel cells. Current research trends in this area will also be examined. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE Majors or instructors consent

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**ECE 8530: Advanced Photonics**

Concentrated study of optical system design, including integrated optics, semiconductor lasers, quantum wells, optical materials, and electro-optical effects used in modern optical systems.

**Credit Hours:** 3

**Prerequisites:** ECE 4530

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**ECE 8540: Advanced Network Theory and Applications**

Advanced study of network theorems including compensation, reciprocity, duality, and maximum power. Theory and application of N-port parameters. Linear and non-linear network synthesis techniques. Analysis of ordinary and partial differential equations to develop electrical analogs for mechanical, pneumatic, thermal, hydraulic systems. Study of non-linear circuit analysis and modeling techniques. Current research trends in this area will also be examined. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE Majors or instructors consent

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**ECE 8570: Neural Dynamics and Communication**

(same as CMP\_SC 8570). Properties of nerve cells including membrane potential, action potential, ion channel dynamics, GHK equation, dynamical properties of excitable membranes, neuronal communication and plasticity. Entrainment, synchronization and oscillations in neuronal networks, and their functional significance. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE4590/CMP\_SC 4590/BIOL\_EN 4590/BME 4590 or consent of instructor

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**ECE 8580: Machine Learning in Neuroscience**

(same as CMP\_SC 8580). Basics of neuronal and network dynamics including spikes and communication between regions, including via competing hypotheses. Machine learning fundamentals including linear, logistic and artificial neural network mappings. Integration of data-driven and theory-driven models, with emphasis on insights into neuroscience via XAI approaches. Software automation in neuroscience including python notebooks and cyberinfrastructure tools for interacting with repositories and HPC resources. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 4590/CMP\_SC 4590 or consent of instructor

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**ECE 8610: Power Semiconductor Devices**

A study of the semiconductor devices used in switch-mode power converter circuits. Course surveys the field and discusses selected devices in depth.

**Credit Hours:** 3

**Prerequisites:** ECE 3610, ECE 4630 and ECE 4650

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**ECE 8620: Advanced Microelectromechanical Systems**

MEMS development cycle, overview of microfabrication, microsystem modeling, mechanical analysis, thermal analysis, transduction mechanism, case studies; Micromirror, accelerometers, pressure sensors, force sensors, RF MEMS switches, Infrared sensors, and Microsystem packaging.

**Credit Hours:** 3

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**ECE 8675: Biomedical Image Processing**

(same as CMP\_SC 8675). This course introduces students to the fundamentals of biomedical image processing and analysis with an emphasis on cellular and tissue microscopy along with anatomical imaging. The course will cover image and video processing techniques and pipelines for image enhancement, restoration, registration, detection, segmentation, classification, and motion analysis that are tailored for biomedical image informatics. This course will provide a rich exposure to a broad range of imaging datasets from the molecular to the anatomical; and train students to implement algorithms for moderately complex tasks in biomedical image analysis. This course is suitable for graduate students in all fields of engineering and science who are interested in understanding and implementing biomedical and biological image analytics and are seeking pointers to the broad literature in the field. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 4655/ECE 7655 or CMP\_SC 4650/CMP\_SC 7650 or instructor's consent

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**ECE 8690: Computer Vision**

(same as CMP\_SC 8690). This course introduces students to the fundamental problems of computer vision, the main concepts and the techniques used to solve such problems. It will enable graduate and advanced undergraduate students to solve complex problems and make sense of the literature in the area. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 4655 or ECE 7655 or CMP\_SC 4650 or CMP\_SC 7650 or instructor's consent

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**ECE 8695: Cognitive Computer Vision**

One of the more recent trends in computer vision research in the pursuit of human-like capability is the coupling of cognition and vision into cognitive computer vision. This course will emphasize the advanced topics in applying machine learning techniques in computer vision.

**Credit Hours:** 3

**Prerequisites:** ECE 4850 or ECE 7850 or CMP\_SC 4650 or CMP\_SC 7650 or consent of instructor

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**ECE 8725: Supervised Learning**

(same as CMP\_SC 8725). This course introduces the theories and applications of advanced supervised machine learning methods. It covers hidden Markov model and expectation maximization (EM) algorithms, probabilistic graphical models, non-linear support vector machine and kernel methods. The course emphasizes both the theoretical underpinnings of the advanced supervised learning methods and their applications in the real world. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4720 or CMP\_SC 7720 or ECE 4720 or ECE 7720 or instructor's consent

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**ECE 8730: Fundamentals of Radar Signal Processing**

Study of radar signal processing fundamentals. Topics include radar systems, signal models, sampling and quantization of radar signals, radar waveforms, Doppler processing, detection fundamentals, radar imaging.

**Credit Hours:** 3

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**ECE 8735: Unsupervised Learning**

(same as CMP\_SC 8735). Theoretical and practical aspects of unsupervised learning including topics of expectation maximization (EM), mixture decomposition, clustering algorithms, cluster visualization, and cluster validity. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4720 or CMP\_SC 7720 or ECE 4720 or ECE 7720 or instructor's consent

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**ECE 8790: Digital Processing of SAR Data**

Study of digital processing of synthetic aperture radar (SAR) data. Topics cover SAR data fundamentals including concepts, signal processing, pulse compression, signal properties, processing algorithms, and image processing.

**Credit Hours:** 3

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**ECE 8800: Sensor Array and Statistical Signal Processing**

Introduce the basics on sensor array processing, signal detection and parameter estimation, with their applications in communications and signal processing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 7830 and ECE 8860 or with instructor consent

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**ECE 8810: Advanced Digital Signal Processing**

Topics in digital signal analysis and filtering. Including hardware implementation, speech synthesis and recognition, multi-dimensional transforms, random-signal concepts, design methods and computer aids to analysis and design.

**Credit Hours:** 3

**Prerequisites:** ECE 4830

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**ECE 8830: Visual Signal Processing and Communications**

Threats visual digital signal processing and network communications covering both theory and application of coding, compression and communications via the web. Covers such standards as JPEG, MPEG-2 and MPEG-4 as well as motion detection. Graded on A-F basis only.

**Credit Hours:** 3

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**ECE 8855: Advanced Image Processing**

(same as CMP\_SC 8650). This course covers advanced topics in image understanding including multispectral multimodal imaging, motion estimation, texture analysis, geometric level set methods.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4650 or CMP\_SC 7650 or instructor's consent

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**ECE 8860: Probability and Stochastic Processes for Engineers**

Introduction to probability, multidimensional complex (phasor) random variables and stochastic processes in electrical engineering.

**Credit Hours:** 3

**Prerequisites:** ECE 4830, ECE 4710, or ECE 8620

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**ECE 8875: Advanced Topics in Computational Intelligence**

(same as CMP\_SC 8780). This course is a continuation of ECE 7870 in the concepts, models, and algorithms for the development of intelligent systems from the standpoint of the computational paradigms of neural networks, fuzzy set theory and fuzzy logic, evolutionary computation, and swarm intelligence. Advanced topics in these areas will be discussed with a focus on applications of these technologies.

**Credit Hours:** 3

**Prerequisites:** ECE 4870 or ECE 7870

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**ECE 8890: Neural Networks**

(same as CMP\_SC 8770). The course will consider computing systems based on neural networks and learning models along with implementations and applications of such systems.

**Credit Hours:** 3

**Prerequisites:** ECE 4870 or ECE 7870 or instructor's consent

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**ECE 8990: Research-Master Thesis in Electrical and Computer Engineering**

Independent investigation in a field of electrical engineering to be presented as thesis or dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**ECE 9001: Advanced Topics in Electrical and Computer Engineering**

Advanced Topics in Electrical and Computer Engineering

**Credit Hours:** 3

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**ECE 9990: Research-Doctoral Dissertation Electrical & Computer Engineering**

Independent investigation in a field of electrical engineering to be presented as thesis or dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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## Emergency Medicine Courses

**EMR\_ME 6034: SCC Emergency Medicine Selective**

This selective is designed to offer an introductory experience in Emergency Medicine, including all levels of acuity and pre-hospital emergency care. The student will work 15-16 (~140 hours) rotating shifts in the Emergency Department. During that time, the student will have free access to all patient care activities. The student will assist with patient evaluations and procedures under the close supervision of the Emergency attending physicians, residents, or physician assistants. Specific time will be devoted to learning basic skills needed in emergency medicine. An orientation skills lab will be provided early in the rotation to cover suturing, splinting, etc. Teaching will be primarily a one-on-one exchange with the residents and PA's/Attendings. There are night shifts in this rotation.

**Credit Hours:** 5

**Prerequisites:** Successful completion of the first two years of medical school. Successful completion of 5 of the 7 core clerkships. Three of the 5 must be the Surgery Clerkship, Internal Medicine Clerkship, and either the Pediatrics or Family Medicine Clerkship

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**EMR\_ME 6245: ABS Emergency Medicine Research and Review**

ABS Emergency Medicine Research and Review

**Credit Hour:** 5-10

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**EMR\_ME 6461: Emergency Medicine-Ultrasound**

The purpose of this rotation is to provide M4 students the opportunity to understand the indications for and the physics behind Point of Care Ultrasound (POCUS) in the Emergency Department (ED). Additionally students will develop the mechanical skills necessary to obtain adequate images through real-time bedside image acquisition, as well as learn how to interpret the images and apply them to patients clinically. POCUS applications that will be of particular focus include some or all of the following: FAST, Early pregnancy, Abdominal aorta, Focused cardiac, Biliary, Renal/bladder, DVT evaluation, Lung, Soft tissue/musculoskeletal, Procedures.

**Credit Hours:** 5

**Prerequisites:** Successful completion of Emergency Medicine course 6860 (or equivalent) and faculty approval prior to enrollment

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**EMR\_ME 6760: Emergency Medicine - Rural**

Emergency Medicine - Rural

**Credit Hours:** 5

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**EMR\_ME 6860: EMERGENCY MEDICINE**

Emergency Medicine

**Credit Hours:** 5

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**EMR\_ME 6919: Introduction to Emergency Medicine**

This elective is designed to offer an introductory experience in Emergency Medicine, including all levels of acuity and pre-hospital emergency care.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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**EMR\_ME 6920: Introduction to Pediatric Emergency Medicine**

This elective is designed to offer an introductory experience in Pediatric Emergency Medicine (PEM) including all levels of acuity and pre-hospital emergency care.

**Credit Hours:** 2

**Prerequisites:** successful completion of the first two years of medical school

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**EMR\_ME 6943: SCC Emergency Medicine 2-week**

This elective is designed to offer an introductory experience in Emergency Medicine, including all levels of acuity and pre-hospital emergency care. The student will work rotating shifts of 10 hours each in the Emergency Department at Cox South or Mercy Hospital. During that time, the student will have access to all patient care activities. The student will assist with patient evaluations and select procedures under the close supervision of the Emergency Medicine attending physician. Specific time will be devoted to learning basic skills needed in Emergency Medicine. Teaching will be primarily a one-on-one exchange with the attending physicians.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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## Engineering Courses

**ENGINR 1000: Introduction to Engineering**

This course will help students identify a field of engineering that they will pursue during their studies at MU. This objective will be achieved by exposing students to design in the different engineering disciplines, overviews of the individual departments, and guest lecturers from industry. Other lectures will be given to help acclimate students to university life. Graded on A-F basis only.

**Credit Hour:** 1

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**ENGINR 1100: Engineering Graphics Fundamentals**

Introduction to computer-aided design and drafting. Topics include visualization methods and standards techniques for communication and presenting engineering design graphics information.

**Credit Hours:** 2

**Prerequisites or Corequisites:** MATH 1500

**Prerequisites:** Restricted to Engineering Students only, or by departmental consent

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**ENGINR 1100H: Engineering Graphics Fundamentals - Honors**

Introduction to computer-aided design and drafting. Topics include visualization methods and standards techniques for communication and presenting engineering design graphics information.

**Credit Hours:** 2

**Prerequisites or Corequisites:** MATH 1500

**Prerequisites:** Restricted to Engineering Students only, or by departmental consent. Honors Eligibility required

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**ENGINR 1110: Solid Modeling for Engineering Design**

Introduction to 3D (three dimensional) modeling techniques using computer aided design software. Topics include model creation techniques and advanced graphical presentation practices. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** ENGINR 1100 or instructor's consent. Restricted to Engineering Students Only or by departmental consent

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**ENGINR 1200: Statics and Elementary Strength of Materials**

Fundamentals of statics; static equilibrium and introduction to elements of mechanics of elastic materials.

**Credit Hours:** 3

**Prerequisites or Corequisites:** PHYSCS 2750 C- or higher. Restricted to Engineering Students only or with departmental consent

**Prerequisites:** MATH 1500 C- or higher

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**ENGINR 1200H: Statics and Elementary Strength of Materials - Honors**

Fundamentals of statics; static equilibrium and introduction to elements of mechanics of elastic materials.

**Credit Hours:** 3

**Prerequisites or Corequisites:** PHYSCS 2750 C- or higher. Restricted to Engineering Students only or with departmental consent

**Prerequisites:** MATH 1500 C- or higher. Honors eligibility required

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**ENGINR 2001: Experimental Course**

For sophomore-level students. Content and number of credit hours to be listed in Schedule of Courses.

**Credit Hour:** 1-99

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**ENGINR 2001W: Experimental Course - Writing Intensive**

For sophomore-level students. Content and number of credit hours to be listed in Schedule of Courses.

**Credit Hour:** 1-99

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**ENGINR 2100: Circuit Theory for Engineers**

DC circuit analysis, inductors and capacitors, first-order response, AC circuit analysis, single-phase AC power and three-phase, transformers.

**Credit Hours:** 3

**Prerequisites:** MATH 1700. For Non-Electrical and Computer Engineering Majors. Restricted to Engineering Students only or with departmental consent

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**ENGINR 2100H: Circuit Theory for Engineers - Honors**

DC circuit analysis, inductors and capacitors, first order response, AC circuit analysis, single-phase AC power.

**Credit Hours:** 3

**Prerequisites:** MATH 1700. Honors eligibility required

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**ENGINR 2200: Intermediate Strength of Materials**

Elements of mechanics of elastic materials.

**Credit Hours:** 3

**Prerequisites:** ENGINR 1200 C- or higher. Restricted to Engineering Students only or with departmental consent

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**ENGINR 2300: Engineering Thermodynamics**

(same as MAE 2300). Fluid properties, work and heat, first law, second law, entropy, applications to vapor and ideal gas processes.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2750. Restricted to Engineering Students Only or departmental consent

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**ENGINR 2500: A History of Modern Engineering**

This course will introduce the student to significant engineering events that have shaped the late modern-era from the French Revolution to the end of World War II (1789-1945). Radical inventions and their dates will be used as historical landmarks throughout the course. Graded on A-F basis only.

**Credit Hours:** 3

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**ENGINR 2600H: History of Human Spaceflight - Honors**

This course will provide an overview of the history of human spaceflight, including early efforts up through the present for the three countries that have flown humans in space (U.S., Russian, and China). Special topics will include a discussion of the major space accidents. Finally, the future of human space exploration will be discussed. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**ENGINR 2600HW: History of Human Spaceflight - Honors/ Writing Intensive**

This course will provide an overview of the history of human spaceflight, including early efforts up through the present for the three countries that have flown humans in space (U.S., Russian, and China). Special topics will include a discussion of the major space accidents. Finally, the future of human space exploration will be discussed. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**ENGINR 3000: Short Term Education Abroad**

Introduction to history and culture of country and/or cities in specified country. Students will make engineering profession and corporate site visits. Lecture activities will focus on industry and society, with country and/or cities compared and contrasted to U.S. engineering. Graded A-F only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required. Students must be in Academic Good Standing

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**ENGINR 3000H: Short Term Education Abroad - Honors**

Introduction to history and culture of country and/or cities in specified country. Students will make engineering profession and corporate site visits. Lecture activities will focus on industry and society, with country and/or cities compared and contrasted to U.S. engineering. Graded A-F only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required. Students must be in Academic Good Standing

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**ENGINR 4000: Study Abroad Technical Elective**

This course is designed to provide students with an international experience while also potentially fulfilling a required engineering technical elective course. Engineering technical electives are courses that are relevant or related to engineering from a broad range of fields including math and science as well as the various engineering departments. This course will be used as the umbrella course for all Engineering Technical Elective Study Abroad Opportunities and each course will provide a separate section number.

**Credit Hour:** 3-6

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**ENGINR 4050: Cooperative Education Program**

For Engineering Cooperative Education Program Students. No billing hours, No term finalization.

**Credit Hours:** 0

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**ENGINR 4890: Multi-disciplinary Senior Engineering Capstone Design**

Engineering design and prototyping including reliability, testing, evaluation, preparation of documentation, safety, ethics, manufacturing, intellectual property, economic and environmental constraints. Oral and written reports. Graded A-F only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent. Student's department consent also required

**Recommended:** Senior standing

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**ENGINR 4890W: Multi-disciplinary Senior Engineering Capstone Design - Writing Intensive**

Engineering design and prototyping including reliability, testing, evaluation, preparation of documentation, safety, ethics, manufacturing, intellectual property, economic and environmental constraints. Oral and written reports. Graded A-F only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent. Student's department consent also required

**Recommended:** Senior standing

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**ENGINR 8100: Design and Development of Biomedical Innovations**

(same as BIOL\_EN 8100, MPP 8100). The overarching goal of this course is to help participants understand the design and development (drug or device) process in biomedical innovation. This course will help participants to understand the process of choosing unmet clinical needs, articulate a need statement without integrating solution, design and develop a solution. Participants will learn to assess the commercial potential of clinical needs by performing market analysis and valuing customer needs. A conceptual understanding about development of a prototype for a device and also drug development by different brainstorming process will be provided. Details of regulatory, reimbursement, patenting process required for product development will be explained with examples. An overview about how to evaluate preliminary designs, define product specifications, comply with



manufacturing principles and methods, costs, cGMP requirements will be explained. Quality control and Quality assurance necessities for drug/device will be elucidated with case studies. Participants will gain knowledge about different business models for drug and devices, estimate market penetration and how to make profitable, patient-driven products. Graded on A-F basis only.

**Credit Hours:** 3

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## English Courses

### **ENGLISH 1000: Exposition and Argumentation**

Stresses writing as a process, with due attention given to critical reading and thinking skills applicable to all college classes, as well as to invention, drafting, revising, and rewriting. English 1000 is a prerequisite for any Writing Intensive course.

**Credit Hours:** 3

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### **ENGLISH 1000H: Honors Exposition English**

Stresses writing as a process, with due attention given to critical reading and thinking skills applicable to all college classes, as well as to invention, drafting, revising, and rewriting. English 1000 is a prerequisite for any Writing Intensive course.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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### **ENGLISH 1010W: Missouri Transfer Equivalent to Comp 1**

Equivalent to COMP 1 taken at a Missouri Institutions. For transfer purposes only in accordance with the Missouri Department of Higher Education standards for the 42 general education block. Guaranteed transfer course as part of Missouri transfer policies. Fulfills MU lower division Writing Intensive.

**Credit Hour:** 1-10

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### **ENGLISH 1060: Human Language**

(same as ANTHRO 1060, SLHS 1060 and LINGST 1060). General introduction of various aspects of linguistic study. Elementary analysis of language data, with some attention to application of linguistic study to other disciplines.

**Credit Hours:** 3

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### **ENGLISH 1100: Reading Literature**

Introduces the student to the values, rigors, and pleasures of reading literature. Intended for first-year, non-English majors. No more than six hours may be taken in the Reading Literature Series.

**Credit Hours:** 3

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### **ENGLISH 1100H: Reading Literature - Honors**

Introduces the student to the values, rigors, and pleasures of reading literature. Intended for first-year, non-English majors. No more than six hours may be taken in the Reading Literature Series.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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### **ENGLISH 1106: Reading Literature, Beginnings to 1603**

See ENGLISH 1100 course for description.

**Credit Hours:** 3

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### **ENGLISH 1107: Reading Literature, 1603 to 1789**

See ENGLISH 1100 course for description.

**Credit Hours:** 3

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### **ENGLISH 1108: Reading Literature, 1789-1890**

See ENGLISH 1100 course for description.

**Credit Hours:** 3

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### **ENGLISH 1109: Reading Literature, 1890 to Present**

See ENGLISH 1100 course for description.

**Credit Hours:** 3

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### **ENGLISH 1160: Themes in Literature**

Topics (e.g., The Idea of Progress, Images of Women) announced at time of registration. No more than six hours may be taken in the Themes in Literature series.

**Credit Hours:** 3

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### **ENGLISH 1160H: Themes in Literature - Honors**

Topics (e.g., The Idea of Progress, Images of Women) announced at time of registration. No more than six hours may be taken in the Themes in Literature series.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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### **ENGLISH 1166: Themes in Literature, Beginnings to 1603**

See ENGLISH 1160 for course description.

**Credit Hours:** 3

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### **ENGLISH 1167: Themes in Literature, 1603 to 1789**

See ENGLISH 1160 for course description.

**Credit Hours:** 3

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### **ENGLISH 1168: Themes in Literature, 1789 to 1890**

See ENGLISH 1160 for course description.

**Credit Hours:** 3

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### **ENGLISH 1169: Themes in Literature, 1890 to Present**

See ENGLISH 1160 for course description.

**Credit Hours:** 3

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### **ENGLISH 1169H: Themes in Literature, 1890 to Present - Honors**

See ENGLISH 1160 for course description.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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### **ENGLISH 1206: Readings in British Literature, Beginning to 1603**

See ENGLISH 1200 for course description.

**Credit Hours:** 3

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**ENGLISH 1207: Readings in British Literature, 1603 to 1789**

See ENGLISH 1200 for course description.

**Credit Hours:** 3

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**ENGLISH 1208: Readings in British Literature, 1789 to 1890**

See ENGLISH 1200 for course description.

**Credit Hours:** 3

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**ENGLISH 1209: Readings in British Literature, 1890 to Present**

See ENGLISH 1200 for course description.

**Credit Hours:** 3

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**ENGLISH 1210: Introduction to British Literature**

A basic introduction to the concepts, terms, and practices commonly encountered in literary study, presented by way of texts from the history of British literature that appropriately demonstrate such concepts, terms, and practices. Graded on A-F basis only.

**Credit Hours:** 3

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**ENGLISH 1210H: Introduction to British Literature - Honors**

A basic introduction to the concepts, terms, and practices commonly encountered in literary study, presented by way of texts from the history of British literature that appropriately demonstrate such concepts, terms, and practices. This course is recommended for prospective majors. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** honors eligibility required

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**ENGLISH 1300: Readings in American Literature**

Focuses on reading and interpreting selected texts in American literature. No more than six hours may be taken in the Readings in American Literature series.

**Credit Hours:** 3

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**ENGLISH 1307: Readings in American Literature, 1603 to 1789**

See ENGLISH 1300 for course description.

**Credit Hours:** 3

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**ENGLISH 1308: Readings in American Literature, 1789 to 1890**

See ENGLISH 1300 for course description.

**Credit Hours:** 3

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**ENGLISH 1309: Readings in American Literature, 1890 to Present**

See ENGLISH 1300 for course description.

**Credit Hours:** 3

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**ENGLISH 1310: Introduction to American Literature**

A basic introduction to the concepts, terms, and practices commonly encountered in literary study, presented by way of texts from the history of American literature that appropriately demonstrate such concepts, terms, and practices. Graded on A/F basis only.

**Credit Hours:** 3

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**ENGLISH 1310H: Introduction to American Literature - Honors**

A basic introduction to the concepts, terms, and practices commonly encountered in literary study, presented by way of texts from the history of American literature that appropriately demonstrates such concepts, terms, and practices. Graded A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**ENGLISH 1400: Themes in African Diaspora Studies**

Topic (e.g. Writing Early Black Women's Spiritual Identity) announced at time of registration. No more than six hours may be taken in ENGLISH 1400.

**Credit Hours:** 3

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**ENGLISH 1500: Creative Writing: Introduction to Multiple Genres**

Introduces basic techniques of writing fiction, creative nonfiction, and poetry, including writing original works.

**Credit Hours:** 3

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**ENGLISH 1510: Creative Writing: Introduction to Fiction**

Introduces basic narrative techniques, including writing original stories.

**Credit Hours:** 3

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**ENGLISH 1520: Creative Writing: Introduction to Nonfiction Prose**

Introduces the range and basic techniques of creative nonfiction, including composing original work in the genre.

**Credit Hours:** 3

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**ENGLISH 1530: Creative Writing: Introduction to Poetry**

Introduces basic poetic techniques, including writing original poems.

**Credit Hours:** 3

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**ENGLISH 1700: Introduction to Folklore Genres**

(same as ANTHRO 1150). Course focus is on genres of folklore in both historic and contemporary contexts, as well as in people's daily lives. Genres include narrative, proverbs, oral poetry and rhyme, riddles, jokes, legends, epics, material culture and intangible expressive culture. Graded on A/F basis only.

**Credit Hours:** 3

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**ENGLISH 1700W: Introduction to Folklore Genres - Writing Intensive**

(same as ANTHRO 1150). Course focus is on genres of folklore in both historic and contemporary contexts, as well as in people's daily lives. Genres include narrative, proverbs, oral poetry and rhyme, riddles, jokes, legends, epics, material culture and intangible expressive culture. Graded on A/F basis only.

**Credit Hours:** 3

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**ENGLISH 1800: Introduction to Film Studies**

(same as FILMS\_VS 1800, DST\_FS 1800). Introduction to terms and concepts for film analysis, including mise-en-scene, cinematography,

editing, sound narrative, genre, and other elements. No credit for students who have completed FILMS\_VS 2810. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** freshman and sophomores only or instructor's consent

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**ENGLISH 1880: Introduction to Digital Media Production**

(same as DST\_VS 1880, FILMS\_VS 1880, ARTGE\_VS 1920, COMMUN 1880). Introduction to concepts and skills for Digital Storytelling, including media literacy and forms of narrative manifested historically and currently across a range of media. This course focuses on theories and concepts that support the critical analysis and creation of contemporary narrative in digital form with particular attention to audio, visual and written communication. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Enrollment limited to declared English majors during early registration

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**ENGLISH 2000: Studies in English**

Underclass topics. Subjects vary from semester to semester. No more than six hours may be taken in the Topics in English Studies series.

**Credit Hours:** 3

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**ENGLISH 2000H: Studies in English - Honors**

Underclass topics. Subjects vary from semester to semester. No more than six hours may be taken in the Topics in English Studies series.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**ENGLISH 2000HW: Studies in English - Honors/Writing Intensive**

Underclass topics. Subjects vary from semester to semester. No more than six hours may be taken in the Topics in English Studies series.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**ENGLISH 2000W: Studies in English - Writing Intensive**

Underclass topics. Subjects vary from semester to semester. No more than six hours may be taken in the Topics in English Studies series.

**Credit Hours:** 3

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**ENGLISH 2005: Topics in English - Humanities**

Underclass topics. Subjects vary from semester to semester. May be repeated to 6 hours maximum.

**Credit Hours:** 3

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**ENGLISH 2006: Studies in English, Beginning to 1603**

See ENGLISH 2000 for course description.

**Credit Hour:** 1-3

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**ENGLISH 2006W: Studies in English, Beginning to 1603 - Writing Intensive**

See ENGLISH 2000 for course description.

**Credit Hour:** 1-3

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**ENGLISH 2009: Studies in English, 1890 to Present**

See ENGLISH 2000 for course description.

**Credit Hour:** 1-3

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**ENGLISH 2010: Intermediate Composition**

Provides intensive guided practice in expository and persuasive writing.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 2015H: Theory and Practice of Tutoring Writing Seminar - Honors**

(same as GN\_HON 2015H). Addresses both the theory and practice of tutoring and the foundations of good writing. This course also qualifies students for a part-time job working as Writing Lab/Online Writery tutors in future semester.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000; instructor's consent. Honors eligibility required

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**ENGLISH 2015HW: Theory and Practice of Tutoring Writing Seminar - Honors/Writing Intensive**

(same as GN\_HON 2015H). Addresses both the theory and practice of tutoring and the foundations of good writing. This course also qualifies students for a part-time job working as Writing Lab/Online Writery tutors in future semester.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000; instructor's consent. Honors eligibility required

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**ENGLISH 2030: Professional Writing**

Introduction to the communication required in any professional field, including basic letters and resumes, reviews, reports, and electronic networking, culminating in an extensive report and a related oral presentation.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 2100: Writing About Literature**

Introduces the student to reading in three or four genres (fiction, poetry, drama, and non-fiction) and to literary concepts and terms and their application in literary analysis.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 2100H: Writing About Literature - Honors**

Introduces the student to reading in three or four genres (fiction, poetry, drama, and non-fiction) and to literary concepts and terms and their application in literary analysis.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000. Honors eligibility required

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**ENGLISH 2140: Twentieth-Century Literature**

A multi-genre survey emphasizing American and British works within the intellectual and cultural context of our time.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2140W: Twentieth-Century Literature - Writing Intensive**

A multi-genre survey emphasizing American and British works within the intellectual and cultural context of our time.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2150: Popular Literature**

Study of literary genres, such as science fiction and the detective novel, that may be overlooked in traditional literature classes.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2150W: Popular Literature - Writing Intensive**

Study of literary genres, such as science fiction and the detective novel, that may be overlooked in traditional literature classes.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2155: Introduction to World Literatures**

Presents and puts into context works by writers from different nations or ethnic backgrounds; includes works in two or more literary genres. No more than six hours may be taken in the Introduction to World Literature series.

**Credit Hours:** 3

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**ENGLISH 2159: Introduction to World Literatures, 1890 to Present**

Presents and puts into context works by writers from different nations or ethnic backgrounds, includes works in two or more literary genres. No more than six hours may be taken in the Introduction to World Literature series.

**Credit Hours:** 3

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**ENGLISH 2160: Major Authors**

Focuses on the works of a single writer (e.g., Shakespeare) or set of writers (e.g., William Faulkner and Flannery O'Connor). Topic announced at time of registration. No more than six hours may be taken in the Major Authors series.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2167: Major Authors, 1603 TO 1789**

See ENGLISH 2160 for course description.

**Credit Hours:** 3

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**ENGLISH 2168: Major Authors, 1789 to 1890**

See ENGLISH 2160 for course description.

**Credit Hours:** 3

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**ENGLISH 2169: Major Authors, 1890 to Present**

See ENGLISH 2160 for course description.

**Credit Hours:** 3

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**ENGLISH 2180: Introduction to Women's Literature**

(same as WGST 2180). A study of traditional and nontraditional literature written by women from the perspective of feminist themes-love, power, work, family and other relations. No more than six hours may be taken in the Introduction to Women's Literature series.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2180W: Introduction to Women's Literature - Writing Intensive**

(same as WGST 2180W). A study of traditional and nontraditional literature written by women from the perspective of feminist themes-love, power, work, family and other relations. No more than six hours may be taken in the Introduction to Women's Literature series.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2186: Introduction to Women's Literature, Beginning to 1603**

(same as WGST 2186). See ENGLISH 2180 for course description.

**Credit Hours:** 3

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**ENGLISH 2187: Introduction to Women's Literature, 1603 to 1789**

(same as WGST 2187). See ENGLISH 2180 for course description.

**Credit Hours:** 3

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**ENGLISH 2188: Introduction to Women's Literature, 1789 to 1890**

(same as WGST 2188). See ENGLISH 2180 for course description.

**Credit Hours:** 3

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**ENGLISH 2189W: Introduction to Women's Literature, 1890 to Present - Writing Intensive**

(same as WGST 2189). See ENGLISH 2180 for course description.

**Credit Hour:** 1-3

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**ENGLISH 2200: Studies in British Literature**

Topic (e.g., Gothic Literature, The Domestic Novel) announced at time of registration. No more than six hours may be taken in the Topics in British Literature series.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

---

**ENGLISH 2200H: Studies in British Literature - Honors**

Topic (e.g., Gothic Literature, The Domestic Novel) announced at time of registration. No more than six hours may be taken in the Topics in British Literature series.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** ENGLISH 1000

---

**ENGLISH 2200W: Studies in British Literature - Writing Intensive**

Topic (e.g., Gothic Literature, The Domestic Novel) announced at time of registration. No more than six hours may be taken in the Topics in British Literature series.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2206: Studies in British Literature, Beginning to 1603**

See ENGLISH 2200 for course description.

**Credit Hours:** 3

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**ENGLISH 2207: Studies in British Literature, 1603 to 1789**

See ENGLISH 2200 for course description.

**Credit Hours:** 3

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**ENGLISH 2208: Studies in British Literature, 1789 to 1890**

See ENGLISH 2200 for course description.

**Credit Hours:** 3

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**ENGLISH 2209W: Studies in British Literature, 1890 to Present - Writing Intensive**

See ENGLISH 2200 for course description.

**Credit Hours:** 3

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**ENGLISH 2300: Studies in American Literature**

Topic (e.g., American Culture, The Frontier) announced at time of registration. No more than six hours may be taken in the Topics in American Literature series.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2300W: Studies in American Literature - Writing Intensive**

Topic (e.g., American Culture, The Frontier) announced at time of registration. No more than six hours may be taken in the Topics in American Literature series.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2306: Studies in American Literature, Beginning to 1603**

See ENGLISH 2300 for course description.

**Credit Hours:** 3

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**ENGLISH 2307: Studies in American Literature, 1603 to 1789**

See ENGLISH 2300 for course description.

**Credit Hours:** 3

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**ENGLISH 2308: Studies in American Literature, 1789-1890**

See ENGLISH 2300 for course description.

**Credit Hours:** 3

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**ENGLISH 2309: Studies in American Literature, 1890 to Present**

See ENGLISH 2300 for course description.

**Credit Hours:** 3

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**ENGLISH 2309W: Studies in American Literature, 1890 to Present - Writing Intensive**

See ENGLISH 2300 for course description.

**Credit Hours:** 3

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**ENGLISH 2310: Missouri Writers**

A survey of literature written by Missourians. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2310H: Missouri Writers - Honors**

A survey of literature written by Missourians. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** ENGLISH 1000

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**ENGLISH 2400: Introduction to African Diaspora Literature**

(same as BL\_STU 2400). Introduces students to African Diaspora literature with an emphasis on literature written originally in English. No more than six hours may be taken in the Introduction to African Diaspora Literature series.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2407: Introduction to African Diaspora Literature, 1603 to 1789**

(same as BL\_STU 2407). See ENGLISH 2400 for course description.

**Credit Hours:** 3

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**ENGLISH 2408: Introduction to African Diaspora Literature, 1789 to 1890**

(same as BL\_STU 2408). See ENGLISH 2400 for course description.

**Credit Hours:** 3

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**ENGLISH 2490: Introduction to Indigenous Literatures**

(same as PEA\_ST 2490). Introduces students to global indigenous literatures in English and translation. Graded on A-F basis only.

**Credit Hours:** 3

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**ENGLISH 2510: Creative Writing: Intermediate Fiction**

Provides intensive guided practice in the writing of short fiction.

**Credit Hours:** 3

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**ENGLISH 2520: Creative Writing: Intermediate Nonfiction Prose**

Provides guided practice in the writing of creative nonfiction.

**Credit Hours:** 3

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**ENGLISH 2530: Creative Writing: Intermediate Poetry**

Provides intensive guided practice in the writing of poetry.

**Credit Hours:** 3

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**ENGLISH 2560: Beginning Playwriting**

(same as THEATR 2920). Study and practice of playwriting fundamentals; emphasizes the one-act play.

**Credit Hours:** 3

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**ENGLISH 2601: Languages of Africa**

(same as BL\_STU 2601, LINGST 2601). Introduction to the diversity of the 2000+ African languages, including first-hand experience exploring a few in detail with native speakers. Features of African languages are compared with others of the world. Political and social aspects of language in Africa are discussed.

**Credit Hours:** 3

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**ENGLISH 2700: Introduction to Folklore Field Research**

(same as ANTHRO 2150). Course will focus on the specifics of how to identify, collect, preserve and document folklore within communities.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2830: American Film History I, 1895-1950**

(same as FILMS\_VS 2830). Examines the development of American cinema in relation to other national cinemas, from 1895-1950. No credit for students who have completed ENGLISH 1810 or FILM\_S 1810.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1800 or FILMS\_VS 1800

**Recommended:** ENGLISH 1000

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**ENGLISH 2840: American Film History II, 1950-Present**

(same as FILMS\_VS 2840). Examines American film history in an international context, from 1950-present. No credit for students who have completed ENGLISH 1820 or FILM\_S 1820.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1800 or FILMS\_VS 1800

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**ENGLISH 2860: Film Themes and Genres**

(same as FILMS\_VS 2860, DST\_VS 2860). Topics (e.g. Film noir, African-American filmmakers, Food and Film, The Western) announced at time of registration. No more than six hours may be taken in ENGLISH 2680.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2870W: Film and Literature - Writing Intensive**

(same as FILMS\_VS 2870). Explores the complex interplay between film and literature in order to gain an understanding of the possibilities - and problems - involved in the transposition from literature to film. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 2885: Digital Storytelling Animation Production I**

(same as DST\_VS 2885). Introduction to all aspects of digital animation and elements of the 3D computer animation production pipeline, including story drafting and production planning, polygonal modeling and texturing, rigging, key framing, lighting, compositing rendered images, and editing into a short finished film. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DST\_VS 1880 or ENGLISH 1880 or FILMS\_VS 1880 or ARTGE\_VS 1920 or instructor consent. Enrollment limited to declared English majors during early enrollment

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**ENGLISH 3000: Intermediate Studies in English**

An intermediate examination of subjects within English studies. Subjects vary from semester to semester.

**Credit Hour:** 1-3

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**ENGLISH 3010: Advanced Composition**

An intensive writing workshop in which student essays and related texts receive close reading and analysis. Focus (e.g. The Essay, The Research Paper) announced at time of registration.

**Credit Hours:** 3

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**ENGLISH 3080: Sexuality and Gender Theory**

(same as WGST 3080). Examination of major theoretical approaches and debates in the study of gender and sexuality, with particular attention to the intersection of culture, representation, and identity. May be repeated to 6 hours with department consent.

**Credit Hours:** 3

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**ENGLISH 3100: Introduction to Literary Theory**

Introduction to the range of theoretical approaches to the study of literature; intended as a broad survey of literary theory, whether from the Classical era onward or 20th century literary theory and beyond.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3110: Special Themes in Literature**

Topics (e.g., Postmodernism, Representations of Nature) announced at time of registration. No more than six hours may be taken in the Special Themes in Literature series.

**Credit Hour:** 1-3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3110H: Special Themes in Literature - Honors**

Topics (e.g., Postmodernism, Representations of Nature) announced at time of registration. No more than six hours may be taken in the Special Themes in Literature series.

**Credit Hour:** 1-3

**Prerequisites:** ENGLISH 1000, Honors eligibility required

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**ENGLISH 3110W: Special Themes in Literature - Writing Intensive**

Topics (e.g., Postmodernism, Representations of Nature) announced at time of registration. No more than six hours may be taken in the Special Themes in Literature series.

**Credit Hour:** 1-3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3116: Special Themes in Literature, Beginning to 1603**

See ENGLISH 3110 for course descriptions.

**Credit Hours:** 3

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**ENGLISH 3116W: Special Themes in Literature, Beginning to 1603 - Writing Intensive**

See ENGLISH 3110 for course descriptions.

**Credit Hours:** 3

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**ENGLISH 3118H: Special Themes in Literature, 1789 to 1890 - Honors**

See ENGLISH 3110H for course descriptions.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**ENGLISH 3119: Special Themes in Literature, 1890 to Present**

See ENGLISH 3110 for course descriptions.

**Credit Hours:** 3

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**ENGLISH 3170: World Dramatic Literature**

(same as THEATR 3700). Survey of world drama from Greeks to present, focusing on structure, theory, and performance. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** sophomore standing

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**ENGLISH 3170W: World Dramatic Literature - Writing Intensive**

(same as THEATR 3700). Survey of world drama from Greeks to present, focusing on structure, theory, and performance. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** sophomore standing

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**ENGLISH 3180: Survey of Women Writers**

(same as WGST 3180). A study of writing by women from the Middle Ages to the present.

**Credit Hours:** 3

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**ENGLISH 3180H: Survey of Women Writers - Honors**

A study of writing by women from the Middle Ages to the present.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**ENGLISH 3180W: Survey of Women Writers - Writing Intensive**

(same as WGST 3180). A study of writing by women from the Middle Ages to the present.

**Credit Hours:** 3

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**ENGLISH 3200: Survey of British Literature: Beginnings to 1784**

Historical survey from beginnings of British literature through the age of Johnson, with readings representing significant writers, works and currents of thought.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3200W: Survey of British Literature: Beginnings to 1784 - Writing Intensive**

Historical survey from beginnings of British literature through the age of Johnson, with readings representing significant writers, works and currents of thought.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3210: Survey of British Literature: Romanticism to the Present**

Historical survey of British literature from the Romantic period to the present, emphasizing important writers and significant intellectual and cultural movements.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3210H: Survey of British Literature: Romanticism to the Present - Honors**

Historical survey of British literature from the Romantic period to the present, emphasizing important writers and significant intellectual and cultural movements.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000; Honors eligibility required

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**ENGLISH 3210W: Survey of British Literature: Romanticism to the Present - Writing Intensive**

Historical survey of British literature from the Romantic period to the present, emphasizing important writers and significant intellectual and cultural movements.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3300: Survey of American Literature: Beginnings to 1865**

A survey of major writers and movements in American literature from Colonialism to Romanticism.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3300W: Survey of American Literature: Beginnings to 1865 - Writing Intensive**

A survey of major writers and movements in American literature from Colonialism to Romanticism.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3310: Survey of American Literature: 1865-Present**

A survey of major writers and movements in American literature from realism to postmodernism.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3310W: Survey of American Literature: 1865-Present - Writing Intensive**

A survey of major writers and movements in American literature from realism to postmodernism.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3400: Survey of African American Literature, Beginnings to 1900**

(same as BL\_STU 3400). A survey of major authors and movements in African American literature from its beginnings to 1900.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3400W: Survey of African American Literature, Beginnings to 1900 - Writing Intensive**

(same as BL\_STU 3400). A survey of major authors and movements in African American literature from its beginnings to 1900.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3410: Survey of African American Literature, 1900-Present**

(same as BL\_STU 3410). A survey of major authors and movements in African American literature from 1900 to the present.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3430: Introduction to African Diaspora Literary Theory**

Introduction to the range of theoretical approaches to the study of African Diaspora literature, with particular attention to the diverse socio-political contexts that undergird range of literary, historical, and cultural theories; intended as a broad survey of African Diaspora literary theory, whether from the Slavery era onward or 20th century literary theory and beyond. May be repeated for credit with consent.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3490: Special Themes in Native American and Indigenous Studies**

(same as PEA\_ST 3490). Topics (e.g., Indigenous Novel; Oral Tradition; Indigenous Science Fiction; Law and Indigenous Literature) announced at the time of registration. Graded on A-F basis only.

**Credit Hours:** 3

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**ENGLISH 3560: Intermediate Playwriting**

(same as THEATR 3920). Intermediate study of the writing process as applied to theatre, leading to the creation of a full-length play to be considered for production.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 2560

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**ENGLISH 3560W: Intermediate Playwriting - Writing Intensive**

(same as THEATR 3920W). Intermediate study of the writing process as applied to theatre, leading to the creation of a full-length play to be considered for production.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 2560

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**ENGLISH 3570: Performance of Literature**

(same as COMMUN 3570 and THEATR 3200). Analysis and oral interpretation of literary works. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** sophomore standing

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**ENGLISH 3620: Languages of the World**

(same as LINGST 3620). Introduction to the diversity of the world's languages emphasizing historical relations and structural similarities and differences.

**Credit Hours:** 3

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**ENGLISH 3700: American Folklore**

(same as ANTHRO 3150). Focus on regional and ethnic folklore; emphasis on analysis of folklore in context. Requirements include book reports and two analytical papers based on student field research. May be repeated for a maximum of six hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 3820: Major Directors**

(same as FILMS\_VS 3820, RM\_LAN 3820). Topics (e.g. Hitchcock, Kubrick, Fellini, Allen, Kurosawa, Wilder) announced at time of registration. Only 6 hours may be taken for credit toward major. Graded on A/F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3850: Studies in Film History**

(same as FILMS\_VS 3850). Topics (e.g. Classical Period of Hollywood cinema, silent era, Post-WWII American film, German Weimar cinema, French New Wave) announced at time of registration. Only 6 hours count as credit toward major.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3855: Documentary Film**

(same as FILMS\_VS 3855, DST\_VS 3855). Surveys the history of documentary film including the development of subgenres, sound and voice over in documentary, re-enactment, ethical issues in documentary film production, and more. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3880W: Writing and Theory for Digital Media - Writing Intensive**

(same as DST\_VS 3880W). Writing and Theory for Digital Media teaches the skills, methods and theoretical frameworks needed to write for new media. Students will study and practice writing for web-based and digital media platforms, including blogs, podcasts, vlogs, and the emerging possibilities of locative and interactive media. Assignments emphasize the professional and creative possibilities of new media production. In addition to the hands-on creation for audio, screen-based, networked, and hybrid forms of digital media, students will also read, discuss, and write about work by new media theorists. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DST\_VS 1880 or ENGLISH 1880 or FILMS\_VS 1880 or ARTGE\_VS 1920 or instructor consent. Enrollment limited to declared English majors during early enrollment

**Recommended:** Sophomore standing or above; ENGLISH 1000

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**ENGLISH 4000: Advanced Studies in English**

Advanced examination of subjects within English studies. Subjects vary from semester to semester. May repeat to six hours.

**Credit Hour:** 1-3

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**ENGLISH 4000W: Advanced Studies in English - Writing Intensive**

Advanced examination of subjects within English studies. Subjects vary from semester to semester. May repeat to six hours.

**Credit Hour:** 1-3

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**ENGLISH 4040: Studies in Writing**

(cross-leveled with ENGLISH 7040). A hybrid reading/writing course that focuses on a form of nonfiction prose, such as the experimental essay, art criticism, book reviews, spiritual writing, nature writing, etc. This course is not a workshop, although it may incorporate workshop elements. Designed for English majors who may or may not have taken creative writing courses. May repeat to six hours with departmental consent.

**Credit Hours:** 3

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**ENGLISH 4040W: Studies in Writing - Writing Intensive**

A hybrid reading/writing course that focuses on a form of nonfiction prose, such as the experimental essay, art criticism, book reviews, spiritual writing, nature writing, etc. This course is not a workshop, although it may incorporate workshop elements. Designed for English majors who may or may not have taken creative writing courses. May repeat to six hours with departmental consent.

**Credit Hours:** 3

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**ENGLISH 4045: Rhetorical Studies**

(cross-leveled with ENGLISH 7045). Examines questions related to rhetoric, the study of symbols used for persuasion, justification, or communication. Specific topics are announced at time of registration and may involve the rhetorical study of fiction or nonfiction, oral or written texts, verbal or visual modes.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

**Recommended:** junior standing

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**ENGLISH 4060: Studies in Critical Theory**

(cross-leveled with ENGLISH 7060). Focuses on questions raised by various critical theories, includes practice writing criticism that applies the theories to particular works. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4100: Genres**

(cross-leveled with ENGLISH 7100). Advanced survey of major movements and writers. Topics (e.g., American Poetry, The Development of the British Novel) announced at time of registration. No more than six hours may be taken in the Genres series.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4100H: Genres - Honors**

Advanced survey of major movements and writers. Topics (e.g., American Poetry, The Development of the British Novel) announced at time of registration. No more than six hours may be taken in the Genres series.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** junior standing

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**ENGLISH 4100HW: Genres - Honors/Writing Intensive**

Advanced survey of major movements and writers. Topics (e.g., American Poetry, The Development of the British Novel) announced at time of registration. No more than six hours may be taken in the Genres series.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** junior standing

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**ENGLISH 4100W: Genres - Writing Intensive**

Advanced survey of major movements and writers. Topics (e.g., American Poetry, The Development of the British Novel) announced at time of registration. No more than six hours may be taken in the Genres series.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4106: Genres, Beginning to 1603**

(cross-leveled with ENGLISH 7106). See ENGLISH 4100 for course description.

**Credit Hours:** 3

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**ENGLISH 4107: Genres, 1603 to 1789**

(cross-leveled with ENGLISH 7107). See ENGLISH 4100 for course description.

**Credit Hours:** 3

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**ENGLISH 4108: Genres, 1789 to 1890**

(cross-leveled with ENGLISH 7108). See ENGLISH 4100 for course description.

**Credit Hours:** 3

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**ENGLISH 4109: Genres, 1890 to Present**

(cross-leveled with ENGLISH 7109). See ENGLISH 4100 for course description.

**Credit Hours:** 3

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**ENGLISH 4109W: Genres, 1890 to Present - Writing Intensive**

See ENGLISH 4100 for course description.

**Credit Hours:** 3

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**ENGLISH 4129: Ethnic Literature, 1890 to Present**

(cross-leveled with ENGLISH 7129). See ENGLISH 4120 for course description.

**Credit Hours:** 3

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**ENGLISH 4140: Modern Literature**

(cross-leveled with ENGLISH 7140). A study of selected twentieth-century literature within the intellectual and cultural contexts of the modern era.

**Credit Hours:** 3

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**ENGLISH 4159: World Literatures, 1890 to Present**

(cross-leveled with ENGLISH 7159). See ENGLISH 4150 for course description.

**Credit Hours:** 3

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**ENGLISH 4159W: World Literatures, 1890 to Present - Writing Intensive**

See ENGLISH 4150 for course description.

**Credit Hours:** 3

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**ENGLISH 4166: Major Authors, Beginning to 1603**

(cross-leveled with ENGLISH 7166). See ENGLISH 4160 for course description.

**Credit Hours:** 3

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**ENGLISH 4166W: Major Authors, Beginning to 1603 - Writing Intensive**

See ENGLISH 4160 for course description.

**Credit Hours:** 3

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**ENGLISH 4167: Major Authors, 1603-1789**

(cross-leveled with ENGLISH 7167). See ENGLISH 4160 for course description.

**Credit Hours:** 3

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**ENGLISH 4167W: Major Authors, 1603-1789 - Writing Intensive**

See ENGLISH 4160 for course description.

**Credit Hours:** 3

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**ENGLISH 4168: Major Authors, 1789-1890**

(cross-leveled with ENGLISH 7168). See ENGLISH 4160 for course description.

**Credit Hours:** 3

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**ENGLISH 4169: Major Authors, 1890-Present**

(cross-leveled with ENGLISH 7169). See ENGLISH 4160 for course description.

**Credit Hours:** 3

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**ENGLISH 4169W: Major Authors, 1890-Present - Writing Intensive**

See ENGLISH 4160 for course description.

**Credit Hours:** 3

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**ENGLISH 4170W: Comparative Approaches to Literature - Writing Intensive**

Study of works separated by the places or eras of their composition, but united by themes or traditions. Topics (e.g., Poets of African Diaspora, Literatures of Exile) announced at time of registration. No more than six hours may be taken in the Comparative Approaches to Literature.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4179: Comparative Approaches to Literature, 1890-Present**

(cross-leveled with ENGLISH 7179). See ENGLISH 4170 for course description.

**Credit Hours:** 3

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**ENGLISH 4180: Major Women Writers**

(same as WGST 4180; cross-leveled with ENGLISH 7180, WGST 7180). Study of a limited number (1-3) of significant writers to be read intensively using contemporary feminist critical theory. No more than six hours may be taken in the Major Women Writers series.

**Credit Hours:** 3

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**ENGLISH 4186: Major Women Writers, Beginning to 1603**

(same as WGST 4186; cross-leveled with ENGLISH 7186; WGST 7186). See ENGLISH 4180 for course description.

**Credit Hours:** 3

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**ENGLISH 4188: Major Women Writers, 1789-1890**

(same as WGST 4188; cross-leveled with ENGLISH 7188, WGST 7188). See ENGLISH 4180 for course description.

**Credit Hours:** 3

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**ENGLISH 4188W: Major Women Writers, 1789-1890 - Writing Intensive**

(same as WGST 4188). See ENGLISH 4180 for course description.

**Credit Hours:** 3

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**ENGLISH 4189: Major Women Writers, 1890-Present**

(same as WGST 4189; cross-leveled with ENGLISH 7189, WGST 7189). See ENGLISH 4180 for course description.

**Credit Hours:** 3

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**ENGLISH 4200: Introduction to Old English**

(same as LINGST 4200; cross-leveled with LINGST 7200, ENGLISH 7200). A beginning study of the Old English or Anglo-Saxon language in its cultural context, with emphasis on gaining a reading knowledge.

**Credit Hours:** 3

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**ENGLISH 4206: Anglo-Saxon Literature**

(cross-leveled with ENGLISH 7206). Readings in the literature of Anglo-Saxon England (ca.500-ca.1100 C.E.). Specific topics (e.g., Women in the Early Middle Ages, Beowulf, Old English Heroic Poetry) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Prerequisites:** Junior standing

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**ENGLISH 4206W: Anglo-Saxon Literature - Writing Intensive**

(cross-leveled with ENGLISH 7206). Readings in the literature of Anglo-Saxon England (ca.500-ca.1100 C.E.). Specific topics (e.g., Women in the Early Middle Ages, Beowulf, Old English Heroic Poetry) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Prerequisites:** Junior standing

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**ENGLISH 4210: Medieval Literature**

(cross-leveled with ENGLISH 7210). Topics (e.g., Age of Chaucer, Chivalry and Courtly Love, Allegory and Satire) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** Junior standing

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**ENGLISH 4220: Renaissance and Seventeenth Century Literature**

(cross-leveled with ENGLISH 7220). Topics (e.g., The Metaphysical Poets, Themes in Shakespeare) announced at time of registration. No more than six hours may be taken in the Renaissance and Seventeenth Century Literature.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4240: Restoration and 18th-Century English Literature**

(cross-leveled with ENGLISH 7240). Topics (e.g., Restoration Drama, Johnson and his Circle) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4250: 19th-Century English Literature**

(cross-leveled with ENGLISH 7250). Topics (e.g., Victorian Poetry, Non-Fiction Prose) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

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**Recommended:** junior standing

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**ENGLISH 4250W: 19th-Century English Literature - Writing Intensive**

(cross-leveled with ENGLISH 7250). Topics (e.g., Victorian Poetry, Non-Fiction Prose) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4260: 20th-Century British Literature**

(cross-leveled with ENGLISH 7260). Topics (e.g. Contemporary British Poets, The Post-War Novel) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4260H: 20th-Century British Literature - Honors**

Topics (e.g. Contemporary British Poets, The Post-War Novel) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** junior standing

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**ENGLISH 4260HW: 20th-Century British Literature - Honors/Writing Intensive**

Topics (e.g. Contemporary British Poets, The Post-War Novel) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** junior standing

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**ENGLISH 4260W: 20th-Century British Literature - Writing Intensive**

(cross-leveled with ENGLISH 7260). Topics (e.g. Contemporary British Poets, The Post-War Novel) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4300: Early American Literature**

(cross-leveled with ENGLISH 7300). Topics (e.g., Narratives of Discovery and Exploration, The Puritan Heritage) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4310: 19th-Century American Literature**

(cross-leveled with ENGLISH 7310). Topics (e.g., American Romanticism, Regionalism) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4310W: 19th-Century American Literature - Writing Intensive**

(cross-leveled with ENGLISH 7310). Topics (e.g., American Romanticism, Regionalism) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4320: 20th-Century American Literature**

(cross-leveled with ENGLISH 7320). Topics (e.g., American Poetry since T. S. Eliot, The Short Story) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4320W: 20th-Century American Literature - Writing Intensive**

(cross-leveled with ENGLISH 7320). Topics (e.g., American Poetry since T. S. Eliot, The Short Story) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4400: Studies in African Diaspora Literature**

(same as BL\_STU 4400; cross-leveled with ENGLISH 7400, BL\_STU 7400). Topics (e.g., African American Poetry, Africana Diaspora Drama) announced at time of registration. No more than six hours may be taken in the Studies in Africana Literature series.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4409: Studies in African Diaspora Literature, 1890 to Present**

(same as BL\_STU 4409; cross-leveled with ENGLISH 7409, BL\_STU 7409). See ENGLISH 4400 for course description.

**Credit Hours:** 3

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**ENGLISH 4410: Major Africana Diaspora Writers**

(same as BL\_STU 4410; cross-leveled with ENGLISH 7410, BL\_STU 7410). An intensive study of selected writers of African Diaspora literature focusing on texts originally in English. No more than six hours may be taken in the Major African Diaspora Writers series.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4420: Africana Womanism**

(same as BL\_STU 4420; cross-leveled with ENGLISH 7420, BL\_STU 7420). An intensive study of Africana Womanism, focusing on selected Africana women writers. May be repeated to six hours with departmental consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4480: Major African Diaspora Women Writers**

(same as WGST 4480, BL\_STU 4480; cross-leveled with ENGLISH 7480, BL\_STU 7480, WGST 7480). Study of selected Africana Diaspora women writers, focusing on texts originally in English. Maybe repeated for credit with departmental consent. Maximum of 6 hours for ENGLISH 4180 and ENGLISH 4480.

**Credit Hours:** 3

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**ENGLISH 4480W: Major African Diaspora Women Writers - Writing Intensive**

(same as WGST 4480 and BL\_STU 4480). Study of selected Africana Diaspora women writers, focusing on texts originally in English. Maybe repeated for credit with departmental consent. Maximum of 6 hours for ENGLISH 4180 and ENGLISH 4480.

**Credit Hours:** 3

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**ENGLISH 4488: Major African Diaspora Women Writers, 1789 to 1890**

(same as WGST 4488, BL\_STU 4488; cross-leveled with ENGLISH 7488, BL\_STU 7488, WGST 7488). See ENGLISH 4480 for course description.

**Credit Hours:** 3

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**ENGLISH 4489: Major African Diaspora Women Writers, 1890 to Present**

(same as WGST 4489, BL\_STU 4489; cross-leveled with ENGLISH 7489, BL\_STU 7489, WGST 7489). See ENGLISH 4480 for course description.

**Credit Hours:** 3

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**ENGLISH 4489W: Major African Diaspora Women Writers, 1890 to Present - Writing Intensive**

(same as WGST 4489W, BL\_STU 4489W; cross-leveled with ENGLISH 7489, BL\_STU 7489, WGST 7489). See ENGLISH 4480 for course description.

**Credit Hours:** 3

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**ENGLISH 4490: Studies in Native American and Indigenous Studies**

In-depth study of topics in Native American and Indigenous Studies, such as tribal intellectual histories, defined historical periods, or specific genres or media. Examples of course titles include Ojibwe Writing, Native Film and Video, and Contemporary Native Literature.

**Credit Hours:** 3

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**ENGLISH 4510: Creative Writing: Advanced Fiction**

(cross-leveled with ENGLISH 7510). An intensive writing workshop in which student stories and related literary texts receive close reading and analysis. Prerequisites: Any ONE of the following: ENGLISH 1510, ENGLISH 1520, ENGLISH 1530, ENGLISH 2510, ENGLISH 2520, or ENGLISH 2530.

**Credit Hours:** 3

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**ENGLISH 4520: Creative Writing: Advanced Nonfiction Prose**

(cross-leveled with ENGLISH 7520). An intensive writing workshop in which a student's creative nonfiction receives close reading and analysis. Prerequisites: Any ONE of the following: ENGLISH 1510, ENGLISH 1520, ENGLISH 1530, ENGLISH 2510, ENGLISH 2520, or ENGLISH 2530.

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**Credit Hours:** 3

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**ENGLISH 4530: Creative Writing: Advanced Poetry**

(cross-leveled with ENGLISH 7530). Poetry regarded as a mode of understanding. Poetic values related to other values. Practical consideration of verse techniques. Prerequisites: Any ONE of the following: ENGLISH 1510, ENGLISH 1520, ENGLISH 1530, ENGLISH 2510, ENGLISH 2520, or ENGLISH 2530.

**Credit Hours:** 3

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**ENGLISH 4560: Advanced Playwriting: Problems**

(same as THEATR 4920; cross-leveled with ENGLISH 7560 and THEATR 7920). Advanced study of the writing process as applied to theatre, including theory and practice. Special playwriting problems and techniques.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 3560

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**ENGLISH 4560W: Advanced Playwriting: Problems - Writing Intensive**

(same as THEATR 4920; cross-leveled with ENGLISH 7560 and THEATR 7920). Advanced study of the writing process as applied to theatre, including theory and practice. Special playwriting problems and techniques.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 3560

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**ENGLISH 4570: Adaptation of Literature for the Stage**

(same as THEATR 4930; cross-leveled with ENGLISH 7570 and THEATR 7930). Explores adaptation principles and practices with literature not originally written for the stage. Graded on A-F basis only.

**Credit Hours:** 3

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**ENGLISH 4600: Structure of American English**

(same as LINGST 4600; cross-leveled with LINGST 7600, ENGLISH 7600). Introduction to English linguistics. Study of the grammar and pronunciation of contemporary English, with the major focus on syntax.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4610: History of the English Language**

(same as LINGST 4610; cross-leveled with ENGLISH 7610, LINGST 7610). Historical changes in the grammar and pronunciation of the English language from Old English to the present. Introduction to Indo-European origins of English.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4620: Regional and Social Dialects of American English**

(same as LINGST 4620; cross-leveled with ENGLISH 7620, LINGST 7620). The study of regional and social variation in pronunciation, vocabulary, and grammar of American English.

**Credit Hours:** 3

**Recommended:** ENGLISH 4600 and ENGLISH 4610 or equivalent

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**ENGLISH 4630: Phonology**

(same as LINGST 4630; cross-leveled with ENGLISH 7630, LINGST 7630). Survey of the sound patterns of English and other languages.

**Credit Hours:** 3

**Recommended:** ENGLISH 1060 or ENGLISH 4600 or equivalent

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**ENGLISH 4640: Syntax**

(same as LINGST 4640; cross-leveled with ENGLISH 7640, LINGST 7640). Study of the properties of phrase-and sentence-level grammar, emphasizing English, with some comparison to other languages.

**Credit Hours:** 3

**Recommended:** ENGLISH 1060 or ENGLISH 4600 or equivalent

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**ENGLISH 4660: Historical Linguistics**

(same as LINGST 4420, ANTHRO 4420; cross-leveled with ENGLISH 7660, ANTHRO 7420, LINGST 7420). Methods of tracing the history of languages by glottochronology, and by comparative and internal reconstructions; cultural and linguistic implications of such reconstructions and of areal linguistics.

**Credit Hours:** 3

**Recommended:** junior/senior standing

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**ENGLISH 4670: Field Methods in Linguistics**

(same as LINGST 4870, ANTHRO 4870; cross-leveled with ENGLISH 7670, LINGST 7870, ANTHRO 7870). Intensive training in collection and analysis of data elicited from a native speaker of a non-Indo-European language. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Contact the Linguistics advisor to request permission

**Recommended:** 9 hours of linguistics

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**ENGLISH 4670W: Field Methods in Linguistics - Writing Intensive**

(same as LINGST 4870 and ANTHRO 4870). Intensive training in collection and analysis of data elicited from a native speaker of a non-Indo-European language. May be repeated for credit. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Contact Linguistics advisor to request permission

**Recommended:** 9 hours of linguistics

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**ENGLISH 4700: Special Themes in Folklore**

(same as ANTHRO 4150; cross-leveled with ENGLISH 7700). Intensive study in a selected area of folklore: folk narrative, folk song, myth, proverb, etc., folklore of a particular group. May be repeated for a maximum of six hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 4710: Themes in African Diaspora Folklore**

(same as ANTHRO 4160 and BL\_STU 4710; cross-leveled with ENGLISH 7710, ANTHRO 7160, BL\_STU 7710). Intensive study in a selected area of African Diaspora folklore: folk narrative, folk song, myth, proverb, etc., folklore and literature; or the folklore of a particular group. ENGLISH 4700 and ENGLISH 4710 may be repeated for a maximum of six hours with instructor's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4770: Oral Tradition**

(same as ANTHRO 4170; cross-leveled with ENGLISH 7770, ANTHRO 7170). Study of oral tradition from living cultures as well as literary works and mass media with roots in verbal art. Oral tradition is a form of human communication through which ideas, knowledge, art, and cultural material is received, preserved, and transmitted orally from one generation to another or from one person to another. May include such folklore genres as ballads, chants, folktales, jokes, legends, myths, proverbs, prose, or verses.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and sophomore standing

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**ENGLISH 4770H: Oral Tradition - Honors**

(same as ANTHRO 4170; cross-leveled with ENGLISH 7770, ANTHRO 7170). Study of oral tradition from living cultures as well as literary works and mass media with roots in verbal art. Oral tradition is a form of human communication through which ideas, knowledge, art, and cultural material is received, preserved, and transmitted orally from one generation to another or from one person to another. May include such folklore genres as ballads, chants, folktales, jokes, legends, myths, proverbs, prose, or verses. Prerequisites: ENGLISH 1000 and sophomore standing; Honors eligibility required

**Credit Hours:** 3

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**ENGLISH 4780: Women's Folklore and Feminist Theory**

(same as WGST 4780; cross-leveled with ENGLISH 7780, WGST 7780). Examines folklore and artistic expression of women in relation to feminist theory and in multicultural contexts. Includes verbal genres (narrative/song) as well as material genres (quilting/arts).

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4810: Film Theory**

(same as FILMS\_VS 4810, DST\_VS 4810; cross-leveled with ENGLISH 7810, FILMS\_VS 7810, DST\_VS 7810). This course explores contemporary trends in film theory. Topics may include: psychoanalysis, feminism, Marxism, cultural studies, queer theory, audience and star studies, postcolonialism, among others.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

**Recommended:** Junior standing

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**ENGLISH 4820: Studies in Film Genre**

(same as FILMS\_VS 4820; cross-leveled with ENGLISH 7820). Topics (e.g. The Western, Film Noir) announced at time of registration. No more than six hours may be taken for credit toward the major.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

**Recommended:** junior standing

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**ENGLISH 4840: Culture and Media**

(same as FILMS\_VS 4840, DST\_VS 4840). Topics (e.g. Cinema and Imperialism, Indigenous Media, Ethnographic Documentary) announced at time of registration. No more than six hours may be taken for credit toward the major.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

**Recommended:** Junior standing

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**ENGLISH 4935: Adaptation of Literature for Film**

(same as FILMS\_VS 4935 and THEATR 4935; cross-leveled with ENGLISH 7580, FILMS\_VS 7935 and THEATR 7935). This upper-division course will explore adaptation principles and practices with a variety of forms of literature that were not originally written for film.

**Credit Hours:** 3

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**ENGLISH 4938: Advanced Screenwriting: Styles**

(same as THEATR 4938; cross-leveled with ENGLISH 7938, THEATR 7938). Students develop advanced skills of screenwriting through a focus on non-realistic, non-linear dramatic writing styles in development of a full-length screenplay. Areas of study will include techniques of magic realism, symbolism, expressionism, absurdism, surrealism/dada, mythic/fantasy, musicals, political docudrama, and science fiction.

**Credit Hours:** 3

**Prerequisites:** THEATR 2920 or ENGLISH 2560

**Recommended:** THEATR 3930

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**ENGLISH 4938W: Advanced Screenwriting: Styles - Writing Intensive**

(same as THEATR 4938; cross-leveled with ENGLISH 7938, THEATR 7938). Students develop advanced skills of screenwriting through a focus on non-realistic, non-linear dramatic writing styles in development of a full-length screenplay. Areas of study will include techniques of magic realism, symbolism, expressionism, absurdism, surrealism/dada, mythic/fantasy, musicals, political docudrama, and science fiction.

**Credit Hours:** 3

**Prerequisites:** THEATR 2920 or ENGLISH 2560

**Recommended:** THEATR 3930

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**ENGLISH 4940: Internship in English**

Students work in an agency or institution using their English-related skills for one to three credit hours. Graded on an S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** Department consent

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**ENGLISH 4950: Internship in Publishing**

Offers practical experience working with a literary or scholarly publication edited or sponsored by faculty members. Graduate students in English must take the course two semesters in order to count three hours toward the completion of their program.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ENGLISH 4955: Independent Research in English**

Development of a carefully considered research project under close supervision of a faculty member. Open to undergraduate students only.

**Credit Hour:** 1-3

**Prerequisites:** junior standing and departmental consent

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**ENGLISH 4960: Special Readings in English**

Individual work with conferences adjusted to needs of student.

**Credit Hour:** 1-99

**Prerequisites:** Consent of instructor

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**ENGLISH 4970: Capstone Experience**

For students in their last semester, this course focuses on a major project and the processes of selection, research, and writing leading to its completion. Includes a professional component (resume, cover letter).

**Credit Hours:** 3

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**ENGLISH 4970W: Capstone Experience - Writing Intensive**

For students in their last semester, this course focuses on a major project and the processes of selection, research, and writing leading to its completion. Includes a professional component (resume, cover letter).

**Credit Hours:** 3

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**ENGLISH 4995: Senior Honors Thesis**

Independent research under direction of faculty. Second course of two part Honors Sequence. Students must have successfully completed English 4996 before taking English 4995.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 4996

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**ENGLISH 4996: Honors Seminar in English**

First of two major semester Honors sequence. Studies literary topic, critical approaches and advanced literary research methodology in preparation for Honors Senior Thesis.

**Credit Hours:** 3

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**ENGLISH 4996W: Honors Seminar in English - Writing Intensive**

First of two major semester Honors sequence. Studies literary topic, critical approaches and advanced literary research methodology in preparation for Honors Senior Thesis.

**Credit Hours:** 3

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**ENGLISH 7040: Studies in Writing**

(cross-leveled with ENGLISH 4040). A hybrid reading/writing course that focuses on a form of nonfiction prose, such as the experimental essay, art criticism, book reviews, spiritual writing, nature writing, etc. This course is not a workshop, although it may incorporate workshop elements. Designed for students who may or may not have taken previous creative writing courses. May repeat to six hours with departmental consent.

**Credit Hours:** 3

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**ENGLISH 7045: Rhetorical Studies**

(cross-leveled with ENGLISH 4045), Examines questions related to rhetoric, the study of symbols used for persuasion, justification, or communication. Specific topics are announced at time of registration and

may involve the rhetorical study of fiction or nonfiction, oral or written texts, verbal or visual modes.

**Credit Hours:** 3

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**ENGLISH 7060: Studies in Critical Theory**

(cross-leveled with ENGLISH 4060). Focuses on questions raised by various critical theories, includes practice writing criticism that applies the theories to particular works. May repeat to six hours with departmental consent.

**Credit Hours:** 3

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**ENGLISH 7100: Genres**

(cross-leveled with ENGLISH 4100). Advanced survey of major movements and writers. Topics (e.g., American Poetry, The Development of the British Novel) announced at time of registration. No more than six hours may be taken in the Genres series.

**Credit Hours:** 3

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**ENGLISH 7106: Genres, Beginning to 1603**

(cross-leveled with ENGLISH 4106). See ENGLISH 7100 for course description.

**Credit Hours:** 3

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**ENGLISH 7107: Genres, 1603 to 1789**

(cross-leveled with ENGLISH 4107). See ENGLISH 7100 for course description.

**Credit Hours:** 3

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**ENGLISH 7109: Genres, 1890 to Present**

(cross-leveled with ENGLISH 4109). See ENGLISH 7100 for course description.

**Credit Hours:** 3

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**ENGLISH 7129: Ethnic Literature, 1890 to Present**

(cross-leveled with ENGLISH 4129). See ENGLISH 7120 for course description.

**Credit Hours:** 3

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**ENGLISH 7140: Modern Literature**

(cross-leveled with ENGLISH 4140). A study of selected twentieth-century literature within the intellectual and cultural contexts of the modern era.

**Credit Hours:** 3

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**ENGLISH 7159: World Literatures, 1890 to Present**

(cross-leveled with ENGLISH 4159). See ENGLISH 7150 for course description.

**Credit Hours:** 3

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**ENGLISH 7166: Major Authors, Beginning to 1603**

(cross-leveled with ENGLISH 7166). See ENGLISH 7160 for course description.

**Credit Hours:** 3

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**ENGLISH 7167: Major Authors, 1603-1789**

(cross-leveled with ENGLISH 4167). See ENGLISH 7160 for course description.

**Credit Hours:** 3

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**ENGLISH 7168: Major Authors, 1789-1890**

(cross-leveled with ENGLISH 4168). See ENGLISH 7160 for course description.

**Credit Hours:** 3

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**ENGLISH 7169: Major Authors, 1890-Present**

(cross-leveled with ENGLISH 4169). See ENGLISH 7160 for course description.

**Credit Hours:** 3

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**ENGLISH 7179: Comparative Approaches to Literature, 1890-Present**

(cross-leveled with ENGLISH 4179). See ENGLISH 7170 for course description.

**Credit Hours:** 3

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**ENGLISH 7180: Major Women Writers**

(same as WGST 7180; cross-leveled with ENGLISH 4180, WGST 4180). Study of a limited number (1-3) of significant writers to be read intensively using contemporary feminist critical theory. No more than six hours may be taken in the Major Women Writers series.

**Credit Hours:** 3

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**ENGLISH 7188: Major Women Writers, 1789-1890**

(same as WGST 7188; cross-leveled with ENGLISH 4188, WGST 4188). See ENGLISH 7180 for course description.

**Credit Hours:** 3

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**ENGLISH 7200: Introduction to Old English**

(same as LINGST 7200; cross-leveled with ENGLISH 4200, LINGST 4200). A beginning study of the Old English or Anglo-Saxon language in its cultural context, with emphasis on gaining a reading knowledge.

**Credit Hours:** 3

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**ENGLISH 7206: Anglo-Saxon Literature**

(cross-leveled with ENGLISH 4206). Readings in the literature of Anglo-Saxon England (ca.500-ca.1100 C.E.). Specific topics (e.g., Women in the Early Middle Ages, Beowulf, Old English Heroic Poetry) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 7210: Medieval Literature**

(cross-leveled with ENGLISH 4210). Topics (e.g., Age of Chaucer, Chivalry and Courtly Love, Allegory and Satire) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 7220: Renaissance and 17th-Century English Literature**

(cross-leveled with ENGLISH 4220). Topics (e.g., The Metaphysical Poets, Themes in Shakespeare) announced at time of registration. No more than six hours may be taken in the Renaissance and Seventeenth Century Literature series.

**Credit Hours:** 3

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**ENGLISH 7240: Restoration and 18th-Century English Literature**

(cross-leveled with ENGLISH 4240). Topics (e.g., Restoration Drama, Johnson and his Circle) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 7250: 19th-Century English Literature**

(cross-leveled with ENGLISH 4250). Topics (e.g., Victorian Poetry, Non-Fiction Prose) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 7260: 20th-Century British Literature**

(cross-leveled with ENGLISH 4260). Topics (e.g., Contemporary British Poets, The Post-War Novel) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 7300: Early American Literature**

(cross-leveled with ENGLISH 4300). Topics (e.g., Narratives of Discovery and Exploration, The Puritan Heritage) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 7310: 19th-Century American Literature**

(cross-leveled with ENGLISH 4310). Topics (e.g., American Romanticism, Regionalism) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 7320: 20th-Century American Literature**

(cross-leveled with ENGLISH 4320). Topics (e.g., American Poetry since T. S. Eliot, The Short Story) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 7400: Studies in African Diaspora Literature**

(same as BL\_STU 7400; cross-level with ENGLISH 4400, BL\_STU 4400). Topics (e.g., African American Poetry, African Diaspora Drama) announced at time of registration. No more than six hours may be taken in the Studies in African Diaspora Literature series.

**Credit Hours:** 3

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**ENGLISH 7409: Studies in African Diaspora Literature, 1890-to Present**

(same as BL\_STU 7409; cross-leveled with ENGLISH 4409, BL\_STU 4409). See ENGLISH 7400 for course description.



**Credit Hours:** 3

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**ENGLISH 7420: Africana Womanism**

(same as BL\_STU 7420; cross-leveled with ENGLISH 4420, BL\_STU 4420). An intensive study of Africana Womanism, focusing on selected Africana women writers.

**Credit Hours:** 3

**Prerequisites:** graduate standing or instructor's consent. May be repeated to six hours with departmental consent

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**ENGLISH 7480: Major African Diaspora Women Writers**

(same as WGST 7480, BL\_STU 7480; cross-leveled with ENGLISH 4480, BL\_STU 4480, WGST 4480). Study of selected African Diaspora women writers, focusing on texts originally in English. May be repeated for credit with departmental consent. Maximum of 6 hours for ENGLISH 7180 and ENGLISH 7480

**Credit Hours:** 3

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**ENGLISH 7489: Major African Diaspora Women Writers, 1789 to 1890**

(same as WGST 7489, BL\_STU 7489; cross-leveled with ENGLISH 4489, BL\_STU 4489, WGST 4489). See ENGLISH 7480 for course description.

**Credit Hours:** 3

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**ENGLISH 7510: Creative Writing: Advanced Fiction**

(cross-leveled with ENGLISH 4510). An intensive writing workshop in which student stories and related literary texts receive close reading and analysis. Prerequisites: Any ONE of the following: ENGLISH 1510, ENGLISH 1520, ENGLISH 1530, ENGLISH 2510, ENGLISH 2520, or ENGLISH 2530.

**Credit Hours:** 3

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**ENGLISH 7520: Creative Writing: Advanced Nonfiction Prose**

(cross-leveled with ENGLISH 4520). An intensive writing workshop in which a student's creative nonfiction receives close reading and analysis. Prerequisites: Any ONE of the following: ENGLISH 1510, ENGLISH 1520, ENGLISH 1530, ENGLISH 2510, ENGLISH 2520, or ENGLISH 2530.

**Credit Hours:** 3

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**ENGLISH 7530: Creative Writing: Advanced Poetry**

(cross-leveled with ENGLISH 4530). Poetry regarded as a mode of understanding. Poetic values related to other values. Practical consideration of verse techniques. Prerequisites: Any ONE of the following: ENGLISH 1510, ENGLISH 1520, ENGLISH 1530, ENGLISH 2510, ENGLISH 2520, or ENGLISH 2530.

**Credit Hours:** 3

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**ENGLISH 7560: Advanced Playwriting: Problems**

(same as THEATR 7920; cross-leveled with ENGLISH 4650 and THEATR 4920). Advanced study of the writing process as applied to theatre, including theory and practice. Special playwriting problems and techniques.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 3560

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**ENGLISH 7580: Adaptation of Literature for Film**

(same as FILMS\_V S 7935 and THEATR 7935; cross-leveled with ENGLISH 4935, FILMS\_VS 4935 and THEATR 4935). This upper division course will explore adaptation principles and practices with a variety of forms of literature that were not originally written for film.

**Credit Hours:** 3

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**ENGLISH 7600: Structure of American English**

(same as LINGST 7600; cross-leveled with ENGLISH 4600, LINGST 4600). Introduction to English linguistics. Study of the grammar and pronunciation of contemporary English, with the major focus on syntax.

**Credit Hours:** 3

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**ENGLISH 7610: History of the English Language**

(same as LINGST 7610; cross-leveled with ENGLISH 4610, LINGST 4610). Historical changes in the grammar and pronunciation of the English language from Old English to the present. Introduction to Indo-European origins of English.

**Credit Hours:** 3

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**ENGLISH 7611: The Story of English: Medieval to Modern**

History of the English language, explored through literature, with an emphasis on its development from the early Middle Ages through the Early Modern period (ca. 500-ca. 1700).

**Credit Hours:** 3

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**ENGLISH 7620: Regional and Social Dialects of American English**

(same as LINGST 7620; cross-leveled with ENGLISH 4620, LINGST 7620). The study of regional and social variation in pronunciation, vocabulary, and grammar of American English.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 4600 and ENGLISH 4610 or equivalent

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**ENGLISH 7630: Phonology**

(same as LINGST 7630; cross-leveled with LINGST 4630, ENGLISH 4630). Survey of the sound patterns of English and other languages.

**Credit Hours:** 3

**Recommended:** at least one course in linguistics

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**ENGLISH 7640: Syntax**

(same as LINGST 7640; cross-leveled with LINGST 4640, ENGLISH 4640). Study of the properties of phrase-and sentence-level grammar, emphasizing English, with some comparison to other languages.

**Credit Hours:** 3

**Recommended:** at least one course in linguistics

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**ENGLISH 7660: Historical Linguistics**

(same as LINGST 7420, ANTHRO 7420; cross-leveled with ENGLISH 4660, ANTHRO 4420, LINGST 4420). Methods of tracing the history of languages by glottochronology, and by comparative and internal reconstructions; cultural and linguistic implications of such reconstructions and of areal linguistics.

**Credit Hours:** 3

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**ENGLISH 7670: Field Methods in Linguistics**

(same as LINGST 7870, ANTHRO 7870; cross-leveled with LINGST 4870, ENGLISH 4670, ANTHRO 4870). Intensive training in collection and analysis of data elicited from a native speaker of a non-Indo-European language. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** instructor's consent

**Recommended:** 9 hours in linguistics

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**ENGLISH 7700: Special Themes in Folklore**

(same as ANTHRO 7150; cross-leveled with ENGLISH 4770, ANTHRO 4170). Study of oral tradition from living cultures as well as literary works and mass media with roots in verbal art. Oral tradition is a form of human communication through which ideas, knowledge, art, and cultural material is received, preserved, and transmitted orally from one generation to another or from one person to another. May include such folklore genres as ballads, chants, folktales, jokes, legends, myths, proverbs, prose, or verses. Prerequisites: Instructor's consent

**Credit Hours:** 3

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**ENGLISH 7770: Oral Tradition**

(same as ANTHRO 7170; cross-leveled with ENGLISH 4770, ANTHRO 4170). Study of oral tradition from living cultures as well as literary works and mass media with roots in verbal art. Oral tradition is a form of human communication through which ideas, knowledge, art, and cultural material is received, preserved, and transmitted orally from one generation to another or from one person to another. May include such folklore genres as ballads, chants, folktales, jokes, legends, myths, proverbs, prose, or verses.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**ENGLISH 7780: Women's Folklore and Feminist Theory**

(same as WGST 7780; cross-leveled with ENGLISH 4780, WGST 4780). Examines folklore and artistic expression of women in relation to feminist theory and in multicultural contexts. Includes verbal genres (narrative/song) as well as material genres (quilting/arts).

**Credit Hours:** 3

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**ENGLISH 7820: Studies in Film Genre**

(cross-leveled with ENGLISH 4820, FILMS\_VS 4820). Topics (e.g. The Western, Film Noir) announced at time of registration. No more than six hours may be taken.

**Credit Hours:** 3

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**ENGLISH 7938: Advanced Screenwriting: Styles**

(same as THEATR 7938; cross-leveled with ENGLISH 4938, THEATR 4938). Students develop advanced skills of screenwriting through a focus on non-realistic, non-linear dramatic writing styles in development of a full-length screenplay. Areas of study will include techniques of magic realism, symbolism, expressionism, absurdism, surrealism/dada, mythic/fantasy, musicals, political docudrama, and science fiction.

**Credit Hours:** 3

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**ENGLISH 7950: Internship in Publishing**

(cross-leveled with ENGLISH 4950). Offers practical experience working with a literary or scholarly publication edited or sponsored by faculty members.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ENGLISH 8001: Topics in English-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Some sections may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-3

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**ENGLISH 8005: Introduction to Graduate Study**

Introduces entering MA and PhD students to the profession of English and the intellectual resources needed to complete their degrees successfully.

**Credit Hour:** 1

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**ENGLISH 8006: Professional Issues in English Studies**

Introduces advanced graduate students to issues relevant to their professional training, including entering the job market and preparing work for publication. May be repeated for credit.

**Credit Hour:** 1-3

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**ENGLISH 8010: Theory and Practice of Composition**

Current and historical theories of rhetoric and composition as applied to the teaching of college composition.

**Credit Hours:** 3

**Prerequisites:** department's consent

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**ENGLISH 8020: The Theory and Practice of Teaching in English**

This course is designed to acquaint students with the history, theory, and practice of teaching in undergraduate English classrooms.

**Credit Hour:** 1-3

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**ENGLISH 8030: The Theory and Practice of Teaching Creative Writing**

Current and historical theories of Creative Writing pedagogy and its application in the creative writing classroom.

**Credit Hour:** 1-3

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**ENGLISH 8040: Seminar in Rhetoric and Composition**

Topics (e.g., The Institutionalization of Rhetoric, Writing Across the Curriculum) announced at time of registration. May repeat to twelve hours with department's approval.

**Credit Hours:** 3

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**ENGLISH 8050: Contemporary Critical Approaches**

A survey of contemporary professional critical methods, such as formalism, poststructuralism, feminism, Marxism, new historicism, psychoanalysis, identity studies, and cultural studies.

**Credit Hours:** 3

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**ENGLISH 8060: Seminar in Criticism and Theory**

Principles and practices of selected critics. May repeat to twelve hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 8070: History of Criticism and Theory**

A survey of the history of literary criticism and theory. While comprehensive in scope, the course might focus on specific topics in the history of criticism, such as the dialectic between rhetoric and poetics, the rise of aesthetics, or the relation of art and culture to society. Figures studied will extend from early philosophers such as Plato and Aristotle, through eighteenth-century thinkers such as Kant and Johnson, up to present theorists such as Derrida and Butler.

**Credit Hours:** 3

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**ENGLISH 8090: Masters Thesis Research**

Leads to preparation of masters thesis. Graded on S/U basis only.

**Credit Hour:** 1-99

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**ENGLISH 8095: Problems in English**

Individual work not leading to preparation of dissertation.

**Credit Hour:** 1-99

**Prerequisites:** departmental consent

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**ENGLISH 8110: Forms**

Topics (e.g., The Epic, The Epistolary Novel) announced at time of registration. May repeat to twelve hours with department's approval.

**Credit Hours:** 3

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**ENGLISH 8200: Seminar in Old English Literature**

Topics in Old English or Anglo-Saxon literature, such as Beowulf, the Exeter Book poems, or the genres of elegy, Biblical narrative, or wisdom poetry. May repeat to twelve hours with department's approval.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 4200 or equivalent

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**ENGLISH 8210: Seminar in Middle English Literature**

Topics (e.g., Medieval Drama, Chaucer) announced at time of registration. May repeat to twelve hours with department's approval.

**Credit Hours:** 3

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**ENGLISH 8220: Seminar in Renaissance British Literature**

Topics (e.g., Tudor and Stuart Drama, Shakespearean Tragedy) announced at time of registration. May repeat to twelve hours with department's approval.

**Credit Hours:** 3

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**ENGLISH 8230: Seminar in 17th-Century British Literature**

Topics (e.g., The Metaphysical Poets, Restoration Drama) announced at time of registration. May repeat to twelve hours with department's approval.

**Credit Hours:** 3

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**ENGLISH 8240: Seminar in 18th-Century British Literature**

Topics (e.g., The 18th-Century Novel, Historical and Biographical Prose) announced at time of registration. May repeat to twelve hours with department's approval.

**Credit Hours:** 3

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**ENGLISH 8250: Seminar in 19th-Century British Literature**

Topics (e.g., The Later Romantics, Victorian Poetry) announced at time of registration. May repeat to twelve hours with department's approval.

**Credit Hours:** 3

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**ENGLISH 8260: Seminar in 20th-Century British Literature**

Topics (e.g., Chief Contemporary Poets, Modernism and the Novel) announced at time of registration. May repeat to twelve hours with department's approval.

**Credit Hours:** 3

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**ENGLISH 8310: Seminar in 19th Century American Literature**

Topics (e.g., The Transcendentalists, American Realism) announced at time of registration. May repeat to twelve hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 8320: Seminar in 20th-Century American Literature**

Topics (e.g., The African-American Novel, Chief Contemporary Poets) announced at time of registration. May repeat to twelve hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 8400: Seminar in African Diaspora Literature**

(same as BL\_STU 8400). Topic (e.g., Autobiography, Black Women Writers) announced at time of registration. May be repeated to 12 hours with departmental consent.

**Credit Hours:** 3

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**ENGLISH 8510: Advanced Writing of Fiction**

Advanced fiction writing designed for graduate students, with the intention of producing work of professional quality. May repeat to twelve hours with consent of instructor.

**Credit Hours:** 3

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**ENGLISH 8520: Advanced Writing of Nonfiction Prose**

Advanced workshop in nonfiction prose for graduate students intending to produce professional quality work. May repeat to twelve hours with consent of instructor.

**Credit Hours:** 3

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**ENGLISH 8530: Advanced Writing of Poetry**

Advanced poetry writing designed for graduate students with the intention of producing work of professional quality. May repeat to twelve hours with consent of instructor.

**Credit Hours:** 3

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**ENGLISH 8560: Graduate Seminar in Playwriting**

(same as THEATR 8987). Seminar in theory, practice, and pedagogy of playwriting, students a mid-term in playwriting theory, a full-length play, a research paper, and a syllabus and lesson plans for an undergraduate playwriting course.

**Credit Hours:** 3

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**ENGLISH 8600: Seminar in the English Language**

(same as LINGST 8600). Descriptive and historical studies of the English language. Topics (e.g., The Germanic Origins, Modern Syntactic Analysis) announced at time of registration. May repeat to twelve hours with department's approval.

**Credit Hours:** 3

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**ENGLISH 8700: Seminar in Folklore**

(same as ANTHRO 8157 and REL\_ST 8700). Focus on the roots of folklore scholarship and methodology and their evolution in modern approaches to the study of oral, traditional verbal genres and their performance in natural folk groups. May repeat to twelve hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 9090: Doctoral Dissertation Research**

Leads to preparation of dissertation. Graded on S/U basis only.

**Credit Hour:** 1-12

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## English Language Support Program Courses

**ELSP \_0100: Grammar and Composition I**

Students learn grammatical patterns and sentence construction used in academic writing and focus on improving sentence-level grammatical accuracy in the writing of coherent, well-developed paragraphs. Graded S/U only.

**Credit Hours:** 3

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**ELSP \_0200: Reading and Vocabulary**

Students develop vocabulary and reading strategies required to comprehend academic textbooks and literature in various fields of study. Graded on S/U basis only.

**Credit Hours:** 3

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**ELSP \_0300: Grammar and Composition II**

Students learn how to write clear and well-developed multi-paragraph academic essays using various methods of organization through the process of planning, drafting, revising, editing, and peer reviewing. Students also learn to work with sources. Grammatical structures relevant to the methods of organization are reviewed and practiced. Graded S/U Only.

**Credit Hours:** 3

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**ELSP \_0400: Oral Communication**

This course emphasizes the development of fluency and intelligibility in spoken English. Through individual and group activities, students

work on improving pronunciation, practicing conversation strategies, and delivering oral presentations. Enrollment in ELSP \_0400 is restricted to graduate students and scholars who have attained a satisfactory score on the Test of English as a Foreign Language (TOEFL). Graded S/U Only.

**Credit Hours:** 3

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## Environmental Science Courses

**ENV\_SC 1100: Introduction to Environmental Science**

This class provides an opportunity to develop an understanding of environment, physical and social causes of environmental problems, their impacts, and strategies to manage these issues.

**Credit Hours:** 3

**Prerequisites:** Enrollment restricted to College of Agriculture, Food and Natural Resources undergraduates and students minoring in Environmental Science

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**ENV\_SC 2001: Topics in Environmental Science - General**

Organized study of selected topics. Subjects and credit may vary from semester to semester.

**Credit Hour:** 1-99

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**ENV\_SC 2600: Sustainability Foundations: An Introduction to Sustainability**

(same as BIOL\_EN 2600). This course introduces fundamental concepts of sustainability from sustainable development to sustainability science. It focuses on human-environment systems, the characteristics of these systems, and patterns of change. Course materials interrogate taken-for-granted assumptions that shape human relationships with the natural world. You will learn to identify common dynamics leading to social and environmental problems with the aim of identifying alternative actions (solutions) for transitioning towards sustainability. Sustainability integrates the social and biophysical sciences; and implementing solutions requires the integration of the social justice, the arts, and humanities. Through a variety of interdisciplinary perspectives and frameworks, you will learn about current sustainability research and be able to develop an understanding of what sustainability means to you and your field of study. Graded on A-F basis only.

**Credit Hours:** 3

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**ENV\_SC 2600H: Sustainability Foundations: An Introduction to Sustainability - Honors**

(same as BIOL\_EN 2600). This course introduces fundamental concepts of sustainability from sustainable development to sustainability science. It focuses on human-environment systems, the characteristics of these systems, and patterns of change. Course materials interrogate taken-for-granted assumptions that shape human relationships with the natural world. You will learn to identify common dynamics leading to social and environmental problems with the aim of identifying alternative actions (solutions) for transitioning towards sustainability. Sustainability integrates the social and biophysical sciences; and implementing solutions requires the integration of the social justice, the arts, and humanities. Through a variety of interdisciplinary perspectives and frameworks, you will learn about current sustainability research and be able to develop an understanding of what sustainability means to you and your field of study. Graded on A-F basis only.

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**Credit Hours:** 3

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**ENV\_SC 3085: Problems in Environmental Science**

Special individualized projects or readings in environmental science.

**Credit Hour:** 1-99

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**ENV\_SC 3250: Pollutant Fate and Transport**

(same as CV\_ENG 3250). Introduction to concepts governing pollutant fate and transport in the environment, including pollutant interactions within and migration through environmental systems, as well as analytical techniques and tools necessary to quantify conditions and movement.

**Credit Hours:** 3

**Prerequisites:** ENV\_SC 1100 or SOIL 2100 or CV\_ENG 3200; and CHEM 1320

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**ENV\_SC 3290: Soils and the Environment**

(same as SOIL 3290). Addresses the role of soils and soil properties on environmental pollution and management. Emphasis will be placed on carbon, nitrogen, phosphorus, and sulfur transformations and transport in natural and disturbed ecosystems and soil management practices and technology to prevent or remediate environmental pollution.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100, ENGLSH 1000. Recommended 3 hours of CHEM courses

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**ENV\_SC 3290W: Soils and the Environment - Writing Intensive**

(same as SOIL 3290W). Addresses the role of soils and soil properties on environmental pollution and management. Emphasis will be placed on carbon, nitrogen, phosphorus, and sulfur transformations and transport in natural and disturbed ecosystems and soil management practices and technology to prevent or remediate environmental pollution.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100, ENGLSH 1000. Recommended 3 hours of CHEM courses

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**ENV\_SC 3330: Environmental Land Use Management**

An introduction to environmentally sustainable use and management of land.

**Credit Hours:** 3

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**ENV\_SC 3400: Water Quality and Natural Resources Management**

(same as NAT\_R 3400). Introduction to broad aspects of water quality science, management, and policy. Topics include aquatic ecology, eutrophication, lake and coastal management, water supply and treatment, watershed management with respect to agriculture and urban development, and toxicology. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** CHEM 1320 and ENV\_SC 1100 or NAT\_R 1070

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**ENV\_SC 3500: Pollutant Fate and Transport**

This course introduces students to concepts governing pollutant fate and transport in the environment, and it provides students with the quantitative tools necessary to estimate the fate and transport of pollutants in the environment.

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**Credit Hours:** 3

**Prerequisites:** ENV\_SC 1100 or SOIL 2100, and CHEM 1320

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**ENV\_SC 4001: Topics in Environmental Science - General**

Organized study of selected topics in environmental science.

**Credit Hour:** 1-99

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**ENV\_SC 4024: Foundations of Environmental Education**

(same as NAT\_R 4024; cross-leveled with NAT\_R 7024) This course provides a theoretical foundation to environmental education (EE). The purpose of this course is to develop the knowledge and skills for developing quality, age-appropriate EE for students in both formal and non-formal education setting. The emphasis is on EE curriculum materials, resources, and programs that can be used with students in settings at classrooms, nature centers, museums, and parks. This course involves training in the Missouri Department of Conservation Discover Nature School educational materials, and in observing and teaching EE lessons in a local nature center. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1010 or ENV\_SC 1100 or NAT\_R 1060 or NAT\_R 1070 or NAT\_R 2160 or Instructor's consent

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**ENV\_SC 4085: Problems in Environmental Science**

Special individualized research projects or readings in environmental science.

**Credit Hour:** 1-99

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**ENV\_SC 4100: Lake Ecology**

(same as NAT\_R 4100; cross-leveled with ENV\_SC 7100, NAT\_R 7100). Ecology of inland waters with emphasis on productivity. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** senior standing or BIO\_SC 3650

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**ENV\_SC 4200: Stream Ecology and Hydrology**

(cross-leveled with ENV\_SC 7200). This senior/grad course in stream ecology will provide students an opportunity to increase their knowledge about the ecology of flowing waters. The course will cover physical and biological elements of fluvial ecosystems, with a focus on mechanisms and processes and the discussion of critical issues associated with the conservation and management of streams and their biota. The course is built around lectures, assigned readings, and class and home activities. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** 60 credit hours, MATH 1100

**Recommended:** BIO\_SC 3650 or FOREST 4320

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**ENV\_SC 4300: Methods in Aquatic Ecology**

(same as NAT\_R 4300; cross-leveled with ENV\_SC 7300, NAT\_R 7300). Methods used for quantitative assessment of water quality and quantity in inland waters. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** senior standing or BIO\_SC 3650 and ENV\_SC 4100/ NAT\_R 4100 or ENV\_SC 3400/NAT\_R 3400 or FOREST 4390

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**ENV\_SC 4305: Environmental Soil Physics**

(same as SOIL 4305). Study of soil physical properties and processes important in solving environmental problems. Topics include soil solids, water content and energy, and transport of water, solutes, gas and heat.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100

**Recommended:** PHYSICS 1210 or equivalent

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**ENV\_SC 4306: Environmental Soil Physics Laboratory**

(same as SOIL 4306). Introduction to the methodology and equipment for measurement of soil physical properties and processes.

**Credit Hours:** 2

**Prerequisites or Corequisites:** ENV\_SC 4305

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**ENV\_SC 4312: Environmental Soil Microbiology**

(same as SOIL 4312). Microbiology/ecology of life in the soil ecosystem. Emphasis is placed on the role of microbes in nutrient cycling, microbial pesticide/xenobiotic transformation bioremediation, etc.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100

**Recommended:** general microbiology

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**ENV\_SC 4318: Environmental Soil Chemistry**

(same as SOIL 4318 and GEOL 4318). Study of chemical constituents and processes occurring in soils. Topics include soil minerals and weathering processes, organic matter, solution chemistry, oxidation-reduction reactions and adsorption processes.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100 or GEOL 2400, CHEM 1320 and CHEM 1330; junior standing or instructor's consent

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**ENV\_SC 4320: Hydrologic and Water Quality Modeling**

(same as NAT\_R 4320). Introduction to models for simulating hydrologic and water quality processes. Emphasis is placed on watersheds to provide experience with the use of simulation models for natural resource decision making.

**Credit Hours:** 3

**Prerequisites:** ENV\_SC 1100 or SOIL 2100

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**ENV\_SC 4396: Agroforestry for Watershed Restoration**

Agroforestry for watershed restoration will focus on integrated approaches for improved water quality, soil health, and economic benefits. Students will learn principles and practices, critical analysis and application of agroforestry practices to improve overall environmental quality. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FOREST 4385 or FOREST 7385

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**ENV\_SC 4400: Environmental Law, Policy, and Justice**

(cross-leveled with ENV\_SC 7400, AAE 7400). This course will examine the intersection of environmental law, policy, and justice. We will first cover the building blocks of U.S. environmental law, including common law and statutes such as the Clean Air Act and the Clean Water Act. We will then turn to international environmental policy issues such as climate change, marine pollution, and the hazardous waste trade.

We will approach these laws and treaties through the lens of equity and environmental justice. The course will use a variety of teaching methods, including lecture and classroom discussion using cold calling and the Socratic Method. We will also have student presentations, guest speakers, a moot court, a negotiation simulation, and a field trip in the Columbia, Missouri area. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Junior, senior, or graduate student status

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**ENV\_SC 4400W: Environmental Law, Policy, and Justice - Writing Intensive**

(cross-leveled with ENV\_SC 7400, AAE 7400). This course will examine the intersection of environmental law, policy, and justice. We will first cover the building blocks of U.S. environmental law, including common law and statutes such as the Clean Air Act and the Clean Water Act. We will then turn to international environmental policy issues such as climate change, marine pollution, and the hazardous waste trade. We will approach these laws and treaties through the lens of equity and environmental justice. The course will use a variety of teaching methods, including lecture and classroom discussion using cold calling and the Socratic Method. We will also have student presentations, guest speakers, a moot court, a negotiation simulation, and a field trip in the Columbia, Missouri area. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Junior, senior, or graduate student status

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**ENV\_SC 4600: Sustainability Science Problem Solving**

This course introduces fundamental concepts of sustainability science. It provides a survey of perspectives, frameworks, and competencies to engage in sustainability problem-solving. Students will develop an understanding for integrating critical concepts from economics and business, social and public policy, and environmental science and law to address pressing sustainability challenges. Through student-selected and student-led individual or group projects, principles learned will be used to analyze complex social-ecological problems to design alternative pathways towards sustainability. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** ENV\_SC 2600 or BIOL\_EN 2600

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**ENV\_SC 4940: Environmental Science Internship**

Supervised professional experience with an approved public or private organization. Graded on S/U basis only.

**Credit Hour:** 1-99

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**ENV\_SC 4950: Undergraduate Research in Environmental Science**

Research apprenticeship with a faculty mentor. Students are expected to develop initial concept for the research, design experiments, collect data, and analyze data with faculty input, oversight, and guidance.

**Credit Hour:** 1-4

**Prerequisites:** ENV\_SC 1100, STAT 1200

**Recommended:** 9 hours of Environmental Science with at least 3 hours above the 3000-level

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**ENV\_SC 7001: Topics in Environmental Science**

Organized study of selected topics in environmental science. Intended for graduate students.

**Credit Hour:** 1-99

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**ENV\_SC 7100: Lake Ecology**

(same as NAT\_R 7100; cross-leveled with ENV\_SC 4100, NAT\_R 4100). Ecology of inland waters with emphasis on productivity. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** BIO\_SC 3650

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**ENV\_SC 7200: Stream Ecology and Hydrology**

(cross-leveled with ENV\_SC 4200). This senior/grad course in stream ecology will provide students an opportunity to increase their knowledge about the ecology of flowing waters. The course will cover physical and biological elements of fluvial ecosystems, with a focus on mechanisms and processes and the discussion of critical issues associated with the conservation and management of streams and their biota. The course is built around lectures, assigned readings, and class and home activities. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** 60 credit hours, MATH 1100

**Recommended:** BIO\_SC 3650 or FOREST 4320

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**ENV\_SC 7300: Methods in Aquatic Ecology**

(same as NAT\_R 7300; cross-leveled with ENV\_SC 4300, NAT\_R 4300). Methods used for quantitative assessment of water quality and quantity in inland waters. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** senior standing or BIO\_SC 3650. ENV\_SC 4100 or NAT\_R 4100 or NAT\_R 3400 or FOREST 4390

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**ENV\_SC 7305: Environmental Soil Physics**

(same as SOIL 7305). Study of soil physical properties and processes important in solving environmental problems. Topics include soil solids, water content and energy, and transport of water, solutes, gas and heat.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100, PHYSCS 1210 or equivalent

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**ENV\_SC 7306: Environmental Soil Physics Laboratory**

(same as SOIL 7306). Introduction to the methodology and equipment for measurement of soil physical properties and properties and processes. Prerequisites or Corerequisites: SOIL 4305.

**Credit Hours:** 2

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**ENV\_SC 7312: Environmental Soil Microbiology**

(same as SOIL 7312). Microbiology/ecology of life in the soil ecosystem. Emphasis is placed on the role of microbes in nutrient cycling, microbial pesticide/xenobiotic degradation and bioremediateion, soil quality and pathogen regulation in the environment. Nitrogen fixation, mycorrhizal processes are discussed.

**Credit Hours:** 3

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**ENV\_SC 7318: Environmental Soil Chemistry**

(same as SOIL 7318 and GEOL 7318). Study of chemical constituents and processes occurring in soils. Topics include soil minerals, and

weathering processes, organic matter, solution chemistry, oxidation-reduction reactions and adsorption processes.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100 or GEOL 2400, CHEM 1320 and CHEM 1330

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**ENV\_SC 7320: Hydrologic and Water Quality Modeling**

(same as NAT\_R 7320). Introduction to models for simulating hydrologic and water quality processes. Emphasis is placed on watersheds to provide experience with the use of simulation models for natural resource decision making.

**Credit Hours:** 3

**Prerequisites:** ENV\_SC 1100 or SOIL 2100 or equivalent

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**ENV\_SC 7396: Agroforestry for Watershed Restoration**

Agroforestry for watershed restoration will focus on integrated approaches for improved water quality, soil health, and economic benefits. Students will learn principles and practices, critical analysis and application of agroforestry practices to improve overall environmental quality. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FOREST 4385 or FOREST 7385 or permission of instructor

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**ENV\_SC 7400: Environmental Law, Policy, and Justice**

(same as with AAE 7400; cross-leveled with ENV\_SC 4400). This course will examine the intersection of environmental law, policy, and justice. We will first cover the building blocks of U.S. environmental law, including common law and statutes such as the Clean Air Act and the Clean Water Act. We will then turn to international environmental policy issues such as climate change, marine pollution, and the hazardous waste trade. We will approach these laws and treaties through the lens of equity and environmental justice. The course will use a variety of teaching methods, including lecture and classroom discussion using cold calling and the Socratic Method. We will also have student presentations, guest speakers, a moot court, a negotiation simulation, and a field trip in the Columbia, Missouri area. Graded on A-F basis only.

**Credit Hours:** 3

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**ENV\_SC 8090: Masters Research in Environmental Science**

Original investigations in environmental science for presentation in a thesis. Graded on S/U basis only.

**Credit Hour:** 1-10

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**ENV\_SC 8400: Solute Transport in the Vadose Zone**

(same as SOIL 8400). Transport of water and solutes in geomedia with emphasis on development of the equations of flow. Evaluation of analytical and numeral solutions to equations describing transport phenomena.

**Credit Hours:** 3

**Prerequisites:** ENV\_SC 7305 or SOIL 7305

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## Environmental Studies Courses

### ENV\_ST 2150: Directed Independent Study

Working with Environmental Studies you will find and develop a research project or an internship with the university, a government agency, a business or a non-profit agency. The project will be directed towards solving an environmental problem.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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## Family And Community Medicine Courses

### F\_C\_MD 6001: Family Medicine Clerkship

Core learning experiences take place in ambulatory clinic settings. Students work with experienced clinicians and senior residents, spending time in University teaching practices and in community-based practices. Students also may spend time seeing patients in emergency room, hospital, nursing home settings and taking call with residents and practicing physicians. A high volume of patients of all ages with a wide range of problems is encountered. Many patients will have undifferentiated problems.

**Credit Hours:** 8

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### F\_C\_MD 6011: Rural Family Medicine Clerkship

Rural Family Medicine Clerkship

**Credit Hours:** 8

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### F\_C\_MD 6021: Springfield Family Medicine Clerkship

Core learning experiences take place in ambulatory clinic settings. Students work with experienced clinicians and senior residents, spending time in University teaching practices and in community-based practices. Students also may spend time seeing patients in emergency room, hospital, nursing home settings and taking call with residents and practicing physicians. A high volume of patients of all ages with a wide range of problems is encountered. Many patients will have undifferentiated problems.

**Credit Hours:** 8

**Prerequisites:** successful completion of the first two years of medical school

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### F\_C\_MD 6036: SCC Palliative Care Elective

Students will learn a multidisciplinary approach to the care of the palliative care patient while working in a variety of clinical settings. This is an inpatient and outpatient experience in a variety of settings that represent different levels and types of care available to people with a terminal condition. Each week students will work with palliative care physicians at either Cox or Mercy Palliative Care Service and/or a Hospice agency. Students will have the opportunity to see patients undergoing palliative care assessment and observe nursing staff and professional therapy staff in their work with patients and families. Students will participate in various palliative care- related conferences. Students will participate in inpatient palliative care services as well as outpatient palliative care clinics. The student will work with faculty in the Departments of Family and Community Medicine as well as Internal Medicine.

**Credit Hours:** 5

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**Prerequisites:** Successful completion of 5 of 7 core clerkships, one of which must be either Family Medicine or Internal Medicine. IN\_MED 6002, 6012, 6022, or 6102. F\_C\_MD 6001, 6011, 6021, or 6101

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### F\_C\_MD 6048: SCC Rural Family Medicine Selective

The selective is designed for self-motivated students interested in rural primary care, who are willing to explore a variety of outpatient clinical and community experiences. During this block, students will primarily be working with a faculty member in an outpatient Mercy or Cox Family Medicine Clinic in Southwest Missouri. Up to a 50 mile commute from Springfield may be required. There may be opportunities to participate in the care of patients in a variety of settings including nursing home visits, home visits, and urgent care. There will be the opportunity to participate in the care of patients in all life stages (pregnancy, pediatrics, geriatrics) as well as participate in office based procedures. To gain a better understanding of community resources and needs, students will visit local agencies such as the County Health Department, WIC, Parents as Teachers, the public school system, the Chamber of Commerce, or other community resources as identified by the student and faculty. Students will also spend time with the front office, nursing, and laboratory staff to learn about practice management. During this month, students will work on a scholarly project to improve patient care and present this educational topic to the faculty and staff at the clinic.

**Credit Hours:** 5

**Prerequisites:** Successful completion of the first two years of medical school. Successful completion of five of the seven core clerkships. One of the five must be the Family Medicine Clerkship

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### F\_C\_MD 6049: SCC Palliative Care Selective

This is an inpatient and outpatient experience in a variety of settings that represent different levels and types of care available to people with a terminal condition. The student will be expected to function at a sub-intern level and will be expected to document advance care planning and lead discussions with patients and their families. Each week students will work with palliative care physicians at either Cox or Mercy Palliative Care Service and/or a Hospice agency. Students will have the opportunity to see patients undergoing palliative care assessment and observe nursing staff and professional therapy staff in their work with patients and families. Students will participate in various palliative care- related conferences. Students will participate in inpatient palliative care services as well as outpatient palliative care clinics. The student will work with faculty in the Departments of Family and Community Medicine as well as Internal Medicine.

**Credit Hours:** 5

**Prerequisites:** Successful completion of the first two years of medical school as well as five of the seven core clerkship. Two of the five must be the Medicine Clerkship and Family Medicine Clerkship

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### F\_C\_MD 6051: SCC Primary Care Dermatology 4WK Elective

Students participate in the evaluation of patients with skin disease Primary Care Outpatient clinic. Students will also complete the American Academy of Dermatology online student modules designed for a 4 week curriculum and the self-evaluation that is provided. Students will gain knowledge and demonstrate comprehension of a breadth of basic general dermatologic diseases. They will care for adults and pediatric patients as well as review supplied photographs for supplementation to develop their clinical diagnostic skills. The rotation is designed to provide



the medical student with a broad general base in clinical dermatology for the non-dermatologist.

**Credit Hours:** 5

**Prerequisites:** Successful completion of the Family Medicine clerkship. Faculty approval is required of all Springfield electives

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**F\_C\_MD 6058: FM Federally Qualified Health Center(FQHC) Clinical Experience**

This course is designed for self-motivated students interested in working in underserved (rural or urban) settings. Students will work with physicians at a Federally Qualified Health Center (FQHC) in Missouri. The primary mission of FQHCs is to enhance primary care services in underserved urban and rural communities. Coordinating with the FQHC's medical director (or designee), the student will develop a schedule of activities including items from the educational opportunities listed below. At least 50% of the student's time should be in patient care-related activities.

**Credit Hours:** 5

**Prerequisites:** Successful completion of the first two years of medical school and the family medicine clerkship

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**F\_C\_MD 6101: Remediation Family Medicine Clerkship**

Enrolled students are those who received an unsatisfactory grade in a Family Medicine Clerkship at any Mizzou Med location or site. This course allows them the opportunity to rectify a deficiency.

**Credit Hours:** 8

**Prerequisites:** F\_C\_MD 6001 Family Medicine Clerkship, received unsatisfactory grade

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**F\_C\_MD 6253: ABS Family and Community Medicine Research**  
ABS Family and Community Medicine Research

**Credit Hour:** 5-10

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**F\_C\_MD 6475: Family Medicine Elective (FP Orientation)**

This elective is for Integrated Residents in the Department of Family and Community Medicine only. Two core clinical rotations are required, including Family Medicine Clerkship. During this one year longitudinal experience, Integrated Residents will work closely with senior residents and faculty members to enhance the knowledge and skills needed to care for patients in a comprehensive family medicine continuity clinic. Integrated Residents are required to attend orientation activities during 15A. Regular attendance to Wednesday departmental Grand Rounds and Tuesday afternoon Resident Seminars is also expected.

**Credit Hours:** 5

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**F\_C\_MD 6477: Family Medicine Elective Preceptorship**

May be available as a rural offsite elective: contact the MU-AHEC Coordinator. Goals/Objectives: During this elective the student works closely with a family physician in private practice. Students both observe the preceptor's patient encounters and take primary responsibility for several patients each day, discussing diagnosis and formulating management plans with supervision by the preceptor. The Preceptorship also provides opportunities not available elsewhere in the medical school curriculum, including seeing the patient's illness in its context, assessing a community's health care system, and learning about practice management. Evaluations: Evaluation of the student is based on the

preceptor's evaluation and comments. Notes: Site must be pre-approved by the Course Director.

**Credit Hours:** 5

**Prerequisites:** Students should have completed at least two clinical blocks, plus the Family Practice Clerkship

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**F\_C\_MD 6483: Preventive/Community Medicine**  
Preventive/Community Medicine

**Credit Hours:** 5

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**F\_C\_MD 6485: Geriatrics-Family and Community Medicine Elective**

Goals/Objectives: This is an outpatient experience in a variety of settings. Each week students will: 1. Work with Dr. David Cravens and other health care providers at Lenoir Village, Lenoir Manor, Lenoir Health Care and Maplewood Apartments. These all represent different levels and types of care available to elders. a. Students will develop an understanding of the available care and residential options that elders utilize. 2. Work with several geriatricians in the SAGE Clinic and/or Geriatrics Clinic at Green Meadows. a. Students will improve their understanding of care of elders in the outpatient setting. b. Students will also see patients undergoing geriatric assessment and thus develop a better understanding of the multidisciplinary approach to geriatric assessment. 3. Additional experiences may be arranged depending on the student's interests. 4. Participate in the various conferences related to geriatrics. Evaluations: Final evaluation will be determined by the attending physicians supervising the student during the block.

**Credit Hours:** 5

**Prerequisites:** Must have completed all core clerkships

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**F\_C\_MD 6486: Evidence Based Medical Writing in Family Medicine**

Student will co-author a draft of an evidence-based article under the supervision of FCM faculty with evidence-based writing experience. Before writing begins, students complete an evidence-based medicine curriculum using online modules. FCM integrated residents will also participate in a departmental editorial review session.

**Credit Hours:** 5

**Prerequisites:** restricted to 4th year medical students

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**F\_C\_MD 6487: Family and Community Medicine Palliative Care Elective**

This is an inpatient and outpatient experience in a variety of settings that represent different levels and types of care available to people with terminal condition.

**Credit Hours:** 5

**Prerequisites:** F\_C\_MD 6001; restricted to 4th year medical students

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**F\_C\_MD 6488: Family Medicine Outpatient Elective**

Students will have the opportunity to work with two to four Family Medicine physicians at one of our UMHC Family Medicine clinics (South Providence Medical Building, Keene Family Medicine clinic, Smiley Family Medicine clinic, Ashland Family Medicine clinic, Callaway physicians, Fulton Family Health, or Fayette Medical clinic). Students will be paired with two to four faculty members or senior FM residents and will be responsible for seeing patients in the outpatient setting. Duties include obtaining appropriate history and performing a physical exam, medical decision making, patient education, documenting a clinic encounter,

patient follow up after the visit, and reading about common acute and chronic illnesses seen in Family Medicine). If the preceptor participates in patient care in the hospital or nursing home, the student will have the opportunity to participate in hospital rounds or nursing home/hospice care.

**Credit Hours:** 5

**Prerequisites:** Successful completion of three of the seven core clerkships including Family Medicine

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**F\_C\_MD 6775: Family Medicine Preceptorship - Rural**  
Family Medicine Preceptorship - Rural

**Credit Hours:** 5

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**F\_C\_MD 6777: Rural Health Policy and Legislative Advocacy**

Elective content will focus on the intersection of rural medicine, health policy, and legislative advocacy. Course Goals: 1) To inform and educate students about rural health policy issues at the local, state, and national levels. 2) To train medical students to be informed advocates of rural health policy issues at the local, state, and national levels. To apply, medical students must complete the Rural Track Elective Application posted on the MU AHEC website <http://medicine.missouri.edu/ahec/rural-track-elective.html>. In the notes section of the application, the student must document a rationale for applying for this course. (Maximum length - 1 paragraph).

**Credit Hours:** 5

**Prerequisites:** M4 status. Applicants must complete either the Rural Track Summer Community Program or the Rural Track Clerkship Program prior to enrollment. Students will share first-hand experiences from rural track placement(s) with legislators to advocate for the MU Rural Track Pipeline Program and to influence rural health policy in Missouri

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**F\_C\_MD 6875: Family Medicine Onsite Externship**

Goals/Objectives: The student who is on the onsite track of the externship will be a member of the Family Practice Inpatient Team that is responsible for providing care to Family Practice patients in the hospital. The team consists of an attending, physician, two third-year residents, and two or three first-year residents. The student will be expected to function as a member of the team, attending rounds on a daily basis and assuming responsibility, under supervision, for the care of some of the patients. Each student will have 4-5 nights of call including weekend days. Students will be responsible for providing care, with supervision, to those patients admitted while they are on call. Students will also be expected to follow their patients after discharge, making home visits or nursing home visits and seeing them in follow-up at the clinic as indicated. Students will also have exposure to ambulatory family medicine. Each student will work closely in the clinic with one of the third-year residents assigned to the inpatient team. The student will attend each of the resident's clinics whether they are at Green Meadows, Fulton, or Fayette.

**Credit Hours:** 5

**Prerequisites:** Students should have completed at least two clinical blocks, plus the Family Practice Clerkship

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**F\_C\_MD 6876: Family Medicine Offsite Externship**

Several different types of experiences are available for the offsite track of the externship. Students have the opportunity to work at selected

Indian Health Service sites that provide the appropriate mix of inpatient and outpatient experiences. A list of these IHS sites and the students' evaluations are available in the course office. These offer high volume and high levels of responsibility. Planning needs to begin early in the third year. Offsite externship experiences are also available in certain community-based family practices and in certain family practice residency programs. A list of pre-approved sites is available in the course office. All of the sites available for the offsite experience have been carefully selected by the faculty based on previous experiences of fourth-year students. These sites offer an appropriate level of patient care responsibility with supervision. Offsite practices need to be approved in advance by the course director and often require planning 6 to 12 months in advance. Students considering offsite rotations will be expected to have a clear idea of how these experiences will offer unique advantages to their personal and professional development, and how they will meet the course criteria. Many offsite locations used in the past for the Family Medicine Clerkship will not satisfy the externship requirement. They still offer excellent experiences and could be taken as electives. Students on the offsite track will be evaluated with respect to their ability to collect, process, and analyze information, engage in clinical reasoning, and formulate appropriate diagnoses and treatment plans. Sites must be pre-approved by the Course director.

**Credit Hours:** 5

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**F\_C\_MD 6877: Rural Family Medicine Elective**  
Rural Family Medicine Elective

**Credit Hours:** 5

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**F\_C\_MD 6878: Family Medicine Maternity Care-Advanced Selective**  
Family Medicine Maternity Care-Advanced Selective

**Credit Hours:** 5

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**F\_C\_MD 6879: Palliative Care Selective**

This is an inpatient and outpatient experience in a variety of settings that represent different levels and types of care available to people with a terminal condition. Each day the student will work directly with palliative care physicians, as well as the rest of the multidisciplinary team, as part of the University Hospital Supportive and Palliative Care Service. They will also have the opportunity to work with a medical director of a local Hospice agency, who is a faculty member of the University of Missouri. Students will be expected to function as a member of the Palliative Care Team. Students will have the opportunity to actively participate in the assessment and care of patients under the direction of the Palliative Care Interdisciplinary team. Students will work alongside palliative care attending physicians, nursing staff, social workers, and pastoral care team members in their work with patients and families. Students will participate in various palliative care-related conferences including Interdisciplinary Team Meetings, didactics, patient remembrance and memorial services, self-care rounds, monthly team business meetings and the monthly Palliative Care hospital committee meeting. Additional experiences will include outpatient palliative care clinics at Ellis Fischel, bi-weekly community Hospice Interdisciplinary team meetings, patient home assessments and nursing visits with hospice staff, and completion of an oral presentation to the Palliative Care Team as part of their assessment and evidence of mastery of course objectives.

**Credit Hours:** 5

**Prerequisites:** Fourth year medical student. Must have completed 6 of the 7 core clerkships

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**F\_C\_MD 6905: SCC Primary Care Dermatology 2-week Elective**

This curriculum is designed to introduce the student to common dermatologic issues that are encountered in a primary care practice location. Students will also complete the American Academy of Dermatology online student modules designed for a 2 week curriculum and the self-evaluation that is provided. Students will gain knowledge and demonstrate comprehension of a breadth of basic general dermatologic diseases. They will care for adults and pediatric patients as well as review supplied photographs for supplementation to develop their clinical diagnostic skills.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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**F\_C\_MD 6928: Primary Care Sports Medicine Elective**

Students will work with a multi-disciplinary sports medicine team, providing hands on clinical services in an outpatient setting. Participants will gain experience working with primary care sports medicine physicians, orthopedic surgeons, physical therapists and cast technicians.

**Credit Hours:** 2

**Prerequisites:** successful completion of the first two years of medical school

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**F\_C\_MD 7310: The Health Care System**

Overview of health care system and relationship between its components. Focuses on changing nature of the system and issues confronting the future health care system.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**F\_C\_MD 7350: Special Readings in Community Health**

Extensive reading and critical analysis of classical and current studies in selected areas of community health.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**F\_C\_MD 7400: Problems in Community Health**

Intensive study of an area of community health.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**F\_C\_MD 8410: Principles and Practices in Medical Education**

An examination of the past and present influences on the education of physicians, the application of adult education principles and the future approaches to medical education.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**F\_C\_MD 8411: Learning Strategies in Preclinical & Clinical Educ. of Physicians**

Examination of curricular strategies in preclinical and clinical education of medical students and graduate medical education. Emphasis will be placed on different types of instructional strategies.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**F\_C\_MD 8420: Principles of Epidemiology**

Examines methods of study of disease frequency and distribution in populations. Utilizes small group discussions for understanding of current medical literature.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**F\_C\_MD 8422: Clinical Research Methods I**

Principles of designing, implementing and reviewing research in the health sciences.

**Credit Hours:** 3

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**F\_C\_MD 8423: Clinical Research Methods II**

This is a continuation of the Clinical Research Methods I (CRM\_I) introductory course on the multi-method approach to clinical research. Similar to the previous course, it covers both quantitative and qualitative research methods, but includes advanced applications.

**Credit Hours:** 3

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**F\_C\_MD 8424: Comparative Effectiveness Research**

Advanced research class that presents a framework for analyzing observational studies and randomized trials for comparative effectiveness. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Two recent semester-length courses in statistics such as NURSE 8020 or STAT 2500 or above; Working knowledge of managing and analyzing data in SPSS or SAS; Research methods; or consent of instructor

**Recommended:** One semester of epidemiology is strongly recommended

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**F\_C\_MD 8425: Participatory Approaches for Health and Health Systems**

(same as NURSE 8425). Focuses on the use of participatory approaches for the design of health and health-system interventions. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NURSE 8100 or F\_C\_MD 8420 or instructor consent

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**F\_C\_MD 8430: Applications of Evidence-Based Medicine I**

Students will participate in editing, presentation and publication of evidence-based reviews of current medical literature.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**F\_C\_MD 8431: Applications of Evidence-Based Medicine II**

Students will participate in editing, presentation and publication of evidence-based reviews of current medical literature.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**F\_C\_MD 8450: Research in Community Health**

Original research in community health not leading to a thesis but requiring a formal research report.

**Credit Hour:** 1-99

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**F\_C\_MD 8491: Field Experience in Family and Community Medicine**

Supervised teaching experience in the preclinical, clinical, and residency programs.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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## Film Studies - Visual Studies Courses

**FILMS\_VS 1000: Introduction to Film for Non-Majors**

Introduction to terms and concepts for film analysis, including mise-en-scene, cinematography, editing, sound narrative, genre, and other elements. No credit for students who have completed FILM\_S 1800. No credit for film majors or minors. Graded on A-F basis only.

**Credit Hours:** 3

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**FILMS\_VS 1800: Introduction to Film Studies**

(same as ENGLSH 1800, DST\_VS 1800). Introduction to terms and concepts for film analysis, including mise-en-scene, cinematography, editing, sound narrative, genre, and other elements. No credit for students who have completed FILMS\_VS 2810. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Freshmen and Sophomores only or instructor's consent

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**FILMS\_VS 1800H: Introduction to Film Studies - Honors**

(same as DST\_VS 1800, ENGLSH 1800). Introduction to terms and concepts for film analysis, including mise-en-scene, cinematography, editing, sound, narrative, genre, and other elements. No credit for students who have completed FILMS\_VS 2810. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Freshmen and sophomores only or instructor's consent; Honors eligibility required

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**FILMS\_VS 1880: Introduction to Digital Media Production**

(same as DST\_VS 1880, ENGLSH 1880, ARTGE\_VS 1920, COMMUN 1880). Introduction to concepts and skills for film making, video art, and digital storytelling, including media literacy and forms of narrative manifested historically and currently across a range of media. This course focuses on theories and concepts that support the critical analysis and creation of contemporary narrative in digital form with particular attention to audio, visual and written communication. Graded on A-F basis only.

**Credit Hours:** 3

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**Prerequisites:** Enrollment limited to declared FILMS\_VS majors during early registration

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**FILMS\_VS 2001: Topics in Film Studies-General**

Organized study of selected topics. Subject may vary from semester to semester. May be repeated with consent of instructor.

**Credit Hour:** 1-3

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**FILMS\_VS 2005: Topics in Film Studies- Humanities**

Organized study of selected topics. Subject may vary from semester to semester. May be repeated with consent of instructor.

**Credit Hour:** 1-3

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**FILMS\_VS 2010: The Philosophy of Film**

(same as PHIL 2010). Philosophical problems having to do with film. Topic may include the nature of films, the differences between fiction and documentary film, ethical issues with film and filmmaking.

**Credit Hours:** 3

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**FILMS\_VS 2020: World Cinema for Non-Majors**

World Cinema introduces students to the history of international cinema. The course focuses on particular cinematic movements and national cinemas as case studies for trends and trajectories that also characterize the national and non-Hollywood cinemas not covered in the course. Examines the relationship of form and genre to individual national, or localized, cultural contexts. No credit for students who have completed FILMS\_VS 2820. No credit for film majors or minors. Graded on A-F basis only.

**Credit Hours:** 3

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**FILMS\_VS 2160: Film Adaptation of Shakespeare - Non Majors**

This course serves as an introduction to the problems and complexities that arise when adapting William Shakespeare's plays to contemporary film. One basic task of the course is to develop students' ideas about adaptation, especially with reference to contemporary adaptation theory. This course hopes both to explain and discredit the value of 'fidelity discourse,' students should be liberated from the notion of 'faithfulness' to the texts. No credit for film majors or minors. Graded on A-F basis only.

**Credit Hours:** 3

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**FILMS\_VS 2530: Screenwriting I**

(same as COMMUN 2530). Analyze various script formats and apply different writing techniques and styles to create screenplays and teleplays. Work inside a creative critique environment to craft vivid storytelling and character elements while developing viable loglines and pitches for their stories. Screenwriting concepts include the three-act structure and the timing and placement of plot points. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FILMS\_VS 1800 or ENGLSH 1800; sophomore standing or higher. May be restricted to Film Studies majors and minors during early registration

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**FILMS\_VS 2540: Introduction to Film Management**

Film Production Management is a hands-on exploration of the roles of feature film executive producers, producers and unit production managers. Creating balanced budgets, hiring personnel, creating meaningful business relationships, and managing post-production responsibilities are investigated. The feature film budget will be examined in each phase of the production; creating a sales pitch for a film, and developing a detailed approach to distribution is explored. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FILMS\_VS 1800 or ENGLISH 1800; sophomore standing or higher

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**FILMS\_VS 2820: Trends in World Cinema**

(same as GERMAN 2820 and RM\_LAN 2820). This course is a historical overview of the major trends in international cinema. It focuses on the intersection of aesthetics, industry, and ideological and social concerns in cinematic production.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing, ENGLISH 1800 or FILMS\_VS 1800

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**FILMS\_VS 2830: American Film History I, 1895-1950**

(same as ENGLISH 2830). Examines the development of American cinema in relation to other national cinemas, from 1895-1950. No credit for students who have completed ENGLISH or FILM\_S 1810.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and ENGLISH 1800 or FILMS\_VS 1800

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**FILMS\_VS 2840: American Film History II, 1950-Present**

(same as ENGLISH 2840). Examines American film history in an international context, from 1950-present. No credit for students who have completed ENGLISH or FILM\_S 1820.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and ENGLISH 1800 or FILMS\_VS 1800

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**FILMS\_VS 2850: Italian Cinema**

(same as ITAL 2850). It offers a historical overview of Italian Cinema from the silent era to the present. The course will provide the analytical skills necessary to read and critically analyze a film. Social and historical issues will be raised and examined for each film as appropriate. No knowledge of Italian required.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing

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**FILMS\_VS 2860: Film Themes and Genres**

(same as ENGLISH 2860, DST\_VS 2860) Topics (e.g. Film noir, African-American filmmakers, Food and Film, The Western) announced at time of registration. No more than six hours may be taken in Film Themes and Genres 2680.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and ENGLISH 1800 or FILMS\_VS 1800

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**FILMS\_VS 2865: The Art of Soviet and Russian Cinema**

(Same as RUSS 2865) Topics (e.g. Distorted Picture: Post-War Cinema in a Soviet State, Cinema in the Soviet Times and Beyond, etc.)

announced at time of registration. Only 6 hours may be taken toward major.

**Credit Hours:** 3

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**FILMS\_VS 2865W: The Art of Soviet and Russian Cinema - Writing Intensive**

(Same as RUSS 2865) Topics (e.g. Distorted Picture: Post-War Cinema in a Soviet State, Cinema in the Soviet Times and Beyond, etc.) announced at time of registration. Only 6 hours may be taken toward major.

**Credit Hours:** 3

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**FILMS\_VS 2870W: Film and Literature - Writing Intensive**

(same as ENGLISH 2870W). Explores the complex interplay between film and literature in order to gain an understanding of the possibilities - and problems - involved in the transposition from literature to film. Graded A-F basis only

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and ENGLISH 1800 or FILMS\_VS 1800

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**FILMS\_VS 3005: Topics in Film Studies - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** Sophomore standing

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**FILMS\_VS 3005W: Topics in Film Studies - Humanities - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** Sophomore standing

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**FILMS\_VS 3490: Indian Cinema**

(same as S\_A\_ST 3490, ANTHRO 3490, VS\_ARH 3790). Indian Cinema provides an overview of the key genres and themes of Indian film, including Bollywood, art cinema/parallel cinema, Indian regional cinemas, and diasporan cinema. The course combines film studies, anthropological, historical, and visual culture analyses to provide a holistic view of Indian culture and society through cinema.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or higher

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**FILMS\_VS 3520: Post Production**

Editing above all else is about feeling and rhythm. This course immerses students in the complete filmmaking editorial process from ingesting the footage to final delivery. Using non-linear editing software students will sharpen their sensibilities through hands on learning and practice. While editing scenes from both fiction and non-fiction cinema - students can expect to learn the ins and outs of media management and organization, the language of the edit, basic toolset navigation and color correction. Graded A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FILMS\_VS 1800 or ENGLISH 1800; sophomore standing or higher

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**FILMS\_VS 3530: Screenwriting II**

Builds upon principles of story arc and screenwriting techniques, while providing an in-depth study of character psyche and unique voice. Students will master the skills necessary to create vibrant, memorable characters through the exploration and development of unique character traits, physical imagery development and distinctive voice. Students will analyze dialog traits of scripts and films of industry professionals, and will craft their own characters using industry standard technology, adhering to the principles of industry standard formatting. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FILMS\_VS 1800 and FILMS\_VS 2530 or FILMS\_VS 3930 or THEATR 3930

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**FILMS\_VS 3540: Cinematography I**

An exploration of the principles and techniques of cinematography that includes shot composition lighting styles, and storytelling, using the moving image. Students will examine historical and contemporary approaches to cinematography used in Hollywood, foreign and independent films. Analyzing cinematographic approaches of a wide range of work will help the students discriminate the quality of their own creative work. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FILMS\_VS 1800 or ENGLISH 1800, and FILMS\_VS 1880, DST\_VS 1880, ENGLISH 1880 or ARTGE\_VSL 1920, or JOURN 2150 or JOURN 1400. Sophomore standing or higher. May be restricted to Film Studies majors and minors during early registration

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**FILMS\_VS 3550: Field Production I**

Collaborating in crews of five, students are exposed to a broad range of production techniques through practical production experience and in class discussion. During the semester students will produce 3 short projects, and in class workshops. As a group member, each student may serve in rotation as Director, Producer, Camera, Sound recordist and AC/Gaffer. Students will also be developing their own short scripts and are expected to pitch the projects (for production in Field Production II) in front of faculty and industry professionals in the final weeks of the semester. Graded A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FILMS\_VS 1800 or ENGLISH 1800, FILMS\_VS 1880 or DST\_VS 1880 or ARTGE\_VS 1920, and FILMS\_VS 3540

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**FILMS\_VS 3555: Directing for the Screen**

Directing for the Screen combines previous knowledge of the cinematic frame with the power of communication. This course focuses on developing the student's ability to effectively communicate to actors, cinematographers, and art departments, while also commanding a film crew and managing relationships with producers. Students develop concise personal vision and aesthetics with respect to scripts, and will work directly with actors to achieve performances that suit the project.

**Credit Hours:** 3

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**FILMS\_VS 3560: Audio Engineering for the Screen**

This course is an intensive study of the techniques and science behind the use of audio in today's cinema. The course will focus on four major

areas of study: sound in cinema, sound creation, sound manipulation, and environmental sound layering.

**Credit Hours:** 3

**Prerequisites:** FILMS\_VS 1800 or ENGLISH 1800, Sophomore standing. May be restricted to Film Studies majors and minors during early registration

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**FILMS\_VS 3775: The Ancient World on Film**

(same as AMS 3775) This course explores how classical antiquity has been represented in twentieth and twenty-first-century film, with particular emphasis on the ways in which ancient narratives and iconography have been appropriated by filmmakers to address contemporary cultural issues.

**Credit Hours:** 3

**Prerequisites:** Prior 2000 level coursework in AMS, ARH\_VS or FILMS\_VS. Instructors consent required

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**FILMS\_VS 3780: Architecture in Film**

(same as ARH\_VS 3780) Filmmakers use architecture to convey meaning on symbolic, psychological, and ideological levels. Using architectural history and theory, in conjunction with weekly film screenings from a variety of genres, this course explores how architecture operates within film.

**Credit Hours:** 3

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**FILMS\_VS 3785: Art and Artists on Film**

(same as ARH\_VS 3785) This course explores representations of art and artists in film, including documentary films, fictionalized films, and films made by artists.

**Credit Hours:** 3

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**FILMS\_VS 3820: Major Directors**

(same as ENGLISH 3820 and RM\_LAN 3820). Topics (e.g. Hitchcock, Kubrick, Fellini, Allen, Kurosawa, Wilder) announced at time of registration. Only 6 hours may be taken for credit toward major. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and ENGLISH 1800 or FILMS\_VS 1800

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**FILMS\_VS 3830: History of German Film**

(same as GERMAN 3830). Introduction to the development of the German film. Old and recent films are viewed and discussed in terms of techniques, artistry, psychology and social impact. English dubbing or subtitles. No foreign language credit.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or instructor's consent

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**FILMS\_VS 3845: Modern Israeli Film**

(same as HEBREW 3845). Examines the modern film of developing Israel. Discusses complex social relationships. Introduces concepts of Hebrew language and its use in the arts world-wide. Discusses varied communities in Israel, and universal themes such as democracy and social justice. Provides introduction to Israeli culture.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or consent of instructor required

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**FILMS\_VS 3850: Studies in Film History**

(same as ENGLISH 3850). Topics (e.g. Classical Period of Hollywood cinema, silent era, Post-WWII American film, German Weimar cinema, French New Wave) announced at time of registration. Only 6 hours count as credit toward major.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and ENGLISH 1800 or FILMS\_VS 1800

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**FILMS\_VS 3855: Documentary Film**

(same as ENGLISH 3855; DST-VS 3855). Surveys the history of documentary film including the development of subgenres, sound and voice over in documentary, re-enactment, ethical issues in documentary film production, and more. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**FILMS\_VS 3861: Film Themes and Genres**

Topics (e.g. Film noir, African-American filmmakers, Food and Film, The Western) announced at time of registration. No more than six hours may be taken in Film Themes and Genres 3861.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 or ENGLISH 1800 or FILMS\_VS 1800

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**FILMS\_VS 3865: The Holocaust on Screen**

(same as GERMAN 3865). This course explores how the Holocaust has been depicted on film in a variety of national and historical contexts. Drawing on films from 1945 to the present, from the U.S., Germany, Poland, France, and Italy, we will consider to what end images of the Holocaust have been used. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing

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**FILMS\_VS 3875: Brazilian Cinema**

(same as PORT 3875). An introduction to Brazilian cinema, culture, and society through the study of contemporary cinematic productions. Topics include: Hollywood perceptions of Brazil; redefinition of national identity and history, representations of race and gender.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**FILMS\_VS 3880: Contemporary Chinese Film**

(same as CHINSE 3880). Introduces development of 20th century Chinese film and popular genres, including review of earlier times. Explores how present day Chinese understand their own history, and issues they face in drive toward modernization in a global context. Films and readings in English or with English subtitles. No previous knowledge of the culture or language required.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or instructor's consent

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**FILMS\_VS 3885: Twenty-First Century South American Cinema**

(same as SPAN 3885, PORT 3885). Broad overview of the major national cinemas of the 21st century in South America. Approximately 14 feature films screened from Argentina, Brazil, Chile and other nations of the

region. Instructor provides a thematic framework for films within the context of film theory, Latin American cinematic history and cultural studies. Course taught in English. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 or ENGLISH 1000H

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**FILMS\_VS 3890: Russian and Soviet Film**

(same as RUSS 3890). Introduces three significant genres of Russian cinema: comedy, literary adaptations, and films that explore issues of identity and autobiography. Includes examples from different epochs. Considers Soviet and post-Soviet films. Russia and Russian culture. Course conducted in English; films have English subtitles.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or instructor's consent

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**FILMS\_VS 3930: Screenwriting for Television and Film**

(same as THEATR 3930). Fundamentals of storytelling utilizing tools and structure used by television and film.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**FILMS\_VS 4001: Topics in Film-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** Sophomore standing

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**FILMS\_VS 4005: Topics in Film Studies - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing

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**FILMS\_VS 4005W: Topics in Film Studies - Humanities - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing

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**FILMS\_VS 4030: Video Art and the Moving Image**

(same as ARTGE\_VS 4030; cross-leveled with ARTGE\_VS 7030). Video as a fine art form intersecting with sculpture, experimental filmmaking, DIY and Internet culture. Theoretical and historical knowledge is integrated with studio practice. Students create video works in Adobe Premiere Pro, demonstrating technical ability and aesthetic vision. May be repeated up to 9 hours maximum.

**Credit Hours:** 3

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**FILMS\_VS 4370: Film Studies: The Intersection of Documentary Film and Journalism**

(same as JOURN 4370; cross-leveled with FILMS\_VS 7370, JOURN 7370). The popularity of documentary film in the past ten years has skyrocketed, and recent award-winning documentaries such as

Inside Job (2010), Blackfish (2013), and The Invisible War (2012) are simultaneously entertaining audiences and investigating serious issues like the financial collapse, killer whale captivity, and sex crimes in the military--issues that in the past might have been covered exclusively by investigative journalism. What explains the public's growing fascination with documentary? How is documentary film reacting to recent transformations in the media landscape? Is it filling a critical need that journalism is no longer willing or able to meet? This course will explore the intersection of these two nonfiction storytelling forms--documentary film and journalism--and examine the role played by advocacy in both modes, as well as the cultural and ethical implications of the convergence between journalism and documentary film. In that it is centered on contemporary documentary film culture, the course also takes advantage of the True/ False Film Festival, and will be host to a conference during Week 6, featuring a number of major visiting filmmakers and film critics. Attendance at some sessions is required. Graded on A-F basis only.

**Credit Hours:** 3

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**FILMS\_VS 4370W: Film Studies: The Intersection of Documentary Film and Journalism-Writing Intensive**

(same as JOURN 4370; cross-leveled with FILMS\_VS 7370, JOURN 7370). The popularity of documentary film in the past ten years has skyrocketed, and recent award-winning documentaries such as Inside Job (2010), Blackfish (2013), and The Invisible War (2012) are simultaneously entertaining audiences and investigating serious issues like the financial collapse, killer whale captivity, and sex crimes in the military--issues that in the past might have been covered exclusively by investigative journalism. What explains the public's growing fascination with documentary? How is documentary film reacting to recent transformations in the media landscape? Is it filling a critical need that journalism is no longer willing or able to meet? This course will explore the intersection of these two nonfiction storytelling forms--documentary film and journalism--and examine the role played by advocacy in both modes, as well as the cultural and ethical implications of the convergence between journalism and documentary film. In that it is centered on contemporary documentary film culture, the course also takes advantage of the True/ False Film Festival, and will be host to a conference during Week 6, featuring a number of major visiting filmmakers and film critics. Attendance at some sessions is required. Graded on A-F basis only.

**Credit Hours:** 3

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**FILMS\_VS 4540: Cinematography II**

This workshop explores advanced cinema camera systems, lighting techniques, cine lenses and rigging equipment. We will view examples of camera and lighting work, both historical and contemporary, and develop scenes with complex blocking and camera movement. Expect to spend time outside of class working to ensure a successful semester. Graded A-F basis only.

**Credit Hours:** 4

**Prerequisites:** FILMS\_VS 1800 or ENGLISH 1800; FILMS\_VS 3540; sophomore standing or higher

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**FILMS\_VS 4560: Field Production II**

This workshop is a senior level course that serves as the capstone of our production emphasis curriculum. Students entering the class must be prepared to submit a short script (no longer than 15 minutes) at the first class of the term, and complete the entire filmmaking process by close of the semester. Participants are required to assist fellow students in the

production of their films. Expect to spend a significant amount of time outside of class to ensure a successful semester. Works will be screened in our senior showcase. Graded A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FILMS\_VS 1800, FILMS\_VS 1880, FILMS\_VS 3540, and FILMS\_VS 3550

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**FILMS\_VS 4580: Production Practicum**

Provides an intensive, comprehensive experience in film production. Students will receive hands-on experience in lightning and set design, camera operation, grip/electrical and sound capture. The course pits students against a rigorous industry standard shooting schedule - long hours are to be expected each day. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FILMS\_VS 3540

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**FILMS\_VS 4810: Film Theory**

(same as ENGLISH 4810, DST\_vs 4810). This course explores contemporary trends in film theory. Topics may include: psychoanalysis, feminism, Marxism, cultural studies, queer theory, audience and star studies, postcolonialism, among others.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and ENGLISH or FILMS\_VS 1800. Junior standing or above required

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**FILMS\_VS 4820: Studies in Film Genre**

(same as ENGLISH 4820). Topics (e.g. The Western, film noir) announced at time of registration. No more than six hours may be taken toward the major.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and ENGLISH 1800 or FILMS\_VS 1800; Junior Standing or instructor's consent

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**FILMS\_VS 4840: Culture and Media**

(Same as ENGLISH 4840, DST\_VS 4840). Topics (e.g. Cinema and Imperialism, Indigenous Media, Ethnographic Documentary) announced at time of registration. No more than six hours may be taken for credit toward the major.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and ENGLISH 1800 or FILMS\_VS 1800. Junior standing or instructor's consent required

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**FILMS\_VS 4860: Film Themes and Genres**

Topics (e.g. Film noir, African-American filmmakers, Food and Film., The Western) announced at time of registration. No more than six hours may be taken in Film Themes and Genres 4860.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and ENGLISH 1800 or FILMS\_VS 1800

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**FILMS\_VS 4880: Capstone Experience**

This course is for Film Studies students who have completed their concentration requirements. The main objective is to help students independently create and complete a capstone project. The project should allow you to conceptualize and enter professional life after commencement.



**Credit Hours:** 3

**Prerequisites:** Film Studies majors only. Consent of instructor required

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**FILMS\_VS 4935: Adaptation of Literature for Film**

(same as ENGLISH 4935 and THEATR 4935; cross-leveled with FILMS\_VS 7935, ENGLISH 7580 and THEATR 7935). This upper-division course will explore adaptation principles and practices with a variety of forms of literature that were not originally written for film.

**Credit Hours:** 3

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**FILMS\_VS 4940: Internship**

This course is for Film Studies students who have the opportunity to work in an internship position in a related industry or at a government agency where they can gain valuable on the job experience and knowledge. The student must register for the Internship course in the semester in which the work takes place. Graded S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** ENGLISH 1000 and ENGLISH 1800 or FILM\_S 1800. Must have at least 15 hours of Films Studies credit. Online courses do not count for the 15 hours of Film Credit

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**FILMS\_VS 4960: Special Readings in Film Studies**

Arranged. Individual work with conferences adjusted to needs of student.

**Credit Hour:** 1-3

**Prerequisites:** ENGLISH 1000 and ENGLISH 1800 or FILMS\_VS 1800. Consent of instructor required. Restricted to Film Studies majors in their final year

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**FILMS\_VS 4963: Latin American Cinema (in Spanish)**

(same as SPAN 4960). Subject varies according to instructor.

**Credit Hour:** 2-3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**FILMS\_VS 4995: Senior Honors Thesis**

Independent honors research under direction of faculty. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** Senior standing required, consent of instructor required, Honors eligibility required

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**FILMS\_VS 7001: Topics in Film Studies-General**

Topics in Film Studies-General

**Credit Hour:** 1-3

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**FILMS\_VS 7370: The Intersections of Documentary Film and Journalism**

(same as JOURN 7370). (cross-leveled with JOURN 4370 and FILMS\_VS 4370). The popularity of documentary film in the past ten years has skyrocketed, and recent award-winning documentaries such as Inside Job (2010), Blackfish (2013), and The Invisible War (2012) are simultaneously entertaining audiences and investigating serious issues like the financial collapse, killer whale captivity, and sex crimes in the military--issues that in the past might have been covered exclusively by investigative journalism. What explains the public's growing fascination with documentary? How is documentary film reacting

to recent transformations in the media landscape? Is it filling a critical need that journalism is no longer willing or able to meet? This course will explore the intersection of these two nonfiction storytelling forms--documentary film and journalism--and examine the role played by advocacy in both modes, as well as the cultural and ethical implications of the convergence between journalism and documentary film. In that it is centered on contemporary documentary film culture, the course also takes advantage of the True/ False Film Festival, and will be host to a conference during Week 6, featuring a number of major visiting filmmakers and film critics. Attendance at some sessions is required. Graded on A-F basis only.

**Credit Hours:** 3

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**FILMS\_VS 8005: Topics in Film Studies - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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## Finance Courses

**FINANC 1000: Principles of Finance**

Financing business, consumer, and government activity; stocks, bonds, real estate, and financial markets; risk; insurance; inflation; cash and income management; capital accumulation and appreciation.

**Credit Hours:** 3

**Prerequisites:** Students admitted to COB upper level degree program cannot enroll

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**FINANC 2000: Survey of Business Finance**

An overview of the global financial system, financial markets, financial institutions, and principles of financial management.

**Credit Hours:** 3

**Prerequisites:** Students admitted to COB upper level degree program cannot enroll

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**FINANC 3000: Corporate Finance**

Financial decision-making in a corporate environment. Time value of money, capital budgeting, cost of capital, working capital management and financial instruments issued by the firm.

**Credit Hours:** 3

**Prerequisites:** Completed 45 semester hours; STAT 2500 (or STAT 2200 and STAT 1200 or STAT 1300 or STAT 1400); ECONOM 1014 or ECONOM 1024; ECONOM 1015 or ECONOM 1051 or ECONOM 1051H  
**Corequisites:** ACCTCY 2027 or ACCTCY 2037 or ACCTCY 2137H

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**FINANC 3300: Personal Risk Management and Insurance**

Teaches the importance of risk in personal endeavors and the intelligent handling of such risk. Life, health, auto, homeowner and liability risks are treated.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**FINANC 4010: Financial Management**

(cross-leveled with FINANC 7010). Theory and techniques of financial management, study of firm valuation, dividend policy, capital budgeting and capital asset pricing.

**Credit Hours:** 3

**Prerequisites:** FINANC 3000

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**FINANC 4020: Investments**

(cross-leveled with FINANC 7020). Security valuation and analysis, formulation of personal and professional investment programs.

**Credit Hours:** 3

**Prerequisites:** FINANC 3000

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**FINANC 4030: Financial Intermediaries and Markets**

Functions of intermediaries in the aggregation and allocation of funds, creation and transfer of assets, and distribution of risks. Regulation of financial institutions; financial institutions as instruments of public policy.

**Credit Hours:** 3

**Prerequisites:** FINANC 3000 and ECONOM 3229

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**FINANC 4110: Financial Management Policy**

Application of the concepts and tools of finance to cases in working capital management, capital budgeting analysis and capital structure decisions.

**Credit Hours:** 3

**Prerequisites:** FINANC 4010

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**FINANC 4120: Security Analysis**

Classifies and analyzes securities, markets, industries. Formulation of investment policy for institutions, aggressive personal investors.

**Credit Hours:** 3

**Prerequisites:** FINANC 4020

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**FINANC 4130: Management of Financial Institutions**

Operating principles of major financial intermediaries, including commercial banking, savings, insuring, lending and investing institutions. Analysis of cases; study of current problems. Some sections of the course may be graded on A-F or S/U graded basis only.

**Credit Hours:** 3

**Prerequisites:** FINANC 4030

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**FINANC 4185: Problems in Finance**

Independent study, reports on selected topics. Some sections of this course may be offered A-F only or S/U only.

**Credit Hour:** 1-99

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**FINANC 4201: Topics in Finance**

Selected topics in finance, insurance or real estate. Offered on an experimental basis. Some sections of this course may be offered A-F only or S/U only.

**Credit Hours:** 3

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**FINANC 4220: Portfolio Management**

Development and application of the principles of modern portfolio theory to financial assets. Analysis of the concepts of diversification, portfolio construction, portfolio revision, and use of types of financial assets in effective portfolio management.

**Credit Hours:** 3

**Prerequisites:** FINANC 4020

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**FINANC 4310: Financial Modeling and Databases**

Financial modeling and using online databases to retrieve data, data analysis, spreadsheet design, excel VBA programming, interpreting results. Graded on A-F basis only.

**Credit Hours:** 3

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**FINANC 4320: Financial Futures and Options**

A basic overview of financial futures and options markets. Topics include: theoretical pricing of financial futures contracts and stock options, institutional aspects of these markets, hedging, and speculative strategies.

**Credit Hours:** 3

**Prerequisites:** FINANC 4020

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**FINANC 4450: Financial Ethics and Professional Standards**

The course comprises an intensive study of the CFA Institute Code of Ethics and Standards of Professional Conduct and Global Investment Performance Standards. It also includes a review of corporate governance issues.

**Credit Hours:** 3

**Recommended:** FINANC 4010 or departmental consent

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**FINANC 4500: Principles of Real Estate**

Principle factors influencing land use, practices in real estate business.

**Credit Hours:** 3

**Prerequisites:** FINANC 3000

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**FINANC 4510: Real Estate Appraisal**

Procedures for valuing industrial, commercial, residential realty by market, income, replacement cost approaches. Case method, field investigations.

**Credit Hours:** 3

**Prerequisites:** FINANC 4500

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**FINANC 4520: Real Estate Finance and Investment**

Financing of residential, commercial, and industrial real estate and real estate development. Instruments, institutions, and markets; role of government agencies; investment qualities of real estate.

**Credit Hours:** 3

**Prerequisites:** FINANC 4500

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**FINANC 4530: Real Estate Portfolio Analysis and REITs**

Management of real estate portfolios and analysis of real estate investment trusts including financial statement analysis, cash flows, and valuation techniques.

**Credit Hours:** 3

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**Prerequisites:** FINANC 3000

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**FINANC 4620: Investment Strategy of Warren Buffett**

(cross-leveled with FINANC 7620). Survey and application of the investment philosophy and valuation methods of Warren Buffett.

**Credit Hours:** 3

**Prerequisites:** FINANC 3000

**Corequisites:** FINANC 4020

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**FINANC 4630: Introduction to Risk Management and Insurance**

Basic principles of risk management and insurance focusing on operational risks faced by organizations. Covers terminology, sources, dimensions, characteristics, measurement, and assessment of risk along with design and implementation of techniques to mitigate and control risk.

**Credit Hours:** 3

**Prerequisites or Corequisites:** FINANC 2000 or FINANC 3000

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**FINANC 4632: Principles of Commercial Property and Liability Insurance**

The objective of this course is to examine the principles and key elements of commercial property and liability insurance. The primary emphasis will be on the property and liability loss exposures faced by organizations and the corresponding types of insurance for covering those loss exposures. This course qualifies students who make a 'B' or better to receive credit for CPCU 552 Commercial Liability Risk Management and Insurance.

**Credit Hours:** 3

**Prerequisites:** FINANC 2000 or FINANC 3000 or FINANC 4630, or permission of the instructor

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**FINANC 4640: Enterprise Risk Management**

This course addresses the principles, concepts, key elements and applications of Enterprise Risk Management (ERM) to businesses and other organizations. The principal objective of this course is to prepare students to understand the principles of ERM and to be able to integrate sound risk management principles into their work.

**Credit Hours:** 3

**Prerequisites:** FINANC 4630, or permission of instructor

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**FINANC 4710: Topics in International Finance**

Available during study abroad session. Emphasis is on international corporate governance, foreign exchange risk management, international capital markets, balance of payments, international monetary system, and exchange rate determination. Graded on A-F basis only.

**Credit Hours:** 3

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**FINANC 4720: International Finance**

Application of domestic corporate finance to the international arena. Emphasis on international capital budgeting, working capital management, foreign exchange risk management, international capital markets, balance of payments, international monetary system, and exchange rate determination. Some sections may be graded on A-F or S/U basis only.

**Credit Hours:** 3

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**FINANC 4820: Investment Fund Management**

Analysis and management of securities and markets by participation in the management of a student-run portfolio of publicly traded stocks and bonds. May be repeated once for credit for a total of six credits.

**Credit Hours:** 3

**Prerequisites:** FINANC 3000, FINANC 4120 or FINANC 4620, instructor's consent required each enrollment

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**FINANC 4830: Chartered Financial Analyst Exam Review Course**

(cross-leveled with FINANC 7830). A review of the content and format of the chartered financial analyst (CFA) examination. Students need to be registered for the CFA exam to enroll in the class.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**FINANC 4840: Angel Capital Education Program**

(cross-leveled with FINANC 7840). In depth understanding of investing in start up enterprises, including structuring investment deals, doing due diligence, and monitoring of prior investments. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent

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**FINANC 7010: Financial Management**

(cross-leveled with FINANC 4010). Theory and techniques of financial management, study of firm valuation, dividend policy, capital budgeting and capital asset pricing.

**Credit Hours:** 3

**Prerequisites:** FINANC 3000

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**FINANC 7020: Investments**

(cross-leveled with FINANC 4020). Security valuation and analysis, formulation of personal and professional investment programs.

**Credit Hours:** 3

**Prerequisites:** FINANC 3000

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**FINANC 7201: Special Topics in Finance**

Selected topics in Finance, insurance, or real estate. Offered on an experimental basis.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**FINANC 7210: Microeconomics for Business**

Examination of how the behavior of consumers and the business decisions of firms affect supply, demand, and the resulting prices of goods and services in the market.

**Credit Hour:** 1-3

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**FINANC 7220: Economics for Managers**

Applies the concepts and tools of economics to management issues and problems.

**Credit Hour:** 1.5-3

**Prerequisites:** FINANC 7210 or equivalent

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**FINANC 7410: Managerial Finance I**

Introduction to financial management including the time value of money capital budgeting techniques, risk measurement, and the valuation of financial securities.

**Credit Hour:** 1-3

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**FINANC 7420: Managerial Finance II**

Continuation of the study of financial management with focus on the risk-return tradeoff, capital structure, corporate layout polices, long-term financing, elementary options pricing, and mergers and acquisitions.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 7410

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**FINANC 7440: Managerial Finance**

Analyzes financial information relative to acquisition, management of assets; costs of alternative financial contracts; effect of mix of outstanding securities on entity's cost of capital; interaction between funding/ investment decisions.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 7310 or departmental consent

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**FINANC 7620: Investment Strategy of Warren Buffett**

(cross-leveled with FINANC 7620). Survey and application of the investment philosophy and valuation methods of Warren Buffett.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 3000 or FINANC 7440

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**FINANC 7820: Investment Fund Management**

(cross-leveled with FINANC 4820). Analysis and management of securities and markets by participation in the management of a student-run portfolio of publicly traded stocks and bonds. May be repeated 1 time for credit.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 3000 or FINANC 7440; instructor's consent

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**FINANC 7830: Chartered Financial Analyst Exam Review Course**

(cross-leveled with FINANC 4830). A review of the content and format of the chartered financial analyst (CFA) examination. Students need to be registered for the CFA exam to enroll in the class.

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent

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**FINANC 7840: Angel Capital Education Program**

(cross-leveled with FINANC 4840). Hands-on experiential investing in start-up enterprises from sourcing, evaluating, and investing to monitoring those investments. Students will learn about angel and venture capital investment strategies, perform pre-screening duties, complete due diligence, structure investment contracts, and monitor portfolio holdings. Graded on A-F basis only. Repeat course is allowed, participating two semesters is preferred. Application to the program is required.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**FINANC 8001: Topics in Finance**

Selected topics in finance, insurance or real estate. Offered on experimental basis.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**FINANC 8010: Multicultural and Global Finance Study Abroad**

International topical issues in finance including cultural difference, corporate governance, differential approaches to regulation across countries, and cross-risk. Includes a study abroad component with on-site visits to businesses and other organizations. May be repeated as venues change.

**Credit Hour:** 1-3

**Prerequisites:** Consent required

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**FINANC 8012: International Financial Markets**

International capital, foreign exchange, money markets, and financial institutions including exchange rates, instruments and securities, and multinational risk exposure. May include a study-abroad component with on-site visits to businesses and other organizations. May be repeated as venues change. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** Consent required

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**FINANC 8085: Problems in Finance**

For independent investigation and analysis, graduate students select topics suggested by the foregoing undergraduate courses.

**Credit Hour:** 1-3

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**FINANC 8090: Master's Thesis Research**

Advanced research leading to thesis. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** Consent required

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**FINANC 8310: Financial Databases and Analysis**

Financial modeling and using online databases to retrieve data, data analysis, spreadsheet design, excel VBA programming, interpreting results. Graded on A-F basis only.

**Credit Hour:** 1-3

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**FINANC 8312: Financial Modeling**

Financial modeling using Excel spreadsheet design and VBA programming. Includes alternative computational methods, simulation and the use of information retrieved from financial databases. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 8310

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**FINANC 8320: Financial Markets**

Operation and structure of money markets and capital markets, including markets for stocks, bonds and derivatives securities. Study of the securities that trade in those markets including characteristics, valuation and diversification.

**Credit Hour:** 1-3

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**FINANC 8330: Investment Policy and Portfolio Management**

Study of investment policies and the effects of risk and diversification on investment management including measurement of risk, identification of investment policy, and construction and maintenance of investment portfolios.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 8320

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**FINANC 8340: Derivative Financial Securities**

Comprehensive overview of derivative securities including financial futures and options, swaps, and financial engineering. Major topics: institutional aspects of these markets, advanced pricing models, pricing relationships among derivative securities, and risk shifting.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 8070

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**FINANC 8350: Financial Statement Analysis I**

An introduction to financial statement analysis with emphasis on interpretation and understanding of the balance sheet income statement, and statement of cash flows.

**Credit Hour:** 1-3

**Prerequisites:** ACCTCY 7310

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**FINANC 8352: Financial Statement Analysis II**

Analysis of company financial statements and related accounting information with emphasis on investors' decisions to invest in the company.

**Credit Hour:** 1.5-3

**Prerequisites:** FINANC 8350

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**FINANC 8360: Equity Securities Analysis**

Theory and application of models and methods for valuing common stocks.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 7420 or FINANC 7440

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**FINANC 8370: Fixed-Income Securities Analysis**

Markets for fixed-income securities and theory and application of models for valuing bonds and other fixed-income securities.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 7420

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**FINANC 8380: Investment Banking**

Topics in investment banking including types of offerings and securities, analysis of comparable companies and transactions, valuation methods, and hedge funds and private equity. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 7420 or equivalent

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**FINANC 8410: Advanced Financial Management**

Examination of the modern theory of finance. Capital budgeting capital structure, dividend theory and valuation.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 7440

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**FINANC 8430: Capital Budgeting**

An investigation of long-term financial decisions. Topics include capital budgeting, leasing, long-term financing. Extensive use of cases.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 7440

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**FINANC 8440: Financing Multinational Business**

Study of foreign exchange markets, currency derivatives, global capital budgeting, and international financial decision strategy. Some sections of this course may be offered on an A-F or S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 7420

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**FINANC 8450: Ethics and Standards of Financial Practice**

Study of financial ethics with particular focus on standards of practice for investment performance standards. Recommended for students planning to take the CFA exam.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 7420

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**FINANC 8460: Mergers and Acquisitions**

Analysis of merger and acquisition transactions. Includes methods of financing, valuation and deal structure, hostile takeovers and restructuring.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 7420 or equivalent

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**FINANC 8510: Management of Financial Institutions**

Study and analysis of policies, goals, practices and organizational changes in the management of financial institutions and intermediaries.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 7440

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**FINANC 8530: Real Estate Portfolio Analysis**

Portfolio analysis applied to real estate investment including diversification, portfolio theory, and management of real estate portfolios including real estate investment trusts (REITs).

**Credit Hour:** 1.5-3

**Prerequisites:** FINANC 7420

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**FINANC 8540: Real Estate Finance**

Instruments and methods of financing real estate including fixed and variable rate mortgages, the mortgage loan underwriting process, financing investment property, and alternative financing methods. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 7420 or equivalent

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**FINANC 8550: Real Estate Valuation I**

Valuation and appraisal methods for real estate. Includes cost, comparable sales, and income capitalization approaches. Credit may

not be earned for both FINANC 7510 and FINANC 8550. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 7420 or equivalent

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**FINANC 8552: Real Estate Valuation II**

A continuation of FINANC 8550. Focus is on advanced methods and the use of case analyses. Credit may not be earned for both FINANC 7510 and FINANC 8552. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 8550

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**FINANC 8560: Real Estate Securities Analysis**

Analysis of real estate securities including in-depth financial statement analysis and valuation of real estate investment trusts (REITs) and real estate operating companies (REOCs).

**Credit Hour:** 1.5-3

**Prerequisites:** FINANC 8530 or instructor's consent

---

**FINANC 8570: Real Estate Development**

Developing real estate properties. Topics include organizational forms, land development, construction, and environmental issues. Includes issues specific to residential, office, industrial, and retail properties. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 7420 or equivalent

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**FINANC 8620: Investment Strategy of Warren Buffett**

This course is designed to familiarize students with the investment philosophy of Warren Buffett. Buffett's criteria for evaluating potential acquisitions and investments will be analyzed in detail.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 7420

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**FINANC 8630: Corporate Risk Management**

Principles of identifying, analyzing, assessing, and managing operational risks faced by large organizations. Sources, dimensions, and qualities of risk as well as development and implementation of methods to avoid, control, or transfer risk.

**Credit Hour:** 1-3

**Prerequisites or Corequisites:** FINANC 7420

**Recommended:** Undergraduate Business degree with major/emphasis/minor in Finance, Accounting or Economics

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**FINANC 8632: Corporate Insurance and Alternative Financing Mechanisms**

Basis and techniques for insuring hazard and operational risks encountered by large organizations. Analysis of insurance policies, determination of optimal limits and retentions, and assessment of alternative risk financing methods.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 8630

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**FINANC 9001: Advanced Topics in Finance**

Selected topics in finance.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**FINANC 9090: Research in Finance**

Thesis research for Ph.D. degree. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**FINANC 9100: Seminar in Corporate Finance**

Advanced theory, investigation of current research in financial management.

**Credit Hours:** 3

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**FINANC 9101: Topics Seminar in Finance**

Reading and critical evaluation of selected current finance literature and research. Departmental consent. May be repeated. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** Ph.D. students only

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**FINANC 9200: Research in Corporate Finance**

Advanced topics in corporate finance.

**Credit Hours:** 3

**Prerequisites:** FINANC 9100

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**FINANC 9300: Financial Economics**

Utility analysis, efficient frontier mathematics, asset pricing and related topics.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**FINANC 9400: Seminar in Investment Analysis**

Develops integrated theory and analytic techniques for evaluating investment potential of financial instruments. Emphasizes corporate securities. Selected cases and readings.

**Credit Hours:** 3

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**Fisheries And Wildlife Courses**

**F\_W 1012: Introduction to Captive Wild Animal Management**

(same as AN\_SCI 1012). General introduction to housing, husbandry, behavior, genetics, nutrition, reproduction, animal health, and disease control of native and exotic species in zoological parks and other animal conservation facilities; emphasizes the role of captive animals in wildlife conservation. Graded on A-F basis only.

**Credit Hours:** 3

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**F\_W 1100: Introductory Zoology with Laboratory**

(same as BIO\_SC 1100). Introduces important principles and concepts of zoology. Emphasizes cell biology; evolution; genetics; ecology; structure, function, development of the organism.

**Credit Hours:** 5

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**F\_W 2500: Introduction to Genetics and Evolution for Conservation**

Basic principles and processes of genetics and evolution and their importance for management and conservation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1100, F\_W 1100 or BIO\_SC 1500

**Recommended:** NAT\_R 1070, CHEM 1320

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**F\_W 2600: Ornithology**

(same as BIO\_SC 2600). Structure, identification, habits, importance of regional birds. Field work, lectures, lab.

**Credit Hours:** 5

**Prerequisites:** F\_W 1100

**Recommended:** 5 hours Biological Sciences

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**F\_W 2700: Ichthyology**

A broad introduction to the biology and ecology of fishes. Emphasis will be placed on understanding the adaptations fishes exhibit to aspects of their environment.

**Credit Hours:** 4

**Prerequisites:** F\_W 1100

**Recommended:** 8 hours Biological Sciences

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**F\_W 2900: Principles of Wildlife Management**

Expose students to the principles of wildlife management with emphasis on current issues faced by wildlife researchers and managers in the field. Graded on A-F basis only.

**Credit Hours:** 4

**Recommended:** NAT\_R 1070 and one other course in biological or environmental science; sophomore standing or higher

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**F\_W 3085: Problems in Fisheries and Wildlife**

Individual problems studies to supplement regularly organized undergraduate courses in Fisheries and Wildlife. Proposal for problems study must be arranged by student and supervising faculty member prior to registration.

**Credit Hour:** 1-99

**Prerequisites:** consent of supervising faculty member

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**F\_W 3600: Introduction to Conservation Biology**

Introduction to principles of conservation biology. Application of ecological concepts and conservation biology principles to management of endangered species, biodiversity and threatened ecosystems.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3650 or BIO\_SC 3400

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**F\_W 3660: Mammalogy**

Taxonomy, distribution, structure, habits, importance of mammals; emphasizes those of central United States.

**Credit Hours:** 4

**Recommended:** F\_W 1100 and Junior standing

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**F\_W 3700: Animal Behavior**

Behavior allows animals to react promptly to environmental changes, and is how they interact with others and their surroundings. Because behaving is central to an animal's life, knowing about behavior is fundamental to understanding animal ecology and to conservation efforts. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** F\_W 1100

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**F\_W 3900: Ecology of Fishes**

This course considers fishes' interactions with their environments in relation to survival, growth and population processes. The course is for mid- to upper-level undergraduates interested in fisheries science, management and fish conservation. May be repeated once for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1500 or F\_W 1100; sophomore standing

**Recommended:** STAT 2500

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**F\_W 4002: Topics in Fisheries and Wildlife - Biological**

Organized study of selected topics intended primarily for senior-level students in Fisheries and Wildlife Sciences.

**Credit Hour:** 1-99

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**F\_W 4200: Urban Wildlife Conservation**

(cross-leveled with F\_W 7200). Reviewing the theory and practice of applying ecological concepts to the management of wildlife species in urban areas.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3650 or FOREST 4320

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**F\_W 4200W: Urban Wildlife Conservation - Writing Intensive**

(cross-leveled with F\_W 7200). Reviewing the theory and practice of applying ecological concepts to the management of wildlife species in urban areas.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3650 or FOREST 4320

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**F\_W 4220: Human Dimensions of Fish and Wildlife Conservation**

Overview of human dimensions approaches and methods as they are applied to issues in fish and wildlife conservation.

**Credit Hours:** 3

**Recommended:** One 3000-level or above professional Fisheries and Wildlife management or techniques course

---

**F\_W 4300: Fisheries Management**

(cross-leveled with F\_W 7300). Introduction to the scientific principles and techniques of fishery management. Integrates ecological principles with social, economic and legal considerations.

**Credit Hours:** 3

**Recommended:** BIO\_SC 3650 and STAT 2500

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**F\_W 4400: Techniques for Fisheries Management and Conservation**

Introduction to techniques (field and analytical/quantitative) used by fisheries and conservation biologists. Fosters understanding of techniques uses, advantages, limitations biases, and data interpretation. Extended weekly field outings require chest waders and life jackets. Graded on A-F basis only.

**Credit Hours:** 4

**Recommended:** BIO\_SC 3650; STAT 2500 or NAT\_R 3110; F\_W 2700 or F\_W 4300

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**F\_W 4400W: Techniques for Fisheries Management and Conservation - Writing Intensive**

Introduction to techniques (field and analytical/quantitative) used by fisheries and conservation biologists. Fosters understanding of techniques uses, advantages, limitations biases, and data interpretation. Extended weekly field outings require chest waders and life jackets. Graded on A-F basis only.

**Credit Hours:** 4

**Recommended:** BIO\_SC 3650; STAT 2500 or NAT\_R 3110; F\_W 2700 or F\_W 4300

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**F\_W 4500: Animal Population Dynamics and Management**

(cross-leveled with F\_W 7500). Quantitative modeling approach to examining principles and analysis techniques of fish and wildlife population dynamics. Emphasis on approaches useful in the management of exploited species.

**Credit Hours:** 3

**Prerequisites:** MATH 1400; STAT 2500 or NAT\_R 3110; BIO\_SC 3650 or FOREST 4320

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**F\_W 4600: Ecosystem Management**

(cross-leveled with F\_W 7600). Explores the development and implementation of large-scale approaches to restoring and maintaining ecosystems for sustainability. Incorporates ecological, socio-economic, and institutional factors that influence natural management agencies. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 3650 or FOREST 4320

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**F\_W 4600W: Ecosystem Management - Writing Intensive**

Explores the development and implementation of large-scale approaches to restoring and maintaining ecosystems for sustainability. Incorporates ecological, socio-economic, and institutional factors that influence natural management agencies. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 3650

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**F\_W 4650: Natural Resource Planning and Management**

Students will be exposed to various natural resource planning tools. Student teams will develop natural resource management plans with strategic and operational components for current conservation issues in Missouri. Plans will be critiqued by peers and outside professionals. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** FOREST 4320 or BIO\_SC 3650 and senior standing

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**F\_W 4700: Wildlife Ecology Methods**

(cross-leveled with F\_W 7700). Techniques for conducting wildlife research. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 3650 and STAT 2500

**Recommended:** F\_W 2900, NATR 3110

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**F\_W 4700W: WILDLIFE METHODS - Writing Intensive**

(cross-leveled with F\_W 7700). Techniques for conducting wildlife research. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 3650 and STAT 2500

**Recommended:** F\_W 2900, NATR 3110

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**F\_W 4800: Environmental Toxicology**

(cross-leveled with F\_W 7800). Introduction to classes of chemicals, tools, methods, and approaches used in environmental toxicology. Emphasizes fundamentals of toxicology, dose-response relationships, evaluation of contaminant issues, strategies, and exposure analysis/toxicity assessment strategies in a risk assessment.

**Credit Hours:** 3

**Prerequisites:** CHEM 1320

**Recommended:** Junior standing

---

**F\_W 4810: Wildlife Disease Ecology**

An introduction to the ecology of wildlife diseases. Topics include the definition of a disease, how to measure diseases, impacts on individuals and populations, and the role of disease in wildlife management and conservation.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3650

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**F\_W 4880: Waterfowl Ecology and Management**

Ecology and management of North American waterfowl and their habitats. Laboratory exercises focus on identification, life histories, sex and age determination, and survey methods. Lectures cover taxonomy, ecology, behavior, population dynamics, harvest management, and habitat management and conservation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** F\_W 2600; BIO\_SC 3650; instructor's consent

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**F\_W 4910: Senior Seminar in Captive Wild Animal Management**

(same as AN\_SCI 4910). Investigates key issues in captive wild animal management, focusing on the role of animal caretakers in addressing the issues. Students are required to formulate informed opinions regarding these topics and communicate effectively about the subject matter. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** AN\_SCI 1012 or F\_W 1012; junior or senior standing

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**F\_W 4940: Fisheries and Wildlife Internship**

Supervised professional experience with an approval public or private organization. May be repeated for credit. Graded on S/U basis only.



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**Credit Hour:** 1-12

**Prerequisites:** Fisheries and Wildlife majors only

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**F\_W 4950: Undergraduate Research in Fisheries and Wildlife**

Individually directed field or laboratory research for students under faculty supervision. Project must be arranged by student and faculty member prior to registration.

**Credit Hour:** 1-99

**Prerequisites:** consent of supervising faculty member

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**F\_W 7002: Graduate Topics in Fisheries and Wildlife**

Organized study of selected topics intended primarily for graduate students in Fisheries and Wildlife Sciences. Graded on A-F basis only.

**Credit Hour:** 1-99

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**F\_W 7200: Urban Wildlife Conservation**

(cross-leveled with F\_W 4200). Reviewing the theory and practice of applying ecological concepts to the management of wildlife species in urban areas.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3650 or FOREST 4320

---

**F\_W 7220: Human Dimensions of Fish and Wildlife Conservation**

Overview of human dimensions approaches and methods as they are applied to issues in fish and wildlife conservation.

**Credit Hours:** 3

**Prerequisites:** One 3000-level or above professional management or techniques course or instructor consent

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**F\_W 7300: Fisheries Management**

(cross-leveled with F\_W 4300). Introduction to the scientific principles and techniques of fishery management. Integrates ecological principles with social, economic and legal considerations.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3650 and STAT 2500

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**F\_W 7500: Animal Population Dynamics and Management**

(cross-leveled with F\_W 7500). Quantitative modeling approach to examining principles and analysis techniques of fish and wildlife population dynamics. Emphasis on approaches useful in the management of exploited species. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1400; STAT 2500 or NAT\_R 3110; BIO\_SC 3650 or FOREST 4320

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**F\_W 7600: Ecosystem Management**

(cross-leveled with F\_W 4600). Explores the development and implementation of large-scale approaches to restoring and maintaining ecosystems for sustainability. Incorporates ecological, social-economic, and institutional factors that influence natural resource management agencies. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 3650 or FOREST 4320

---

**F\_W 7700: Wildlife Ecology Methods**

(cross-leveled with F\_W 4700). Techniques for conducting wildlife research. Graded on an A-F basis only.

**Credit Hours:** 4

**Recommended:** Ecology and basic statistics course

---

**F\_W 7800: Environmental Toxicology**

(cross-leveled with F\_W 4800). Introduction to classes of chemicals, tools, methods, and approaches used in environmental toxicology. Emphasizes fundamentals of toxicology, dose-response relationships, evaluation of contaminant issues, strategies, and exposure analysis/toxicity assessment strategies in a risk assessment.

**Credit Hours:** 3

**Prerequisites:** CHEM 1320

---

**F\_W 7810: Wildlife Disease Ecology**

(cross-leveled with F\_W 7810). An introduction to the ecology of wildlife diseases. Topics include the definition of a disease, how to measure diseases, impacts on individuals and populations, and the role of disease in wildlife management and conservation.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**F\_W 7880: Waterfowl Ecology and Management**

(cross-leveled with F\_W 4880). Ecology and Management of North American waterfowl and their habitats. Laboratory exercises focuses on identification, life histories, sex and age determination, and survey methods. Lectures cover taxonomy, ecology, behavior, population dynamics, harvest management, and habitat management and conservation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** F\_W 2600; BIO\_SC 3650; instructor's consent

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**F\_W 8001: Topics in Fisheries and Wildlife**

Organized study of selected topics. Subjects and credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**F\_W 8050: Non-Thesis Research in Fisheries and Wildlife**

Independent research not leading to a thesis.

**Credit Hour:** 1-99

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**F\_W 8085: Graduate Problems in Fisheries and Wildlife**

Individualized problems studies to supplement regularly organized graduate courses in Fisheries and Wildlife.

**Credit Hour:** 1-5

**Prerequisites:** consent of supervising faculty member

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**F\_W 8087: Masters Seminar in Fisheries and Wildlife**

Discussions of current developments in forestry, fisheries and wildlife, and critical study of research programs.

**Credit Hour:** 1

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**F\_W 8090: Masters Thesis Research in Fisheries and Wildlife**

Research leading to a thesis or dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**F\_W 8300: Professional Development and Communications**

Intended to foster professional growth and development of graduate students. The course will present a rigorous introduction to professionalism, ethics, career development, and professional communications skills and techniques. Graded on A-F basis only.

**Credit Hour:** 1-3

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**F\_W 8460: Wetland Ecology**

A survey of the wetlands of North America; emphasis on nutrient dynamics, habitat structure, management, legislation and regulations, and man's impacts.

**Credit Hours:** 3

**Prerequisites:** NAT\_R 4100, BIO\_SC 3650 and instructor's consent

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**F\_W 8510: Ecology, Conservation, and Environmental Justice**

The goal of this course is to introduce graduate students in natural resource management and conservation biology to the ecological and management concepts that underlie environmental justice issues, and to explain how broader environmental justice concepts are relevant to natural resource and conservation fields. Graded on A-F basis only. Prerequisites: one undergraduate course from the following list of disciplines: ecology, natural resource management, conservation biology, sociology or equivalent.

**Credit Hours:** 2

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**F\_W 8520: Stream Ecology**

Ecological principles applied to flowing waters. Emphasis on ecological processes within algal, invertebrate and fish communities. The influence of geomorphic processes, hydrologic principles and physical-chemical factors on the biota.

**Credit Hours:** 3

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**F\_W 8530: Quantitative Ecology**

Methods to assess space use patterns, animal abundance and population status are drawn into quantitative framework for making ecological inferences. Practical application and limitations of techniques are emphasized through analysis and interpretation of field and simulated data.

**Credit Hours:** 4

**Recommended:** F\_W 4500 or equivalent

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**F\_W 9001: Selected Topics in Fisheries and Wildlife Sciences for Doctoral Students**

Organized study of selected topics for PhD students in Fisheries and Wildlife Sciences. Subjects and credits may vary from semester to semester. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** PhD standing and instructor consent

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**F\_W 9087: PhD Seminar in Fisheries and Wildlife**

Discussions of current developments in forestry, fisheries and wildlife, and critical study of research programs.

**Credit Hour:** 1

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**F\_W 9090: Ph. D. Dissertation Research in Fisheries and Wildlife**

Research leading to a thesis or dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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## Food Science Courses

**F\_S 1010: Introduction to Viticulture and Enology**

This course will give a general overview of growing grapes (viticulture) and winemaking (enology) with an emphasis on Missouri wines and wineries. This course is the first course in a sequence of courses in the viticulture and enology track of the food science degree program.

**Credit Hour:** 1

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**F\_S 1020: World Food and You**

(same as PLNT\_S 1020). Basic scientific principles involved in production agriculture, food processing, marketing and consumption. Evaluation and understanding of current agriculture issues that affect human foods and required nutrients.

**Credit Hours:** 3

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**F\_S 1030: Food Science and Nutrition**

Basic principles of science and technology as applied to the problem of providing safe, nutritious, and desirable food for man.

**Credit Hours:** 3

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**F\_S 2131: Dairy Products Evaluation**

(same as AN\_SCI 2131). Sensory Evaluation and judging of dairy products.

**Credit Hours:** 2

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**F\_S 2172: Elements of Food Microbiology**

Introductory microbiology course stressing basic principles as related to foods.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing. Restricted to Food Science Students during Early Registration

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**F\_S 2195: Grapes and Wines of the World**

(same as PLNT\_S 2195). Explores the world of wine through study of viticultural principles and practices, wine styles, classifying wine, the winemaking process and New World and Old World wine regions. Learn wine tasting skills and experience wines from around the world. World wine consumption, social and physical health benefits of moderate wine consumption.

**Credit Hours:** 3

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**F\_S 2199: Seminar in Professional Development**

Readings and discussion related to professional development for the industry.

**Credit Hour:** 1

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**F\_S 3190: Study Abroad: International Meat, Dairy and Enology**  
(same as AN\_SCI 3190). This study abroad course introduces students to the meat, dairy and wine industries in Germany or in New Zealand (destinations are on a rotational basis). Students will visit small, medium and large-scale producers and learn about differences in comparison to the US industries. May be repeated once for credit. Prerequisites: instructor's consent

**Credit Hours:** 3

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**F\_S 3190H: Study Abroad: International Meat, Dairy and Enology - Honors**  
(same as AN\_SCI 3190). This study abroad course introduces students to the meat, dairy and wine industries in Germany or in New Zealand (destinations are on a rotational basis). Students will visit small, medium and large-scale producers and learn about differences in comparison to the US industries. May be repeated once for credit. Enrollment is limited to Honors eligible students.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**F\_S 3210: Kitchen Chemistry**

This course is targeted at current Food Science, Hospitality Management, Nutrition or Biochemistry students who wish to study the application of scientific principles to the practice of cooking. This on-line summer class assumes students have access to a working kitchen. Video cooking projects are submitted weekly. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CHEM 1100 or higher

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**F\_S 3214: Principles of Meat Science**

(same as AN\_SCI 3214). Study of the principles involved in the conversion of living animals to meat and by-products; efficient utilization of meat as a food.

**Credit Hours:** 3

**Recommended:** one course in Biological Sciences

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**F\_S 3231: Principles of Dairy Foods Science**

(same as AN\_SCI 3231). Technology, chemistry and microbiology related to milk and its transformation into fluid milk products, fermented dairy foods and spreads. (2 hours of lecture and two hours of laboratory per week.)

**Credit Hours:** 3

**Recommended:** One course in Chemistry or Biological Sciences

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**F\_S 3240: Principles of Viticulture I**

(same as PLNT\_S 3240). Grapevine growth, development, selection, propagation, training systems, pruning, and harvesting; vineyard site selection, design, and development. Graded on A-F basis only. Prerequisites: F\_S 1010 and one of the following: F\_S 2195 or PLNT\_S 2195 or PLNT\_S 2100 or SOIL 2100 or PLNT\_S 2110 or PLNT\_S 2125.

**Credit Hours:** 4

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**F\_S 3385: Problems in Food Science**

Supervised study in a specialized phase of food science and nutrition.

**Credit Hour:** 1-99

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**F\_S 4160: Food Process Engineering**

(same as BIOL\_EN 4160; cross-leveled with BIOL\_EN 7160). This course introduces underlying engineering principles in food processing, and unit operations in food industries. Topics include fluid flow, heat transfer in food processing, preservation process, dehydration, refrigeration, food freezing, psychrometrics, emerging technologies, food packaging, and sustainability. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 1210, AG\_S\_M 1040 or Consent of Instructor

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**F\_S 4199: Food Industry Senior Seminar**

The course explores the structure and the various branches of the food industry. Emphasis is placed on industry trends and the manufacture of specific selected food products and their ingredients. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** F\_S 1030 or equivalent, F\_S 2199 or equivalent; junior or senior standing

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**F\_S 4301: Topics in Food Science**

Instruction in specific subject matter areas in the field of food science and nutrition.

**Credit Hour:** 1-99

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**F\_S 4310: Food Chemistry and Analysis**

(cross-leveled with F\_S 7310). Structure, composition and chemical properties of food.

**Credit Hours:** 4

**Recommended:** 5 hours Chemistry or Biochemistry

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**F\_S 4311: Investigation of Food Properties**

(cross-leveled with F\_S 7311). Study of the chemical and physical properties of foods and the interaction of food components.

**Credit Hours:** 3

**Recommended:** F\_S 4310 or equivalent, or instructor's consent

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**F\_S 4315: Food Chemistry and Analysis Laboratory**

(cross-leveled with F\_S 7315). The quantitative determination of the constituents of food.

**Credit Hours:** 3

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**F\_S 4315W: Food Chemistry and Analysis Laboratory - Writing Intensive**

(cross-leveled with F\_S 7315). The quantitative determination of the constituents of food.

**Credit Hours:** 3

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**F\_S 4330: Principles of Food Processing**

(same as AG\_S\_M 4330; cross-leveled with F\_S 7330, AG\_S\_M 7330). Introduction to basic engineering concepts used to process raw materials.

Principle topics include energy, material balance, fluid flow, heat transfer, refrigeration and freezing, and preservation.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 and AG\_S\_M 1040 or PHYSICS 1210

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**F\_S 4331: Technology of Dairy Products and Ingredients**

(cross-leveled with F\_S 7331). Technology, chemistry, and nutrition of dairy foods as well as functional properties of dairy ingredients.

**Credit Hours:** 3

**Prerequisites:** F\_S 3231 or equivalent

**Recommended:** one Chemistry course

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**F\_S 4340: Principles of Viticulture II**

(same as PLNT\_S 4340). Environmental and biological factors influencing vine physiology and winegrape quality. Irrigation, canopy management, pest and disease control, budgets and current trends in viticulture. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** F\_S 3240 or PLNT\_S 3240

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**F\_S 4344: Processing Muscle Foods**

(same as AN\_SCI 4344; cross-leveled with F\_S 7344, AN\_SCI 7344). Materials and technologies for the manufacture of muscle food products from red meats, poultry and seafood. Experience problem-solving through further processing of complex ingredients and develop skills by practicing operations in a pilot plant facility.

**Credit Hours:** 3

**Recommended:** One Chemistry course

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**F\_S 4345: Principles of Viticulture and Winemaking**

(same as PLNT\_S 4345; cross-leveled with PLNT\_S 7345, F\_S 7345). This course will cover the basics needed by viticulturists and winemakers to understand grape vine growth and vineyard considerations along with winemaking principles. Viticultural topics will include grapevine growth and development, vineyard design and development, cultivar selection, grapevine propagation, training systems, and harvest and pruning. Winemaking topics will include sensory analysis of grapes, chemical, microbiological and technological aspects of winemaking, and the analytical methods used for juice and wine analysis. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1010 and BIO\_SC 1020 or BIO\_SC 1030 or BIO\_SC 1200 or BIO\_SC 1500

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**F\_S 4354: Physiology and Biochemistry of Muscle as Food**

(same as AN\_SCI 4354; F\_S 7354, AN\_SCI 7354). Basic concepts in muscle growth and development of livestock evaluating the effects of environment, welfare, nutrition and genetics regarding muscle metabolism, physiology, and the ultimate condition of muscle as food.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 3254 or MPP 3202 or BIO\_SC 3700; AN\_SCI 2001 or AN\_SCI 2214 or AN\_SCI 2114 or AN\_SCI 3214 or F\_S 3214 or AN\_SCI 3231 or F\_S 3231

**Recommended:** Any Biochemistry or Organic Chemistry course

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**F\_S 4370: Food Microbiology**

(cross-leveled with F\_S 7370). Study of bacteria, yeast and molds. Includes dominant flora, public health significance, characterization of organisms, examination of foods representative of major food groups, spoilage, preservation, food fermentations and physiological groups.

**Credit Hours:** 3

**Prerequisites:** F\_S 2172

**Recommended:** one Biochemistry course

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**F\_S 4375: Food Microbiology Laboratory**

(cross-leveled with F\_S 7375). Examination of foods for microorganisms and characterization of major species.

**Credit Hours:** 2

**Prerequisites or Corequisites:** F\_S 4370

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**F\_S 4380: Sensory Analysis of Food and Beverages**

(cross-leveled with F\_S 7380). Methodological principles of the sensory analysis of food and beverages.

**Credit Hours:** 3

**Prerequisites:** F\_S 1030; junior or senior standing

**Recommended:** one statistics course

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**F\_S 4385: Problems in Food Science**

Advanced problems in a selected field of food science and nutrition.

**Credit Hour:** 1-99

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**F\_S 4390: Optimization and Management of Food and Agricultural Systems**

(same as AG\_S\_M 4390; cross-leveled with F\_S 7390; AG\_S\_M 7390). This course is designed to introduce the student to the concept of layers and interacting systems within an operation and the analytical methods of modeling and simulation to make effective management decisions for optimal system design and function.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher

**Recommended:** AG\_S\_M 1040

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**F\_S 4440: Principles of Winemaking and Wine Chemical Analysis**

(cross-leveled with F\_S 7440). The theoretical and practical basics needed by enologists/winemakers including sensory analysis of grapes; chemical, microbiological and technological aspects of winemaking; and the analytical methods used for juice and wine analysis. Graded on A-F basis only.

**Credit Hours:** 4

**Recommended:** 5 credit hours inorganic chemistry and organic chemistry or concurrent, or instructors consent

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**F\_S 4441: Cellar Operations and Special Vinifications**

(cross-leveled with F\_S 7441). The theoretical and practical basics needed by winemakers to supervise the operations of the winemaking, wine stabilization and packaging equipment. The theoretical and practical basics needed by winemakers to make special wines including rose, dessert, carbonic maceration, and sparkling wines. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** F\_S 4440

**Recommended:** 5 credit hours inorganic chemistry and organic chemistry or instructor's consent

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**F\_S 4941: Internship in Food Science**

Combines study, observation and employment in an area of food science and nutrition. Written reports, faculty evaluation.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

**Recommended:** one Food Science course

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**F\_S 4970: Food Product Development**

(cross-leveled with F\_S 7970). Capstone course integrating the various disciplines of food science to create new food products.

**Credit Hours:** 3

**Prerequisites:** Junior or Senior standing, or instructor's consent.

ENGLSH 1000 required if course is taught Writing Intensive

**Recommended:** 9 credit hours of Food Science

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**F\_S 4970W: Food Product Development - Writing Intensive**

Capstone course integrating the various disciplines of food science to create new food products.

**Credit Hours:** 3

**Prerequisites:** Junior or Senior standing, or instructor's consent.

ENGLSH 1000 required if course is taught Writing Intensive

**Recommended:** 9 credit hours of Food Science

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**F\_S 4980: Food Quality Assurance**

(cross-leveled with F\_S 7360). Capstone course integrating various food science disciplines to comply with regulations concerned with protection of the nation's food supply. Applies practices to insure consumers of healthful foods.

**Credit Hours:** 3

**Prerequisites:** Junior or Senior standing or instructor's consent

**Recommended:** 9 credit hours of food science

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**F\_S 7160: Food Process Engineering**

(same as with BIOL\_EN 7160; cross-leveled with F\_S 4160, BIOL\_EN 4160). This course introduces underlying engineering principles in food processing, and unit operations in food industries. Topics include fluid flow, heat transfer in food processing, preservation process, dehydration, refrigeration, food freezing, psychrometrics, emerging technologies, food packaging, and sustainability. Graded on A-F basis only.

**Credit Hours:** 3

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**F\_S 7310: Food Chemistry and Analysis**

(cross-leveled with F\_S 4310). Structure, composition and chemical properties of food.

**Credit Hours:** 4

**Prerequisites:** 5 hours Chemistry or Biochemistry

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**F\_S 7311: Investigation of Food Properties**

(cross-leveled with F\_S 4311). Study of the chemical and physical properties of foods and the interaction of food components. Lecture.

**Credit Hours:** 3

**Prerequisites:** F\_S 4310 or F\_S 7310 or equivalent, or instructor's consent

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**F\_S 7315: Food Chemistry and Analysis Laboratory**

(cross-leveled with F\_S 4315). The quantitative determination of the constituents of food.

**Credit Hours:** 3

**Prerequisites:** F\_S 4310 or concurrent enrollment

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**F\_S 7330: Principles of Food Processing**

(same as AG\_S\_M 7330; cross-leveled with F\_S 4330, AG\_S\_M 4330). Basic principles of food processing, with emphasis on blanching, pasteurization, commercial sterilization, refrigeration, freezing, concentration, dehydration and packing. Impacts of processing on product quality are evaluated.

**Credit Hours:** 3

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**F\_S 7331: Technology of Dairy Products and Ingredients**

(cross-leveled with F\_S 4331). Technology, chemistry, and nutrition of dairy foods as well as functional properties of dairy ingredients.

**Credit Hours:** 3

**Prerequisites:** one Chemistry course and F\_S 3231 or equivalent

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**F\_S 7344: Processing Muscle Foods**

(same as AN\_SCI 7344; cross-leveled with F\_S 4344, AN\_SCI 4344). Materials and technologies for the manufacture of muscle food products from red meats, poultry and seafood. Experience problem-solving through further processing of complex ingredients and develop skills by practicing operations in a pilot plant facility.

**Credit Hours:** 3

**Prerequisites:** one Chemistry course

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**F\_S 7345: Principles of Viticulture and Winemaking**

(same as PLNT\_S 7345; cross-leveled with PLNT\_S 4345, F\_S 4345). This course will cover the basics needed by viticulturists and winemakers to understand grape vine growth and vineyard considerations along with winemaking principles. Viticultural topics will include grapevine growth and development, vineyard design and development, cultivar selection, grapevine propagation, training systems, and harvest and pruning. Winemaking topics will include sensory analysis of grapes, chemical, microbiological and technological aspects of winemaking, and the analytical methods used for juice and wine analysis. Graded on A-F basis only.

**Credit Hours:** 3

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**F\_S 7350: Microbiology of Fermented Foods**

Physiology, biochemistry, and genetics of microorganisms important in food fermentations. How microorganisms are used in fermentations and how raw materials are converted into finished fermented foods and beverages. Graded on A-F basis only.

**Credit Hours:** 2

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**F\_S 7351: Food Laws and Regulations**

Policy, law and regulation development related to food. Introduction to major US regulatory agencies impacting food law and discussion on major food safety and food labeling laws and regulations. Graded on A-F basis only.

**Credit Hours:** 2

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**F\_S 7354: Physiology and Biochemistry of Muscle as Food**

(same as AN\_SCI 7354; cross-leveled with F\_S 4354, AN\_SCI 4354). Basic concepts in muscle growth and development of livestock evaluating the effects of environment, welfare, nutrition and genetics regarding muscle metabolism, physiology, and the ultimate condition of muscle as food.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 3254 or MPP 3202 or BIO\_SC 3700; AN\_SCI 2001 or AN\_SCI 2214 or AN\_SCI 2114 or AN\_SCI 3214 or F\_S 3214 or AN\_SCI 3231 or F\_S 3231

**Recommended:** Any Biochemistry or Organic Chemistry course

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**F\_S 7360: Food Quality Assurance**

(cross-leveled with F\_S 4980). Capstone course integrating various food science disciplines to comply with regulations concerned with protection of the nation's food supply. Applies practices to insure consumers of healthful foods.

**Credit Hours:** 3

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**F\_S 7370: Food Microbiology**

(cross-leveled with F\_S 4370). Study of bacteria, yeast and molds. Includes dominant flora, public health significance, characterization of organisms, examination of foods representative of major food groups, spoilage, preservation, food fermentations and physiological groups.

**Credit Hours:** 3

**Prerequisites:** F\_S 2172 and one Biochemistry course or concurrent enrollment

---

**F\_S 7375: Food Microbiology Laboratory**

(cross-leveled with F\_S 4375). Examination of foods for microorganisms and characterization of major species.

**Credit Hours:** 2

**Prerequisites:** F\_S 4370 or concurrent enrollment

---

**F\_S 7380: Sensory Analysis of Food and Beverages**

(cross-leveled with F\_S 4380). Methodological principles of the sensory analysis of food and beverages.

**Credit Hours:** 3

**Prerequisites:** F\_S 1030; junior or senior standing

**Recommended:** one statistics course

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**F\_S 7390: Optimization and Management of Food and Agriculture Systems**

(same as AG\_S\_M 7390; cross-leveled with F\_S 4390, AG\_S\_M 4390). This course is designed to introduce the student to the concept of layers and interacting systems within an operation and the analytical methods of modeling and simulation to make effective management decisions for optimal system design and function.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher

**Recommended:** AG\_S\_M 1040

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**F\_S 7440: Principles of Winemaking and Wine Chemical Analysis**

(cross-leveled with F\_S 4440). The theoretical and practical basics needed by enologist/winemakers including sensory analysis of grapes; chemical, microbiological and technological aspects of winemaking; and the analytical methods used for juice and wine analysis. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** 5 hours inorganic chemistry and organic chemistry or concurrent, or instructor's consent

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**F\_S 7441: Cellar Operations and Special Vinifications**

(cross-leveled with F\_S 4441). The theoretical and practical basics needed by winemakers to supervise the operations of the winemaking, wine stabilization and packaging equipment. The theoretical and practical basics needed by winemakers to make special wines including rose, dessert, carbonic maceration, and sparkling wines. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** 5 credit hours inorganic chemistry and organic chemistry and F\_S 4440 or instructor's consent

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**F\_S 7941: Internship in Food Science**

Combines study, observation and employment in an area of food science and nutrition. Written reports, faculty evaluation.

**Credit Hour:** 1-6

**Prerequisites:** One Food Science course and instructor's consent

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**F\_S 7970: Food Product Development**

Capstone course integrating the various disciplines of food science to create new food products.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000, and instructor's consent

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**F\_S 8085: Problems in Food Science**

Individual studies include a minor research problems.

**Credit Hour:** 1-99

**Prerequisites:** Restricted to Food Science MS Students only

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**F\_S 8087: Seminar in Food Science**

Provides students with opportunities for development in depth of advanced aspects of food science through reviews of research in progress and of current scientific publications.

**Credit Hour:** 1

**Prerequisites:** Masters standing

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**F\_S 8090: Research in Food Science**

Original investigations, usually in connection with one of the research projects of Agricultural Experiment Station. Written report required. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** Restricted to Food Science MS Students Only

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**F\_S 8100: Strategic Human Resource Management in Hospitality**

This course is designed to familiarize students with a wide range of theories, concepts, business practices and applications associated with managing human resources in business. Topics include micro-human resource issues such as recruitment, hiring, performance measurements, employee relations, and retention, macro human resource topics such as organizational performance measurement, and interrelationship between micro and macro human resources such as individual differences and job performance and organizational performance. Students will learn the key theories and applications through reading, discussion, research, and writings. Graded on A-F only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 7100

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**F\_S 8110: Advanced Hospitality Marketing**

This course provides students with an advanced-level view of marketing strategies with the focus in hospitality and tourism. Students will be exposed to a general overview of theoretical frameworks and seminal work in this field. They will gain appreciation of the contemporary social-scientific research on marketing and persuasion. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 7110 or instructor's consent

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**F\_S 8180: Strategic Management and Competitive Strategy in the Hospitality Industries**

This course introduces to students and enables them to develop a comprehensive understanding of the concepts and principles of strategic management and competitive strategy as applied to the hospitality industries. Students will be acquainted with the key concepts of strategic management through discussions, research, critiquing and writings. This course will cover a wide variety of topics related to environmental scanning, strategic direction, organizational structure and culture, administration and evaluation of existing and challenging business practices, concepts and theories in the management distinctive to that of hospitality, tourism and service. Emphasis will place on the identification of relevant interdisciplinary paradigms and theory and research techniques for analysis, using advanced concepts and quantitative methods in the scientific investigation problems related to hospitality. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 7180 or instructor's consent

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**F\_S 8263: Service Operations Management: Revenue Management**

This course offers an opportunity for students to learn the theory, concepts, and knowledge applied in service operations management. Students will find them useful in trying to cope with the dilemmas faced by operating managers in the hospitality industry. Especially, the course focuses on revenue management.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 3310 or instructor's consent

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**F\_S 8301: Ethnic Foods: Food Safety, Food Protection and Defense Challenges**

An overview of the safety concerns and risks associated with ethnic and imported ethnic foods. Graded on A-F basis only.

**Credit Hours:** 2

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**F\_S 8302: Food Protection and Defense-Essential Concepts**

This course presents foundational concepts relevant to protecting the food supply from intentional contamination. Graded on A-F basis only.

**Credit Hours:** 2

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**F\_S 8303: A Multidisciplinary Overview of Food Safety and Security**

This course provides students with an understanding of a host of multidisciplinary aspects of food safety, particularly in the context of public health. Graded on A-F basis only.

**Credit Hours:** 2

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**F\_S 8304: HACCP**

This course focuses on procedures and processes which can affect the overall microbiological safety of food and the Hazard Analysis Critical Control Point (HACCP) system. Graded on A-F basis only.

**Credit Hours:** 2

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**F\_S 8401: Topics in Food Science**

Specialized topics in the area of food science and nutrition.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**F\_S 8402: Research Methods in Food Science**

(same as BIOL\_EN 8402). Introduction to research. Defining research problems, developing hypotheses, searching scientific literature, designing experiments, presenting data, writing scientific papers and theses, making oral presentations.

**Credit Hours:** 2

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**F\_S 8404: Advanced Food Microbiology and Biotechnology**

Covers basic principles in biotechnology and applied food microbiology, including current topics of interest in food biotechnology. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 2

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**F\_S 8405: Advanced Microbiology of Foods**

Principles of microbial physiology, taxonomy, analytical methods applied to study of microorganisms added to foods and those causing food spoilage or food-borne illness. Roles of microorganisms in manufacture/distribution of foods.

**Credit Hours:** 3

**Prerequisites:** F\_S 4370 or equivalent

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**F\_S 8406: Foodborne Toxicants**

This course covers human risks from foodborne toxicants, remediation and detoxification strategies for key foodborne toxicants and major modes of toxicity of key foodborne toxicants. Principles of food toxicology

will be applied to optimize hazard analysis within HACCP for the prevention of foodborne toxicities. Graded on A-F basis only.

**Credit Hours:** 2

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**F\_S 8408: Risk Assessment for Food, Agriculture and Veterinary Medicine**

Risk assessment principles as applied to biological systems. Exposure and effects characterization in human and animal health and ecological risk assessment. Risk analysis frameworks and regulatory decision-making. Introduction to quantitative methods for risk assessment using epidemiological and distributional analysis. Uncertainty analysis. Graded on A-F basis only.

**Credit Hours:** 2

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**F\_S 8410: Food Chemistry II**

Study of chemical content of food, emphasizing aspects that exist uniquely in food.

**Credit Hours:** 4

**Prerequisites:** F\_S 4310 or equivalent

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**F\_S 8414: Meat Quality**

(same as AN\_SCI 8414). Discussion of factors affecting meat quality in beef, pork, lamb and poultry. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** F\_S 3214 or equivalent

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**F\_S 8424: Meat Investigations**

(same as AN\_SCI 8424). Discussion of literature, special reports, assigned readings, techniques, interpretation of results.

**Credit Hours:** 3

**Prerequisites:** F\_S 4344 and F\_S 4310 or equivalent

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**F\_S 8440: Functional Foods and Nutraceuticals**

Principles and challenges involved in developing foods with health benefits beyond basic nutrition; efficacy, safety, regulatory and marketing aspects of functional foods and nutraceutical; current controversies and evidence of therapeutic properties of functional foods and Dietary supplements. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 3630 or equivalent and F\_S 4310 or equivalent, or instructor's consent

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**F\_S 8460: Food Biopolymers**

Study of physical, chemical, and functional properties of food biopolymers and their applications in food and other industries. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Organic chemistry and food chemistry

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**F\_S 8470: Advanced Food Technology**

To understand the physical and chemical changes that occur during the processing and storage of food; study the quality and safety issues of foods and learn traditional and recent advances in food science and technology.

**Credit Hours:** 3

**Prerequisites:** F\_S 4310, or equivalent or instructor's consent

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**F\_S 9085: Problems in Food Science**

Individual studies includes minor research problems.

**Credit Hour:** 1-99

**Prerequisites:** Food Science PhD students

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**F\_S 9087: Seminar in Food Science**

Provides students with opportunities for development in depth of advanced aspects of food science through reviews of research in progress and of current scientific publications. Prerequisites: PhD standing

**Credit Hour:** 1

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**F\_S 9090: Research in Foods Science**

Original investigation of advanced nature, leading to dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** Food Science PhD students

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**F\_S 9402: Advanced Research Methods in Food and Hospitality Systems**

This course provides doctoral students with introduction and review of research methods available for use in the study of food science, hospitality management and agricultural system management. Hence, the emphasis of this course is on empirical studies in the field, and will examine research conducted by scholars in the academic area. This course assists as baseline preparation for graduate students' continuing work in the graduate program. Specifically, the course provides students with knowledge and research experience in regard to 1) research fundamentals and backgrounds, 2) types of research, and 3) data analysis.

**Credit Hours:** 3

**Prerequisites:** Introductory research method course or statistics course; instructor's consent required

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## Forestry Courses

**FOREST 2151: Dendrology**

An introduction to the biology of trees, emphasizing identification in the field, taxonomy, ecology, geographic distribution and economic significance of forest species.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1200 or PLNT\_S 2120

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**FOREST 2541: Forest Utilization**

Field studies of logging and milling of timber.

**Credit Hour:** 1

**Prerequisites:** SOIL 2100, FOREST 2151

**Corequisites:** FOREST 2540, FOREST 2542, FOREST 2543, FOREST 2544 and FOREST 2545

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**FOREST 2542: Forest Measurement and Inventory**

Field measurement of standing trees including diameter, height and age. Estimation of forest timber resources using a variety of sampling schemes and techniques. Introduction to Arcview and growth models.

**Credit Hour:** 1

**Prerequisites:** SOIL 2100, FOREST 2151

**Corequisites:** FOREST 2543 and FOREST 2544

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**FOREST 2543: Forest Ecology Field Studies**

Field studies of vegetation, soils, habitats and ecological units. Application of ecological principles of natural resource management and understanding of natural and managed forested communities with an emphasis on southeastern Missouri.

**Credit Hour:** 1

**Prerequisites:** SOIL 2100 and FOREST 2151

**Corequisites:** FOREST 2542 and FOREST 2544

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**FOREST 2544: Introduction to Silviculture and Management**

Management objectives and stand prescriptions, regeneration and intermediate silvicultural treatments, management on private and federal forest lands, tree evaluation and timber marking.

**Credit Hour:** 1

**Prerequisites:** SOIL 2100 and FOREST 2151

**Corequisites:** FOREST 2542 and FOREST 2543

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**FOREST 2545: Forest Management Planning**

Preparation and presentation of a written forest management plan using material and data developed in prerequisite courses.

**Credit Hour:** 1

**Prerequisites:** SOIL 2100, FOREST 2151

**Corequisites:** FOREST 2540, FOREST 2541, FOREST 2542, FOREST 2543 and FOREST 2544 concurrently

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**FOREST 3207: Forest Fire Control and Use**

Fundamentals of all phases of fire protection. Objectives and techniques in use of fire.

**Credit Hours:** 2

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**FOREST 3212: Forest Health and Protection**

Fundamental concepts of forest pathology and forest entomology including emphasis on ecological principles and management strategies.

**Credit Hours:** 4

**Recommended:** FOREST 2151

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**FOREST 3212W: Forest Health and Protection - Writing Intensive**

Fundamental concepts of forest pathology and forest entomology including emphasis on ecological principles and management strategies.

**Credit Hours:** 4

**Recommended:** FOREST 2151

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**FOREST 3290: Urban Forestry**

The culture and management of trees in urban areas, including ownership patterns, species composition, growth environment, amenities provided and evaluation. One-day field trip required.

**Credit Hours:** 2

**Prerequisites:** FOREST 2151 or PLNT\_S 2210

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**FOREST 3300: Problems in Forestry**

Problems in Forestry

**Credit Hour:** 1-99

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**FOREST 3350: Special Readings in Forestry**

Critical review of current literature and research in forestry, fisheries and wildlife, and methods of presenting research results.

**Credit Hour:** 1-99

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**FOREST 4320: Forest Ecology**

Principles of community, ecosystem, and population ecology and examination of the influence of environmental factors and human activity on forest dynamics, composition, structure and function.

**Credit Hours:** 5

**Prerequisites:** At least Junior standing. Recommended FOREST 2151

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**FOREST 4320W: Forest Ecology - Writing Intensive**

Principles of community, ecosystem, and population ecology and examination of the influence of environmental factors and human activity on forest dynamics, composition, structure and function.

**Credit Hours:** 5

**Prerequisites:** At least Junior standing

**Recommended:** FOREST 2151

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**FOREST 4330: Practice of Silviculture**

(cross-leveled with FOREST 7330). Applied ecological principles, cultural practices, tree improvement techniques and treatments to forest stands and other lands for systematic production of goods and services.

**Credit Hours:** 4

**Prerequisites:** FOREST 4320

**Recommended:** FOREST 4375

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**FOREST 4350: Forest Economics**

Economic principles applied to production/marketing of goods and services from forest land: emphasizes capital and land factors and investment alternatives related to time.

**Credit Hours:** 3

**Prerequisites:** ABM 1042 or ABM 1041 or ABM 2070

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**FOREST 4360: Photogrammetry, Inventory and Models**

Applied course in the area of aerial photogrammetry, forest inventory, and forest growth models for developing, maintaining, and utilizing these tools in a forest management.

**Credit Hours:** 3

**Recommended:** NAT\_R 3110

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**FOREST 4375: Forest Stand Dynamics**

Examines the development of forest structure, the role of disturbance on forest change and the use of this knowledge in applying silvicultural systems. Both forest stand dynamics theories, structure diagrams, forest

growth models, and long term data sets are used to understand stand dynamics.

**Credit Hours:** 3

**Recommended:** FOREST 4330

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**FOREST 4380: Forest Resource Management**

Teaches resource managers how to develop a plan for the management of forest resources using managerial, economic, silvical and wildlife techniques for its enhancement and to meet the landowner's objectives.

**Credit Hours:** 3

**Prerequisites:** FOREST 4330 and FOREST 4350; Senior Standing only

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**FOREST 4385: Agroforestry I: Theory, Practice and Adoption**

Understand biophysical, ecological, social and economic features of temperate and tropical agroforestry. Covers the basics of design, planning and implementation of agroforestry practices.

**Credit Hours:** 3

**Prerequisites:** Senior standing

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**FOREST 4390: Watershed Management and Water Quality**

(cross-leveled with FOREST 7390). Hydrologic processes on wildland watersheds. Effects of forest land management on streamflow, erosion and water quality.

**Credit Hours:** 3

**Prerequisites:** MATH 1400; Senior standing only

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**FOREST 4940: Forestry Internship**

Supervised professional experience with an approved public or private organization. May be repeated for credit. Graded on S/U basis only.

**Credit Hour:** 1-12

**Prerequisites:** Instructor's consent required

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**FOREST 4950: Forestry Undergraduate Research**

Research apprenticeship with a faculty mentor. Students are expected to develop initial concept for the research, design experiments, collect data, and analyze data with faculty input, oversight, and guidance. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Senior standing, STAT 2530

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**FOREST 4994: Senior Honors Research in Forestry**

**Credit Hour:** 1-3

**Prerequisites:** Instructor Consent Required

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**FOREST 4995: Senior Honors Research in Forestry**

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**FOREST 7301: Topics in Forestry**

Organized study of selected topics. Intended for upper-division and graduate students. Subjects and credit may vary from semester to semester.

**Credit Hour:** 1-99

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**FOREST 7320: Forest Ecology**

(cross-leveled with FOREST 4320). Principles of community, ecosystem, and population ecology and examination of the influence of environmental factors and human activity on forest dynamics, composition, structure and function.

**Credit Hours:** 5

**Prerequisites:** FOREST 2151 or BIO\_SC 3210 or instructor's consent

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**FOREST 7330: Practice of Silviculture**

(cross-leveled with FOREST 4330). Applied ecological principles, cultural practices, tree improvement techniques and treatments to forest stands and other lands for systematic production of goods and services.

**Credit Hours:** 4

**Prerequisites:** FOREST 4320

---

**FOREST 7350: Forest Economics**

(cross-leveled with FOREST 4350). Economic principles applied to production/marketing of goods and services from forest land: emphasizes capital and land factors and investment alternatives related to time.

**Credit Hours:** 3

**Prerequisites:** Mathematics requirement completed; AG\_EC 1041, or AG\_EC 3080

---

**FOREST 7360: Photogrammetry, Inventory and Models**

(cross-leveled with FOREST 4360). Applied course in the area of aerial photogrammetry, forest inventory, and forest growth models for developing, maintaining, and utilizing these tools in a forest management.

**Credit Hours:** 3

---

**FOREST 7375: Forest Stand Dynamics**

(cross-leveled with FOREST 4375). Examines the development of forest structure, the role of disturbance on forest change and the use of this knowledge in applying silvicultural systems. Both forest stand dynamics theories, structure diagrams, forest growth models, and long term data sets are used to understand stand dynamics.

**Credit Hours:** 3

**Prerequisites:** FOREST 4330 or instructor's consent

---

**FOREST 7380: Forest Resource Management**

(cross-leveled with FOREST 4380). Teaches resource managers how to develop a plan for the management of forest resources using managerial, economic, silvical and wildlife techniques for its enhancement and to meet the landowner's objectives.

**Credit Hours:** 3

**Prerequisites:** FOREST 4330 and FOREST 4350

---

**FOREST 7385: Agroforestry I: Theory, Practice and Adoption**

(cross-leveled with FOREST 4385). Understand biophysical, ecological social and economic features of temperate and tropical agroforestry. Covers the basics of design, planning and implementation of agroforestry practices.

**Credit Hours:** 3

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**FOREST 7390: Watershed Management and Water Quality**

(cross-leveled with FOREST 4390). Hydrologic processes on wildland watersheds. Effects of forest land management on streamflow, erosion and water quality.

**Credit Hours:** 3

**Prerequisites:** MATH 1400 or instructor's consent

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**FOREST 8050: Research in Forestry**

Original research not leading to preparation of dissertation.

**Credit Hour:** 1-99

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**FOREST 8090: Masters Thesis Research in Forestry**

Original investigation for presentation in a M.S. thesis. Graded on a S/U basis only.

**Credit Hour:** 1-10

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**FOREST 8385: Ecological Principles of Agroforestry**

The course prepares students to develop an understanding of the complexity of agroforestry. Students will critically analyze classical and contemporary ecological theories and apply them in designing agroforestry practices to solve complex production and environmental issues. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FOREST 4385 or FOREST 7385 or permission of instructor

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**FOREST 8390: Physical Hydrology**

Students will obtain an understanding of hydrologic processes in terms of the occurrence, distribution and movement of water spanning the atmosphere and lithosphere. Students will have an opportunity to develop an understanding of physical processes governing mass and energy flux in wildland and anthropogenic systems. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** College Physics and Calculus I

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**FOREST 8395: Agroforestry Economics and Policy**

This course discusses basic economic and financial principles, and their applications in agroforestry. Specifically, the discussion includes market demand and supply, market failure, non-market valuations, cost and benefit analysis, short term and long term economic analysis, economic valuation of ecosystem services, and the applications in agroforestry. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FOREST 4385 or FOREST 7385, ABM 1041 or permission of instructor

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**FOREST 8401: Topics in Forestry**

Organized study of selected topics. Subjects and credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**FOREST 8430: Applied Silviculture**

Ecological and economic factors affecting application of silviculture in each of eighteen forest regions in United States.

**Credit Hours:** 3

**Prerequisites:** FOREST 4330

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**FOREST 8450: Forest Soils**

Physical, chemical and biological properties of forest soils in relation to tree growth.

**Credit Hours:** 3

**Prerequisites:** FOREST 4330 or instructor's consent

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**FOREST 8460: Advanced Forest Ecology**

Lecture/discussion based course emphasizing contemporary and classic ecological studies and concepts in the context of current forest ecology issues and research. Prerequisites: undergraduate ecology course

**Credit Hours:** 3

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**FOREST 8490: Advanced Forest Management**

Modern quantitative methods to facilitate decision-making in harvest scheduling and regulation, land use allocation, and production planning in natural resource management.

**Credit Hours:** 3

**Prerequisites:** FOREST 4380

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**FOREST 8515: Advanced Forest Biometrics**

An introduction to the topics and philosophy of ecological modeling. The course will guide students through the process of developing a conceptual model, formalizing the model, formulating, parameterizing, and running the model as well as analyzing the results.

**Credit Hours:** 3

**Prerequisites:** STAT 7070 or instructor's consent

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**FOREST 8530: Ecosystem Management: The Human Dimension**

Overview of cultural, social, political and economic dimensions of natural resource problems and issues from an ecologically grounded management perspective.

**Credit Hours:** 3

**Prerequisites:** NAT\_R 4353 or equivalent

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**FOREST 8620: Plant-Water Relations**

Absorption, translocation, utilization and loss of water by plants. Biophysics of water movement in the soil-plant-atmosphere continuum. Effects of water deficits on physiological processes.

**Credit Hours:** 3

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**FOREST 9087: Seminar in Forestry**

Discussions of current developments in Forestry, and critical study of research programs. Graded on S/U basis only.

**Credit Hour:** 1

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**FOREST 9090: Dissertation Research in Forestry**

Original investigation for presentation in a doctoral dissertation. Graded on a S/U basis only.

Credit Hour: 1-10

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## French Courses

### **FRENCH 1100: Elementary French I**

French 1100 is a beginning French course, but many students will have had 1 or 2 years of high school French. Students will learn using all four skills--listening, speaking, reading, and writing with an emphasis on communication. The class meets four days a week and will be taught in French. The pace of the course is much faster than a high school class and should be accompanied by 2 hours of study for each hour spent in class. Class time is used to integrate new structures and vocabulary.

**Credit Hours:** 4

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### **FRENCH 1100H: Elementary French I - Honors**

French 1100 Honors is an introductory course that emphasizes correct pronunciation, speaking and class interaction. French is the language of instruction and students are expected to quickly grasp concepts taught in French. The class meets four days a week. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Honors eligibility required

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### **FRENCH 1200: Elementary French II**

The second course of the beginning language sequence is the continuation of FRENCH 1100. It places equal emphasis on the four skills; listening, speaking, reading, and writing. Students who have prior knowledge of French are encouraged to take this course.

**Credit Hours:** 4

**Recommended:** Grade in the C range or better in FRENCH 1100 or equivalent

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### **FRENCH 1200H: Elementary French II - Honors**

The second course of the beginning language sequence is the continuation of FRENCH 1100. It places equal emphasis on the four skills; listening, speaking, reading, and writing. Students who have prior knowledge of French are encouraged to take this course.

**Credit Hours:** 4

**Prerequisites:** Honors eligibility required

**Recommended:** Grade in the C range or better in FRENCH 1100 or equivalent

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### **FRENCH 2001: Undergraduate Topics in French-General**

Organized study of selected topics. Subjects may vary from semester to semester. May be repeated with consent of department.

**Credit Hour:** 1-3

**Prerequisites:** FRENCH 1200 with a grade of C or better

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### **FRENCH 2100: Elementary French III**

A multi-skill course following FRENCH 1200, centering on cultural/literary reading, and including a grammar review, practice of the spoken language, as well as some practice in written expression.

**Credit Hours:** 4

**Recommended:** Grade in the C range or better in FRENCH 1200, or equivalent course

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### **FRENCH 2100H: Elementary French III - Honors**

A multi-skill course following FRENCH 1200, centering on cultural/literary reading, and including a grammar review, practice of the spoken language, as well as some practice in written expression.

**Credit Hours:** 4

**Prerequisites:** grade in the C range or better in FRENCH 1200, or equivalent course. Honors eligibility required

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### **FRENCH 2160: Intermediate French Composition and Conversation**

A course designed to develop the ability to speak, read, and write in French via the reading of French short stories and/or a short novel. Grammar review.

**Credit Hours:** 3

**Prerequisites:** FRENCH 2100

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### **FRENCH 2310: French Civilization**

Open to any student interested. No knowledge of French required. May not be included in area of concentration in French.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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### **FRENCH 2310W: French Civilization - Writing Intensive**

Open to any student interested. No knowledge of French required. May not be included in area of concentration in French.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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### **FRENCH 2320: French Literature and Thought in English Translation I**

This course examines how the masterworks of French literature, from the Middle Ages to the eighteenth century, have influenced Western literary, cultural and philosophical traditions.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent

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### **FRENCH 2330: French Literature in Translation II**

This course examines how the masterworks of French literature of the nineteenth and twentieth centuries have influenced Western literary, cultural and philosophical traditions.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent

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### **FRENCH 2350: New World Francophone Literature in Translation**

A survey of literature written by Caribbean writers of French expression. Writers include M. Conde, P. Chamoiseau, A. Césaire, E. Glissant, S. Bart-Schwartz, R. Depestre and G. Etienne.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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### **FRENCH 3001: Topics in French-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing, departmental consent for repetition

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**FRENCH 3004: Topics in French-Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing, departmental consent for repetition

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**FRENCH 3005: Topics in French-Humanities/Fine Arts**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent for repetition. Prerequisites: sophomore standing

**Credit Hour:** 1-3

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**FRENCH 3160: Advanced French Composition and Conversation I**

Development of more sophisticated skills of written and oral expression.

**Credit Hours:** 3

**Prerequisites:** FRENCH 2160 or equivalent

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**FRENCH 3180: Les Fondations de la Civilisation Francaise**

Overview of French civilization from its origins to French Revolution. Studies will examine key cultural objects from art, literature, and popular culture as well as political and historical movements that have shaped development of French civilization. Ideal for students interested in engaging with issues, debates, and problems that helped to define the nascent French state.

**Credit Hours:** 3

**Prerequisites:** FRENCH 2160

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**FRENCH 3280: Commercial French**

Composition and Conversation course based on materials related to the French business world. Acquisition of business-related vocabulary. Introduction to French business operations and correspondence.

**Credit Hours:** 3

**Prerequisites:** FRENCH 2160 or equivalent

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**FRENCH 3410: Introduction to Literary Analysis**

Will acquaint students with vocabulary required for analysis of literary texts. Along with the traditional French method of poetry explication, students will learn to analyze the major literary genres (poetry, theatre, prose).

**Credit Hours:** 3

**Prerequisites:** FRENCH 3160

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**FRENCH 3420: Introduction to French Literature I**

Study of selected masterpieces of French literature from the Middle Ages through the 18th century.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3160 and FRENCH 3410

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**FRENCH 3420W: Introduction to French Literature I - Writing Intensive**

Study of selected masterpieces of French literature from the Middle Ages through the 18th century..

**Credit Hours:** 3

**Prerequisites:** FRENCH 3160 and FRENCH 3410

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**FRENCH 3430: French Masterworks: Texts and Contexts**

This course will prepare students to analyze masterworks of French expression and develop an understanding of the historical and literary contexts in which they were written. It will also promote a deeper awareness of the French-speaking world's cultural specificity and diversity. Tracking texts across time periods (medieval to present) and, on occasion, across continents as well (Africa, Canada, the Caribbean), students will focus on how literary expression responds to cultural crises and consider how writers deal with issues of gender, race, ideology, class and/or self-actualization. As they make their way through a select group of works, students will have the opportunity to hone their language skills in all four fundamental areas (speaking, listening, reading comprehension, and writing). Beyond the scope of literary texts, reference to a variety of visual arts will inform and enhance class discussion.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3160

**Recommended:** FRENCH 3410

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**FRENCH 3430W: French Masterworks: Texts and Contexts - Writing Intensive**

This course will prepare students to analyze masterworks of French expression and develop an understanding of the historical and literary contexts in which they were written. It will also promote a deeper awareness of the French-speaking world's cultural specificity and diversity. Tracking texts across time periods (medieval to present) and, on occasion, across continents as well (Africa, Canada, the Caribbean), students will focus on how literary expression responds to cultural crises and consider how writers deal with issues of gender, race, ideology, class and/or self-actualization. As they make their way through a select group of works, students will have the opportunity to hone their language skills in all four fundamental areas (speaking, listening, reading comprehension, and writing). Beyond the scope of literary texts, reference to a variety of visual arts will inform and enhance class discussion.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3160

**Recommended:** FRENCH 3410

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**FRENCH 3440: Francophone Literature of North America**

A survey course of Francophone literature of New France, Louisiana territory and the French West Indies from its beginnings in the seventeenth century to the late twentieth century. Selected novels, poems and plays will be studied in their historical and social context.

**Credit Hours:** 3

**Prerequisites:** FRENCH 2160

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**FRENCH 3710: Survey of Minority and Creole Languages of the U.S. and the Caribbean**

(same as SPAN 3710 and LINGST 3710). Analysis of the state of the minority languages of the U.S. and the Creole languages of the Caribbean with particular attention to the social status of these languages and speakers' attitudes toward them in the context of ethnic, cultural and national identity (taught in English).

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**FRENCH 4004: Topics in French-Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** junior standing, departmental consent for repetition

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**FRENCH 4070: Intensive Beginning French**

Rapid acquisition of a reading knowledge of French. Cannot be taken to fulfill undergraduate language requirement.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**FRENCH 4120: Foreign Language Teaching Methodology**

(same as SPAN 4120, LATIN 4121; cross-leveled with FRENCH 7120, SPAN 7120). Theory and techniques of current foreign language methodology and their application in the classroom. Presentation of instructional projects, classroom observations, and strategies for classroom management. May not be used toward Arts and Science major.

**Credit Hours:** 3

**Prerequisites:** departmental consent

---

**FRENCH 4130: Stylistics**

(cross-leveled with FRENCH 7130). A technical study of French as a means of communication and of self-expression, involving levels of meaning, rhetorical structure, and textual analysis.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3160 or FRENCH 3280

**Recommended:** FRENCH 3420, FRENCH 3430 or FRENCH 3410

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**FRENCH 4130W: Stylistics - Writing Intensive**

A technical study of French as a means of communication and of self-expression, involving levels of meaning, rhetorical structure, and textual analysis.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3160 or FRENCH 3280

**Recommended:** FRENCH 3420, FRENCH 3430 or FRENCH 3410

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**FRENCH 4410: French Medieval Literature**

(cross-leveled with FRENCH 7410). Survey of representative works from the principal literary genres of the Middle Ages: epic (La Chanson de Roland), courtly romance (Chretien de Troyes), chantefable (Aucassin et Nicolette), short story (lai, fabliau), theatre, and lyric poetry.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 4420: French Renaissance**

(cross-leveled with FRENCH 7420). Survey of prose and poetry of the sixteenth century with significant emphasis on Montaigne, Rabelais, and the poetry of the Pleiade.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 4440: Eighteenth-Century French Literature**

(cross-leveled with FRENCH 7440). Through systematic and representative readings, this course familiarizes students with the literary trends and intellectual currents of 18th century France. The course includes works by Montesquieu, Voltaire, Rousseau, Laclos, Diderot, Marivaux, Prevost, and Beaumarchais.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 4460: Twentieth-Century French Novel**

(cross-leveled with FRENCH 7460). The course is a historical survey that deals with three topics: the modernist writings of the early twentieth century. (Proust, Gide, and Colette), existentialism of the mid-century (Sartre, Camus), and contemporary forms of writing (Beckett, Robbe-Grillet, Sarraute, among others).

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 4470: Introduction to the Contemporary French Theatre**

Survey of twentieth-century French drama. Students read plays by Claudel, Giraudoux, Sartre, Anouilh, Beckett, Ionesco, Genet, and others. Strong emphasis is played on class discussions. Written analyses of two plays are assigned, and there is an hourly exam and a final.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 4490: Nineteenth-Century French Novel**

(cross-leveled with FRENCH 7490). Study of the three major currents in prose fiction: romanticism, realism, and naturalism. Representative readings from Chateaubriand, Balzac, Stendhal, Flaubert, and Zola are included.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 4710: History of the French Language**

(same as LINGST 4710). Study of the French language from its Latin origin to the present. The course includes a survey of the external social, political, and historical factors that have affected the development of French, followed by a diachronic study of the internal structural features of the language.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 4720: Structure of Modern French**

(same as LINGST 4720; cross-leveled with FRENCH 7720, LINGST 7720). An introductory presentation of the phonological and syntactic systems of contemporary standard French.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3160 or equivalent or instructor's consent

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**FRENCH 4820: Blogging the World: The Web in Cultural Context**

(same as GERMAN 4820 and RUSS 4820). Innovative interdisciplinary course addresses issues of access to international news and specific cultural context working in cross-disciplinary teams. Students in

journalism, foreign language, international studies, political science and various other disciplines track cultural developments and information on non-US Web sites, blogs and digital social networks along with exploring various historical forms of communication that preceded the digital era of the Web. Students analyze the potential and limitations/ effects of blogs and the web in specific contemporary cultural contexts and as part of the broader historical evolution of the web. The course is taught in English. The goal of this course is two-fold; students learn the particulars of web blogging, explore various features of the contemporary social network landscape while focusing on the concept of culture, in particular the cultures of Europe and the US. Questions asked are: what is culture? What is common or popular right now in other cultures? And how do new social networks amplify or alter certain features or culture across national and international contests?

**Credit Hours:** 3

**Prerequisites:** sophomore standing required

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**FRENCH 4820W: Blogging the World: The Web in Cultural Context - Writing Intensive**

(same as GERMAN 4820 and RUSS 4820). Innovative interdisciplinary course addresses issues of access to international news and specific cultural context working in cross-disciplinary teams. Students in journalism, foreign language, international studies, political science and various other disciplines track cultural developments and information on non-US Web sites, blogs and digital social networks along with exploring various historical forms of communication that preceded the digital era of the Web. Students analyze the potential and limitations/ effects of blogs and the web in specific contemporary cultural contexts and as part of the broader historical evolution of the web. The course is taught in English. The goal of this course is two-fold; students learn the particulars of web blogging, explore various features of the contemporary social network landscape while focusing on the concept of culture, in particular the cultures of Europe and the US. Questions asked are: what is culture? What is common or popular right now in other cultures? And how do new social networks amplify or alter certain features or culture across national and international contests?

**Credit Hours:** 3

**Prerequisites:** sophomore standing required

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**FRENCH 4960: Special Readings in French**

Independent study through readings, conferences, reports.

**Credit Hour:** 1-3

**Prerequisites:** FRENCH 3420 and FRENCH 3430 and departmental consent

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**FRENCH 4980: Special Themes in French**

Subject varies according to instructor. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 4993: The Capstone Experience in French**

This course is required of all majors. Topics vary but all courses synthesize and review essential components of the major: speaking, writing, reading in French, and the ability to think critically and analytically.

**Credit Hours:** 3

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**FRENCH 4993H: The Capstone Experience in French - Honors**

This course is required of all majors. Topics vary but all courses synthesize and review essential components of the major: speaking, writing, reading in French, and the ability to think critically and analytically.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**FRENCH 7004: Topics in French-Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent for repetition.

**Credit Hour:** 1-99

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**FRENCH 7120: Foreign Language Teaching Methodology**

(same as SPAN 7120, cross-leveled with SPAN 4120, FRENCH 4120, LATIN 4121). Theory and techniques of current foreign language methodology and their application in the classroom. Presentation of instructional projects, classroom observations, and strategies for classroom management. May not be used toward Arts and Science major.

**Credit Hours:** 3

---

**FRENCH 7130: Stylistics**

(same as FRENCH 4130). A technical study of French as a means of communication and of self-expression, involving levels of meaning, rhetorical structure, and textual analysis.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3160 or FRENCH 3280 and FRENCH 3420 or FRENCH 3430

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**FRENCH 7410: French Medieval Literature**

(cross-leveled with FRENCH 4410).

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 7420: French Renaissance**

(cross-leveled with FRENCH 4420). Survey of prose and poetry of the sixteenth century with significant emphasis on Montaigne, Rabelais, and the poetry of the Pleiade.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 7440: Eighteenth-Century French Literature**

(cross-leveled with FRENCH 4440). Through systematic and representative readings, this course familiarizes students with the literary trends and intellectual currents of 18th century France. The course includes works by Montesquieu, Voltaire, Rousseau, Laclous, Diderot, Marivaux, Prevost, and Beaumarchais.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 7490: Nineteenth-Century French Novel**

(cross-leveled with FRENCH 4490). Study of the three major currents in prose fiction: romanticism, realism, and naturalism. Representative readings from Chateaubriand, Balzac, Stendhal, Flaubert, and Zola are included.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 7710: History of the French Language**

(same as LINGST 7710; cross-leveled with FRENCH 4710, LINGST 4710). Required of M.A. candidates.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 7720: Structure of Modern French**

(same as LINGST 7720; cross-leveled with FRENCH 4720, LINGST 4720). An introductory presentation of the phonological and syntactic systems of contemporary standard French.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3160 or equivalent or instructor's consent

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**FRENCH 7960: Special Readings in French**

Independent study through readings, conferences, reports.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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**FRENCH 7980: Special Themes in French**

Subject varies according to instructor.

**Credit Hours:** 3

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**FRENCH 7993: The Capstone Experience in French**

This course is required of all majors. Topics vary but all courses synthesize and review essential components of the major: speaking, writing, reading in French, and the ability to think critically and analytically.

**Credit Hours:** 3

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**FRENCH 8080: Readings in French**

Independent readings in preparation for MA or MALT comprehensive examination in French. Graded on A-F basis only.

**Credit Hour:** 1-3

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**FRENCH 8085: Problems in French**

Problems in French.

**Credit Hour:** 1-99

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**FRENCH 8087: Seminar in French**

Subject varies according to instructor.

**Credit Hour:** 2-3

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**FRENCH 8120: Bilingualism and Language Contact**

(same as SPAN 8120 and LINGST 8120). Global analysis of the study of Bilingualism from a combined sociocultural, sociolinguistic and

psycholinguistic perspective based on current research and examination of various phenomena of language contact (taught in English).

**Credit Hours:** 3

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**FRENCH 8411: Old French**

Old French.

**Credit Hours:** 3

**Recommended:** FRENCH 4710 or FRENCH 7710 and some knowledge of Latin

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**FRENCH 8416: Studies in the French Renaissance**

Studies in the French Renaissance.

**Credit Hours:** 3

**Recommended:** FRENCH 4420 or FRENCH 7420

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**FRENCH 8417: Studies in Seventeenth-Century French Literature**

Studies in Seventeenth-Century French Literature.

**Credit Hours:** 3

**Recommended:** FRENCH 4430 or FRENCH 7430

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**FRENCH 8418: Studies in Eighteenth-Century French Literature**

Studies in Eighteenth-Century French Literature.

**Credit Hours:** 3

**Recommended:** FRENCH 4440 or FRENCH 7440

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**FRENCH 8420: Studies in Twentieth-Century French Literature**

Studies in Twentieth-Century French Literature.

**Credit Hours:** 3

**Recommended:** FRENCH 4460 or FRENCH 7460, FRENCH 4470 or FRENCH 7470 or FRENCH 4480 or FRENCH 7480

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**FRENCH 9080: Readings in French**

Independent readings in preparation for the PhD comprehensive examination in French.

**Credit Hour:** 3-6

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**FRENCH 9090: Research in French**

Leads to preparation of PhD dissertation in French. Graded on S/U basis only.

**Credit Hour:** 1-99

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## General Human Environmental Sciences Courses

**GN\_HES 1100: Introduction to Human Environmental Sciences**

Introduction to Human Environmental Sciences

**Credit Hour:** 1

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**GN\_HES 1234: Successful Adulting**

Understanding what it means to be an adult; identify challenges of transition to adulthood and empower students to overcome these challenges by developing identity and life skills; build moral capacity to guide responsible citizenship and leadership.



Credit Hours: 3

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## General Studies Courses

### **G\_STDY 4940: Internship in General Studies**

Internship limited to students pursuing the Bachelor of General Studies degree. Graded on S/U basis only.

Credit Hour: 1-6

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### **G\_STDY 4960: Readings in General Studies**

Independent readings with supervisory faculty member. May be repeated to a maximum of six hours.

Credit Hour: 1-6

Prerequisites: Open only to General Studies majors

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## Geography Courses

### **GEOG 1050: Introductory Meteorology**

(same as ATM\_SC 1050). Physical processes of atmosphere in relation to day-to-day changes in weather.

Credit Hours: 3

Prerequisites: Enrollment restricted to students enrolled in the College of Arts and Science

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### **GEOG 1050H: Introductory Meteorology - Honors**

(same as ATM\_SC 1050H). Physical processes of atmosphere in relation to day-to-day changes in weather.

Credit Hours: 3

Prerequisites: Enrollment restricted to students enrolled in the College of Arts and Science; Honors eligibility required

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### **GEOG 1100: Regions and Nations of the World I**

Introductory analysis for general education. Regional character, spatial relationships, major problems of Europe, North America (United States and Canada) and Latin America. Organized around basic concepts in field of geography.

Credit Hours: 3

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### **GEOG 1100H: Regions and Nations of the World I - Honors**

Introductory analysis for general education. Regional character, spatial relationships, major problems of Europe, North America (United States and Canada) and Latin America. Organized around basic concepts in field of geography.

Credit Hours: 3

Prerequisites: Honors eligibility required

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### **GEOG 1200: Regions and Nations of the World II**

Introductory analysis for general education. Regional character, spatial relationships, problems of environment and development of the former Soviet Union, Pacific World, South and East Asia, Africa and Middle East. Organized around basic concepts in the field of geography. May be taken independently of GEOG 1100.

Credit Hours: 3

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### **GEOG 1205H: Regions and Nations General Honors**

Credit Hours: 3

Prerequisites: Honors eligibility required

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### **GEOG 1550: Introduction to the Humanized Earth**

Examines human culture as a geographical element; the power of culture and human institutions in human-environmental interaction and the creation of agriculture, folk culture, popular culture, cities, and a broad range of cultural landscapes.

Credit Hours: 3

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### **GEOG 1600: Climate Change: Science and Public Policy**

Explores the role of physical science, environmental politics and public policy in shaping contemporary debate concerning climate change, mitigation, and adaptation strategies. Examines the scientific rationale and statistical basis underwriting the concept of climate change, why aspects of the science remain controversial, the prospects of institutional action and the difficulties inherent in developing public policies targeting mitigation and adaptation. Course includes a role-playing simulation where students will play roles based on 2009 climate negotiations in Copenhagen, Denmark. Graded on A-F basis only.

Credit Hours: 3

Prerequisites: Freshman and sophomores only

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### **GEOG 1800: Digital Earth: Introduction to the Geospatial Technologies**

Introduction to technologies used to map a changing world, with an emphasis on digital mapping explorations of human and environmental interactions on Earth. Course includes lab and fieldwork to introduce geographic information data collection and analysis techniques. Graded on A/F basis only. May be repeated for credit.

Credit Hours: 3

Prerequisites: Freshman and sophomore standing or instructor's consent

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### **GEOG 1840: Global Environmental Change**

Course uses a geographic framework to study patterns and processes related to global environmental change. Topics include environmental reconstruction, water resources, human-environment interactions, glaciers, fire, and climate.

Credit Hours: 3

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### **GEOG 1900: Our Dynamic Planet in Film**

Focuses on using documentary films (e.g., Planet Earth) as a medium for studying how global environmental change is impacting all spheres of our dynamic planet. To ensure a more complete understanding of course material, films are supplemented with active lectures and discussions of assigned readings from both periodicals and peer-reviewed literature that emphasize key points illustrated in the films. In doing so, this course synthesizes material from numerous fields of study that fall under the burgeoning umbrella field of global-change ecology. This synthetic approach is used to highlight the formidable linkages on Earth between the nonliving and living, thus permitting students to gain an appreciation and holistic understanding of how global environmental change is impacting Earth processes responsible for creating both our current landscapes and the remarkable diversity of life that inhabit them.

**Credit Hours:** 3

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**GEOG 2010: Exploring Geography**

We are all explorers. As children, we grew up testing the boundaries of our known worlds and trying to understand what was beyond. Geography gives us the means to formalize this impulse to explore the world around us, both local and distant. It allows us to make sense of the ways in which space and relationships between objects drives much of human, social, and environmental interaction. In this course, we will illustrate some of the principle ways in which Geographers investigate, explain, and map meaning, pushing the boundaries of what we know as individuals and society. Using a combination of discussion and field exercises, students will be asked to engage with a number of critical societal issues that have geographical elements at their core. Examples include the Geography of crime, imagining place, the city of the future, environmental change, terrorism, human trafficking, drones, and sustainability.

**Credit Hour:** 1

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**GEOG 2120: United States and Canada**

Intensive examination of selected areas and distributions. Regional systems, problems and planning.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing

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**GEOG 2130: Geography of Missouri**

Physical, human, economic, and political geography of Missouri; regions of the state; geography applied to current state issues.

**Credit Hours:** 3

**Prerequisites:** GEOG 1100

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**GEOG 2280: Race, Democracy, and Violence in Cuba and Haiti**

(same as PEA\_ST 2280, SOCIOL 2280). A sociological approach to understand race/ethnicity, identity, citizenship, human rights, violence, and political and economic systems in the Caribbean. Comparisons of the culture, politics, and historical trajectories of Cuba and Haiti using Post-Colonial and Feminist theories. Graded on A-F basis only.

**Credit Hours:** 3

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**GEOG 2280W: Race, Democracy, and Violence in Cuba and Haiti - Writing Intensive**

(same as PEA\_ST 2280W, SOCIOL 2280W). A sociological approach to understand race/ethnicity, identity, citizenship, human rights, violence, and political and economic systems in the Caribbean. Comparisons of the culture, politics, and historical trajectories of Cuba and Haiti using Post-Colonial and Feminist theories. Graded on A-F basis only.

**Credit Hours:** 3

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**GEOG 2289: Towns in Missouri and the Midwest: Voices and Inequalities**

(same as PEA\_ST 2289, RU\_SOC 2289). Focusing on towns and communities and their regional history and cultural traditions. Examines the issues and concerns of small-town America in the context of recent hardships and adverse economic trends. Examples of topics covered include case studies of communities such as Marceline, Missouri (Walt Disney's boyhood home), race and the immigration of non-whites in to rural areas; gender roles in small communities, the role of religion in

small-town identity formation, and other current issues faced by 'middle America.' The responsiveness of government, large corporations, and institutions to the problems of diverse communities will be critically examined, with a multidisciplinary approach that draws on key theories and works in the disciplines of sociology, rural sociology, community development, and geography. Graded on A-F basis only.

**Credit Hours:** 3

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**GEOG 2293: Globalization, Identity and Citizenship**

(same as PEA\_ST 2293, POL\_SC 2293). This course examines the forces of globalization that are transforming our world, and explores the various responses - psychological, social and political -- that people have been making over the past fifty years. Part I examines globalization as an economic and geographical process, generating huge social consequences, with rapid growth, population movements, political change and a vast gap between global wealth and poverty. Part II focuses on the ways in which individuals are now seeking to find themselves in this globalizing world. Emphasis will be placed on the ways in which national identity, faith, gender and sexuality are emerging as key loci around which contemporary people (especially young people) are trying to forge new social identities for themselves. The course will conclude by examining the recently emerging (and highly contested) concept of 'global citizenship'. Graded on A-F basis only.

**Credit Hours:** 3

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**GEOG 2293W: Globalization, Identity and Citizenship - Writing Intensive**

(same as PEA\_ST 2293W, POL\_SC 2293W). This course examines the forces of globalization that are transforming our world, and explores the various responses - psychological, social and political -- that people have been making over the past fifty years. Part I examines globalization as an economic and geographical process, generating huge social consequences, with rapid growth, population movements, political change and a vast gap between global wealth and poverty. Part II focuses on the ways in which individuals are now seeking to find themselves in this globalizing world. Emphasis will be placed on the ways in which national identity, faith, gender and sexuality are emerging as key loci around which contemporary people (especially young people) are trying to forge new social identities for themselves. The course will conclude by examining the recently emerging (and highly contested) concept of 'global citizenship'. Graded on A-F basis only.

**Credit Hours:** 3

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**GEOG 2340: South America**

Physical environment and culture in the regional development of South America.

**Credit Hours:** 3

**Prerequisites:** One course in geography or instructor's consent

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**GEOG 2610: Climate, Landforms and Vegetation: Introduction to Physical Geography**

Examination of the interacting natural systems comprising the Earth's physical environment, including the atmosphere, biosphere, and land forms. Focus on relating fundamental physical, chemical and ecological processes to the global geographic patterns they produce.

**Credit Hours:** 3

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**GEOG 2660: Environmental Geography**

Historical perspectives on the human agency in transforming the earth, with emphasis on international environmental problems. Topics include basic biogeography; environmental impacts of population growth, underdevelopment and overdevelopment; and new approaches to management of global resources.

**Credit Hours:** 3

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**GEOG 2710: Economic Geography**

Geographical location and organization of world's major economic activities. Emphasizes agricultural and industrial patterns, commodity flows, transport networks, geographical principles of market and industrial location, internal spatial organization of cities, land-use models, geographic aspects of economics growth.

**Credit Hours:** 3

**Prerequisites:** GEOG 1100 or GEOG 1200 or sophomore standing

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**GEOG 2720: The City**

Study of cities: origin, development, distribution; social, economic, and demographic significance. Consideration of theories of structure, urban hierarchies, and land-use planning.

**Credit Hours:** 3

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**GEOG 2904: Topics in Geography-Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing, departmental consent for repetition

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**GEOG 2904W: Topics in Geography-Social Science - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing, departmental consent for repetition

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**GEOG 3040: Introduction to Geographic Information Systems GIS**

(same as CV\_ENG 3050). Introduces theory, concepts, and techniques related to the creation, manipulation, processing, and basic analysis of spatial data using Geographic Information Systems (GIS). Data management, current data models, GIS applications and course topics are reinforced through hands-on computer laboratory exercises.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or instructor's consent

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**GEOG 3140: Mexico, Central America, and the Caribbean**

Physical environment and culture in the regional development of Mexico, Central America, and the Caribbean.

**Credit Hours:** 3

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**GEOG 3270: Geography of the Middle East**

Cultural, physical and historical geography of Middle East, with emphasis on cultural adaptations to environments and conflicts over the resources.

**Credit Hours:** 3

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**GEOG 3385: Special Problems in Geography**

Independent investigation leading to a paper or project. May be repeated to a maximum of 6 hours.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**GEOG 3496: Digital Indigenous Studies**

(same as PEA\_ST 3496). This course introduces students to Indigenous studies in a digital world. The course begins with study of Indigenous sovereignty and representation, and moves quickly to critical and theoretical readings in new media, tracing both the historical impact of digital technologies (such as GIS) on Native communities, and the ways that both urban and rural Native communities have engaged in innovative digital projects that expand the way we understand information and storytelling in digital environments. The course materials will cover a wide range of platforms and audio-visual genres, from documentary, community video, and animation productions, to GIS, video games, and social media sites. Students will engage with both scholars and artists working with new media through a program of public lectures, classroom visits, and Skype interviews. All interview will be archived as podcasts from the course website. Students will write weekly short response papers and produce independent audio-visual projects over the course of the semester, with opportunities to revise their work leading up to substantial final projects. The course will also integrate community outreach into the curriculum through online participation of students from the Kiowa Kids, an Indigenous language immersion and storytelling program.

**Credit Hours:** 3

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**GEOG 3496W: Digital Indigenous Studies - Writing Intensive**

(same as PEA\_ST 3496). This course introduces students to Indigenous studies in a digital world. The course begins with study of Indigenous sovereignty and representation, and moves quickly to critical and theoretical readings in new media, tracing both the historical impact of digital technologies (such as GIS) on Native communities, and the ways that both urban and rural Native communities have engaged in innovative digital projects that expand the way we understand information and storytelling in digital environments. The course materials will cover a wide range of platforms and audio-visual genres, from documentary, community video, and animation productions, to GIS, video games, and social media sites. Students will engage with both scholars and artists working with new media through a program of public lectures, classroom visits, and Skype interviews. All interview will be archived as podcasts from the course website. Students will write weekly short response papers and produce independent audio-visual projects over the course of the semester, with opportunities to revise their work leading up to substantial final projects. The course will also integrate community outreach into the curriculum through online participation of students from the Kiowa Kids, an Indigenous language immersion and storytelling program.

**Credit Hours:** 3

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**GEOG 3510: Historical Geography of North America**

Analysis of selected geographical patterns and themes in the continent's past. Focus is explicitly geographical, stressing extensive use of maps and recent scholarly work by historical geographers.

**Credit Hours:** 3

**Prerequisites:** Junior standing, or instructor's consent

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**GEOG 3560: Native American Geographies**

A survey of the Native American geographies in the United States. Historical and contemporary topics are covered employing cross-cultural perspectives, including some philosophical views of the Earth and society, sense of place, memory, sacred land, colonialism and Geographic Information Systems (GIS) representations, and natural resources.

**Credit Hours:** 3

**Recommended:** This is an upper-division course. Junior standing is recommended

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**GEOG 3560W: Native American Geographies - Writing Intensive**

A survey of the Native American geographies in the United States. Historical and contemporary topics are covered employing cross-cultural perspectives including some philosophical views of the Earth and society, sense of place, memory, sacred land, colonialism and GIS representations, and natural resources.

**Credit Hours:** 3

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**GEOG 3580: Placewriting**

This class explores creative nonfiction work that attends to the geographical dimensions of human experience and the character of place - 'placewriting'. Students will investigate how creative nonfiction evokes the human relationship with place and the geographical dimensions of personal and group identity. The class consists of two parts: discussion and critique of six creative nonfiction works on place, and a writer's workshop designed to enable students produce their own work in the genre focused on a local community or place.

**Credit Hours:** 3

**Recommended:** GEOG 1550

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**GEOG 3600: Climates of the World**

(same as ATM\_SC 3600). A study of the world distribution of climates based on 'cause and effect' relationships. Special attention is given to the impacts of climate on humanity.

**Credit Hours:** 3

**Prerequisites:** GEOG 1050 or equivalent or graduate standing

**Corequisites:** By permission, only

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**GEOG 3610: Physical Geography of the United States**

Study of natural regions of the United States by integrating topics from landforms, geology, climate, soils, vegetation, resources, and land use.

**Credit Hours:** 3

**Prerequisites:** GEOG 2610

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**GEOG 3630: Earth Surface Systems**

Systematic study of landforms geomorphic processes governing them. Provides a foundation for the theoretical, technical, and practical understanding of environmental systems.

**Credit Hours:** 3

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**GEOG 3740: Geography and Planning**

Emphasis on geographic techniques for gathering and generating environmental information for planners. Principles of land-use planning will be applied to selected regions.

**Credit Hour:** 1-3

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**GEOG 3760: Geography of the World's Religions**

(same as REL\_ST 3760). Explores the significance of place in the origin, diffusion, distribution and practice of religions, emphasizing imprints of religion on the cultural landscape and connections between culture, politics, economics, and religion.

**Credit Hours:** 3

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**GEOG 3760W: Geography of the World's Religions - Writing Intensive**

(same as REL\_ST 3760). Explores the significance of place in the origin, diffusion, distribution and practice of religions, emphasizing imprints of religion on the cultural landscape and connections between culture, politics, economics, and religion.

**Credit Hours:** 3

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**GEOG 3780: World Political Geography: Patterns and Processes**

(same as PEA\_ST 3780). Geographic factors in the development of political boundaries traditions, and societal perspectives. Spatial patterns and geopolitical processes are explored in selected regions of the world.

**Credit Hours:** 3

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**GEOG 3800: Geography of Travel and Tourism**

Examines the fundamentals of the geography of tourism and travel in both foreign and domestic contexts. During the past few decades, tourism has been a fast-growing industry around the world, although tourism can easily be negatively influenced by terrorism, natural disasters, and economic downturns. Looks at several common types of tourism and focus on the positive and negative impacts of tourism upon local cultures, the environment, and economic development. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** GEOG 1100 or GEOG 1200 or sophomore standing

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**GEOG 3830: Remote Sensing**

Introduction to the principles of remote sensing of the environment. Digital imagery from spacecraft, conventional and high-altitude aerial photography, thermal imaging, and microwave remote sensing.

**Credit Hours:** 3

**Recommended:** GEOG 2840

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**GEOG 3840: Cartography**

Principles of computer-assisted cartography. Automated cartographic display. Hands-on experience with computer-mapping software and

hardware systems. Role of computers in map design. Digital encoding of geographic data.

**Credit Hours:** 3

**Prerequisites:** GEOG 2840

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**GEOG 4130: The Geospatial Sciences in National Security**

(same as CV\_ENG 4175; cross-leveled with GEOG 7130, CV\_ENG 7175). Explores the critical contribution of the geospatial sciences in the collection, processing, visualization and analysis of geospatial information related to national security. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** Junior standing or above required

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**GEOG 4200: Geopolitics**

(cross-leveled with GEOG 7200). Geopolitics examines politics, especially international relations, as influenced by geographical factors. To reveal and forecast global trends, we examine the interactions of geographical contexts and perspectives with international and domestic political processes. Our geopolitical analysis is both thematic and regional. Geographical themes are multi-disciplinary and include location and place, physical geography and natural resources, population and immigration, culture and ethnicity, religion, economics and trade, foreign policy, conflict, globalization, and development. These are examined in the context of eight world regions and the polar realms. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** GEOG 1100 or GEOG 1200

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**GEOG 4390: Special Readings in Geography**

Independent readings selected in consultation with supervisory faculty member. May be repeated to a maximum of 6 hours.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent and independent study contract

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**GEOG 4400: Geographies of Terrorism and Drugs**

(cross-leveled with GEOG 7400). The course examines the parallel and independent geographies of terrorism and drugs. Their common features include dangerous cultural landscapes that cannot sustain other forms of land use. They are typically marginal, remote, and beyond the reach of authorities. Crackdowns on terrorists and drug producers in one locale usually fails to eradicate the problems as they emerge elsewhere. The wars on terrorism and drugs often stimulate greater enrollments and production. Where poverty and alienation are common, both livelihoods offer social accommodation and ready entry into the cash economy. Alternative means of combating terrorism and drug production are explored. Grading on A-F basis only.

**Credit Hours:** 3

**Recommended:** GEOG 1100 and GEOG 1200

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**GEOG 4560: Resources and Indigenous Peoples**

(cross-leveled with GEOG 7560). Survey of Indigenous peoples' struggle to control and use natural resources, to have a say in determining the path of economic development, and to restrain the destructive tendencies of colonialism and capitalism, challenging traditional state-to-state relations.

**Credit Hours:** 3

**Prerequisites:** Junior standing required

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**GEOG 4560W: Resources and Indigenous Peoples - Writing Intensive**

(cross-leveled with GEOG 7560). Survey of Indigenous peoples' struggle to control and use natural resources, to have a say in determining the path of economic development, and to restrain the destructive tendencies of colonialism and capitalism, challenging traditional state-to-state relations.

**Credit Hours:** 3

**Prerequisites:** Junior standing required

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**GEOG 4620: Biogeography: Global Patterns of Life**

(cross-leveled with GEOG 7620). Analysis of the patterns and processes of plant distribution in the contemporary landscape, stressing environmental influences and vegetation dynamics, particularly as they relate to North American vegetation.

**Credit Hours:** 3

**Recommended:** GEOG 2610

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**GEOG 4630: River and Stream Dynamics**

(cross-leveled with GEOG 7630). Systematic study of river mechanics, stream-channel form, river management and restoration. Provides a theoretical and practical understanding of stream systems.

**Credit Hours:** 3

**Prerequisites:** GEOG 2610 and GEOG 3630, or instructor's consent

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**GEOG 4710: Spatial Analysis in Geography**

(cross-leveled with GEOG 7710). Application of statistical methods to geographic research. Prepares students to utilize advanced methodologies and models in spatial analysis. Includes computer analysis of geographical data. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Recommended:** MATH 1100 or MATH 1120

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**GEOG 4740: Location Analysis and Site Selection**

(same as CV\_ENG 4185; cross-leveled with GEOG 7740, CV\_ENG 7185). Overview of location analysis in regional-planning and spatial-decision support. Focuses on the use of Geographic Information Science (GIS) and location analysis methods in addressing regional service needs. May be repeated for credit.

**Credit Hours:** 3

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**GEOG 4770: Migration and Immigration**

(cross-leveled with GEOG 7770). Explores demographic, economic, and social issues surrounding immigration and migration. Focuses on the global labor migration system, immigration to the United States, and internal migration within the U.S., as well as the linkages between these systems.

**Credit Hours:** 3

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**GEOG 4790: Geographic Information Systems for the Social Sciences**

(cross-leveled with GEOG 7790). Designed for social science students interested in learning about the tools available in Geographic Information

Systems (GIS) for linking to and analyzing spatial qualitative data. Uses multiple data sources (qualitative and quantitative), applied within a social context, using spatial investigation procedures to detect geographical trends in data sets. Primary focus is on how GIS can enhance social science research.

**Credit Hours:** 3

**Prerequisites:** Juniors and seniors only

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**GEOG 4810: Landscape Ecology and GIS Analysis I**

(same as NAT\_R 4385). Examination of the landscape-scale approach to biodiversity, ecosystem dynamics, and habitat management. Particular emphasis on the use of Geographic Information Systems to analyze the spatial dimension of ecological patterns and processes.

**Credit Hours:** 3

**Prerequisites:** GEOG 3040, or instructor's consent

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**GEOG 4850: Transportation Geography**

(same as CV\_ENG 4155; cross-leveled with GEOG 7850, CV\_ENG 7155). Introduction to fundamental concepts and modes of analysis in transportation geography. Focus on descriptive, explanatory, as well as normative approaches. Topics reviewed include spatial organization, transportation economics, spatial interaction, network analysis, location/allocation, and urban transportation planning.

**Credit Hours:** 3

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**GEOG 4860: Advanced Remote Sensing**

(cross-leveled with GEOG 7860). Advanced remote sensing to provide digital-image processing techniques for satellite and airborne imagery; emphasis on spatial/spectral analysis, image classification and land-use/land-cover change detection. Class project heavily involved.

**Credit Hours:** 3

**Prerequisites:** GEOG 3830

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**GEOG 4904: Topics in Geography-Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Must get departmental consent for repetition.

**Credit Hour:** 1-12

**Prerequisites:** Junior standing

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**GEOG 4904W: Topics in Geography-Social Science - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Must get departmental consent for repetition.

**Credit Hour:** 1-12

**Prerequisites:** Junior standing

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**GEOG 4940: Advanced Geographic Information Systems (GIS II)**

(cross-leveled with GEOG 7940). Advanced study of geographic and spatial analysis and modeling utilizing Geographic Information Systems (GIS) technology. Focus on project management, research applications, and geostatistical analysis through independent research projects.

**Credit Hours:** 3

**Prerequisites:** GEOG 3040 or instructor's permission

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**GEOG 4945: Internship in Applied Geography and Cartography**

Regularized individual work experience with local, regional, state or national agencies, with guidance and readings supplied by faculty coordinator. May repeat to maximum of 6 hours.

**Credit Hour:** 1-3

**Prerequisites:** Departmental consent required

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**GEOG 4990: Senior Seminar in Geography**

A seminar in selected themes in geography. Class will focus on research, writing, presenting, and discussing themes in contemporary geography. Required of all majors prior to graduation.

**Credit Hours:** 3

**Prerequisites:** Five courses in geography or instructor's consent

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**GEOG 4996H: Honors in Geography**

Special work for Honors candidates in geography. Prerequisites: Honors eligibility required

**Credit Hours:** 3

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**GEOG 4996HW: Honors in Geography - Honors/Writing Intensive**

Special work for Honors candidates in geography. Prerequisites: Honors eligibility required

**Credit Hours:** 3

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**GEOG 4997H: Honors in Geography**

Special work for Honors candidates in geography.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GEOG 7130: The Geospatial Sciences in National Security**

(same as CV\_ENG 7175; cross-leveled with GEOG 4130). Explores the critical contribution of the geospatial sciences in the collection, processing, visualization and analysis of geospatial information related to national security. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**GEOG 7200: Geopolitics**

(cross-leveled with GEOG 4200). Geopolitics examines politics, especially international relations, as influenced by geographical factors. To reveal and forecast global trends, we examine the interactions of geographical contexts and perspectives with international and domestic political processes. Our geopolitical analysis is both thematic and regional. Geographical themes are multi-disciplinary and include location and place, physical geography and natural resources, population and immigration, culture and ethnicity, religion, economics and trade, foreign policy, conflict, globalization, and development. These are examined in the context of eight world regions and the polar realms. Graded on A-F basis only.

**Credit Hours:** 3

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**GEOG 7400: Geographies of Terrorism and Drugs**

(cross-leveled with GEOG 4400). The course examines the parallel and independent geographies of terrorism and drugs. Their common features include dangerous cultural landscapes that cannot sustain other forms of land use. They are typically marginal, remote, and beyond the reach of authorities. Crackdowns on terrorists and drug producers in one locale usually fails to eradicate the problems as they emerge elsewhere. The wars on terrorism and drugs often stimulate greater enrollments and production. Where poverty and alienation are common, both livelihoods offer social accommodation and ready entry into the cash economy. Alternative means of combating terrorism and drug production are explored. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** GEOG 7200

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**GEOG 7560: Resources and Indigenous Peoples**

(cross-leveled with GEOG 4560). Survey of Indigenous peoples' struggle to control and use natural resources, to have a say in determining the path of economic development, and to restrain the destructive tendencies of colonialism and capitalism, challenging traditional state-to-state relations.

**Credit Hours:** 3

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**GEOG 7620: Biogeography: Global Patterns of Life**

(cross-leveled with GEOG 4620). Analysis of the patterns and processes of plant distribution in the contemporary landscape, stressing environmental influences and vegetation dynamics, particularly as they relate to North American vegetation.

**Credit Hours:** 3

**Prerequisites:** GEOG 2610 or instructor's consent

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**GEOG 7710: Spatial Analysis in Geography**

(cross-leveled with GEOG 4710). Application of statistical methods to geographic research. Prepares students to utilize advanced methodologies and models in spatial analysis. Includes computer analysis of geographical data.

**Credit Hours:** 3

**Recommended:** MATH 1100 or MATH 1120

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**GEOG 7740: Location Analysis and Site Selection**

(same as CV\_ENG 7185; cross-leveled with GEOG 4740, CV\_ENG 4185). Overview of location analysis in regional planning and spatial decision support. Focuses on the use of Geographic Information Science (GIS) and location analysis methods in addressing regional service needs. May be repeated for credit.

**Credit Hours:** 3

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**GEOG 7770: Migration and Immigration**

(cross-leveled with GEOG 4770). As fertility and mortality decline to record low levels, immigration and migration have become the primary components of population change. Changes brought on by immigration to a country and the internal redistribution of population via migration pose challenges to governments, economic development, social and cultural relations, and environmental sustainability. Explores issues surrounding immigration and migration. Beginning with the demographic overview of immigration, it focuses on the challenges faced by immigrant, sending,

and receiving nations in the global migration system. The second part of the course focuses on the array of issues surrounding immigration to the United States, including the socio-economic adaptation of immigrants, the economic and cultural impacts of immigration, and illegal immigration. The third part of the course focuses on internal migration within migration within the US, discussing topics such as migration to the Sunbelt, Great Plains depopulation, poverty migration, migration to the suburbs, and migration's impact on community. Linkages between domestic migration and immigration will also be explored.

**Credit Hours:** 3

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**GEOG 7790: Geographic Information Systems for the Social Sciences**

(cross-leveled with GEOG 4790). Designed for social science students interested in learning about the tools available in Geographic Information Systems (GIS) for linking to an analyzing spatial qualitative data. Uses multiple data sources (qualitative and quantitative), applied within a social context, using spatial investigation procedures to detect geographical trends in data sets. Primary focus is on how GIS can enhance social science research.

**Credit Hours:** 3

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**GEOG 7810: Landscape Ecology and GIS Analysis I**

(same as NAT\_R 7385). Examination of the landscape-scale approach to biodiversity, ecosystem dynamics, and habitat management. Particular emphasis on the use of Geographic Information Systems to analyze the spatial dimension of ecological patterns and processes.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**GEOG 7840: Geographic Information Systems I**

Introductory study of theory, concepts and techniques related to basic analysis, creation and processing of geographic and spatial data using Geographic Information Systems (GIS). Independent learning and computer-based laboratory exercises supplement theoretical lectures and discussion.

**Credit Hours:** 3

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**GEOG 7850: Transportation Geography**

(same as CV\_ENG 7155). Introduction to fundamental concepts and modes of analysis in transportation geography. Focus on descriptive, explanatory, as well as normative approaches. Topics reviewed include spatial organization, transportation economics, spatial interaction, network analysis, location/allocation, and urban transportation planning.

**Credit Hours:** 3

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**GEOG 7860: Advanced Remote Sensing**

(cross-leveled with GEOG 4860). Advanced remote sensing to provide digital-image processing techniques for satellite and airborne imagery; emphasis on spatial/spectral analysis, image classification and land-use/land-cover change detection. Class project heavily involved.

**Credit Hours:** 3

**Prerequisites:** GEOG 3830

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**GEOG 7904: Topics in Geography-Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-12

**Prerequisites:** Instructor's consent

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**GEOG 7940: Advanced Geographic Information Systems (GIS II)**

(cross-leveled with GEOG 4940). Advanced study of geographic and spatial analysis and modeling utilizing Geographic Information Systems (GIS) technology. Focus on project management, research applications, and geostatistical analysis through independent research projects.

**Credit Hours:** 3

**Prerequisites:** GEOG 7840 or instructor's consent

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**GEOG 8080: Research in Geography**

Research not leading to thesis. May be repeated to a maximum of 6 hours. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**GEOG 8085: Special Investigations in Geography**

Advanced studies to meet the needs of the individual student. May be repeated to a maximum of 6 hours.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent and independent study contract

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**GEOG 8090: Research in Geography**

Research leading to a thesis. May be repeated to a maximum of 8 hours. Graded on S/U basis only.

**Credit Hour:** 1-8

**Prerequisites:** instructor's consent and independent study contract

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**GEOG 8270: Seminar in the Geography of the Middle East**

Advanced readings and analysis of topics in the geography of the Middle East.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**GEOG 8710: Seminar**

May be repeated to a maximum of 6 hours.

**Credit Hour:** 1-3

**Prerequisites:** Departmental consent

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**GEOG 8750: Research Design**

Application of scientific methods in geographic research. Critical evaluation of current geographical methodology.

**Credit Hours:** 3

**Prerequisites:** Restricted to graduate geography majors graduate or instructor's consent

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**GEOG 8760: Geographic Thought**

Discussion of the historic roots of the discipline, especially the ideas, theories and underlying philosophies that have defined Geography in the

past century and a half. Students will also explore the philosophical and theoretical ideas that shape the way geographers approach the study of the world.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**GEOG 8820: Field Geography**

Techniques of geographical investigation in the field.

**Credit Hours:** 3

**Prerequisites:** restricted to graduate Geography majors or instructor's consent

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**GEOG 8840: Seminar: Applied Remote Sensing**

Applied project in remote sensing. Data selection, image processing, land-use and land-cover change, and quantitative biophysical information extraction from remotely sensed data.

**Credit Hours:** 3

**Prerequisites:** GEOG 3830 or instructor's consent

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**GEOG 8902: Topics in Geography-Biological/Physical/Mathematical**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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## Geology Courses

**GEOL 1050: Planet Earth**

An introduction to Earth Science. Topics include: evidence for continental drift and plate tectonics, causes and prediction of natural hazards, the scale of geological time.

**Credit Hours:** 3

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**GEOL 1100: Principles of Geology with Laboratory**

Three lectures, 2-hours lab. Earth processes and products and their impact on human needs and the environment. One field trip. For the Mizzou Online sections, there will not be required lectures, lab, and field trip.

**Credit Hours:** 4

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**GEOL 1120: Laboratory Investigations of the Earth**

This hybrid-lab course introduces basic methods of earth science investigation and inquiry with an emphasis on earth sciences. Key concepts include basic scientific methodology, earth materials and processes, and the societal relevance of geoscience research and application. Upon completion of the course, the successful student will have learned to apply course material to improve thinking, problem solving and decision-making. Graded on A-F basis only.

**Credit Hours:** 2

**Recommended:** GEOL 1050 as a corequisite (although the course will be a stand-alone introduction to the geosciences)

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**GEOL 1200: Environmental Geology with Laboratory**

The interaction between geologic processes and human society. Topics include mineral, water, and energy resources, volcanic hazards, earthquakes, landslides, floods, coastal erosion, pollution problems and environmental management.

**Credit Hours:** 4

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**GEOL 1250: The World's Oceans**

An interdisciplinary introduction to oceanography. Topics include: geologic evolution of ocean basins, properties of seawater, ocean circulation (waves, tides, and currents), marine ecosystems, instability of beaches and coastlines, coastal development and engineering.

**Credit Hours:** 3

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**GEOL 1400: Themes in Geology**

5-week course organized around a central theme or topic, up to 3 different sections can be taken for credit.

**Credit Hour:** 1

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**GEOL 2100: Independent Study in Geology**

Directed Library research in geological topics, under the supervision of faculty sponsor. May be repeated for a maximum of 3 hours credit.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**GEOL 2110: Introduction to Soil Science with Laboratory**

(same as SOIL 2110). Introduction to Soil Science with emphasis placed on physical, biological, and chemical properties and applications to land use, plant growth, and environmental problems with laboratory application of these concepts.

**Credit Hours:** 5

**Prerequisites:** CHEM 1320

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**GEOL 2120H: Faults and Earthquakes: Past, Present, and Future - Honors**

Seminar in science and societal ramifications of earthquakes. Geologic background includes causes, behavior, and distribution of faults. Student-led discussions cover historical disasters, economic, political, psychological, and cultural perspectives.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

**Recommended:** Honors eligibility

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**GEOL 2130: Physical Geology for Scientists and Engineers**

Introduction to physical geology and Earth processes with a focus on applications and societal relevance. In addition to basic geologic processes, physical principles will illustrate the interactions between geology and engineering, using a calculus-based approach.

**Credit Hours:** 4

**Prerequisites:** MATH 1500

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**GEOL 2150: The Age of the Dinosaurs**

Study of the evolution of dinosaurs during the Mesozoic Era. New information on dinosaur life habits, food resources, dispersal by plate tectonics, and theories of extinction will be covered.

**Credit Hours:** 3

**Prerequisites:** 1000-level science course

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**GEOL 2160H: Volcanoes and the Human Environment - Honors**

(same as GN\_HON 2450H). This course gives students an understanding of how volcanoes work, how they are studied, and how they have impacted human cultures. Students will gain appreciation of volcanology as a broad scientific discipline within geology and the role that science plays in public policy. Graded on A/F basis only.

**Credit Hours:** 3

**Recommended:** Honors eligibility required

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**GEOL 2220: Seminar: Headline Topics in the Geological Sciences**

(same as GEOL 2220H). Seminar organized around a central theme that is the focus of intense ongoing research and public debate.

**Credit Hours:** 3

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**GEOL 2220H: Honors Seminar: Headline Topics in the Geological Science**

Seminar organized around a central theme that is the focus of intense ongoing research and public debate.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

**Recommended:** Honors eligibility

---

**GEOL 2300: Earth Systems and Global Change**

Study of the earth as a whole, taking into account the many interwoven components of the geosphere, hydrosphere, atmosphere and biosphere.

**Credit Hours:** 3

**Recommended:** 1000-level Science course

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**GEOL 2350: Historical Geology**

Summary of principles and techniques used in reconstructing Earth's history. Survey of major events that have affected Earth and its inhabitants. Review of geologic history of North America.

**Credit Hours:** 3

**Prerequisites:** GEOL 1100 or GEOL 2130 or GEOL 1200

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**GEOL 2360: Historical Geology Laboratory**

A laboratory course designed to improve understanding of Earth History by examination of maps and mineral, rock, sediment and fossil samples.

**Credit Hour:** 1

**Prerequisites:** GEOL 1100 or GEOL 2130 or GEOL 1200

**Corequisites:** GEOL 2350

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**GEOL 2400: Surficial Earth Processes and Products with Laboratory**

Semiquantitative analysis of geologic processes that shape the earth's surface. Includes topics in sedimentation and geomorphology.

**Credit Hours:** 4

**Prerequisites:** GEOL 1100 or GEOL 2130 or GEOL 1200, and MATH 1100

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**GEOL 2450: Global Water Cycle**

Study of environmental geochemical factors controlling the composition of natural waters, and sources of water's constituents (natural or human-produced). Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** MATH 1100

**Recommended:** 1000-level science course

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**GEOL 2500: Regional Geology Field Trip**

Field based study of a particular geologic region, including classroom preparation prior to the field trip. The trip will last 7-10 days, either during Spring Break or immediately after finals week. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** GEOL 1100 or GEOL 2130 or GEOL 1200

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**GEOL 2600: Mineral and Energy Resources of the Earth**

This course examines the geology of Earth's major mineral and energy resources--their origin, distribution, and characteristics--and societal implications of their use and abundance. Major topics: fossil fuels, nuclear energy, base & precious metals, non-metallic minerals, water.

**Credit Hours:** 3

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**GEOL 3085: Problems in Geological Sciences**

Problems in Geological Sciences.

**Credit Hour:** 1-5

**Prerequisites:** instructor's consent

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**GEOL 3110: Geology of Missouri**

The physical, historical, and environmental geology of Missouri are described, discussed and interpreted.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000 and either GEOL 1100 or GEOL 1200

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**GEOL 3250: Mineralogy**

Introduction to crystallography, crystal chemistry and crystal structures. Systematic study of mineral groups. Includes identification of minerals by physical, chemical and optical properties.

**Credit Hours:** 5

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**GEOL 3300: Introduction to Geochemistry**

Fundamentals of chemistry as applied to geology. Includes phase diagrams, thermodynamics, redox chemistry, aqueous chemistry, stable and radiogenic isotopes. Computer-based homework problems (satisfies computing requirement for Geology majors).

**Credit Hours:** 3

**Prerequisites or Corequisites:** CHEM 1330

**Prerequisites:** MATH 1400 or MATH 1500, and GEOL 1100 or GEOL 2130 or GEOL 1200

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**GEOL 3550: Introduction to Paleontology with Laboratory**

Study of the morphology, paleontology, patterns of evolution, and causes of extinction in geologically important groups of invertebrate and vertebrate fossils. Lab concentrates on identification of biostratigraphically important fossils (mostly invertebrates). Several half-day field trips.

**Credit Hours:** 4

**Prerequisites:** GEOL 1100 or GEOL 2130 or GEOL 1200

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**GEOL 3650: Structural Geology**

The mechanical behavior of earth materials. Analysis of the geometry and mechanics of faults, fractures, and folds. Laboratory includes problems on stresses and strains associated with deformation, geometric analysis of deformation structures, and interpretation of geologic maps.

**Credit Hours:** 4

**Prerequisites:** GEOL 1100 or GEOL 2130 or GEOL 1200 and MATH 1140 or MATH 1160 or MATH 1500

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**GEOL 3800: Sedimentology and Stratigraphy with Lab**

Mechanics of sediment transport by fluid flow and gravity flow, origins of stratification and sedimentary structures, facies characteristics depositional environments.

**Credit Hours:** 4

**Prerequisites:** GEOL 3250

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**GEOL 4002: Topics in Geological Sciences-Biological Science**

Organized study of selected topics. Subjects and earnable credit may vary. May be repeated with departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**GEOL 4006: Topics in Geological Sciences-Mathematical Science**

Organized study of selected topics. Subjects and earnable credit may vary. May be repeated with departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**GEOL 4007: Topics in Geological Sciences-Physical Science**

Organized study of selected topics. Subjects and earnable credit may vary. May be repeated with departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**GEOL 4100: Groundwater Hydrology**

(cross-leveled with GEOL 7100). Analysis of groundwater occurrence, flow, recovery, and solute transport within shallow levels of the Earth's crust.

**Credit Hours:** 3

**Prerequisites:** GEOL 1100 or GEOL 2130 or GEOL 1200, and PHYSCS 1210 or PHYSCS 2750, and MATH 1400 or MATH 1500

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**GEOL 4120: Engineering Geology**

(cross-leveled with GEOL 7120). Fundamentals of earth materials and geological processes and their applications in engineering works and

environmental sciences. Includes properties of minerals and rocks, rock and soil mechanics, surficial geological processes, and practice of engineering.

**Credit Hours:** 3

**Prerequisites:** GEOL 1100 or GEOL 2130 or GEOL 1200, and MATH 1500, or instructor's consent

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#### **GEOL 4130: Groundwater Modeling**

(cross-leveled with GEOL 7130). Use of leading groundwater flow and contamination modeling software. Theory of groundwater flow, solute transport, and selected numerical solution techniques. Applications to water resource, environmental, and geological problems.

**Credit Hours:** 3

**Prerequisites:** GEOL 4100 or equivalent

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#### **GEOL 4180: Solar System Science**

(same as PHYSCS 4180, ASTRON 4180; cross-leveled with GEOL 7180). Investigates physical states, interior structures and comparative geology of solar systems bodies: planets, moons, asteroids, comets, sun. Solar system formation and evolution.

**Credit Hours:** 3

**Prerequisites:** MATH 1700 and PHYSCS 1220 or PHYSCS 2760 or instructor's consent

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#### **GEOL 4200: Economic Geology with Laboratory**

Geochemistry of ore deposits. Introduction to types of mineral deposits, genesis of ore, and current areas of research. Laboratory emphasizes hand-specimen and polished-section studies of a wide variety of ore deposit types.

**Credit Hours:** 4

**Prerequisites:** GEOL 4900

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#### **GEOL 4300: Introduction to Low-Temperature Geochemistry**

Introduction to the chemical alteration of rock-forming minerals in weathering environments and to factors controlling the chemical composition of subsurface water.

**Credit Hours:** 3

**Prerequisites:** GEOL 3300 or instructor's consent

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#### **GEOL 4318: Environmental Soil Chemistry**

(same as SOIL 4318 and ENV\_SC 4318; cross-leveled with GEOL 7318, SOIL 7318, ENV\_SC 7318). Study of chemical constituents and processes occurring in soils. Topics include soil minerals and weathering processes, organic matter, solution chemistry, oxidation-reduction reactions and adsorption processes.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100 or GEOL 2400, CHEM 1320 and CHEM 1330. Junior standing or instructor's consent

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#### **GEOL 4350: Patterns and Processes in the Fossil Record**

(cross-leveled with GEOL 7350). The purposes of this course are to 1) analyze patterns in the history of life and 2) to recognize the biased processes that led to its preservation. We will accomplish these goals by examining two disparate fossil preservation pathways: 1) Konservat lagerstätten: fossil deposits that are notorious for the exceptional and

rare preservation of soft tissues and 2) Konzentrat lagerstätten: fossil deposits that are exceptional for the enormous amount of fossilized skeletal material they contain. Through careful examination of both the rare and the hyper-abundant, we can address the fundamental question of paleobiology: how literally can the fossil record be read as the history of life? Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** GEOL 2350, GEOL 2360

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#### **GEOL 4500: Organic Geochemistry**

(cross-leveled with GEOL 7500). Topics include chemistry of petroleum-forming reactions and their kinetic parameters; use of organic-chemical criteria in source-rock evaluation; carbon isotope fractionation in organic precursors of biological molecules; early history of earth's atmosphere.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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#### **GEOL 4650: Plate Tectonics**

(cross-leveled with GEOL 7650). Formation, evolution, and structure of the earth. Rules, causes, and implications of plate tectonics with emphasis on present-day features.

**Credit Hours:** 3

**Prerequisites:** GEOL 3250 or GEOL 3650 or instructor's consent

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#### **GEOL 4650W: Plate Tectonics - Writing Intensive**

Formation, evolution, and structure of the earth. Rules, causes, and implications of plate tectonics with emphasis on present-day features.

**Credit Hours:** 3

**Prerequisites:** GEOL 3250 or GEOL 3650 or instructor's consent

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#### **GEOL 4680: Neotectonics and Earthquake Geology**

(cross-leveled with GEOL 7680). Introduction to techniques and concepts of active crustal deformation from the geological and geodetic perspectives. Topics include tectonic geomorphology, paleoseismology, Quaternary dating, tectonic geodesy, numerical models of faults, and earthquake hazard assessment.

**Credit Hours:** 3

**Prerequisites:** GEOL 3650 or GEOL 4650

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#### **GEOL 4750: Microanalysis for Geological Sciences**

(cross-leveled with GEOL 7750). This course is intended to provide a working knowledge of electron and X-ray microbeam analytical instruments - both in principle and in practice. Lectures will focus on the physics of how these instruments collect data, and how these data can be interpreted. In addition, students will gain hands-on experience with operating these instruments, specifically on their own samples, as well as preparing their samples for microanalysis and interpreting/manipulating the resulting data. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's Consent (instrument time is limited so enrollment must also be limited)

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#### **GEOL 4800: Introduction to Geophysics**

(cross-leveled with GEOL 7800). Introduction to the fundamentals of geophysical methods and their applications in geology, environmental

studies, and exploration. Topics include seismic, gravity, magnetic, and electric methods.

**Credit Hours:** 3

**Prerequisites:** GEOL 1100 or GEOL 2130 or GEOL 1200 and MATH 1700 or instructor's consent

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**GEOL 4900: Igneous and Metamorphic Petrology with Laboratory**

Introduction to igneous and metamorphic rock associations and rock-forming processes. Emphasis on understanding the evolution of the Earth in view of igneous and metamorphic rock petrogenesis.

**Credit Hours:** 4

**Prerequisites:** GEOL 3250

**Recommended:** GEOL 3300

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**GEOL 4950: Senior Thesis**

Research conducted in an area of the Geological Sciences under the auspices of a member of the faculty. Under normal circumstances, this research should be completed over two semesters. May be repeated for a maximum of 3 hours credit.

**Credit Hour:** 1-3

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**GEOL 4992: Geology Field Camp**

Field study of sedimentary, igneous and metamorphic rocks. Facies analysis of sedimentary rocks, mapping of folded and faulted sedimentary strata and fabric analysis of an igneous-metamorphic terrane. Excursion to Yellowstone and Grand Teton National Parks.

**Credit Hours:** 6

**Recommended:** GEOL 2350, GEOL 3650, and GEOL 3800

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**GEOL 7002: Topics in Geological Sciences-Biological/Physical/Mathematics**

Organized study of selected topics. Subjects and earnable credit may vary. May be repeated with departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**GEOL 7085: Problems in Geological Sciences**

**Credit Hour:** 1-8

**Prerequisites:** instructor's consent

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**GEOL 7100: Groundwater Hydrology**

(cross-leveled with GEOL 4100). Analysis of groundwater occurrence, flow, recovery, and solute transport within shallow levels of the Earth's crust.

**Credit Hours:** 3

**Prerequisites:** GEOL 1100 or GEOL 2130 or GEOL 1200, and PHYSCS 1210 or PHYSCS 2750, and MATH 1400 or MATH 1500

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**GEOL 7120: Engineering Geology**

(cross-leveled with GEOL 4120). Fundamentals of earth materials and geological processes and their applications in engineering works and environmental sciences. Includes properties of minerals and rocks, rock and soil mechanics, surficial geological processes, and practice of engineering.

**Credit Hours:** 3

**Prerequisites:** GEOL 1100 or GEOL 2130 or GEOL 1200 and MATH 1500, or instructor's consent

---

**GEOL 7130: Groundwater Modeling**

(cross-leveled with GEOL 4130). Use of leading groundwater flow and contamination modeling software. Theory of groundwater flow, solute transport, and selected numerical solution techniques. Applications to water resource, environmental, and geological problems.

**Credit Hours:** 3

**Prerequisites:** GEOL 4100 or equivalent

---

**GEOL 7180: Solar System Science**

(same as PHYSCS 7180 and ASTRON 7180). Investigates physical states, interior structures and comparative geology of solar systems bodies: planets, moons, asteroids, comets, sun. Solar system formation and evolution.

**Credit Hours:** 3

**Prerequisites:** MATH 1700 and PHYSCS 1220 or PHYSCS 2760 or instructor's consent

---

**GEOL 7200: Economic Geology with Laboratory**

Geochemistry of ore deposits. Introduction to types of mineral deposits, genesis of ore, and current areas of research. Laboratory emphasizes hand-specimen and polished-section studies of a wide variety of ore deposit types.

**Credit Hours:** 4

**Prerequisites:** GEOL 4900

---

**GEOL 7300: Introduction to Low-Temperature Geochemistry**

Introduction to the chemical alteration of rock-forming minerals in weathering environments and to factors controlling the chemical composition of subsurface water.

**Credit Hours:** 3

**Prerequisites:** GEOL 3300 or instructor's consent

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**GEOL 7318: Environmental Soil Chemistry**

(same as SOIL 7318 and ENV\_SC 7318; cross-leveled with GEOL 4318, SOIL 4318, ENV\_SC 4318). Study of chemical constituents and processes occurring in soils. Topics include soil minerals, and weathering processes organic matter, solution chemistry, oxidation-reduction reactions and adsorption processes.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100 or GEOL 2400, CHEM 1320 and CHEM 1330 or instructor's consent

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**GEOL 7350: Patterns and Processes in the Fossil Record**

(cross-leveled with GEOL 4350). The purposes of this course are to 1) analyze patterns in the history of life and 2) to recognize the biased processes that led to its preservation. We will accomplish these goals by examining two disparate fossil preservation pathways: 1) Konservat lagerstätten: fossil deposits that are notorious for the exceptional and rare preservation of soft tissues and 2) Konzentrat lagerstätten: fossil deposits that are exceptional for the enormous amount of fossilized skeletal material they contain. Through careful examination of both the rare and hyper-abundant we can address the fundamental question of

paleobiology: how literally can the fossil record be read as the history of life? Graded on A-F basis only.

**Credit Hours:** 3

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**GEOL 7500: Organic Geochemistry**

(cross-leveled with GEOL 4500). Topics include chemistry of petroleum-forming reactions and their kinetic parameters; use of organic-chemical criteria in source-rock evaluation; carbon isotope fractionation in organic precursors of biological molecules; early history of earth's atmosphere.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**GEOL 7650: Plate Tectonics**

(cross-leveled with GEOL 4650). Formation, evolution, and structure of the earth. Rules, causes, and implications of plate tectonics with emphasis on present-day features.

**Credit Hours:** 3

**Prerequisites:** GEOL 3250, GEOL 3650 or instructor's consent

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**GEOL 7680: Neotectonics and Earthquake Geology**

(cross-leveled with GEOL 4680). Introduction to techniques and concepts of active crustal deformation from the geological and geodetic perspectives. Topics include tectonic geomorphology, paleoseismology, Quaternary dating, tectonic geodesy, numerical models of faults, and earthquake hazard assessment.

**Credit Hours:** 3

**Prerequisites:** GEOL 3650 or GEOL 4650

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**GEOL 7700: Theoretical Geochemistry**

Introduction to theoretical concepts in low and high temperature geochemistry. Topics include thermodynamics of fluids, gases and solids in geological materials, phase diagrams, equilibrium constants, electrolyte theory, oxidation-reduction reactions.

**Credit Hours:** 3

**Prerequisites:** GEOL 3250, CHEM 1330 and MATH 1700

---

**GEOL 7750: Microanalysis for Geological Sciences**

(cross-leveled with GEOL 4750). This course is intended to provide a working knowledge of electron and X-ray microbeam analytical instruments - both in principle and in practice. Lectures will focus on the physics of how these instruments collect data, and how these data can be interpreted. In addition, students will gain hands-on experience with operating these instruments, specifically on their own samples, as well as preparing their samples for microanalysis and interpreting/manipulating the resulting data. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent (Instrument time is limited; graduate students who will use the instruments in their research will have priority)

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**GEOL 7800: Introduction to Geophysics**

(cross-leveled with GEOL 4800). Introduction to the fundamentals of geophysical methods and their applications in geology, environmental studies, and exploration. Topics include seismic, gravity, magnetic, and electric methods.

**Credit Hours:** 3

**Prerequisites:** GEOL 1100 or GEOL 2130 or GEOL 1200 and MATH 1700 or instructor's consent

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**GEOL 7990: Research in Geological Sciences-Masters**

Does not lead to dissertation.

**Credit Hour:** 1-8

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**GEOL 8002: Topics in Geological Sciences**

Organized study of selected topics. May be repeated with departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** PhD standing, instructor's consent

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**GEOL 8050: Research in Geological Sciences-Masters Non-Thesis**

Research leading to a non-thesis Masters project. Graded on S/U basis only.

**Credit Hour:** 1-3

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**GEOL 8085: Problems in Geological Sciences**

**Credit Hour:** 1-8

**Prerequisites:** instructor's consent

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**GEOL 8090: Research in Geological Sciences-Masters Thesis**

Preparation of dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**GEOL 8100: Continental Tectonics**

The structural, metamorphic, and igneous evolution of mountain belts and continental rifts with emphasis on convergent margin settings and terrane accretion processes and products. Case studies are considered from the Precambrian to the recent.

**Credit Hours:** 3

**Prerequisites:** GEOL 3650 and GEOL 4900

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**GEOL 8140: Metamorphic Petrology**

Petrography and petrology of metamorphic rocks. Emphasis on textures, mineral assemblages, and mineral chemistry in order to determine the physico-chemical condition of metamorphism.

**Credit Hours:** 3

**Prerequisites:** GEOL 3250 and GEOL 4900

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**GEOL 8150: Earthquake Seismology**

Theory and techniques used in analyzing earthquake seismograms and seismicity data. Ray theory and phase identification for the whole earth. Epicenter determination. Frequency-magnitude relationships. Earthquake source mechanisms and parameters.

**Credit Hours:** 3

**Prerequisites:** GEOL 8320

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**GEOL 8160: Igneous Petrology**

Studies of the origin and evolution of magmas with use of phase equilibria, physical properties, and kinetics.

**Credit Hours:** 3

**Prerequisites:** GEOL 3250 and GEOL 4900

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**GEOL 8170: Radiogenic Isotope Geochemistry**

Studies of the application of trace element and radiogenic isotope systematics to petrogenesis of rocks.

**Credit Hours:** 3

**Prerequisites:** GEOL 4900

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**GEOL 8190: Advanced Paleontology**

Principles of taxonomy, biostratigraphy, functional morphology and paleoecology are illustrated by individual projects that combine field collecting, laboratory examination and literature research.

**Credit Hours:** 3

**Prerequisites:** GEOL 3550

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**GEOL 8200: Advanced Structural Geology**

Advanced analysis of deformation structures in rocks. Theory and techniques of stress and strain analysis and their application to the mechanics of formation of faults, folds, shear zones, and rock fabric. Techniques of multideformation structural analysis.

**Credit Hours:** 3

**Prerequisites:** GEOL 3650

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**GEOL 8240: Hydrogeologic Processes**

Quantitative analysis of role of groundwater in major geologic processes. Theory review of fluid flow, heat transport, reactive solute transport in porous media. Applications to sedimentary diagenesis, hydrothermal ore deposits, petroleum migration, earthquakes, magmatism, metamorphism.

**Credit Hours:** 3

**Prerequisites:** GEOL 4100 or GEOL 7100 or equivalent

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**GEOL 8300: Precambrian History**

Coupled evolution of the biosphere, lithosphere, hydrosphere, and atmosphere over the span of Precambrian history. Topics will be discussed largely in the context of biological evolutionary events and the fossil record, as well as with a focus on geochemical records.

**Credit Hours:** 3

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**GEOL 8320: Introduction to Seismology**

Principles of wave propagation in layered elastic media. Applications of digital signal processing to seismological problems. Emphasis on theoretical basis behind modern analysis techniques.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 2760, MATH 4500 and CMP\_SC 1050

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**GEOL 8400: Ancient Greenhouse Climate**

Will explore a wide range of data concerning greenhouse climates and different techniques used in paleoclimatology. Graded on A/F basis only.

**Credit Hours:** 3

**Prerequisites:** GEOL 3800, GEOL 3550 and GEOL 4300

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**GEOL 8450: Tectonics and Sedimentation**

Global survey of modern and ancient convergent plate boundaries with an emphasis on sedimentary facies and structural styles.

**Credit Hours:** 3

**Prerequisites:** GEOL 3650, GEOL 3800 and instructor's consent

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**GEOL 8510: Geodynamics**

This course is designed to cover the fundamentals of the quantitative aspects of Plate Tectonics. The study of these subjects is generally referred to as Geodynamics or Geodynamic Theory. This theory revolutionized the earth sciences and the way people think of earth processes. By definition Geodynamics is an interdisciplinary paradigm therefore it is necessary to cover a wide range of topics from heat transfer to gravity. This course will overlap with subjects covered in both Plate Tectonics and Geophysics but we will emphasize the quantitative aspects of this theory in this course.

**Credit Hours:** 3

**Prerequisites:** MATH 1700, PHYSICS 2760

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**GEOL 8550: Stable Isotope Geochemistry**

Mechanisms and fundamental concepts of fractionation of light stable isotopes in nature. Emphasizes application of hydrogen, carbon, oxygen and sulfur isotopes to igneous, metamorphic and sedimentary rocks, metallic ore deposits, and to natural waters.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**GEOL 8650: Thermal Processes in the Solid Earth**

Principles of heat transfer in solid earth by conduction, advection and convection. Basic analytic and numerical solutions. Application in Earth's dynamic system, environmental sciences, and geological problems.

**Credit Hours:** 3

**Prerequisites:** MATH 1700, PHYSICS 1220 or PHYSICS 2750

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**GEOL 8750: Silicate Glasses, Liquids and Magmas**

Theory of silicate liquid viscosity, heat capacity and configurational entropy, emphasizing the role of volatile components. Applications to magma rheology and eruptive behavior. Lab instruction in viscometry techniques.

**Credit Hours:** 3

**Prerequisites:** GEOL 4900 and GEOL 4700, or instructor's consent

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**GEOL 8800: Applied Numerical Analysis**

A study of applied mathematical analysis of spatial and temporal data as applied in the geosciences.

**Credit Hours:** 3

**Prerequisites:** MATH 1700 or MATH 2300, PHYSICS 1220 or PHYSICS 2760

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**GEOL 8990: Research**

Does not lead to dissertation.

**Credit Hour:** 1-8

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**GEOL 9090: Research in Geological Sciences-Doctoral Dissertation**

Preparation of dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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## German Courses

### GERMAN 1100: Elementary German I

For beginners with no prior knowledge of German. This course helps learners develop the skills they need to use German as a means of communication in their personal and professional life. It covers a wide variety of vocabulary pertaining to everyday life; emphasis is on all types of communication--oral and listening skills, reading and writing.

**Credit Hours:** 5

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### GERMAN 1100H: Elementary German I - Honors

This course is designed for Honors students with little or no German language background and will provide students with a foundation in vocabulary and grammar in order to develop communication proficiency in German. Students will be trained using the five skills: listening, speaking, writing, reading and cultural knowledge. The course will be taught as a total immersion class and thus differs from the standard elementary German sequence. Furthermore, students will be required to complete lengthier reading and writing tasks as well as present a final oral multimedia project at the end of the semester.

**Credit Hours:** 5

**Prerequisites:** Honors eligibility required

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### GERMAN 1150: Freshman Introduction to German Studies

Introduction to German Studies as academic field. Small seminar setting with senior faculty, their favorite texts, and questions pursued in the research and teaching. Recommended for all students interested in integrating German studies into their academic career, conducted in English.

**Credit Hour:** 1

**Prerequisites:** Restricted to Freshman students only

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### GERMAN 1200: Elementary German II

A continuation of GERMAN 1100. This course helps learners develop the skills they need to use German as a means of communication in their personal and professional life. It covers a wide variety of vocabulary pertaining to everyday life; emphasis is on all types of communication - oral and listening skills, reading and writing.

**Credit Hours:** 5

**Recommended:** C- or better in GERMAN 1100, or equivalent

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### GERMAN 1200H: Elementary German II - Honors

This course is designed for Honors students who either took the GERMAN 1100H section or are placing into GERMAN 1200 as honors eligible students. The main focus of this course is on further development of basic communication skills in speaking, listening, reading, and writing in German adding more nuanced cultural and sociolinguistic competencies in a total immersion environment.

**Credit Hours:** 5

**Prerequisites:** Honors eligibility required

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### GERMAN 2001: Undergraduate Topics in German-General

Organized study of selected topics. Subjects and credits may vary from semester to semester. May be repeated with departmental consent.

**Credit Hour:** 1-3

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### GERMAN 2005: Undergraduate Topics in German-Humanities

Organized study of selected topics. Subjects and credits may vary from semester to semester. May be repeated with departmental consent. No language credit.

**Credit Hour:** 1-3

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### GERMAN 2005W: Undergraduate Topics in German-Humanities - Writing Intensive

Organized study of selected topics. Subjects and credits may vary from semester to semester. May be repeated with departmental consent. No language credit.

**Credit Hour:** 1-3

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### GERMAN 2100: Intermediate German I

A continuation of GERMAN 1200. This course helps learners develop the skills they need to use German as a means of communication in their personal and professional life. It covers a wide variety of vocabulary pertaining to everyday life; emphasis is on all types of communication - oral and listening skills, reading and writing.

**Credit Hours:** 3

**Recommended:** C- or better in GERMAN 1200, or equivalent

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### GERMAN 2260: Intermediate German II: Language and Culture

This course continues to help learners develop the necessary communicative skills in German. The particular emphasis is on oral and writing skills, and texts that provide insight into contemporary German culture and social life.

**Credit Hours:** 3

**Recommended:** C- in GERMAN 2100 or equivalent

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### GERMAN 2310: German Civilization: Beginning to 1850

Major historical, social, artistic, literary themes from beginnings to end of Revolution of 1848. Films and recordings. May be taken independently of GERMAN 2320. No foreign language credit. Some sections may enforce prerequisite of ENGLISH 1000.

**Credit Hours:** 3

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### GERMAN 2310W: German Civilization: Beginning to 1850 - Writing Intensive

Major historical, social, artistic, literary themes from beginnings to end of Revolution of 1848. Films and recordings. May be taken independently of GERMAN 2320. No foreign language credit. Some sections may enforce prerequisite of ENGLISH 1000.

**Credit Hours:** 3

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### GERMAN 2320: German Civilization: 1850 to Present

Second Empire, Weimar Republic, Nazi era, two Germanies after 1949. Historical, social, artistic, literary themes. Films and recordings. May be taken independently of GERMAN 2310. No foreign language credit.

**Credit Hours:** 3

**Prerequisites:** some sections may enforce prerequisite of ENGLISH 1000

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**GERMAN 2320W: German Civilization: 1850 to Present - Writing Intensive**

Second Empire, Weimar Republic, Nazi era, two Germanies after 1949. Historical, social, artistic, literary themes. Films and recordings. May be taken independently of GERMAN 2310. No foreign language credit.

**Credit Hours:** 3

**Prerequisites:** some sections may enforce prerequisite of ENGLSH 1000

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**GERMAN 2820: Trends in World Cinema**

(same as FILMS\_VS 2820 and RM\_LAN 2820). This course is a historical overview of the major trends in international cinema. It focuses on the intersection of aesthetics, industry, and ideological and social concerns in cinematic production.

**Credit Hours:** 3

**Prerequisites:** sophomore standing, ENGLSH 1800 or FILM\_S 1800 or instructor's consent

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**GERMAN 3001: Topics in German-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

**Recommended:** sophomore standing

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**GERMAN 3005: Topics in German-Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

**Recommended:** sophomore standing

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**GERMAN 3160: German Conversation and Composition**

This course expands communicative competence in German and provides a review of advanced grammar concepts. Primary emphasis is on the further development of oral and written skills, reading comprehension, vocabulary expansion, and a broad exposure to relevant topics of contemporary German culture and society. Conducted in German.

**Credit Hours:** 3

**Prerequisites:** GERMAN 2260 or equivalent

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**GERMAN 3180: Business German**

Examines language within the economic and professional context of German-speaking countries. Introduces different economic concepts of Germany's turbulent 20th century, modern-day business systems and everyday commercial activities such as job applications, professional routines, capital investment and banking. Provides students with vocabulary, cultural knowledge and communicative abilities in order to participate in the professional German-speaking world using linguistically-solid and stylistically-persuasive writing and speaking skills.

**Credit Hours:** 3

**Prerequisites:** GERMAN 2260 or equivalent

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**GERMAN 3190: Contemporary German Culture**

This content-driven course provides insights into essential subjects of 20th century German history and contemporary society, using a variety of literature, journalistic sources and film. The course will improve German conversation and literacy skills, and will strengthen critical reading and writing, as well as interpretative abilities. Significant grammatical concepts will be thoroughly reviewed throughout the semester. Conducted in German.

**Credit Hours:** 3

**Prerequisites:** GERMAN 2260 or instructor's consent

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**GERMAN 3230: Introduction to German Literature**

This course introduces students to German-language literary texts, images, and films in their cultural and historical context through exposure to major genres (poetry, drama, short stories, and the novel). It further builds their vocabulary and teaches them critical interpretive skills as preparation for the analysis of literary texts in upper-division courses - and in life.

**Credit Hours:** 3

**Prerequisites:** C- or better in either GERMAN 3160 or GERMAN 3190

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**GERMAN 3320: Readings in German Literature**

Readings in English of selected works of German literature from Goethe to the present, with a particular emphasis on writers and texts that have had a strong influence on European thought and culture.

**Credit Hours:** 3

**Prerequisites:** sophomore standing, ENGLSH 1000

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**GERMAN 3510: Think Global: Fundamentals of Globalization and Digital Technologies**

(same as PEA\_ST 3510, JOURN 3510, T\_A\_M 3010, DST\_VS 3510). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or instructor's consent

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**GERMAN 3510H: Think Global: Fundamentals of Globalization and Digital Technologies - Honors**

(same as JOURN 3510H, PEA\_ST 3510H, T\_A\_M 3010H, DST\_VS 3510H). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing; 2.75 GPA or instructor's consent. Honors eligibility required

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**GERMAN 3510HW: Think Global: Fundamentals of Globalization and Digital Technologies - Honors/Writing Intensive**

(same as JOURN 3510HW, T\_A\_M 3010HW, PEA\_ST 3510HW, DST\_VS 3510HW). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing; 2.75 GPA or instructor's consent. Honors eligibility required

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**GERMAN 3510W: Think Global: Fundamentals of Globalization and Digital Technologies - Writing Intensive**

(same as T\_A\_M 3010W, PEA\_ST 3510W, JOURN 3510W, DST\_VS 3510W). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or instructor's consent

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**GERMAN 3520: Folk and Fairytales in a Global Context**

Analyzes the most famous European collection of fairytales, namely the Kinder-und Hausmarchen (Children's and Household Tales) by the Brothers Grimm and juxtaposes them to folktales from other cultures. Looks at the genre of fairytales, studies the historical context of the genesis of the collection of tales, and modern versions of the tales. Compares and contrasts Grimm's fairytales with folktales of different cultural traditions, analyzes and identifies the formal structure of fairytales and motifs, discusses various interpretive models/perspectives and juxtaposes several historical and contemporary literary fairytales and fairytale adaptations. Cultural unit examples will be on Mongolian culture and history and the Maori culture of New Zealand. Students are expected to create their own cultural unit based on the course's units. Course is taught in English.

**Credit Hours:** 3

**Prerequisites:** sophomore standing required

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**GERMAN 3520H: Folk and Fairytales in a Global Context - Honors**

Analyzes the most famous European collection of fairytales, namely the Kinder-und Hausmarchen (Children's and Household Tales) by the Brothers Grimm and juxtaposes them to folktales from other cultures. Looks at the genre of fairytales, studies the historical context of the genesis of the collection of tales, and modern versions of the tales. Compares and contrasts Grimm's fairytales with folktales of different cultural traditions, analyzes and identifies the formal structure of fairytales and motifs, discusses various interpretive models/perspectives and juxtaposes several historical and contemporary literary fairytales and fairytale adaptations. Cultural unit examples will be on Mongolian culture and history and the Maori culture of New Zealand. Students are expected to create their own cultural unit based on the course's units. Course is taught in English.

**Credit Hours:** 3

**Prerequisites:** sophomore standing required. Honors eligibility required

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**GERMAN 3520HW: Folk and Fairytales in a Global Context - Honors/Writing Intensive**

Analyzes the most famous European collection of fairytales, namely the Kinder-und Hausmarchen (Children's and Household Tales) by the Brothers Grimm and juxtaposes them to folktales from other cultures. Looks at the genre of fairytales, studies the historical context of the genesis of the collection of tales, and modern versions of the tales. Compares and contrasts Grimm's fairytales with folktales of different cultural traditions, analyzes and identifies the formal structure of fairytales and motifs, discusses various interpretive models/perspectives and juxtaposes several historical and contemporary literary fairytales and fairytale adaptations. Cultural unit examples will be on Mongolian culture and history and the Maori culture of New Zealand. Students are expected to create their own cultural unit based on the course's units. Course is taught in English.

**Credit Hours:** 3

**Prerequisites:** sophomore standing required. Honors eligibility required

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**GERMAN 3520W: Folk and Fairytales in a Global Context - Writing Intensive**

Analyzes the most famous European collection of fairytales, namely the Kinder-und Hausmarchen (Children's and Household Tales) by the Brothers Grimm and juxtaposes them to folktales from other cultures. Looks at the genre of fairytales, studies the historical context of the genesis of the collection of tales, and modern versions of the tales. Compares and contrasts Grimm's fairytales with folktales of different cultural traditions, analyzes and identifies the formal structure of fairytales and motifs, discusses various interpretive models/perspectives and juxtaposes several historical and contemporary literary fairytales and fairytale adaptations. Cultural unit examples will be on Mongolian culture and history and the Maori culture of New Zealand. Students are expected to create their own cultural unit based on the course's units. Course is taught in English.

**Credit Hours:** 3

**Prerequisites:** sophomore standing required

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**GERMAN 3550: Resistance is Futile: The Advance of the Cyborg**

Contemporary culture is haunted by the image of artificial killing machine as metaphor for technology run rampant. Fears may be prompted by feelings of alienation in automated society and underlying suspicion that humans may be nothing more than sophisticated machines. Course maps history of 'l'homme machine, focusing on fictional representation of creatures that consist of both human and technological 'parts.' Goal is to discern source of fascination and sociopolitical mechanism behind evocation of 'human machine.'

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or consent of instructor

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**GERMAN 3605: The History of Blacks in Germany**

(same as BL\_STU 3605). This course investigates the history of Africans and African Americans in Germany and Central Europe, from Antiquity to today. Special focus on Medieval Africans in Europe, traveling African American intellectuals around 1900, and African American GIs in occupied Germany. This course will challenge your understanding of race and racism.

**Credit Hours:** 3

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**GERMAN 3605H: The History of Blacks in Germany - Honors**  
(same as BL\_STU 3605). This course investigates the history of Africans and African Americans in Germany and Central Europe, from Antiquity to today. Special focus on Medieval Africans in Europe, traveling African American intellectuals around 1900, and African American GIs in occupied Germany. This course will challenge your understanding of race and racism.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GERMAN 3830: History of the German Film**  
(same as FILMS\_VS 3830). Introduction to the development of the German film. Old and recent films are viewed and discussed in terms of techniques, artistry, psychology and social impact. English dubbing or subtitles. No foreign language credit.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent

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**GERMAN 3865: The Holocaust on Screen**  
(same as FILMS\_VS 3865). This course explores how the Holocaust has been depicted on film in a variety of national and historical contexts. Drawing on films from 1945 to the present, from the U.S., Germany, Poland, France, and Italy, we will consider to what end images of the Holocaust have been used. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**GERMAN 3895: Service Learning in German Studies**  
Service learning offers students a chance to put into practice what they have learned in theory. Students work as teacher-aids or tutors in foreign language/culture classes at area schools. Does not meet Arts and Science foundation requirements. Graded on S/U basis only.

**Credit Hours:** 2

**Prerequisites:** GERMAN 2260, or instructor's consent

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**GERMAN 4001: Topics in German-General**  
Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

**Recommended:** junior standing

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**GERMAN 4005: Topics in German-Humanities**  
Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

**Recommended:** junior standing

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**GERMAN 4005H: Topics in German-Humanities - Honors**  
Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** junior standing and instructor's consent. Honors eligibility required

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**GERMAN 4005W: Topics in German-Humanities - Writing Intensive**  
Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

**Recommended:** junior standing

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**GERMAN 4070: Intensive Beginning German**  
Designed to lead to a reading knowledge of German.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**GERMAN 4160: Advanced Language Proficiency**  
(cross-leveled with GERMAN 7160). A course for intermediate to advanced students of German. This course helps learners develop further the necessary communicative skills in German. The particular emphasis is on oral and writing skills, and texts that provide insight into contemporary German culture and social life.

**Credit Hours:** 3

**Prerequisites:** GERMAN 3230 or equivalent

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**GERMAN 4220: Eerie Tales: Classic German Narratives**  
In this class, we will read classic uncanny tales in German by major authors, and will explore the traits of this category across a variety of literary movements.

**Credit Hours:** 3

**Prerequisites:** GERMAN 3230 or equivalent language capacity

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**GERMAN 4230: Enlightenment and Revolution**  
Reading and discussion of selected works by major German writers from 1740 to 1870.

**Credit Hours:** 3

**Prerequisites:** GERMAN 3230 or equivalent

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**GERMAN 4240: Modernism and Modernity**  
Reading and discussion of selected works by major German writers from 1870 to the present.

**Credit Hours:** 3

**Prerequisites:** GERMAN 3230 or equivalent

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**GERMAN 4260: Recent German Literature**  
This course examines 'post-unification' works (i.e. by formerly East and West German authors) of literature and film written since 1989 that addresses social and political changes leading to or resulting from unification and the experience of WWII. Students will analyze the

diverse cultural, political and economic factors that influence writers and filmmakers whose aesthetic production in turn helps shape contemporary German society.

**Credit Hours:** 3

**Prerequisites:** GERMAN 3230

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**GERMAN 4730: German Internship and Methods**

(cross-leveled with GERMAN 7730). Supervised introduction to the methodology of the teaching of elementary German; conducted in a classroom environment.

**Credit Hours:** 3

**Prerequisites:** junior standing, GERMAN 4230, or instructor's consent

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**GERMAN 4810: Case Studies in an Inter/Multicultural World**

(same as T\_A\_M 4810, PEA\_ST 4810, DST\_VS 4805). This inter-departmental course examines the ways in which people across the globe are affected every day by an unprecedented array of linkages that defy geographic and political boundaries. Also serves as one of the seminars for the certificate in Digital Global Studies. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing; 2.75 GPA or instructor's consent

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**GERMAN 4820: Blogging the World: The Web in Cultural Context**

(same as FRENCH 4820 and RUSS 4820; cross-leveled GERMAN 7820, FRENCH 7820, RUSS 7820). Innovative interdisciplinary course addresses issues of access to international news and specific cultural context working in cross-disciplinary teams. Students in journalism, foreign language, international studies, political science and various other disciplines track cultural developments and information on non-US Web sites, blogs and digital social networks along with exploring various historical forms of communication that preceded the digital era of the Web. Students analyze the potential and limitations/ effects of blogs and the web in specific contemporary cultural contexts and as part of the broader historical evolution of the web. The course is taught in English. The goal of this course is two-fold; students learn the particulars of web blogging, explore various features of the contemporary social network landscape while focusing on the concept of culture, in particular the cultures of Europe and the US. Questions asked are: what is culture? What is common or popular right now in other cultures? And how do new social networks amplify or alter certain features or culture across national and international contests?

**Credit Hours:** 3

**Prerequisites:** sophomore standing required

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**GERMAN 4820W: Blogging the World: The Web in Cultural Context - Writing Intensive**

(same as FRENCH 4820 and RUSS 4820; cross-leveled with GERMAN 7820, FRENCH 7820, RUSS 7820). Innovative interdisciplinary course addresses issues of access to international news and specific cultural context working in cross-disciplinary teams. Students in journalism, foreign language, international studies, political science and various other disciplines track cultural developments and information on non-US Web sites, blogs and digital social networks along with exploring various historical forms of communication that preceded the digital era of the Web. Students analyze the potential and limitations/ effects of blogs and the web in specific contemporary cultural contexts and as part

of the broader historical evolution of the web. The course is taught in English. The goal of this course is two-fold; students learn the particulars of web blogging, explore various features of the contemporary social network landscape while focusing on the concept of culture, in particular the cultures of Europe and the US. Questions asked are: what is culture? What is common or popular right now in other cultures? And how do new social networks amplify or alter certain features or culture across national and international contests?

**Credit Hours:** 3

**Prerequisites:** sophomore standing required

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**GERMAN 4840: Totalitarianism and Culture**

(same as RUSS 4840; cross-leveled with GERMAN 7840, RUSS 7840). In this course, we will explore the politics and poetics of totalitarian culture by examining the paintings, music, sculptures, buildings, and films produced under the rule of these regimes. In the process, we will learn how Nazi and Soviet culture producers made carefully calibrated appeals to their respective mass audiences, drawing upon the German and Russian cultural traditions - and on scientific rhetorics of cultural history and racial destiny - in crafting their utopian visions of worlds transformed, wrongs righted, and societies perfected.

**Credit Hours:** 3

**Recommended:** Junior standing or above; students taking this course for WI should have taken a 2000- or 3000-level WI course before beginning this class

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**GERMAN 4840H: Totalitarianism and Culture - Honors**

(same as RUSS 4840H; cross-leveled with GERMAN 7840, RUSS 7840). In this course, we will explore the politics and poetics of totalitarian culture by examining the paintings, music, sculptures, buildings, and films produced under the rule of these regimes. In the process, we will learn how Nazi and Soviet culture producers made carefully calibrated appeals to their respective mass audiences, drawing upon the German and Russian cultural traditions - and on scientific rhetorics of cultural history and racial destiny - in crafting their utopian visions of worlds transformed, wrongs righted, and societies perfected.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** Junior standing or above; students taking this course for WI should have taken a 2000- or 3000-level WI course before beginning this class

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**GERMAN 4840HW: Totalitarianism and Culture - Honors/Writing Intensive**

(same as RUSS 4840HW; cross-leveled with GERMAN 7840, RUSS 7840). In this course, we will explore the politics and poetics of totalitarian culture by examining the paintings, music, sculptures, buildings, and films produced under the rule of these regimes. In the process, we will learn how Nazi and Soviet culture producers made carefully calibrated appeals to their respective mass audiences, drawing upon the German and Russian cultural traditions - and on scientific rhetorics of cultural history and racial destiny - in crafting their utopian visions of worlds transformed, wrongs righted, and societies perfected.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** Junior standing or above; students taking this course for WI should have taken a 2000- or 3000-level WI course before beginning this class

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**GERMAN 4840W: Totalitarianism and Culture - Writing Intensive** (same as RUSS 4840; cross-leveled with GERMAN 7840, RUSS 7840). In this course, we will explore the politics and poetics of totalitarian culture by examining the paintings, music, sculptures, buildings, and films produced under the rule of these regimes. In the process, we will learn how Nazi and Soviet culture producers made carefully calibrated appeals to th

**Credit Hours:** 3

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**GERMAN 4850: Revolution and Media in a Global Perspective** (same as RUSS 4850; cross-leveled with RUSS 7850). This course offers a historical and global survey of the rise of modern revolution, from France to Haiti to Russia to the Black Power movement and beyond. Drawing on media studies and cultural studies, we will explore how revolutions are tied up in specific medial environments. This entails asking how media spread revolution, whether in print and visual culture, in the broadcast media of the twentieth century, or in the digital landscapes of the twenty-first century, and how revolutions can be understood themselves as media events. In the process students will develop a critical vocabulary for discussing the role of media in political and cultural revolution and counter-revolution in a global perspective. Graded on A-F basis only.

**Credit Hours:** 3

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**GERMAN 4960: Special Readings in German**  
Independent study through readings, conferences, and reports.

**Credit Hour:** 1-3  
**Prerequisites:** instructor's consent  
**Recommended:** junior standing

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**GERMAN 4980: German Capstone Seminar** (cross-leveled with GERMAN 7980). Required of all senior German majors; usually taken in the senior year. Focuses on contemporary Germany and brings together aspects of German literature and culture studies during the degree program.

**Credit Hours:** 3  
**Prerequisites:** senior standing or departmental consent

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**GERMAN 7001: Topics in German-General**  
Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 1-3

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**GERMAN 7005: Topics in German - Humanities**  
Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 1-99

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**GERMAN 7070: Intensive Beginning German**  
This course is primarily designed for graduate students seeking reading knowledge of German. It is conducted in English and consequently students do not learn how to speak or write German as they typically do in language acquisition classes. The focus instead lies on grammar, vocabulary building, and translation. No previous familiarity with German is expected, but by the end of the course students will ideally be able to understand the basic gist of scholarly texts in their respective disciplines. Graded on A-F basis only.

**Credit Hours:** 3

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**GERMAN 7085: Problems in German**  
**Credit Hour:** 1-3  
**Prerequisites:** chairman's consent

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**GERMAN 7160: German Conversation and Composition III** (cross-leveled with GERMAN 4160). A course for intermediate to advanced students of German. This course helps learners develop further the necessary communicative skills in German. The particular emphasis is on oral and writing skills, and texts that provide insight into contemporary German culture and social life.

**Credit Hours:** 3  
**Prerequisites:** GERMAN 3230 or equivalent

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**GERMAN 7650: Faust** (cross-leveled with GERMAN 4650). Faust.

**Credit Hours:** 3  
**Prerequisites:** GERMAN 4230 or equivalent

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**GERMAN 7670: Medieval German Literature 1170-1210** (cross-leveled with GERMAN 4670). Analysis of major narrative and lyric poetry of the Age of Chivalry.

**Credit Hours:** 3  
**Prerequisites:** GERMAN 4230 or equivalent

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**GERMAN 7730: German Internship and Methods** (cross-leveled with GERMAN 4730). Supervised introduction to the methodology of the teaching of elementary German; conducted in a classroom environment.

**Credit Hours:** 3  
**Prerequisites:** GERMAN 4230 or equivalent, or instructor's consent

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**GERMAN 7840: Totalitarianism and Culture** (same as RUSS 7840; cross-leveled with GERMAN 4840, RUSS 4840). In this course, we will explore the politics and poetics of totalitarian culture by examining the paintings, music, sculptures, buildings, and films produced under the rule of these regimes. In the process, we will learn how Nazi and Soviet culture producers made carefully calibrated appeals to their respective mass audiences, drawing upon the German and Russian cultural traditions - and on scientific rhetorics of cultural history and racial destiny - in crafting their utopian visions of worlds transformed, wrongs righted, and societies perfected.

**Credit Hours:** 3

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**GERMAN 7850: Revolution and Media in a Global Perspective**

(same as RUSS 7850; cross-leveled with RUSS 4850, GERMAN 4850).

This course offers a historical and global survey of the rise of modern revolution, from France to Haiti to Russia to the Black Power movement and beyond. Drawing on media studies and cultural studies, we will explore how revolutions are tied up in specific medial environments.

This entails asking how media spread revolution, whether in print and visual culture, in the broadcast media of the twentieth century, or in the digital landscapes of the twenty-first century, and how revolutions can be understood themselves as media events. In the process students will develop a critical vocabulary for discussing the role of media in political and cultural revolution and counter-revolution in a global perspective. Graded on A-F basis only.

**Credit Hours:** 3

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**GERMAN 7960: Special Readings in German**

Independent study through readings, conferences, and reports.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**GERMAN 7980: German Capstone Seminar**

(cross-leveled with GERMAN 4980). Focuses on contemporary Germany and brings together aspects of German literature and culture studies during the degree program.

**Credit Hours:** 3

**Prerequisites:** one 3000-level literature course or equivalent, or instructor's consent

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**GERMAN 8005: Topics in German - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 1-99

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**GERMAN 8050: Research in German**

Translations or creative work not leading to thesis. Credit hours arranged.

**Credit Hour:** 1-3

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**GERMAN 8085: Problems in German**

**Credit Hour:** 1-3

**Prerequisites:** chairman's consent

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**GERMAN 8087: Seminar in German**

Course content varies.

**Credit Hours:** 3

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**GERMAN 8090: Research in German**

Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** graduate director's consent

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## Graduate School Courses

**GRAD 4000: Supporting Your Professional Goals**

(Cross-Listed with GRAD 7000). This course will help you set professional goals and gain knowledge and skills by participating a series of professional development workshops to help you meet those goals.

**Credit Hour:** 1

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**GRAD 4010: Preparing To Be A Graduate Teaching Assistant**

Provides an understanding of the roles and responsibilities of teaching assistants to prepare students for graduate school. Learning will take place through observation, lecture, reading and discussion. Graded on S/U basis only.

**Credit Hour:** 1

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**GRAD 7000: Supporting Your Professional Goals**

(Cross-Listed with GRAD 4000). This course will help you set professional goals and gain knowledge and skills by participating a series of professional development workshops to help you meet those goals.

**Credit Hour:** 1

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**GRAD 7302: Tools for Teaching American Students**

Emphasis on advanced academic listening, discrete pronunciation skills, techniques for laboratory teaching and one-to-one interactions. Integrated with a general overview of American classroom culture.

**Credit Hours:** 4

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**GRAD 7303: Communication and Culture for American College Teaching**

This class will focus on the linguistic aspects of teaching, as well as specific pedagogical; and cultural aspects of the American classroom. It will emphasize fluency development at the suprasegmental level, and interactive teaching skills, like organizational, questioning and compensation strategies.

**Credit Hours:** 4

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**GRAD 9001: Topics in Graduate School**

Organized study of selected professional and career development topics. Subjects and course credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** instructor's and academic advisor's consent

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**GRAD 9010: Preparing Future Faculty I**

First course in a two-semester Preparing Future Faculty program that introduces Ph.D. students to a variety of faculty roles and work environments. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**GRAD 9020: Preparing Future Faculty II**

Second course in a two-semester Preparing Future Faculty program that introduces Ph.D. students to a variety of faculty roles and work environments. Topics build upon those presented in GRAD 9010 and focus on the job search and career development processes. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** GRAD 9010

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#### **GRAD 9050: Preparing Future Professionals for Post-Graduate Studies Careers**

Specialized leadership and transferable skills course that helps students recognize their potential and versatility for careers within and beyond the academy. Beyond leadership theory, the course is framed by 4 competency areas: 1) Analytic competencies; 2) Personal competencies; 3) Communication competencies and 4) Organizational competencies. Learning is enhanced with short text readings and videos in the course management system. Guest speakers. To pass the course, students must attend class; complete a self-assessment; complete an informational interview or job shadow with a leader of choice; and submit 3 short assignments including an Individual Development Plan with goals. Graded on S/U basis only.

**Credit Hour:** 1

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#### **GRAD 9072: Science Policy and Public Engagement**

It is important the STEM professionals to understand the intersections between science, politics, and society to understand how the decisions that affect them are made. Junior scholars who understand the goals and implications of publicly funded science will likely have an advantage when seeking jobs and funding. This program also will explore numerous careers in the science policy realm.

**Credit Hours:** 3

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#### **GRAD 9080: Essentials for Public Engagement**

This course will focus on understanding the role of scholarship and research in society and how to integrate public needs with research, ways to the public engages with scholarly research and how researchers can effectively engage individuals and groups. Topics covered include: different types of public engagement, public policy, ethics, broader impacts of research, extension education, public communication, theoretical rationale for engagement, historical trends in public engagement.

**Credit Hour:** 1

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#### **GRAD 9082: Science Policy and Public Engagement**

It is important the STEM professionals to understand the intersections between science, politics, and society to understand how the decisions that affect them are made. Junior scholars who understand the goals and implications of publicly funded science will likely have an advantage when seeking jobs and funding. This program also will explore numerous careers in the science policy realm.

**Credit Hour:** 1

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#### **GRAD 9304: Instructional and Communication Strategies for Effective College Teaching**

This class will focus on teaching and presentation strategies such as lesson design, using case studies and problem based learning, interactive learning, and classroom and course management. The linguistic emphasis will be on reduction, linking and speech patterns as well as pragmatic issues of organizing, clarifying and emphasizing ideas. Requires an MU Oral Language Proficiency Assessment score of 3 and course consent. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** ITAP language level 3P or GRAD 7303 and level 2; consent required

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## **Grammar (Intensive English Program) Courses**

### **IEPG \_0001: Grammar with Writing I**

Students will learn to recognize and use basic grammatical structures. Students will use these structures to produce basic sentences and short paragraphs on topics from daily life. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required

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### **IEPG \_0002: Grammar II**

Students will learn low-intermediate grammatical structures including modals, simple and progressive verb tenses, and expressions of quantity. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required

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### **IEPG \_0030: Grammar for Academic Purposes III**

Students will learn intermediate grammatical structures including present perfect tense, simple gerunds and infinitives, comparatives and superlatives, and restrictive adjective clauses. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required

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### **IEPG \_0040: Grammar for Academic Purposes IV**

Students will learn high-intermediate grammatical structures including past perfect tense, passive voice, noun clauses, adjective clauses, and adverb clauses. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required

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### **IEPG \_0050: Grammar for Academic Purposes V**

Students will learn advanced grammatical structures including passive and perfect modals, passive gerunds and infinitives, conditionals, and reported speech. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required

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## **Greek Courses**

### **GREEK 1100: Elementary Ancient Greek I**

Study of forms, grammar, syntax. Early attention to reading in simple Attic prose.

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**Credit Hours:** 4

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**GREEK 1100H: Elementary Ancient Greek I - Honors**

Study of forms, grammar, syntax. Early attention to reading in simple Attic prose.

**Credit Hours:** 4

**Prerequisites:** Honors eligibility required

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**GREEK 1200: Elementary Ancient Greek II**

Continuation of GREEK 1100. Readings in Attic prose.

**Credit Hours:** 4

**Prerequisites:** GREEK 1100

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**GREEK 1200H: Elementary Ancient Greek II - Honors**

Continuation of GREEK 1100H. Readings in Attic prose.

**Credit Hours:** 4

**Prerequisites:** GREEK 1100, Honors eligibility required

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**GREEK 2000: Greek Reading**

Selected works of Greek literature.

**Credit Hours:** 3

**Prerequisites:** GREEK 1200

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**GREEK 2000H: Greek Reading - Honors**

Selected works of Greek literature.

**Credit Hours:** 3

**Prerequisites:** GREEK 1200, Honors eligibility required

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**GREEK 4300: Intermediate Readings**

Selected advanced readings in prose and poetry. Introduction to Homer.

**Credit Hours:** 3

**Prerequisites:** GREEK 2000

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**GREEK 4300H: Intermediate Readings - Honors**

Selected advanced readings in prose and poetry. Introduction to Homer.

**Credit Hours:** 3

**Prerequisites:** GREEK 2000; honors eligibility required

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**GREEK 4500: Greek Stylistics**

(cross-leveled with GREEK 7500). Study and practice of Greek prose, with special consideration to basic problems: abstract expression, word order, sentence structure and use of common rhetorical devices.

**Credit Hours:** 3

**Recommended:** GREEK 4300

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**GREEK 4510: Greek Tragedy**

(cross-leveled with GREEK 7510). Selected works of Aeschylus, Sophocles, Euripides, with special attention to language, style, ideas, and dramatic techniques.

**Credit Hours:** 3

**Recommended:** GREEK 4300

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**GREEK 4520: Greek Comedy**

(cross-leveled with GREEK 7520). Selected plays of Aristophanes and Menander, with special attention to cultural contexts.

**Credit Hours:** 3

**Recommended:** GREEK 4300

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**GREEK 4530: Greek Lyric Poetry**

(cross-leveled with GREEK 7530). Selected readings from lyric poets, with attention to verse forms, and dialects.

**Credit Hours:** 3

**Recommended:** GREEK 4300

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**GREEK 4540: Greek Oratory**

(cross-leveled with GREEK 7540). Selections from Greek orators, with emphasis on Lysias and Demosthenes.

**Credit Hours:** 3

**Recommended:** GREEK 4300

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**GREEK 4560: Greek Historians**

(cross-leveled with GREEK 7560). Reading and analysis of selected texts of major Greek historians.

**Credit Hours:** 3

**Recommended:** GREEK 4300

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**GREEK 4700: Survey of Greek Literature**

(cross-leveled with GREEK 7700). Greek literature from origins to end of Roman period; emphasis on authors not covered in other courses, to provide general view of styles and genres.

**Credit Hours:** 3

**Recommended:** GREEK 4300

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**GREEK 4960: Special Readings in Greek**

Readings in authors and texts not covered in other courses.

**Credit Hours:** 3

**Recommended:** GREEK 4300

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**GREEK 7300: Intermediate Readings in Greek**

Selected advanced readings in prose and poetry. Introduction to Homer.

**Credit Hours:** 3

**Prerequisites:** GREEK 2000 or equivalent. Available to students for graduate credit in departments other than Classical Studies

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**GREEK 7500: Greek Stylistics**

(cross-leveled with GREEK 4500). Study and practice of general Greek prose tendencies, with special consideration to basic problems: abstract expression, word order, sentence structure and use of common rhetorical devices.

**Credit Hours:** 3

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**GREEK 7510: Greek Tragedy**

(cross-leveled with GREEK 4510). Selected works of Aeschylus, Sophocles, Euripides, with special attention to language, style, ideas, and dramatic techniques.

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**Credit Hours:** 3

**Prerequisites:** wo years Classical Greek or equivalent

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**GREEK 7520: Greek Comedy**

(cross-leveled with GREEK 4520). Selected plays of Aristophanes and Menander, with special attention to cultural contexts.

**Credit Hours:** 3

**Prerequisites:** two years Classical Greek or equivalent

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**GREEK 7530: Greek Lyric Poetry**

(cross-leveled with GREEK 4530). Selected readings from lyric poets, with attention to verse forms, and dialects.

**Credit Hours:** 3

**Prerequisites:** two years Classical Greek or equivalent

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**GREEK 7540: Greek Oratory**

(cross-leveled with GREEK 7530). Selections from Greek orators, with emphasis on Lysias and Demosthenes.

**Credit Hours:** 3

**Prerequisites:** two years Classical Greek or equivalent

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**GREEK 7560: Greek Historians**

(cross-leveled with GREEK 7560). Reading and analysis of selected texts of major Greek historians.

**Credit Hours:** 3

**Prerequisites:** two years Classical Greek or equivalent

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**GREEK 7700: Survey of Greek Literature**

(cross-leveled with GREEK 4700). Greek literature from origins to end of Roman period; emphasis on authors not covered in other courses, to provide general view of styles and genres.

**Credit Hours:** 3

**Prerequisites:** two years Classical Greek or equivalent

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**GREEK 7960: Special Readings in Greek**

Readings in authors and texts not covered in other courses.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent and two years Classical Greek or equivalent

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**GREEK 8000: Proseminar in Greek Texts**

This is a seminar-level introduction to Greek literary and historical texts. The emphasis in this course will be on wide and intensive reading, with the objective of helping the new graduate student quickly develop a sound literary and linguistic competence.

**Credit Hours:** 3

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**GREEK 8010: Greek Rough Guide**

Intensive exploration of Greek Literature from its earliest appearance through the Roman period. Emphasis upon texts as both literary and cultural artifacts whose interpretation requires familiarity with the historical and archaeological legacy of antiquity as well as modern exegetical strategies. Graded on A-F basis only.

**Credit Hours:** 3

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**GREEK 9287: Seminar in Greek Drama**

May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**GREEK 9487: Seminar in the Greek Philosophers**

Seminar in the Greek Philosophers.

**Credit Hours:** 3

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**GREEK 9887: Seminar in Special Fields**

Seminar in Special Fields.

**Credit Hours:** 3

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## Health and Rehabilitation Science Courses

**HR\_SCI 8001: Topics in Health and Rehabilitation Science**

Organized study of selected topics in health and/or healthcare. Topic and credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**HR\_SCI 8085: Problems in Health and Rehabilitation Science**

Individual study not leading to thesis or dissertation.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**HR\_SCI 8440: Health and Rehabilitation Science I**

This course focuses on major methods and techniques of research in disciplines within Health and Rehabilitation Science. It is primarily intended for students in the Health and Rehabilitation Science doctoral program.

**Credit Hour:** 2-3

**Prerequisites:** Graduate standing within the Health and Rehabilitation Science program or permission from the instructor

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**HR\_SCI 8442: Health and Rehabilitation Science II**

This course focuses on major methods and techniques of research in disciplines within Health and Rehabilitation Science. It is primarily intended for students in the Health and Rehabilitation Science doctoral program.

**Credit Hour:** 2-3

**Prerequisites:** Graduate standing within the Health and Rehabilitation Science program or permission from the instructor. Completion of HR\_SCI 8440

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## Health Management and Informatics Courses

**HMI 4420: Fundamentals of Bioinformatics**

(cross-leveled with HMI 7420). The purpose of this course is to provide perspective on the fundamentals of exploration of biological knowledge using computers. As technologies such as microarray, sequencing, and biomarkers become more pervasive, they are impacting not only the development of science, but also domains such as health care, nutrition, and ethics. This course provides a description of fundamental bioinformatics concepts such as sequencing, proteomics, metabolomics,



and biological pathways, and illustrates them with short informatics experiments. Mainly online resources will be used, so no programming is necessary. Also, the course includes a short primer of molecular biology, so background in molecular biology is not required.

**Credit Hours:** 3

**Prerequisites:** Departmental consent required

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#### **HMI 4440: Health Information Technology**

(cross-leveled with HMI 7440). In this course, the student will learn 1) The Python programming language and how to use it for biomedical applications 2) the SQL database language and how to design and operate a database, and 3) HTML and javascript languages and how to design a web application. Applications will be healthcare focused.

**Credit Hours:** 3

**Prerequisites:** Departmental consent required

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#### **HMI 7410: Introduction to the US Health Care System**

This is a survey course about the American health system, meant to provide a conceptual foundation for students to think critically about the US health system and to build upon in their future related courses. It includes concepts and language in health care, public health, and personal health and provides an understanding of how these domains of health interrelate. Particular focus is given to health care delivery, including how health care services are organized, delivered, paid for, and measured. Selected key, forward-looking issues are covered. The roles of management, leadership, and physicians are highlighted. A resource bank and regular flow of good information sources is developed. Business writing skills are emphasized.

**Credit Hours:** 3

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#### **HMI 7420: Fundamentals of Bioinformatics**

(cross-leveled with HMI 4420). The purpose of this course is to provide perspective on the fundamentals of exploration of biological knowledge using computers. As technologies such as microarray, sequencing, and biomarkers become more pervasive, they are impacting not only the development of science, but also domains such as health care, nutrition, and ethics. This course provides a description of fundamental bioinformatics concepts such as sequencing, proteomics, metabolomics, and biological pathways, and illustrates them with short informatics experiments. Mainly online resources will be used, so no programming is necessary. Also, the course includes a short primer of molecular biology, so background in molecular biology is not required.

**Credit Hours:** 3

**Prerequisites:** Open to undergraduates with dual enrollment

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#### **HMI 7430: Introduction to Health Informatics**

Introduction to the use of clinical information systems in healthcare. Topics include clinical data, standards, electronic medical records, computerized provider order entry, decision support, telemedicine, and consumer applications.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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#### **HMI 7431: Foundation of Public Health Informatics**

This course will cover foundational knowledge relevant to Public Health Informatics (PHI). The purpose of this course is to expose students

to emerging research and application areas in the field of PHI. It will enhance abilities to know when and how to use theories, concepts, and tools of informatics applied to public health. The emphasis of the course is on the use of informatics tools and practices in public health and the existing and evolving relationship between clinical and public health systems. The focus is on PHI including topics such as data exchange and standards, interoperability, use of informatics tools, applying informatics to public health communication and dissemination, surveillance systems, public health policy and project management.

**Credit Hours:** 3

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#### **HMI 7432: Health Database Management and Public Health Data Systems**

This course will cover foundational knowledge relevant to database management and public health data systems for Public Health Informatics (PHI). The purpose of this course is to provide students with concepts relevant to the effective use of data, information, and knowledge tools to build, manage, merge, retrieve, and analyze public health data from appropriate health data systems. The emphasis of the course is to use, develop and adapt public health information systems as needed to support public health efforts through use of public health informatics tools and practices to support existing and evolving relationships between clinical and public health systems. The focus is to plan, develop, implement, manage and evaluate database management systems and health data systems that meet the needs of public health practice through PHI.

**Credit Hours:** 3

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#### **HMI 7435: Scripting for Public Health Informatics**

In this online course, the student will learn 1) the Python programming language and how to use it to manipulate common forms of public health data, 2) the SQL language and how to design and interact with a relational database and its contents.

**Credit Hours:** 3

**Prerequisites:** College-level Statistics; Graduate standing or permission of the instructor

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#### **HMI 7440: Health Information Technology**

(cross-leveled with HMI 4440). In this course, the student will learn 1) The Python programming language and how to use it for biomedical applications 2) the SQL database language and how to design and operate a database, and 3) HTML and javascript languages and how to design a web application. Applications will be healthcare focused.

**Credit Hours:** 3

**Prerequisites:** college algebra and statistics

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#### **HMI 7471: Introduction to Accounting and Finance in Health Care**

This course introduces the current financial environment in which providers operate and the fundamentals of financial accounting, with an emphasis on accounting and financial management principles and concepts that are critical to decision making for department-level management of health services organizations. This course provides the foundation for the second healthcare financial management course offered in the second year of this program.

**Credit Hours:** 3

**Prerequisites:** Graduate standing or consent of instructor

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**HMI 7564: Health Ethics Theory**

An introduction to health ethics theory and methodology. We discuss metaethics and normative ethics theories, normative ethics in health ethics and methods of ethics case work up.

**Credit Hours:** 3

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**HMI 7566: Health Informatics Ethics**

An introduction to how the increasing use of distance-based technologies, computers, and online communications may impact the ethical delivery of health care. Examples of questions to be addressed: Is it possible that the increasing use of computers in healthcare has made things worse? How should HIPAA be interpreted and why is there such confusion about it? Should patients be able to 'post' negative comments about providers on social media sites? What should be done about the increasing amounts of personal information healthcare corporations are collecting on patients?

**Credit Hours:** 3

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**HMI 7567: Health Organizational Ethics**

Examples of questions to be addressed: Should hospitals and doctors try to maximize profits? Do providers have a moral obligation to serve people who cannot pay? Is it okay to deceive an insurance company if it means better patient care? What should employees do if their employer is committing fraud? Is it ethical for hospitals to drug-test employees and investigate their private lives? What is the ethical way to hire and fire healthcare staff? What should you do if your supervisor is evil?

**Credit Hours:** 3

**Prerequisites:** HMI 7564 or equivalent course, or permission of instructor

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**HMI 8090: Thesis Research in Health Management and Informatics**

Research leading to a thesis. May be repeated to maximum of 9 hours. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** Advisor's consent

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**HMI 8401: Topics in Health Management and Informatics**

Organized study of selected topics. Subjects will vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hours:** 3

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**HMI 8435: Information Security, Evaluation and Policy**

The purpose of this course is to provide an extensive overview, practical applications and analyses of functionality and usability evaluations of health care information technology, and to discuss the impact of security on the present and future health care settings.

**Credit Hours:** 3

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**HMI 8437: Data Warehousing and Data/Text Mining for Health Care**

An introduction to the basic concepts of data warehouse and data/text mining, creating an understanding of why we need those technologies and how they can be applied to healthcare problems.

**Credit Hours:** 3

**Prerequisites:** HMI 8441

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**HMI 8441: Biomedical and Health Vocabularies and Ontologies**

Basic and advanced concepts of controlled terminologies and their use in the representation of biomedical information and knowledge, with emphasis on terminology management in the health care enterprise. Syntactic and semantic structure of controlled terminologies are examined and a number of representative terminologies are analyzed.

**Credit Hours:** 3

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**HMI 8443: Enterprise Information and Solutions Architecture for Strategic Healthcare Operations**

Organization and development of infrastructure necessary to support an enterprise information system for patient care. Components of architecture are introduced in a problem-based approach, case examples are presented as the basis for addressing specific attributes of the components, as well as problems facing the design of an enterprise information system for health care.

**Credit Hours:** 3

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**HMI 8450: Methods of Health Services Research**

Writing intensive course provides students with basic understanding of literature search, experimental designs, evaluation methods, ethics, reporting and application of health services research. Practical research problems are discussed and students prepare a professional, managerially relevant research proposal.

**Credit Hours:** 3

**Prerequisites:** HMI 7410; Satisfactory completion of a college-level course in statistics

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**HMI 8451: Individual Executive Management Studies**

Students will investigate and address important issues in their organizations. Students will use scientific evidence and techniques to solve applied problems. They will develop data collection protocols, collect and analyze data, draw conclusions, and develop recommendations using basic research methods tools. They will provide actionable and feasible recommendations based on their analysis. Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites:** HMI 7410, HMI 8450 or permission of instructor

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**HMI 8453: Executive Management Studies**

Students will use scientific evidence and techniques to solve applied problems in health care organizations. Students will serve as professional consultants, working within small teams to develop project specifications and plans in collaboration with their clients. They will develop data collection protocols, collect and analyze data, draw conclusions and develop recommendations using basic research methods tools. They will provide actionable, feasible recommendations to their clients based on their analysis. Graded on A/F basis only.

**Credit Hours:** 3

**Prerequisites:** HMI 7410; Graduate standing or permission of the instructor

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**HMI 8460: Administration of Health Care Organizations**

Analyzes health care organizations, emphasizing organizational structure, and strategy, and managerial leadership. Topics include governance,

adaptation, design, interorganizational networks, and organizational performance.

**Credit Hours:** 3

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**HMI 8461: Managing Human Resources in Health Care Organizations**

Provides a framework for understanding and thinking strategically about employee relations and management of people in organizations, drawing on insights from social sciences to explore how psychological, economic, social, and cultural forces influence human resources management in health care.

**Credit Hours:** 3

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**HMI 8470: Strategic Planning and Marketing for Health Care Organizations**

Analysis of strategic planning and services management and marketing concepts, techniques, and tools in the health care industry. Includes analyzing the environment, assessing the organization's strengths and weaknesses, formulating strategy to achieve competitive advantage, and implementing strategy through service management and marketing.

**Credit Hours:** 3

**Prerequisites:** HMI 7410, and HMI 8524

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**HMI 8472: Financial Management for Health Care Organizations**

Application of concepts, tools and techniques of financial management and their interrelationships as they apply to current and future operation of health care organizations. Prerequisites: For Residential students: HMI 7410, HMI 7471, HMI 8460, HMI 8524. For Executive students: HMI 7410, HMI 8460, HMI 8524, and satisfactory completion of college-level courses in managerial accounting and financial management or satisfactory completion of HMI's online accounting and finance module.

**Credit Hours:** 3

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**HMI 8478: Knowledge Management in Health Care**

Representing clinical terms, concepts and knowledge in a form for manipulation by intelligent systems. Theoretical formalisms and conceptual representations of medical information. Examination of knowledge engineering tools and decision support systems.

**Credit Hours:** 3

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**HMI 8485: Problems in Health Management and Informatics**

Intensive study of an area of health services management.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**HMI 8515: Problems in Medical Ethics and Clinical Ethics Consultation Practicum**

The Problems in Medical Ethics Course is a practicum based course with a hands-on clinical ethics consultation component. The course will provide the student with a tailored learning experience that will encourage and develop skills and a working knowledge about health care ethics, and the ability to respond effectively when confronted with the difficult ethical dilemmas that may be encountered at multiple levels in the complex arena of health care. Specifically students will cultivate skills which will optimize their ability to work as an ethics consultant in a multidimensional and diverse society as well as an inclusive health care environment. The

course is designed with flexibility in mind, however there are mandatory onsite components which will require the student to attend structured meetings, consultations and presentations.

**Credit Hours:** 5

**Prerequisites:** M-4 status for medical students. For Graduate students, HMI 7564 - Health Ethics Theory and HMI 8565 - Health Care Ethics and permission of instructor

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**HMI 8524: Health Economics**

Building upon previous knowledge of basic economic theories, concepts, and tools, the structure, organization, activities, functions, and problems of health and medical care are considered from an economics perspective.

**Credit Hours:** 3

**Prerequisites:** microeconomics

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**HMI 8544: Managerial Epidemiology (Population Health Management)**

Examination of basic epidemiological concepts and methods as they apply to health services management. Lectures and discussions focus on the most useful measures of occurrence of health events, methods of data collection, research study design, the interpretation of epidemiological data, and the limitations of epidemiological methods, providing the background needed by students to critically review, draw conclusions from, and use information encountered in their roles as healthcare managers. Emphasis is placed on practical applications of epidemiology to health services planning, problem solving, policy development, and systems-thinking.

**Credit Hours:** 3

**Prerequisites:** Restricted to HMI students only

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**HMI 8545: Methods in Public Health Informatics/Biostatistics**

This course will cover foundational statistical knowledge and methods relevant to Public Health Informatics (PHI). The purpose of this course is to teach students to identify and perform appropriate statistical methods for the data analysis of data from many commonly used experimental designs in the field of PHI. The emphasis of the course is on the understanding of theoretical assumptions underlying these statistical methods. The focus of this course is to perform selected statistical analyses using, SPSS and/or R and to interpret statistical results, in a manner relevant to public health informatics in the context of public health. This course builds upon previous knowledge of basic statistics, concepts, and tools by applying them specifically to the public health field.

**Credit Hours:** 3

**Recommended:** college algebra

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**HMI 8546: Public Health Information and Visualization (GIS) in Public Health**

This course will cover foundational knowledge of Geographic Information Systems (GIS) relevant to Public Health Informatics (PHI). The purpose of this course is to learn basic descriptive and analytical functions of GIS for research and application areas in the field of PHI. The course emphasis is for students to gain hands-on experience in the use of GIS, mapping, and spatial data analysis software such as ArcGIS, R, and Instant Atlas. The focus is on the use of geographic information systems (GISs) in the analysis of public health data. No previous knowledge

of mapping or GIS is required, but one is expected to have a working knowledge of MS Office, Windows operating systems, and Biostatistics (prerequisites Methods in Public Health Informatics/Biostatistics). This course builds upon previous knowledge of basic statistics, concepts, and tools by applying them in a GIS context specific to Public Health Informatics.

**Credit Hours:** 3

**Prerequisites:** HMI 8545

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#### **HMI 8550: Health Data Analytics**

The purpose of this course is to provide you with an applied approach to analyze healthcare data. It will enhance abilities to know when and how to use theories, concepts, and tools of data analysis and statistics to evaluate and analyze health care data systematically. The emphasis of the course is on the use of data analysis in the health care field. The focus is on applying data analysis to health care data, problems and issues in the health care system, and on the data application necessary to make decisions based on the analysis. This course builds upon previous knowledge of basic statistics and analytics, concepts, and tools by applying them specifically to the health care system.

**Credit Hours:** 3

**Prerequisites:** college algebra and statistics or permission of instructor

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#### **HMI 8565: Health Care Ethics**

Explores ethics issues and controversies facing clinicians and healthcare administrators. Topics may include end-of-life care, imperiled newborns, maternal-fetal conflict, procreative liberty, genetic screening and enhancement, organ procurement and allocation, rationing, public health, workplace relationships, and conflicts of interest.

**Credit Hours:** 3

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#### **HMI 8571: Decision Support in Health Care Systems**

Applies principles and techniques of computer-assisted decision making to solve health care problems. Clinical and managerial applications of artificial intelligence, including expert systems reviewed. Advantages of integrating decision support programs with databases are discussed.

**Credit Hours:** 3

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#### **HMI 8573: Decision Making for Health Care Organizations**

Applies and integrates data and decision making techniques with process analytic and improvement tools and techniques. Also includes applications of spread sheets and relational databases in healthcare settings.

**Credit Hours:** 3

**Prerequisites:** Restricted to HMI students

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#### **HMI 8574: Health Care Law**

Survey of the function and methods of law as applied to health care administration and health care.

**Credit Hours:** 3

**Prerequisites:** HMI 7410, HMI 7471, HMI 8460, HMI 8524. Non HMI students with a Graduate or professional school career may be able to take the course with instructor consent

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#### **HMI 8575: Health Policy and Politics**

Overview and critical analysis of health policy issues in the United States, including how the dynamics of the policy making process have shaped outcomes, successful and unsuccessful, of a number of important policy initiatives.

**Credit Hours:** 3

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#### **HMI 8580: Project Management**

This course is designed to provide an in-depth understanding of the fundamentals of project management and its application to the provision of health care. A problem-based approach is used to frame both the theoretical underpinnings of project management and hands-on practical application. Students will develop an understanding of the foundations of project management designed to enable them to successfully complete the certification exam to become a certified project manager. Course content includes project scope development, project work breakdown, financial control, and human resources management for projects.

**Credit Hours:** 3

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#### **HMI 8610: Consumer Health Informatics**

Consumer health informatics explores the branch of medical informatics that analyzes consumers' needs for information; studies and implements methods of making information accessible to consumers; and models and integrates consumers' preferences into medical information systems.

**Credit Hours:** 3

**Prerequisites:** HMI 7430 or instructor's consent

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#### **HMI 8689: Field Experience in Health Management and Informatics**

Supervised field experience in approved health agencies and institutions. Opportunity for observation and service participation in various fields of health. Graded on an A-F basis only.

**Credit Hours:** 3

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#### **HMI 8810: Research Methods in Informatics**

Research Methods in Health and Bioinformatics is a writing intensive course that provides students with an understanding of research proposal development, literature searching, research synthesis, research designs, evaluation methods, and ethics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Second semester or later in PhD program or instructor's consent

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#### **HMI 8870: Knowledge Representation in Biology and Medicine**

The main topics presented in the course are: logic systems, knowledge representation methods, production systems and representation of statistical and uncertain knowledge. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HMI 7430 and HMI 7440

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#### **HMI 8880: Agile Project Management in Healthcare**

Overview of the theory and methods associated with agile project management within the context of healthcare operations. Focus of the course is on knowledge of agile principles and agile techniques and the use of appropriate analysis tools. Course encompasses many approaches to agile project management including Scrum, Kanban, Lean,

extreme programming (XP) and test driven development (TDD), and appropriate construction and management of information projects that are supportive of best practice clinical, administrative, and strategic policy and procedure in the delivery of health. A problem-based approach is used to provide the basis for addressing issues and solutions specific to the health delivery environment. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HMI 8580

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## Health Professions Courses

### HTH\_PR 1001: Topics in Health Professions

Organized study of selected topics in Health Professions. Particular topics and credit may vary each semester.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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### HTH\_PR 1100: Introductory Topics in Pharmacy

The course includes presentations and discussions on the profession of pharmacy including: the roles and responsibilities of the pharmacist, educational requirements to obtain the degree, career opportunities, student life, legal and ethical issues, and study skills development. Enrollment limited to Freshman enrolled in Early Assurance Program. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Instructor's consent

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### HTH\_PR 2000: Leadership in Health Care

This course will cover a broad range of concepts in leadership and professional development. Focus will be placed on knowledge and skills necessary for effective leadership in the Health Professions. The first of two semesters series. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** instructors consent

**Recommended:** to students in specified leadership programs

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### HTH\_PR 2001: Topics in Health Professions

Organized study of selected topics in health professions. Particular topics and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** sophomore standing and instructor's consent

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### HTH\_PR 2960: Special Readings in Health Professions

Directed study of literature and research reports in the health-related professions.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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### HTH\_PR 4085: Problems in Health Professions

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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### HTH\_PR 4100: Introduction to Interprofessional Practice

(cross-leveled with HTH\_PR 7100) This course serves as a foundation and introduction to interprofessional education and collaboration.

Students who enroll in this course will be assigned to mini-teams of students from a range of disciplines. Through this course, students will develop an understanding of their own unique role as a healthcare provider and the importance of client- and community-centered care and effective teamwork, as well as communication skills. Graded on A-F basis only. Recommended: Students must be enrolled in one of the following programs in order to take this course: Communication Sciences, Athletic Training, Respiratory therapy, Radiography, Clinical Laboratory Sciences, Diagnostic Ultrasound. Undeclared/non-professional program students may not enroll.

**Credit Hour:** 1

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### HTH\_PR 4250: Human Kinesiology

(same as PH\_THR 4250). Study of principles of physical laws, biomechanics and anatomic structure relative to human movement. Application through analysis of daily functional performance, exercise and sport.

**Credit Hours:** 3

**Prerequisites:** PTH\_AS 2201

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### HTH\_PR 4950: Research Apprenticeship in Health Professions

This course provides undergraduate students in the health professions and related disciplines experience with research in the health professions and related disciplines experience with research in the health professions. Students will assist in the development and execution of research projects under the supervision of an SHP faculty member.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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### HTH\_PR 7001: Topics in Health Professions

Organized study of selected topics in health and/or healthcare. Topic and credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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### HTH\_PR 7100: Introduction to Interprofessional Practice

(cross-leveled with HTH\_PR 4100). This course serves as a foundation and introduction to interprofessional education and collaboration. Students will develop an understanding of their own unique role as a healthcare provider and the importance of client- and community-centered care and effective teamwork, as well as communication skills. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Students must be enrolled in a professional graduate program (Occupational therapy, Physical Therapy, Communication Sciences and Disorders, Athletic Training within the School of Health Professions or other approved programs (Applied Behavioral Analysis)

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### HTH\_PR 7300: Health Care in the United States

Overview of financing, structure, and outcomes in the U.S. health care system. Contemporary health care issues, policy, and politics will be addressed. Graded on A-F basis only.

**Credit Hours:** 3

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**HTH\_PR 8001: Topics in Health Professions**

Organized study of selected topics in health and/or healthcare. Topic and credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**HTH\_PR 8085: Problems in Health Professions**

Individual study not leading to thesis or dissertation.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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## Health Psychology Courses

**HLTHPSYC 8200: Advanced Applied Behavior Analysis**

This course provides students with a basic understanding of the fundamentals of behavior analysis and behavioral interventions designed to establish, shape, strengthen and maintain desirable behavior and reduce aberrant behavior. The course focuses on the application of behavioral principles using procedures such as differential reinforcement, extinction, antecedent interventions, and punishment. Graded on A-F basis only.

**Credit Hours:** 3

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**HLTHPSYC 8250: Methods in Applied Behavior Analysis**

This course provides students with a basic understanding of systematic data collection and analysis methods used in applied behavior analysis to make informed (data-driven) clinical decisions. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** One of the following - HLTHPSYC 8200, ESC\_PS 8087 or SPC\_ED 8440

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## Health Sciences Courses

**HLTH\_SCI 1000: Introduction to the Health Professions**

Overview of clinical/non-clinical health careers; aptitudes/abilities needed for each; the history, current and future state of health care in the U.S.; introduction to diverse populations and patient/family issues; Assists with career planning/selection of appropriate majors. Graded on A-F basis only.

**Credit Hours:** 3

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**HLTH\_SCI 1000H: Introduction to the Health Professions - Honors**

Overview of clinical/non-clinical health careers; aptitudes/abilities needed for each; the history, current and future state of health care in the U.S.; introduction to diverse populations and patient/family issues; Assists with career planning/selection of appropriate majors. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors Eligibility required

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**HLTH\_SCI 2100: Health Sciences Seminar**

Professional Development course for Health Science Majors. Topics include resume development/ revision, interviewing skills, applying to graduate/professional programs and/or jobs, professional communication, etc. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** sophomore standing required; restricted to Health Science majors only

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**HLTH\_SCI 2200: Nuclear Weapons: Environmental, Health and Social Effects**

(same as SOCIOL 2281 and PEA\_ST 2200). Environmental consequences of the nuclear arms race, 'regional' nuclear war, and weapons testing for human health, agriculture, and society. Examining 'a world without nuclear weapons'; political dialogue on proliferation; Iran, North Korea, and nuclear weapons conventions. Graded on A-F basis only.

**Credit Hours:** 3

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**HLTH\_SCI 2200W: Nuclear Weapons: Environmental, Health and Social Effects - Writing Intensive**

(same as SOCIOL 2281 and PEA\_ST 2200). Environmental consequences of the nuclear arms race, 'regional' nuclear war, and weapons testing for human health, agriculture, and society. Examining 'a world without nuclear weapons'; political dialogue on proliferation; Iran, North Korea, and nuclear weapons conventions. Graded on A-F basis only.

**Credit Hours:** 3

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**HLTH\_SCI 2300: Health Care In Missouri**

This course focuses primarily on application of general health concepts and tools specifically from the perspective of the State of Missouri. It is known for its mixture of large urban areas with rural regions and an extensive farming culture. Missouri has a population of six million people. The state's capitol is in Jefferson City and the most populated cities are: Kansas City-459,787; St. Louis-319,294; Springfield-159,498; Independence-116,830 and Columbia-108,500. Thirty-seven percent of Missouri's population is rural (MO Health Assessment). This course will assist the 69% of Department of Health Science majors, who stay in Missouri after graduation, to better understand the unique issues facing their future patients and clientele. Students will be exposed to specific challenges and successes in Missouri as they relate to health care and public health from a variety of perspectives. This course will examine the health of all Missourians; however, the course will highlight the challenges facing vulnerable populations within the state (minorities, women, LGBT and rural/urban community members) in order to increase cultural competence. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Health Sciences Majors only

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**HLTH\_SCI 2300H: Health Care In Missouri - Honors**

This course focuses primarily on application of general health concepts and tools specifically from the perspective of the State of Missouri. It is known for its mixture of large urban areas with rural regions and an extensive farming culture. Missouri has a population of six million people. The state's capitol is in Jefferson City and the most populated cities are: Kansas City-459,787; St. Louis-319,294; Springfield-159,498; Independence-116,830 and Columbia-108,500. Thirty-seven percent of Missouri's population is rural (MO Health Assessment). This course will assist the 69% of Department of Health Science majors, who stay in Missouri after graduation, to better understand the unique issues facing their future patients and clientele. Students will be exposed to

specific challenges and successes in Missouri as they relate to health care and public health from a variety of perspectives. This course will examine the health of all Missourians; however, the course will highlight the challenges facing vulnerable populations within the state (minorities, women, LGBT and rural/urban community members) in order to increase cultural competence. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Health Sciences Majors only; Honors eligibility required

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#### **HLTH\_SCI 2500: Introduction to Rehabilitation Science**

This course provides a comprehensive introduction to health care rehabilitation. Topics explored will provide foundational knowledge for future rehabilitation professionals and will facilitate the development of skills necessary for success in rehabilitation science graduate and professional degree programs. These topics include the development of the field of rehabilitation, models of disablement/enabement, interprofessional collaboration among rehabilitation providers, and development and growth of critical thinking skills in the rehabilitation sciences. Graded on A-F basis only.

**Credit Hours:** 3

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#### **HLTH\_SCI 2800: Social Justice in Health**

This course introduces the social justice framework and the building of inclusive classrooms and clinics. It includes weekly topics on inclusion, social identities, implicit bias, socioeconomic status, allyship and intrusion. Tools examined include: good personal communication, understanding an inclusive culture, how to be an ally, strategies to recognize and mitigate bias in health situations. Experiential activities and dialogue are the main avenues of learning in this course. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Restricted to Health Sciences Majors during preregistration

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#### **HLTH\_SCI 2850: Introduction to The Impact of Bias, Prejudice and Discrimination on Health Care**

The course is an introduction to concepts of bias, prejudice and discrimination that occurs within health care settings in the United States. We will examine the problem from multiple disciplines, including evidence from sociology, psychology, anthropology, history, and health sciences. Examining these materials will help students better understand the impact of bias, prejudice, and discrimination on access to health care, and on the overall health of people and populations who are impacted by prejudice and discrimination. With the completion of this course, students will be better equipped to provide quality person-centered care and be able to think critically about how to begin the process of ending harmful discriminatory practices. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Sciences Majors

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#### **HLTH\_SCI 2850H: Introduction to The Impact of Bias, Prejudice and Discrimination on Health Care - Honors**

The course is an introduction to concepts of bias, prejudice and discrimination that occurs within health care settings in the United States. We will examine the problem from multiple disciplines, including evidence from sociology, psychology, anthropology, history, and health sciences. Examining these materials will help students better understand the impact

of bias, prejudice, and discrimination on access to health care, and on the overall health of people and populations who are impacted by prejudice and discrimination. With the completion of this course, students will be better equipped to provide quality person-centered care and be able to think critically about how to begin the process of ending harmful discriminatory practices. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Sciences Majors. Honors eligibility required

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#### **HLTH\_SCI 3300: Public Health Principles, Practice, and Education**

Public Health is the science and practice of protecting and improving the health of communities through education, promotion of healthy lifestyles, and research for disease and injury prevention. This course focuses on the basic structures of the Public Health system in the U.S. and provides an introduction to the factors that influence and shape that system. Among others, factors include socioeconomic, financing, politics and global issues. Students in this course will be challenged to consider the complex web of factors affecting the health of communities. The course will explore: health needs assessments, examining relationships among behavioral, environmental and genetic factors that enhance or compromise health, examining factors that influence the learning process, and examining factors that enhance or compromise the process of health education. Graded on an A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Sciences Majors during pre-registration

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#### **HLTH\_SCI 3300H: Public Health Principles, Practice, & Education - Honors**

Public Health is the science and practice of protecting and improving the health of communities through education, promotion of healthy lifestyles, and research for disease and injury prevention. This course focuses on the basic structures of the Public Health system in the U.S. and provides an introduction to the factors that influence and shape that system. Among others, factors include socioeconomic, financing, politics and global issues. Students in this course will be challenged to consider the complex web of factors affecting the health of communities. The course will explore: health needs assessments, examining relationships among behavioral, environmental and genetic factors that enhance or compromise health, examining factors that influence the learning process, and examining factors that enhance or compromise the process of health education. Graded on an A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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#### **HLTH\_SCI 3300W: Public Health Principles, Practice, and Education - Writing Intensive**

Public Health is the science and practice of protecting and improving the health of communities through education, promotion of healthy lifestyles, and research for disease and injury prevention. This course focuses on the basic structures of the Public Health system in the U.S. and provides an introduction to the factors that influence and shape that system. Among others, factors include socioeconomic, financing, politics and global issues. Students in this course will be challenged to consider the complex web of factors affecting the health of communities. The course will explore: health needs assessments, examining relationships among behavioral, environmental and genetic factors that enhance or

compromise health, examining factors that influence the learning process, and examining factors that enhance or compromise the process of health education. Graded on an A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Sciences Majors during pre-registration

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**HLTH\_SCI 3310: Social and Behavioral Health Theory and Practice**

Social and Behavioral Health (SBH) is the core discipline of public health that focuses on the factors that influence individuals' and communities health actions and decisions. This course will take both a theoretical and a practical approach to understanding SBH. Students will gain an understanding of theory and develop practical skills to apply theories to real world health issues. Readings, assignments, and discussions will focus largely on ways to understand and change health behaviors and various individual, relational, community, and social-level influences on health. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Sciences Majors during pre-registration. Sophomore standing required

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**HLTH\_SCI 3400: Global Public Health and Health Care Systems**

(same as PEA\_ST 3401). An introduction to public health in a global context, with an emphasis on understanding how disparities in socioeconomic status, differences in political and national health care systems and the work of international organizations impact health in communities around the world. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Science majors only, in junior or senior status

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**HLTH\_SCI 3450: Introduction to Epidemiology**

(same as P\_HLTH 3450). Epidemiology is the basic science of Public Health, focusing on the study of distribution and determinants of health-related states and events. The purpose of this course is to gain a basic understand of Epidemiology principles and methods and how to use these as a framework in assessing and addressing population health issues. Employing a mix of lecture, discussion, and assignments, students will explore the epidemiological investigation process, the etiology of disease, disability, and death, how to identify population subgroups with increased risk of disease, disability, and death and how to contribute to the development and evaluation of public health programs and services that improve the health of subgroups at risk and the general population. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Acceptance into the Public Health Undergraduate Program or by Department Consent

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**HLTH\_SCI 3500: Mental Health**

This course provides a look at mental health problems with regard to influences, etiology, diagnosis, and treatment. Students learn theories of mental health, diagnostic criteria, treatment modalities, and community issues concerning the mental health system. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HLTH\_SCI 2100

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**HLTH\_SCI 3600: Health Promotion Programs I: Assessment and Planning**

(same as P\_HLTH 3600). Health promotion planning is the development and implementation of a well-researched and tailored intervention to increase the health status of an individual and population. This course will provide a comprehensive introduction to health promotion planning and assessment by integrating a solid theoretical foundation of the discipline with hands-on experience in assessing needs, assets and capacity for health education, health education and project planning, funding, intervention development, implementation of health education projects, and evaluation. Special attention placed on implementing health education and promotion programs that are tailored to the particular population in need as well as specialized for the appropriate setting be it school, work, health care clinic, or the community. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Science majors

**Corequisites:** HLTH\_SCI 3610

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**HLTH\_SCI 3610: Health Promotion Programs II: Implementation, Evaluation, and Communication**

(same as P\_HLTH 3610). This course builds on topics covered in Health Promotion Programs I: Assessment and Planning. It will provide a comprehensive introduction to the implementation, evaluation and communication required for successful health promotion programs by integrating a solid theoretical foundation of the discipline with hands-on experience in the implementation of health promotion program, developing an evaluation and communication strategies for successful health education and health promotion programs in a variety of community-based settings. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Sciences Majors only

**Corequisites:** HLTH\_SCI 3600

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**HLTH\_SCI 3680: Autism Spectrum Disorder and Public Health**

This class is designed to help students think critically about the identification and treatment of autism spectrum disorder (ASD) in the United States. Students will explore current research and debates surrounding the definition, prevention and treatment of ASD in the United States. In addition to learning about the presentation and treatment of ASD, they will also be introduced to concepts in public health, psychology, psychiatry, and health services research. We will also discuss the history of our beliefs about ASD and how these beliefs have influenced policy, systems, services and treatment over the last century. Graded on A-F basis only.

**Credit Hours:** 3

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**HLTH\_SCI 3800: Holistic Health Systems for the Health Professions**

This course will explore the various aspects of the holistic health movement and how they interact with American health care. Topics will include complementary and alternative medicine, or CAM, acupuncture, chiropractic, herbal remedies, naturopathy, traditional Chinese medicine, Ayurveda, midwifery, New Age healing, and others. Students will learn about the underlying philosophical principles of these practices, cultures of origin, treatments offered, and what consumers of health care as well as members of the health care workforce need to know about them. Graded on A-F basis only. Recommended: The most successful students



will have taken other Health Sciences courses, particularly HLTH\_SCI 3300: Public Health, prior to enrolling in this course.

**Credit Hours:** 3

**Prerequisites:** Restricted to students in junior or senior status. Restricted to Health Sciences Majors during pre-registration

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**HLTH\_SCI 3900: Introduction to The Research Process and Evidence Base**

This course provides an introduction to the basic quantitative and qualitative research techniques used in public health, health education and promotion, and the health professions. Conducting research, making medical decisions based on research findings, and using and interpreting research and evidence in practice settings all represent potential outcomes for students selecting a career in public health or the health professions. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Sciences Majors with junior or senior standing

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**HLTH\_SCI 3900H: Introduction to The Research Process and Evidence Base - Honors**

This course provides an introduction to the basic quantitative and qualitative research techniques used in public health, health education and promotion, and the health professions. Conducting research, making medical decisions based on research findings, and using and interpreting research and evidence in practice settings all represent potential outcomes for students selecting a career in public health or the health professions. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Sciences Majors with junior or senior standing. Honors eligibility required

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**HLTH\_SCI 3900HW: Introduction to The Research Process and Evidence Base - Honors/Writing Intensive**

This course provides an introduction to the basic quantitative and qualitative research techniques used in public health, health education and promotion, and the health professions. Conducting research, making medical decisions based on research findings, and using and interpreting research and evidence in practice settings all represent potential outcomes for students selecting a career in public health or the health professions. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Sciences Majors with junior or senior standing. Honors eligibility required

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**HLTH\_SCI 3900W: Introduction to The Research Process and Evidence Base - Writing Intensive**

(same as P\_HLTH 3900W). This course provides an introduction to the basic quantitative and qualitative research techniques used in public health, health education and promotion, and the health professions. Conducting research, making medical decisions based on research findings, and using and interpreting research and evidence in practice settings all represent potential outcomes for students selecting a career in public health or the health professions. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Sciences Majors with junior or senior standing

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**HLTH\_SCI 3965: Strategies for Effective Peer Education in Health Sciences**

(same as WGST 3960, P\_HLTH 3965). Course designed to promote effective presentation skills on a variety of health topics, specifically sexual health. Students will engage in experiential practice and skill building surrounding cultural competency, difficult discourses, discussion facilitation and behavior management. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Instructor's consent

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**HLTH\_SCI 4001: Topics in Health Science**

Organized study of selected topics. Subjects will vary from semester to semester. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** Restricted to Health Sciences Majors during preregistration

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**HLTH\_SCI 4002: Health Sciences Study Abroad - not for capstone**

This course gives students the opportunity to apply critical thinking and analysis to various health issues through the global lens of a study abroad experience. Health issues are affected and complicated by cultural, educational, political, and environmental systems. This program is designed to allow students to gain firsthand knowledge in disease prevention and disability, compliance, health education, and the specific health issues in a local community. Course work will vary based on the study abroad location. This section is not eligible for Health Sciences major's internship/capstone credit. Graded A-F only.

**Credit Hour:** 1-6

**Prerequisites:** Sophomore Standing Required

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**HLTH\_SCI 4085: Problems in Health Sciences**

Students will individually examine a specific health related problem, conduct research, and pose solutions to the problem as related to a health science course or a health field. Course work and content will vary based on the subject and may supplement regular course enrollment. Communication with instructor on topic, progress, and feedback should be timely for successful completion of course. Graded on A-F basis only.

**Credit Hour:** 1-6

**Prerequisites:** Instructor consent

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**HLTH\_SCI 4300: Health Care in the United States**

Overview of financing, structure, and outcomes in the U.S. health care system. Contemporary health care issues, policy, and politics will be addressed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing; Restricted to Health Sciences Majors during pre-registration

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**HLTH\_SCI 4300H: Health Care in the United States - Honors**

Overview of financing, structure, and outcomes in the U.S. health care system. Contemporary health care issues, policy, and politics will be addressed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**HLTH\_SCI 4400: Culture and Health Literacy for the Health Professions**

This course will explore differences and attitudes towards the health care industry across various social, cultural and ability groups. This exploration will result in more culturally competent health professionals by promoting self-awareness and challenging the existing assumptions and biases of the health care system. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** junior or senior standing or instructor's consent.  
Restricted to Health Sciences Majors

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**HLTH\_SCI 4410: Humanism and Health Literacy**

This class will teach how the humanities can help students become better health professionals. Topics include: spirituality and health; non-medical factors that impact health; representation of disability in art history; and literature and health. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Sciences Majors during pre-registration

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**HLTH\_SCI 4420: Health Literacy and Behavioral Compliance**

Students will learn about the behavioral, psychological, and cognitive factors that impact health literacy and the ability to follow healthcare recommendations.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Sciences Majors during pre-registration

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**HLTH\_SCI 4480: Clinical Ethics**

(same as CDS 4480). Exploration of bioethics issues in health care with emphasis on issues related to patient choice and provider responsibility. Topics include philosophical theories, principles and models for ethical and lawful decision making in healthcare.

**Credit Hours:** 3

**Prerequisites:** junior or senior standing; Restricted to Health Science majors only

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**HLTH\_SCI 4480W: Clinical Ethics - Writing Intensive**

(same as CDS 4480W). Exploration of bioethics issues in health care with emphasis on issues related to patient choice and provider responsibility. Topics include philosophical theories, principles and models for ethical and lawful decision making in healthcare.

**Credit Hours:** 3

**Prerequisites:** junior or senior standing; Restricted to Health Science majors only

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**HLTH\_SCI 4500: Health Care Management**

(same as P\_HLTH 4500). Examines various management concepts as they relate to the unique environment of health care. Concepts include planning, decision making, budgeting, staffing, organizing, and motivating for working with individuals or teams. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Science majors only with junior or senior status

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**HLTH\_SCI 4510: Essential Tools for the Health Care Leader: A Problem-Based Approach**

This course is designed to increase students' ability to evaluate, synthesize, and perform tasks in the areas of business intelligence, business analysis, performance and process improvement, data management and mining, information security and privacy, and project management. Graded A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Science majors only in junior or senior status

**Recommended:** Access to and experience using Microsoft Excel 2010

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**HLTH\_SCI 4520: Health Care Project Management**

Examines various project management concepts, both universal and as they relate to the unique environment of health care. Concepts include project, program and portfolio management, initiating projects, planning projects, executing projects, monitoring and controlling projects, closing projects, and using industry best practices and tools. This course will enable you to work with other project management professionals across various industries and in the changing health care setting. You will learn how good project, program, and portfolio management can help you achieve organizational and individual success. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Science majors only in junior or senior status

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**HLTH\_SCI 4900: Seminar in Health Education**

(cross-leveled with P\_HLTH 7900). This course provides students pursuing careers in health education/promotion and public health with the opportunity to synthesize their relevant coursework and prepare for the Certified Health Education Specialist (CHES) examination. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Instructor consent required

**Recommended:** Intended as preparation for the Certified Health Education Specialist (CHES) Exam

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**HLTH\_SCI 4975: Internship in Health Sciences**

Focuses on knowledge, skills and attitudes that enhance personal effectiveness and professional success. Opportunities to research selected career paths and related topics in health sciences and participate in directed service learning projects or internships in selected emphasis area. Graded on A-F basis only.

**Credit Hour:** 1-6

**Prerequisites:** HLTH\_SCI 2100

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**HLTH\_SCI 4985: Healthcare Organization and Leadership**

In this course, students will explore leadership principles as they relate to the student's focus area, combining previous expertise in the field with an interdisciplinary perspective within the healthcare community. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HLTH\_SCI 2100; senior standing required

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## Hebrew Courses

### HEBREW 1100: Elementary Hebrew I

For beginners with no prior knowledge of Hebrew. Five hours of classroom instruction, with one hour lab work weekly.

**Credit Hours:** 6

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### HEBREW 1200: Elementary Hebrew II

Five hours of classroom instruction, with one hour lab work weekly.

**Credit Hours:** 6

**Prerequisites:** C- or better in HEBREW 1100, or equivalent

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### HEBREW 3085: Problems in Hebrew

Supervised study of Hebrew language and/or culture.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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### HEBREW 3845: Modern Israeli Film

(same as FILMS\_VS 3845). Examines the modern film of developing Israel. Discusses complex social relationships. Introduces concepts of Hebrew language and its use in the arts world-wide. Discusses varied communities in Israel, and universal themes such as democracy and social justice. Provides introduction to Israeli culture. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent required

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## History Courses

### HIST 1004: Undergraduate Topics in History-Social Science

Organized study of selected topics. Subjects and credits may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

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### HIST 1100: Survey of American History to 1865

Introduction to U.S. history through the Civil War, surveying political, economic, social and cultural development of the American people. No credit will be given to students who have received credit in HIST 1400 (AP credit for US History).

**Credit Hours:** 3

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### HIST 1100H: Survey of American History to 1865 - Honors

Introduction to U.S. history through the Civil War, surveying political, economic, social and cultural development of the American people. No credit will be given to students who have received credit in HIST 1400 (AP credit for US History).

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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### HIST 1200: Survey of American History Since 1865

Introduction to U.S. history since 1865, surveying political, economic, social, and cultural development of the American people. No credit will be

given to students who have received credit in HIST 1400 (AP credit for US History).

**Credit Hours:** 3

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### HIST 1200H: Survey of American History Since 1865 - Honors

Introduction to U.S. history since 1865, surveying political, economic, social, and cultural development of the American people. No credit will be given to students who have received credit in HIST 1400 (AP credit for US History).

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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### HIST 1400: American History

Broad survey of political, economic, social, intellectual, diplomatic and constitutional development of American people from first English settlements to present day; emphasizes evolution of American culture and institutions. Students may not receive additional credit for HIST 1100 and/or HIST 1200.

**Credit Hours:** 5

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### HIST 1410: African American History

(same as BL\_STU 1410). Survey of social, political and economic development to the African American people in American life from 1619 to the present.

**Credit Hours:** 3

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### HIST 1500: Origins of European History

(same as HIST 1500H). The roots and development of European culture, society, and institutions in the ancient, medieval, and early modern periods.

**Credit Hours:** 3

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### HIST 1500H: Origins of European History - Honors

(same as HIST 1500) The roots and development of European culture, society, and institutions in the ancient, medieval, and early modern periods.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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### HIST 1510: History of Modern Europe

Selected major themes in European history from French Revolution to recent times. Breakdown of traditional institutions, ideas; political, social revolution; industrialization, nationalism, imperialism, world wars; democratic, totalitarian ideologies, movements; quest for international order, European unity.

**Credit Hours:** 3

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### HIST 1510H: History of Modern Europe - Honors

Selected major themes in European history from French Revolution to recent times. Breakdown of traditional institutions, ideas; political, social revolution; industrialization, nationalism, imperialism, world wars; democratic, totalitarian ideologies, movements; quest for international order, European unity.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**HIST 1510HW: History of Modern Europe - Honors/Writing Intensive**

Selected major themes in European history from French Revolution to recent times. Breakdown of traditional institutions, ideas; political, social revolution; industrialization, nationalism, imperialism, world wars; democratic, totalitarian ideologies, movements; quest for international order, European unity.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**HIST 1520: The Ancient World**

Survey of institutional and cultural development of ancient Near East, Greece, Rome, and Asia.

**Credit Hours:** 3

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**HIST 1540: England Before the Glorious Revolution**

Survey of English institutions, culture and politics from the Roman invasion to the Revolution of 1688.

**Credit Hours:** 3

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**HIST 1550: Britain 1688 to the Present**

Surveys British history from 1688 to present. Emphasizes social and economic change.

**Credit Hours:** 3

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**HIST 1570: Survey of Early Modern Europe, 1350-1650**

Survey of Western and Central Europe (including Britain) from the Black Death to the end of the Thirty Years' War. This period comprises late medieval crises, the Renaissance, Reformation, Counter-Reformation, Exploration and the New World, the Confessional Age, early modern state-building, and the Thirty Years' War.

**Credit Hours:** 3

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**HIST 1590: Women and the Family in the Pre-Modern West**

Examines the changing roles of women and familial structures from the Ancient Mediterranean World to the Protestant Reformation and the effects of religious, political and economic change on the family.

**Credit Hours:** 3

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**HIST 1600: Foundations of Russian History**

A survey of the Kievan and Muscovite period to the end of the 17th century.

**Credit Hours:** 3

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**HIST 1790: History of Early Africa**

(same as BL\_STU 1790). This course introduces students to the early history of Africa. It focuses on political, social, economic and cultural developments based on primary and secondary sources available in print and online.

**Credit Hours:** 3

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**HIST 1800: History of Modern Africa**

(same as BL\_STU 1800). This course introduces students to the recent history of Africa. It provides them with an opportunity to understand the main challenges Africans faced since colonial times based on primary and secondary sources.

**Credit Hours:** 3

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**HIST 1830: Survey of East Asian History**

(same as KOREAN 1830). Introductory survey of the history of East Asian countries (China, Korea, Vietnam, and Japan) in the past two thousand years, focusing on their cultural, economic, and political traditions as well as their transformations in the modern era.

**Credit Hours:** 3

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**HIST 1840: Colonial Latin America**

Survey of Latin America, 1492-1825; Exploration and conquest; European settlement; colonial government and institutions; economy and society; cultural and intellectual life, independence movements.

**Credit Hours:** 3

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**HIST 1850: Latin America Since Independence**

Political, social and economic developments; nationalism; revolutionary movements; U.S. influence.

**Credit Hours:** 3

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**HIST 1861: History of Modern India**

(same as S\_A\_ST 1861). This course surveys the history of the South Asian subcontinent from the early seventeenth through the twentieth century. Emphasis will be placed on cultural and social history, religion, arts and literature, imperialism and colonialism, and the sources used for the study of modern civilizations. Students will develop a basic knowledge and vocabulary necessary to pursue additional South Asian courses.

**Credit Hours:** 3

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**HIST 1871: History of China in Modern Times**

This is a lecture course designed to introduce to beginning level students the epic journey of China's historical transformation since c. 1600. This survey provides a basis for understanding the painstaking transition from 'tradition' to 'modernity' in China.

**Credit Hours:** 3

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**HIST 1872: Mao's China and Beyond: China Since 1949**

Through a series of readings, images, and film we will look at the dramatic cultural, economic, social and intellectual changes the People's Republic of China has experienced since 1949, and look at the interrelated, yet often contradictory, challenges facing Beijing in regards to the task of furthering economic prosperity while promoting policies of integrating with the international society.

**Credit Hours:** 3

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**HIST 2004: Topics in History-Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-6

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**HIST 2100: The Revolutionary Transformation of America**

(same as CNST\_DEM 2100). In the broadest of terms, this is a course on origins. On one hand, we will devote significant class time to discussing 'the causes which impelled' the colonies to throw off the yoke of British rule. We will examine this on both a practical and a more abstract level, focusing first on writings that delineate why colonists grew to perceive the economic, social, and political conditions of British rule as insufferable, and then on how they translated these practical concerns into a more ideological justification of violent revolution.

**Credit Hours:** 3

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**HIST 2100H: The Revolutionary Transformation of America - Honors**

(same as CNST\_DEM 2100H). In the broadest of terms, this is a course on origins. On one hand, we will devote significant class time to discussing 'the causes which impelled' the colonies to throw off the yoke of British rule. We will examine this on both a practical and a more abstract level, focusing first on writings that delineate why colonists grew to perceive the economic, social, and political conditions of British rule as insufferable, and then on how they translated these practical concerns into a more ideological justification of violent revolution.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**HIST 2120: The Young Republic**

(same as CNST\_DEM 2120). This course examines the early years of the United States under the (then) new Constitution, an important historical period with which present-day Americans are increasingly unfamiliar. Our focus will be on abandoning our preconceptions about the nation's early history and thoroughly understanding the choices that were posed and made in the years after 1789 and that would determine what type of nation the U.S. would become.

**Credit Hours:** 3

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**HIST 2120H: The Young Republic - Honors**

(same as CNST\_DEM 2120H). This course examines the early years of the United States under the (then) new Constitution, an important historical period with which present-day Americans are increasingly unfamiliar. Our focus will be on abandoning our preconceptions about the nation's early history and thoroughly understanding the choices that were posed and made in the years after 1789 and that would determine what type of nation the U.S. would become.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**HIST 2150: The American Civil War: A Global History**

(same as CNST\_DEM 2150). In this class students will study the American Civil War from the perspective of global history. The familiar actors and events will be covered - the debate over slavery, the secession of the South, the rise of Abraham Lincoln, the great battles and generals, etc. But these familiar episodes will take on different meanings when viewed in relation to global structures of politics, economics, social relations, and ideology. The 1860s was at once a formative moment in the history of globalization and the key decade for the formation and consolidation of modern nations.

**Credit Hours:** 3

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**HIST 2210: Twentieth Century America**

(same as CNST\_DEM 2210). Survey of American development from 1900 to present. For students who have not taken advanced courses in American history, especially HIST 4210, HIST 4220, or HIST 4230.

**Credit Hours:** 3

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**HIST 2220: America in the 1960's**

(same as PEA\_ST 2220). Examines the political and cultural main currents of the 1960s. Emphasizes the challenges mounted by protest groups and the responses of America's political leadership to the ferment of the period.

**Credit Hours:** 3

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**HIST 2230: Walt Disney and American Culture**

Examines Walt Disney's influence on shaping of modern American culture.

**Credit Hours:** 3

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**HIST 2240: Flight in America: From the Wright Brothers to the Space Age**

This course focuses on the history of flying in the U.S. from its beginnings to the Apollo moon missions. In a little over a century, aviation and space flight have transformed our world in deep and enduring ways. We will focus on key innovations and the people behind them. This is an exciting story, full of fascinating men and women.

**Credit Hours:** 3

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**HIST 2400: Social History of U.S. Women**

(same as WGST 2400). This course, the social History of US Women, offers a general overview of US Women, beginning with the colonial period up to the present day.

**Credit Hours:** 3

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**HIST 2410: African American Women in History**

(same as BL\_STU 2410 and WGST 2410). African American Women in history is a topics course covering major issues affecting black women since their introduction into english-speaking North America to the present.

**Credit Hours:** 3

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**HIST 2430: History of American Religion**

This course focuses on the overall development of American religion from the 17th century to the present. Students will be invited to think about the larger questions concerning American religion, including why religion in America has developed in the way that it has, and how and why it continues to thrive in American popular culture.

**Credit Hours:** 3

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**HIST 2440: History of Missouri**

Survey of Missouri's development from the beginning of settlement to present.

**Credit Hours:** 3

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**HIST 2445: American Constitutional Democracy**

(same as POL\_SC 2445, CNST\_DEM 2445). This course offers an introduction to American constitutional democracy. On the one hand, this course will strive to set the development of America's constitutional democracy into its historical context and to explain it in relation to larger social, political, military, and economic events. A second emphasis is on the nature and character of the American democratic system. Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 2520: From Waterloo to Sarajevo: European History, 1815-1914**

Political, social, economic, and cultural development of Europe from French Revolution to outbreak of World War I.

**Credit Hours:** 3

**Prerequisites:** sophomore standing required

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**HIST 2520W: From Waterloo to Sarajevo: European History, 1815-1914 - Writing Intensive**

Political, social, economic, and cultural development of Europe from French Revolution to outbreak of World War I.

**Credit Hours:** 3

**Prerequisites:** sophomore standing required

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**HIST 2530: Ukrainian History from Medieval to Modern Times**

A successor state of the former Soviet Union, Ukraine occupies a strategic position in Eastern Europe. The course will trace the long, turbulent history of this East Slavic nation, culminating the independence in 1991.

**Credit Hours:** 3

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**HIST 2570: The First World War and its Aftermath**

(same as CNST\_DEM 2570). This course examines the experience of Europeans in the turbulent years during and immediately following the First World War. After investigating the origins and nature of WWI, we will then examine the political, social and cultural climate of the interwar years.

**Credit Hours:** 3

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**HIST 2580: Mafia Myth and Reality: The Italian Mafia and the Nation-State, 1860 to the Present**

This course explores contemporary cultural representations of the Mafia in film and literature and grounds these fictional representations in the history of modern Italy. We trace the emergence of the various Mafia networks during the wars of the Risorgimento and the construction of the 'southern problem', and the impact transnational Italian migration, the rise of Fascism and the postwar reconstruction had on the form and function of these networks.

**Credit Hours:** 3

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**HIST 2590: Epidemics and Society**

This course is an interdisciplinary survey of epidemic diseases from the ancient to modern eras. We will focus on the conditions that have given rise to epidemics and how different societies have understood and responded to them. We will trace the connections of epidemic diseases to

increased globalization, examining links between epidemics and warfare, exploration, colonization, and trade networks. This course will conclude with a discussion of newly emerging diseases in the contemporary world.

**Credit Hours:** 3

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**HIST 2630: History of Christian Traditions**

(same as REL\_ST 2630). An overview of the origins and development of Christianities from the first century of the Common Era to the present day. Topics will include competing Christian theologies, colonialism, conversion narratives, globalization, religious violence, and heresy.

**Credit Hours:** 3

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**HIST 2700: History of Pirates: Maritime Raiding From the Ancient to the Modern Eras**

This course examines piracy from the ancient to the modern world, with a particular focus on the Mediterranean and Atlantic from the 15th through the 18th centuries. We'll look at a variety of firsthand accounts of piracy as well as historical interpretations of the motivations for and impact of piracy.

**Credit Hours:** 3

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**HIST 2810: History of Korea: Premodern to Hypermodern**

(same as KOREAN 2810). This course examines Korea historically. The area known as Korea and the people identified as Korean are considered temporally from the ancient times to the contemporary period. This course begins with the questions of what is Korea and when it became a distinct place in world history.

**Credit Hours:** 3

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**HIST 2820: Taiwan: The First Chinese Democracy**

This course is an introduction to the history of Taiwan, from the seventeenth century to the present day. This course examines historical development leading to the contemporary situation. It problematizes the notion that 'democracy is not suitable for Chinese society.'

**Credit Hours:** 3

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**HIST 2904: Black Studies in Slavery and Freedom**

(same as BL\_STU 2904). This course provides study of historical background, economic, political and social implications of slavery and freedom in the African Diaspora (Americas, Africa, Europe, Asia) as well as the legal and extralegal struggles for and meaning of (global, local, and national) freedom.

**Credit Hours:** 3

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**HIST 2950: Sophomore Seminar**

This course is designed to introduce history majors to the experience of doing original research early in their undergraduate career. Topic will vary.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**HIST 2950W: Sophomore Seminar - Writing Intensive**

This course is designed to introduce history majors to the experience of doing original research early in their undergraduate career. Topic will vary.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**HIST 3000: History of Religion in America to the Civil War**

(same as REL\_ST 3000). Studies major American religious traditions from the Age of Discovery to the Civil War, especially the evolution of religious practices and institutions and their influence upon American social, intellectual and political developments.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**HIST 3010: Colonial America**

This course will examine major colonial American events from a cultural history standpoint. We will explore the ways in which the famous and not so famous shaped and were shaped by events of the seventeenth and eighteenth centuries and how these people understood the changing meaning of American liberty.

**Credit Hours:** 3

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**HIST 3200: Black Freedom Movement, 1955-1973**

(same as BL\_STU 3200). Examines the dismantling of American apartheid and its transformation into a new racial control system. It also explores how and why the Civil Rights Movement was converted into a struggle for Black Power.

**Credit Hours:** 3

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**HIST 3210: History of Religion in Post-Civil War America**

(same as REL\_ST 3210). Surveys major American religious traditions from 1865 to the present. Focuses on the evaluation of religious practices and institutions and their interaction with and influence upon American social, intellectual and political developments.

**Credit Hours:** 3

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**HIST 3220: U.S. Women's Political History, 1880-Present**

(same as WGST 3220). This course explores American women's engagement with American politics (broadly defined) over the course of the twentieth century. It addresses issues of political identity, organization, ideology, and division.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**HIST 3230: Individualism and Success in Modern America, 1830-Present**

This course explores changing notions of individualism and success in American culture during the 19th and 20th centuries. Standards defining achievement, gain, and happiness for the individual citizen have evolved over time, and we will examine a wide variety of sources - advice literature, essays, novels, historical texts, plays and movies, political and religious texts, social criticism - to analyze this broad evolution. The resulting insights into a variety of historical issues and values, problems and possibilities, promise to forge a deeper understanding of what it has

meant to be a successful individual in the United States over the last two hundred years.

**Credit Hours:** 3

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**HIST 3485: The United States and the Middle East**

This course will explore the history of American relations with the Middle East. How have U.S. Policy-makers defined American interests in this region? How have they sought to protect and advance those interests? We will consider the cultural stereotypes and assumptions Americans have brought to their relations with the Middle East, and the images of the Middle East that have been projected in American popular culture. Finally, we will explore the ways in which the current political situations in the Middle East reflects the results of past U.S.

**Credit Hours:** 3

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**HIST 3510: The Ancient Greek World**

Political and social institutions, intellectual life of Greek city-states to time of Alexander.

**Credit Hours:** 3

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**HIST 3520: The Roman World**

Rise and development of Roman institutions, Rome's imperialism and culture through reign of Marcus Aurelius.

**Credit Hours:** 3

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**HIST 3530: The Hellenistic World: From Alexander to Rome**

The achievements of Alexander the Great; political, social, economic development of Hellenistic kingdoms from his death to 31 B. C.

**Credit Hours:** 3

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**HIST 3540: 20th Century Europe**

Political, social, and economic development of Europe from 1900 to the present, with emphasis on the period between the two world wars.

**Credit Hours:** 3

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**HIST 3540W: 20th Century Europe - Writing Intensive**

Political, social, and economic development of Europe from 1900 to the present, with emphasis on the period between the two world wars.

**Credit Hours:** 3

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**HIST 3550: Science and Medicine in Ancient and Medieval Europe**

This course explores how ancient observations and theories about the natural world and the human body led to the development of 'natural philosophy' and medicine as fields of expertise. We will be examining attitudes and beliefs about the natural world and man's place within it from Egyptian-Babylonian roots through the Middle Ages.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**HIST 3555: Galileo and His World**

(same as GN\_HON 3230H). The purpose of this course is to evaluate Galileo's contribution to modern science on the basis, primarily, of his actual writings. In the process, we will examine the 'Galileo Myth', focusing on the problem of scientific truth and freedom of thought.

**Credit Hours:** 3

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**HIST 3560: The Scientific Revolution**

We will examine changing scientific beliefs and practices from 1500 to 1800, a time often referred to as the Scientific Revolution and as the birth of modern science. At the core, this is an examination of how knowledge itself changed: how it was gathered, tested and disseminated. We will also examine how the study of the natural world branched from one subject ('natural philosophy') into multiple specialized disciplines including astronomy, physics, botany, biology, geology and chemistry.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**HIST 3570: European Women in the 19th Century**

(same as WGST 3570). Examines the history of European women from 1750 to 1900. The course focuses on how industrialization, the French Revolution and nation-formation changed women's roles in the family, workplace and the state. Grading: exams, papers and discussions.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**HIST 3580: Modern Italy, 1815 to the Present**

Political, cultural and social history of Italy since 1815. Looks at how Unification, World War, Fascism, the Cold War, Student protests, the women's movement and the end of the USSR shaped contemporary Italy.

**Credit Hours:** 3

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**HIST 3590: The Early Middle Ages**

This course will focus on the social, political, economic, and cultural development of Europe from roughly 300 to 1050.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**HIST 3600: The Later Middle Ages**

This course will focus on the social, political, economic, and cultural development of Europe from roughly 1050 to 1500. Prerequisites: sophomore standing

**Credit Hours:** 3

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**HIST 3610: Ireland, 1100s to 1850**

(same as PEA\_ST 3610). Ireland, from Conquest to Famine: Ireland's history as the first British Colony, from the conquests of the 1100s and 1500s-1600s to the Irish rebellion of 1798 and the Great Famine and mass emigration of 1845-50.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**HIST 3611: Ireland, 1850-1923**

(same as PEA\_ST 3611). Ireland, from Famine to Partition: Irish history from the Great Famine of 1845-50 to the revolutions of 1916-23 that brought partial independence from Britain but partitioned Ireland into two hostile and trouble states.

**Credit Hours:** 3

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**HIST 3612: Ireland, 1920-Present**

(same as PEA\_ST 3612). Ireland, from Partition to the Present: After surveying the conflicts that led to Irish revolution and partition in 1916-23, the course focuses on the development of post partition Ireland and Northern Ireland, and on the violence that has scarred Northern Ireland since the 1960s.

**Credit Hours:** 3

**Prerequisites:** May be restricted to History majors only during preregistration

**Recommended:** HIST 3610 and/or HIST 3611

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**HIST 3624: Comparative Approaches to Black Studies in History**

(same as BL\_STU 3624). Comparative approach to the study of Black Diaspora history that focuses on the theory, method, structure, and application of modes of cultural production within the history of Black Diaspora cultures. Program consent for repetition.

**Credit Hours:** 3

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**HIST 3624W: Comparative Approaches to Black Studies in History - Writing Intensive**

(same as BL\_STU 3624). Comparative approach to the study of Black Diaspora history that focuses on the theory, method, structure, and application of modes of cultural production within the history of Black Diaspora cultures. Program consent for repetition.

**Credit Hours:** 3

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**HIST 3820: Twentieth Century China**

History of China from Nationalist Revolution of 1911 to present. A problem-oriented course: special emphasis on Mao and Maoist ideology, social, literary and cultural history also receive attention.

**Credit Hours:** 3

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**HIST 3850: Islam and the West**

(same as PEA\_ST 3850). This course provides a historical intellectual context for the raging debate on Islam and the West. It will discuss how Muslims conceived and reacted variously to the political and cultural challenge the West posed in the nineteenth and twentieth century. It will focus on the discourse on the reception of modernization in Islam. It will highlight the political and cultural energies invested by various Muslim elite communities to distinguish between modernization and Westernization. Islamic fundamentalism, the dominant Islamic expression of our time, will be usefully discussed in the context of this debate and praxis about modernization, authenticity, and Westernization.

**Credit Hours:** 3

**Prerequisites:** junior/senior standing

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**HIST 3860: History of Mexico**

Survey of Mexican history from Cortes to present day.

**Credit Hours:** 3

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**HIST 3870: Social Revolution in Latin America**

(same as PEA\_ST 3870). Twentieth century social revolutions in selected Latin American countries.

**Credit Hours:** 3



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**HIST 4000: Age of Jefferson**

(same as CNST\_DEM 4000; cross-leveled with HIST 7000). Political, constitutional, cultural, and economic developments in United States during formative period of Republic, 1787-1828. Special attention to Constitutional Convention, formation of national political institutions.

**Credit Hours:** 3

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**HIST 4004: Topics in History-Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-6

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**HIST 4004H: Topics in History-Social Science - Honors**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-6

**Prerequisites:** Honors eligibility required

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**HIST 4004W: Topics in History-Social Science - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-6

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**HIST 4010: The Age of Jackson**

(cross-leveled with HIST 7010). This course will examine American Politics, society and culture in the 1820's, 1830's, and 1840's. Considerable attention will be devoted to Andrew Jackson himself, as a figure who both shaped and represented his era, for better or worse.

**Credit Hours:** 3

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**HIST 4030: History of the Old South**

(cross-leveled with HIST 4030). Study of the South to 1860.

**Credit Hours:** 3

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**HIST 4040: Slavery and the Crisis of the Union: The American Civil War Era**

(same as BL\_STU 4040, CNST\_DEM 4040; cross-leveled with HIST 7040). This class explores the history of the Civil War era, a transformative moment in both U.S. and world history. Our goal is to explore and answer a number of questions of great historical significance: How and why did slavery persist in an age of liberal democracy? Why did the pre-war Union prove unable to tolerate the plural visions and diverse institutions of its people? Was the descent into war more a measure of institutional weakness than of the intensity of moral conflict? What were the constituent elements of the competing wartime 'nationalisms' that evolved in both north and south? How and why did a war that began to restore the Union become one for emancipation? How was it the forerunner of modern, 'total' warfare? Did the governmental, socio-economic and racial changes wrought by war constitute a 'second American revolution'? Were the limits or the achievements of post-war Reconstruction more notable? And, last but certainly not least,

how did the triumph of the Union condition the political and economic development of a rapidly globalizing world?

**Credit Hours:** 3

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**HIST 4060: The Period of the American Revolution, 1760-1789**

Analysis of the Revolution, its causes and consequences, through establishment of the new government in 1789.

**Credit Hours:** 3

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**HIST 4070: Indians and Europeans in Early America**

(cross-leveled with HIST 7070). A study of the cultural, political and often military struggle that took place for control of North America from contact through mid 19th century emphasizing native efforts to resist European domination and expansion in areas that became the U.S. and Canada.

**Credit Hours:** 3

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**HIST 4075: Global History in Oxford**

(same as CNST\_DEM 4075). This course examines global and transnational history in the 'modern' period since 1400. It includes an embedded week of study abroad at Oxford University (United Kingdom) over spring break.

**Credit Hours:** 4

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**HIST 4075H: Global History in Oxford - Honors**

This course examines global and transnational history in the 'modern' period since 1400. It includes an embedded week of study abroad at Oxford University (United Kingdom) over spring break.

**Credit Hours:** 4

**Prerequisites:** Honors eligibility required

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**HIST 4080: American Foreign Policy from Colonial Times to 1898**

(same as PEA\_ST 4080, CNST\_DEM 4080; cross-leveled with PEA\_ST 7080, HIST 7080). This class probes the entwined development of the U.S. nation and empire, to the backdrop of accelerating structures of global economic integration, technological innovation, and the hardening of national, racial, and ideological formations.

**Credit Hours:** 3

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**HIST 4085: Special Problems in History**

Independent investigation leading to a paper or project.

**Credit Hour:** 1-6

**Prerequisites:** Department consent required

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**HIST 4085H: Special Problems in History - Honors**

Independent investigation leading to a paper or project.

**Credit Hour:** 1-99

**Prerequisites:** Honors eligibility required

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**HIST 4085W: Special Problems in History - Writing Intensive**

Independent investigation leading to a paper or project.

**Credit Hour:** 1-6

**Prerequisites:** Department consent required

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**HIST 4100: American Cultural and Intellectual History to 1865**

(same as CNST\_DEM 4100; cross-level with HIST 7100). Origins and growth of American values and ideas considered in their social context. Topics include: the work ethic, republican politics, revivalism, reform movements, sexual attitudes, literature in the marketplace, Afro-American and slave-holding subcultures.

**Credit Hours:** 3

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**HIST 4200: American Cultural and Intellectual History Since 1865**

Tensions and transformations in American culture to the present. Topics include: spiritual crisis in Christianity; rise of welfare state liberalism; socialist and feminist alternatives; literature and the arts.

**Credit Hours:** 3

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**HIST 4220: U.S. Society Between the Wars 1918-1945**

(cross-leveled with HIST 7220). Detailed examination of American history from end of World War I to end of World War II.

**Credit Hours:** 3

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**HIST 4230: Our Times: United States Since 1945**

(cross-leveled with HIST 7230). Detailed examination of American history from end of World War II to the present.

**Credit Hours:** 3

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**HIST 4235: The Wire: Race, Urban Inequality, and the 'Crisis' of the American City**

(cross-leveled with HIST 7235). The HBO series 'The Wire', a crime drama based on the border city of Baltimore, exposed the interlocking, structural realities giving shape to the landscapes, neighborhoods, and lived experiences of urban America during the early twenty-first century. Through vivid storytelling, 'The Wire' complicates understandings of the 'urban crisis' through a focus on the inner workings of major institutions such as the media, public schools, politics, underground economies, public housing, and the criminal justice system and on the ways in which poor and working-class black residents negotiate power and survival. Using the cable series as a lens, this class offers students the opportunity to critically examine the historical, economic, social, and political dimensions of urban inequality.

**Credit Hours:** 3

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**HIST 4240: History of the New South**

(cross-leveled with HIST 7240). Study of the South since 1860.

**Credit Hours:** 3

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**HIST 4250: U.S. Foreign Relations, 1898-1945**

(cross-leveled with HIST 4250). A history of American Foreign Policy from the Spanish American War to the end of World War II.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**HIST 4260: The Age of Ascendancy: U.S. Foreign Relations, 1945 - Present**

(same as PEA\_ST 4260; cross-leveled with HIST 7260). Surveys the Cold War in Europe and Asia, the Korean and Vietnam Wars, and Middle East policy.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**HIST 4270: African-Americans in the Twentieth Century**

(same as BL\_STU 4270; cross-leveled with HIST 7270, BL\_STU 7270). Surveys the African-American experience from 1900 to the present. Attention is given to economic, political, social, and cultural trends.

**Credit Hours:** 3

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**HIST 4280: America in the Reagan Years**

(cross-leveled with HIST 7280). Examines the major political, economic, social, and cultural currents and developments of the 'Long Eighties,' from Jimmy Carter's 'malaise speech' of July 1979 to Bill Clinton's mid-1990s embrace of welfare reform and pronouncement that the era of big government was over.

**Credit Hours:** 3

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**HIST 4290: Innovation in 20th and 21st Century America**

(cross-leveled with HIST 7290). This course focuses on innovations that have shaped our world and the people behind them, from Edison and the introduction of electric light to airplanes, transistors, semiconductors, fracking, subprime mortgages, televangelism, Uber, and Airbnb. The idea is not to determine which innovations are most important, but to examine how innovations are created and why some are successful and others are not.

**Credit Hours:** 3

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**HIST 4303: Black Studies in Race, Class, Gender and U.S. Policy**

(same as BL\_STU 4303; cross-leveled with HIST 7303, BL\_STU 7303). Examines the causes and effects of the vast social and economic inequalities that exist between blacks and whites in US society, including the role federal, state and local government plays in creating and addressing such inequalities as financial, tax, environmental, trade, and foreign policies as well as issues of human and social welfare.

**Credit Hours:** 3

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**HIST 4310: Adoption, Child Welfare and the Family, 1850-Present**

(same as WGST 4310; cross-leveled with HIST 7310 and WGST 7310). This interdisciplinary U.S. history course will address topics such as: changing legal and social meaning of adoption since 1850; historical connections between adoption and poverty, family, gender race, sexuality, class, fertility, identity; and more recent issues such as transnational adoption.

**Credit Hours:** 3

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**HIST 4400: History of American Law**

(same as CNST\_DEM 4400; cross-leveled with HIST 7400). American law from English origins to present. Reviews common law, codification, legal reform movements, slavery law, administrative state, formalism, legal realism, jurisprudential questions concerning rule of law.

**Credit Hours:** 3

**Recommended:** HIST 1100, HIST 1200, or HIST 1400

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**HIST 4415: African Americans and American Justice**

(same as BL\_STU 4415; cross-leveled with HIST 7415, BL\_STU 7415). This course provides opportunities to review and discuss selected court cases and legislation in which black men, women, or children were plaintiffs and defendants or affected by the laws.

**Credit Hours:** 3

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**HIST 4415W: African Americans and American Justice - Writing Intensive**

(same as BL\_STU 4415W; cross-leveled with HIST 7415, BL\_STU 7415). This course provides opportunities to review and discuss selected court cases and legislation in which black men, women, or children were plaintiffs and defendants or affected by the laws.

**Credit Hours:** 3

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**HIST 4425: The Superhero in American Culture From Washington to Wolverine**

This course aims to help students become better informed and more critical consumers of popular culture by situating a selection of important American works and genres within the historical context of their creation, and in the history of American culture. Students will be challenged to look for historical patterns in popular culture and to consider the particular habits of thought and action that American popular culture seems to reinforce.

**Credit Hours:** 3

**Prerequisites:** HIST 1100 or HIST 1200 or HIST 1400 or HIST 2210

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**HIST 4430: The Great West in American History**

(cross-leveled with HIST 7430). Historical development of major regions, with emphasis on response to environment, public land policy, role of government in economic and resource development, citizen action, and cultural pluralism.

**Credit Hours:** 3

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**HIST 4440: History of the American Environment**

(cross-leveled with HIST 7440). A reading and discussion course exploring diverse responses to the changing American environment from early man to the present, including ecological, institutional, and philosophical aspects.

**Credit Hours:** 3

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**HIST 4445: American Political Economy from the Commerce Clause to the Great Recession**

This course examines the history of the American political economy from the founding of the United States to the recent Great Recession. Scholars of political economy explore the ways in which politics and public policy intersect with economics, such as the operation of the institutions like the tax system, the first and second Banks of the United States in the late 18th and early 19th centuries, and the Federal Reserve after 1913. We will focus on efforts by the U.S. federal government to regulate the American economy and bring economic affairs under the control of the American people and their representatives through a wide variety of

political, legal, and institutional mechanisms. A specialized knowledge of economics is not required for this course.

**Credit Hours:** 3

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**HIST 4445W: American Political Economy from the Commerce Clause to the Great Recession - Writing Intensive**

This course examines the history of the American political economy from the founding of the United States to the recent Great Recession. Scholars of political economy explore the ways in which politics and public policy intersect with economics, such as the operation of the institutions like the tax system, the first and second Banks of the United States in the late 18th and early 19th centuries, and the Federal Reserve after 1913. We will focus on efforts by the U.S. federal government to regulate the American economy and bring economic affairs under the control of the American people and their representatives through a wide variety of political, legal, and institutional mechanisms. A specialized knowledge of economics is not required for this course.

**Credit Hours:** 3

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**HIST 4500: Philip II and Alexander the Great of Macadonia**

(cross-leveled with HIST 7500). Concentrates on the history and politics of Greece during reigns of these two kings along with Alexander's military conquests and various controversies from the period.

**Credit Hours:** 3

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**HIST 4510: Crime and Punishment: Law in Classical Athens**

(cross-leveled with HIST 7510). Examines the main principles of Athenian law and judicial procedures including history of law code and study of actual speeches from a variety of law suits and procedures.

**Credit Hours:** 3

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**HIST 4515: Power and Oratory in Ancient Greece**

(cross-leveled with HIST 7515). Concentrates on the rise of oratory in Greece and how oratory was exploited for political ends. Special attention will be paid to the Athenian Democracy in the fifth and fourth centuries BC.

**Credit Hours:** 3

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**HIST 4520: The Rise and Fall of the Roman Republic**

(cross-leveled with HIST 7520). Analysis of the downfall of Republican institutions and the origins of autocracy, from the Gracchi to the death of Augustus in A.D. 14.

**Credit Hours:** 3

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**HIST 4530: The Roman Empire**

(cross-leveled with HIST 7530). Roman imperialism; management of, and rebellion in, the Empire; cultural exchange between Rome and its provinces.

**Credit Hours:** 3

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**HIST 4535: Monastic Worlds**

(same as REL\_ST 4535, MDVL\_REN 4535; cross-leveled with REL\_ST 7535, MDVL\_REN 7535). Monastic Worlds is an experiential learning course designed to serve as a Humanities Field School in medieval and

early modern studies. It will be taught by faculty from UMKC and UMC through the Intercampus Course Sharing initiative. The class introduces students to humanities research methodology and the religious history and culture of premodern Europe and the contemporary Midwest by using the monastic communities as a focal point to learn about musicology, history, art history, literature, and religion. Following two weeks of online course modules, students will travel to the Benedictine communities of Conception Abbey in Conception, Missouri and Mount Saint Scholastica's in Atchison, Kansas, for additional face-to-face classes and research projects. On-site, students will participate in communal living and attend face-to-face classes on the historical and cultural worlds of medieval and early modern Europe. They will practice ethnography through observation of and participation in communal life of prayer, study, book production, and labor. Students will also have the opportunity to work with the manuscripts and rare books owned by these communities and visit the largest reliquary collection in North America, housed at the nearby Benedictine community of the Sisters of Perpetual Adoration in Clyde, MO. This course has an associated fee. Contact teaching faculty for this year's fee details. Graded on A/F basis only.

**Credit Hours:** 3

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#### **HIST 4540: The Later Roman Empire**

(cross-leveled with HIST 7540). Political, religious and cultural life in Late Antiquity, from the 'soldier emperors,' to the barbarian kingdoms and early Byzantium.

**Credit Hours:** 3

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#### **HIST 4550: Age of the Vikings**

(cross-leveled with HIST 7550). Scandinavia and Scandinavian expansion in the Central Middle Ages. Covers political, economic, religious, and cultural effects of the Viking movement.

**Credit Hours:** 3

**Prerequisites:** junior standing required

**Recommended:** HIST 1500, HIST 1540, HIST 1600 or HIST 2560

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#### **HIST 4550W: Age of the Vikings - Writing Intensive**

(cross-leveled with HIST 7550). Scandinavia and Scandinavian expansion in the Central Middle Ages. Covers political, economic, religious, and cultural effects of the Viking movement.

**Credit Hours:** 3

**Prerequisites:** junior standing required

**Recommended:** HIST 1500, HIST 1540, HIST 1600 or HIST 2560

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#### **HIST 4555W: Medieval France - Writing Intensive**

(cross-leveled with HIST 7555). This course covers the area that became the kingdom of France from the end of the Roman era until the end of the Hundred Years War; emphasis on political and cultural developments.

**Credit Hours:** 3

**Prerequisites:** junior standing

**Recommended:** Previous coursework in medieval history

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#### **HIST 4560: The Crusades**

(cross-leveled with HIST 4560). Survey of the European crusading movement from its inception in the late eleventh century to its decline during the later Middle Ages.

**Credit Hours:** 3

**Prerequisites:** junior standing

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#### **HIST 4580: The 'Making' of Modern Europe: Identity, Culture, Empire**

(cross-leveled with HIST 7580). This course will explore some of the ideas, institutions and events that shaped modern Western civilization and thought, focusing on Western Europe, but also giving attention to the relationship between the West and the rest of the world. The course will introduce topics such as the rise of, nationalism, the cult of science, scientific racism and sexism, consumer mass culture, fascist ideology, existentialism, psychoanalysis, the modern city, gender and sexuality.

**Credit Hours:** 3

**Prerequisites:** junior standing

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#### **HIST 4585: Rome from Fascism to Liberation, 1922-1944**

In this course we will explore the history of Fascism and German occupation in Italy through the city of Rome. We will study how fascism remade Rome, the arrival of the Germans, the history of the Jewish community and the deportations and the resistance.

**Credit Hours:** 3

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#### **HIST 4605: Early Modern Spain, 1450-1750**

(cross-leveled with HIST 7605). In this course, we begin with Fernando and Isabel, whose marriage brought together the two principle territories of Castile and Aragon, leading to the beginnings of a 'united' Spain. As we trace the political and social history of Spain through the early modern era, we'll also be examining the many myths surrounding Spanish history including topics such as the Columbus' voyages, the Spanish Inquisition and the Black Legend.

**Credit Hours:** 3

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#### **HIST 4620: Modern England**

(cross-leveled with HIST 7620). Surveys British history in the 18th and 19th centuries. Emphasizes social and economic change.

**Credit Hours:** 3

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#### **HIST 4625: Nature vs. Nurture: The History of a Debate**

(cross-leveled with HIST 7625). The purpose of this course is to explore the debate on nature vs. nurture in human society from the late eighteenth century to the present. The goal of this course is to give biology, history, and social science (including journalism) majors a better understanding of how this debate between nature and culture has played out over the past 250 years, and what impact it has left on biology, the social sciences, and public discourse today.

**Credit Hours:** 3

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#### **HIST 4630: The Age of the Renaissance**

(cross-leveled with HIST 7630). Major changes in European economic, social, political, religious, and intellectual life between 1250-1500. Humanism and Renaissance. The 'Renaissance problem'.

**Credit Hours:** 3

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#### **HIST 4640: The Age of the Reformation**

(cross-leveled with HIST 7640). State of Europe about 1500. Political, diplomatic, social, and intellectual changes to 1648. Humanistic reform

movements. Protestant-Catholic Reformation. Development of the modern state and international relations.

**Credit Hours:** 3

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**HIST 4645: Witchcraft and Witch Hunting in Pre-Modern Europe**

(cross-leveled with HIST 7645). The surviving evidence indicates that between 1400 and 1700, at least 50,000 women, men, and children were executed for practicing witchcraft. Is there an explanation for this? Does it make any sense in terms of the intellectual, religious, social, political, and economic contexts of this period in European history? Fundamental to this course are the assumptions that there are many, not one, reasonable explanations for witchcraft beliefs and persecutions, and that when studied in terms of the various historical contexts this phenomenon must be understood as an integral part of European society during these centuries.

**Credit Hours:** 3

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**HIST 4650: Revolutionary France, 1789-1815**

(cross-leveled with HIST 7650). Revolutionary upheavals of the revolutionary-Napoleonic era, which destroyed traditional French society and laid the basis for modern France.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**HIST 4660: Gender, War, and Migration: Europe, 1914 to the Present**

(same as WGST 4660; cross-leveled with HIST 7660, WGST 7660). Scholars have long recognized the fundamental ways that war and migration marked the lives of European women and men in the 20th century, and yet, rarely have they focused on the interrelations between mobilities, violence and gender. This class explores how war and mass migrations inscribed new gendered, racial and class hierarchies into the European landscape, and created new kinds of political and social divides. The total wars of World War I and World War II, requiring the participation of civilians and soldiers, erasing lines separating the home front from the battlefield, forcing millions to flee their homes, and drawing men and women from the colonies into the war effort reshaped notions of gender, work, family, nation and citizenship within Europe. The subsequent wars of decolonization and post war migrations, followed by the conflicts that erupted at the end of the Cold War challenged the postwar gender ideals underpinning the European welfare state and the European Union, and fueled the rise of contemporary xenophobic and racist populist movements. Course materials will include historical monographs, articles, novels, memoirs and films.

**Credit Hours:** 3

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**HIST 4670: From the Holy Roman Empire to the First World War: German History, 1750-1918**

(cross-leveled with HIST 7670). Cultural, social and political history of Central Europe from 1800 to 1914. A case study in incomplete modernization, focused on industrialization, unification, cultural crisis and imperialism.

**Credit Hours:** 3

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**HIST 4670W: From the Holy Roman Empire to the First World War: German History, 1750-1918 - Writing Intensive**

(cross-leveled with HIST 7670). Cultural, social and political history of Central Europe from 1800 to 1914. A case study in incomplete modernization, focused on industrialization, unification, cultural crisis and imperialism.

**Credit Hours:** 3

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**HIST 4680: From the Rise of the Nazis to the Fall of the Wall: German History in the Twentieth Century**

(cross-leveled with HIST 7680). Cultural, social and political history from 1914 to present day. Focus on world wars, national socialism, the holocaust, the cold war and the emergence of East and West Germany.

**Credit Hours:** 3

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**HIST 4700: Imperial Russia, 1682-1825**

(cross-leveled with HIST 7700). Russia in the 18th and early 19th centuries, with special emphasis on the reigns of Peter I, Catherine II, and Alexander I.

**Credit Hours:** 3

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**HIST 4710: The Russian Revolution**

(cross-leveled with HIST 7710). Analyzes the transformation of Russian society that produced the collapse of autocracy, efforts to create a parliamentary government, the Bolshevik seizure of power in 1917, and the civil war that followed.

**Credit Hours:** 3

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**HIST 4800: Modern China and Japan: War, Imperialism and Memory**

(cross-leveled with HIST 7800). This course examines the interaction between Japan and China since the late nineteenth century in an effort to understand deeper historical reasons behind the rising tension in East Asia at the present time.

**Credit Hours:** 3

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**HIST 4815: African History Through the Digital Medium**

(cross-leveled with HIST 7815). This course invites students to explore the history of Africa through the digital medium. It offers a hands-on approach to understand how knowledge about African history, culture, and society is produced and disseminated over the World Wide Web.

**Credit Hours:** 3

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**HIST 4815W: African History Through the Digital Medium - Writing Intensive**

(cross-leveled with HIST 7815). This course invites students to explore the history of Africa through the digital medium. It offers a hands-on approach to understand how knowledge about African history, culture, and society is produced and disseminated over the World Wide Web.

**Credit Hours:** 3

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**HIST 4821: Constitutionalism in the Americas**

(cross-leveled with HIST 7821). This course looks at the history of constitutions and constitutional democracy in the Americas as a whole - the United States and Latin America. The U.S. Constitution was a

pioneering document in the Americas, and this course examines the international influence of the United States' experiment with constitutional democracy. While the course will examine the inspiration of the U.S. Constitution, it will also examine republics that drew upon the same philosophical antecedents that inspired the founders of the United States but may have opted for different forms and practices.

**Credit Hours:** 3

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**HIST 4821W: Constitutionalism in the Americas - Writing Intensive**

(cross-leveled with HIST 7821). This course looks at the history of constitutions and constitutional democracy in the Americas as a whole - the United States and Latin America. The U.S. Constitution was a pioneering document in the Americas, and this course examines the international influence of the United States' experiment with constitutional democracy. While the course will examine the inspiration of the U.S. Constitution, it will also examine republics that drew upon the same philosophical antecedents that inspired the founders of the United States but may have opted for different forms and practices.

**Credit Hours:** 3

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**HIST 4840: History of the Mongols**

(cross-leveled with HIST 7840). In the 13th century, the Mongols went from warring tribes to the largest Eurasian empire in history. This course examines the Mongol tribes, Chinggis Khan's unification of the tribes, the Mongols rapid military victories across Eurasian and their equally rapid decline.

**Credit Hours:** 3

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**HIST 4850: Traversing the Muslim World**

(same as S\_A\_ST 4850; cross-leveled with HIST 7850). The traveler's tale formed an important part of the medieval world's system of knowledge. This writing intensive seminar-style course examines a wide array of the most influential travelers in Muslim lands such as Ibn Fadlan, Ibn Battuta, Benjamin of Tudela and Marco Polo.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**HIST 4850W: Traversing the Muslim World - Writing Intensive**

(same as S\_A\_ST 4850; cross-leveled with HIST 7850). The traveler's tale formed an important part of the medieval world's system of knowledge. This writing intensive seminar-style course examines a wide array of the most influential travelers in Muslim lands such as Ibn Fadlan, Ibn Battuta, Benjamin of Tudela and Marco Polo.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**HIST 4860: Colonial Masculinity/Colonial Frontier**

(same as S\_A\_ST 4860; cross-leveled with HIST 7860). This writing intensive seminar-style course examines how the Indian Army acted as a colonial army in the British Empire, including Africa, the Boxer Rebellion, and the World Wars. Focus is on the role of the Indian Army, impact of the Sepoy Mutiny, and martial race ideology.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**HIST 4865: Buying Desire: History of Consumption**

(cross-leveled with HIST 7865). This course explores the history of consumption practice in various cultural contexts. The course is divided into four parts: 'Masses As Consumers', 'Selling/Consuming Cultures', 'Consumption as (Postcolonial) Modernity', and 'Consumption and the Nation'. Under each section are thematically related texts on particular cultural contexts. The reading of ethnographic texts on consumption is to be accompanied by critical discussions that locate consumption within the practices of the nation-state-making and global product-marketing.

**Credit Hours:** 3

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**HIST 4867: North Korea: History, Political Economy, Culture**

(same as KOREAN 4867; cross-leveled with HIST 7867). The aim of this course is to survey North Korea's history, especially in terms of political economy and culture. Through several themes, we will examine the historical situations of North Korea from its beginnings in the postliberation period to the present, as North Korea undergoes monumental changes.

**Credit Hours:** 3

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**HIST 4870: Southeast Asia Since the Eighteenth Century**

The general objective of this course is to introduce students to the fascinating world of Southeast Asia. We will look at the shared history of commodity, cultural, and religious exchanges that gave this region a collective character, as well as explore the historical conditions from which individual modern Southeast Asian state emerged.

**Credit Hours:** 3

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**HIST 4880: Chinese Migration: From Yellow Peril to Model Minority**

(cross-leveled with HIST 7880). This course surveys Chinese emigration in the global context over the span of five centuries. We will pay special attention to the changing relationships between China and Chinese migrants. Our emphasis will be on history as a process of negotiation and contestation of heterogeneous groups or individuals through creative and selective activities.

**Credit Hours:** 3

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**HIST 4900: Beltway History: American Constitutional Democracy in Theory and Practice**

(same as POL\_SC 4900, CNST\_DEM 4900). This course is an experiential overview of American political history for students participating in the Kinder Forum's Washington internship program, showing how American constitutional democracy was developed and implemented right here on the Potomac, as much as possible in the actual places where the events occurred. Emphasis will be placed on the interplay between constitutional theory and actual political experience over time, and the tensions and institutional changes that emerged as Americans and their government coped with cataclysmic social changes, unparalleled economic development, and fearsome international challenges.

**Credit Hours:** 3

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**HIST 4904: Historical and Contemporary Slavery**

(same as BL\_STU 4904). An exploration of slavery in both its historical and contemporary context, focusing on the origins, characteristics, and struggles to abolish the practice. Historical slavery examined using

African enslavement in the Americas, and contemporary slavery using human trafficking and forced labor in the developed and developing world.

**Credit Hours:** 3

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**HIST 4910: History in the Public: An Introduction to the Theory and Practice of Public History**

(cross-leveled with HIST 7910). The purpose of this course is to introduce students to the world of public history, the central questions and debates in the field, and to offer students the opportunity to practice public history.

**Credit Hours:** 3

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**HIST 4910W: History in the Public An Introduction to the Theory & Practice of Public History - Writing Intensive**

(cross-leveled with HIST 7910). The purpose of this course is to introduce students to the world of public history, the central questions and debates in the field, and to offer students the opportunity to practice public history.

**Credit Hours:** 3

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**HIST 4940: Internship in History**

Professional training in history and archive-related fields. Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HIST 4970: Undergraduate Seminar in Third World History**

Readings in selected problems in the history of Africa, Asia or Latin America with reports and discussion.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HIST 4970W: Undergraduate Seminar in Third World History - Writing Intensive**

Readings in selected problems in the history of Africa, Asia or Latin America with reports and discussion.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HIST 4971: Undergraduate Seminar in European History**

Readings in problems in European history with reports and discussion.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HIST 4971W: Undergraduate Seminar in European History - Writing Intensive**

Readings in problems in European history with reports and discussion.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HIST 4972: Undergraduate Seminar in American History**

Readings in selected problems in American history with reports and discussion on selected topics.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HIST 4972W: Undergraduate Seminar in American History - Writing Intensive**

Readings in selected problems in American history with reports and discussion on selected topics.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HIST 4975: Journal on Constitutional Democracy**

(same as POL\_SC 4975, CNST\_DEM 4975). The Journal is sponsored by the Kinder Institute on Constitutional Democracy and staffed by current and former participants in the Institute's undergraduate Society of Fellows program. Each volume of the Journal is organized around a student-selected idea or era central to the historical development and philosophical foundations of constitutional democracy in the United States. Student-authored essays address this theme via arguments and historical overviews crafted from the close reading and analysis of primary source documents, with the exception being that participating in the Journal will relate back to and advance students' study of American political thought and history.

**Credit Hour:** 1-3

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**HIST 4980: Undergraduate Thesis in History**

Individually directed research leading to a senior thesis.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HIST 4981: Undergraduate Thesis in History**

Continuation of HIST 4980.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HIST 4981W: Undergraduate Thesis in History - Writing Intensive**

Continuation of HIST 4980.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HIST 4995: Honors Thesis in History**

Research and completion of the thesis required for graduation with Honors in History.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HIST 4995W: Honors Thesis in History - Writing Intensive**

Research and completion of the thesis required for graduation with Honors in History.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HIST 4996: Honors Thesis in History**

Continuation of HIST 4995.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HIST 4996W: Honors Thesis in History - Writing Intensive**

Continuation of HIST 4995.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HIST 7000: Age of Jefferson**

(cross-leveled with HIST 4000, CNST\_DEM 4000). Political, constitutional, cultural, and economic developments in United States during formative period of Republic, 1787-1828. Special attention to Constitutional Convention, formation of national political institutions.

**Credit Hours:** 3

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**HIST 7004: Topics in History - Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Graduate students will be expected to complete additional reading and writing assignments commiserate with graduate level course requirements. May be repeated to maximum of 6 hours.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HIST 7010: The Age of Jackson**

(cross-leveled with HIST 4010). This course will examine American politics, society and culture in the 1820's, 1830's, and 1840's. Considerable attention will be devoted to Andrew Jackson himself, as a figure who both shaped and represented his era, for better or worse.

**Credit Hours:** 3

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**HIST 7030: History of the Old South**

(cross-leveled with HIST 4030). Study of the South to 1860.

**Credit Hours:** 3

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**HIST 7040: Slavery and the Crisis of the Union: The American Civil War Era**

(cross-leveled with HIST 4040). This class explores the history of the Civil War era, a transformative moment in both U.S. and world history. Our goal is to explore and answer a number of questions of great historical significance: How and why did slavery persist in an age of liberal democracy? Why did the pre-war Union prove unable to tolerate the plural visions and diverse institutions of its people? Was the descent into war more a measure of institutional weakness than of the intensity of moral conflict? What were the constituent elements of the competing wartime 'nationalisms' that evolved in both north and south? How and why did a war that began to restore the Union become one for emancipation? How was it the forerunner of modern, 'total' warfare? Did the governmental, socio-economic and racial changes wrought by war constitute a 'second American revolution'? Were the limits or the achievements of post-war Reconstruction more notable? And, last but certainly not least, how did the triumph of the Union condition the political and economic development of a rapidly globalizing world? Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 7060: The Period of the American Revolution, 1760-1789**

Analysis of the Revolution, its causes and consequences, through establishment of the new government in 1789.

**Credit Hours:** 3

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**HIST 7070: Indians and Europeans in Early America**

(cross-leveled with HIST 4070). A study of the cultural, political and often military struggle that took place for control of North America from contact through mid 19th century emphasizing native efforts to resist European domination and expansion in areas that became the U.S. and Canada.

**Credit Hours:** 3

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**HIST 7080: American Foreign Policy from Colonial Times to 1898**

(same as PEA\_ST 7080; cross-leveled PEA\_ST 4080, HIST 4080, CNST\_DEM 4080). This class probes the entwined development of the U.S. nation and empire, to the backdrop of accelerating structures of global economic integration, technological innovation, and the hardening of national, racial, and ideological formations.

**Credit Hours:** 3

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**HIST 7100: American Cultural and Intellectual History to 1865**

(cross-leveled with HIST 4100, CNST\_DEM 4100). Origins and growth of American values and ideas considered in their social context. Topics include: the work ethic, republican politics, revivalism, reform movements, sexual attitudes, literature in the marketplace, Afro-American and slave-holding subcultures.

**Credit Hours:** 3

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**HIST 7220: U.S. Society Between the Wars 1918-1945**

(cross-leveled with HIST 4220). Detailed examination of American history from end of World War I to end of World War II.

**Credit Hours:** 3

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**HIST 7230: Our Times: United States Since 1945**

(cross-leveled with HIST 4230). Detailed examination of American history from end of World War II to the present.

**Credit Hours:** 3

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**HIST 7235: The Wire: Race, Urban Inequality, and the 'Crisis' of the American City**

(cross-leveled with HIST 4235). The HBO series 'The Wire', a crime drama based on the border city of Baltimore, exposed the interlocking, structural realities giving shape to the landscapes, neighborhoods, and lived experiences of urban America during the early twenty-first century. Through vivid storytelling, 'The Wire' complicates understandings of the 'urban crisis' through a focus on the inner workings of major institutions such as the media, public schools, politics, underground economies, public housing, and the criminal justice system and on the ways in which poor and working-class black residents negotiate power and survival. Using the cable series as a lens, this class offers students the opportunity to critically examine the historical, economic, social, and political dimensions of urban inequality. Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 7240: History of the New South**

(cross-leveled with HIST 4240). Study of the South since 1860.

**Credit Hours:** 3

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**HIST 7260: The Age of Ascendancy: U.S. Foreign Relations, 1945-Present**

(same as PEA\_ST 7260; cross-leveled with HIST 4260). Surveys the Cold War in Europe and Asia, the Korean and Vietnam Wars, and Middle East policy.

**Credit Hours:** 3

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**HIST 7270: African-Americans in the Twentieth Century**

(same as BL\_STU 7270; cross-leveled with HIST 4270, BL\_STU 4270). Surveys the African-American experience from 1900 to the present. Attention is given to economic, political, social, and cultural trends.

**Credit Hours:** 3

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**HIST 7280: America in the Reagan Years**

(cross-leveled with HIST 4280). Examines the major political, economic, social, and cultural currents and developments of the 'Long Eighties,' from Jimmy Carter's 'malaise speech' of July 1979 to Bill Clinton's mid-1990s embrace of welfare reform and pronouncement that the era of big government was over.

**Credit Hours:** 3

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**HIST 7290: Innovation in 20th and 21st Century America**

(cross-leveled with HIST 4290). This course focuses on innovations that have shaped our world and the people behind them, from Edison and the introduction of electric light to airplanes, transistors, semiconductors, fracking, subprime mortgages, televangelism, Uber, and Airbnb. The idea is not to determine which innovations are most important, but to examine how innovations are created and why some are successful and others are not.

**Credit Hours:** 3

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**HIST 7303: Black Studies in Race, Class, Gender and US Policy**

(same as BL\_STU 7303; cross-leveled with HIST 4303, BL\_STU 4303). Examines the causes and effects of the vast social and economic inequalities that exist between blacks and whites in US society, including the role federal, state and local government plays in creating and addressing such inequalities as financial, tax, environmental, trade, and foreign policies as well as issues of human and social welfare. Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 7310: Adoption Child Welfare and the Family, 1850-present**

(same as WGST 7310; cross-leveled with HIST 4310, WGST 4310). This interdisciplinary U.S. history course will address topics such as: changing legal and social meanings of adoption since 1850; historical connections between adoption and poverty, family, gender, race, sexuality, class, fertility, identity; and more recent issues such as transnational adoption.

**Credit Hours:** 3

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**HIST 7400: History of American Law**

(cross-leveled with HIST 4400, CNST\_DEM 4400). American law from English origins to present. Reviews common law, codification, legal reform movements, slavery law, administrative state, formalism, legal realism, jurisprudential questions concerning rule of law.

**Credit Hours:** 3

**Prerequisites:** HIST 1100, HIST 1200, or HIST 1400

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**HIST 7415: African Americans and American Justice**

(same as BL\_STU 7415; cross-leveled with HIST 4415, BL\_STU 4415). This course provides opportunities to review and discuss selected court cases and legislation in which black men, women, or children were plaintiffs and defendants or affected by the laws.

**Credit Hours:** 3

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**HIST 7500: Philip II and Alexander the Great of Macedonia**

(cross-leveled with HIST 7500). Concentrates on the history and politics of Greece during reigns of these two kings along with Alexander's military conquests and various controversies from the period.

**Credit Hours:** 3

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**HIST 7510: Crime and Punishment: Law in Classical Athens**

(cross-leveled with HIST 4510). Examines the main principles of Athenian law and judicial procedures including history of law code and study of actual speeches from a variety of law suits and procedures.

**Credit Hours:** 3

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**HIST 7515: Power and Oratory in Ancient Greece**

(cross-leveled with HIST 4515). Concentrates on the rise of oratory in Greece and how oratory was exploited for political ends. Special attention will be paid to the Athenian Democracy in the fifth and fourth centuries BC.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**HIST 7520: The Rise and Fall of the Roman Republic**

(cross-leveled with HIST 7520). Analysis of the downfall of Republican institutions and the origins of autocracy, from the Gracchi to the death of Augustus in A.D. 14.

**Credit Hours:** 3

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**HIST 7530: The Roman Empire**

(cross-leveled with HIST 4530). Roman imperialism; management of, and rebellion in, the Empire; cultural exchange between Rome and its provinces.

**Credit Hours:** 3

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**HIST 7540: The Later Roman Empire**

(cross-leveled with HIST 4540). Political, religious and cultural life in Late Antiquity, from the 'soldier emperors,' to the barbarian kingdoms and early Byzantium.

**Credit Hours:** 3

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**HIST 7550: Age of the Vikings**

(cross-leveled with HIST 4550). Scandinavia and Scandinavian expansion in the Central Middle Ages. Covers political, economic, religious, and cultural effects of the Viking movement.

**Credit Hours:** 3

**Prerequisites:** consent required

**Recommended:** HIST 1500, HIST 1540, HIST 1600 or HIST 2560

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**HIST 7555: Medieval France**

(cross-leveled with HIST 4555). This course covers the area that became the kingdom of France from the end of the Roman era until the end of the Hundred Years War; emphasize on political and cultural developments.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**HIST 7560: The Crusades**

(cross-leveled with HIST 4560). Survey of the European crusading movement from its inception in the late eleventh century to its decline during the later Middle Ages.

**Credit Hours:** 3

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**HIST 7580: The 'Making' of Modern Europe: Identity, Culture, Empire**

(cross-leveled with HIST 4580). This course will explore some of the ideas, institutions and events that shaped modern Western civilization and thought, focusing on Western Europe, but also giving attention to the relationship between the West and the rest of the world. The course will introduce topics such as the rise of, nationalism, the cult of science, scientific racism and sexism, consumer mass culture, fascist ideology, existentialism, psychoanalysis, the modern city, gender and sexuality. Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 7605: Early Modern Spain, 1450-1750**

(cross-leveled with HIST 4605). In this course, we begin with Fernando and Isabel, whose marriage brought together the two principle territories of Castile and Aragon, leading to the beginnings of a 'united' Spain. As we trace the political and social history of Spain through the early modern era, we'll also be examining the many myths surrounding Spanish history including topics such as the Columbus' voyages, the Spanish Inquisition and the Black Legend. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Department consent required

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**HIST 7620: Modern England**

(cross-leveled with HIST 4620). Surveys British history in the 18th and 19th centuries. Emphasizes social and economic change.

**Credit Hours:** 3

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**HIST 7625: Nature vs. Nurture: The History of a Debate**

(cross-leveled with HIST 4625). The purpose of this course is to explore the debate on nature vs. nurture in human society from the late eighteenth century to the present. The goal of the course is to give biology, history, and social science (including journalism) majors a better understanding of how this debate between nature and culture has played

out over the past 250 years, and what impact it has left on biology, the social sciences, and public discourse today. Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 7630: The Age of the Renaissance**

(cross-leveled with HIST 4630). Major changes in European economic, social, political, religious, and intellectual life between 1250-1500. Humanism and Renaissance. The 'Renaissance problem.'

**Credit Hours:** 3

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**HIST 7640: The Age of the Reformation**

(cross-leveled with HIST 4640). State of Europe about 1500. Political, diplomatic, social, and intellectual changes to 1648. Humanistic reform movements. Protestant-Catholic Reformation. Development of the modern state and international relations.

**Credit Hours:** 3

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**HIST 7645: Witchcraft and Witch Hunting in Pre-Modern Europe**

(cross-leveled with HIST 4645). The surviving evidence indicates that between 1400 and 1700, at least 50,000 women, men, and children were executed for practicing witchcraft. Is there an explanation for this? Does it make any sense in terms of the intellectual, religious, social, political, and economic contexts of this period in European history? Fundamental to this course are the assumptions that there are many, not one, reasonable explanations for witchcraft beliefs and persecutions, and that when studied in terms of the various historical contexts this phenomenon must be understood as an integral part of European society during these centuries. Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 7650: Revolutionary France, 1789-1851**

(cross-leveled with HIST 4650). Revolutionary upheavals of the revolutionary-Napoleonic era, which destroyed traditional French society and laid the basis for modern France.

**Credit Hours:** 3

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**HIST 7670: From the Holy Roman Empire to the First World War: German History, 1750-1918**

(cross-leveled with HIST 4670). Cultural, social and political history of Central Europe from 1800 to 1914. A case study in incomplete modernization, focused on industrialization, unification, cultural crisis and imperialism.

**Credit Hours:** 3

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**HIST 7680: From the Rise of the Nazis to the Fall of the Wall: German History in the Twentieth Century**

(cross-leveled with HIST 4680). Cultural, social and political history from 1914 to present day. Focus on world wars, national socialism, the holocaust, the cold war and the emergence of East and West Germany.

**Credit Hours:** 3

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**HIST 7700: Imperial Russia, 1682-1825**

(cross-leveled with HIST 4700). Russia in the 18th and early 19th centuries, with special emphasis on the reigns of Peter I, Catherine II, and Alexander I.

**Credit Hours:** 3

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**HIST 7710: The Russian Revolution**

(cross-leveled with HIST 4710). Analyzes the transformation of Russian society that produced the collapse of autocracy, efforts to create a parliamentary government, the Bolshevik seizure of power in 1917, and the civil war that followed.

**Credit Hours:** 3

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**HIST 7800: Modern China and Japan: War, Imperialism and Memory**

(cross-leveled with HIST 4800). This course examines the interaction between Japan and China since the late nineteenth century in an effort to understand deeper historical reasons behind the rising tension in East Asia at the present time.

**Credit Hours:** 3

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**HIST 7821: Constitutionalism in the Americas**

(cross-leveled with HIST 4821). This course looks at the history of constitutions and constitutional democracy in the Americas as a whole - the United States and Latin America. The U.S. Constitution was a pioneering document in the Americas, and this course examines the international influence of the United States' experiment with constitutional democracy. While the course will examine the inspiration of the U.S. Constitution, it will also examine republics that drew upon the same philosophical antecedents that inspired the founders of the United States but may have opted for different forms and practices. Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 7850: Traversing the Muslim World**

(cross-leveled with HIST 4850, S\_A\_ST 4850). The traveler's tale formed an important part of the medieval world's system of knowledge. This writing intensive discussion-based course examines a wide array of the most influential travelers in Muslim lands such as Ibn Fadlan, Ibn Battuta, Benjamin of Tudela and Marco Polo.

**Credit Hours:** 3

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**HIST 7865: Buying Desire: History of Consumption**

(cross-leveled with HIST 4865). This course explores the history of consumption practice in various cultural contexts. The course is divided into four parts: 'Masses As Consumers', 'Selling/Consuming Cultures', 'Consumption as (Postcolonial) Modernity', and 'Consumption and the Nation'. Under each section are thematically related texts on particular cultural contexts. The reading of ethnographic texts on consumption is to be accompanied by critical discussions that locate consumption within the practices of the nation-state-making and global product-marketing. Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 7867: North Korea: History, Political Economy, Culture**

(cross-leveled with HIST 4867). The aim of this course is to survey North Korea's history, especially in terms of political economy and culture. Through several themes, we will examine the historical situations of North Korea from its beginnings in the postliberation period to the present, as North Korea undergoes monumental changes. Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 7880: Chinese Migration: From Yellow Peril to Model Minority**

(cross-leveled with HIST 4880). This course surveys Chinese emigration in the global context over the span of five centuries. We will pay special attention to the changing relationships between China and Chinese migrants. Our emphasis will be on history as a process of negotiation and contestation of heterogeneous groups or individuals through creative and selective activities.

**Credit Hours:** 3

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**HIST 7910: History in the Public: An Introduction to the Theory and Practice of Public History**

(cross-leveled with HIST 4910). The purpose of this course is to introduce students to the world of public history, the central questions and debates in the field, and to offer students the opportunity to practice public history. Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 7940: Internship in History**

(cross-leveled with HIST 4940). Professional training in history and archive-related fields. Graded on S/U basis only.

**Credit Hours:** 3

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**HIST 7990: Economic Analysis of Policy & Regulation**

(cross-leveled with ABM 4990). Apply economic concepts and tools to analyze the policy-making process and the implications of policy for individuals, firms, markets and society. Policy topics include, among other things, agricultural support programs, environmental policy, international trade, international development, and agribusiness regulation.

**Credit Hours:** 3

**Recommended:** Graduate students should have previous coursework in basic econometrics and at least intermediate-level micro economic theory

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**HIST 8000: Studies in American Colonial History**

Readings in American history from beginning of English settlements to adoption of the Constitution. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8001: Seminar in the History of Colonial America**

Directed research in the colonial and revolutionary period of American history. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8004: Topics in History-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to maximum of 6 hours.

**Credit Hour:** 1-99

**Prerequisites:** department consent

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**HIST 8010: Studies in American Religious History, 1750-1850**

This class will examine important ideas and trends in the field, with an emphasis on popular religious movements. This is a reading-based seminar, revolving around discussion of influential recent books. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8020: Seminar in the Early American Republic**

Directed research in the period 1787-1861. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8021: Studies in the Early American Republic**

This is an intense reading and discussion course designed to give students a crash course in the historiography of this period (emphasizing political culture) as well as practical experience in assimilating themselves quickly to a field. Students must attend and be prepared to participate knowledgeably in each class section. Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 8030: Studies in Sectional Controversy, Civil War and Reconstruction**

Directed readings and discussions of major issues in the period of national unification of the United States, from 1850 through 1877. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8040: Seminar in Imperial History**

Empires have been the predominant organizing political structure in modern world history (c. 1500-2000). Yet historians mostly structure historical inquiry around nations. This graduate class seeks to redress this imbalance by acquainting students with a diverse selection of the modern Anglophone historiography on empire, as well as giving them the opportunity to develop their own research project on an aspect of imperial history of their choosing. This class is reading and writing intensive, as should be expected of graduate students. Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 8041: The Making of the Atlantic World**

(same as CNST\_DEM 8041). Commerce, colonization, enslavement, and warfare connected western Europe, West Africa, and the Americas into an Atlantic world from the fifteenth to the eighteenth century. This course introduces students to several key themes in the scholarship of the Atlantic world: contact and imperial conquest, migration, slavery, servitude, and race, and the interaction of law and society. We will focus on the British Atlantic, and also engage with other framings, including the Iberian and African Atlantics. Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 8042: From the Age of Revolutions to the Age of Nation-States, 1760-1900**

(same as CNST\_DEM 8042). This course will immerse students in the history and historiography of the nineteenth century Atlantic World. The key arc that students will trace is the move from the age of revolutions to the formation of modern, bureaucratic nation-states, a process which unfolded across the Atlantic basin. Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 8045: Atlantic History and Politics**

(same as CNST\_DEM 8045). In this interdisciplinary graduate course, students will examine some of the most significant texts of the Atlantic world c. 1750-present. They will track the evolution of ideas of liberty, natural rights, politics, and empire that have conditioned the historical development of the Atlantic basin. Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 8050: Britain and the World**

(same as CNST\_DEM 8050). In this course students will engage with the rich and dynamic global history of Great Britain. The core of the course will be daily guest lectures delivered by faculty members of Oxford University. The course also includes three excursions to sites of historical significance within England. Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 8060: Kinder Institute Colloquia**

(same as CNST\_DEM 8060). In this year-long course, students will actively participate in the regular events put on by the Kinder Institute on Constitutional Democracy. The core of the course will be the public lectures, seminar presentations/discussions, workshops, and annual conference sponsored by the Kinder Institute. In addition to actively participating in these events, students will produce reaction papers that provide their assessment and analysis. Graded on A-F only.

**Credit Hours:** 3

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**HIST 8085: Problems in History**

Individual work not leading to dissertation.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**HIST 8089: Masters Research in History**

Work equal to research done for a dissertation, but not leading to thesis.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**HIST 8090: Masters Research in History**

Graded on a S/U basis only.

**Credit Hour:** 1-99

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**HIST 8210: Studies in Recent United States History**

Critical evaluation of writing in American history in period 1929-present. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8211: Seminar in Recent United States History**

Advanced seminar in American history from 1929 to present. May be repeated to a maximum of 12 hours.

**Credit Hour:** 1-12

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**HIST 8405: Studies in Gender**

Studies in recent research material focused on the analysis of the intersections of gender, race and class in particular times and places. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8406: The Politics of the Body in Historical Perspective**

This graduate seminar will launch an investigative inquiry into how the body has been conceptualized in the historical past and how it continues to serve as a site of contention. This course will offer an opportunity to introduce students to the major intellectual debates that guide the study of the body and body-related processes in current scholarship. Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 8410: Independent Readings for History Ph.D. Comprehensive Examination**

Independent readings for Ph.D. Comprehensives.

**Credit Hour:** 1-99

**Prerequisites:** Open only to graduate students formally admitted to candidacy for Ph.D. in history

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**HIST 8415: Studies in African-American History**

(same as BL\_STU 8415). Readings on selected topics in African-American history from 1619 to the present, with emphasis on conflicting interpretations. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8416: Seminar in African-American History**

(same as BL\_STU 8416). Directed research in selected topics in African-American history. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8440: Studies in American Western and Environmental History**

Readings, class discussion, and written analysis on topics in American Western and environmental history from early settlement to the present. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8450: Studies in the History of the South**

Group readings and appraisal of controversial interpretations in Southern history. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8455: Studies in the History of American Diplomacy**

Readings in evolution of American diplomacy from the Revolution to present. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8457: Studies in the History of the United States and the World**

This graduate seminar will explore the emerging historiographical field known as 'The United States and the World', broadly defined to encompass both the history of U.S. foreign policy and other topics like the history of trade, immigration, and cultural exchange. This course will focus on historiography and methodology in order to introduce students to the existing literature, assist in preparation for comprehensive examinations, identify major trends in the field, and suggest directions for future research. Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 8460: Studies in Trans-Atlantic History**

This course examines important historical themes in a trans-Atlantic context. Readings will invite exploration of changes, continuities, contrasts, and causation of similar phenomena on both side of the ocean, in the Americas, Europe, and/or Africa.

**Credit Hours:** 3

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**HIST 8480: Historiography**

Acquaints graduate students with examples of modern historical thought and practice by examining various conceptual approaches to the study of history. May be repeated to a maximum of six hours.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HIST 8510: Seminar in Ancient History**

Readings and research on selected problems in ancient history. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8531: Studies in English History**

Readings in historical literature covering period since 1660; particular reference to new interpretations of political, social developments. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8540: Seminar in Medieval Culture**

Investigates cultural developments in the medieval period. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8541: Studies in Medieval History**

Readings in medieval history and historiography with emphasis on current scholarship. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8542: Seminar in Medieval Paleography**

This course provides an introduction to medieval and Renaissance manuscript-sources and their use as research-tools in a fairly wide variety of sub-fields (e.g., archival study, scholastic text-analysis, vernacular literature). Graded on A-F basis only.

**Credit Hours:** 3

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**Prerequisites:** departmental consent and competence in Latin grammar required

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**HIST 8550: Seminar in the Renaissance and Reformation**

Analyzes problems of the period 1300-1600; emphasizes intellectual history. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8551: Studies in Early Modern European History**

Readings in historical classics and current scholarship on Renaissance, Reformation, Baroque, and Enlightenment periods. Problem of modernity. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8565: Studies in the History of Medicine**

This course will focus on interpretations on the impact of disease on western society at various times through history. Chronic diseases play an important role in shaping societies, but it is generally in response to epidemics that we see significant social reactions and changes. As a thematic course, this covers a broad sweep of time, from medieval to modern. Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 8570: Studies in Modern European History**

Readings in recent research material on selected topics. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8571: Seminar in Modern European History**

Explores Modern European History. Graded on A-F basis only. Repeatable for credit.

**Credit Hours:** 3

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**HIST 8800: Studies in Latin American History**

Readings in standard and recent historical literature, with critical discussion of reports on special topics. May be repeated to a maximum of 6 hours.

**Credit Hour:** 1-6

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**HIST 9090: PhD Research in History**

Graded on a S/U basis only.

**Credit Hour:** 1-99

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## Honors-General Courses

**GN\_HON 1010H: Career Explorations**

Colloquia in which experts from both the University and the Columbia communities discuss their specialties and answer students' questions on the nature and current status of their disciplines. Open primarily to freshmen. Graded on an S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Honors eligibility required

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**GN\_HON 1030H: Honors Discussion Groups**

Informal discussion between students and faculty on various academic topics. Graded S/U only.

**Credit Hour:** 1-2

**Prerequisites:** Honors eligibility required

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**GN\_HON 1050H: Honors Seminar**

Freshman-sophomore seminar offering a small group opportunity to write about and discuss basic works chosen by instructor.

**Credit Hour:** 1-3

**Prerequisites:** Honors eligibility required

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**GN\_HON 1070H: Honors Elective Colloquium**

**Credit Hour:** 2-3

**Prerequisites:** Honors eligibility required

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**GN\_HON 1080H: Honors Internship**

Independent study under the supervision of a regular faculty member.

**Credit Hour:** 1-3

**Prerequisites:** written proposal with professor's approval submitted in advance to Director of the Honors College. Honors eligibility required

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**GN\_HON 2010H: Honors Tutorial**

Small group of students (2-5) engage in collaborative work under faculty guidance. The focus is determined in advance by a faculty member and shaped through discussion with the enrolled students. Course may be repeated for credit. Honors eligibility required

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

---

**GN\_HON 2011H: Unbound: Reading Without Limits**

Joining forces with the Unbound Book Festival, held late April each year here in Columbia, the Unbound tutorial seeks to engage students in the life-long learning approach to reading for pleasure, for the pursuit of engagement, and as a social construct (rather than simply an isolated act). Students will read no fewer than four works of fiction, non-fiction, poetry, and essays, and discuss them as a reading circle but also have the opportunity to meet the authors during the Unbound Book Festival and discuss with them their ideas and skills. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Honors eligibility required

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**GN\_HON 2012H: BBQ: Culture, Cuts, and Consumption - Honors**

This course will focus on providing you with a sound understanding of the culture, context, culinary, and commercial aspects of Barbecue. We will explore how the meat industry plays a role in BBQ, the environmental implications (of both meat and wood usage), the culture (from your backyard to the national competitions, and even BBQ abroad), and look into how and why BBQ has become such a phenomenon. We will spend some time with a local (KC) author who has written a novel on BBQ that is currently being turned into a TV series. And then we will spend time visiting local BBQ 'joints', speaking with owners and pitmasters, customers and devotees, about their business models, their culinary decisions, and their traditions - yes, we will taste, but we will also learn, and use what we have learned, to understand the world of BBQ and its intersections in our daily and national lives. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Honors eligibility required

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**GN\_HON 2015H: Theory and Practice of Tutoring Writing Seminar** (same as ENGLSH 2015H). Addresses both the theory and practice of tutoring and the foundations of good writing. This course also qualifies students for a part-time job working as Writing Lab/Online Writery tutors in future semesters.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000; instructor's consent

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**GN\_HON 2015HW: Theory and Practice of Tutoring Writing Seminar - Honors/Writing Intensive**

(same as ENGLSH 2015H). Addresses both the theory and practice of tutoring and the foundations of good writing. This course also qualifies students for a part-time job working as Writing Lab/Online Writery tutors in future semesters.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000; instructor's consent

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**GN\_HON 2085H: Honors Problems**

Independent study under the supervision of a regular faculty member.

**Credit Hour:** 1-3

**Prerequisites:** written proposal with professor's approval submitted in advance to Director of the Honors College. Honors eligibility required

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**GN\_HON 2111H: The Ancient World**

The reading list is comprised of the great writers of classical Greece and Rome such as Homer, Sophocles, Plato, Aristotle, Virgil and Apuleius, and of the biblical period, the authors of the Book of Job and the Gospel of Mark.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2111HW: The Ancient World - Honors/Writing Intensive**

The reading list is comprised of the great writers of classical Greece and Rome such as Homer, Sophocles, Plato, Aristotle, Virgil and Apuleius, and of the biblical period, the authors of the Book of Job and the Gospel of Mark.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2112H: The Middle Ages and the Renaissance**

The literature, art and philosophy which reflect the interaction of biblical thought with the classical past, and ultimately an emerging humanism, form the contents of the second semester. Readings include selections from such central figures as Aquinas, Chaucer, Dante, and Shakespeare. Special lectures are presented on the art, architecture and music of these eras.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2112HW: Here Be Monsters - Honors/Writing Intensive**

Exploring the art, literature, music and philosophy of the Medieval and Renaissance periods, this course opens in North Africa during the late Roman Empire on the threshold between the classical and medieval eras, and it closes in Shakespeare's London during the English Renaissance. In between, we'll explore the fens of Beowulf's Denmark, the battlefields of Roland and Charlemagne, and Hell itself in Dante's Inferno; meet werewolves and dragons and pilgrims; navigate the intellectual, political, and religious turmoil of medieval Europe; and encounter the glory of Renaissance Italy. This is the second course in the long-running Honors Humanities Sequence.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

---

**GN\_HON 2113H: The Early Modern World: The 17th-19th Centuries Enlightenment**

The third segment of the Sequence treats the cultural developments in the West from the Baroque to the Enlightenment through Romanticism. The works of Cervantes, Descartes, Milton, Voltaire, Kant, Austen, Goethe, and Dickinson are among those studied. The music and visual arts of these periods are also included.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2114H: The Modern Era**

The final semester of the Humanities Sequence deals with the intellectual and cultural developments from the mid-nineteenth to the late twentieth century. Lectures and discussions will be held on the philosophy of Marx, Nietzsche, Sartre and Hannah Arendt; on the literary works of Dickens, Dostoevsky, James Joyce, Virginia Woolf, T.S. Eliot, and Toni Morrison. Special lectures are presented on the music of the period.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2114HW: The Modern Era - Honors/Writing Intensive**

The final semester of the Humanities Sequence deals with the intellectual and cultural developments from the mid-nineteenth to the late twentieth century. Lectures and discussions will be held on the philosophy of Marx, Nietzsche, Sartre and Hannah Arendt; on the literary works of Dickens, Dostoevsky, James Joyce, Virginia Woolf, T.S. Eliot, and Toni Morrison. Special lectures are presented on the music of the period.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2120H: Honors Humanities Colloquium**

**Credit Hour:** 2-3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2230H: Honors Social Science Colloquium**

**Credit Hour:** 2-3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2230HW: Honors Social Science Colloquium - Honors/Writing Intensive**

**Credit Hour:** 2-3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2231H: Genocide in the Modern World: An Introduction**

This course examines the multitude of genocide's facets - its causes, course of events, consequences, and the pursuit of prevention and punishment - since the advent of the Twentieth Century (with some examination of historical antecedents). Specific historical and conceptual aspects of various case studies will be examined and a framework for the study of genocide will be developed and applied, starting with the legal definition of genocide and ending with very nuanced theories, behaviors, and components of specific events. The class will use foundational case studies to understand the place of genocide throughout history and end with an investigation into current and on-going genocides, as well as the international pursuit of justice in the wake of these events. Graded on A-F basis only.

**Credit Hours:** 3**Prerequisites:** Honors eligibility required

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**GN\_HON 2243H: Human Sciences Sequence I: Personal Identity**

This interdisciplinary course approached the perennial but fascinating question of how we define, develop, and present ourselves. It considers this question from a range of disciplinary, regional, and thematic perspectives.

**Credit Hours:** 3**Prerequisites:** Honors eligibility required

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**GN\_HON 2244H: Social Relations**

This interdisciplinary course explores the construction of human identity as it related to social groups (these groups might include anything from the family to fan clubs, sports teams to college students).

**Credit Hours:** 3**Prerequisites:** Honors eligibility required

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**GN\_HON 2245H: Social Organization**

This course examines various forms of social organization from an interdisciplinary perspective. The course will examine small organizations (such as families and kin networks) that are grounded in face-to-face relationships and then consider the impact of large-scale organizations (such as markets and states). The class will also explore how these larger organizations can hold together in the absence of direct personal connections between members.

**Credit Hours:** 3**Prerequisites:** Honors eligibility required

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**GN\_HON 2246H: Global Citizenship**

This course continues our introduction to the fundamental problems and concepts of social science by concentrating on today's emerging global society and the ways in which it shapes social identity. The course also aims at encouraging students to think of themselves as global citizens - people who possess a sense of their own role as citizens of the world.

**Credit Hours:** 3**Prerequisites:** Honors eligibility required

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**GN\_HON 2246HW: Global Citizenship - Honors/Writing Intensive**

This course continues our introduction to the fundamental problems and concepts of social science by concentrating on today's emerging global society and the ways in which it shapes social identity. The course also

aims at encouraging students to think of themselves as global citizens - people who possess a sense of their own role as citizens of the world.

**Credit Hours:** 3**Prerequisites:** Honors eligibility required

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**GN\_HON 2310H: Honors Behavioral Science Colloquium**

This course meets a general education behavioral science requirement.

**Credit Hours:** 3**Prerequisites:** Honors eligibility required

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**GN\_HON 2450H: Honors Biological, Physical, Math (Computer Science) Science Colloquium**

Open to all honors-eligible students. These courses may be cross-listed with Biological, Physical or Mathematical Science Departments. Interdisciplinary or experimental courses are encouraged.

**Credit Hour:** 1-3**Prerequisites:** Honors eligibility required

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**GN\_HON 2452H: Honors Biological Science Colloquium**

Open to all honors-eligible students. These courses may be cross-listed with Biological Science Departments. Interdisciplinary or experimental courses are encouraged.

**Credit Hour:** 1-3**Prerequisites:** Honors eligibility required

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**GN\_HON 2456H: Honors Math (Computer Science) Science Colloquium**

Open to all honors-eligible students. These courses may be cross-listed with Mathematical Science Departments. Interdisciplinary or experimental courses are encouraged.

**Credit Hour:** 1-3**Prerequisites:** Honors eligibility required

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**GN\_HON 2457H: Honors Physical Science Colloquium**

Open to all honors-eligible students. These courses may be cross-listed with Physical Science Departments. Interdisciplinary or experimental courses are encouraged.

**Credit Hour:** 1-3**Prerequisites:** Honors eligibility required

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**GN\_HON 2461H: Environment: From Molecules to the Cosmos**

Inquiry-based exploration of how the world was made, environments formed, life evolved, and how it works together to sustain life on Earth. Graded on A-F basis only.

**Credit Hours:** 3**Prerequisites:** Honors eligibility required

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**GN\_HON 2462H: Energy: From Particles to Civilizations**

Inquiry based exploration of energy, what it is, how it is used, and how it sustains our life on Earth. Graded on A-F basis only.

**Credit Hours:** 3**Prerequisites:** Honors eligibility required



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**GN\_HON 2950H: Honors Preceptorship**

Active participation in a professor's research for up to six hours a week.

**Credit Hour:** 1-3

**Prerequisites:** written description of the work with professor's approval submitted in advance to Director of the Honors College. Honors eligibility required

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**GN\_HON 3070H: Honors Electives Colloquium**

**Credit Hour:** 2-3

**Prerequisites:** Honors eligibility required

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**GN\_HON 3070HW: Honors Electives Colloquium - Honors/Writing Intensive**

Honors Electives Colloquium - Honors/Writing Intensive.

**Credit Hour:** 2-3

**Prerequisites:** Honors eligibility required

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**GN\_HON 3112H: Interdisciplinary Topics in the Humanities: Aesthetics and Performance**

Aesthetics and Performance is the 2nd course offered in a four-semester, upper-level Humanities Series. It takes an Interdisciplinary approach to a variety of topics relevant to such disciplines as Art History, Art, Theater, English, and Film Studies. Students will be introduced to key figures, ideas, and texts in aesthetics and performance. The course format will be a combination of guest lectures, small-group discussion, and when possible, team-teaching. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** junior or senior standing. Honors eligibility required

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**GN\_HON 3113H: Interdisciplinary Topics in the Humanities: Big Ideas, Big Questions**

Big Ideas, Big Questions is the third course offered in a four-semester, upper-level Humanities Series. It takes an interdisciplinary approach to concepts, theories, debates, and questions central to our understanding of the humanities.

**Credit Hours:** 3

**Prerequisites:** upper-level standing or permission of instructor; Honors eligibility required

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**GN\_HON 3120H: Honors Humanities Colloquium**

**Credit Hour:** 2-3

**Prerequisites:** junior standing. Honors eligibility required

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**GN\_HON 3120HW: Honors Humanities Colloquium - Honors/Writing Intensive**

**Credit Hour:** 2-3

**Prerequisites:** junior standing. Honors eligibility required

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**GN\_HON 3210H: Honors Behavioral Colloquium**

**Credit Hour:** 2-3

**Prerequisites:** junior standing. Honors eligibility required

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**GN\_HON 3210HW: Honors Behavioral Colloquium - Honors/Writing Intensive**

**Credit Hour:** 2-3

**Prerequisites:** junior standing. Honors eligibility required

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**GN\_HON 3230H: Honors Social Science Colloquium**

**Credit Hour:** 2-3

**Prerequisites:** junior standing required. Honors eligibility required

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**GN\_HON 3230HW: Honors Social Science Colloquium - Honors/Writing Intensive**

**Credit Hour:** 2-3

**Prerequisites:** junior standing required. Honors eligibility required

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**GN\_HON 3241H: Evolution of Human Nature**

(same as ANTHRO 3340H). We will investigate the topic of human nature, asking such questions as: What are we like? Why do we behave the way we do? Are we inherently selfish or social? Do we have a unitary 'self' or are we made up of many (and sometimes contradictory) selves? Is there a single 'human' nature or are there distinct 'male' and 'female' natures? Does human nature vary across cultures? Insights come from fields ranging from genetics to literature. The concept of 'human nature' is fiercely contested and debated both within and between academic disciplines. We will be focusing on the scientific study of human nature, seeking naturalistic explanations by formulating and testing hypotheses. In particular, we will use evolutionary theory to unify explanations from disparate disciplines like biology, psychology, and anthropology. In each class, we will discuss one specific topic like sex or violence and seek to make sense of it from both the proximate level (what triggers the behavior and how does it develop?) and the ultimate level (why and how did our evolutionary history imbue us with this capacity?). Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

---

**GN\_HON 3241HW: Evolution of Human Nature - Honors/Writing Intensive**

We will investigate the topic of human nature, asking such questions as: What are we like? Why do we behave the way we do? Are we inherently selfish or social? Do we have a unitary 'self' or are we made up of many (and sometimes contradictory) selves? Is there a single 'human' nature or are there distinct 'male' and 'female' natures? Does human nature vary across cultures? Insights come from fields ranging from genetics to literature. The concept of 'human nature' is fiercely contested and debated both within and between academic disciplines. We will be focusing on the scientific study of human nature, seeking naturalistic explanations by formulating and testing hypotheses. In particular, we will use evolutionary theory to unify explanations from disparate disciplines like biology, psychology, and anthropology. In each class, we will discuss one specific topic like sex or violence and seek to make sense of it from both the proximate level (what triggers the behavior and how does it develop?) and the ultimate level (why and how did our evolutionary history imbue us with this capacity?). Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 3242H: The Future Is Indigenous! - Honors**

Today, Indigenous peoples around the world are reasserting an ancient idea that our human responsibilities to the planet come through place, and that our planetary responsibilities are fulfilled by investing in and

learning from place. Place-based Indigenous thought and activism give us new ways of thinking about global citizenship within a more-than-human democracy of beings - a 'pluriverse' - and changes our understanding of what it means to be human in the twenty-first century. After looking at the limitations of the system of global ethics in cosmopolitan philosophy, we will get acquainted with the 'place thought' of three Indigenous peoples: the Western Apache of the USA, the Maori of Aotearoa/New Zealand, and the Huaorani of the Ecuadorian Amazon. This course satisfies three credit hours of general education requirements in the behavioral and social sciences and is part of the Honors College's Interdisciplinary Topics in the Human Sciences series. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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#### **GN\_HON 3242HW: The Future Is Indigenous! - Honors/Writing Intensive**

Today, Indigenous peoples around the world are reasserting an ancient idea that our human responsibilities to the planet come through place, and that our planetary responsibilities are fulfilled by investing in and learning from place. Place-based Indigenous thought and activism give us new ways of thinking about global citizenship within a more-than-human democracy of beings - a 'pluriverse' - and changes our understanding of what it means to be human in the twenty-first century. After looking at the limitations of the system of global ethics in cosmopolitan philosophy, we will get acquainted with the 'place thought' of three Indigenous peoples: the Western Apache of the USA, the Maori of Aotearoa/New Zealand, and the Huaorani of the Ecuadorian Amazon. This course satisfies three credit hours of general education requirements in the behavioral and social sciences and is part of the Honors College's Interdisciplinary Topics in the Human Sciences series. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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#### **GN\_HON 3450H: Honors Colloquium**

**Credit Hour:** 2-3

**Prerequisites:** junior standing required. Honors eligibility required

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#### **GN\_HON 3452H: Honors Biological Science Colloquium**

**Credit Hour:** 2-3

**Prerequisites:** junior standing required. Honors eligibility required

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#### **GN\_HON 3456H: Honors Math (Computer Sci.) Science Colloquium**

**Credit Hour:** 2-3

**Prerequisites:** junior standing required. Honors eligibility required

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#### **GN\_HON 3457H: Honors Physical Science Colloquium**

**Credit Hour:** 2-3

**Prerequisites:** junior standing required. Honors eligibility required

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#### **GN\_HON 4070H: Advanced Honors Elective Colloquium**

These courses may be cross-listed with courses in graduate or professional programs or one-of-a-kind courses which may have no other more appropriate academic home. Interdisciplinary or experimental courses are encouraged.

**Credit Hour:** 1-3

**Prerequisites:** Restricted to juniors and seniors. Honors eligibility required

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#### **GN\_HON 4070HW: Advanced Honors Elective Colloquium - Writing Intensive**

These courses may be cross-listed with courses in graduate or professional programs or one-of-a-kind courses which may have no other more appropriate academic home. Interdisciplinary or experimental courses are encouraged.

**Credit Hour:** 1-3

**Prerequisites:** Restricted to juniors and seniors. Honors eligibility required

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#### **GN\_HON 4950H: Honors Preceptorship**

Active participation in a professor's research for up to six hours a week.

**Credit Hour:** 2-3

**Prerequisites:** written description of the work with professor's approval submitted in advance to Director of the Honors College. Junior standing required. Honors eligibility required

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## **Hospitality Management Courses**

#### **HSP\_MGMT 1100: Introduction to Hospitality Management**

An overview of the size, scope, form, analysis and development of various sectors in the hospitality industry. These include hotel, tourism, food and beverage, convention and events, club, cruise, gaming, managed services, and sport venue management. Emphasis will be on the global nature of the industry and its impact on economy and employment. Students will be exposed to career opportunities, cultural diversity, ethical consideration and current trends facing industry. Graded on A-F basis only.

**Credit Hours:** 3

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#### **HSP\_MGMT 2100: Hospitality Law**

Provides an integrated analysis of the legal system as it applies to the hospitality industry. Topics include: theories of recover/liability; employment laws, property rights and contracts, lawsuits and their prevention; familiarization with legal arguments, litigation, ethical issues and the tort of negligence in professional context. Relevant federal and state cases, statutes, and regulations will be examined. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 1100

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#### **HSP\_MGMT 2115: Club Management and Operations**

Examines aspects of club operations from a managerial perspective. Topics include: history, types of club and membership systems, club management structure, charter, by-laws; athletic activities, master and club calendars; unique features of club operations including food and beverage operations, human resources management, finances, building and facilities management, external and governmental factors, trends and the future of clubs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 1100

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**HSP\_MGMT 2190: Seminar in Professional Development**

A systematic approach to expose students to a journey of self assessment and to develop life-long skills for their careers in the hospitality industry. Using professionalism as a framework, students are made aware of the foundation of effective workplace relationship and how to appropriately manage these relationships toward career success. Topics include self management, workplace relationship, and career planning tools. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** HSP\_MGMT 1100; restricted to Hospitality Management majors only

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**HSP\_MGMT 2200: Fundamentals of Conference and Events Industry**

Overview of the Meeting, Incentive, Convention and Exhibition (MICE) management industry in hospitality and tourism from a macro perspective. The knowledge and information available to conference and meeting business are described and evaluated, including the trend and issues facing the industry, the characteristics of the size and scope of the market, key players, and different sectors in the meeting industry. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** HSP\_MGMT 1100 or Instructor Consent

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**HSP\_MGMT 2300: Fundamentals of the Food and Beverage Industry**

An introduction to the macro aspects and a comprehensive overview of the Food and Beverage industry. The course begins with a history of meals away from home and an overview of commercial versus noncommercial food and beverage operations. Detailed considerations are given to components of the food service businesses: size and scope of the industry, major classifications, ownership types, key players, consumer purchasing behavior, quality assurance, trends, challenges, cultural diversity, ethical consideration, and impact of globalization. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** HSP\_MGMT 1100 or Instructor Consent

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**HSP\_MGMT 2400: Fundamentals of Lodging Industry**

Explores the foundations of the global lodging industry. The history of the industry, relationship of tourism, size and scope, classification and types, major global players will be examined. Issues related to the impact of globalization, international hotel investment, development and operations, global competitions, political aspects, human resources and cultural diversity will be discussed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** HSP\_MGMT 1100 or Instructor's Consent

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**HSP\_MGMT 2500: Fundamentals of Sport Venue Industry**

An overview of the Sport Venue Industry from a macro perspective. Students will be exposed to the major aspects regarding management of athletic and recreational facilities. Topics will include: history, trends and globalization of sport and venue development, types of sport facilities and major key players, construction and finance, facility systems and operations, sales and marketing, liability and risk management, ticket and box office operation, and event management. Cultural diversity, ethical issues and career opportunities in Sport Venue Management will also be explored. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** HSP\_MGMT 1100 or instructor consent

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**HSP\_MGMT 3100: Guest Service Management**

Addresses the essence of delivering memorable guest experience through high-quality guest service management. Topics include concepts of guest service quality, guest behavior, perceptions and satisfaction, guest service assessment methods, and guest recovery strategies. Students will then learn how to leverage their understanding of these concepts to establish guest service culture and strategies to meet organizational goals within the context of hospitality businesses. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to junior and senior level students only

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**HSP\_MGMT 3104: Topics in Hospitality Management**

An examination of specific subject matter areas in the field of hospitality management will be addressed. Current issues, trends and challenges will also be discussed. Graded on A-F basis only

**Credit Hour:** 1-3

**Prerequisites:** HSP\_MGMT 1100; Restricted to Hospitality Management junior and senior students

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**HSP\_MGMT 3105: Problems in Hospitality Management**

Students develop problem solving, analytical skills by engaging in a supervised study of a selected field in the hospitality industry. Challenges and issues will be identified and probable solutions will be weighed and evaluated. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**HSP\_MGMT 3115: Management of Gaming Operations**

An overview, analysis of gaming management and financial elements unique to operating gaming businesses. Topics include: History and development of gaming, economic relationships, social impact, legal and changing competitive environments, consumer behavior and psychological forces, corporate culture and technology, revenue control, and promotion and marketing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 1100; 60 credit hours, 21 yrs old. Restricted to Hospitality Management students during early registration. Other students meeting pre-reqs can register after early registration

---

**HSP\_MGMT 3200: Conference and Meeting Management**

Addresses the different operational aspects regarding convention and meeting planning management. Students will be exposed to skill-based knowledge pertaining to meeting and event planning, implementation and management. Topics discussed to include group business market, the role of the event planner, the various techniques and services used to meet their needs. Food and beverage, technology used, legal issues, social responsibility, and international aspects in the convention and meeting industry will be addressed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 1100; 60 credit hours. Restricted to Hospitality Management students during early registration

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**HSP\_MGMT 3300: Food Production Management**

Explore the production and service aspects of the food and beverage businesses. It will examine principles of concept development, menu planning, pricing and costing, forecasting, standardize recipe and testing, purchasing, food sanitation and safety, quantity food production, delivery of service, inventory control, quality assurance, professionalism and team work. Students will rotate through the different functions of the 'front' and 'back of the house' of a food facility. This supervised student-operated facility enables students to apply theories to the actual food service operation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 2300; HSP\_MGMT 3310, 60 credit hours, ServSafe Cert Req. Restricted to Hospitality Management students during early registration

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**HSP\_MGMT 3310: Food Service Budgeting and Controls**

Examines management systems and techniques in the food and beverage industry. Topics include: effective use and control of food, beverage, and labor costs to manage a company's operations, with emphasis on computer applications, problems solving and analytical skills, making sound financial decisions, and excellence in customer service. This is a Math Reasoning Proficiency course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 1100; MATH 1100. Restricted to HM students during early registration. Other students meeting pre-reqs may register after early registration

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**HSP\_MGMT 3315: Banquet and Catering Management**

Engage in the management of service and production systems in catering operations and banquet facilities. An emphasis will be placed on the fundamentals of communication and planning with event coordinators, menu planning, sales and marketing, food and beverage cost control, guest service standards, quantity food productions, food safety, needs and challenges of catering both on and off premises. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 2300; 60 credit hours, Restricted to Hospitality Management students during early registration

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**HSP\_MGMT 3320: Beverage Management**

Explore and analyze operational and managerial elements of the bar and beverage industry. Topics include: alcoholic versus non-alcoholic beverage, beverage menu development, pricing strategy and costing, sensory evaluation, food and beverage pairing, marketing and promotion, inventory control, training of personnel, legal aspects of responsible service of alcohol. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 2300; 60 credit hours, 21 yrs old. Restricted to Hospitality Management students during early registration

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**HSP\_MGMT 3400: Lodging Operations and Management**

Exposes students to the principles of managing lodging businesses regarding the fundamental principles, hows and whys of management. Topics include: Analysis of the functions of each department,

organization structure, inter-relationship among various departments of a lodging facility, property management system, safety and security, guest service and satisfaction, and total quality issues. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 2400; 60 credit hours. Restricted to Hospitality Management students during early registration

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**HSP\_MGMT 3420: Technology Applications in the Lodging Industry**

Survey of the technology applications, issues, and trends in the lodging industry. The role of technology in operations and as a strategic tool to achieve competitive advantage will be examined. Students will need to have a good grasp of how to best implement information technology that will impact the future of their organizations. Current technology issues of interest and importance to the industry will also be explored. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 2400. Open to Hospitality Management junior and senior students only

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**HSP\_MGMT 3500: Sport Venue Operation Management**

Examines the various operational dynamics and management of sport venues and facilities. Topics such as public versus private ownership and governance structures, facility planning and feasibility study, design and construction, event planning, programming and execution, sales and marketing, box office operations, and financial management will be addressed. Ethical issues, legal responsibilities, risk and security management will also be discussed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 2500; 60 credit hours. Restricted to HM students during early registration. Other students meeting pre-reqs may register after early registration

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**HSP\_MGMT 3993: Field Training in Hospitality Management**

Applies theories into actual industry setting. Aspects such as career paths, team work, inter-relationship in the workplace and professionalism are explored. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**HSP\_MGMT 4100: Hospitality Human Resources Management**

(cross-leveled with HSP\_MGMT 7100). Examines effective management of human resources issues in hospitality businesses. It addresses issues related to managing subordinates through hiring the right person for the position, training properly, evaluating employees' performance accurately and promptly, rewarding good behaviors, and motivating and coaching them. Manpower planning, equal employment practices and employee relations, quality of work life, compensation and reward structure, and how to make sound human resource management decisions will also be discussed. This is a writing intensive course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** 60 credit hours. Restricted to HM students during early registration. Other students meeting pre-req may register after early registration

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**HSP\_MGMT 4100W: Hospitality Human Resources Management - Writing Intensive**

(cross-leveled with HSP\_MGMT 7100). Examines effective management of human resources issues in hospitality businesses. It addresses issues related to managing subordinates through hiring the right person for the position, training properly, evaluating employees' performance accurately and promptly, rewarding good behaviors, and motivating and coaching them. Manpower planning, equal employment practices and employee relations, quality of work life, compensation and reward structure, and how to make sound human resource management decisions will also be discussed. This is a writing intensive course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 1100; 60 credit hours. Restricted to HM students during early registration. Other students meeting prereqs may register after early registration

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**HSP\_MGMT 4110: Hospitality and Tourism Marketing**

(cross-leveled with HSP\_MGMT 7110). Application of a customer-oriented approach to sales and marketing management in hospitality and tourism industry. The marketing techniques available to hospitality businesses are described and evaluated, including service marketing mix, packaging, travel trade, advertising, sales promotion, merchandising, and personal selling. Marketing of hospitality services regarding human factors, consumer demand, planning, professional considerations are also discussed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 1100; 60 credit hours. Restricted to HM students during early registration. Other students meeting pre-reqs may register after early registration

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**HSP\_MGMT 4180: Strategic Management in the Hospitality Industry**

(cross-leveled with HSP\_MGMT 7180) Focuses on developing conceptual skills and application of the principles of strategic management in the context of the hospitality industry. It involves handling and analyzing ambiguous facts as well as relevant industry problems and issues facing management personnel in the global hospitality markets. Topics include: Business environments, mission statement, corporate and business strategies, evaluation and control. It requires that students to apply functions of management, finance, human resources, and marketing, learn how to engage in planning by examining situations from the perspectives of customer, employee, and management. The ultimate goal is to encourage students to think 'out-of-the-box' in order to find innovative solutions that will reshape the hospitality industry and define how the hospitality company of tomorrow will create value. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 3100; MANGMT 3000; 60 credit hours. Restricted to Hospitality Management students during early registration

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**HSP\_MGMT 4190: Trends in Hospitality Management**

To keep abreast of the development that affects current managerial practices, this course is a survey of key trends and critical issues that impact the hospitality industry. Best practices, opportunities and challenges facing the industry will also be discussed. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** HSP\_MGMT 1100 and open to Hospitality Management students only

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**HSP\_MGMT 4200: Destination Management**

(cross-leveled with HSP\_MGMT 7200). An overview of hospitality and tourism destination management using a system approach that integrates a variety of hospitality and tourism organizations and businesses. Destination management will be examined from the perspectives of travelers and destination communities in the context of economic, socio-cultural, and environmental impacts. Optimal planning, development, marketing of destination image and position in the context of the overall management plan will be addressed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 1100. 60 credit hours. Restricted to HM students during early registration

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**HSP\_MGMT 4280W: Special Events Management - Writing Intensive**

Synthesis of theories and a comprehensive guide in understanding, planning, promoting and producing and managing special events. Topics include: Event design, feasibility studies, legal compliance, promotion, safety and security, logistics, staffing, financial control and technology. It is based on a systematic, step-by-step approach to event planning, implementation, and management. This course requires a considerable amount of teamwork. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 3200. Open Hospitality Management senior students only

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**HSP\_MGMT 4380W: Managing Food Service Businesses - Writing Intensive**

Students explore the market positioning and the management of the student-run food service operation from concept development to execution. Students will apply knowledge gained from marketing, human resources and operational budgeting to develop their themes and execute their meals. Students will hone their problem solving, leadership and interpersonal skills while engaging in team building. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 3300. Open to Hospitality Management senior students only

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**HSP\_MGMT 4400: Hospitality Finance Management**

(cross-leveled with HSP\_MGMT 7400). Application of financial principles to the hospitality industry. The focus is to provide students a foundation on how to use numbers and fundamental financial analysis to operate a successful hospitality business. Topics include forecasting, profit and loss statement, balance sheet, capital budgeting, and revenue management related to the hospitality industry. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FINANC 2000; 60 credit hours

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**HSP\_MGMT 4480W: Advanced Lodging Management - Writing Intensive**

Apply, integrate, and synthesize previously learned knowledge, skills, and experience to solve real problems that the lodging industry faces. Specifically, managerial responsibilities, organizational structures and

current trends will be examined. Throughout the class students will develop their professional identity, leadership skills and confidence to participate in the workforce. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 3400. Open to Hospitality Management senior students only

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**HSP\_MGMT 4500: Management and Promotion of Live Entertainment**

Examines the various media used to promote venues, events and live entertainment. Topics include: Artist management, budgets and financial management, insurance, liabilities, contracts and riders, event production and tour scheduling, sport communication, and community relations. In particular, emphasis will be on the use of social media platforms in promotions, public relations, and other revenue generating activities of the industry. The principles of organizational advocacy, press conferences, and crisis communication plans will also be discussed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 1100; 60 credit hours. Restricted to Hospitality Management students during early registration

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**HSP\_MGMT 4515: The Business of Sport Venue Management**

Focuses on the business aspects of managing athletic and recreational venues. The course examines the management and financial tools that managers use to run their sport venues and businesses. Traditional and innovative methods of revenue acquisition, financial business structure, sponsorship and forecasting processes as it pertains to the effective management of venues and sport organizations are discussed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 2500. Open to Hospitality Management junior and senior students only

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**HSP\_MGMT 4580W: Sport Venue and Facility Management - Writing Intensive**

Applies previously learned principles and concepts of sport venue management and develop critical planning and organizational skills required of sport venue managers. The course will address three main modules: Security and risk management, the sport venue, and the sport event. The security and risk management module will examine efficient best practices and how they can significantly reduce the occurrence of injury and loss at sports venues and events. The sport venue and event modules will integrate concepts of venue planning, construction and operations; and event conception, planning, execution and reconciliation through case study analysis. Ethical considerations will also be stressed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 3500. Open to Hospitality Management seniors only

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**HSP\_MGMT 4993: Internship in Hospitality Management**

Students apply concepts and theories from their coursework to practical work experiences in the hospitality industry, under the direction of industry professionals and faculty evaluation. It is the student's responsibility to secure an internship position and all internship experience must have prior approval from his/her advisor. In addition

to the field experience, students will develop their problem solving and analytical skills through projects that are operational in nature. Graded on A-F basis only. Enrollment is limited to students who have completed a minimum of 75 credits and completed HSP\_MGMT 1100, HSP\_MGMT 2190 and one of the courses from students designated emphasis areas: HSP\_MGMT 3200, HSP\_MGMT 3300, HSP\_MGMT 3400 or HSP\_MGMT 3500. Enrollment limited to Hospitality Management students with a minimum of 75 credits; HSP\_MGMT 1100; HSP\_MGMT 2190 and one of the courses from students designated emphasis areas: HSP\_MGMT 3200, HSP\_MGMT 3300, HSP\_MGMT 3400 or HSP\_MGMT 3500.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required

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**HSP\_MGMT 7100: Hospitality Human Resources Management**

(cross-leveled with HSP\_MGMT 4100). Examines effective management of human resources issues in hospitality businesses. It addresses issues related to managing subordinates through hiring the right person for the position, training properly, evaluating employees' performance accurately and promptly, rewarding good behaviors, and motivating and coaching them. Manpower planning, equal employment practices and employee relations, quality of work life, compensation and reward structure, and how to make sound human resource management decisions will also be discussed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**HSP\_MGMT 7110: Hospitality and Tourism Marketing**

(cross-leveled with HSP\_MGMT 4110). Application of a customer-oriented approach to sales and marketing management in hospitality and tourism industry. The marketing techniques available to hospitality businesses are described and evaluated, including service marketing mix, packaging, travel trade, advertising, sales promotion, merchandising, and personal selling. Marketing of hospitality services regarding human factors, consumer demand, planning, professional considerations are also discussed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**HSP\_MGMT 7180: Strategic Management in the Hospitality Industry**

(cross-leveled with HSP\_MGMT 4180). Focuses on developing conceptual skills and application of the principles of strategic management in the context of the hospitality industry. It involves handling and analyzing ambiguous facts as well as relevant industry problems and issues facing management personnel in the global hospitality markets. Topics include: Business environments, mission statement, corporate and business strategies, evaluation and control. It requires that students to apply functions of management, finance, human resources, and marketing, learn how to engage in planning by examining situations from the perspectives of customer, employee, and management. The ultimate goal is to encourage students to think 'out-of-the-box' in order to find innovative solutions that will reshape the hospitality industry and define how the hospitality company of tomorrow will create value. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**HSP\_MGMT 7200: Destination Management**

(cross-leveled with HSP\_MGMT 4200). An overview of hospitality and tourism destination management using a system approach that integrates a variety of hospitality and tourism organizations and businesses. Destination management will be examined from the perspectives of travelers and destination communities in the context of economic, socio-cultural, and environmental impacts. Optimal planning, development, marketing of destination image and position in the context of the overall management plan will be addressed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**HSP\_MGMT 7400: Hospitality Finance Management**

(cross-leveled with HSP\_MGMT 4400). Application of financial principles to the hospitality industry. The focus is to provide students a foundation on how to use numbers and fundamental financial analysis to operate a successful hospitality business. Topics include forecasting, profit and loss statement, balance sheet, capital budgeting, and revenue management related to the hospitality industry. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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## Human Development And Family Science Courses

**H\_D\_FS 1600: Foundations of Family Science**

Introduction to family science discipline and profession. Introduces historical changes in families, diversity by race, ethnicity, class, life stage and sexual orientation, and interaction of families with neighborhoods, schools, the workplace, and larger systems.

**Credit Hours:** 3

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**H\_D\_FS 1610: Intimate Relationships and Marriage**

Examination of historical and contemporary issues pertaining to intimate and marital relationships such as relationship formation and dissolution processes, love, sex, behavioral scripts, and conflict. Diversity related to race, ethnicity, gender, age, and sexual orientation is explored.

**Credit Hours:** 3

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**H\_D\_FS 2200: Research Methods in Human Development and Family Science**

Introduction to research methods in the social sciences. Emphasis on both qualitative and quantitative methods, as well as applied research and program evaluation.

**Credit Hours:** 3

**Prerequisites:** STAT 1200 or STAT 1300 or STAT 1400 or ESC\_PS 4170; sophomore standing

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**H\_D\_FS 2250: Child Life Volunteer Experience**

Introductory experience in a children's hospital child life program. Designed to expose the prospective child life student to, and encourage exploration of, the health care environment. Introduction to hospitalized children and their families, child life programming, environmental issues, value of volunteerism within the healthcare setting, and development of pre-professional interpersonal skills. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites or Corequisites:** H\_D\_FS 2400 or H\_D\_FS 2400W

**Recommended:** Students in the HDFS - Child Life emphasis should complete this course no later than the 2nd semester of the Sophomore year

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**H\_D\_FS 2300: Multicultural Study of Children and Families**

Study of cultural variation in family life around the world and within America (e.g.: African-American, Hispanic American). Attention is paid to the external conditions that affect the internal workings of these families.

**Credit Hours:** 3

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**H\_D\_FS 2400: Principles of Human Development**

Concepts and principles basic to an understanding of human development and learning throughout the life span.

**Credit Hours:** 3

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**H\_D\_FS 2400H: Principles of Human Development - Honors**

Concepts and principles basic to an understanding of human development and learning throughout the life span.

**Credit Hours:** 4

**Prerequisites:** ENGLSH 1000. Honors eligibility required

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**H\_D\_FS 2400HW: Principles of Human Development - Honors/ Writing Intensive**

Concepts and principles basic to an understanding of human development and learning throughout the life span.

**Credit Hours:** 4

**Prerequisites:** ENGLSH 1000. Honors eligibility required

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**H\_D\_FS 2400W: Principles of Human Development - Writing Intensive**

Concepts and principles basic to an understanding of human development and learning throughout the life span.

**Credit Hours:** 4

**Prerequisites:** ENGLSH 1000

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**H\_D\_FS 2450: Human Sexuality Across the Life Span**

An introductory survey of human sexuality including gender, love and intimacy, sexual expression and variation, sexual orientation, contraception, pregnancy and birth, sexually transmitted infections, sexual coercion, and sex in society. Sexuality within the context of intimate relationships across the life course will be emphasized.

**Credit Hours:** 3

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**H\_D\_FS 2510: Observation, Assessment, and Curriculum Planning**

Fundamental course for students in the Child Development and Education emphasis area, and for other students planning to engage in work that requires observation and assessment of young children's development, as well as planning, implementation and evaluation of developmentally appropriate curriculum.

**Credit Hours:** 4

**Prerequisites:** H\_D\_FS 2400 or H\_D\_FS 2400W

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**H\_D\_FS 3050: Child Development: Birth to 3 (Infant/Toddler)**

Child development from birth to age 3. Topics include growth patterns; influences of disabilities and risk factors; environmental factors and attachment; language acquisition; brain development; cognitive and social-emotional development; and perceptual and sensory motor skills. Some course content overlaps with H\_D\_FS 3500.

**Credit Hours:** 3

**Prerequisites:** Some sections may be restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI-ECE). Some sections may be restricted to HDFS, Pre-HDFS, and Education majors during Early Registration

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**H\_D\_FS 3085: Problems in Human Development and Family Science**

Independent work on special problems in human development and family science. Graded on S/U basis only.

**Credit Hour:** 1-30

**Prerequisites:** instructor's consent

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**H\_D\_FS 3090: Research Experience in Human Development and Family Science**

Student training and engagement in research with a H\_D\_FS faculty member. Students learn about the research process and methods, and develop research skills (e.g., data collection, entry, coding, analysis) through hands-on work. Graded on S/U basis only. May be repeated for credit.

**Credit Hour:** 1-30

**Prerequisites:** H\_D\_FS 2200; instructor's consent

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**H\_D\_FS 3150: Child Development 4-8 (Early Childhood)**

Physical, cognitive, social/emotional and personality growth and development during early childhood. Topics include major theories of development and current research and ideas in conjunction with historical approaches to examining growth and development in ages 4-8.

**Credit Hours:** 3

**Prerequisites:** Some sections may be restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI-ECE). Some sections may be restricted to HDFS, Pre-HDFS, and Education majors during Early Registration

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**H\_D\_FS 3150W: Child Development 4-8 (Early Childhood) - Writing Intensive**

Physical, cognitive, social/emotional and personality growth and development during early childhood. Topics include major theories of development and current research and ideas in conjunction with historical approaches to examining growth and development in ages 4-8.

**Credit Hours:** 3

**Prerequisites:** Some sections may be restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI-ECE). Some sections may be restricted to HDFS, Pre-HDFS, and Education majors during Early Registration

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**H\_D\_FS 3250: Introduction to Early Childhood Education in a Mobile Society**

Role of a professional as a teacher, administrator, or advocate in early childhood programming. Topics include professionalism and ethics;

identifying child abuse; the role of an early childhood educator; program models and working with children and professional colleagues.

**Credit Hours:** 3

**Prerequisites:** enrollment restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI\_ECE)

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**H\_D\_FS 3350: Child Guidance and Classroom Environments**

Examines developmentally appropriate practice in child guidance. Current guidance methods and programs will be covered. Students will develop their own approach to guidance based upon course content.

**Credit Hours:** 3

**Prerequisites:** enrollment is restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI\_ECE)

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**H\_D\_FS 3420: Early and Middle Childhood**

Emotional, cognitive, and physical development of the child before puberty. Observation is integral part of course. Cannot receive credit for more than one of the following: PSYCH 2410, H\_D\_FS 3420, or ESC\_PS 2500.

**Credit Hours:** 3

**Prerequisites:** Restricted to Education, HDFS and Pre-HDFS majors during preregistration period

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**H\_D\_FS 3420W: Early and Middle Childhood - Writing Intensive**

Emotional, cognitive, and physical development of the child before puberty. Observation is integral part of course. Cannot receive credit for more than one of the following: PSYCH 2410, H\_D\_FS 3420, or ESC\_PS 2500.

**Credit Hours:** 3

**Prerequisites:** Restricted to Education, HDFS and Pre-HDFS majors during preregistration period

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**H\_D\_FS 3430: Adolescence and Young Adulthood**

Physical, intellectual, and psychosocial maturation of adolescents and young adults within the context of life long developmental sequelae.

**Credit Hours:** 3

**Prerequisites:** Restricted to HDFS and Pre-HDFS majors during pre-registration period

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**H\_D\_FS 3430H: Adolescence and Young Adulthood - Honors**

Physical, intellectual, and psychosocial maturation of adolescents and young adults within the context of life long developmental sequelae.

**Credit Hours:** 3

**Prerequisites:** Restricted to HDFS and Pre-HDFS majors during pre-registration period. Honors eligibility required

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**H\_D\_FS 3440: Adulthood and Aging**

Examination of biological, cognitive, psychological and social changes experienced across adulthood.

**Credit Hours:** 3

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**H\_D\_FS 3450: Health, Safety and Nutrition**

Topics include planning, promoting, and maintaining health and safe learning/care environments; understanding childhood illnesses and



establishing healthy lifestyles; performing first aid; and maintaining care providers' health and safe relationships with others; identifying and reporting child abuse; nutrients for life; and safe food preparations.

**Credit Hours:** 3

**Prerequisites:** enrollment is restricted to students admitted to the Great Plains Idea Early Childhood Education Program (GPI\_ECE)

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#### **H\_D\_FS 3500: Infant-Toddler Practicum**

Practical experience working with infants and toddlers, applying developmentally appropriate practice and theoretical perspectives. Emphasizes cognitive, social/emotional, creative and motor development; and staff and family relationships in child care settings. Graded on A-F basis only.

**Credit Hours:** 6

**Prerequisites or Corequisites:** H\_D\_FS 3050 or H\_D\_FS 3420/H\_D\_FS 3420W or instructor's consent

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#### **H\_D\_FS 3530: Foundations of Community-Based Programs for Children and Youth**

Examines non-academic community-based programming for children and youth. Experience working with these age groups. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 3420 or equivalent or instructor's consent

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#### **H\_D\_FS 3550: Technology and Young Children**

Students will learn how electronic technology impacts the development of young children in educational, home and community environments, and how technology can be used to enhance teaching and learning.

**Credit Hours:** 3

**Prerequisites:** enrollment is restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI\_ECE)

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#### **H\_D\_FS 3600: Partnering with Parents and Families**

Examination of stages of parenthood, caregiving styles, and the impact of relationships and culture on caregiving and its challenges. Development of applied skills working with parents and families in a service learning experience. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 1600 and H\_D\_FS 2400/H\_D\_FS 2400W

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#### **H\_D\_FS 3650: Diversity in the Lives of Young Children and Families**

In this course, students will explore cultural diversity in daily life and beliefs in families with young children. The focus is on U.S. families, with attention to the multiple cultures from which they come.

**Credit Hours:** 3

**Prerequisites:** Restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI-ECE), or by instructor consent

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#### **H\_D\_FS 3700: Preschool Practicum**

Practical experience working with children ages 2.5-5 years of age, applying developmentally appropriate practice and theoretical perspectives. Emphasizes cognitive, social and emotional, creative, and motor development, and family and staff relationships in a child care setting. Graded on A-F basis only.

**Credit Hours:** 6

**Prerequisites or Corequisites:** H\_D\_FS 3150/H\_D\_FS 3150W, or H\_D\_FS 3420/H\_D\_FS 3420W, or instructor's consent

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#### **H\_D\_FS 3720: Student Teaching Prekindergarten**

Experience working with children (2-5 years), using general guidance principles and methods for fostering creativity.

**Credit Hours:** 6

**Prerequisites:** H\_D\_FS 3420 or equivalent and instructor's consent

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#### **H\_D\_FS 3730: Field Training Practicum**

Field training experiences under supervision. May be repeated for credit. Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites:** advisor's consent

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#### **H\_D\_FS 3750: Working with Families**

This course focuses on application of an ecological model to the understanding of variation in parental roles, perspectives, approaches, and challenges. The course also provides an overview of effective communication strategies and parent education programs. Course content overlaps with H\_D\_FS 3600 thus students may not enroll in both courses. Students will NOT receive credit for both H\_D\_FS 3600 and H\_D\_FS 3750.

**Credit Hours:** 3

**Prerequisites:** Restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI-ECE) or by instructor consent

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#### **H\_D\_FS 3800: Children's Play**

This course is an examination of the complex phenomenon of play in children's lives. Emphasis is placed on the value of play in developmental, social, and cultural contexts. Topics include the exploration of play theories and supporting empirical evidence, play materials, various environments, violence and conflict resolution, and therapeutic uses of play. Observation and assessment of children at play and analysis of play environments is required.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 2400/H\_D\_FS 2400W, H\_D\_FS 3050 and H\_D\_FS 3150/H\_D\_FS 3150W, or instructor's consent, junior standing. Enrollment is restricted to H\_D\_FS and Pre H\_D\_FS majors during preregistration period

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#### **H\_D\_FS 3950: Practicum I: Child Observations in Classroom Environment**

Opportunity for Early Childhood Education teacher candidates to have a guided learning experience in a professional agency that provides services to children and families. Some course content overlaps with LTC 4110.

**Credit Hours:** 3

**Prerequisites:** restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI-ECE); H\_D\_FS 3050, H\_D\_FS 3150, H\_D\_FS 3250, H\_D\_FS 3350 and H\_D\_FS 3450

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#### **H\_D\_FS 3960: Readings in Human Development and Family Science**

Readings in recent research; critical discussions.

**Credit Hour:** 1-30

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**H\_D\_FS 4001: Topics in Human Development and Family Science**

Selected current topics in field of interest.

**Credit Hour:** 1-6

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**H\_D\_FS 4085: Problems in Human Development and Family Science**

Independent work on special problems in human development and family science. Graded on S/U basis only.

**Credit Hour:** 1-30

**Prerequisites:** instructor's consent

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**H\_D\_FS 4090: Advanced Research in Human Development and Family Science**

Advanced training and engagement in research with a H\_D\_FS faculty member. Student develops research skills (e.g., data collection, entry, coding, analysis) and works semi-independently on own research project. Graded on S/U basis only. May be repeated for credit.

**Credit Hour:** 1-30

**Prerequisites:** H\_D\_FS 2200 and H\_D\_FS 3090; instructor's consent

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**H\_D\_FS 4100: Children in Healthcare Settings**

(cross-leveled with H\_D\_FS 7100). Overview of the medical conditions and treatments commonly encountered by children and adolescents in healthcare settings and their typical reactions to healthcare experiences. Introduction to the philosophy and the role of the child life specialist in the healthcare setting.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 2200, H\_D\_FS 2400/H\_D\_FS 2400W, H\_D\_FS 3050, H\_D\_FS 3150/H\_D\_FS 3150W, or instructor's consent. Restricted to H\_D\_FS and Pre-H\_D\_FS majors

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**H\_D\_FS 4110: Child Life Theory and Practice**

(cross-leveled with H\_D\_FS 7110). Focuses on theoretical foundations and principal intervention strategies used in Child Life professional practice.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 2200, H\_D\_FS 3050, H\_D\_FS 3150/H\_D\_FS 3150W, and H\_D\_FS 3500 or H\_D\_FS 3700, or instructor's consent

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**H\_D\_FS 4130: Child Life Practicum**

(cross-leveled with H\_D\_FS 7130). Observation of Child Life staff at Children's Hospital and experience helping children and adolescents cope with hospitalization.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 3500 and H\_D\_FS 3700, consent required

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**H\_D\_FS 4150: Development of Curriculum for Children Ages Birth to 3**

Students will learn and use assessment and documentation to inform curriculum; plan and evaluate developmentally appropriate activities; and learn about effective ways to share curriculum information with families. Focus is on children ages birth to 3.

**Credit Hours:** 3

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**Prerequisites:** enrollment is restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI\_ECE)

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**H\_D\_FS 4200: Latino/a Youth and Families**

Current issues in theory, methods, and research in U.S. Latino/a youth and families are examined from a social and developmental psychological perspective. The course is an advanced level study, with a particular focus on history, theories, methods, research, and applied social issues. Topics will include, parenting, siblings, youth development and adjustment, stress, risky behaviors, gender issues, assessment, study design, cultural values, intervention programs, and immigration issues.

**Credit Hours:** 3

**Prerequisites:** Pre-H\_D\_FS and H\_D\_FS majors must complete H\_D\_FS 1600, H\_D\_FS 2200, H\_D\_FS 2300, H\_D\_FS 2400/H\_D\_FS 2400W

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**H\_D\_FS 4250: Development of Curriculum for Children 4-8**

Students will learn and use assessment and documentation to inform curriculum, plan and evaluate developmentally appropriate activities; and learn about effective ways to share curriculum information with families. Focus is on children ages 4-8.

**Credit Hours:** 3

**Prerequisites:** enrollment is restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI\_ECE)

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**H\_D\_FS 4300: Black Families**

(same as BL\_STU 4300). Emphasis is on the unique social, economic, religious, educational, and political environments that have affected the structure and function of the Black family.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 2200 or equivalent, and junior standing

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**H\_D\_FS 4350: Assessing Young Children and their Environments**

Use of appropriate assessment tools for children birth to 8. Using data to inform decisions about teaching and intervention. Emphasis on the ethical use of assessments, validity of assessments, multicultural sensitivity and assessment for children with special needs.

**Credit Hours:** 3

**Prerequisites:** enrollment is restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI\_ECE)

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**H\_D\_FS 4400: Childhood Death and Bereavement**

(cross-leveled with H\_D\_FS 7400). An exploration of issues that arise for children and families when facing life-threatening illness and death. The course also includes an examination of coping and helping strategies for dying and grieving children.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 2200, H\_D\_FS 2400/H\_D\_FS 2400W, H\_D\_FS 3050 and H\_D\_FS 3150/H\_D\_FS 3150W (or H\_D\_FS 3420/H\_D\_FS 3420W) or instructor's consent. Restricted to HDFs majors during early registration period

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**H\_D\_FS 4420: Environmental Influences on Lifespan Cognition**

This course covers the change and growth of cognition through the lifespan with particular attention to how the environment influences

cognition (including perception, language memory, attention executive functions, and problem solving).

**Credit Hours:** 3

**Prerequisites:** Pre-HDFS and HDFS Majors must complete H\_D\_FS 1600, H\_D\_FS 2200, H\_D\_FS 2300, H\_D\_FS 2400/H\_D\_FS 2400W, H\_D\_FS 3050, H\_D\_FS 3150/H\_D\_FS 3150W (or H\_D\_FS 3420/H\_D\_FS 3420W instead of H\_D\_FS 3050 and H\_D\_FS 3150/H\_D\_FS 3150W)

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#### **H\_D\_FS 4450: Understanding and Adapting for Developmental Differences**

This course focuses on knowledge of disability conditions, assessment and identification, interventions in inclusive environments, and collaborations among service providers.

**Credit Hours:** 3

**Prerequisites:** enrollment is restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI\_ECE)

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#### **H\_D\_FS 4550: Practicum II: Curriculum Development and Implementation**

Practicum in ECE is an opportunity for teacher candidates to have a guided learning experience in a professional agency that provides services to children and families, and allows teacher candidates to have the opportunity to use and implement theories and practices. Course content overlaps with LTC 4110. Not recommended for students to enroll in both courses.

**Credit Hours:** 3

**Prerequisites:** restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI-ECE)

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#### **H\_D\_FS 4570: Administration of Programs for Children and Families**

(cross-leveled with H\_D\_FS 7570). The development of leadership and management skills for administering community-based early childhood programs for children and their families. Includes an overview of early childhood standards; budgeting, funding and financial matters; developing, equipping, and staffing a center; recruiting children and families; curriculum; health, safety, and nutrition; volunteer and staff development, and program evaluation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 1600, H\_D\_FS 2200 or equivalent, H\_D\_FS 2300, H\_D\_FS 2400/2400W, H\_D\_FS 2510, H\_D\_FS 3500 or H\_D\_FS 3700, or instructor's consent

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#### **H\_D\_FS 4610: Stress and Resilience in Families**

(cross-leveled with H\_D\_FS 7610). Introduction to the study of stressor events in families, such as poverty, violence within families, substance abuse, and health problems. Emphasis is on both prevention and coping.

**Credit Hours:** 3

**Prerequisites:** Pre-HDFS and HDFS majors must complete H\_D\_FS 1600, H\_D\_FS 2200, H\_D\_FS 2300 and H\_D\_FS 2400/H\_D\_FS 2400W

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#### **H\_D\_FS 4620: Family Interaction**

Analysis of intrafamilial interaction from a systems perspective; includes comparative study of family paradigms, family subsystems, goals, and resources, boundaries, and patterns of feedback.

**Credit Hours:** 3

**Prerequisites:** Pre-HDFS and HDFS majors must complete H\_D\_FS 1600, H\_D\_FS 2200, H\_D\_FS 2300 and H\_D\_FS 2400/H\_D\_FS 2400W

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#### **H\_D\_FS 4630: The Process of Divorce**

(cross-leveled with H\_D\_FS 7630). Examination of theory and research related to marital dissolution. The impact of divorce on children and adults, and divorce intervention strategies are considered.

**Credit Hours:** 3

**Prerequisites:** Pre-HDFS and HDFS majors must complete H\_D\_FS 1600, H\_D\_FS 2200, H\_D\_FS 2300 and H\_D\_FS 2400/H\_D\_FS 2400W

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#### **H\_D\_FS 4640: Interpersonal Relationships**

In-depth examination of interpersonal relationships, including theoretical perspectives, research methods, relationship forms, relationship processes, and how context affects relationships. Students are introduced to the field of close relationships.

**Credit Hours:** 3

**Prerequisites:** Pre-HDFS and HDFS majors must complete H\_D\_FS 1600, H\_D\_FS 2200, H\_D\_FS 2300 and H\_D\_FS 2400/H\_D\_FS 2400W

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#### **H\_D\_FS 4650: Administration/Supervision in Early Childhood Settings**

Exploration of issues surrounding the administration of ECE programs including identification of community needs, analysis of business opportunities, evaluation and appropriate use of quality programming, consideration of policy and equal responsibilities, and professionalism. Course content overlaps with H\_D\_FS 4570. Students may NOT enroll in both courses. Students will not receive credit for both H\_D\_FS 4650 and H\_D\_FS 4570.

**Credit Hours:** 3

**Prerequisites:** Restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI-ECE)

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#### **H\_D\_FS 4680: Family Communication**

(same as COMMUN 4520; cross-leveled with H\_D\_FS 7680). Analysis of the functions and processes of communication within families.

**Credit Hours:** 3

**Prerequisites:** junior standing or departmental consent. May be restricted to Communication majors only during early registration

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#### **H\_D\_FS 4700: Children and Families in Poverty**

Study of the extent, distribution, and implications of poverty on children and families. Examination of myths and realities, social conditions, policies, and programs that contribute to or reduce poverty and its consequences.

**Credit Hours:** 3

**Prerequisites:** Pre-HDFS and HDFS majors must complete H\_D\_FS 1600, H\_D\_FS 2200, H\_D\_FS 2300 and H\_D\_FS 2400/H\_D\_FS 2400W

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#### **H\_D\_FS 4720: Child and Family Advocacy**

(cross-leveled with H\_D\_FS 7720). Study of the processes of social policies, legislation, and regulations affecting children and families at the local, state and federal levels. The course emphasizes current issues and need for citizen involvement.

**Credit Hours:** 3

**Prerequisites:** Restricted to HDFFS and Pre-HDFS majors during pre-registration period; Pre-HDFS and HDFFS majors must complete H\_D\_FS 1600, H\_D\_FS 2200, H\_D\_FS 2300 and H\_D\_FS 2400/H\_D\_FS 2400W

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#### **H\_D\_FS 4740: Parent-Child Relations Over the Life Course**

Examines the development, continuities, transitions, and discontinuities of parent-child relationships over the life course. Considers the influence of parents on children and children on parents.

**Credit Hours:** 3

**Recommended:** H\_D\_FS 1600 and H\_D\_FS 2200

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#### **H\_D\_FS 4750: Practicum III: Capstone Experience**

This experience allows the student to demonstrate practical application of developmentally appropriate early childhood teaching techniques and skills, teaching experience and developmental feedback. Includes observation and evaluation of classroom experience. Course content overlaps with H\_D\_FS 3700 and LTC 4170. Not recommended for students to enroll in both courses. Students will not receive credit for both H\_D\_FS 4750 and H\_D\_FS 3700 or H\_D\_FS 4750 and LTC 4170.

**Credit Hours:** 6

**Prerequisites:** restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI-ECE). H\_D\_FS 3950, H\_D\_FS 4150, H\_D\_FS 4250, H\_D\_FS 4350, H\_D\_FS 4450 and H\_D\_FS 4550

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#### **H\_D\_FS 4800: Program and Curriculum Design for FACS Education in Middle and Secondary Schools**

(cross-leveled with H\_D\_FS 7800). What should a teacher do about planning for student learning in FACS? Includes objectives, lesson designs, resources, learner diversity, thinking skills, reasoning processes, articulation, legislation.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 2010 and SPC\_ED 2020 or equivalent. Admission to Phase II, and instructor's consent

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#### **H\_D\_FS 4820: Assessment in Family and Consumer Sciences Education**

(cross-leveled with H\_D\_FS 7820). What should a teacher do to determine the extent to which program/lesson objectives have been achieved? Includes the selection, design, and use of a wide variety of assessment tools and techniques, and the impact of assessment on the evaluation of learners and program design.

**Credit Hours:** 2

**Prerequisites:** admission into Phase II, H\_D\_FS 4800, and instructor's consent

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#### **H\_D\_FS 4830: Methods of Teaching FACS in Middle and Secondary Schools**

(cross-leveled with H\_D\_FS 7830). What should a teacher do to help students achieve learner objectives? Includes classroom management strategies, choosing and using instructional methods to stimulate thinking skills and reasoning processes, communication skills, professionalism, and public relations.

**Credit Hours:** 3

**Prerequisites:** admission into Phase II, and instructor's consent

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#### **H\_D\_FS 4940: Field Experience in Family and Consumer Sciences**

Students will observe and assist in FACS classroom.

**Credit Hour:** 1

**Prerequisites:** to be taken concurrently with H\_D\_FS 4800, and instructor's consent

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#### **H\_D\_FS 4941: Field Experience in Family and Consumer Sciences**

Students will be involved in real-world experiences in a FACS classroom.

**Credit Hour:** 1

**Prerequisites:** to be taken concurrently with H\_D\_FS 4830; requires instructor's consent

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#### **H\_D\_FS 4942: Student Teaching FACS in Middle and Secondary Schools**

What guided practicum experiences will directly contribute to success as a classroom teacher? Students will teach for sixteen weeks within the state of Missouri under the supervision of an experienced FACS teacher.

**Credit Hour:** 1-15

**Prerequisites:** H\_D\_FS 4800, H\_D\_FS 4820, H\_D\_FS 4830, ENGLSH 1000, admittance to Phase III, and instructor's consent

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#### **H\_D\_FS 4942W: Student Teaching FACS in Middle and Secondary Schools - Writing Intensive**

What guided practicum experiences will directly contribute to success as a classroom teacher? Students will teach for sixteen weeks within the state of Missouri under the supervision of an experienced FACS teacher.

**Credit Hour:** 1-15

**Prerequisites:** H\_D\_FS 4800, H\_D\_FS 4820, H\_D\_FS 4830, ENGLSH 1000, admittance to Phase III, and instructor's consent

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#### **H\_D\_FS 4970: Families and Lifespan Development Capstone**

Focus on integrating, extending, critiquing, and applying knowledge gained in the Families and Lifespan Development option within a family and lifespan development educational framework. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** senior standing and instructor's consent

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#### **H\_D\_FS 4970W: Families and Lifespan Development Capstone - Writing Intensive**

Focus on integrating, extending, critiquing, and applying knowledge gained in the Families and Lifespan Development option within a family and lifespan development educational framework. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** senior standing and instructor's consent

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#### **H\_D\_FS 4971: Child Development and Education Capstone**

Practical experience working with young children (up to 10) in out-of-home care facilities. Program planning for children and working with parents. Lab hours required.

**Credit Hours:** 9

**Prerequisites:** H\_D\_FS 2200, H\_D\_FS 3500 and H\_D\_FS 3700, or equivalent and instructor's consent

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**H\_D\_FS 4993: Internship in Human Development and Family Science**

Internships or field training experiences under supervision. Graded on S/U basis only.

**Credit Hour:** 1-30

**Prerequisites:** H\_D\_FS 2200 or equivalent and instructor's consent

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**H\_D\_FS 7001: Topics in Human Development and Family Science**

Selected current topics in field of interest.

**Credit Hour:** 1-99

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**H\_D\_FS 7085: Problems**

Independent work on special problems in human development and family studies. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**H\_D\_FS 7100: Children in Healthcare Settings**

(cross-leveled with H\_D\_FS 4100). Overview of the medical conditions and treatments commonly encountered by children and adolescents in healthcare settings and their typical reactions to healthcare experiences. Introduction to the philosophy and the role of the child life specialist in the healthcare setting. H\_D\_FS 2200, H\_D\_FS 2400/H\_D\_FS 2400W, H\_D\_FS 3050, H\_D\_FS 3150/H\_D\_FS 3150W, or instructor's consent. Restricted to H\_D\_FS and Pre-H\_D\_FS majors.

**Credit Hours:** 3

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**H\_D\_FS 7110: Child Life Theory and Practice**

Focuses on theoretical foundations and principal intervention strategies used in Child Life professional practice.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 2200, H\_D\_FS 3050, H\_D\_FS 3150/H\_D\_FS 3150W, and H\_D\_FS 3500 or H\_D\_FS 3700, or instructor's consent

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**H\_D\_FS 7130: Child Life Practicum**

(cross-leveled with H\_D\_FS 4130). Observation of Child Life staff at Children's Hospital and experience helping children and adolescents cope with hospitalization.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 3500 and H\_D\_FS 3700, consent required

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**H\_D\_FS 7200: Latino Families and Youth**

This course will cover the critical integration of theoretical, methodological, and empirical issues in Latino psychology using a cross-cultural, cross-ethnic perspective, including the increased sensitivity to issues and challenges facing Latino families and youth from a social science perspective. There will be a particular focus on selected topics in social and developmental psychology, as well as, understanding the relevance to other areas of study, to policy contexts, and to applied settings. Students will provide a written, integrative literature review and research proposal related to the course topic. The course will consist primarily of seminar discussions based on the textbook and additional readings. Students will lead class discussions based on the readings and their QRCs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**H\_D\_FS 7231: Foundations of Youth Development**

This course provides an introduction to the field of youth development and the professions that include youth work. This course is designed to provide a foundation of knowledge that students will need to begin any course in the Great Plains IDEA Youth Development programs. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hour:** 1

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**H\_D\_FS 7233: Basic Grant Development and Management**

This course introduces students to grant development and management. This short-course is not intended to cover all aspects of grant development and management, but it will help students gain confidence in their grant development abilities and inspire them to learn more. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 7252: Adult Development**

This course presents a life-span, multidisciplinary developmental framework that considers sociohistorical influences, individual differences, and concern for promoting optimal functioning. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 7255: Aging Policy**

Policy development in the context of the economic status of the elderly populations. Retirement planning and the retirement decision; Social Security and public transfer programs for the elderly; intrafamily transfers to/from the elderly; private pensions; financing medical care for the elderly; prospects and issues for the for the future. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 7256: Environments and Aging**

Examination of attributes of physical environments that support special needs of older people and application of this knowledge to the design and management of housing, institutional settings, neighborhoods and communities. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 7257: Aging and the Family**

Theories and research related to personal and family adjustments in later life affecting older persons and their inter-generational relationships. Related issues including demographics are also examined through the use of current literature. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 7259: Mental Health and Aging**

Student is introduced to the range of issues utilizing several theoretical perspectives and the systems framework. Major mental, emotional, and psychiatric problems encountered in old age are examined, along with normal processes of aging individual's personality, mental and brain functions. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 7260: Women and Aging**

Women and aging is the study of theory, research and application of issues related to women and the aging experience. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 7261: Biological Principles of Aging**

This course will give an overview of the normal aging process of the human body systems, environmental factors influencing normal aging, diseases and disorders associated with aging. A special topics unit will include but is not limited to interviews and observations dealing with the aging process in humans. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 7262: Long-Term Care Administration**

Provides information for persons interested in leadership role in long-term care, or for those considering careers intersecting with senior living organizations. Also considers long-term care options. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 7300: Black Families**

(same as BL\_STU 7300). Emphasis is on the unique social, economic, religious, educational, and political environments that have affected the structure and function of the black families.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 2200 or equivalent

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**H\_D\_FS 7400: Childhood Death and Bereavement**

(cross-leveled with H\_D\_FS 4400). An exploration of issues that arise for children and families when families when facing terminal illness or death. The course also includes an examination of coping and helping strategies for dying and grieving children.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 2200, H\_D\_FS 2400/H\_D\_FS 2400W, H\_D\_FS 3150 and H\_D\_FS 3150/H\_D\_FS 3150W (or H\_D\_FS 3420/H\_D\_FS 3420W) and instructor's consent. Restricted to HDFS and Pre-HDFS majors during pre-registration period

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**H\_D\_FS 7570: Administration of Programs for Children and Families**

(cross-leveled with H\_D\_FS 4570). The development of leadership and management skills for administering community-based early

childhood programs for children and their families. Includes an overview of early childhood standards; budgeting, funding and financial matters; developing, equipping, and staffing a center; recruiting children and families; curriculum; health, safety, and nutrition; volunteer and staff development, and program evaluation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 1600, H\_D\_FS 2200 or equivalent, H\_D\_FS 2300, H\_D\_FS 2400/2400W, H\_D\_FS 2510, H\_D\_FS 3500 or H\_D\_FS 3700, or instructors consent

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**H\_D\_FS 7600: Resilience in Families**

Exploration of the evolution of a resilience approach to the study of families and human development. Using a lifespan approach, students will explore resilience across time as well as within special populations such as families experiencing crisis and trauma, culturally diverse families, and military families. Graded on A-F basis only.

**Credit Hours:** 3

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**H\_D\_FS 7610: Stress and Resilience in Families**

(cross-leveled with H\_D\_FS 4610). Introduction to the study of stressor events in families, such as poverty, violence within families, substance abuse, and health problems. Emphasis is on both prevention and coping.

**Credit Hours:** 3

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**H\_D\_FS 7630: The Process of Divorce**

(cross-leveled with H\_D\_FS 4630). Examination of theory and research related to marital dissolution. The impact of divorce on children and adults, and divorce intervention strategies will be considered.

**Credit Hours:** 3

**Prerequisites:** Pre-HDFS and HDFS majors must complete H\_D\_FS 1600, H\_D\_FS 2200, H\_D\_FS 2300 and H\_D\_FS 2400/H\_D\_FS 2400W

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**H\_D\_FS 7640: Interpersonal Relationships**

(cross-leveled with H\_D\_FS 4640). In-depth examination of interpersonal relationships, including theoretical perspectives, research methods, relationship forms, relationship processes, and how context affects relationships. Students will also be introduced to the field of close relationships.

**Credit Hours:** 3

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**H\_D\_FS 7650: Family Crisis Intervention**

Individuals and families in crises are examined. Focus is on grief and loss, substance abuse, family violence, and suicidal ideation. Examination of evidence-based preventions and treatments and community resources for those affected by stress, trauma, and crises. Graded on A-F basis only.

**Credit Hours:** 3

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**H\_D\_FS 7690: Family Resource Management**

Survey course of personal finance and family resource management literature to provide an overview of how individual and family members develop and exercise their capacity to obtain and manage resources to meet life needs. Resources include the self, other people, time, money, energy, material assets, space, and environment. Graded on A-F basis only.

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**Credit Hours:** 3

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**H\_D\_FS 8001: Topics in Human Development and Family Science**

Selected current topics in field of interest.

**Credit Hour:** 1-99

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**H\_D\_FS 8012: Family Dynamics and Intervention**

(same as NURSE 8010). Theories of family function and dysfunction; techniques of assessment; models of family intervention. Practicum with selected families.

**Credit Hours:** 3

**Prerequisites:** NURSE 7100

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**H\_D\_FS 8085: Problems in Human Development and Family Science**

Independent work on special problems in human development and family science. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**H\_D\_FS 8087: Seminar in Human Development and Family Science**

Seminar in selected topics in human development and family science.

**Credit Hour:** 1-99

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**H\_D\_FS 8090: Research in Human Development and Family Science**

Independent research not leading to a thesis. Report required. Graded on S/U basis only.

**Credit Hour:** 1-99

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**H\_D\_FS 8100: Foundations and Principles of Family and Community Services**

This course provides an introduction to the field of family studies and related professions that involve working with individuals and families in communities. This course is designed to provide a foundation of knowledge that students will need in the Great Plains IDEA family and Community Services program. This course is organized around theory, research, and practice of Family Studies. Graded on A-F basis only.

**Credit Hours:** 3

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**H\_D\_FS 8110: Developmental Perspectives on Health and Illness**

Seminar on child and adolescent development as applied to illness and hospitalization, with a focus on applying psychosocial research and theory in work with pediatric populations. Graded on A-F only. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** instructor consent; coursework in human development and experience with pediatric populations

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**H\_D\_FS 8200: Research Methods in Human Development and Family Science**

Examination of the rationale for conducting scientific research; various research methods pertinent to the study of individuals over the life span, close relationships, marriages, and families; hypothesis formulation; selection of appropriate designs, instrumentation, and analysis.

**Credit Hours:** 3

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**Prerequisites:** instructor's consent

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**H\_D\_FS 8210: Theories of Human Development**

Major theories of life span human development. Attention given to structure, content, and major research critiqued for theoretical strengths.

**Credit Hours:** 3

**Prerequisites:** 6 hours of 300-level Behavioral Sciences courses or instructor's consent

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**H\_D\_FS 8220: Family Theories**

Reviews existing family theories, their assumptions, values, propositions, and applications. Examines processes of theory testing and construction and linkages between theory and research.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**H\_D\_FS 8221: Gerontechnology**

Population aging is combining with technological advancement to create and change the world of modern older people, their families, and their communities. This course takes an interdisciplinary approach to the understanding of the biological, environmental, and social spheres where technology and gerontology meet. Graded on A-F basis only.

**Credit Hours:** 3

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**H\_D\_FS 8222: Creativity and Aging**

What happens to creativity as a person ages? This unique class will help students to understand developmental and pathological changes in the brain that can lead to changes in creative output over time. Through hands-on experiences and direct association with older adults, students will grow an appreciation for creativity produced and inspired by older people. This course is intended to provide experiences that will help the student to be able to create art programs for older adults. Graded on A-F basis only.

**Credit Hours:** 3

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**H\_D\_FS 8232: Youth Professionals as Consumers of Research**

This course will help youth development professionals understand and evaluate the quality of research reports. Students will learn the basics of quantitative and qualitative research approaches that will enable them to understand, evaluate, and critique research articles reported in newspaper, journals or other sources. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 8234: Adolescents and their Families**

This course explores adolescent development in the context of the family. The bi-directional influences between adolescents and their families will be examined. Implications for professionals working with youth and families will be explored and highlighted. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 8235: Administration and Program Management**

This course introduces students to the development, administration and management of youth-serving organizations. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 8236: Federal and State Policies that Impact Youth Development**

This course examines various federal and state policies that effect developmental opportunities for youth. Course participants will also examine not only how policies are developed, but also why. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 8237: Youth Cultures and the Cultures of Youth**

This course examines the cultural contexts that affect youth from within and outside the family. Students will study social, ethnic, and educational processes that affect youth, and they will examine how history has shaped the current cultural climate of the U.S. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 8238: Program Design, Implementation and Evaluation**

The course will discuss program design, implementation, and outcome evaluation. This course will focus on planning, designing logic models, and evaluating program. Students will evaluate a community-based project.

**Credit Hours:** 3

**Prerequisites:** Priority given to students in the Great Plains Idea Group master's and certificate programs

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**H\_D\_FS 8239: Community Youth Development**

This course focuses on community youth development from a strength-based or developmental asset approach. This approach encompasses both individual development and interrelationships with social environments. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 8240: Youth Development**

This course introduces the developmental period of adolescence. Emphasis will be on developmental tasks of this life stage and influences of family and home, school, peers and other contextual forces. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 8251: Perspectives in Gerontology**

An overview of current aging issues including the prevailing focus of gerontology theory and research, critical social and political issues in aging, the interdisciplinary focus of gerontology, career opportunities, and aging in the future. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 8253: Physical Health in Aging**

This course identifies the basic physiologic changes during aging and their effects on health and disease. The focus will be on successful aging with special emphasis on physical activity and nutrition. Practical application to community settings is addressed. Priority given to students in the Great Plains Idea Group master's and certificate program.

**Credit Hours:** 3

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**H\_D\_FS 8254: Gerontology Research Methods and Program Evaluation**

Overview of program evaluation, research methods and grant writing in gerontology. Includes application of quantitative and qualitative methods in professional settings. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 8258: Professional Seminar in Gerontology**

An integrative experience for gerontology students designed to be taken near the end of the degree program. By applying knowledge gained in earlier course work, students strengthen skills in ethical decision-making behavior, apply these skills in gerontology-related areas such as advocacy, professionalism, family and workplace issues.

**Credit Hours:** 3

**Prerequisites:** Completion of all other gerontology program coursework. Priority given to students in the Great Plains Idea Group master's and certificate programs

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**H\_D\_FS 8300: Advanced Seminar on Multicultural Families**

Advanced study of multicultural (racial, ethnic, social) families within American society. Attention is focused on each group's unique cultural heritage and social environment.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**H\_D\_FS 8420: Cognitive Development**

(same as PSYCH 8420). Study of the development of reasoning, perception and language.

**Credit Hours:** 3

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**H\_D\_FS 8440: Social and Emotional Development**

(same as PSYCH 8440). Seminar on emotional and social development in children, with focus on research and theory on the impact of various family, school, and societal factors.

**Credit Hours:** 3

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**H\_D\_FS 8450: Adolescence and Emerging Adulthood**

Seminar on development during adolescence and emerging adulthood from biological, cognitive, psychsocial, and cultural perspectives, and with a focus on health-related attitudes and behaviors.

**Credit Hours:** 3

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**H\_D\_FS 8460: Life Course Perspective**

Seminar on the life course perspective, an interdisciplinary approach to the study of lives over time and the interplay between human lives and social institutions. Deals with how individual lives are shaped by social change and social structure.

**Credit Hours:** 3

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**H\_D\_FS 8500: Prosocial and Moral Development**

The course objective is to increase the understanding of the study of morality from psychological and developmental perspectives and the critical integration of theoretical, methodological, and empirical issues in moral psychology. It will also cover understanding the relevance of moral concepts and findings to other areas of study, policy contexts, and applied settings. Students will provide a written, integrative literature review and research proposal related to the course topic. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**H\_D\_FS 8510: Parenting Education**

Study of theories, models, research and skills regarding parenting effectiveness and parent-child relations in the context of Western and Eastern cultures. Included are comparisons of the relative strengths and weaknesses of various parenting approaches, historical perspective on parenthood and children, parenting roles, strategies for contemporary parenting, developmental interaction from infancy through adulthood and selected special concerns of parents. A Bio-Ecological Systems approach will be utilized in this course. Graded on A-F basis only.

**Credit Hours:** 3

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**H\_D\_FS 8520: Lifespan Development**

This course covers the human development including the cognitive, social-emotional, motor, language, and moral domains from both a lifespan and a bio-ecological perspective. Course content focuses on the major theories of development as well as current research on the micro-macro interrelationship. Students who complete this course will have a better understanding of individual human developmental processes and their relationship with context and within family and community matters. Graded on A-F basis only.

**Credit Hours:** 3

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**H\_D\_FS 8610: Remarriage & Stepfamilies: Development, Dynamics, & Intervention**

The processes of remarriage and reconstituted family dynamics; special developmental needs and intervention models will be studied. The impact on children is considered.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**H\_D\_FS 8630: Gendered Relations in Families**

(same as WGST 8630). From a feminist perspective, the roles of gender in shaping family life experience and of family life experience in shaping gender will be explored. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**H\_D\_FS 8640: Family Interaction**

Examination of intrafamilial interaction. Includes an overview of theories used to study family interaction, critical review of the assessment of family interaction; and examination of contemporary research on family interaction focusing on intra and inter-generational relationships.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 1600 and H\_D\_FS 2200 or equivalent; or instructor's consent

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**H\_D\_FS 8710: Children, Families and Public Policy**

Seminar on societal issues relating to children and families, with focus on the development of public policies.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**H\_D\_FS 8770: Poverty**

Implications of poverty for child, adult, and family functioning. Poverty-related policies and programs.

**Credit Hours:** 3

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**H\_D\_FS 8960: Readings in Human Development and Family Science**

Readings in recent research; critical evaluation.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**H\_D\_FS 8972: Internship in Human Development and Family Science**

Internships and/or field training experiences under supervision. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**H\_D\_FS 9090: Research in Human Development and Family Science**

Independent research leading to thesis or dissertation. Graded on S/U basis only.

**Credit Hour:** 1-99

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**H\_D\_FS 9100: Teaching Practicum**

Supervised experience in teaching various audiences, including college students, professionals, and community residents. Graded on S/U basis only.

**Credit Hour:** 2-6

**Prerequisites:** instructor's consent

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**H\_D\_FS 9200: Advanced Research Methods in Human Development and Family Science**

(same as NURSE 9410). Examination of issues related to the study of individuals and their families: measurement, designs, and interpretation of statistical analyses. Statistics are placed in perspective through readings and discussions of the relationships between theory, research design, and data analyses.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 8200 or instructor's consent

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**H\_D\_FS 9210: Research Practicum in Human Development and Family Science**

Independent research activities in conjunction with faculty. Graded on S/U basis only.

**Credit Hour:** 2-6

**Prerequisites:** instructor's consent

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**H\_D\_FS 9420: Qualitative Methods**

(same as NURSE 9420). Examines the following selected qualitative research approaches appropriate for the study of nursing phenomena and the extension or modification of scientific knowledge so as to be relevant to nursing: case study research methods, verbal qualitative approaches, and nonverbal qualitative approaches. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NURSE 7150 and doctoral status (or permission of faculty)

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**Industrial And Manufacturing Systems Courses**

**IMSE 1000: Introduction to Industrial Engineering**

Introduction to industrial engineering profession, the Industrial and Manufacturing Systems Engineering department, and the core topics of industrial engineering. Introduction to problem solving, ethics and industrial engineering design and analysis techniques.

**Credit Hour:** 1

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**IMSE 2030: Fundamentals of Systems Design and Analysis**

Develop an understanding of a systems approach to the design and operation of modern industrial organizations: systems structure and function, system specification, structured problem solving and system design methodology.

**Credit Hours:** 3

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**IMSE 2110: Probability and Statistics for Engineers**

Introduction to data analysis, probability concepts, random variables, parameter estimation and hypothesis testing.

**Credit Hours:** 3

**Prerequisites:** MATH 1500. Restricted to Engineering Students who are non-IMSE majors

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**IMSE 2210: Linear Algebra for Engineers**

Study of quantitative methods necessary for analysis, modeling and design of optimal industrial systems.

**Credit Hours:** 3

**Prerequisites:** MATH 1700

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**IMSE 2710: Engineering Economic Analysis**

Fundamentals of engineering economic decision making. Includes time value of money, breakeven analysis, capital budgeting, replacement, after-tax analysis, inflation, risk, sensitivity analysis and multi-attribute analysis.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**IMSE 3030: Manufacturing and Supply Systems**

Provide a structured approach for the design and optimization of a system throughout its lifecycle: techniques following the logical sequence of strategic analysis, system design, implementation, and monitoring.

**Credit Hours:** 3

**Prerequisites:** IMSE 2030

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**IMSE 3110: Probability Models for Engineers**

Introduction to probability concept and theory, random variables, discrete and continuous probability distributions, joint probability distributions.

**Credit Hours:** 3

**Prerequisites:** MATH 1500. Restricted to IMSE students only

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**IMSE 3810: Ergonomics and Workstation Design**

Ergonomics and human factors theories applied to the design of man-machine systems. Discussion of ergonomic methods for measurement, assessment, and evaluation, with major topics including workstation design, environmental stresses, and workplace safety. Includes lab.

**Credit Hours:** 3

**Prerequisites:** Restricted to IMSE students. ENGINR 1200 and IMSE 4110

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**IMSE 3810W: Ergonomics and Workstation Design - Writing Intensive**

Ergonomics and human factors theories applied to the design of man-machine systems. Discussion of ergonomic methods for measurement, assessment, and evaluation, with major topics including workstation design, environmental stresses, and workplace safety. Includes lab.  
**Prerequisites:**

**Credit Hours:** 3

**Prerequisites:** Restricted to IMSE students. ENGINR 1200 and IMSE 4110

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**IMSE 4001: Topics in Industrial and Manufacturing Systems Engineering**

Current and new technical developments in industrial engineering.

**Credit Hours:** 3

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**IMSE 4085: Problems in Industrial Engineering**

Supervised investigation in industrial engineering presented in form of an engineering report.

**Credit Hour:** 1-4

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**IMSE 4110: Engineering Statistics**

(cross-leveled with IMSE 7110). Understanding and application of statistical analysis techniques. Emphasis on hypothesis testing, regression analysis, analysis of variance (ANOVA) and design of experiments (DOE).

**Credit Hours:** 3

**Prerequisites:** Restricted to IMSE students or by Departmental consent. Grade of C- or better in IMSE 3110

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**IMSE 4210: Linear Optimization**

(cross-leveled with IMSE 7210). Theory and application of linear optimization.

**Credit Hours:** 3

**Prerequisites:** Restricted to IMSE students. Grade of C- or better in IMSE 2210

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**IMSE 4220: Optimization Modeling and Computational Methods**

(cross-leveled with IMSE 7220). Modeling and solution techniques for mathematical optimization, including linear, nonlinear, integer, and stochastic programming. Emphasis on formulation of models for most-efficient use of solution algorithms. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** IMSE 3110, IMSE 4210

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**IMSE 4230: Operations Research Models**

(cross-leveled with IMSE 7230). Formulates probabilistic models and determines optimal control policies for queuing and inventory systems. Introduces Markov chains and dynamic programming.

**Credit Hours:** 3

**Prerequisites:** Restricted to IMSE students or by Departmental consent. Grade of C- or better in IMSE 2210 and IMSE 3110

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**IMSE 4280: Systems Simulation**

(cross-leveled with IMSE 7280). Discrete-event stochastic systems modeling and experimentation using simulation software. Statistical design and analysis including distribution fitting and alternative comparison methodologies.

**Credit Hours:** 3

**Prerequisites:** Restricted to IMSE students. CMP\_SC 1050. Grade of C- or better in IMSE 4110

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**IMSE 4310: Integrated Production Systems Design**

(cross-leveled with IMSE 7310). Design and operation of production systems, including lean six sigma concepts, just-in-time/kanban, facility layout and material flow issues.

**Credit Hours:** 3

**Prerequisites:** Restricted to IMSE students or by Departmental consent. IMSE 4210, IMSE 4280

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**IMSE 4330: Material Flow and Logistics System Design**

(cross-leveled with IMSE 7330). Modeling and analysis of structural and operational issues associated with material-flow system design including facility location, warehouse/inventory systems, and distribution/transportation systems.

**Credit Hours:** 3

**Prerequisites:** IMSE 4210 and IMSE 4280

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**IMSE 4350: Production and Operations Analysis**

(cross-leveled with IMSE 7350). Quantitative methods for forecasting, scheduling, and production control in manufacturing and service systems. Use of Enterprise Resource Planning (ERP) systems.

**Credit Hours:** 3

**Prerequisites:** Restricted to IMSE students or by Departmental consent. IMSE 4210 and IMSE 4230

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**IMSE 4360: Supply Chain Engineering**

(cross-leveled with IMSE 7360). Modeling and analysis of supply chain network design and management issues including integration of production, inventory control, supplier selection, risk management and logistics network design. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** IMSE 4350

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**IMSE 4370: Service Systems Engineering and Management**

(cross-leveled with IMSE 7370). Service systems contribute to more than 75% of US GDP and provide close to 80% employment. This course introduces students to service system engineering and management and will discuss models, concepts and solution methods important in the design, control, and operation of service systems. In addition, this course will provide students the ability to apply industrial engineering and operations research tools for analyzing service enterprises, including supply chain engineering, financial engineering and revenue management. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** IMSE 4210 or instructor's consent

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**IMSE 4380: Six Sigma Methodology**

(cross-leveled with IMSE 7380). An overview of the Six Sigma DMAIC methodology for analyzing and improving processes. Requires completing a Six Sigma Green Belt project. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Grade of C or better in IMSE 2110 or IMSE 4110 or STAT 4710

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**IMSE 4385: Lean Six Sigma Green Belt Project**

(cross-leveled with IMSE 7385). Application of the Lean Six Sigma methodology in an industry-based project. Prerequisites: IMSE 4310

**Credit Hour:** 1

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**IMSE 4410: Data Engineering and Predictive Modeling**

(cross-leveled with IMSE 7410). Introduces data structures and relational databases. Addresses the integration of computation and data. Provides training on data preparation and pre-processing using SQL, Python, and R. Covers the most commonly used predictive modeling methods, their core principles and real-life applications. Includes the use of current software for data analytics and building machine learning models.

**Credit Hours:** 3

**Prerequisites:** Restricted to IMSE students. CMP\_SC 1050 and IMSE 4110

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**IMSE 4420: Web-Based Information Systems**

(cross-leveled with IMSE 7420). Data models, design of databases using E-R, UML (Access/Oracle), web databases, web servers and interfaces (Visual Basic, JavaScript), E-commerce infrastructure (PDM, STEP, XML), data mining for management information and services.

**Credit Hours:** 3

**Prerequisites:** IMSE 4410 and instructor's consent

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**IMSE 4550: Computer Aided Design and Manufacturing**

(cross-leveled with IMSE 7550). Product realization process from design, process planning, to manufacturing. Includes CE, DFS/DFM, CAD, CAPP, CNC, and survey of manufacturing methods.

**Credit Hours:** 4

**Prerequisites:** Restricted to IMSE students; Junior Standing

**Corequisites:** ENGINR 2200

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**IMSE 4560: Introduction to Rapid Prototyping**

(cross-leveled with IMSE 7560). Course covers all five MU systems: FDM, SLS, SLA, Polyjet, 3DP. Students will learn fundamental rapid prototyping and related concepts, and design and produce models from each system. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** IMSE 4550

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**IMSE 4570: Computer Integrated Manufacturing Control**

(cross-leveled with IMSE 7570). Implementation of computer integrated manufacturing (CIM) and automation at the shop floor level. Covers essential components of machine sensing and actuation (including programmable robots), information representation and processing, data communication and networking.

**Credit Hours:** 3

**Prerequisites:** IMSE 4550

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**IMSE 4580: Industrial Energy Efficiency and Management**

(cross-leveled with IMSE 7580). Introduction to the fundamentals of industrial energy efficiency and management. Covers the essential concepts, best practices, management systems and current standards to achieve and improve energy efficiency in industrial settings, and utilizes hands-on experiences involving real assessment and analysis of industrial site visits and projects.

**Credit Hours:** 3

**Prerequisites:** IMSE 2030 or instructor's consent

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**IMSE 4610: Engineering Quality Control**

(cross-leveled with IMSE 7610). Analysis of quality in manufacturing including control charts, sampling plans, process capability, experimental design; introduction to system reliability. Overview of Six Sigma and DMAIC methodology.

**Credit Hours:** 3

**Prerequisites:** Restricted to IMSE students or by Departmental consent. IMSE 4110

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**IMSE 4720: Introduction to Life Cycle Analysis**

(cross-leveled with IMSE 7720). Introduction to life cycle thinking, application of ISO standards for conducting an LCA. Students learn process, input-output and hybrid LCA modeling basics, in addition to the application of LCA skills and thinking to improve the performance of systems and processes. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Junior standing

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**IMSE 4750: Entrepreneurial Innovation Management: Enterprise Conception**

(same as MANGMT 4750). Develop a new business and technology plan including marketing, finance, engineering, manufacturing, and production concepts in this joint College of Engineering and College of Business course.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**IMSE 4755H: Entrepreneurial Innovation Management: Enterprise Conception-Honors**

Develop a new business and technology plan including marketing, finance, engineering, manufacturing, and production concepts in this joint College of Engineering and College of Business course.

**Credit Hours:** 3

**Prerequisites:** sophomore standing. Honors eligibility required

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**IMSE 4810: Cognitive Ergonomics**

(cross-leveled with IMSE 7810). This course will cover the study of empirical research in Cognitive ergonomics and Human-Computer Interaction (HCI). Students will learn cognitive information processing, mental workload, human reliability, and empirical methods in HCI research. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Junior or senior level undergraduate students

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**IMSE 4910: Industrial Engineering Internship**

An industry-based learning experience that provides opportunities to apply industrial engineering skills, concepts and theories in a practical context. Requires submission of an internship plan for prior approval and a final oral presentation / written report at the completion of the internship. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor and departmental consent

**Recommended:** junior standing

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**IMSE 4920: Industrial Engineering COOP**

An industry-based learning experience that provides opportunities to apply industrial engineering skills, concepts and theories in a practical context. Requires submission of a COOP plan for prior approval and a final oral presentation / written report at the completion of the COOP. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor and departmental consent

**Recommended:** junior standing

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**IMSE 4970: Capstone Design I**

Overview of professional engineering issues such as ethics, team dynamics, communication, and project management. Includes team-based industrial assessments to develop skills in problem/opportunity identification. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Restricted to IMSE students; Senior Standing, IMSE 2030; IMSE 2710

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**IMSE 4970W: Capstone Design I - Writing Intensive**

Overview of professional engineering issues such as ethics, team dynamics, communication, and project management. Includes team-based industrial assessments to develop skills in problem/opportunity identification. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Restricted to IMSE students; Senior Standing, IMSE 2030; IMSE 2710

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**IMSE 4980: Capstone Design II**

Industry-based team design experience structured to integrate material presented throughout the Industrial and Manufacturing Systems Engineering curriculum. Must immediately follow IMSE 4970.

**Credit Hours:** 3

**Prerequisites:** Restricted to IMSE student; IMSE 3810, IMSE 4310, and IMSE 4970

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**IMSE 4980W: Capstone Design II - Writing Intensive**

Industry-based team design experience structured to integrate material presented throughout the Industrial and Manufacturing Systems Engineering curriculum. Must immediately follow IMSE 4970.

**Credit Hours:** 3

**Prerequisites:** Restricted to IMSE student; IMSE 3810, IMSE 4310, and IMSE 4970

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**IMSE 4990: Undergraduate Research in Industrial Engineering**

Independent investigation or project in industrial engineering. May be repeated to 6 hours.

**Credit Hour:** 0-6

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**IMSE 4995: Undergraduate Research Industrial Engineering - Honors**

Independent investigation or project in industrial engineering. May be repeated to 6 hours. Enrollment limited to receiving departmental honors

**Credit Hour:** 0-6

**Prerequisites:** Restricted to IMSE students only

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**IMSE 7001: Topics in Industrial and Manufacturing Systems Engineering**

Current and new technical developments in industrial engineering.

**Credit Hours:** 3

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**IMSE 7110: Engineering Statistics**

(cross-leveled with IMSE 4110). Understanding and application of statistical analysis of techniques. Emphasis on hypothesis testing, regression analysis, analysis of variance (ANOVA) and design of experiments (DOE).

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in IMSE 3110

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**IMSE 7210: Linear Optimization**

(cross-leveled with IMSE 4210). Theory and application of linear optimization.

**Credit Hours:** 3

**Prerequisites:** IMSE 2210

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**IMSE 7220: Optimization Modeling and Computational Methods**

(cross-leveled with IMSE 4220). Modeling and solution techniques for mathematical optimization, including linear, nonlinear, integer, and stochastic programming. Emphasis on formulation of models for most-efficient use of solution algorithms. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** IMSE 3110, IMSE 4210

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**IMSE 7230: Operations Research Models**

(cross-leveled with IMSE 4230). Formulates probabilistic models and determines optimal control policies for queuing and inventory systems. Introduces Markov chains and dynamic programming.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in IMSE 2110 and IMSE 3110

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**IMSE 7280: Systems Simulation**

(cross-leveled with IMSE 4280). Discrete-event stochastic systems modeling and experimentation using simulation software. Statistical design and analysis including distribution fitting and alternative comparison methodologies. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to IMSE students. CMP\_SC 1050. Grade of C- or better in IMSE 4110

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**IMSE 7310: Integrated Production Systems Design**

(cross-leveled with IMSE 4310). Design and operation of production systems, including lean production concepts, just-in-time / kanban, facility layout and material flow issues.

**Credit Hours:** 3

**Prerequisites:** IMSE 4210, IMSE 4280

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**IMSE 7330: Material Flow and Logistics System Design**

(cross-leveled with IMSE 4330). Modeling and analysis of structural and operational issues associated with material-flow system design including facility location, warehouse/inventory systems, and distribution/transportation systems.

**Credit Hours:** 3

**Prerequisites:** IMSE 4210, IMSE 4280

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**IMSE 7350: Production and Operations Analysis**

(cross-leveled with IMSE 4350). Quantitative methods for forecasting, scheduling, and production control in manufacturing and service systems. Use of Enterprise Resource Planning (ERP) systems.

**Credit Hours:** 3

**Prerequisites:** IMSE 4210 and IMSE 4230

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**IMSE 7360: Supply Chain Engineering**

(cross-leveled with IMSE 4360). Modeling and analysis of supply chain network design and management issues including integration of production, inventory control, supplier selection, risk management and logistics network design. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** IMSE 4350

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**IMSE 7370: Service Systems Engineering and Management**

(cross-leveled with IMSE 4370). Service systems contribute to more than 75% of US GDP and provide close to 80% employment. This course introduces students to service system engineering and management and will discuss models, concepts and solution methods important in the design, control, and operation of service systems. In addition, this course will provide students the ability to apply industrial engineering and operations research tools for analyzing service enterprises, including supply chain engineering, financial engineering and revenue management. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** IMSE 4210 or Instructor's consent

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**IMSE 7380: Six Sigma Methodology**

(cross-leveled with IMSE 4380). An overview of the Six Sigma DMAIC methodology for analyzing and improving processes. Requires completing a Six Sigma Green Belt project. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Grade of C or better in IMSE 2110 or IMSE 4110 or STAT 4710

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**IMSE 7385: Lean Six Sigma Green Belt Project**

(cross-leveled with IMSE 4385). Application of the Lean Six Sigma methodology in an industry-based project.

**Credit Hour:** 1

**Prerequisites:** IMSE 4310

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**IMSE 7410: Data Engineering and Predictive Modeling**

(cross-leveled with IMSE 4410). Introduces data structures and relational databases. Addresses the integration of computation and data. Provides training on data preparation and pre-processing using SQL, Python, and R. Covers the most commonly used predictive modeling methods, their core principles and real-life applications. Includes the use of current software for data analytics and building machine learning models. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 1050 and IMSE 4110

---

**IMSE 7420: Web-Based Information Systems**

(cross-leveled with IMSE 4420). Data models, design of databases using E-R, UML (Access/Oracle), web databases, web servers and interfaces (Visual Basic, JavaScript), E-commerce infrastructure (PDM, STEP, XML), data mining for management information and services.

**Credit Hours:** 3

**Prerequisites:** IMSE 4410 and instructor's consent

---

**IMSE 7550: Computer Aided Design and Manufacturing**

(cross-leveled with IMSE 4550). Product realization process from design, process planning, to manufacturing. Includes CE, DFS/DFM, CAD, CAPP, CNC, and survey of manufacturing methods.

**Credit Hours:** 4

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**IMSE 7560: Introduction to Rapid Prototyping**

(cross-leveled with IMSE 4560). Course covers all five MU systems: FDM, SLS, SLA, Polyjet, 3DP. Students will learn fundamental rapid prototyping and related concepts, and design and produce models from each system. Graded on A-F basis only.

**Credit Hours:** 3

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**IMSE 7570: Computer Integrated Manufacturing Control**

(cross-leveled with IMSE 4570). Implementation of computer integrated manufacturing (CIM) and automation at the shop floor level. Covers essential components of machine sensing and actuation (including programmable robots), information representation and processing, data communication and networking.

**Credit Hours:** 3

**Prerequisites:** IMSE 4550

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**IMSE 7580: Industrial Energy Efficiency and Management**

(cross-leveled with IMSE 4580). Introduction to the fundamentals of industrial energy efficiency and management. Covers the essential concepts, best practices, management systems and current standards to achieve and improve energy efficiency in industrial settings, and utilizes hands-on experiences involving real assessment and analysis of industrial site visits and projects.

**Credit Hours:** 3

**Prerequisites:** IMSE 2030 or instructor's consent

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**IMSE 7610: Engineering Quality Control**

(cross-leveled with IMSE 4610). Analysis of quality in manufacturing including control charts, sampling plans, process capability, experimental design; introduction to system reliability. Overview of Six Sigma and DMAIC methodology.

**Credit Hours:** 3

**Prerequisites:** IMSE 4110 or IMSE 7110

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**IMSE 7720: Introduction to Life Cycle Analysis**

(cross-leveled with IMSE 4720). Introduction to life cycle thinking, application of ISO standards for conducting an LCA. Students learn process, input-output and hybrid LCA modeling basics, in addition to the application of LCA skills and thinking to improve the performance of systems and processes. Graded on A-F basis only.

**Credit Hours:** 3

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**IMSE 7750: Entrepreneurial Innovation Management: Advanced Enterprise Conception**

Develop a new business and technology plan (including marketing, finance, engineering, manufacturing, and production concepts) in this joint College of Engineering/College of Business course.

**Credit Hours:** 3

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**IMSE 7810: Cognitive Ergonomics and Decision Making**

(cross-leveled with IMSE 4810). This course will cover the study of empirical research in cognitive ergonomics and Human-Computer Interaction (HCI). Students will learn cognitive information processing, mental workload, human reliability, decision-making, and empirical methods in HCI research. Graded on A-F basis only.

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**Credit Hours:** 3

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**IMSE 8001: Advanced Topics in Industrial & Manufacturing Systems Engineering**

Current and new technical developments in industrial engineering.

**Credit Hours:** 3

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**IMSE 8030: Advanced Manufacturing and Supply Systems**

The design, regulation, and optimization of manufacturing and supply systems through systems analysis.

**Credit Hours:** 3

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**IMSE 8085: Problems in Industrial and Manufacturing Systems Engineering**

Supervised investigation in industrial engineering to be presented in the form of an engineering report.

**Credit Hour:** 1-99

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**IMSE 8087: Industrial Engineering Graduate Seminar**

Selected topics in industrial engineering; oral presentations and engineering reports. Graded on S/U basis only.

**Credit Hours:** 0

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**IMSE 8110: Design and Analysis of Engineering Experiments**

Application of advanced statistical methods for the design and analysis of experiments, including two-level factorial designs and fractional factorial designs, response surface methods, and random effects models. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** IMSE 4110 or IMSE 7110 or equivalent

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**IMSE 8210: Linear and Network Optimization**

Applications of discrete operations research methods, including linear programming, network models, fuzzy sets, integer programming, and meta-heuristics. Graded on A-F basis only.

**Credit Hours:** 3

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**IMSE 8220: Nonlinear Optimization**

Introduces computational non-linear mathematical programming procedures their use in solving complex industrial systems design problems. Graded on A-F basis only.

**Credit Hours:** 3

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**IMSE 8230: Stochastic Processes and Models**

Theory and applications of stochastic processes; includes continuous time Markov chain, Markov decision process, queueing theory, and stochastic manufacturing systems. Graded on A-F basis only.

**Credit Hours:** 3

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**IMSE 8310: Advanced Integrated Production Systems**

Advanced study of the design and operation of flow shop, job shop, and cell-based production systems, including scheduling, layout and material flow issues. Graded on A-F basis only.

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**Credit Hours:** 3

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**IMSE 8370: Supply Chain Modeling and Analysis**

Theory and application of supply chain networks, integration of production and inventory control methods. Graded on A-F basis only.

**Credit Hours:** 3

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**IMSE 8410: Advanced Computational Systems and Data Engineering**

Enable students to utilize advanced computational and data capabilities for research and industrial practice through 1) proper project, code, and data management techniques; 2) wide range of research workflows to solve complex problems; 3) integration of optimization or other domain specific software tools; and 4) parallel computing on High Performance Computing clusters. Graded on A-F basis only.

**Credit Hours:** 3

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**IMSE 8550: Advanced CAD/CAM**

Covers the state-of-the-art in CAD/CAM and explores the latest developments, residual problems, and new direction in CAD/CAM. Includes sculptured surface modeling, rapid prototyping and manufacturing, integrated process planning, shape analysis, machine intelligence. Graded on A-F basis only.

**Credit Hours:** 3

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**IMSE 8730: Strategic Enterprise Management**

Topics including enterprise strategies, process and content models, strategy implementation, value chain analysis, business processes, systems engineering approaches, business process reengineering, and dynamic systems modeling.

**Credit Hours:** 3

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**IMSE 8810: Human Factors**

Human factors inputs, outputs and environment and their influence on design and evaluation of man and machine systems.

**Credit Hours:** 3

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**IMSE 8990: Research-Masters Thesis in Industrial Engineering**

Independent investigation in field of industrial engineering to be presented as a thesis. Graded on S/U basis only.

**Credit Hour:** 1-99

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**IMSE 9990: Research-Doctoral Dissertation in Industrial Engineering**

Independent investigation in field of industrial engineering to be presented as a dissertation. Graded on S/U basis only.

**Credit Hour:** 1-99

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## Information Science And Learning Technologies Courses

**IS\_LT 1111: Information Use and Student Success**

In this course, students will learn to frame meaningful questions, gain knowledge and skills to succeed academically, understand the structure and content of information resources, evaluate information, and use information resources as genuine learning tools.

**Credit Hour:** 1

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**IS\_LT 2222: Information Management and the Successful Scholar**

This course will help students determine what information is needed for a project; access and critically evaluate information in the library and the internet; understand intellectual property, develop skills for lifelong learning, and learn to use a variety of technological tools that can help them succeed in college. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 2467: Inquiry into Empowering Learners with Technology**

This course examines models and strategies for integrating technology into the teaching and learning process, with a focus on transformative, meaningful learning instead of passive technology use. Topics include digital citizenship, professional online presence, and designing and facilitating learning with technology. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent required (students must be admitted to College of Education's Teacher Education program)

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**IS\_LT 3450: Introduction to Research in Educational Settings**

(same as ED\_LPA 3450). This course provides an introduction to quantitative, qualitative, and mixed methods research, with an emphasis on how various forms of data collection and prior research can inform and improve practice. Students will: (1) develop skills in locating research relevant to their professional interests; (2) understand multiple forms of data collection strategies; and (3) identify ethical considerations associated with research. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 4099: Making and Education (3D printing)**

(cross-leveled with IS\_LT 7099). This course - via hands-on activities and projects - will immerse you into the making and 3D printing culture. You will learn how to design and redesign 3D objects, learn 3D modeling software 3D printing. You will learn how to teach STEM concepts through 3D modeling and 3D printing.

**Credit Hour:** 1-3

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**IS\_LT 4310: Seminar in Information Science and Learning Technologies**

Discussion and critical study of current developments in the field of information science and learning technologies.

**Credit Hour:** 1-3

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**IS\_LT 4356: Interactive Web Design with JavaScript**

(cross-leveled with IS\_LT 7356). Attain skills in designing/developing interactive web sites/applications using JavaScript, JavaScript libraries, AJAX, plugins, widgets, user interface themes. Add effects, animations to photo galleries, slide shows, carousels to support instruction. Integrate Google Maps and application API's in learning activities. Dynamically modify web pages based on user actions.

**Credit Hours:** 3

**Prerequisites:** IS\_LT 4370

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**IS\_LT 4360: Introduction to Web Development**

(cross-leveled with IS\_LT 7360). Basic web design and HTML. Covers file transfer and UNIX/LINUX servers management. Develops understanding of web graphic formats. Emphasizes user interface, navigation, and instructional design in building web sites. Online. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 4361: Introduction to Digital Media**

(cross-leveled with IS\_LT 7361). Hands-on approach to multimedia production techniques. Develops understanding of technical and conceptual tools for the basics of digital media, video editing, still image and audio file manipulation. Students create web portfolio to present their digital products. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 4370: Intermediate Web Development**

(cross-leveled with IS\_LT 7370). Development of design and web authoring skills. Topics include CSS, HTML, web interactivity through the use of JavaScript, Dreamweaver and usability practices. Upon completion, students will be ready to create high-impact and highly functional web pages.

**Credit Hours:** 3

**Prerequisites:** IS\_LT 4360 or instructor's consent

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**IS\_LT 4372: Exploring CourseSites**

(cross-leveled with IS\_LT 7372). This course will prepare you to work within the CourseSites Learning Management System (LMS) to set up and manage an online course. As a student in this course, you will investigate and manipulate components of CourseSites from an instructor's perspective. Graded on A-F basis only.

**Credit Hour:** 1

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**IS\_LT 4373: Exploring Moodle**

(cross-leveled with IS\_LT 7373). This course will prepare students to work within the Moodle Learning Management System (LMS) to set up and manage an online course. Students in the course will investigate and manipulate components of Moodle from an instructor's perspective. Graded on A-F basis only.

**Credit Hour:** 1

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**IS\_LT 4374: Exploring Canvas**

(cross-leveled with IS\_LT 7374). This course will prepare students to work within the Canvas Learning Management System (LMS) to set up and manage an online course. Students will investigate and manipulate components of Canvas from an instructor's perspective. Graded on A-F basis only.

**Credit Hour:** 1

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**IS\_LT 4383: Rapid Development Tools for Online Learning**

(cross-leveled with IS\_LT 7383). Students will apply principles of rapid development and use rapid development tools to create a prototype of an e-learning module that uses technology features that can enhance learning (e.g. learner interactions). Specific competencies include: Storyboard and 'rapidly' develop an e-learning module using software



designed to support this process; Use software tools that develop specific elements of e-learning (e.g. video, animation, gaming), and incorporate those elements into an e-learning module; Evaluate rapidly developed e-learning products; Compare and contrast features of rapid development software packages. Graded on A-F basis only.

**Credit Hours:** 3

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#### **IS\_LT 4384: Designing Games for Learning**

(cross-leveled with IS\_LT 7384). Learn why games can be useful in learning and how to design them. Play some exemplary games that will help you understand the mechanics of game design and work incrementally towards designing and developing your own educational game prototype via game modifications ('mods'), engaging in gaming communities, evaluating existing games, building learning plans using games and learning the basics of a simple gaming shell language. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Junior or senior standing required

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#### **IS\_LT 4473: Introduction to Project Management**

Knowledge and tools for major phases of project management life cycle: project initiation, planning, execution, and closure. Integrated online discussions focus on application and resources. Includes discussions of Lean Project Management techniques and the role of Project Managers. Graded on A-F basis only.

**Credit Hours:** 3

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#### **IS\_LT 7099: Making and Education (3D printing)**

(cross-leveled with IS\_LT 4099). This course--via hands-on activities and projects--will immerse you into the making and 3D printing culture. You will learn how to design and redesign 3D objects, learn 3D modeling software 3D printing. You will learn how to teach STEM concepts through 3D modeling and 3D printing.

**Credit Hours:** 3

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#### **IS\_LT 7301: Introduction to Information Technology**

The nature of information and information transfer in the institutional setting; covers the culture of information in society, standards for information processing and transfer, and networking in communications perspectives of information providing agencies.

**Credit Hours:** 3

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#### **IS\_LT 7302: Organization of Information**

In order to retrieve and use information, that information must first be organized. This course investigates systems and structures for organizing information in a variety of contexts.

**Credit Hours:** 3

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#### **IS\_LT 7305: Foundations of Library and Information Science**

An introduction to the background, contexts, organizations, issues, ethics, values, and terms of information science, the information professions, and the library as an idea, space, institution, and repository of the cultural record.

**Credit Hours:** 3

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#### **IS\_LT 7306: School Library Early Field Experience**

30-50 clock hours of early field experience in K-12 school libraries. Students will observe an experienced school librarian and have limited interactions with students. Emphasis to include professional library skills in program management and administration (e.g., managing collections and technology) and working with the school community. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Instructor permission and enrollment in the school library media specialist emphasis area

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#### **IS\_LT 7307: School Library Mid-Level Field Experience**

45-60 clock hours of mid-level field experience in K-12 school libraries. Students will observe an experienced school librarian and have structured interactions with students. Emphasis to include professional library skills in information and knowledge (e.g., preparing and leading instruction, classroom management) and teaching for learning (e.g., collaborating with the school community). Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Instructor permission and enrollment in the school library media specialist emphasis area. Enrollment in or successful completion of IS\_LT 7306

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#### **IS\_LT 7310: Seminar in Information Science and Learning Technology**

Discussion and critical study of current developments in the field of information science and learning technologies.

**Credit Hour:** 1-3

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#### **IS\_LT 7312: Principles of Cataloging and Classification**

Theory and practice of cataloging and classification of library materials using current standards and tools. Principles, developments, and trends in cataloging and access to library data.

**Credit Hours:** 3

**Prerequisites:** IS\_LT 7305

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#### **IS\_LT 7313: Collection and Access Management**

Selection of materials for libraries and information agencies, policies for collection management, freedom and diversity of information, access to information and evaluation of collections and access.

**Credit Hours:** 3

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#### **IS\_LT 7314: Reference Sources and Services**

General reference sources with emphasis on print sources. principles, developments and trends in reference services and reference service organization.

**Credit Hours:** 3

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#### **IS\_LT 7315: Management of Information Agencies**

Concepts of management applied to libraries and information systems; management tools, programming, models and simulation in an environment of an information producing or disseminating agency.

**Credit Hours:** 3

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**IS\_LT 7320: Emerging Technologies in Libraries**

Critically examines web technologies, devices, and methods used to access collections and services, promote social interaction, and facilitate communication. Focuses on new and emerging software, resources, and communication methods including their discovery and implementation. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 7334: Library Information Systems**

Focuses on the automated library systems marketplace. Covers integrated online library systems from the systems, functional and user perspective. Includes management approaches for procurement and operation of such systems.

**Credit Hours:** 3

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**IS\_LT 7356: Interactive Web Design with JavaScript**

(cross-leveled with IS\_LT 4356). Attain skills in designing/developing interactive web sites/applications using JavaScript, JavaScript libraries, AJAX, plugins, widgets, user interface themes. Add effects, animations to photo galleries, slide shows, carousels to support instruction. Integrate Google Maps and application API's in learning activities. Dynamically modify web pages based on user actions.

**Credit Hours:** 3

**Prerequisites:** IS\_LT 4370 or IS\_LT 7370

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**IS\_LT 7360: Introduction to Web Development**

(cross-leveled with IS\_LT 4360). Basic web design and HTML. Covers file transfer and UNIX/LINUX servers management. Develops understanding of web graphic formats. Emphasizes user interface, navigation, and instructional design in building web sites. Online. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 7361: Introduction to Digital Media**

(cross-leveled with IS\_LT 4361). Hands-on approach to multimedia production techniques. Develops understanding of technical and conceptual tools for the basics of digital media, video editing, still image and audio file manipulation. Students create web portfolio to present their digital products. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 7366: Technology Leadership**

Develop skills, knowledge, and values needed to provide leadership in schools. Analyzes characteristics of effective leaders, focusing on staff development. Explores technology and school reform, technology integration, and current issues. Online. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 7370: Intermediate Web Development**

(cross-leveled with IS\_LT 4370). Development of design and web authoring skills. Topics include CSS, HTML, web interactivity through the use of JavaScript, Dreamweaver and usability practices. Upon completion, students will be ready to create high-impact and highly functional web pages.

**Credit Hours:** 3

**Prerequisites:** IS\_LT 7360 or instructor's consent

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**IS\_LT 7372: Exploring CourseSites**

(cross-leveled with IS\_LT 4372). This course will prepare you to work within the CourseSites Learning Management System (LMS) to set up and manage an online course. As a student in this course, you will investigate and manipulate components of CourseSites from an instructor's perspective. Graded on A-F basis only.

**Credit Hour:** 1

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**IS\_LT 7373: Exploring Moodle**

(cross-leveled with IS\_LT 4373). This course will prepare you to work within the Moodle Learning Management System (LMS) to set up and manage an online course. As a student in this course, you will investigate and manipulate components of Moodle from an instructor's perspective. Graded on A-F basis only.

**Credit Hour:** 1

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**IS\_LT 7374: Exploring Canvas**

(cross-leveled with IS\_LT 4374). This course will prepare students to work within the Canvas Learning Management System (LMS) to set up and manage an online course. Students will investigate and manipulate components of Canvas from an instructor's perspective. Graded on A-F basis only.

**Credit Hour:** 1

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**IS\_LT 7375: Mobile Web App Development**

(cross-leveled with IS\_LT 4375). The purpose of this course is to provide students with knowledge necessary to create a mobile app with basic functions using HTML 5, JavaScript, and CSS3. Through this course, students will obtain knowledge of mobile web app development including both design and development phases. Upon the completion of this course, students will produce a mobile web app that can be operated via a mobile device. Graded on A-F basis only. Recommended: Students must be able to hand code: html, Styling and positioning web pages using CSS & JavaScript, and JavaScript basic functions.

**Credit Hours:** 3

**Prerequisites:** IS\_LT 4370 or IS\_LT 7370 or permission of instructor

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**IS\_LT 7378: Electronic Portfolio Development**

This course provides an overview of electronic portfolio development. Students will select, categorize and document their accomplishments in the Technology in Schools emphasis area for review and assessment. Students will demonstrate mastery of the ISTE Standards and commitment to ongoing learning. Web development skills are required. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Restricted to students admitted into the Technology in Schools emphasis

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**IS\_LT 7380: School Library Practicum**

Directed, project-based experience in school libraries. Graded on S/U basis only.

**Credit Hour:** 1-3

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**Prerequisites:** admission to MA, initial certification or 24 completed LIS credit hours taken at MU; instructor's consent

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**IS\_LT 7381: Practicum in Information Agencies**

Provides a supervised work experience for master's degree students in a public, academic, or special library. Graded on S/U basis only.

**Credit Hour:** 2-3

**Prerequisites:** IS\_LT 7301, IS\_LT 7302 or IS\_LT 7312, IS\_LT 7314, IS\_LT 7315

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**IS\_LT 7383: Rapid Development Tools for Online Learning**

(cross-leveled with IS\_LT 4383). Students will apply principles of rapid development and use rapid development tools to create a prototype of an e-learning module that uses technology features that can enhance learning (e.g. learner interactions). Specific competencies include: Storyboard and 'rapidly' develop an e-learning module using software designed to support this process; Use software tools that develop specific elements of e-learning (e.g. video, animation, gaming), and incorporate those elements into an e-learning module; Evaluate rapidly developed e-learning products; Compare and contrast features of rapid development software packages. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 7384: Designing Games for Learning**

(cross-leveled with IS\_LT 4384). Learn why games can be useful in learning and how to design them. Play some exemplary games that will help you understand the mechanics of game design and work incrementally towards designing and developing your own educational game prototype via game modifications ('mods'), engaging in gaming communities, evaluating existing games, building learning plans using games and learning the basics of a simple gaming shell language. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9012: Public Library Community Partnerships**

This is a service learning course. Students will have the opportunity to work with local community leaders on a project. Students will learn about partnerships and advocacy for the library, developing leadership skills through action and reflection.

**Credit Hours:** 3

**Prerequisites:** IS\_LT 7305 and IS\_LT 9444

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**IS\_LT 9013: Public Library Administration**

This class covers three main components: planning, human resources, and budgeting, focusing on public libraries.

**Credit Hours:** 3

**Prerequisites:** IS\_LT 7305

**Recommended:** IS\_LT 9444

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**IS\_LT 9085: Problems in Information Science and Learning Technology**

Independent, directed study on a topic in the areas of information science and learning technologies.

**Credit Hour:** 1-99

**Prerequisites:** departmental consent

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**IS\_LT 9090: Research in Information Science and Learning Technologies**

Dissertation research. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** Doctoral Committee Chair's consent

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**IS\_LT 9403: Gender Construction in Children's/Adolescent Literature and Media**

This course will cover some of the theoretical concepts about the construction of gender in our culture and how that construction is enabled by literature and media for children and adolescents. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9404: School Library Administration**

Emphasizes school library administration: program development, implementation, evaluation; planning cycle; budget process; services for diverse school constituencies. Effects of national, state, district guidelines, standards and policies on library media programs.

**Credit Hours:** 3

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**IS\_LT 9405: Sociocultural Aspects of Literacy**

This course will cover sociocultural and social constructionist theory as they relate to literacy. Sociocultural theory, in terms of literacy, looks at how both social elements and cultural elements interact to impact literacy behaviors and outcomes. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9406: Curriculum and the School Library**

Focuses on the library media specialist as teacher and instructional partner. Emphasizes negotiating instructional partnerships, integrating information problem-solving models into the curriculum, curriculum mapping, and resource-based learning models.

**Credit Hours:** 3

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**IS\_LT 9407: Intellectual Freedom and Its Discontents**

The course examines principles and contradictions of intellectual freedom and their relation to librarianship. The nature of free speech, the First Amendment, sources of censorship, and professional disputes about intellectual freedom practice in libraries will be important topics.

**Credit Hours:** 3

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**IS\_LT 9408: Information Policy**

Examination of the roles of private and public sectors in information policy formation. Includes consideration of social, economic, political and technological issues.

**Credit Hours:** 3

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**IS\_LT 9409: Seminar in Digital Libraries**

This course is a project-based learning environment that combines Instructor-prepared content, group-based student projects, and threaded asynchronous discussions on selected topics relating to the design, development, and implementation of practical digital libraries. Research

directives within the broad domain of digital library development are also covered.

**Credit Hours:** 3

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**IS\_LT 9410: Seminar in Information Science and Learning Technology**

Discussion and critical study of current developments in information science and learning technologies.

**Credit Hour:** 1-3

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**IS\_LT 9411: Doctoral Seminar in Information Science and Learning Technologies**

Discussion and critical study of current developments in information science and learning technologies. Graded on A-F basis only.

**Credit Hour:** 1-3

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**IS\_LT 9413: Electronic Resource Management**

This course explores electronic resources (primarily subscription journals and databases) in terms of products, pricing, in-house management of resources, both technical and organizational, licensing, configuring databases and organizing websites for the end user, statistical reporting, and future trends.

**Credit Hours:** 3

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**IS\_LT 9417: Action Research**

Study of concepts associated with action research; and the processes and procedures for conducting action research. Culminating project is the development of an action research project.

**Credit Hours:** 3

**Prerequisites:** 12 credit hours completed prior to enrolling

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**IS\_LT 9419: American Library History**

Students in this course will learn about the history of libraries in America, reading about and analyzing the political, cultural, and social roles of particular libraries and the library as an institution. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9420: Scholarly Communication**

Exploration of the production and communication of information and knowledge in the disciplines.

**Credit Hours:** 3

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**IS\_LT 9421: Usability of Information Systems and Services**

Introduction to concepts and methods of usability testing and research and user-centered design strategy. Course takes a process approach to define target audiences and usability problems, create and administer investigative procedures, analyze results, and report findings effectively. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9423: Ethics, Data, and Information**

Critical inquiry into perennial and emerging issues in the ethics of data and information.

**Credit Hour:** 1-3

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**IS\_LT 9426: Diversity in the Information Professions**

Leadership to promote employment, organizational, collection and program diversity within libraries and information agencies in the U.S. This course includes management and diversity theories, discussions of workplace climate, and discussions of discrimination and hostility issues. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9427: The Information Society**

This class critically examines the control, dissemination, and effects of information on the modern world. We will study the complex relationship between information and society, looking at how each is a reflection and shaper of the other. The relationship of libraries and other information agencies to the state, and the role of information professionals in the political and cultural spheres are central themes in the course. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9428: History of Books and Media**

Examines the history and philosophy of books and media from the beginnings of writing to the Internet, emphasizing the effects of changes in communication and information technologies. The focus is on the social, cultural, intellectual, scientific, and religious impacts of shifts in the media for preserving and transmitting information. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9429: Metadata**

The contacts in your phone, the embedded GPS information in the photo you took on vacation, and the information that allows you to track down an article in a database are all metadata. Today more than ever, metadata is at the heart of what information professionals do as we organize, teach about, search for, and analyze information. This class explores a variety of kinds of metadata, and the tools and systems for working with it, from the point of view of the information professional. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** IS\_LT 7302 or IS\_LT 7312

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**IS\_LT 9431: Children's Library Materials**

Evaluation and selection of materials for children birth-age 13 (Grade 6). Early literacy, emergent readers, reader response theory; social, cultural contexts of readers and reading, trends in publishing.

**Credit Hours:** 3

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**IS\_LT 9433: Youth Services in Libraries**

Examines physical, mental, and emotional development of youth birth through high school. Emphasis on community analysis, outreach services, program design and techniques. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9434: Teen Library Materials**

Evaluation, selection of print, alternate formats for teens, 13-18 (Grades 7-12). Personal, social, popular culture contexts of teen readers and texts; emphasizes reader response; challenges common assumptions about teens and reading.

**Credit Hours:** 3

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**IS\_LT 9435: Adult Services in Libraries**

Library services to adults, including special populations. Emphasis on information needs of adults, organization and management of adult services.

**Credit Hours:** 3

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**IS\_LT 9437: Reader Advisory Services**

Examination of value and role of leisure reading and leisure reading materials. Coverage of reader advisory techniques, support processes, and resources for providing reader advisory services to various audiences. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9438: Marketing and Libraries**

This course provides an introduction to marketing - concepts, planning, strategies and evaluation - as related to libraries and information agencies. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9439: Digital Humanities and Information**

This course on history, philosophy, and methods in the emerging field of 'digital humanities' focuses on topics at the nexus of information, the humanities disciplines, technology, and culture, as well as the contexts of the academy, libraries/archives, museums, and media. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9440: Learning with Web-based Technologies**

Explores the potential of the Internet to support inquiry-based learning through collaborative activities, research, and authoring/publishing. Investigates goals and methods of online learning. Examines learning theories and models of teaching/learning in relation to selected Internet activities for K-12, undergraduate students and learners in other fields outside education (e.g., work placed learning, non-formal learning).

**Credit Hours:** 3

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**IS\_LT 9443: The Academic Library**

Development, objectives, organization and structure, nature of the collections and responsibility for their development, philosophy of library services, measurement and standards of library effectiveness.

**Credit Hours:** 3

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**IS\_LT 9444: The Public Library**

An overview of public library history, missions, and societal roles. Includes public library funding, organization, and management.

**Credit Hours:** 3

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**IS\_LT 9445: Special Libraries and Information Centers**

Goals of special librarianship including information provision, management styles. Library functions as performed in special libraries. Contributions of special libraries, such as information analysis centers, information brokering, and accountability for and evaluation of services.

**Credit Hours:** 3

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**IS\_LT 9446: International and Comparative Librarianship**

International libraries, intercultural information concerns, how information agencies differ between nations and global information issues. Course presents various countries, their information infrastructures and the influence of information and communication technologies.

**Credit Hours:** 3

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**IS\_LT 9447: Human Centered Design**

Provides an overview of iterative design and project management methodologies that develop solutions to interactive systems and tools. Students will learn how to implement rapid prototyping and evaluation techniques by focusing on the user and task needs, along with human factors. The methods and techniques in this course will enhance understanding of task performance, user satisfaction, and design research. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9448: International Libraries in Context**

Study Abroad course. Visit and study international libraries and related institutions. Covers the political, cultural, social, and economic context in which they operate.

**Credit Hours:** 3

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**IS\_LT 9449: Services for Business Communities and Entrepreneurs**

The course covers the introduction to and application of basic concepts of business information in academic, public and special library environments, and the information searching techniques used for specific business information needs (finding company information, industry information, investment information, statistical information, marketing information, etc.) Course includes service to entrepreneurs. Content covers company, investment, industry, statistical and marketing information and includes use of GIS systems.

**Credit Hours:** 3

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**IS\_LT 9450: Research Methods in Information Science and Learning Technologies**

Research methods and ethics of research in the social sciences, focusing on the information professions and learning technologies.

**Credit Hours:** 3

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**IS\_LT 9452: Information Literacy Instruction**

This course is designed to prepare Library Science students/Information professionals for the variety of teaching situations they will encounter in library and information agency settings. Students will consider learning theory applicable to library instruction, learning styles, teaching methods, and appropriate evaluation of library instruction. Students will also learn strategies for incorporating library instruction into the institutional curriculum. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9453: Planning and Evaluation of Information Services**

The course focuses on the complexity of the planning process in libraries and other information agencies, including the influence of external environments (upper administrations, user communities, information producers) on planning. Internal elements of the organization (staffing, services, finances) are discussed, as are external elements (requirements of a parent organization, legal constraints, etc.). The role of evaluation of personnel, budgets, facilities, access to information, and services is integrated into the process of providing service.

**Credit Hours:** 3

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**IS\_LT 9454: Copyright in Libraries**

An introductory and practical course covering the foundations of copyright, fair use, e-reserves, related laws including DMCA and TEACH and managing copyright in the public and school environments.

**Credit Hours:** 3

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**IS\_LT 9455: Formative and Summative Evaluation**

Study of the process of gathering data and making judgments about the effectiveness of instructional programs that uses technology. Covers techniques of a formative evaluation process to revise instruction. Culminating project is planning and conducting a portion of a summative evaluation of instructional program.

**Credit Hours:** 3

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**IS\_LT 9456: Designing Computer Support for Collaborative Learning**

Students will examine the theoretical bases for using collaboration and social interaction as methods for learning, and learn key methods and approaches for designing computer supported collaborative learning. Graded A-F only.

**Credit Hours:** 3

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**IS\_LT 9457: Designing Computer Support for Cooperative Work**

Study of the tools and methods of groupware and communities of practice, including their psychological, social and organizational effects. Students focus on designing and developing improved tools and methods. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9458: Technology and Assessment**

Learn how to assess specific types of knowledge, using technology to enhance the process. Topics include use of tools/strategies for data collection to guide instructional decision-making and investigating technologies to improve assessment of student learning. Emphasis on aligning learning objectives, activities, and assessments and developing performance assessments to measure higher-order thinking. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9460: Human Computer Interaction Research and Analysis**

Human Computer Interaction (HCI) is a discipline concerned with the design, evaluation, and implementation of interactive computing systems for human use and with the study of major phenomena surrounding these

systems. This course provides an overview of the interdisciplinary HCI field while focusing on the theories and research. Students will apply principles and research methods to a range of interface design problems that impact learning, information retrieval, and performance tools. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9461: Interaction Design**

Students will learn the basic concepts of interaction design, then focus on usability engineering and prototyping principles to support the design process for learning and performance based technologies.

**Credit Hours:** 3

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**IS\_LT 9466: Learning Analytics**

Learn how to discover, interpret, and communicate meaningful data patterns In this introductory course. Explore models and applications of learning analytics, as well as privacy and ethical considerations related to the collection and dissemination of learning data. Gain hands-on experience with analytics technologies (e.g., Tableau or Python) that can be used to prepare, visualize, and share data pertaining to learning. Graded on A-F basis only. Note: No programming background required for Tableau option.

**Credit Hours:** 3

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**IS\_LT 9467: Technology to Enhance Learning**

Strategies for integrating technology into the teaching and learning process, with a focus on enhancing how students think rather than what they think. Special attention given to supporting higher order thinking and problem solving with technology.

**Credit Hours:** 3

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**IS\_LT 9468: Learning and Task Analysis**

Multiple methods for conducting task analysis for learning to identify learning processes, learning topics, and learning experiences, including procedural, prerequisites, cognitive simulations, case libraries, environmental analysis, and decision making.

**Credit Hours:** 3

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**IS\_LT 9469: Designing Electronic Performance Support Systems**

Performance support systems (PSS) are technology systems that support human activity within the complexities of organizational requirements and processes. Students build competency for designing PSS.

**Credit Hours:** 3

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**IS\_LT 9471: Instructional Systems Design**

Develop knowledge and skills related to the systematic design of instruction. Learn to analyze, design, develop, implement, and evaluate learning systems and instruction. Identify appropriate technologies to support learning and explore alternative models of instructional design.

**Credit Hours:** 3

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**IS\_LT 9473: Project Management**

This course introduces the learner to the necessary and practical project management concepts and skills that lead to reductions in project cycle

time while maintaining control over budget, resources, risk, and delivered value. This course proposes to integrate practical project management skills within the project management lifecycle (i.e., initiating, planning, executing, controlling, and closing).

**Credit Hours:** 3

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**IS\_LT 9474: Front End Analysis of Systems**

Develop skills for systematically analyzing learning, or other types of systems, that need to be improved. Develop data collection instruments (e.g. surveys, observation protocols, interviews); analyze secondary data; analyze tasks or activities in the system, and interpret data to make recommendations for system improvement. Skills will be learned by doing and applying to real systems that need improvement.

**Credit Hours:** 3

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**IS\_LT 9475: Diffusion of Educational Innovations**

In-depth analysis of innovation development and adoption processes in educational organizations, including schools, universities, and training centers.

**Credit Hours:** 3

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**IS\_LT 9480: Internship in Information Science and Learning Technologies**

Provides internship experience under supervision in advanced levels of practical experience in Information Science and Learning Technology Research and Teaching. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** School director's consent

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**IS\_LT 9481: School Library Internship**

12 weeks of guided practice in K-12 school libraries. Strengthens, extends effective professional skills, attitudes, dispositions, essential to supporting student learning and achievement. Graded on S/U basis only.

**Credit Hour:** 1-8

**Prerequisites:** Instructor permission and enrollment in library media specialist emphasis area; satisfactory completion of IS\_LT 7306 and IS\_LT 7307

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**IS\_LT 9483: Capstone: Online Education Emphasis Area**

Culminating course for Online Education emphasis area in Information Science and Learning Technologies graduate degree. Design/develop/evaluate an online course or rework existing course. Analyze evaluation data from two external reviewers (novice/expert). Write paper describing results and modifications. To be taken during last semester of student's program. Graded on S/U basis only.

**Credit Hour:** 1

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**IS\_LT 9484: Teaching Online Courses**

Learn to be an effective online instructor! Examine issues in teaching and learning online; instructor and student roles; instructional strategies for supporting diverse learners; methods of student assessment; online communication; classroom management; characteristics of online learning management systems. Projects put you in the role of instructor to practice what you learn.

**Credit Hours:** 3

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**IS\_LT 9485: Designing Online Learning**

Online learning is everywhere! This online course will teach you how to leverage existing software tools to design and develop online learning activities in multiple domains that are grounded in sound learning principles. Course will focus on developing online learning for meaningful learning outcomes such as problem solving, building communities, and developing collaboration skills.

**Credit Hours:** 3

**Prerequisites:** Instructor consent

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**IS\_LT 9490: Archival Practice**

Students address evidence, memory, and power dynamics while defining the archival profession, principles, and core archival knowledge guiding professional practice. Explore the archival profession through original research centered on the social responsibilities of archivists. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9491: Appraisal and Archival Systems**

Students discuss appraisal theory, documentation strategies, and microappraisal applications. Learn strategies for collection preservation and access using ArchivesSpace, and relate the records continuum and lifecycle theories to the archival mission. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9492: Data and Records Management**

Examine societal recordkeeping and professional work to identify, manage, preserve, and provide multimedia records access for evidential, legal, leisure, and informational purposes. Study trust and transparency in records, and apply archival ethics through project-based learning. Graded on A-F basis only.

**Credit Hours:** 3

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**Information Technology Courses****INFOTC 1000: Introduction to Information Technology**

This course introduces the field of Information Technology including foundation experiences and knowledge, the history of digital technologies, emphasis areas in the program, career opportunities, and ethical/social issues. Students participate in activities that introduce students to digital media, digital systems, and software engineering. Students learn to use distributed version control systems and how to work on collaborative teams.

**Credit Hours:** 3

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**INFOTC 1001: Topics in Information Technology**

Topics may vary from semester to semester. May be repeated upon consent of department.

**Credit Hours:** 3

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**INFOTC 1040: Introduction to Problem Solving and Programming**

An introduction to problem solving methods and programming concepts, providing experience in designing, developing, implementing, and testing programs. Cannot be taken for credit after CMP\_SC 1050.

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**Credit Hours:** 3

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**INFOTC 1600: Digital Systems**

This course provides a foundation of knowledge of digital systems including terminology, concepts, architecture, processes, tools, hardware, and software.

**Credit Hours:** 3

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**INFOTC 1610: Introduction to Digital Media Design**

This project-based course is an introduction to the concepts and practices of audio design, graphic design, motion media design and basic video editing. Current technologies are employed to examine design fundamentals and applications of media design that apply to audio and video production and new media production.

**Credit Hours:** 3

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**INFOTC 2001: Topics in Information Technology**

Topics may vary from semester to semester. May be repeated upon consent of department.

**Credit Hours:** 3

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**INFOTC 2040: Programming Languages and Paradigms**

This course presents programming principles and their syntactical representation and implementation across languages including those that are compiled and interpreted. The course shows how to implement algorithms and data structures to solve problems while utilizing paradigms offered by the programming languages such as procedural, object-oriented, protocol-oriented, functional, and declarative. Language support for strong and weak typing and type safety are covered along with support for optional values. Provides experience in developing algorithms and determining their efficiency, designing application architecture, and developing applications. Building and using libraries/application programming interfaces is covered. Git and GitHub are used for code versioning and collaboration. Integrated development environments (IDEs) are used for managing, building, debugging, and testing applications.

**Credit Hours:** 3

**Prerequisites:** INFOTC 1040 or CMP\_SC 1050, or prior experience with programming and consent of instructor

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**INFOTC 2610: Digital Media Design I**

This project-based course examines the fundamentals of media technology, from capture devices to the software and hardware that processes data. Through hands-on experience with capturing technology, audio recording devices, and the software and hardware components needed to manipulate the recordings, students will process big-data files to create meaningful manipulations in assembly, engineering, and colorization. Students will utilize a spectrum of camera equipment, recording devices and facilities to achieve an understanding of audio/video capture, project planning and implementation, hardware assessment, optimization practices through hardware acceleration, and video processing. This course also focuses on basic editing theory and industry trends. This is done through in-class demonstrations, online modules, and supplementary material hosted on online.

**Credit Hours:** 3

**Prerequisites:** C- or higher in INFOTC 1610 or FILMS\_VS 1880 or DST\_VS 1880, or instructor content through course equivalencies

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**INFOTC 2615: Color Processing and Design**

This course is an intensive study of the techniques, software, principles, technology, data management practices, sciences, problems and theories of color processing for video in media. The course will prepare students for work in industries related to color processing and delivery, while providing further enrichment to technology related to media production, including camera and sensor science, computer hardware, and peripherals. Graded on A-F basis only.

**Credit Hours:** 3

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**INFOTC 2620: Computer Modeling and Animation I**

Introduction to the field of computer modeling and animation with an emphasis on tools. Learn programming methods for developing customized modeling and animation algorithms. Graded on A-F basis only.

**Credit Hours:** 3

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**INFOTC 2630: Introduction to Game Theory and Design**

Students will develop foundational skills in game design and theory, and become proficient in the tools used to develop conceptual gaming environments. The student will develop skills to discuss, develop, and demonstrate the design process in cooperation with current game theories and practices. The student will develop collaborative and cooperative design techniques mirroring that of the industry. Graded on A-F basis only.

**Credit Hours:** 3

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**INFOTC 2810: Fundamentals of Network Technology**

This course includes an overview of networking and the common wireless standards. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOTC 1040 or CMP\_SC 1050 with C- or higher

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**INFOTC 2830: Web Application Development I**

(same as CMP\_SC 2830). This course will attempt to provide a comprehensive understanding of the evolution, the technologies, and the tools of the Internet. In particular, issues pertaining to the World Wide Web and Multimedia (HTML, CGI, Web based applications) will be discussed in detail.

**Credit Hours:** 3

**Prerequisites:** INFOTC 2040 or CMP\_SC 2050 with a C- or higher

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**INFOTC 2910: Cyber Security**

This course covers numerous platform-independent security topics including threats, problem ports and services, theory and practice of defense in security, intrusion detection, data security, securing remote access, user education and support, designing a secure network and security management. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOTC 1040 or CMP\_SC 1050, and INFOTC 2810

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**INFOTC 3001: Topics in Information Technology**

Topics may vary from semester to semester. May be repeated upon consent of department. Graded on A-F basis only.

**Credit Hours:** 3

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**INFOTC 3330: Object Oriented Programming**

(same as CMP\_SC 3330). This course focuses on object-oriented programming concepts such as: Abstraction, Polymorphism, Encapsulation, Inheritance, Interfaces, Abstract Classes, Files, Streams, and Object Serialization. Topics such as GUI and event-driven programming, APIs, and design patterns are also tackled. Java SE 8, NetBeans 8 IDE, and JavaFX Scene Builder 2.0 are used to build Java SE applications that include user interfaces developed using JavaFX. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOTC 2040 or CMP\_SC 2050 with C- or higher

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**INFOTC 3380: Database Systems and Applications**

This course covers database management systems (DBMS) and the development of applications that utilize databases including relational/SQL and NoSQL types. Topics include the evolution of data storage and databases, data modeling, relational and NoSQL databases, SQL, document, graph and key-value storage and retrieval, application development using databases, database scaling, database trends, and popular database systems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2050 or INFOTC 2040; or experience developing applications and permission of the instructor

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**INFOTC 3530: UNIX Operating System**

(same as CMP\_SC 3530). This course is an introduction to UNIX and UNIX-like operating systems and interfaces, to include the file system, command shells, text editors, pipes and filters, input/output system, shell scripting and Regular Expressions. The course will also incorporate an aspect of programming in a UNIX environment, cloud computing, containers and an introduction to System Administration. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOTC 2040, or CMP\_SC 2050, or Instructor Consent

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**INFOTC 3600: User Experience Design I**

This course is a first in a series that focuses on User Experience (UX) Design for software applications. This course introduces the beginner to processes, techniques and methods of evaluation to design, model and evaluate application designs and user interfaces.

**Credit Hours:** 3

**Prerequisites:** May be restricted to Information Technology majors during early registration

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**INFOTC 3610: Digital Media Design II**

This project-based course builds upon the fundamentals of production and media processing learned in INFOTC 2610 and introduces industry standard advanced video and audio capture technology, software, and data management systems. The course is designed to provide further hands-on experience with digital video capturing technology, non-linear editing software, Digital Audio Workstations, and broadcast

technology through three large-scale collaborative media projects. These projects build upon the principles of data management and software, while introducing project management, team management, and direct-to-market media strategies. Students will utilize a spectrum of industry standard camera equipment, recording devices and facilities to achieve a fuller understanding of audio/video capture and post production.

**Credit Hours:** 3

**Prerequisites:** C- or higher in INFOTC 2610. Instructor consent with approved equivalencies

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**INFOTC 3620: Computer Modeling and Animation II**

This course covers advanced methods for modeling and animation with an emphasis on computer science theory and virtual reality. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or higher in INFOTC 2620

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**INFOTC 3630: Introduction to Virtual Reality**

The course will provide students with a good understanding of the fundamentals of virtual reality and practical hands on VR experience development skills. It will introduce students to the software, hardware, and concepts involved with the current state of the art in virtual reality. This course will focus on using the recent consumer-grade equipment to design and construct virtual environment and experience.

**Credit Hours:** 3

**Prerequisites:** INFOTC 1040 or CMP\_SC 1050 with C- or higher

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**INFOTC 3640: Motion Graphics and Visual Effects I**

This advanced media creation course is an introduction to the fundamentals of motion graphic design, 2-D animation, and visual effects creation. It is a project based course that requires understanding of NLEs, experience in media creation and design, understanding of basic audio/video compression, and understanding of basic media design and concepts. Computer programs designed for graphic design, motion graphics, 2-D animation, and visual effects are integrated throughout the course. Starting media will be provided for each project.

**Credit Hours:** 3

**Prerequisites:** C- or higher in INFOTC 1610

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**INFOTC 3650: Project and Team Management**

This course focuses on the business analysis, development tools, communication skills, and management techniques required to successfully lead personnel, meet deadlines, and create digital media projects in today's media production industry. May be taken as Writing Intensive.

**Credit Hours:** 3

**Prerequisites:** C- or higher in INFOTC 1610 or FILMS\_VS 1880 or DST\_VS 1880

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**INFOTC 3650W: Project and Team Management - Writing Intensive**

This course focuses on the business analysis, development tools, communication skills, and management techniques required to successfully lead personnel, meet deadlines, and create digital media projects in today's media production industry.

**Credit Hours:** 3

**Prerequisites:** C- or higher in INFOTC 1610 or FILMS\_VS 1880 or DST\_VS 1880

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### **INFOTC 3660: Audio Engineering**

This course is an intensive study of the techniques and art behind the use of audio in today's media design environments. From the theater to television, from tablet and mobile device to computer, this course will focus on the four major sound design areas: sound in cinema, sound creation, sound manipulation, and environmental sound layering.

**Credit Hours:** 3

**Prerequisites:** C- or higher in INFOTC 1610 or FILMS\_VS 1880 or DST\_VS 1880

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### **INFOTC 3810: Computer Network Security**

This course covers principles of networking configuration and security authentication, IP security, network management security, wireless security, and system security by studying attacks on computer systems, network, and the Web as well as detection and prevention. Work is completed in Unix/Linux environments and in Microsoft Windows environment. Students will need to setup a virtual private infrastructure to perform multiple tasks; additionally unlimited AWS cloud resources will be available for them. The course emphasizes 'learning by doing' and has a 90% hands-on and 10% theory. Much of this information consists of skills and abilities that employers want and expect in the real world of IT - in a small to medium size organization. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOTC 2810

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### **INFOTC 3850: Computer System Administration**

This course will cover network management tools, network maintenance, data management, remote access management, management tasks, responsibilities and ethics, required plans and policies, design of a well-managed network. Some work will be done in both Windows and Linux environments. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOTC 2040 or CMP\_SC 2050, junior standing. May be restricted to Information Technology majors during early registration

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### **INFOTC 3910: Advanced Cyber Security**

Students develop a deeper understanding of modern information and system protection technology and methods, including examining the various areas of network security including intrusion detection, reconnaissance, exploitation, and defense against cyber-attacks, as well as principles and techniques for digital forensics investigation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOTC 2910

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### **INFOTC 3940: Internship in Information Technology**

Information Technology-related experience in business or industry jointly supervised by faculty and IT professionals. Students should apply one semester in advance for consent of the supervising professor. Graded on an S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** Instructor Consent

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### **INFOTC 4001: Topics in Information Technology**

Topics may vary from semester to semester. May be repeated upon consent of department. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** May be restricted to Information Technology majors during early registration

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### **INFOTC 4001W: Topics in Information Technology - Writing Intensive**

Topics may vary from semester to semester. May be repeated upon consent of department. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** May be restricted to Information Technology majors during early registration

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### **INFOTC 4085: Independent Projects**

A student interested in doing an independent study project should first choose an area and instructor to work with. The student and instructor decide on a suitable Information Technology topic. The student writes up a detailed description of the project, including references, deadlines and deliverables. The instructor and student decide on details for completing the project during the semester for a grade.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor

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### **INFOTC 4320: Software Engineering**

Software Engineering covers the principles, processes, and professional practices used to design, develop, test, deploy, and manage software systems in a team-based, collaborative environment. A range of software engineering methodologies are covered with an emphasis on agile software development using incremental methods of managing the development activities.

**Credit Hours:** 3

**Prerequisites:** INFOTC 2040 or CMP\_SC 2050 or permission of the instructor

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### **INFOTC 4390: Database Administration**

This course is designed to give a firm foundation in Database Administrators' tasks. The primary goal is to give necessary knowledge and skills to setup, maintain and troubleshoot an Oracle database. This is an instructor-led course featuring lecture and hands-on exercises. Online demonstration and written practice sessions reinforce the concepts and skills introduced. The course defined objectives are designed to support preparation for the Oracle Certified Professional examination.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4380

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### **INFOTC 4400: C#.NET Development**

Learn how to develop and debug multi-threaded Windows desktop applications based on the object-oriented (OO), Model-View-Controller (MVC), and Model View ViewModel (MVVM) paradigms using C#, .NET, Windows Presentation Foundations (WPF), and Visual Studio. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOTC 2040 or CMP\_SC 2050

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**INFOTC 4405: iOS App Development I**

(same as CMP\_SC 4405). This is a first in a series of courses on developing iOS applications using Xcode, and the Swift programming language on the macOS platform.

**Credit Hours:** 3

**Prerequisites:** INFOTC 1040 or CMP\_SC 1050, or consent of instructor

**Recommended:** Prior experience programming in any programming language. The student should understand basic language concepts such as variables, data structures, control structures, and functions

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**INFOTC 4410: Android App Development I**

This is the first in a series of courses on developing Android applications using Android Studio and the Java and Kotlin programming languages.

**Credit Hours:** 3

**Prerequisites:** INFOTC 1040 or CMP\_SC 1050, or consent of instructor

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**INFOTC 4420: Android App Development II**

This is the second course in a series on developing Android applications using Android Studio and the Java and Kotlin programming languages. This course covers intermediate-level topics in application design, more complex UI implementations, and data persistence.

**Credit Hours:** 3

**Prerequisites:** INFOTC 4410, or consent of instructor

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**INFOTC 4425: iOS App Development II**

This is the second in a series of courses on developing iOS applications using Xcode and Swift programming language on the macOS platform. This course covers intermediate-level topics in application design, more complex UI implementations, and data persistence.

**Credit Hours:** 3

**Prerequisites:** INFOTC 4405 with C- or higher

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**INFOTC 4440: Android App Development III**

This is a third in a series of courses on developing Android applications using Android Studio and the Java and Kotlin programming languages. This course covers advanced topics in application architecture, application design, data persistence, and client-server architecture.

**Credit Hours:** 3

**Prerequisites:** INFOTC 4420 or permission of the instructor

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**INFOTC 4445: iOS App Development III**

This is the third in a series of courses on developing iOS applications using Xcode and Swift programming language on the macOS platform. This course covers advanced topics in application architecture, application design, complex UI designs, data persistence, and client-server architecture.

**Credit Hours:** 3

**Prerequisites:** INFOTC 4425

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**INFOTC 4500: Team-Based Mobile Device Application Development**

This is a multi-disciplinary, team-based course on developing applications for mobile devices. Teams will be comprised of students who are software developers and students who are designers. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOTC 2040; or CMP\_SC 2050; or permission of instructor with applicable experience

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**INFOTC 4600: User Experience Design II**

This course is the second in a series that focuses on User Experience (UX) Design for software applications. This course further develops the processes, techniques and methods of evaluation to design, model, and evaluate application designs and user interfaces.

**Credit Hours:** 3

**Prerequisites:** INFOTC 1600

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**INFOTC 4610: Advanced Multimedia Design and Technology**

Students enrolled in INFOTC 4610 are immersed in upper level study of media technology, software, and trends in the industry, with focus on advanced media design, motion media capture techniques, portfolio development, and industry standard technology and software. Students will work both independently and in small focus groups to produce industry results in narrative, non-fiction, and commercial media design projects. This course may be taken as INFOTC 4610W for WI credit. If IT majors take this course as WI, it will serve as Capstone. This is a Study Abroad course.

**Credit Hours:** 3

**Prerequisites:** IT Majors must complete INFOTC 2610; other majors may seek instructor consent

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**INFOTC 4610W: Advanced Multimedia Design and Technology - Writing Intensive**

Students enrolled in INFOTC 4610 are immersed in upper level study of media technology, software, and trends in the industry, with focus on advanced media design, motion media capture techniques, portfolio development, and industry standard technology and software. Students will work both independently and in small focus groups to produce industry results in narrative, non-fiction, and commercial media design projects. This course may be taken as INFOTC 4610W for WI credit. If IT majors take this course as WI, it will serve as Capstone. This is a Study Abroad course.

**Credit Hours:** 3

**Prerequisites:** IT Majors must complete INFOTC 2610; other majors may seek instructor consent

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**INFOTC 4630: Game Development**

(same as CMP\_SC 4630). The course focuses on rapid game prototyping and development utilizing the Unity game engine and C#. You will learn the fundamentals of game programming and also a platform which is actually used to make published games across multiple platforms (Mac, PC, web, iOS, Android etc). Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOTC 3630 or CMP\_SC 2050 or INFOTC 2040 with C- or higher

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**INFOTC 4640: Motion Graphics and Visual Effects II**

This course builds on fundamentals of digital motion picture effects technology learned in Digital Effects I. Computer programs designed for digital visual special effects in film and broadcast are integrated throughout the course.

**Credit Hours:** 3

**Prerequisites:** C- or higher in INFOTC 3640

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**INFOTC 4650: Shader Programming**

The focus of this course is modern computer graphics algorithms and programming, with an emphasis on games, shader languages, (GLSL and Cg) and Graphical Processor Units (GPUs).

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050, INFOTC 2620

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**INFOTC 4830: Web Application Development II**

(same as CMP\_SC 4830; cross-leveled with CMP\_SC 7830). This course will study the science and engineering of the World Wide Web. We will study the languages, protocols, services and tools that enable the web. Emphasis will be placed on basics and technologies.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2830 with a C- or higher

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**INFOTC 4910: Digital Forensics**

(same as CMP\_SC 4910). This course introduces an overview of basic Digital Forensics procedures and techniques to enable students to perform a digital investigation of physical storage media and volume analysis, including preservation, analysis and acquisition of artifacts that resides in hard disk and random access memory, for Linux and Windows systems. Work is completed in Unix/Linux environments and in Microsoft Windows environment. Students will need to setup a virtual private infrastructure to perform multiple tasks. The course emphasizes 'learning by doing' and has a 90% hands-on and 10% theory. Much of this information consists of skills and abilities that employers want and expect in the real world of IT - in a small to medium size organization. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOTC 2910 and INFOTC 3910

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**INFOTC 4970W: Senior Capstone Design - Writing Intensive**

This course is an opportunity for you to demonstrate that you have achieved the goals established by the Information Technology (IT) program. You will do this through a series of writing exercises, class activities, and a team-based project. You will demonstrate your ability to synthesize various methods and skills, apply them to new, novel, complex, and integrated project requirements in real-world IT problems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or higher in INFOTC 4320, or CMP\_SC 4320, or INFOTC 3650. Must have senior standing. Restricted to INFOTC majors

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**INFOTC 4990: Undergraduate Research in Information Technology**

Research topics as defined by instructor and student.

**Credit Hour:** 1-6

**Prerequisites:** Instructor's consent

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**INFOTC 4995: Undergraduate Research in Information Technology - Honors**

Research topics as defined by instructor and student.

**Credit Hour:** 1-6

**Prerequisites:** Instructor's consent

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## Integrative Neuroscience Courses

**NEUROSCI 7990: Non-Thesis Research in Neuroscience**

The course is intended primarily for post-baccalaureate students who have not entered a formal graduate program but who are performing neuroscience research. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent required

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**NEUROSCI 8020: Advances in Neuroscience and Neuropathology**

In depth review of recent advances in basic neuroscience research as well as pathological conditions affecting nervous systems at the cellular and systems level, and the methods and techniques used to study the nervous system. Graded on A-F basis only.

**Credit Hour:** 1-3

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**NEUROSCI 8187: Neuroscience Journal Club**

In depth readings and presentations/discussions of neuroscience journal articles including recent advances in basic neuroscience research, pathological conditions affecting nervous systems, and neuroscience techniques. Graded on S/U basis only. May be repeated for credit.

**Credit Hour:** 1

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**NEUROSCI 8440: Integrative Neuroscience 1**

(same as BIO\_SC 8440). Organization, development and function of the nervous system focusing on cellular and molecular processes. Graded on A-F basis only.

**Credit Hours:** 3

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**NEUROSCI 8442: Integrative Neuroscience II**

(same as BIO\_SC 8442). Organization and function of the nervous system at the systems level to examine processes of behavior and cognition. Graded on A-F basis only.

**Credit Hours:** 3

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**NEUROSCI 9090: Thesis Research in Neuroscience**

The course is intended primarily for graduate students who are working with mentors in departments that do not offer courses (e.g. Radiology). Graded on A-F basis only.

**Credit Hour:** 1-6

**Prerequisites:** Instructor's consent required

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## Interdisciplinary Studies Courses

**INTDSC 1001: Proseminar in Interdisciplinary Studies**

Lecture/discussion survey of time-management, note taking techniques, in the context of the three courses that are part of a Freshman Interest Group. Regular use of library, electronic mail and computing facilities is stressed. Elective credit only; students cannot receive credit for INTDSC 2001 and INTDSC 1001 or INTDSC 1150. Graded on S/U basis only.

**Credit Hour:** 1

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**INTDSC 1020: University Freshmen Seminar**

(same as SSC 1020). To maximize student's potential to achieve academic success and to adjust responsibly to the individual and interpersonal challenges presented by collegiate life. Attainment of an appropriate balance between personal freedom and social responsibility underlies all seminar activities. No credit for students who have earned credit for AFNR 1115, INTDSC 1001, IS\_LT 1110, ED\_LPA 3100 or an equivalent first year orientation course at another institution. Credit restrictions that apply to orientation classes apply to this course. Students are not allowed to be enrolled in SSC 1020 and SSC 1150 in the same semester.

**Credit Hour:** 1

**Prerequisites:** Restricted to freshman only

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**INTDSC 1940: Internship**

Limited to freshmen/sophomores who are 'undecided' or otherwise not accepted into a major. Graded on S/U basis only.

**Credit Hour:** 0-1

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**INTDSC 2001: Proseminar in Interdisciplinary Studies**

Lecture/discussion survey of a range of issues of special importance for transfer students new to the University. Elective credit only; no credit for INTDSC 1001 and/or SSC 1150. Graded on A-F basis only.

**Credit Hour:** 1

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**INTDSC 2942: Internship and Career Exploration in Arts and Science**

This course is designed to develop skills required to successfully apply for, and be successful in, internships and employment.

**Credit Hour:** 1

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**INTDSC 4940: Internship in Interdisciplinary Studies**

Internship limited to students pursuing the BA in Interdisciplinary Studies degree. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** departmental Consent Required

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**INTDSC 4942: Arts and Science Internship**

Internship limited to students in the College of Arts and Science.

**Credit Hour:** 1-6

**Prerequisites:** Consent of instructor required

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**INTDSC 4960: Readings in Interdisciplinary Studies**

Independent readings with supervisory faculty member. Open only to Interdisciplinary Studies majors. May be repeated up to a maximum of 6 hours.

**Credit Hour:** 1-6

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**INTDSC 4970: Service Learning Project.**

Independent readings with supervisory faculty member; Students will engage in service activities, directly relevant to their areas of academic emphasis, in community not-for-profit agencies. At the same time as participants work in the community, they will research their agency and organization, undergo mock employment interviews, create a cover letter and resume based on the professional skills they have gained through

their service, and reflect on careers and leadership in public service. Graded on A-F basis only.

**Credit Hour:** 3-6

**Prerequisites:** restricted to Interdisciplinary, General Studies and International Studies students

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**INTDSC 4970W: Service Learning Project. - Writing Intensive**

Independent readings with supervisory faculty member; Students will engage in service activities, directly relevant to their areas of academic emphasis, in community not-for-profit agencies. At the same time as participants work in the community, they will research their agency and organization, undergo mock employment interviews, create a cover letter and resume based on the professional skills they have gained through their service, and reflect on careers and leadership in public service. Graded on A-F basis only.

**Credit Hour:** 3-6

**Prerequisites:** restricted to Interdisciplinary, General Studies and International Studies students

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**INTDSC 4971: Capstone Internship in Interdisciplinary Studies**

Internship experience which serves as the student's capstone experience. Program advisor must approve internships. Section 2 of this course will be designated for Service Learning Capstone experience. Graded on S/U basis only.

**Credit Hour:** 1-6

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## Internal Medicine Courses

**IN\_MED 6002: Medicine Clerkship**

Students spend eight weeks on the medicine inpatient service at University Hospital and Harry S. Truman Veterans Hospital where they learn to care for adult patients with acute and chronic illnesses. Teaching emphasizes the principles of differential diagnosis and problem solving as well as the integration of basic science information into the art of patient care. Students also gain clinical experience in medical interviewing and physical examination.

**Credit Hours:** 8

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**IN\_MED 6012: Rural Medicine Clerkship**

Rural Medicine Clerkship

**Credit Hours:** 8

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**IN\_MED 6022: Springfield Medicine Clerkship**

Students learn to care for adult patients with acute and chronic illnesses. Teaching emphasizes the principles of differential diagnosis and problem solving as well as the integration of basic science information into the art of patient care. Students also gain clinical experience in medical interviewing and physical examination.

**Credit Hours:** 8

**Prerequisites:** successful completion of the first two years of medical school

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**IN\_MED 6052: Springfield Medical Consultation**

The student will work with the Medical Consultation attending faculty. The student will be expected to participate in an interdisciplinary manner

with the Rehabilitation physicians as well as the therapy services and other ancillary services caring for the patients. Internists and medical subspecialists frequently encounter patients with critical conditions that require unique skills. During this rotation medicine students will: 1. Provide assessment, management and follow-up of the medical illnesses of patients in a Rehabilitation facility under the supervision of the medical consult attending. 2. Be intimately involved in this multidisciplinary approach to patient care. 3. Work collaborative with rehabilitation attending physicians, nurses, pharmacists, therapists and other ancillary support staff.

**Credit Hours:** 5

**Prerequisites:** Successful completion of the Medicine Clerkship and M-4 Status. M3 students can be considered on an individual basis. Springfield faculty approval needed before registration

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#### **IN\_MED 6056: Springfield Infectious Diseases**

The fourth-year medicine student will work as part of the infectious diseases team providing hands-on clinical services in inpatient and/or consultative settings. Students will participate in daily inpatient rounds, mini-lectures, and clinical case conferences. Students will utilize a variety of evidence-based resources and on-line modules. Infectious diseases faculty are readily available for one-on-one discussion.

**Credit Hours:** 5

**Prerequisites:** Successful completion of 5 of the 7 core clerkships, one of which must be Internal Medicine

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#### **IN\_MED 6102: Remediation Medicine Clerkship**

Enrolled students are those who received an unsatisfactory grade in a Medicine Clerkship at any Mizzou Med location or site. This course allows them the opportunity to rectify a deficiency.

**Credit Hours:** 8

**Prerequisites:** IN\_MED 6002 Medicine Clerkship, received unsatisfactory grade

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#### **IN\_MED 6122: Remediation of Springfield Internal Medicine Clerkship**

Students learn to care for adult patients with acute and chronic illnesses. Teaching emphasizes the principles of differential diagnosis and problem solving as well as the integration of basic science information into the art of patient care. Students also gain clinical experience in medical interviewing and physical examination.

**Credit Hours:** 8

**Prerequisites:** successful completion of the first two years of medical school

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#### **IN\_MED 6263: ABS Internal Medicine Research**

ABS Internal Medicine Research

**Credit Hour:** 5-10

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#### **IN\_MED 6265: ABS IN MED RSCH/REVIEW**

ABS in Medicine Research Review

**Credit Hours:** 5

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#### **IN\_MED 6500: Cardiology Consultation Service**

On the inpatient cardiology consultation block, the senior student gains experience in cardiology consultation at either the University Hospital or the Harry S Truman VA Hospital. Through active participation in the consult service the student is provided the opportunity to acquire knowledge of cardiovascular anatomy, physiology, cardiovascular pharmacology, prevention of cardiovascular disease, risk factors for cardiac disease, lipid disorders, chronic coronary artery disease management and its complications, cardiac arrhythmias and conduction abnormalities, hypertension, valvular heart disease, cardiomyopathy, pericardial disease, pulmonary heart disease, peripheral vascular disease, cerebral vascular disease, adult congenital heart disease, and pre- and post-operative assessment of patients with or without cardiac problems. Students will be evaluated using the standard department student elective evaluation form submitted to the Internal Medicine Education Office. Each faculty working with the student will have the opportunity to contribute to the final grade. The final evaluation will be based on student performance on the cardiology consultation service and active participation in the cardiology conferences. Students' skills in performing a history and physical exam, the quality of their presentation, the quality of their knowledge base, the quality of their interactions will constitute the basis of grade assignment.

**Credit Hours:** 5

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#### **IN\_MED 6507: Endocrinology/Metabolism**

The Endocrinology rotation is designed to enable the student to deal with clinical problems in Diabetes endocrinology and metabolism with particular emphasis on the more common problems in an ambulatory setting. During the rotation the student will have the opportunity to see patients with a wide range of endocrine disorders. These patients will be used as the focus for teaching with the emphasis placed on differential diagnosis, pathophysiology, management, and how the disorder affects the patient as a whole. By the end of the rotation the student should be able to evaluate and manage (with supervision) patients with: 1. Diabetes Mellitus 2. Hypoglycemia 3. Thyroid disorders including goiters, thyroid nodules, hyperthyroidism and hypothyroidism 4. Adrenal disorders including adrenal incidentalomas, Cushing and Hyperaldosteronism 5. Pituitary problems including hypopituitarism, conditions due to pituitary hormone excess that including Cushing's disease, acromegaly and prolactinoma. 6. Calcium abnormalities including hyperparathyroidism, hypoparathyroidism, hypercalcemia, hypocalcaemia and osteoporosis. 7. Polycystic ovarian syndrome. Evaluations: The course grade will be based on students' skill in performing a history and physical exam, the quality of the presentation, the quality of their knowledge base and the quality of their interactions.

**Credit Hours:** 5

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#### **IN\_MED 6508: General Internal Medicine Outpatient**

General Internal Medicine Outpatient

**Credit Hours:** 5

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#### **IN\_MED 6513: Infectious Diseases**

The goals of the Infectious Diseases elective will be to: 1. Teach the student how to be an effective consultant. 2. Assist the student in his/her knowledge of disease processes. 3. Help the student improve his/her history taking and physical examination skills. 4. Enhance the student's knowledge regarding the use of antimicrobial agents. 5. Improve the student's understanding of the diagnosis and management of commonly-

encountered infectious diseases with attention to the use of the history and readily available laboratory tests..

**Credit Hours:** 5

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**IN\_MED 6515: Problems in Medical Ethics**

Problems in Medical Ethics

**Credit Hours:** 5

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**IN\_MED 6800: Coronary Care Unit**

During the Coronary Intensive Care Unit rotation, the medical student is provided the opportunity to acquire knowledge in the evaluation and management of acute and chronic coronary artery disease, life threatening cardiac arrhythmia's, acute severe congestive heart failure, acute valvular disease, acute infective endocarditis, hypertensive emergencies, cardiac tamponade, aortic dissection, aortic pulmonary embolism, life threatening complications of cardiac therapy, hypotension, and shock. The Coronary Intensive Care rotation allows the student to evaluate and treat these patients in close conjunction with medical residents, cardiology fellows and cardiology faculty. Students will be evaluated using the standard Department student elective evaluation form submitted to the Internal Medicine Education Office. Each faculty working with the student will have the opportunity to contribute to the final grade. The final evaluation will be based on student performance on the cardiology consultation service and active participation in the cardiology conferences. Students' skills in performing a history and physical exam, the quality of their presentation, the quality of their knowledge base, the quality of their interactions will constitute the basis of grade assignment.

**Credit Hours:** 5

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**IN\_MED 6801: Diabetes Mellitus Externship**

Diabetes Mellitus Externship

**Credit Hours:** 5

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**IN\_MED 6802: Gastroenterology**

Medical students will be assigned to the inpatient GI consultation service, where they will see and evaluate patients, read about their problems, and present them to the GI fellow and/or teaching attending. They should attend all endoscopic procedures on the patients they follow on the inpatient service. They should also attend a sampling of outpatient procedures each week in the Endoscopy Center. As time permits, they may be assigned to one or more GI clinics during the rotation as well. Medical students will be expected to attend all GI conferences during the rotation. Students are also encouraged to attend Internal Medicine Grand Rounds and Internal Medicine Morning Report. They may also be assigned to give one formal presentation during their rotation. It is recommended that they read the entire GI-Liver section of the Internal Medicine textbook that they used on their third-year Internal Medicine Clerkship. Ongoing feedback is provided to the student during the rotation. At the end of the rotation, a formal written evaluation will be prepared by the inpatient attending, in conjunction with the GI fellow with whom the resident/medical student worked with. Conference participation is factored in.

**Credit Hours:** 5

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**IN\_MED 6803: Subinternship in Internal Medicine**

The internal medicine subinternship builds on the skills begun during the internal medicine clerkship and prepares the student for the internship year. 1. Students will refine and further develop skills in: a. Physical exam, history taking, chart review, and written notes; b. Problem list development and management plan; data interpretation and synthesis; c. Oral presentation; d. Interpersonal relations with patients, families, staff and peers ; e. Time management i. Self-directed learning ii. Evidence-based medicine 2. Expand knowledge base in general internal medicine 3. Assume primary responsibility for inpatient care 4. Further develop in the role of primary care giver Patient management skills, medical record keeping, presentation skills, knowledge base, and ability to handle responsibility will be carefully observed by both the senior ward resident and the attending physician. Students will receive constructive feedback/suggestions for improvement throughout the rotation from both the attending and the senior ward resident. The attending, with input from the senior ward resident and the third year students, will report the final scores using the Department of Internal Medicine standard electives evaluation form. Students will meet with the attending physician at the end of the block to discuss their performance. Students will not receive elective credit for three weeks rotations.

**Credit Hours:** 5

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**IN\_MED 6805: Hematology and Medical Oncology Chronic Care**

The specific objective of the course is to assist the student in developing a greater understanding for the care of chronically ill patients with hematologic and neoplastic diseases. The student's evaluation is based predominantly on his/her performance in presentation and in written chart notes of patients under the student's care. This evaluation will be by the attending physician with whom the student has worked. The standard department student elective evaluation form will be used to document student performance.

**Credit Hours:** 5

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**IN\_MED 6806: Immunology/Rheumatology**

The overall curricular objectives of this elective include: 1. Basic Information. The student should be able to: a. Perform a medical history and screening physical examination with attention to symptoms and signs of rheumatic disease. Understand the basic pathophysiology and clinical diagnosis of common arthritic and musculoskeletal diseases in adults. b. Understand the natural history of rheumatic diseases, particularly rheumatoid arthritis, soft tissue rheumatism, degenerative joint disease, systemic lupus erythematosus and spondyloarthropathies. c. Understand the short and long term management of rheumatic conditions and apply these principles together with overall clinical judgment in the management of individual patients. These therapeutic measures include: 1. drug therapy, 2. physical rehabilitative measures, and 3. surgical intervention. d. Learn the uses and pitfalls of laboratory tests in practice. e. Formulate ways to approach the emotional problems of patients with chronic disease. f. Understand the value of the comprehensive approach in arthritis treatment including patient education, the role of the allied health professional and community resources.

**Credit Hours:** 5

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**IN\_MED 6807: Medical Intensive Care**

Under the supervision of the medical critical care attending, the medical students are part of a team providing assessment, management, and follow-up of critically ill patients. Students will be intimately involved in

this multidisciplinary approach to patient care. As a member of the ICU patient management team, the student will work collaboratively with residents, fellows, medical attendings, nurses, pharmacists, respiratory therapists and the nutritional support staff. The team will work in a coordinated fashion with consulting physicians and services, social services, physical therapy workers, and the radiology and pathology laboratory departments, and chaplain services.

**Credit Hours:** 5

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**IN\_MED 6808: Nephrology Advanced Elective**

This elective builds on the knowledge and skills students have acquired in the third year course in Internal Medicine. Students will have the opportunity to perform histories and physicals, participate in the decision-making process of patient management, and be responsible for daily follow-up in patients with fluid and electrolyte problems, acid-base disturbances, acute and chronic renal failure and a variety of renal diseases. The focus in these areas will be at a much higher level of responsibility and management than in the third-year course.

**Credit Hours:** 5

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**IN\_MED 6809: Pulmonary Medicine Diagnostic Services**

The Pulmonary Medicine Service is designed to allow students to participate in the diagnosis and care of hospitalized patients with an acute pulmonary problem as well as continuity follow up of existing known disease processes. This service evaluates and assists in management of adult patients at the University or VA Medical Centers. Either rotation includes intensive care unit patients with primary surgical or cardiac diagnoses, the rotation at the VA Medical Center also includes intensive care unit patients with primary medical diagnoses. The rotation will introduce the student to major clinical entities including the diagnosis and management of infectious lung disorders, neoplasms of the lungs, chronic obstructive pulmonary disease, asthma, acute respiratory failure, occupational pulmonary disease and interstitial lung disorders. The student will be introduced to the variety of diagnostic tests including radiographic studies, fiberoptic bronchoscopy, pulmonary function testing, cardiopulmonary exercise testing, surgical lung biopsy, thoracentesis and pleural biopsy, and arterial blood sampling. Students also participate in consultation on patients requiring outpatient pulmonary clinic evaluation. Each student is encouraged to spend extra time in the pulmonary function lab, and have pulmonary function tests and cardiopulmonary exercise tests done on themselves, depending on available time. Each student rotating through the pulmonary service will be expected to evaluate and present patients fully on a daily basis to the pulmonary consult team, including the attending physician. The student will have an opportunity to assist fellows and faculty with procedures such as bronchoscopy and thoracentesis. Students will have the opportunity to interpret pulmonary function tests, chest radiographs and other radiographic studies such as computed tomography and nuclear medicine studies of the thorax.

**Credit Hours:** 5

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**IN\_MED 6902: SCC Cardiac Electrophysiology Two Week**

The student will work as part of a team providing hands-on clinical services in both the inpatient and outpatient settings in a consultative manner. Students will learn using a variety of evidence-based resources, didactic teaching, demonstration, and observation. This is intended as an introductory experience in the specialty of Cardiac Electrophysiology.

**Credit Hours:** 2

**Prerequisites:** Completion of the first two years of medical school

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**IN\_MED 6904: SCC Hematology/Oncology Two Week**

This is intended as an introductory experience in the specialty of Hematology/Oncology. Students will learn how to integrate previously acquired knowledge and concepts as well as develop a greater understanding for the care of patients with hematologic and neoplastic disease. The student will work as part of a team providing hands-on clinical services in an inpatient, clinic, and consultative setting. Students will learn using a variety of evidence-based resources, didactic teaching, demonstration and observation.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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**IN\_MED 6911: Cardiology Procedure Service**

The Cardiology Procedure Service is designed to allow students to participate in the cardiology procedures involved in the diagnosis and care of hospitalized patients with an acute cardiac problem as well as continuity follow up of existing known disease processes. Sterile technique will be taught by the attending and students will demonstrate competence with sterile technique.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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**IN\_MED 6914: Pulmonary Medicine Procedure Service**

The Pulmonary Medicine Procedure Service is designed to allow students to participate in the pulmonary procedures involved in the diagnosis and care of hospitalized patients with an acute pulmonary problem as well as continuity follow up of existing known disease processes. Sterile technique will be taught by the attending and students will demonstrate competence with sterile technique.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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## International Studies Courses

**INTL\_S 3001: Topics in International Studies - General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-6

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**INTL\_S 4290: Pre-Departure Seminar for the TaLK Program**

Prior to beginning the TaLK Program in Korea, students will explore Korean language, culture and educational system through seminars and workshops provided by the Asian Affairs Staff and guest speakers. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**INTL\_S 4940: Internship in International Studies**

Internship limited to students pursuing the AB in International Studies degree. May be repeated to a maximum of six hours. Graded on S/U basis only.

**Credit Hour:** 1-6

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**INTL\_S 4960: Readings in International Studies**

Independent readings with supervisory faculty member. Open only to International Studies majors. May be repeated up to a maximum of 6 hours.

**Credit Hour:** 1-6

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## Italian Courses

**ITAL 1100: Elementary Italian I**

Intensive approach to beginning language. This course focuses on developing basic language skills (reading, writing, speaking, and listening) in Italian. The 5-hour option is open ONLY to Bachelor of Music students and only with override from the Department. The 5-hour option cannot be applied to meets Arts and Science or Journalism foreign language requirements. Offered in the Fall.

**Credit Hour:** 5-6

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**ITAL 1200: Elementary Italian II**

Students will expand the grammar structures learned in the previous semester and will continue to build on the skills acquired in Elementary Italian I. The 5-hour option is open ONLY to Bachelor of Music students and only with override from the Department. The 5-hour option cannot be applied to meets Arts and Science or Journalism foreign language requirements. Offered in the Spring.

**Credit Hour:** 5-6

**Prerequisites:** Grade in the C range or better in ITAL 1100 or its equivalent

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**ITAL 2001: Undergraduate Topics in Italian-General**

Organized study of selected topics. Subjects and credits may vary from semester to semester. Departmental consent for repetition.

**Credit Hour:** 1-3

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**ITAL 2005: Undergraduate Topics in Italian-Humanities/Fine Arts**

Organized study of selected topics. Subjects and credits may vary from semester to semester. Departmental consent for repetition.

**Credit Hour:** 1-3

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**ITAL 2160: Intermediate Italian**

Continues development of language skills acquired in Elementary Italian. While learning new structures and new vocabulary, students also review basic grammar components. By the end of the course, students are able to understand (through reading and listening) and communicate (in writing and orally) in a variety of both formal and informal situations. Offered in the Fall.

**Credit Hours:** 3

**Prerequisites:** ITAL 1200

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**ITAL 2310: Italian Civilization**

In this course students will focus on a broad range of Italian achievements, sociopolitical events, and artistic and literary movements from the past to the present. Open to any student interested. No knowledge of Italian required.

**Credit Hours:** 3

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**ITAL 2850: Italian Cinema**

(same as FILMS\_VS 2850). It offers a historical overview of Italian Cinema from the silent era to the present. The course will provide the analytical skills necessary to read and critically analyze a film. Social and historical issues will be raised and examined for each film as appropriate. No knowledge of Italian required.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**ITAL 3005: Topics in Italian-Humanities/Fine Arts**

Subject varies from semester to semester. Departmental consent for repetition. No knowledge of Italian required.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing or ENGLSH 1000

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**ITAL 3150: Post-Intermediate Italian**

Gives emphasis on acquiring communicative multi-skills competence necessary to understand and discuss a variety of written and aural texts, from newspaper articles to brief literature excerpts. It offers students opportunity to review grammar components as well as learning more complex structures, to expand their vocabulary, and to use language in a variety of cultural contexts.

**Credit Hours:** 3

**Prerequisites:** ITAL 2160

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**ITAL 3160: Italian Composition**

Continues the development of the language skills acquired in Intermediate and Post-Intermediate Italian. It offers students the opportunity to expand their vocabulary, to use the language in a variety of contexts prompted by cultural activities, and to acquire more complex grammatical structures. Emphasis is given on refining writing skills in connection with different text types.

**Credit Hours:** 3

**Prerequisites:** ITAL 3150

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**ITAL 3310: Contemporary Italian Fiction, Media and Culture**

This course focuses on the culture and creative production (i.e., literature, film, music, art, etc.) as well as the sociopolitical context of contemporary Italy. Content may vary from semester to semester. No knowledge of Italian required.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or ENGLSH 1000

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**ITAL 3430: Italian Women Studies**

An interdisciplinary course on gender structures and representations in Italy through literature, media, politics, art, and feminist theories. Content may vary from semester to semester. No knowledge of Italian required.

**Credit Hours:** 3

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**Prerequisites:** sophomore standing or ENGLISH 1000

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**ITAL 3450: Transnational and Migrant Cinema**

This course aims to introduce students to the concept of transnational cinema by discussing international circulation and reception of films and by analyzing issues of migration and ethnicity in contemporary films, media, and culture. The course will use Italian films as well as international films located in Italy as case studies to learn what defines transnational cinema and to discuss transnational and migrant cinema in the context of Europe and the Mediterranean Sea.

**Credit Hours:** 3

**Recommended:** Junior standing

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**ITAL 4070: Italian for Reading Knowledge**

Designed for rapid acquisition of a reading knowledge of Italian. Cannot be taken to fulfill undergraduate language requirement.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ITAL 7085: Problems in Italian Studies**

Independent study through readings, conferences, reports.

**Credit Hour:** 1-3

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## Japanese Courses

**JAPNSE 1100: Elementary Japanese I**

For beginners with no prior knowledge of Japanese. Three hours of lecture instruction and three hours of practice/drill per week in small groups.

**Credit Hours:** 6

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**JAPNSE 1200: Elementary Japanese II**

For beginners with some prior Knowledge of Japanese. Three hours of lecture instruction and three hours of practice/drill per week in small groups.

**Credit Hours:** 6

**Prerequisites:** C- or better in JAPNSE 1100, or equivalent

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**JAPNSE 2160: Japanese Conversation and Composition**

Develops oral and written command of Japanese as well as listening comprehension and further essay writing skills.

**Credit Hours:** 3

**Prerequisites:** C- or better in JAPNSE 1200, or equivalent

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**JAPNSE 2310: Japanese Civilization I**

Survey of Japanese culture and arts before 1868. May be taken independently of JAPNSE 2320. No knowledge of Japanese required. No foreign language credit.

**Credit Hours:** 3

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**JAPNSE 3085: Problems in Japanese**

Supervised study in Japanese language and/or culture.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**JAPNSE 3160: Intermediate Japanese Composition and Conversation**

Further develops oral and written command of Japanese as well as listening comprehension and further essay writing skills.

**Credit Hours:** 3

**Prerequisites:** C- or better in JAPNSE 2160

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**JAPNSE 3360: Modern Japanese Literature (in Translation)**

Surveys Japanese literature from 1868 to present. Analyzes works by such authors as Soseki, Tanizaki, Kawabata, Mishima, Oe, Murakami, and others. Readings and lectures in English.

**Credit Hours:** 3

**Recommended:** sophomore standing

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**JAPNSE 3370: Intermediate Readings in Japanese**

Develops reading and speaking skills and acquisition of more Kanji, vocabulary, and complex structures.

**Credit Hours:** 3

**Prerequisites:** C- or better in JAPNSE 3160, or equivalent, or instructor's consent

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**JAPNSE 3380: Intermediate Japanese II**

Continues development of intermediate reading, listening, speaking, and writing skills achieved in JAPNSE 3370, with attention to vocabulary acquisition, expansion of knowledge of kanji, and understanding of complex grammatical structures. Authentic readings in Japanese literature and exercises using authentic multi-media materials also help students gain greater familiarity with Japanese culture. Encourages development of student autonomy in language learning with the introduction and use of appropriate reference materials.

**Credit Hours:** 3

**Prerequisites:** JAPNSE 3370

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**JAPNSE 3850: Traditional Japanese Theatre**

Study of the history, scripts, and performance techniques of Japanese theatre from 14th century through late 19th century. Examines major plays (in English translations) and the culture that created them. Looks at staging and performance techniques of traditional puppet theatre. Course included stage performances and performances on campus and/or in the community.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent

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**JAPNSE 3880: Japan and its Cinema**

Survey and analysis of selected Japanese films from the 1940s to present. Films will be viewed and discussed in terms of history, techniques, artistry, and social impact. English subtitles. No foreign language credit.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent

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**JAPNSE 4005: Topics in Japanese - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Suitable for students who have taken JAPNSE 3370 or equivalent.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent, sophomore standing

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**JAPNSE 4005H: Topics in Japanese - Humanities - Honors**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Suitable for students who have taken JAPNSE 3370 or equivalent.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent, sophomore standing; Honors eligibility required

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**JAPNSE 4160: Advanced Japanese I**

Continues development of reading, listening, speaking, writing skills, with attention to vocabulary acquisition, expansion of knowledge of kanji, and understanding of complex grammatical structures. Authentic readings in Japanese literature, exercises using authentic multi-media materials. Encourages development of student autonomy in language learning with introduction and use of appropriate reference materials.

**Credit Hours:** 3

**Prerequisites:** JAPNSE 3380 or equivalent, or instructor's consent

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**JAPNSE 4180: Advanced Japanese II**

This course continues the development of reading, listening, speaking, and writing skills, with attention to vocabulary acquisition, expansion of knowledge of kanji, and understanding of complex grammatical structures. Authentic readings in Japanese literature and exercises using authentic multimedia materials also help students gain greater familiarity with Japanese culture. The course encourages the development of student autonomy in language learning with the introduction and use of appropriate reference materials.

**Credit Hours:** 3

**Prerequisites:** JAPNSE 4160

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## Journalism Courses

**JOURN \_0501: Study Abroad: Exchange Graduate**

Attributes: Study Abroad Program, Requires Consent, Journalism Course Fee, Course Has Non Standard Meeting Dates, Course Not Transcribed on Students Record Instruction Mode: Traditional Location: Study Abroad Exchange Units: 0 - 12 units

**Credit Hour:** 0-12

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**JOURN \_0900: News Practicum**

Instruction in fundamentals of newswriting for students entering the graduate program without an undergraduate degree in journalism.

**Credit Hours:** 3

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**JOURN 1000: The News Media: Journalism and Advertising in a Democratic Society**

How do you know the media are telling the full truth and nothing but the truth? In this course, you will learn how to decide what information

sources to trust. You'll survey the roles played by you, the consumer, as well as by journalists, strategic communicators and advertisers in their relationships with different audiences. Students will weigh the merits of various storytelling methods, uses of social media and revenue models while developing a deeper understanding of the ethical issues facing consumers and journalists in today's fast-paced media environment. Pre-Journalism and Journalism majors cannot count this course towards the Bachelor of Journalism.

**Credit Hours:** 3

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**JOURN 1010: Career Explorations in Journalism**

Colloquium in which experts discuss their specialties and answer students' questions on the nature and current status of their disciplines. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Undeclared Journalism, Pre-Journalism, or Science and Agricultural Journalism majors only

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**JOURN 1010H: Career Explorations in Journalism - Honors**

Colloquium in which experts discuss their specialties and answer students' questions on the nature and current status of their disciplines. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Freshman Journalism and Science and Agricultural Journalism Majors only. Honors Eligibility Required

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**JOURN 1100: Principles of Journalism in Democracy**

Course designed to acquaint students with concepts and functions of journalism in American society. Stresses the basic issues and problems facing journalists and the mass media.

**Credit Hours:** 3

**Prerequisites:** During early registration, limited to Undeclared Journalism, Pre-Journalism, or Science and Agricultural Journalism majors only

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**JOURN 1200: Fundamentals of Visual Journalism and Strategic Communication**

Visual Fundamentals is designed to be one of three courses to introduce students to the basics of journalism and strategic communication practice. In this course, students will learn and practice the basics of visual and audio storytelling and design across the disciplines of journalism and strategic communication. Effective storytelling in audio, video, still photography and design requires an understanding of both the theory and philosophy as well as the software fundamentals necessary to manipulate these elements. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Undeclared Journalism or Pre-Journalism majors during early registration

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**JOURN 1300: Fundamentals of Written Journalism and Strategic Communication**

Fundamentals of Written Journalism and Strategic Communication is designed to be one of three courses to introduce students to the basics of journalism and strategic communication practice. In this course, students will learn and practice the basics of information gathering and writing across the disciplines of journalism and strategic communication. Good

media writing requires more than an ability to craft clear sentences. It requires accuracy, curiosity, creativity and attention to detail. The class encompasses a variety of activities that will teach the following skills: AP style; News writing; Reporting; Interviewing; Story structure; Story boarding/scripting; Generating creative ideas; Research; Strategic thinking; Persuasive writing; Use of multiple platforms; Judgment; Attribution; Meeting deadlines. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Undeclared Journalism or Pre-Journalism majors during early registration

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**JOURN 1301: Topics in Journalism and Strategic Communication**

Organized study of selected topics. Subjects, specific content, and credits may vary from semester to semester. Graded on A-F basis only.

**Credit Hour:** 1-3

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**JOURN 1400: Applied Projects for Journalism and Strategic Communication**

This course is designed to introduce students to the basics of journalism and strategic communication practice. This course allows students to build on the basic principles and skills learned in the fundamentals courses through hands-on projects. Students will work individually and in teams to complete four projects throughout the semester. Two projects focus on journalism/news and two focus on strategic communication. Students will learn how communication differs depending on their role and their audience. Additionally, students will be challenged to think critically about how journalism and strategic communication intersect and overlap, yet remain distinct in today's complex media landscape. Finally, this course will help students better identify an academic major in the journalism school, as well as informing students' individual career interests and plans. The class puts into practice all of the skills learned in Writing Fundamentals and Visual Fundamentals, including (but not limited to): Reporting; Interviewing; Proper framing; Proper use of lighting, stability and sound; Using sequencing and matched action; Creativity; Pacing; Use of multiple platforms; AP style; News writing; Reporting; Interviewing; Story structure; Story boarding/scripting; Generating creative ideas; Research; Strategic thinking; Persuasive writing; Use of multiple platforms; Judgment; Attribution; Meeting deadlines. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** JOURN 1200 and JOURN 1300

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**JOURN 1940: Pre-Sequence Internship**

Internship for Journalism students who have not yet entered their emphasis areas. Used to satisfy employer requirements. Graded on S/U basis only.

**Credit Hour:** 0-1

**Prerequisites:** Consent from internship coordinator required

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**JOURN 2000: Cross-Cultural Journalism**

Cross-Cultural Journalism provides journalistic tools for the coverage of diverse ethnic, gender, ability and ideological groups inside and outside the United States. The critical role of diverse voices in a democracy will be discussed.

**Credit Hours:** 3

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**Prerequisites:** sophomore standing required; C- or higher in JOURN 1100 and UM GPA of 2.8. Restricted to Undeclared Journalism, Pre-Journalism, Journalism and Science and Agricultural Journalism Students Only

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**JOURN 2100: News**

Introduction to fundamentals of news writing. Lectures, discussions and laboratory work provide training under deadline pressure in writing basic news stories. Stories cover several 'live' assignments. May not be taken concurrently with JOURN 2150.

**Credit Hours:** 3

**Prerequisites:** sophomore standing, C- or better in JOURN 1100; grade of 'B-' or higher in ENGLISH 1000 and 2.8 UM GPA. Restricted to Undeclared Journalism, Pre-Journalism, Journalism and Science and Agricultural Journalism students

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**JOURN 2100H: News - Honors**

Introduction to fundamentals of news writing. Lectures, discussions and laboratory work provide training under deadline pressure in writing basic news stories. Stories cover several 'live' assignments. May not be taken concurrently with JOURN 2150.

**Credit Hours:** 3

**Prerequisites:** sophomore standing, C- or higher in JOURN 1100; grade of 'B-' or higher in ENGLISH 1000 and 2.8 UM GPA. Restricted to Pre-Journalism, Journalism and Science and Agricultural Journalism students. Honors eligibility required

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**JOURN 2100HW: News - Honors/Writing Intensive**

Introduction to fundamentals of news writing. Lectures, discussions and laboratory work provide training under deadline pressure in writing basic news stories. Stories cover several 'live' assignments. May not be taken concurrently with JOURN 2150.

**Credit Hours:** 3

**Prerequisites:** sophomore standing, C- or higher in JOURN 1100; grade of 'B-' or higher in ENGLISH 1000 and 2.8 UM GPA. Restricted to Pre-Journalism, Journalism and Science and Agricultural Journalism students. Honors eligibility required

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**JOURN 2100W: News - Writing Intensive**

Introduction to fundamentals of news writing. Lectures, discussions and laboratory work provide training under deadline pressure in writing basic news stories. Stories cover several 'live' assignments. May not be taken concurrently with JOURN 2150.

**Credit Hours:** 3

**Prerequisites:** sophomore standing, C- or better in JOURN 1100; grade of 'B-' or higher in ENGLISH 1000 and 2.8 UM GPA. Restricted to Undeclared Journalism, Pre-Journalism, Journalism and Science and Agricultural Journalism students

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**JOURN 2150: Fundamentals of Multimedia Journalism**

This course deals with the challenges faced by journalists and other communicators working with still photos, audio, video and print. Students learn the basics and ethics of cross-platform, multimedia storytelling. May not be taken concurrently with JOURN 2100. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or higher in JOURN 1100; sophomore standing and a UM GPA of 2.8. Restricted to Undeclared Journalism, Pre-Journalism, Journalism and Science and Agricultural Journalism students only

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**JOURN 2200: Audiences and Persuasion**

This course introduces the concepts of strategic communication and audiences for students in the School of Journalism. It focuses on audiences in a variety of communication settings. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites or Corequisites:** JOURN 1400

**Prerequisites:** 30 hours required; C- or higher in JOURN 1100 and MU GPA of 2.8

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**JOURN 2301: Topics in Journalism and Strategic Communication**

Organized study of selected topics. Subjects, specific content, and credits may vary from semester to semester. Graded on A-F basis only.

**Credit Hour:** 1-3

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**JOURN 3000: History of American Journalism**

American mass media from colonial days to present in the context of social, economic and political change.

**Credit Hours:** 3

**Prerequisites:** Junior Standing; Journalism or Science and Agricultural Journalism majors

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**JOURN 3301: Topics in Journalism and Strategic Communication**

Organized study of selected topics. Subjects, specific content, and credits may vary from semester to semester. Graded on A-F basis only.

**Credit Hour:** 1-3

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**JOURN 3510: Think Global: Fundamentals of Globalization and Digital Technologies**

(same as GERMAN 3510, T\_A\_M 3010, DST\_VS 3510, PEA\_ST 3510).

This inter-departmental course serves as one of the core seminars for students pursuing the undergraduate certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to all undergraduate students in all disciplines. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Junior standing; Journalism, Science and Agricultural Journalism majors only

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**JOURN 3510H: Think Global: Fundamentals of Globalization and Digital Technologies - Honors**

(same as GERMAN 3510H, PEA\_ST 3510H, T\_A\_M 3010H, DST\_VS 3510H). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in of Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

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**Prerequisites:** Sophomore standing; JOURN 1100 and a 2.75 GPA or instructor's consent. Restricted to Journalism majors only. Honors eligibility required

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**JOURN 3510HW: Think Global: Fundamentals of Globalization and Digital Technologies - Honors/Writing Intensive**

(same as GERMAN 3510HW, PEA\_ST 3510HW, T\_A\_M 3010HW, DST\_VS 3510HW). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in of Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing; JOURN 1100 and a 2.75 GPA or instructor's consent. Restricted to Journalism majors only. Honors eligibility required

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**JOURN 3510W: Think Global: Fundamentals of Globalization and Digital Technologies - Writing Intensive**

(same as GERMAN 3510W, PEA\_ST 3510W, DST\_VS 3510W, T\_A\_M 3010W). This inter-departmental course serves as one of the core seminars for students pursuing the undergraduate certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to all undergraduate students in all disciplines. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Junior standing; Journalism, Science and Agricultural Journalism majors only

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**JOURN 4000: Communications Law**

Legal concepts, including prior restraint, libel, privacy, obscenity, contempt and access as they relate to print, broadcast, advertising and other areas.

**Credit Hours:** 3

**Prerequisites:** Junior Standing; Journalism and Science and Agricultural Journalism majors

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**JOURN 4050: Communications Practice**

Special instruction in the school's media as an extension of existing advanced media courses, or, in advertising, an extension of advertising creative courses. Contract must be approved by instructor and dean.

**Credit Hour:** 1-3

**Prerequisites:** Restricted to Journalism and Science and Agricultural Journalism majors only. Junior standing required

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**JOURN 4050H: Communications Practice - Honors**

Special instruction in the school's media as an extension of existing advanced media courses, or, in advertising, an extension of advertising creative courses.

**Credit Hour:** 1-3

**Prerequisites:** Consent from Independent Study Coordinator

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**JOURN 4050HW: Communications Practice - Honors/Writing Intensive**

Special instruction in the school's media as an extension of existing advanced media courses, or, in advertising, an extension of advertising creative courses.

**Credit Hour:** 1-3

**Prerequisites:** Consent from Independent Study Coordinator

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**JOURN 4050W: Communications Practice - Writing Intensive**

Special instruction in the school's media as an extension of existing advanced media courses, or, in advertising, an extension of advertising creative courses. Contract must be approved by instructor and dean.

**Credit Hour:** 1-3

**Prerequisites:** Restricted to Journalism and Science and Agricultural Journalism majors only. Junior standing required

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**JOURN 4058: New York Program: Journalism Theory and Practice**

Interdisciplinary course offering on-site study at national media venues in New York. Journalism alumni working in Manhattan provide weekly discussions on contemporary practices, job networks and work experiences.

**Credit Hour:** 2-3

**Prerequisites:** Restricted to Journalism and Science and Agricultural Journalism majors only. Junior standing required

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**JOURN 4122: Fundamentals of Data Reporting**

(cross-leveled with JOURN 7122). Explores the importance to journalists of mining public records and data; reviews basic newsroom mathematics; teaches basic techniques for using Microsoft Excel to create and manipulate spreadsheets and to produce graphics. This course is not to be taken by students who have already completed JOURN 4430 or JOURN 7430. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Restricted to Journalism and Science and Agricultural Journalism Students and Junior standing

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**JOURN 4126: Digital Audio and Visual Basics for Journalists**

(cross-leveled with JOURN 7126). Introduces journalism students to audio and video tools used in converged environments. Students will create news stories, ads or promos to meet journalistic or strategic communication goals. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Restricted to Journalism and Agricultural Journalism majors only

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**JOURN 4130: Account Services**

(cross-leveled with JOURN 7130). Designed for advanced strategic communication students preparing for careers in account services. Section topics vary. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Restricted to Journalism Strategic Communication and Science and Agricultural Journalism Majors

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**JOURN 4138: Public Relations Techniques**

(cross-leveled with JOURN 7138). Designed for advanced strategic communication students preparing for careers in public relations. Section topics vary. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** JOURN 4200, JOURN 4204 and JOURN 4952

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**JOURN 4140: Interactive Techniques**

(cross-leveled with JOURN 7140). Designed for advanced strategic communications students preparing for careers in interactive media. Section topics may vary. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** JOURN 4200, JOURN 4204 and JOURN 4952

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**JOURN 4146: Strategic Communication Techniques**

(cross-leveled with JOURN 7146). Designed for advanced strategic communication students. Section topics vary. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** JOURN 4200, JOURN 4204 and JOURN 4952

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**JOURN 4148: Interviewing Essentials**

(cross-leveled with JOURN 7148). This class focuses on the journalistic interviewing process, from identifying and gaining access to the best sources, setting ethical boundaries, asking the most effective questions and ensuring accuracy. It applies to the full range of story types, from breaking news to in-depth work in all coverage areas.

**Credit Hour:** 1

**Prerequisites:** Consent of instructor required

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**JOURN 4150: Using Infographics**

An introduction to the various types of information graphics and how each can be used effectively to help explain the news. Additional emphasis on generating graphic ideas and on the specific challenges of gathering information for graphics.

**Credit Hour:** 1

**Prerequisites:** instructor's consent required. Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4152: Concepts in Participatory Journalism**

Journalists need to know how to be in conversation with their communities rather than lecture to them. In this course, we will look at how a collaborative culture is changing journalism, and how journalists can take advantage of the new landscape. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** JOURN 2100, JOURN 2150. Journalism and Science and Agricultural Journalism majors and Junior Standing

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**JOURN 4160: Social Media Foundations and Practice**

(cross-leveled with JOURN 7160). This course introduces social media usage and research basics for journalism students. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Sophomore standing

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**JOURN 4180: Newsroom Content Creation**

(cross-leveled with JOURN 7180). This course puts students working together in a combined newsroom hub, producing content for publication on its own platform or for campus media outlets. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing

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**JOURN 4198: Area Seminar**

Special lectures, readings, discussions relating to the urban journalism, state government reporting or local public affairs reporting programs.

**Credit Hours:** 3

**Prerequisites:** Consent of Instructor required

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**JOURN 4200: Principles of Strategic Communication**

(cross-leveled with JOURN 7200). Foundation course familiarizing students with an array of strategic communication tools and how they are used in the field.

**Credit Hours:** 3

**Prerequisites:** Restricted to Strategic Communication and Science and Agricultural Journalism Majors

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**JOURN 4204: Introduction to Strategic Writing and Design**

This course will teach you about strategic writing and design, and then show you how to apply these skills to key communication platforms such as digital media, TV, radio, social media and others. Along the way, you will learn to think, write and design creatively and strategically. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Strategic Communication and Science and Agricultural Journalism Majors. Junior Standing Required

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**JOURN 4206: Strategic Writing I**

(cross-leveled with JOURN 7206). Students learn strategic writing for a variety of media such as print, radio, television, outdoor, new media, news releases, pitch letters and other persuasive messages.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4226, JOURN 4952

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**JOURN 4208: Strategic Writing II**

(cross-leveled with JOURN 7208). Advanced course in the creation of advertising and public relations materials with an emphasis on strategic planning, developing creative concepts, producing and polishing copy and visuals, execution of finished product and refining. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204 and JOURN 4952

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**JOURN 4212: Sports and Entertainment Promotion**

(cross-leveled with JOURN 7212) Course focuses on the role that research, sponsorship, advertising, public relations, social media, positioning, target marketing, psychographics, and other strategic communication processes play in the promotion of the sports and entertainment industry. The course will critically analyze and examine how chief executive officers of sport and entertainment organizations

choose, maintain, or redirect their promotion strategies and activities to help achieve organization missions, encourage tickets sales, and attract large audiences.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor

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**JOURN 4213: Strategic Communication Mobile Sports Production**

(cross-leveled with JOURN 7213). This class is designed to prepare Strategic Communication students for vital new positions in the world of sports marketing with the emphasis on video productions, strategic planning, and strategic dissemination of video content via multiple media, channels and platforms. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204 and JOURN 4952. Restricted to Journalism Strategic Communication and Science and Agricultural Journalism Majors

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**JOURN 4214: Strategic Communication Integrated Sports Production**

(cross-leveled with JOURN 7214). This course will prepare Strategic Communication students for vital new positions in the world of sports marketing with an emphasis on video production, graphics, social media analytics, messaging management and strategic planning. Students will be taught basic information, techniques and strategies necessary for success in these fields. You will be working closely with the Mizzou Sports Network and Strategic Communication faculty from day one. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204 and JOURN 4952

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**JOURN 4216: Media Sales**

(cross-leveled with JOURN 7216). Focus of this course is to familiarize students with how to sell a variety of media, including newspaper, radio, television, outdoor, new media, and others.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204 and JOURN 4952

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**JOURN 4218: MoJo Ad Staff**

(cross-leveled with JOURN 7218). Application of strategic communication skills in a professional services agency specializing in the youth and young adult segment. Positions include management, planning, creative media and research. Other electives required based on position. Application required. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of Instructor

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**JOURN 4220: Creative Portfolio**

(cross-leveled with JOURN 7220). Students will produce a free-standing collection of outstanding, polished creative work to demonstrate his/her ability to perform at a high level of creativity.

**Credit Hours:** 3

**Prerequisites:** JOURN 4208 or JOURN 4228. Restricted to Strategic Communication and Science and Agricultural Journalism students only

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**JOURN 4224: Effective Job Search Strategies**

Are you getting ready to apply for a job or internship? A resume is a brief written account of personal, educational, and professional qualifications and experience that you prepare as part of your application materials for a prospective job. To ensure that your resume is read by the recipient, you will need a cover letter that markets your unique qualifications for the specified job description. In the current global economy, it is essential for job seekers to optimize their chances of being considered and hired for positions that are well-suited to their qualifications and interests. This course will help you effectively develop employment application materials for today's job market by honing your resume writing skills, providing you with tools to create an impressive resume (or to improve the one you already have), and giving suggestions on developing an effective cover letter. You will study different types of resume and cover letter formats that can be applied to various prospective employment situations and your own personal career goals. You will undertake a critical assessment of the professional skills you already possess, brainstorm and apply the best ways to market these skills in your resume and cover letter, and enhance your application materials by using specific tips and techniques to make you more competitive for the job you seek. Special focus is placed on developing effective application correspondence, follow-up correspondence and interviewing techniques. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204, and JOURN 4952

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**JOURN 4226: Strategic Design and Visuals I**

Course gives students a foundation in visual communication in areas such as typography, balance, eye flow and layouts.

**Credit Hours:** 3

**Prerequisites:** junior standing. Restricted to Strategic Communications students only

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**JOURN 4226H: Strategic Design and Visuals I - Honors**

Course gives students a foundation in visual communication in areas such as typography, balance, eye flow and layouts.

**Credit Hours:** 3

**Prerequisites:** Restricted to Strategic Communication students only with junior standing or higher. Honors eligibility required

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**JOURN 4228: Strategic Design and Visuals II**

(cross-leveled with JOURN 7228). Advanced course in strategic design and visuals. Persuasive visual principles applied to variety of integrated media including print, broadcast and on-line. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204 and JOURN 4952

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**JOURN 4236: Psychology in Advertising**

(cross-leveled with JOURN 7236). Application of psychological principles, learning, perception, motivation, attitudes to advertising. Emphasis on the increasing use of psychographics (the 'lifestyle' factor) to understand consumer wants and buying behavior.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204, JOURN 4952

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**JOURN 4242: Strategic Communication Leadership**

(cross-leveled with JOURN 7242). Strategic Communication Leadership is aimed at students who are eager to develop their skills and abilities in management and leadership with the likely outcome that they will be leaders in media organizations or as entrepreneurs. Rooted in principles of ethical persuasion and strategic communication, it will help develop individual skills and abilities and the mindset of helping others achieve their goals. Based on the experience and writings of CEO and world-renowned leader David Novak (Strategic Communication alumnus 1974), this is the one of three courses comprising the Leadership Interest Area in Strategic Communication. This course will call on students to commit to the process of their own growth and self-discovery and to help foster the growth and development of fellow learners. It will be an intensive experience and, with commitment to the program, will be immediately applicable to the students' current and future personal and professional lives. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204, JOURN 4952

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**JOURN 4242W: Strategic Communication Leadership - Writing Intensive**

(cross-leveled with JOURN 7242). Strategic Communication Leadership is aimed at students who are eager to develop their skills and abilities in management and leadership with the likely outcome that they will be leaders in media organizations or as entrepreneurs. Rooted in principles of ethical persuasion and strategic communication, it will help develop individual skills and abilities and the mindset of helping others achieve their goals. Based on the experience and writings of CEO and world-renowned leader David Novak (Strategic Communication alumnus 1974), this is the one of three courses comprising the Leadership Interest Area in Strategic Communication. This course will call on students to commit to the process of their own growth and self-discovery and to help foster the growth and development of fellow learners. It will be an intensive experience and, with commitment to the program, will be immediately applicable to the students' current and future personal and professional lives. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204, JOURN 4952

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**JOURN 4244: Creating Cultures Through Effective Strategic Communication and Leadership**

(cross-leveled with JOURN 7244). The course focuses on the role culture and communication play in organizational success, management, and leadership. Rooted in principles of ethical persuasion and strategic communication, it helps students develop individual skills and abilities and the mindset of helping others achieve their goals. The course is distinctly different from traditional organizational studies because of its focus on communication and marketing principles. It offers hands-on learning through the case method. Based on experience and writings of CEO and world-renowned leader David Novak (Strategic Communication alumnus 1974), this is one of three courses comprising the Leadership interest area in Strategic Communication. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Journalism majors only

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**JOURN 4244W: Creating Cultures Through Effective Strategic Communication and Leadership - Writing Intensive**

(cross-leveled with JOURN 7244). The course focuses on the role culture and communication play in organizational success, management, and leadership. Rooted in principles of ethical persuasion and strategic communication, it helps students develop individual skills and abilities and the mindset of helping others achieve their goals. The course is distinctly different from traditional organizational studies because of its focus on communication and marketing principles. It offers hands-on learning through the case method. Based on experience and writings of CEO and world-renowned leader David Novak (Strategic Communication alumnus 1974), this is one of three courses comprising the Leadership interest area in Strategic Communication. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Journalism majors only

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**JOURN 4246: Taking People With You: Entrepreneurial Leadership and Innovation**

(cross-leveled with JOURN 7246). In this course, students explore the current landscape of entrepreneurship (with specific reference to the strategic communication space) and practice a human-centered approach to solving problems. Students will gain valuable leadership skills and develop the knowledge and mindset needed to pursue their own entrepreneurial ventures or to become innovators and 'intrapreneurs' within existing organizations. The course introduces students to insight-driven approaches to innovation including David Novak's Taking People with You philosophy of leadership and design thinking while offering ample opportunities to put these methods into practice. To simulate the entrepreneurial process, students identify an unmet need or market opportunity and develop an innovative product or service to solve a real-world problem. 'Startup teams' of four students engage in research, ideation, rapid prototyping, and iterative design to develop insights and a solution to meet the needs of real customers. Teams also conduct a market analysis, and develop a business model and go-to-market strategy for launching their startup and enlisting key partners to support their venture. The course culminates in a pitch competition in which teams present their ideas and strategies to a panel of industry experts and investors. In the process, students gain valuable leadership skills, develop an entrepreneurial mindset, and learn how to work with diverse teams and audiences to collaborate and solve problems. This is one of the three courses comprising the Leadership Interest Area in Strategic Communication. Students admitted to this course are also given priority to participate in the Novak Future Leaders Tour to San Francisco, where they gain exposure to ideas and leaders at some of the world's most innovative companies and organizations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Journalism majors only

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**JOURN 4248: Media Strategy and Planning**

(cross-leveled with JOURN 7248). Course deals with strategic planning and the selection and evaluation of appropriate media outlets. Students gain a clear understanding of the problems and issues involved in crafting effective media strategies, creative problem solving and selection of appropriate media.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204, JOURN 4952

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**JOURN 4250: Management of Strategic Communication**

(cross-leveled with JOURN 7250). How to lead and contribute to strategically sound, highly creative and seamlessly integrated strategic communication on the agency or client side of the business. Directly relevant to agency account management and account planning, as well as client career paths.

**Credit Hours:** 3

**Prerequisites:** Consent of Instructor required

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**JOURN 4252: Branded Strategic Storytelling**

(cross-leveled with JOURN 7252). This course for Strategic Communication students integrates digital and content marketing planning and operational methodologies designed to deepen students' knowledge of content creation, distribution strategies and audience engagement. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204 and JOURN 4952

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**JOURN 4254: Tools, Techniques and Technology of Visual Storytelling**

(cross-leveled with JOURN 7254). In this course, students will learn how to professionally shoot and strategically edit video, visuals and textual content, strategize how to publish that content on owned media and social media platforms, utilize tools like GoPro and Drone technology, and even VR/AR and 360 attachments to make content that is more immersive, influential, impactful and persuasive. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204, JOURN 4952

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**JOURN 4256: Public Relations**

Current methods of communicating with constituents as practiced by agencies, corporations and government/not-for profit organizations.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204, and JOURN 4952

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**JOURN 4256H: Public Relations - Honors**

Current methods of communicating with constituents as practiced by agencies, corporations and government/not-for profit organizations.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204 and JOURN 4952. Honors eligibility required

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**JOURN 4262: Digital Strategy I**

(cross-leveled with JOURN 7262). Course covers every step from integrating Internet efforts into the overall strategic communication plan to building a website that works. Designed for those with an interest in interactive advertising. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204, and JOURN 4952

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**JOURN 4263: Digital Strategy II**

(cross-leveled with JOURN 7263). Course goes in-depth on top issues in the interactive process from video advertising to social networking sites and how to increase campaign performance with web analytics. Designed

for those who want a career in interactive advertising. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4262

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**JOURN 4268: Strategic Communication Practicum**

(cross-leveled with JOURN 7268). Practical experience in public relations, corporate communications and strategic planning with the Missouri School of Journalism serving as client. Students from all journalism disciplines will apply knowledge and skills on a variety of platforms.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204 and JOURN 4952

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**JOURN 4270: Public Relations Writing**

(cross-leveled with JOURN 7270). Develop skills and capabilities in strategic communication applications, including news releases, media advisories, pitch letters, video news releases, media relations techniques, writing for electronic and broadcast media, feature writing, brochures and speeches. Graded on A-F basis.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor

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**JOURN 4300: Broadcast News I**

(cross-leveled with JOURN 7300) Beginning reporting and news writing for radio, television and their on-line services. Introduction to use of audio and video recorders and editing systems in production of news stories. Consideration of ethical issues, economic factors, relationships with news sources and gender and ethnic diversity in the newsroom and in news stories.

**Credit Hours:** 3

**Prerequisites:** Radio-Television Journalism Major Required

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**JOURN 4301: Topics in Journalism**

Selected current topics in journalism. Specific topics to be announced at time of registration.

**Credit Hour:** 1-3

**Prerequisites:** Consent of instructor required

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**JOURN 4301W: Topics in Journalism - Writing Intensive**

Selected current topics in journalism. Specific topics to be announced at time of registration.

**Credit Hour:** 1-3

**Prerequisites:** Consent of instructor required

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**JOURN 4306: Broadcast News II**

Introduction to general assignment reporting skills for the newsroom environment. Instruction in time management, writing, storytelling and performance. Team skills and ethnic diversity in the newsroom are discussed. Students begin work for broadcast newsrooms.

**Credit Hours:** 3

**Prerequisites:** JOURN 4300

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**JOURN 4308: Broadcast News III**

(cross-leveled with JOURN 7308). Intermediate reporting and news writing skills for radio and television. Advanced techniques in the use of video and sound in production of news stories.

**Credit Hours:** 3

**Prerequisites:** JOURN 4306

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**JOURN 4308W: Broadcast News III - Writing Intensive**

Intermediate reporting and news writing skills for radio and television. Advanced techniques in the use of video and sound in production of news stories.

**Credit Hours:** 3

**Prerequisites:** JOURN 4306

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**JOURN 4310: News Producing**

(cross-leveled with JOURN 7310). Instruction in techniques of television newscast preparation. Emphasis on role of the television news producer.

**Credit Hour:** 1-3

**Prerequisites:** JOURN 4308

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**JOURN 4320: Advanced Broadcast Reporting**

(cross-leveled with JOURN 7320). In-depth reporting and editing for radio or television; advanced production techniques; emphasis on writing, interviewing, effective use of audio or videotape at KOMU-TV or KBIA.

**Credit Hours:** 3

**Prerequisites:** JOURN 4308

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**JOURN 4328: Advanced News Communication**

(cross-leveled with JOURN 7328). This course will examine and practice the components of effective interviewing and on-set and live reporting for television news. Students will anchor KOMU-TV's morning newscasts.

**Credit Hour:** 1

**Prerequisites:** Restricted to Journalism and Science and Agricultural Journalism Majors only with Junior Standing or higher

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**JOURN 4330: From Murrow to Moore: What Good Journalists Read**

Introduces undergraduates to seminal works in broadcast and print Journalism that influences contemporary professional practices. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent. Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4340: Viewing Journalism Films: Images of the Reporter**

(cross-leveled with JOURN 7340). The course will examine images of journalists in American films ranging from 'Citizen Kane' to the present. Students will analyze award-winning movies that pose key questions about the professional responsibilities of journalists in all fields. Topics will include issues related to the practice of journalism as well as those triggered by the work of specific journalists, such as Woodward and Bernstein.

**Credit Hours:** 2

**Prerequisites:** Instructor's consent required

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**JOURN 4350: Problems in Journalism**

Independent research arranged with individual faculty member. Contract must be approved by instructor and dean. Not accepted as a substitute for any regularly scheduled course. Some sections of the course may be offered on either A-F graded or S/U graded basis only.

**Credit Hour:** 1-3

**Prerequisites:** Consent of instructor required

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**JOURN 4350W: Problems in Journalism - Writing Intensive**

Independent research arranged with individual faculty member. Contract must be approved by instructor and dean. Not accepted as a substitute for any regularly scheduled course. Some sections of the course may be offered on either A-F graded or S/U graded basis only.

**Credit Hour:** 1-3

**Prerequisites:** Consent of instructor required

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**JOURN 4360: Fundamentals of Design**

(cross-leveled with JOURN 7360). This is a beginning course in editorial design. We will study design history and learn basic design principles and concepts in both print and digital platforms. You will be introduced to software programs such as InDesign, Photoshop and Illustrator, as well as basic HTML coding.

**Credit Hours:** 2

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 2100 or JOURN 2150

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**JOURN 4370: Film Studies: The Intersections of Documentary Film and Journalism**

(same as FILMS\_VS 4370; cross-leveled with FILMS\_VS 7370, JOURN 7370). The popularity of documentary film in the past ten years has skyrocketed, and recent award-winning documentaries such as *Inside Job* (2010), *Blackfish* (2013), and *The Invisible War* (2012) are simultaneously entertaining audiences and investigating serious issues like the financial collapse, killer whale captivity, and sex crimes in the military--issues that in the past might have been covered exclusively by investigative journalism. What explains the public's growing fascination with documentary? How is documentary film reacting to recent transformations in the media landscape? Is it filling a critical need that journalism is no longer willing or able to meet? This course will explore the intersection of these two nonfiction storytelling forms - documentary film and journalism - and examine the role played by advocacy in both modes, as well as the cultural and ethical implications of the convergence between journalism and documentary film. In that it is centered on contemporary documentary film culture, the course also takes advantage of the True/ False Film Festival, and will be host to a conference during Week 6, featuring a number of major visiting filmmakers and film critics. Attendance at some sessions is required. Graded on A-F basis only.

**Credit Hours:** 3

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**JOURN 4370W: Film Studies: The Intersections of Documentary Film and Journalism - Writing Intensive**

(same as FILMS\_VS 4370; cross-leveled with FILMS\_VS 7370, JOURN 7370). The popularity of documentary film in the past ten years has skyrocketed, and recent award-winning documentaries such as *Inside Job* (2010), *Blackfish* (2013), and *The Invisible War* (2012) are simultaneously entertaining audiences and investigating

serious issues like the financial collapse, killer whale captivity, and sex crimes in the military--issues that in the past might have been covered exclusively by investigative journalism. What explains the public's growing fascination with documentary? How is documentary film reacting to recent transformations in the media landscape? Is it filling a critical need that journalism is no longer willing or able to meet? This course will explore the intersection of these two nonfiction storytelling forms - documentary film and journalism - and examine the role played by advocacy in both modes, as well as the cultural and ethical implications of the convergence between journalism and documentary film. In that it is centered on contemporary documentary film culture, the course also takes advantage of the True/ False Film Festival, and will be host to a conference during Week 6, featuring a number of major visiting filmmakers and film critics. Attendance at some sessions is required. Graded on A-F basis only.

**Credit Hours:** 3

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**JOURN 4371: Documentary Theory**

(cross-leveled with JOURN 7371). Documentary and other long-form story telling methods involve a complex series of decisions made in the creation of the work that determines its style, length, direction, point of view and more. These and a thousand other editing decisions are the difference between a successful project that touches its audience and one that falls short. The focus of this course is on the craft of editing, as seen in a variety of documentary and other works and explained through the decisions made in and out of the editing room that lead to the final product. The course will introduce important concepts of editing, the work of significant editors in both documentary and narrative fiction films, and seek to apply those techniques to the conceptualization of documentary work students will do as part of their degree. Students will understand the history of documentary editing as it evolved on its own and as influenced by narrative fiction films, the language of editing, the work of important editors and directors and how it influences today's aesthetic and how to apply what they have learned to their own documentary projects at an advanced level. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

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**JOURN 4372: Documentary Reporting**

(cross-leveled with JOURN 7372). Students will learn elementary documentary reporting techniques by producing video and audio content in small group and individual projects. The course focuses on collection of content in the field, interviewing, research, story construction, editing and presentation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor consent

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**JOURN 4373: Documentary Development**

(cross-leveled with JOURN 7373). This course will concern itself primarily with the formation of projects: from theories behind different kinds of documentaries, through real world investigations and research into possible projects, into the pitching and writing stage and lastly to the final idea that will be the basis of students' senior films. The ability to properly think of, clearly articulate, pitch and hone a project idea often makes the difference between a successful and unsuccessful final film. Still these ideas don't materialize out of thin air; inspiration for great documentaries can come from many places. Understanding how to seize viable project

ideas is a crucial skill for a documentary filmmaker. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4371

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**JOURN 4375: Documentary Business and the Public Sphere**

(cross-leveled with JOURN 7375). Whether it be through contract employment, freelancing, or independent production, creating documentaries requires a knowledge of professional and business practices that differ from many other parts of journalism. The course will introduce important concepts related to the development and production of documentary work, as well as the public distribution of that work. Students will research the industry and develop skills to manage business and professional relationships with the documentary world. Students will build and maintain personal branding materials. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** JOURN 4564

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**JOURN 4377: Documentary Senior Project**

Students in this course will begin work on a yearlong documentary project to be the capstone of their work in the documentary journalism program. This course will concentrate on the research, reporting and field acquisition work for the senior documentary project. Students will show and discuss their work in group settings to share progress and report results. Each will also meet individually with the instructor to fine tune the direction and content of the project. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** JOURN 4375

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**JOURN 4379W: Documentary Senior Capstone - Writing Intensive**

Focus on the completion of a long-form documentary work and its place in current documentary programming. Students will apply knowledge from previous documentary courses in this capstone experience through writing, in-class presentations and their finished work.

**Credit Hours:** 3

**Prerequisites:** JOURN 4377

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**JOURN 4400: Introduction to News Editing**

(cross-leveled with JOURN 7400). Introduces the fundamentals of editing stories and writing headlines for publication online and in print, including an emphasis on style and grammar. Emphasized editing for an online audience.

**Credit Hour:** 1-2

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4450 or JOURN 4804

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**JOURN 4406: Digital News Editing**

(cross-leveled with JOURN 7406). Real-world experience in digital editing and news decision-making coupled with newspaper production; emphasis on editing and headline writing across platforms, design for home page and mobile, social media, ethics and fundamentals of grammar. Lab work is hands-on experience at columbiamissourian.com and the Missourian newspaper.

**Credit Hours:** 3

**Prerequisites:** restricted to Journalism and Science and Agricultural Journalism Majors only

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**JOURN 4408: Magazine Editing**

(cross-leveled with JOURN 7408). Lectures provide an introduction to the magazine industry, including types of publications, roles of an editor and skills needed for today's magazine editor. Labs focus heavily on sentence structure, grammar, syntax, usage, punctuation and style.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4450 or JOURN 4804

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**JOURN 4410: Intermediate Writing**

(cross-leveled with JOURN 7410). In-depth reporting, research, and writing techniques with a magazine focus. Students produce articles for Vox, the Missourian and other magazines, publications or digital outlets.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4450 or JOURN 4804

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**JOURN 4410W: Intermediate Writing - Writing Intensive**

(cross-leveled with JOURN 7410). In-depth reporting, research, and writing techniques with a magazine focus. Students produce articles for Vox, the Missourian and other magazines, publications or digital outlets.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4450 or JOURN 4804

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**JOURN 4414: Field Reporting on the Food System and Environment**

(same as AGSC\_COM 4414; cross-leveled with JOURN 7414, AGSC\_COM 7414). Field reporting on the social, political, scientific, economic and ethical dimensions of the food system and environment, with emphasis on explanatory story-telling. Includes multi-day field trip. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

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**JOURN 4415: Current Issues in Science Journalism**

(same as AGSC\_COM 4415). Focuses on covering the interplay of one or more current issues of concern to journalists, scientists and society. The focus for any given semester may be biotechnology, climate change, energy, food safety, global population growth, wildlife or another issue. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 2100 or instructor's consent

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**JOURN 4416: Science, Health and Environmental Writing**

(cross-leveled with JOURN 7416). In this course students learn how to cover science, health and environmental topics by reporting and writing several stories for publication. Students can develop a marketable specialty or cover these angles in any beat. This course can serve as a substitute for JOURN 4410 Intermediate Writing.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 4804 or JOURN 4206 or JOURN 4300 or JOURN 4372

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**JOURN 4416W: Science, Health and Environmental Writing - Writing Intensive**

(cross-leveled with JOURN 7416). In this course students learn how to cover science, health and environmental topics by reporting and writing several stories for publication. Students can develop a marketable specialty or cover these angles in any beat. This course can serve as a substitute for JOURN 4410 Intermediate Writing.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 4804 or JOURN 4206 or JOURN 4300 or JOURN 4372

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**JOURN 4418: Critical Reviewing**

(cross-leveled with JOURN 7418). This course seeks to enrich students' understanding of the arts; support their attendance of concerts, plays, films, and exhibitions; sharpen their skills in critical thinking; and encourage the publication of their reviews in Vox as well as other outlets. Students will analyze the works of critics, gain a general appreciation of the ways to approach each art, and write reviews.

**Credit Hours:** 3

**Prerequisites:** JOURN \_0900 or JOURN 2100. Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4418W: Critical Reviewing - Writing Intensive**

(cross-leveled with JOURN 7418). This course seeks to enrich students' understanding of the arts; support their attendance of concerts, plays, films, and exhibitions; sharpen their skills in critical thinking; and encourage the publication of their reviews in Vox as well as other outlets. Students will analyze the works of critics, gain a general appreciation of the ways to approach each art, and write reviews.

**Credit Hours:** 3

**Prerequisites:** JOURN \_0900 or JOURN 2100. Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4420: Editorial Writing**

Emphasizes writing and thinking. Discussion of current problems. Correct and effective use of English language. Mission, obligations and history of editorial pages.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450. Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4422: Sports Journalism**

(cross-leveled with JOURN 7422). A review of everything from 'how to watch Sports' to the history of sports writing. Contact instructor for consent on this course. Priority will be given to Sports Journalism students. All other consent will be given on a first-come, first-serve basis as space allows. Course graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4450/JOURN 7450 or JOURN 4804/JOURN 7804 or JOURN 4306/JOURN 7306 or JOURN 4560/JOURN 7560.

Priority will be given to Sports Journalism students. All other consent will be given on a first-come, first-served basis as space allows

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**JOURN 4424: Covering Traumatic Events**

(cross-leveled with JOURN 7424). This course will prepare reporters and future newsroom managers across platforms for the ethical, practical and emotional challenges of reporting accurately and sensitively on traumatic events. It will give students a deeper understanding of the psychological impact of such events, including natural and man-made disasters, violent crime, accidents, terrorism and war. The course will explore how news coverage affects individuals and communities, and the psychological challenges and ethical hazards for the journalists who cover these events, with a focus on best newsroom practices for managing fast-breaking news stories and mitigating the effects on communities and staffs. The course will also explore the challenges of technology in the context of traumatic events and how social media have affected coverage of and response to crime, war and disasters. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 7450; JOURN 4804 or JOURN 7804; or JOURN 4560 or JOURN 7560

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**JOURN 4426: Religion Reporting and Writing**

(same as REL\_ST 4418; cross-leveled with JOURN 7426, REL\_ST 7418). Advanced seminar in religion reporting and writing. Examines the role of religion journalism in faith, public life and culture.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 4804

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**JOURN 4428: Health Reporting Skills**

This course focuses on research and analysis techniques journalists use to understand and report on health policy, health-care quality, medical research and the business of health care. Graded on A-F basis only.

**Credit Hour:** 2-3

**Prerequisites:** Consent of Instructor required. Recommended JOURN 4450 or JOURN 4306 or JOURN 4804

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**JOURN 4430: Computer-Assisted Reporting**

(cross-leveled with JOURN 7430). How to negotiate for, transfer and process electronic information; the unique opportunities computers provide for analyzing information.

**Credit Hours:** 3

**Prerequisites:** Students must have completed JOURN 4306 or 4450 or 4804

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**JOURN 4432: Advanced Data Journalism**

(cross-leveled with JOURN 7432). Teaches students how to creatively solve problems in journalism using computer programming. Students will learn how to code using the Python language, and how to apply those coding skills to perform real-world tasks. Students will learn the concepts, theory and practical programming skills needed to clean data, scrape web sites and turn databases into interactive online experiences. By the end of the semester, students will have learned the skills to create interactive database presentations, and will have created a functional web app that will serve as a portfolio piece. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4430

**Recommended:** JOURN 4502

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**JOURN 4434: The Art and Mechanics of the Business Story**

(cross-leveled with JOURN 7434). The purpose of this course is to give students a deep understanding of business journalism and for them to apply those skills in a real newsroom, Missouri Business Alert. The class will cover everything from audience to financials, and students will leave the class with several work samples to show potential employers.

**Credit Hours:** 3

**Prerequisites:** Journalism and Science and Agricultural Journalism majors only; JOURN 4450 or JOURN 7450, or JOURN 4306 or JOURN 7306, or JOURN 4804 or JOURN 7804, or JOURN 4556 or JOURN 7556

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**JOURN 4436: Investigative Reporting**

(cross-leveled with JOURN 7436). Advanced course designed to acquaint reporters with public issues. Students write two in-depth projects and other shorter assignments. Students meet weekly with instructor for editorial suggestions.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

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**JOURN 4438: Business, Financial and Economic Journalism**

(cross-leveled with JOURN 7438). Understanding the news from the business sector and nation's economy for journalists and public relations students. Including financial filings, equity markets, local business, economic indicators, job creation, business data, sports business and what makes business/economic news different from other journalism. Includes tour of business journalism outlets and markets in New York. Open to all journalism school emphasis areas.

**Credit Hours:** 3

**Prerequisites:** Restricted to Journalism and Agricultural Journalism majors

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**JOURN 4439: Advanced Business Journalism**

(cross-leveled with JOURN 7439). This class requires students to write business stories every week and to attain a high level of financial literacy in the process. The class will cover topics behind the headlines, showing students how to spot economic trends, the stories behind the economy's main actors, and the keys to spotting a troubled business. By the end of the class, all students will be certified users of the Bloomberg Terminal. To take this course, students must enroll in one of the two attached accounting classes (grad or undergrad). Both are offered online. Prerequisites: Students must have taken or take concurrently with this course: ACCTCY 2010 or ACCTCY 7310 Accounting for Managers.

**Credit Hour:** 1-3

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**JOURN 4444: Team-Based Mobile Device Application Development**

This is a multi-disciplinary, team-based course on developing applications for mobile devices. Teams will be comprised of students who are software developers and students who are designers. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4804 or JOURN 4204 or JOURN 4306 or JOURN 4450

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**JOURN 4448: Public Service Journalism: Covering State Government**

(cross-leveled with JOURN 7448). One of the most important roles journalism plays in society is holding the powerful accountable and keeping the public informed about what those in charge are doing. Covering state government allows journalists to do both of these things. This course gives you the background you need to provide effective government coverage, and gives you hands-on experience.

**Credit Hour:** 1-3

**Prerequisites:** Instructor consent in consultation with the respective faculty groups

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**JOURN 4450: News Reporting**

(cross-leveled with JOURN 7450). Assignments on a daily city newspaper covering community news, city, county and state affairs, sports and lifestyle issues. Experience in gathering and writing news, writing under deadline conditions.

**Credit Hours:** 3

**Prerequisites:** JOURN 2100

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**JOURN 4450W: News Reporting - Writing Intensive**

(cross-leveled with JOURN 7450). Assignments on a daily city newspaper covering community news, city, county and state affairs, sports and lifestyle issues. Experience in gathering and writing news, writing under deadline conditions.

**Credit Hours:** 3

**Prerequisites:** JOURN 2100

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**JOURN 4460: Advanced News Reporting**

(cross-leveled with JOURN 7460). Assignments to more difficult beat areas, team reporting and some investigative reporting for community newspaper. Individual conferences and weekly class sessions on contemporary reporting problems.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450

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**JOURN 4460W: Advanced News Reporting - Writing Intensive**

(cross-leveled with JOURN 7460). Assignments to more difficult beat areas, team reporting and some investigative reporting for community newspaper. Individual conferences and weekly class sessions on contemporary reporting problems.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450

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**JOURN 4462: Emerging Technologies in Journalism**

(cross-leveled with JOURN 7462). This course quickly responds to technology developments in journalism through a combination of theory, practice and research. Students learn to use the developing technology and also strategies to manage its impact on media organizations while expanding academic discourse. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** junior standing; restricted to Journalism and Science and Agricultural Journalism students only

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**JOURN 4464: Magazines Across Platforms**

(cross-leveled with JOURN 7464). As digital editors for Vox Magazine, students manage and create content for Vox's digital platforms, including its WordPress website, blog, social media accounts and award-winning iPad app. Students also work with analytics, engagement and multimedia. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4450 or JOURN 4804

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**JOURN 4480: Will Write for Food (and Wine)**

(same as AGSC\_COM 4480; cross-leveled with JOURN 7480). Course focuses on food and wine writing in current U.S. culture. Come ready to create mouthwatering narrative and actively seek publishing your finished work. An emphasis will be placed on class participation and written critiques of peer-reviewed articles in class. This course can serve as a substitute for JOURN 4410 Intermediate Writing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4450 or JOURN 4804

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**JOURN 4480W: Will Write for Food (and Wine) - Writing Intensive**

(same as AGSC\_COM 4480; cross-leveled with JOURN 7480). Course focuses on food and wine writing in current U.S. culture. Come ready to create mouthwatering narrative and actively seek publishing your finished work. An emphasis will be placed on class participation and written critiques of peer-reviewed articles in class. This course can serve as a substitute for JOURN 4410 Intermediate Writing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4450 or JOURN 4804

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**JOURN 4482: Field Reporting: Wine Country Writing**

(same as AGSC\_COM 4482). Students will examine wine culture, agricultural issues in the vineyard, wine trends, the historical context of wine and Missouri settlement, and more. Come ready to shape articles into sharp focus and make them fresh with input from fellow student critiques. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 2100

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**JOURN 4482W: Field Reporting: Wine Country Writing - Writing Intensive**

(same as AGSC\_COM 4482W). Students will examine wine culture, agricultural issues in the vineyard, wine trends, the historical context of wine and Missouri settlement, and more. Come ready to shape articles into sharp focus and make them fresh with input from fellow student critiques. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 2100

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**JOURN 4500: Publication Design**

(cross-leveled with JOURN 7500). Intermediate design techniques and theories of editorial design. Students apply classroom teachings

by designing pages for the Columbia Missourian and Vox Magazine. Students work under deadline and learn attention-to-detail through use and execution of design style guides.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4360

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**JOURN 4502: Multimedia Planning and Design**

(cross-leveled with JOURN 7502). Class covers the basics of web design - Storyboarding, navigation, information architecture, reader behavior, usability studies - as they relate to journalistic stories and persuasive messages.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** Completion of one of the following--JOURN 4804 or JOURN 4508 or JOURN 4406 or JOURN 4506 or JOURN 4204 or JOURN 4306 or JOURN 4450 or JOURN 4560

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**JOURN 4506: Magazine Design**

Introduction to typography of magazines from manuscript markup through layout to page proof. Extensions and limitations of typography are considered in light of current practice and economic possibilities.

**Credit Hours:** 3

**Prerequisites:** Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4508: Information Graphics**

(cross-leveled with JOURN 7508)Work as a news artist for a daily city newspaper graphically covering community news, sports and lifestyle issues. Emphasis on visual thinking and effective presentation. Experience with state-of-the-art software.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 4804

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**JOURN 4510: Visual Communication**

How to communicate through pictures. Topics: visual perception, vocabulary, the role of words, picture editing, design and layout, printers, taste and judgment, camera mechanics. For journalism students who are not photographers.

**Credit Hours:** 3

**Prerequisites:** Restricted to Journalism and Science and Agricultural Journalism majors only with Junior standing

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**JOURN 4550: Basic Photography and Photo Editing**

(cross-leveled with JOURN 7550). A basic survey for non-photojournalism majors and others with no prior experience who desire a working knowledge of photojournalistic theory and practice.

**Credit Hours:** 3

**Prerequisites:** instructor's consent. Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4554: Visual Editing for Multimedia**

(cross-leveled with JOURN 7554). This class develops understanding of multimedia storytelling by focusing on editing, production, and business model practices for online visual journalism. It builds on a foundation

of digital editing, photojournalism, photo editing, videography, and multimedia production. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4804 or JOURN 4550 or JOURN 4306 or JOURN 4406 or JOURN 4506 and instructor's consent; restricted to Journalism and Science and Agricultural Journalism students only

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**JOURN 4556: Fundamentals of Photojournalism**

(cross-leveled with JOURN 7556). A rigorous skills course for advanced students preparing for a career in photojournalism consisting of weekly exercises in black and white and color photographic story telling and lectures that explore the philosophical, historical and ethical roots of the profession.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**JOURN 4556W: Fundamentals of Photojournalism - Writing Intensive**

(cross-leveled with JOURN 7556). A rigorous skills course for advanced students preparing for a career in photojournalism consisting of weekly exercises in black and white and color photographic story telling and lectures that explore the philosophical, historical and ethical roots of the profession.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**JOURN 4558: Advanced Techniques in Photojournalism**

(cross-leveled with JOURN 7558). Advanced techniques and problem solving in photojournalism. Stresses lighting techniques--available, studio, electronic flash and color correction of color film. Strobed documentary, portraiture, fashion, food, architecture, sports.

**Credit Hours:** 3

**Prerequisites:** JOURN 4556

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**JOURN 4560: Staff Photojournalism**

(cross-leveled with JOURN 7560). A laboratory course exploring the photojournalist's role in the news-gathering process. As staffers for the Columbia Missourian, students cover news, sports, features, food assignments and originate single pictures and stories.

**Credit Hours:** 3

**Prerequisites:** Consent of Instructor Required

**Recommended:** JOURN 4558

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**JOURN 4562: Photojournalism Business Practices**

(cross-leveled with JOURN 7562). Discusses legal, financial, organizational and entrepreneurial issues for photojournalists. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4558 or JOURN 7558 and JOURN 4566 or JOURN 7566 or consent of instructor; junior standing; restricted to Journalism and Science and Agricultural Journalism students only

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**JOURN 4564: Micro-Documentary Photojournalism and Videography**

(cross-leveled with JOURN 7564). This course extends student's understanding and abilities to produce short-form video journalism. They

will produce, from concepts to web publication, two five-minute non-fiction videos that serves the public through engaging visual sound techniques and compelling narrative. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4558 or JOURN 4306 or JOURN 4804

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**JOURN 4566: Electronic Photojournalism**

(cross-leveled with JOURN 7566). Concepts and skills to incorporate photographs, audio and video for interactive presentation, with an emphasis on project design and coding for web and mobile devices. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4556 and instructor's consent

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**JOURN 4568: History of Photojournalism**

(cross-leveled with JOURN 7568). Examination of the aesthetic and technological development of photography from its invention in 1839 to the present. Primary emphasis on the evolution and impact of the picture press and the documentary tradition in America, although international developments are studied as well.

**Credit Hours:** 3

**Prerequisites:** Journalism and Science and Agricultural Journalism majors only with Junior standing

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**JOURN 4568W: History of Photojournalism - Writing Intensive**

(cross-leveled with JOURN 7568). Examination of the aesthetic and technological development of photography from its invention in 1839 to the present. Primary emphasis on the evolution and impact of the picture press and the documentary tradition in America, although international developments are studied as well.

**Credit Hours:** 3

**Prerequisites:** Journalism and Science and Agricultural Journalism majors only with Junior standing

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**JOURN 4650: International Issues and the Media**

(cross-leveled with JOURN 7650). Attached to an internship-based journalism study abroad program, this course is an overview of the media in a geographic region. The course aims to enhance students' research, writing, reporting and analytical skills so that they can produce articles, multimedia products and communications campaigns.

**Credit Hours:** 3

**Prerequisites:** JOURN 4556 or JOURN 4450 or JOURN 4804 or JOURN 4300 or JOURN 4200

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**JOURN 4656: International News Media Systems**

A comparative survey of current news media systems and how they affect the international flow of information. Newspapers, news agencies, broadcasting and satellite networks of the world are analyzed.

**Credit Hours:** 3

**Prerequisites:** junior standing in Journalism or Science and Agricultural Journalism

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**JOURN 4658: International Journalism**

(cross-leveled with JOURN 7658). An examination of the gathering, editing and dissemination of international news. The impact of social,



economic, cultural and political structures on news media performance is evaluated.

**Credit Hours:** 3

**Prerequisites:** junior standing. Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4660: Media Forces Shaping the European Union**

(cross-leveled with JOURN 7660). Seminar analyzes the role of media in shaping policies and actions of the European Union member nations and their people. Open to graduate students regardless of major and to undergraduates with instructor's consent. Course qualifies for EU Certificate Program.

**Credit Hours:** 3

**Prerequisites:** Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4662: Global News Across Platforms**

(cross-leveled with JOURN 7662). Online, radio, and print production for a converged media enterprise, Global Journalist. Students report, write, plan, edit, design, and produce a video and radio program and website on international news while working under weekly deadlines.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 4804 or JOURN 4300 or JOURN 4372 or JOURN 4564

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**JOURN 4700: Engaged Journalism**

(cross-leveled with JOURN 7700). An examination of how information is shared outside professional journalism, and how journalists can interact with communities. Topics will include community collaboration, social media, audience outreach and understanding, and an expanding definition of 'news'. Students will work with the community on behalf of the Missourian. All interest areas welcome.

**Credit Hour:** 1-3

**Prerequisites:** JOURN 4450 or JOURN 4804 or JOURN 4306 or JOURN 4206 or JOURN 4560

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**JOURN 4706: The Community Newspaper**

(cross-leveled with JOURN 7706). The role of the newspaper in the community. Handling of news categories especially applicable to smaller newspaper. Field trips giving students experience in publishing newspapers in the state.

**Credit Hours:** 3

**Prerequisites:** JOURN 2100. Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4710: Newspaper Management**

(cross-leveled with JOURN 7710). Department-by-department organization, business practices, personnel, rate structures, equipment, production, laws and regulations of concern to newspaper management. Cases examine critical newspaper management issues.

**Credit Hours:** 3

**Prerequisites:** Journalism and Science and Agricultural Journalism majors with Junior standing

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**JOURN 4716: Women and the Media**

(same as WGST 4716; cross-leveled with JOURN 7716, WGST 7716).

Focus on portrayal of women in American mass media. Other goals: historical perspective on women as journalists; exposure to issues usually not covered by mass media; research and writing skills. Enrollment limited to Journalism and Science and Agricultural Journalism majors only with junior standing required.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**JOURN 4718: Law and the Justice System**

(cross-leveled with JOURN 7718). Lectures, readings, discussions, writing assignments relating to justice system reporting from the view of attorneys, prosecutors, judges, correction and probation officers with the cooperation of the Missouri Bar.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

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**JOURN 4734: Journalism and Chaos: How to Understand and Cover 21st Century Business Models**

(cross-leveled with JOURN 7734). The purpose of this class is to explore alternative business/journalism models that can be grown from the rib of the traditional newsroom. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Junior Standing. Restricted to Journalism and Science and Agricultural Journalism students only

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**JOURN 4736: Changing Media Business Models**

Analysis of the economic changes in news media industry. Explore concepts and theories of monetizing media. Hands-on experience in creating innovations in media business models.

**Credit Hours:** 3

**Prerequisites:** Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4738: Language, Thought and Journalism**

This online course helps you, as S.I. Hayakawa wrote, 'to think more clearly, to speak and to write more effectively, and to listen and to read with greater understanding.' It explores the biases and limitations of language, culture, technology and other factors as applied to the practice of journalism and mass communications.

**Credit Hours:** 3

**Prerequisites:** Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4804: Convergence Reporting**

(cross-leveled with JOURN 7804). Practice and theory of reporting for converged media. Students produce multimedia reports for traditional and converged media operations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Convergence, Print and Digital, Photojournalism, and Magazine students, and Science and Agricultural Journalism students

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**JOURN 4804W: Convergence Reporting - Writing Intensive**

(cross-leveled with JOURN 7804). Practice and theory of reporting for converged media. Students produce multimedia reports for traditional and converged media operations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Convergence, Print and Digital, Photojournalism, and Magazine students, and Science and Agricultural Journalism students

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**JOURN 4806: Convergence Editing and Producing**

(cross-leveled with JOURN 7806). Practice and theory of editing and producing material for publication or broadcast in a converged environment. Students produce media for multiple outlets. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4306 or JOURN 4804 or JOURN 4450

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**JOURN 4810: National News Writing and Production**

(cross-leveled with JOURN 7810). Learn updated storytelling and video-production techniques on-site at Newsy, a next generation news network. You will work weekly shifts throughout the semester, culminating in the production of your own portfolio and mock interviews with hiring managers. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor consent required

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**JOURN 4812: Online Audience Development**

(cross-leveled with JOURN 7812). You're already using social media every day - but are you using it in the most effective way possible? In Online Audience Development students will explore, envision and evaluate the possibilities of social media integration in news production workflows. We'll experiment with emerging social platforms to see how they might fit in a newsroom's social media and branding playbook. You will also exercise, develop and improve on all the journalism skills practiced in previous classes: researching, reporting, editing, producing, proofreading, photo editing and design. The big difference? This time you'll be reporting on our newsrooms in order to help create deeper connections with the audience. Graded on A/F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4560 or JOURN 4804 or JOURN 4306 or JOURN 4450 or instructor consent. Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4814: Multimedia Sports Journalism**

(cross-leveled with JOURN 7814). Assignments on a daily regional website and radio station covering sports with converged media. Experience in reporting game and feature stories under deadline conditions. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required

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**JOURN 4940: Internship in Journalism**

Credit for approved employment in journalism. Specifications for this course appear in the Undergraduate Catalog. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** Consent from internship coordinator required

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**JOURN 4950: Understanding Audiences**

Focuses on the recipients of journalistic efforts by teaching students to identify, analyze and address media audiences. Students will learn a variety of research methods and gain hands-on experience with audience analysis through team-based practical projects.

**Credit Hours:** 3

**Prerequisites:** JOURN 2000 and junior standing. Strategic Communication students may not enroll in this entry level research course

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**JOURN 4952: Strategic Communication Research I**

(cross-leveled with JOURN 7952). Introduction to techniques and practice of strategic communication research. Emphasis on research techniques and use of research results, including consumer analysis, attitude measurement and evaluation of externally supplied research.

**Credit Hours:** 3

**Prerequisites:** Restricted to Strategic Communication and Science and Agricultural Journalism Majors

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**JOURN 4970: Strategic Campaigns**

(cross-leveled with JOURN 7970). This capstone course, gives students a hands-on opportunity to use their skills and apply strategic communication learning to a real client situation. To be taken final semester. Application required for Mojo Ad section and will include additional leadership responsibilities.

**Credit Hours:** 3

**Prerequisites:** Consent of Instructor required

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**JOURN 4970W: Strategic Campaigns - Writing Intensive**

(cross-leveled with JOURN 7970). This capstone course, gives students a hands-on opportunity to use their skills and apply strategic communication learning to a real client situation. To be taken final semester. Application required for Mojo Ad section and will include additional leadership responsibilities.

**Credit Hours:** 3

**Prerequisites:** Consent of Instructor required

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**JOURN 4972: Photo and Visual Editing**

(cross-leveled with JOURN 7972). An advanced visual editing course. Primary work is as a photo/multimedia editor on the Columbia Missourian photo desk. You collaborate on daily and semester projects and are assigned specific leadership roles.

**Credit Hours:** 3

**Prerequisites:** JOURN 4408 or or JOURN 4204 or JOURN 4500 or JOURN 4560

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**JOURN 4974: Advanced Internet Applications for Radio/TV News**

(cross-leveled with JOURN 7974). Integration of advanced Internet research and publishing skills with production and management of the KOMU-TV/KBIA Radio World Wide Web news service.

**Credit Hours:** 3

**Prerequisites:** JOURN 4306

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**JOURN 4976: Seminar in Radio/TV News**

(cross-leveled with JOURN 7976). Seminar in network and local news process, in coverage of major issues and social problems, in relationships of radio-TV news and government institutions.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

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**JOURN 4978: Media Management and Leadership**

(cross-leveled with JOURN 7978). Dramatic changes in technology and the media's role in converging technologies require new management and leadership techniques and paradigms. Students will write case examining these changes.

**Credit Hours:** 3

**Prerequisites:** JOURN 4306 or JOURN 4804. Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4980: The Picture Story and Photographic Essay**

(cross-leveled with JOURN 7980). Production of photo stories/essays for newspapers, magazines and news media presentations. Research, photography, design and layout. Final portfolio will show journalistic strength and versatility in black and white, and color.

**Credit Hours:** 3

**Prerequisites:** JOURN 4560

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**JOURN 4984: Magazine Staff**

(cross-leveled with JOURN 7984). This course provides hands-on experience serving as an editor on a magazine staff. Students are department editors for Vox Magazine and learn how to take a story from an idea through story creation and production and to the printed page, as well as best practices for executing that idea across multiple platforms. Students learn about pitching, working with writers, designers and photographers, editing for content and style, successful story packaging and team collaboration.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4408 and JOURN 4410 or JOURN 4412 or JOURN 4416 or JOURN 4480

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**JOURN 4986: Advanced Writing**

(cross-leveled with JOURN 7986). This course builds on the in-depth, reporting, research, and writing techniques of Intermediate Writing and other writing and reporting classes. It is designed for those who wish to pursue writing as a career. Students complete writing assignments and analyze the work of well-known magazine and book authors.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4410 or JOURN 4412 or JOURN 4416 or JOURN 4480

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**JOURN 4986W: Advanced Writing - Writing Intensive**

(cross-leveled with JOURN 7986). This course builds on the in-depth, reporting, research, and writing techniques of Intermediate Writing and other writing and reporting classes. It is designed for those who wish to pursue writing as a career. Students complete writing assignments and analyze the work of well-known magazine and book authors.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4410 or JOURN 4412 or JOURN 4416 or JOURN 4480

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**JOURN 4988: Advanced Publication Design**

(cross-leveled with JOURN 7988). Project-based capstone in which skills learned in previous courses are applied to professional-level design challenges, such as feature, cover or iPad designs; multimedia prototypes; special editions; or other applications for Vox Magazine, Columbia Missourian, or other outlets.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4500

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**JOURN 4988W: Advanced Publication Design**

(cross-leveled with JOURN 7988). Project-based capstone in which skills learned in previous courses are applied to professional-level design challenges, such as feature, cover or iPad designs; multimedia prototypes; special editions; or other applications for Vox Magazine, Columbia Missourian, or other outlets.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4500

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**JOURN 4990: Journalism and Democracy**

This course seeks to cultivate critical-thinking skills by helping students synthesize and apply knowledge gained from a journalism education to the evaluation of news media performance in a democratic society.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4450

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**JOURN 4990W: Journalism and Democracy - Writing Intensive**

This course seeks to cultivate critical-thinking skills by helping students synthesize and apply knowledge gained from a journalism education to the evaluation of news media performance in a democratic society.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4450

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**JOURN 4992: Innovation and Audience Outreach in Converged Media**

(cross-leveled with JOURN 7992). Capstone course brings together the reporting, editing, audience focus, management and marketing skills gained in previous journalism courses. Students evaluate audiences and sustainability for journalistic content, applications, products and experiences and plan, produce and promote internal and external projects. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

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**JOURN 4992W: Innovation and Audience Outreach in Converged Media - Writing Intensive**

(cross-leveled with JOURN 7992). Capstone course brings together the reporting, editing, audience focus, management and marketing skills gained in previous journalism courses. Students evaluate audiences

and sustainability for journalistic content, applications, products and experiences and plan, produce and promote internal and external projects. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

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**JOURN 4994: Magazine Publishing**

(cross-leveled with JOURN 7994). This capstone experience explores key components and recent trends in the magazine industry. The primary focus is creating a magazine prototype that includes conceptualizing ideas and editorial for new titles, as well as business plans for advertising, circulation, finance and production. The course follows a nuts and bolts, learn-by-doing approach to how these components work together and influence one another. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4408 and either JOURN 4410 or equivalent, or JOURN 4360 or 4500. Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 7000: Communications Law**

Legal concepts, including prior restraint, libel, privacy, obscenity, contempt and access as they relate to print, broadcast, advertising and other areas.

**Credit Hours:** 3

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**JOURN 7050: Communications Practice**

Special instruction in the school's media as an extension of existing advanced media courses, or, in advertising, an extension of advertising creative courses. Contract must be approved by instructor and dean. Some sections of the course may be offered on either A-F or S/U graded basis only.

**Credit Hour:** 1-3

**Prerequisites:** Study Abroad sections require consent by International Program. Obtain consent in 76 Gannett

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**JOURN 7122: Fundamentals of Data Reporting**

(cross-leveled with JOURN 4122). Explores the importance to journalists of mining public records and data; reviews basic newsroom mathematics; teaches basic techniques for using Microsoft Excel to create and manipulate spreadsheets and to produce graphics. Graded on A-F basis only. This course is not to be taken by students who have already completed JOURN 4430 or JOURN 7430. Restricted to Graduate Journalism students.

**Credit Hour:** 1

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**JOURN 7126: Digital Audio and Visual Basics for Journalists**

(cross-leveled with JOURN 4126). Introduces journalism students to audio and video tools used in converged environments. Students will create news stories, ads or promos to meet journalistic or strategic communication goals. Graded on S/U basis only.

**Credit Hour:** 1

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**JOURN 7130: Account Services**

(cross-leveled with JOURN 4130). Designed for advanced strategic communication students preparing for careers in account services. Section topics vary.

**Credit Hour:** 1

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**JOURN 7138: Public Relations Techniques**

(cross-leveled with JOURN 4138). Designed for advanced strategic communication students preparing for careers in public relations. Section topics vary.

**Credit Hour:** 1

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**JOURN 7140: Interactive Techniques**

(cross-leveled with JOURN 4140). Designed for advanced strategic communications students preparing for careers in interactive media. Section topics may vary.

**Credit Hour:** 1

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**JOURN 7146: Strategic Communication Techniques**

(cross-leveled with JOURN 4146). Designed for advanced strategic communication students. Section topics vary. Graded on A-F basis only.

**Credit Hour:** 1

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**JOURN 7148: Interviewing Essentials**

(cross-leveled with JOURN 4148). This class focuses on the journalistic interviewing process, from identifying and gaining access to the best sources, setting ethical boundaries, asking the most effective questions and ensuring accuracy. It applies to the full range of story types, from breaking news to in-depth work in all coverage areas.

**Credit Hour:** 1

**Prerequisites:** Consent of instructor required

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**JOURN 7150: Using Infographics**

An introduction to the various types of information graphics and how each can be used effectively to help explain the news. Additional emphasis on generating graphic ideas and on the specific challenges of gathering information for graphics.

**Credit Hour:** 1

**Prerequisites:** instructor's consent required

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**JOURN 7152: Concepts in Participatory Journalism**

Journalists need to know how to be in conversation with their communities rather than lecture to them. In this course, we will look at how a collaborative culture is changing journalism, and how journalists can take advantage of the new landscape. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** JOURN 2100, JOURN 2150

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**JOURN 7160: Social Media Foundations and Practice**

(cross-leveled with JOURN 4160). This course introduces social media usage and research basics for journalism students. Graded on A-F basis only.

**Credit Hour:** 1

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**JOURN 7180: Newsroom Content Creation**

(cross-leveled with JOURN 4180). This course puts students working together in a combined newsroom hub, producing content for publication on its own platform or for campus media outlets. Graded on A-F basis only.

**Credit Hours:** 3

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**JOURN 7198: Area Seminar**

Special lectures, readings, discussions relating to the urban journalism, state government reporting or local public affairs reporting programs.

**Credit Hours:** 3

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**JOURN 7200: Principles of Strategic Communication**

(cross-leveled with JOURN 4200). Foundation course familiarizing students with an array of strategic communication tools and how they are used in the field.

**Credit Hours:** 3

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**JOURN 7204: Introduction to Strategic Writing and Design**

This course will teach you about strategic writing and design, and then show you how to apply these skills to key communication platforms such as digital media, TV, radio, social media and others. Along the way, you will learn to think, write and design creatively and strategically. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Journalism Strategic Communication and Science and Agriculture Journalism Majors

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**JOURN 7206: Strategic Writing I**

(cross-leveled with JOURN 7206). Students learn strategic writing for a variety of media such as print, radio, television, outdoor, new media, news releases, pitch letters and other persuasive messages.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4226, JOURN 4952

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**JOURN 7208: Strategic Writing II**

(cross-leveled with JOURN 4208). Advanced course in the creation of advertising and public relations materials with an emphasis on strategic planning, developing creative concepts, producing and polishing copy and visuals, execution of finished product and refining. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204 and JOURN 4952

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**JOURN 7212: Sports and Entertainment Promotion**

(cross-leveled with JOURN 4212). Course focuses on the role that research, sponsorship, advertising, public relations, social media, positioning, target marketing, psychographics, and other strategic communication processes play in the promotion of the sports and entertainment industry. The course will critically analyze and examine how chief executive officers of sport and entertainment organizations choose, maintain, or redirect their promotion strategies and activities to help achieve organization missions, encourage tickets sales, and attract large audiences.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor

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**JOURN 7213: Strategic Communication Mobile Sports Production**

(cross-leveled with JOURN 4213). This class is designed to prepare Strategic Communication students for vital new positions in the world of sports marketing with the emphasis on video productions, strategic planning, and strategic dissemination of video content via multiple media, channels and platforms. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Journalism Graduate Students

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**JOURN 7214: Strategic Communication Integrated Sports Production**

(cross-leveled with JOURN 4214). This course will prepare Strategic Communication students for vital new positions in the world of sports marketing with an emphasis on video production, graphics, social media analytics, messaging management and strategic planning. Students will be taught basic information, techniques and strategies necessary for success in these fields. You will be working closely with the Mizzou Sports Network and Strategic Communication faculty from day one. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204 and JOURN 4952

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**JOURN 7216: Media Sales**

(cross-leveled with JOURN 4216). Focus of this course is to familiarize students with how to sell a variety of media including newspaper, radio, television, outdoor, new media, and others.

**Credit Hours:** 3

**Prerequisites:** Restricted to Journalism Strategic Communication and Science and Agricultural Journalism Majors

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**JOURN 7218: Mojo Ad Staff**

(cross-leveled with JOURN 4218). Application of strategic communication skills in a professional services agency specializing in the youth and young adult segment. Positions include management, planning, creative media and research. Other electives required based on position. Application required. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of Instructor

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**JOURN 7220: Creative Portfolio**

(cross-leveled with JOURN 4220). Students will produce a free-standing collection of outstanding, polished creative work to demonstrate his/her ability to perform at a high level of creativity.

**Credit Hours:** 3

**Prerequisites:** core courses and JOURN 4208 or JOURN 7208

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**JOURN 7228: Strategic Design and Visuals II**

(cross-leveled with JOURN 4228). Advanced course in strategic design and visuals. Persuasive visual principles applied to variety of integrated media including print, broadcast and on-line. Graded on A-F basis only..

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204 and JOURN 4952

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**JOURN 7236: Psychology in Advertising**

(cross-leveled with JOURN 4236). Application of psychological principles, learning, perception, motivation, attitudes to advertising. Emphasis on the increasing use of psychographics (the 'lifestyle' factor) to understand consumer wants and buying behavior.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200 or JOURN 7200, JOURN 4952 or JOURN 7952, JOURN 4204 or JOURN 7204

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**JOURN 7242: Strategic Communication Leadership**

(cross-leveled with JOURN 4242). Strategic Communication Leadership is aimed at students who are eager to develop their skills and abilities in management and leadership with the likely outcome that they will be leaders in media organizations or as entrepreneurs. Rooted in principles of ethical persuasion and strategic communication, it will help develop individual skills and abilities and the mindset of helping others achieve their goals. Based on the experience and writings of CEO and world-renowned leader David Novak (Strategic Communication alumnus 1974), this is the one of three courses comprising the Leadership Interest Area in Strategic Communication. This course will call on students to commit to the process of their own growth and self-discovery and to help foster the growth and development of fellow learners. It will be an intensive experience and, with commitment to the program, will be immediately applicable to the students' current and future personal and professional lives. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Journalism Graduate students only

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**JOURN 7244: Creating Cultures Through Effective Strategic Communication and Leadership**

(cross-leveled with JOURN 4244). The course focuses on the role culture and communication play in organizational success, management, and leadership. Rooted in principles of ethical persuasion and strategic communication, it helps students develop individual skills and abilities and the mindset of helping others achieve their goals. The course is distinctly different from traditional organizational studies because of its focus on communication and marketing principles. It offers hands on learning through the case method. Based on the experience and writings of CEO and world-renowned leader David Novak (Strategic Communication alumnus 1974), this is one of three courses comprising the Leadership interest area in Strategic Communication. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Graduate Journalism Majors only

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**JOURN 7246: Taking People With You: Entrepreneurial Leadership and Innovation**

(cross-leveled with JOURN 4246). In this course, students explore the current landscape of entrepreneurship (with specific reference to the strategic communication space) and practice a human-centered approach to solving problems. Students will gain valuable leadership skills and develop the knowledge and mindset needed to pursue their own entrepreneurial ventures or to become innovators and 'intrapreneurs' within existing organizations. The course introduces students to insight-driven approaches to innovation including David Novak's Taking People with You philosophy of leadership and design thinking while offering ample opportunities to put these methods into practice. To simulate the entrepreneurial process, students identify an unmet need or market

opportunity and develop an innovative product or service to solve a real-world problem. 'Startup teams' of four students engage in research, ideation, rapid prototyping, and iterative design to develop insights and a solution to meet the needs of real customers. Teams also conduct a market analysis, and develop a business model and go-to-market strategy for launching their startup and enlisting key partners to support their venture. The course culminates in a pitch competition in which teams present their ideas and strategies to a panel of industry experts and investors. In the process, students gain valuable leadership skills, develop an entrepreneurial mindset, and learn how to work with diverse teams and audiences to collaborate and solve problems. This is one of the three courses comprising the Leadership Interest Area in Strategic Communication. Students admitted to this course are also given priority to participate in the Novak Future Leaders Tour to San Francisco, where they gain exposure to ideas and leaders at some of the world's most innovative companies and organizations. Graded on A-F only.

**Credit Hours:** 3

**Prerequisites:** Graduate Journalism majors only

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**JOURN 7248: Media Strategy and Planning**

(cross-leveled with JOURN 4248). Course deals with strategic planning and the selection and evaluation of appropriate media outlets. Students gain a clear understanding of the problems and issues involved in crafting effective media strategies, creative problem solving and selection of appropriate media.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200 or JOURN 7200, JOURN 4952 or JOURN 7592, JOURN 4204 or JOURN 7204. Restricted to Journalism graduate students

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**JOURN 7250: Management of Strategic Communication**

(cross-leveled with JOURN 4250). How to lead and contribute to strategically sound, highly creative and seamlessly integrated strategic communication on the agency or client side of the business. Directly relevant to agency account management and account planning, as well as client career paths.

**Credit Hours:** 3

**Prerequisites:** Consent of Instructor required

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**JOURN 7252: Branded Strategic Storytelling**

(cross-leveled with JOURN 4252). This course for Strategic Communication students integrates digital and content marketing planning and operational methodologies designed to deepen students' knowledge of content creation, distribution strategies and audience engagement. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Graduate Journalism Majors only

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**JOURN 7254: Tools, Techniques and Technology of Visual Storytelling**

(cross-leveled with JOURN 4254). In this course, students will learn how to professionally shoot and strategically edit video, visuals and textual content, strategize how to publish that content on owned media and social media platforms, utilize tools like GoPro and Drone technology, and even VR/AR and 360 attachments to make content that is more immersive, influential, impactful and persuasive. Graded on A-F basis only.

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**Credit Hours:** 3

**Prerequisites:** Graduate Journalism Majors only

**Recommended:** JOURN 7200, JOURN 7204

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**JOURN 7256: Public Relations**

Current methods of communicating with constituents as practiced by agencies, corporations and government/not-for-profit organizations.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200

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**JOURN 7262: Digital Strategy I**

(cross-leveled with JOURN 4262). Course covers every step from integrating Internet efforts into the overall strategic communication plan to building a website that works. Designed for those with an interest in interactive advertising. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 7200, JOURN 7204 and JOURN 7952

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**JOURN 7263: Digital Strategy II**

(cross-leveled with JOURN 4263). Course goes in-depth on top issues in the interactive process from video advertising to social networking sites and how to increase campaign performance with web analytics. Designed for those who want a career in interactive advertising. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 7262. Restricted to Journalism Graduate students

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**JOURN 7268: Strategic Communication Practicum**

(cross-leveled with JOURN 4268) Practical experience in public relations, corporate communications and strategic planning with the Missouri School of Journalism serving as client. Students from all journalism disciplines will apply knowledge and skills on a variety of platforms.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200 or JOURN 7200, JOURN 4204 or JOURN 7204 and JOURN 4952 or JOURN 7952

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**JOURN 7270: Public Relations Writing**

(cross-leveled with JOURN 4270). Develop skills and capabilities in strategic communication applications, including news releases, media advisories, pitch letters, video news releases, media relations techniques, writing for electronic and broadcast media, feature writing, brochures and speeches. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor

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**JOURN 7300: Broadcast News I**

Beginning reporting and news writing for radio, television and their on-line services. Introduction to use of audio and video recorders and editing systems in production of news stories. Consideration of ethical issues, economic factors, relationships with news sources and gender and ethnic diversity in the newsroom and in news stories.

**Credit Hours:** 3

**Prerequisites:** JOURN 2100

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**JOURN 7301: Topics in Journalism**

Selected current topics in journalism. Specific topics to be announced at time of registration.

**Credit Hour:** 1-3

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**JOURN 7306: Broadcast News II**

Introduction to general assignment reporting skills for the newsroom environment. Instruction in time management, writing, storytelling and performance. Team skills and ethnic diversity in the newsroom are discussed. Students begin work for broadcast newsrooms.

**Credit Hours:** 3

**Prerequisites:** JOURN 4300 or JOURN 7300

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**JOURN 7308: Broadcast News III**

(cross-leveled with JOURN 4308). Intermediate reporting and news writing skills for radio and television. Advanced techniques in the use of video and sound in production of news stories.

**Credit Hours:** 3

**Prerequisites:** JOURN 7306

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**JOURN 7310: News Producing**

(cross-leveled with JOURN 4310). Instruction in techniques of television newscast preparation. Emphasis on role of the television news producer.

**Credit Hour:** 1-3

**Prerequisites:** JOURN 4308 or JOURN 7308

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**JOURN 7320: Advanced Broadcast Reporting**

(cross-leveled with JOURN 4320). In-depth reporting and editing for radio or television; advanced production techniques; emphasis on writing, interviewing, effective use of audio or videotape at KOMU-TV or KBIA.

**Credit Hours:** 3

**Prerequisites:** JOURN 4308 or JOURN 7308

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**JOURN 7328: Advanced News Communication**

(cross-leveled with JOURN 4328). This course will examine and practice the components of effective interviewing and on-set and live reporting for television news. Students will anchor KOMU-TV's morning newscasts.

**Credit Hour:** 1

**Prerequisites:** JOURN 4306 or JOURN 7306

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**JOURN 7340: Viewing Journalism Films: Images of the Reporter**

(cross-leveled with JOURN 4340). The course will examine images of journalists in American films ranging from 'Citizen Kane' to the present. Students will analyze award-winning movies that pose key questions about the professional responsibilities of journalists in all fields. Topics will include issues related to the practice of journalism as well as those triggered by the work of specific journalists, such as Woodward and Bernstein.

**Credit Hours:** 2

**Prerequisites:** Instructor's consent required

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**JOURN 7350: Problems in Journalism**

Independent research arranged with individual faculty member. Contract must be approved by instructor and dean. Not accepted as a substitute for any regularly scheduled course. Some sections of the course may be graded on either A-F or S/U basis only.

**Credit Hour:** 1-3

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**JOURN 7360: Fundamentals of Design**

(cross-leveled with JOURN 4360). This is a beginning course in editorial design. We will study design history and learn basic design principles and concepts in both print and digital platforms. You will be introduced to software programs such as InDesign, Photoshop and Illustrator, as well as basic HTML coding.

**Credit Hours:** 2

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 2100 or JOURN 2150

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**JOURN 7370: The Intersections of Documentary Film and Journalism**

(same as FILMS\_VS 7370; cross-leveled with JOURN 4370, FILMS\_VS 4370). The popularity of documentary film in the past ten years has skyrocketed, and recent award-winning documentaries such as *Inside Job* (2010), *Blackfish* (2013), and *The Invisible War* (2012) are simultaneously entertaining audiences and investigating serious issues like the financial collapse, killer whale captivity, and sex crimes in the military-issues that in the past might have been covered exclusively by investigative journalism. What explains the public's growing fascination with documentary? How is documentary film reacting to recent transformations in the media landscape? Is it filling a critical need that journalism is no longer willing or able to meet? This course will explore the intersection of these two nonfiction storytelling forms--documentary film and journalism--and examine the role played by advocacy in both modes, as well as the cultural and ethical implications of the convergence between journalism and documentary film. In that it is centered on contemporary documentary film culture, the course also takes advantage of the True/ False Film Festival, and will be host to a conference during Week 6, featuring a number of major visiting filmmakers and film critics. Attendance at some sessions is required. Graded on A-F basis only.

**Credit Hours:** 3

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**JOURN 7371: Documentary Theory**

(cross-leveled with JOURN 4371). Documentary and other long-form story telling methods involve a complex series of decisions made in the creation of the work that determines its style, length, direction, point of view and more. These and a thousand other editing decisions are the difference between a successful project that touches its audience and one that falls short. The focus of this course is on the craft of editing, as seen in a variety of documentary and other works and explained through the decisions made in and out of the editing room that lead to the final product. The course will introduce important concepts of editing, the work of significant editors in both documentary and narrative fiction films, and seek to apply those techniques to the conceptualization of documentary work students will do as part of their degree. Students will understand the history of documentary editing as it evolved on its own and as influenced by narrative fiction films, the language of editing, the work of important editors and directors and how it influences today's aesthetic and how to apply what they have learned to their own documentary projects at an advanced level. Graded on A-F basis only.

**Credit Hours:** 3

**Corequisites:** JOURN 7564

**Recommended:** JOURN 7370

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**JOURN 7372: Documentary Reporting**

(cross-leveled with JOURN 4372). Students will learn elementary documentary reporting techniques by producing video and audio content in small group and individual projects. The course focuses on collection of content in the field, interviewing, research, story construction, editing and presentation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor consent

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**JOURN 7373: Documentary Development**

(cross-leveled with JOURN 4373). This course will concern itself primarily with the formation of projects: from theories behind different kinds of documentaries, through real world investigations and research into possible projects, into the pitching and writing stage and lastly to the final idea that will be the basis of students' senior films. The ability to properly think of, clearly articulate, pitch and hone in on a project idea often makes the difference between a successful and unsuccessful final film. Still these ideas don't materialize out of thin air; inspiration for great documentaries can come from many places. Understanding how to seize viable project ideas is a crucial skill for a documentary filmmaker. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 7371

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**JOURN 7375: Documentary Business and the Public Sphere**

(cross-leveled with JOURN 4375). Whether it be through contract employment, freelancing, or independent production, creating documentaries requires a knowledge of professional and business practices that differ from many other parts of journalism. The course will introduce important concepts related to the development and production of documentary work, as well as the public distribution of that work. Students will research the industry and develop skills to manage business and professional relationships with the documentary world. Students will build and maintain personal branding materials. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** JOURN 7564

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**JOURN 7400: Introduction to News Editing**

(cross-leveled with JOURN 4400). Introduces the fundamentals of editing of stories and writing headlines for publication online and in print, including an emphasis on style and grammar. Emphasized editing for an online audience.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

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**JOURN 7406: Digital News Editing**

(cross-leveled with JOURN 4406). Real-world experience in digital editing and news decision-making coupled with newspaper production; emphasis on editing and headline writing across platforms, design for home page and mobile, social media, ethics and fundamentals of grammar. Lab work



is hands-on experience at columbiainmissourian.com and the Missourian newspaper.

**Credit Hours:** 3

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**JOURN 7408: Magazine Editing**

(cross-leveled with JOURN 4408). Lectures provide an introduction to the magazine industry, including types of publications, roles of an editor and skills needed for today's magazine editor. Labs focus heavily on sentence structure, grammar, syntax, usage, punctuation and style.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4450 or JOURN 4804

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**JOURN 7410: Intermediate Writing**

(cross-leveled with JOURN 4410). In-depth reporting, research, and writing techniques with a magazine focus. Students produce articles for Vox, the Missourian and other magazines, publications or digital outlets.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 7450 or JOURN 4804 or JOURN 7804. Restricted to Journalism majors only

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**JOURN 7414: Field Reporting on the Food System and Environment**

(same as AGSC\_COM 7414; cross-leveled with JOURN 4414, AGSC\_COM 4414). Field reporting on the social, political, scientific, economic and ethical dimensions of the food system and environment, with emphasis on explanatory story-telling. Includes multi-day field trip. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**JOURN 7416: Science, Health and Environmental Writing**

(cross-leveled with JOURN 4416). In this course students learn how to cover science, health and environmental topics by reporting and writing several stories for publication. Students can develop a marketable specialty or cover these angles in any beat. This course can serve as a substitute for JOURN 7410 Intermediate Writing.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 4804 or JOURN 4206 or JOURN 4300 or JOURN 4372

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**JOURN 7418: Critical Reviewing**

(cross-leveled with JOURN 4418). This course seeks to enrich students' understanding of the arts; support their attendance of concerts, plays, films, and exhibitions; sharpen their skills in critical thinking; and encourage the publication of their reviews in Vox as well as other outlets. Students will analyze the works of critics, gain a general appreciation of the ways to approach each art, and write reviews.

**Credit Hours:** 3

**Prerequisites:** JOURN\_0900 or JOURN 2100

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**JOURN 7420: Editorial Writing**

Emphasizes writing and thinking. Discussion of current problems. Correct and effective use of English language. Mission, obligations and history of editorial pages.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450

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**JOURN 7422: Sports Journalism**

(cross-leveled with JOURN 4422). A review of everything from 'How to Watch Sports' to the history of sports writing.

**Credit Hours:** 3

**Recommended:** JOURN 4450/JOURN 7450 or JOURN 4804/JOURN 7804 or JOURN 4306/JOURN 7306 or JOURN 4560/JOURN 7560.

Priority will be given to Sports Journalism students. All other consent will be give on a first-come first-served basis as space allows

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**JOURN 7424: Covering Traumatic Events**

(cross-leveled with JOURN 4424). This course will prepare reporters and future newsroom managers across platforms for the ethical, practical and emotional challenges of reporting accurately and sensitively on traumatic events. It will give students a deeper understanding of the psychological impact of such events, including natural and man-made disasters, violent crime, accidents, terrorism and war. The course will explore how news coverage affects individuals and communities, and the psychological challenges and ethical hazards for the journalists who cover these events, with a focus on best newsroom practices for managing fast-breaking news stories and mitigating the effects on communities and staffs. The course will also explore the challenges of technology in the context of traumatic events and how social media have affected coverage of and response to crime, war and disasters. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 7450; JOURN 4804 or JOURN 7804; or JOURN 4560 or JOURN 7560

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**JOURN 7426: Religion Reporting and Writing**

(same as REL\_ST 7418; cross-leveled with JOURN 4426, REL\_ST 4418). Advanced seminar in religion reporting and writing. Examines the role of religion journalism in faith, public life and culture.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 7450 or its equivalent in professional writing experience and instructor's consent

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**JOURN 7428: Health Reporting Skills**

This course focuses on reporting, sourcing and analysis techniques journalists use to understand and report on health policy, health-care quality, medical research and the business of health care. Graded on A-F basis only.

**Credit Hour:** 2-3

**Prerequisites:** JOURN 4450 or JOURN 7450, JOURN 4306 or JOURN 7306, or JOURN 4804 or JOURN 7804 and instructor's consent

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**JOURN 7430: Computer-Assisted Reporting**

(cross-leveled with JOURN 4430). How to negotiate for, transfer and process electronic information; the unique opportunities computers provide for analyzing information.

**Credit Hours:** 3

**Prerequisites:** Graduate standing is required and students must have completed JOURN 7306 or 7450 or 7804

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**JOURN 7432: Advanced Data Journalism**

(cross-leveled with JOURN 4432). Teaches students how to creatively solve problems in journalism using computer programming. Students will learn how to code using the Python language, and how to apply those coding skills to perform real-world tasks. Students will learn the concepts, theory and practical programming skills needed to clean data, scrape web sites and turn databases into interactive online experiences. By the end of the semester, students will have learned the skills to create interactive database presentations, and will have created a functional web app that will serve as a portfolio piece.

**Credit Hours:** 3

**Prerequisites:** JOURN 4430

**Recommended:** JOURN 4502

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**JOURN 7434: The Art and Mechanics of the Business Story**

(cross-leveled with JOURN 4434). The purpose of this course is to give students a deep understanding of business journalism and for them to apply those skills in a real newsroom, Missouri Business Alert. The class will cover everything from audience to financials, and students will leave the class with several work samples to show potential employers. Those classes include: JOURN 4450 or JOURN 7450; JOURN 4306 or JOURN 7306; JOURN 4804 or JOURN 7804; JOURN 4556 or JOURN 7556.

**Credit Hours:** 3

**Prerequisites:** Journalism Graduate students who have passed a newsroom reporting class (or its equivalent)

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**JOURN 7436: Investigative Reporting**

(cross-leveled with JOURN 4436). Advanced course designed to acquaint reporters with public issues. Students write two in-depth projects and other shorter assignments. Students meet weekly with instructor for editorial suggestions.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 7450 and instructor's consent

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**JOURN 7438: Business, Financial and Economic Journalism**

(cross-leveled with JOURN 4438). Understanding the news from the business sector and nation's economy for journalists and public relations students. Including financial filings, equity markets, local business, economic indicators, job creation, business data, sports business and what makes business/economic news different from other journalism. Includes tour of business journalism outlets and markets in New York. Open to all sequences and platforms.

**Credit Hours:** 3

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**JOURN 7439: Advanced Business Journalism**

(cross-leveled with JOURN 4439). This class requires students to write business stories every week and to attain a high level of financial literacy in the process. The class will cover topics behind the headlines, showing students how to spot economic trends, the stories behind the economy's main actors, and the keys to spotting a troubled business. By the end of the class, all students will be certified users of the Bloomberg Terminal. To take this course, students must enroll in one of the two attached accounting classes (grad or undergrad). Both are offered online. Graded on A-F basis only. Prerequisites: Students must have taken or take concurrently with this course: ACCTCY 2010 or ACCTCY 7310.

**Credit Hour:** 1-3

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**JOURN 7440: Mapping for Stories and Graphics**

Learn mapping software to discover information for news stories and lay the foundations for compelling news information graphics. Students will learn how to create maps for print, broadcast and online. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** JOURN 2100 and instructor's consent

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**JOURN 7448: Public Service Journalism: Covering State Government**

(cross-leveled with JOURN 4448). One of the most important roles journalism plays in society is holding the powerful accountable and keeping the public informed about what those in charge are doing. Covering state government allows journalists to do both of these things. This course gives you the background you need to provide effective government coverage, and gives you hands-on experience. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** Instructor consent required

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**JOURN 7450: News Reporting**

(cross-leveled with JOURN 4450). Assignments on a daily city newspaper covering community news, city, county and state affairs, sports and lifestyle issues. Experience in gathering and writing news, writing under deadline conditions.

**Credit Hours:** 3

**Prerequisites:** JOURN \_0900 or JOURN 2100

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**JOURN 7460: Advanced News Reporting**

(cross-leveled with JOURN 7460). Assignments to more difficult beat areas, team reporting, and some investigative reporting for community newspaper. Individual conferences and weekly class sessions on contemporary reporting problems.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 7450

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**JOURN 7462: Emerging Technologies in Journalism**

(cross-leveled with JOURN 4462). This course quickly responds to technology developments in journalism through a combination of theory, practice and research. Students learn to use the developing technology and also strategies to manage its impact on media organizations while expanding academic discourse. May be repeated for credit. Graded A-F basis only.

**Credit Hour:** 1-3

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**JOURN 7464: Magazines Across Platforms**

(cross-leveled with JOURN 4464). As digital editors for Vox Magazine, students manage and create content for Vox's digital platforms, including its WordPress website, blog, social media accounts and award-winning iPad app. Students also work with analytics, engagement and multimedia. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

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**Recommended:** JOURN 4450 or JOURN 7450 or JOURN 4804 or JOURN 7804

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**JOURN 7480: Will Write for Food (and Wine)**

(cross-leveled with AGSC\_COM 4480, JOURN 4480). Course focuses on food and wine writing in current U.S. culture. Come ready to create mouthwatering narrative and actively seek publishing your finished work. An emphasis will be placed on class participation and written critiques of peer-reviewed articles in class. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Junior standing, instructor's consent and JOURN 4450. Restricted to Journalism and Science Agriculture Journalism students only

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**JOURN 7500: Publication Design**

(cross-leveled with JOURN 4500). Intermediate design techniques and theories of editorial design. Students apply classroom teachings by designing pages for the Columbia Missourian and Vox Magazine. Students work under deadline and learn attention-to-detail through use of execution of design style guides.

**Credit Hours:** 3

**Prerequisites:** JOURN 4360 and instructor's consent. Restricted to Journalism Graduate students only

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**JOURN 7502: Multimedia Planning and Design**

(cross-leveled with JOURN 4502). Class covers the basics of web design - Storyboarding, navigation, information architecture, reader behavior, usability studies - as they relate to journalistic stories and persuasive messages. Prerequisites: Completion of one of the following: JOURN 4804, JOURN 4508, JOURN 4406, JOURN 4506, JOURN 4204, JOURN 4306, JOURN 4450 or JOURN 4560; or by instructor's consent.

**Credit Hours:** 3

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**JOURN 7506: Magazine Design**

Introduction to typography of magazines from manuscript markup through layout to page proof. Extensions and limitations of typography are considered in light of current practice and economic possibilities.

**Credit Hours:** 3

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**JOURN 7508: Information Graphics**

(cross-leveled with JOURN 4508). Work as a news artist for a daily city newspaper graphically covering community news, sports and lifestyle issues. Emphasis on visual thinking and effective presentation. Experience with state-of-the-art software.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 7450 or the professional equivalent, or instructor's consent

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**JOURN 7510: Visual Communications**

How to communicate through pictures. Topics: visual perception, vocabulary, the role of words, picture editing, design and layout, printers, taste and judgment, camera mechanics. For journalism students who are not photographers.

**Credit Hour:** 2-3

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**JOURN 7554: Visual Editing for Multimedia**

(cross-leveled with JOURN 4554). This class develops understanding of multimedia storytelling by focusing on editing, production, and business model practices for online visual journalism. It builds on a foundation of digital editing, photojournalism, photo editing, videography, and multimedia production. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4804 or JOURN 4550 or JOURN 4306 or JOURN 4406 or JOURN 4506 and instructor's consent; restricted to Journalism and Science and Agriculture Journalism students only

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**JOURN 7556: Fundamentals of Photojournalism**

(cross-leveled with JOURN 4556). A rigorous skills course for advanced students preparing for a career in photojournalism consisting of weekly exercises in black and white and color photographic story telling and lectures that explore the philosophical, historical and ethical roots of the profession.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**JOURN 7558: Advanced Techniques in Photojournalism**

(cross-leveled with JOURN 4558). Advanced techniques and problem solving in photojournalism. Stresses lighting techniques-available, studio, electronic flash and color correction of color film. Strobed documentary, portraiture, fashion, food, architecture, sports.

**Credit Hours:** 3

**Prerequisites:** JOURN 4556 or JOURN 7556

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**JOURN 7560: Staff Photojournalism**

(cross-leveled with JOURN 4560). A laboratory course exploring the photojournalist's role in the news-gathering process. As staffers for the Columbia Missourian, students cover news, sports, features, food assignments and originate single pictures and stories.

**Credit Hours:** 3

**Prerequisites:** JOURN 4558 or JOURN 7558

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**JOURN 7562: Photojournalism Business Practices**

(cross-leveled with JOURN 4562). Discusses legal, financial, organizational and entrepreneurial issues for photojournalists. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4558 or JOURN 7558 and JOURN 4566 or JOURN 7566, or instructor's consent required. Restricted to graduate Journalism majors only

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**JOURN 7564: Micro-Documentary Photojournalism and Videography**

(cross-leveled with JOURN 4564). This course extends students' understanding and abilities to produce short-form video journalism. They will produce, from concept to web publication, two five-minute non-fiction videos that serves the public through engaging visual sound techniques and compelling narrative. Graded on A/F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4558 or JOURN 7558 or JOURN 4306 or JOURN 7306 or JOURN 4804 or JOURN 7804 or consent of instructor. Restricted to Journalism or Science and Agricultural Journalism students only

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**JOURN 7566: Electronic Photojournalism**

(cross-leveled with JOURN 4566). Concepts and skills to incorporate photographs, audio and video for interactive presentation, with an emphasis on project design and coding for web and mobile devices. Graded on A-F basis.

**Credit Hours:** 3

**Prerequisites:** JOURN 4556 or JOURN 7556 and instructor's consent required

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**JOURN 7568: History of Photojournalism**

(cross-leveled with JOURN 4568). Examination of the aesthetic and technological development of photography from its invention in 1839 to the present. Primary emphasis on the evolution and impact of the picture press and the documentary tradition in America, although international developments are studied as well.

**Credit Hours:** 3

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**JOURN 7650: International Issues Reporting**

An advanced professional seminar on how to recognize, report and write about the domestic influence of international political, economic and cultural problems and trends.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 7450

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**JOURN 7656: International News Media Systems**

A comparative survey of current news media systems and how they affect the international flow of information. Newspapers, news agencies, broadcasting and satellite networks of the world are analyzed.

**Credit Hours:** 3

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**JOURN 7658: International Journalism**

(cross-leveled with JOURN 4658). An examination of the gathering, editing and dissemination of international news. The impact of social, economic, cultural and political structures on news media performance is evaluated.

**Credit Hours:** 3

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**JOURN 7660: Media Forces Shaping the European Union**

(cross-leveled with JOURN 4660). Seminar analyzes the role of media in shaping policies and actions of the European Union member nations and their people. Open to graduate students regardless of major and to undergraduates with instructor's consent. Course qualifies for EU Certificate Program.

**Credit Hours:** 3

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**JOURN 7662: Global News Across Platforms**

(cross-leveled with JOURN 4662). Online, radio, and print production for a converged media enterprise, Global Journalist. Students report, write, plan, edit, design, and produce a video and radio program and website on international news while working under weekly deadlines.

**Credit Hours:** 3

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**JOURN 7700: Engaged Journalism**

(cross-leveled with JOURN 4700). An examination of how information is shared outside professional journalism, and how journalists can interact with communities. Topics will include community collaboration, social media, audience outreach and understanding, and an expanding definition of 'news.' Students will work with the community on behalf of the Missourian. All interest areas welcome.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**JOURN 7706: The Community Newspaper**

(cross-leveled with JOURN 4706). The role of the newspaper in the community. Handling of news categories especially applicable to smaller newspaper. Field trips giving students experience in publishing newspapers in the state.

**Credit Hours:** 3

**Prerequisites:** JOURN \_0900 and JOURN 2100

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**JOURN 7716: Women and the Media**

(same as WGST 7716;cross-leveled with JOURN 4716, WGST 4716). Focus on portrayal of women in American mass media. Other goals: historical perspective on women as journalists; exposure to issues usually not covered by mass media; research and writing skills.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**JOURN 7718: Law and the Justice System**

(cross-leveled with JOURN 4718). Lectures, readings, discussions, writing assignments relating to justice system reporting from the view of attorneys, prosecutors, judges, correction and probation officers, with the cooperation of the Missouri Bar.

**Credit Hours:** 3

**Prerequisites:** JOURN \_0900 or JOURN 2100

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**JOURN 7734: Journalism and Chaos: How to Understand and Cover 21st Century Business Models**

(cross-leveled with JOURN 4734). The purpose of this class is to explore alternative business/journalism models that can be grown from the rib of the traditional newsroom.

**Credit Hours:** 3

**Prerequisites:** Restricted to Journalism and Agricultural Journalism students only

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**JOURN 7736: Changing Media Business Models**

Analysis of the economic changes in news media. Explore concepts and theories of monetizing media. Hands-on experience in creating innovations in media business models.

**Credit Hours:** 3

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**JOURN 7738: Thought, Language and Journalism**

This seminar uses the methods of science to explore and better understand the biases and limitations of language, culture, technology and other factors shaping the semantic environment as applied to the practice of journalism and mass communications studies.

**Credit Hour:** 1-3

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**JOURN 7802: Fundamentals of TV, Radio and Photojournalism**

Skills, theory and ethics of broadcast news and photojournalism for non-broadcast majors. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 2100

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**JOURN 7804: Convergence Reporting**

(cross-leveled with JOURN 4804). Practice and theory of reporting for converged media. Students produce multimedia reports for traditional and converged media operations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 7802 or instructor's consent

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**JOURN 7806: Convergence Editing and Producing**

(cross-leveled with JOURN 4806). Practice and theory of editing and producing material for publication or broadcast in a converged environment. Students produce media for multiple outlets. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4306 or JOURN 7306 or JOURN 4804 or JOURN 7804

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**JOURN 7810: National News Writing and Production**

(cross-leveled with JOURN 4810). Learn updated storytelling and video-production techniques on-site at Newsy, a next generation news network. You will work weekly shifts throughout the semester, culminating in the production of your own portfolio and mock interviews with hiring managers. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**JOURN 7812: Online Audience Development**

(cross-leveled with JOURN 4812). You're already using social media every day - but are you using it in the most effective way possible? In Online Audience Development students will explore, envision and evaluate the possibilities of social media integration in news production workflows. We'll experiment with emerging social platforms to see how they might fit in a newsroom's social media and branding playbook. You will also exercise, develop and improve on all the journalism skills practiced in previous classes: researching, reporting, editing, producing, proofreading, photo editing and design. The big difference? This time you'll be reporting on our newsrooms in order to help create deeper connections with the audience. Graded A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required

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**JOURN 7814: Multimedia Sports Journalism**

Assignments on a daily regional website and radio station covering sports with converged media. Experience in reporting game and feature stories under deadline conditions. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4306 or JOURN 7306, or JOURN 4450 or JOURN 7450, or JOURN 4804 or JOURN 7804, or JOURN 4556 or JOURN 7556 or JOURN 4560 or JOURN 7560. Restricted to Journalism

and Science and Agricultural Journalism students only. Instructor's consent required

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**JOURN 7940: Internship in Journalism**

Credit for approved employment in journalism. Specifications for this course appear in the Undergraduate Catalog. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** Restricted to Journalism students only

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**JOURN 7952: Strategic Communication Research I**

(cross-leveled with JOURN 4952). Introduction to techniques and practice of strategic communication research. Emphasis on research techniques and use of research results, including consumer analysis, attitude measurement and evaluation of externally supplied research.

**Credit Hours:** 3

**Prerequisites:** Restricted to Strategic Communication and Science and Agricultural Journalism Majors

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**JOURN 7970: Strategic Campaigns**

(cross-leveled with JOURN 4970). This capstone course gives students a hands-on opportunity to use their skills and apply strategic communication learning to a real client situation. To be taken final semester. Application required for Mojo Ad section and will include additional leadership responsibilities.

**Credit Hours:** 3

**Prerequisites:** JOURN 4204 or JOURN 7204

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**JOURN 7972: Photo and Visual Editing**

(cross-leveled with JOURN 4972). An advanced visual editing course. Primary work is as a photo/multimedia editor on the Columbia Missourian photo desk. You collaborate on daily and semester projects and are assigned specific leadership roles.

**Credit Hours:** 3

**Prerequisites:** JOURN 4408 or JOURN 7408 or JOURN 4204 or JOURN 7204 or JOURN 4500 or JOURN 7500 or JOURN 4560 or JOURN 7560

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**JOURN 7974: Advanced Internet Applications for Radio/TV News**

(cross-leveled with JOURN 4974). Integration of advanced Internet research and publishing skills with production and management of the KOMU-TV/KBIA Radio World Wide Web news service.

**Credit Hours:** 3

**Prerequisites:** JOURN 4306 or JOURN 7306

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**JOURN 7976: Seminar in Radio-TV News**

(cross-leveled with JOURN 4976). Seminar in network and local news process, in coverage of major issues and social problems, in relationships of radio-TV news and government institutions. Not for students who have taken JOURN 8096.

**Credit Hours:** 3

**Prerequisites:** JOURN 4306; instructor's consent required

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**JOURN 7978: Media Management and Leadership**

(cross-leveled with JOURN 4978). Dramatic changes in technology and the media's role in converging technologies require new management

and leadership techniques and paradigms. Students will write case examining these changes.

**Credit Hours:** 3

**Prerequisites:** JOURN 4306 or JOURN 4804

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**JOURN 7980: The Picture Story and Photographic Essay**

(cross-leveled with JOURN 4980). Production of photo stories/essays for newspapers, magazines and news media presentations. Research, photography, design and layout. Final portfolio will show journalistic strength and versatility in black and white, and color.

**Credit Hours:** 3

**Prerequisites:** JOURN 4560 or JOURN 7560

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**JOURN 7984: Magazine Staff**

(cross-leveled with JOURN 4984). This course provides hands-on experience serving as an editor on a magazine staff. Students are department editors for Vox Magazine and learn how to take a story from an idea through story creation and production and to the printed page, as well as best practices for executing that idea across multiple platforms. Students learn about pitching, working with writers, designers and photographers, editing for content and style, successful story packaging and team collaboration.

**Credit Hours:** 3

**Prerequisites:** JOURN 4410 or JOURN 7410, JOURN 4408 or JOURN 7408

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**JOURN 7986: Advanced Writing**

(cross-leveled with JOURN 4986). This course builds on the in-depth, reporting, research, and writing techniques of Intermediate Writing and other writing and reporting classes. It is designed for those who wish to pursue writing as a career. Students complete writing assignments and analyze the work of well-known magazine and book authors.

**Credit Hours:** 3

**Prerequisites:** JOURN 4410 or JOURN 7410 or equivalent. Restricted to Journalism students only

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**JOURN 7988: Advanced Publication Design**

(cross-leveled with JOURN 4988). Project-based capstone in which skills learned in previous courses are applied to professional-level design challenges, such as feature, cover or iPad designs; multimedia prototypes; special editions; or other applications for Vox Magazine, Columbia Missourian or other outlets.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4500 or JOURN 7500

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**JOURN 7992: Innovation and Audience Outreach in Converged Media**

(cross-leveled with JOURN 4992). Capstone course brings together the reporting, editing, audience focus, management and marketing skills gained in previous journalism courses. Students evaluate audiences and sustainability for journalistic content, applications, products and experiences and plan, produce and promote internal and external projects. Graded on A-F basis only.

**Credit Hours:** 3

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**Prerequisites:** JOURN 7804, JOURN 7806 or equivalent level of multimedia experience; instructor's consent required

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**JOURN 7994: Magazine Publishing**

(cross-leveled with JOURN 4994). This capstone experience explores key components and recent trends in the magazine industry. The primary focus is creating a magazine prototype that includes conceptualizing ideas and editorial for new titles, as well as business plans for advertising, circulation, finance and production. The course follows a nuts and bolts, learn-by-doing approach to how these components work together and influence one another.

**Credit Hours:** 3

**Prerequisites:** JOURN 4408 or JOURN 7408 and either JOURN 4410 or JOURN 7410 or equivalent, or JOURN 4360 or JOURN 7360 or JOURN 4500 or JOURN 7500. Restricted to Journalism students only

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**JOURN 8000: Mass Media Seminar**

Concepts, functions and major problems of print and electronic media in the United States. Two hours lecture and one hour of discussion lab each week.

**Credit Hours:** 3

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**JOURN 8001: Seminar on Topics in Journalism**

Problems, issues and approaches to research in selected topic areas. Specific content varies by needs of faculty and students and will be announced in advance.

**Credit Hours:** 3

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**JOURN 8006: Quantitative Research Methods in Journalism**

Research methods of utility in journalism and philosophy of science. Emphasis on understanding common quantitative methods and tools.

**Credit Hours:** 3

**Prerequisites:** six hours of journalism or instructor's consent

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**JOURN 8008: Qualitative Research Methods in Journalism**

Course is designed to introduce graduate students to common qualitative approaches applicable to the study of journalism and mass communication. Students will learn a variety of approaches, practical methodologies and tools that will help them conduct research.

**Credit Hours:** 3

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**JOURN 8010: Advanced Qualitative Methods in Journalism**

Designed to familiarize doctoral students with qualitative approaches applicable to the study of journalism and mass communication. Students will be introduced to a variety of philosophical and conceptual approaches as well as to practical tools-oriented methodologies in four major areas of qualitative research.

**Credit Hours:** 3

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**JOURN 8016: Advanced Quantitative Research Methods**

Experimental design, factor analysis, semantic differential and Q methodology as tools for the researcher in journalism, communication.

**Credit Hours:** 3

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**JOURN 8020: Principles and Tools in Strategic Communication Planning**

Introduces the latest principles of strategic communication and the importance of strategic planning in many contemporary communication fields. A significant operational component in the course introduces skills such as budgeting, scheduling objective-setting, organizing personal time, and managing people.

**Credit Hours:** 3

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**JOURN 8026: Philosophy of Journalism**

Seminar deals with wide assortment of philosophical questions in journalism but concentrates on epistemology, political press theory and ethics. Such questions as 'objectivity' in journalism, press responsibility, professionalism.

**Credit Hours:** 3

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**JOURN 8028: The Literature of Journalism**

Reading of ten basic books about journalism. Several books are assigned to everyone; several are assigned on an individual basis, and several are electives. Oral reports, short papers, and class discussion.

**Credit Hours:** 3

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**JOURN 8030: History of Mass Media**

American mass media from colonial days to present in the context of social, economic and political change. History research.

**Credit Hours:** 3

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**JOURN 8032: Media Sociology**

This course examines the relationship between media (and journalism in particular) and society by addressing the impact of society on media and the impact of media on society. It connects media actors, organizations, and institutions to important sociological concepts, such as socialization, social interaction, social roles, and social structures, concerns, such as power, ideology, autonomy, and identity, and debates, such as agency-structure, subjectivity-objectivity, and stability-change. Graded on A-F basis only.

**Credit Hours:** 3

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**JOURN 8036: Historical Methods**

Graduate seminar in research methods and theoretical approaches used by media historians, including oral history, biography, quantitative and archival research.

**Credit Hours:** 3

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**JOURN 8038: Seminar in Communications Law**

A graduate-level survey of issues in media law, as well as an introduction to First Amendment theory and scholarship. The course familiarizes students with fundamental concepts of mass media law through exposure to primary materials and provides students with the opportunity to analyze the issues discussed in class through individual research projects.

**Credit Hours:** 3

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**JOURN 8042: Health News and Promotion**

This is an advanced seminar that examines and critiques the literature on health communication in news about health and its impact and health promotion campaigns.

**Credit Hours:** 3

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**JOURN 8044: Strategic Conflict Management**

Strategic conflict management is a cross-disciplinary study that integrated organizational behavior, crisis management, conflict resolution and image repair. This course melds theory with practice, and is for those venturing into media management, law, and strategic communication.

**Credit Hours:** 3

**Prerequisites:** graduate journalism standing required

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**JOURN 8046: Controls of Information**

A detail of actions by government, largely the federal government, calculated to limit or alter the content of information in the United States.

**Credit Hours:** 3

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**JOURN 8052: Case Studies in the Digital Globe**

This course seeks to broaden students perspective about how digital technology affects the world around us. Final course in the CDiG certificate. Inter-departmental course.

**Credit Hours:** 3

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**JOURN 8054: Entrepreneurship and Media of the Future**

This course will give students an intense hands-on experience in working with real entrepreneurs on complex business problems in the journalism field. Example companies are the Associated Press, Kachingle, the Chicago Sun-Times, Spot-Us and the Media Policy Center. The goal is to offer a solution or solutions to the stated problem, and to present these ideas in a competitive, symposium environment.

**Credit Hours:** 3

**Prerequisites:** Graduate standing in Journalism or MBA program

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**JOURN 8056: Theory of Mass Communication**

Major communication theories and theorists. Interpersonal theories are included as they relate to mass communication.

**Credit Hours:** 3

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**JOURN 8058: Communication in Media Organizations**

Covers key concepts in management and communication in media organizations, including print, broadcast, advertising and public relations. Topics include leadership, human resource management, managerial/employee communication, career success, financial decision-making, teambuilding and goal setting in media organizations.

**Credit Hours:** 3

**Prerequisites:** Open to students in the online master's program only

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**JOURN 8068: The Mass Media and the Presidency**

This seminar examines that historical triad of the free expression clauses of the First Amendment, the presidency and the American mass media through readings, class assignments and a project.

**Credit Hours:** 3

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**JOURN 8070: Proseminar in Communications**

Seminar on professional and academic issues in journalism and communication. Specific discussion topics selected by faculty and students on a per class basis.

**Credit Hour:** 1-3

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**JOURN 8080: Media Ethics**

An introduction to and application of ethical theory to their contemporary mass media.

**Credit Hours:** 3

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**JOURN 8085: Problems in Journalism**

Individual work on chosen and specified problems not associated with the master's thesis or project. Topic must be arranged with supervising teacher prior to registration.

**Credit Hour:** 1-4

**Prerequisites:** Master's students only

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**JOURN 8090: Research in Journalism**

Guidance for graduate students engaged in research toward production of the thesis. Graded on a S/U basis only.

**Credit Hour:** 1-9

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**JOURN 8092: Photography in Society**

Social and political dimensions of still photography with emphasis on critical thinking and analysis in visual communication.

**Credit Hours:** 3

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**JOURN 8098: MA Project Seminar**

Choosing and designing an appropriate profession project; preparation to carry out work successfully; discussion of trends and future directions in various areas of journalism. Must be completed before starting the professional project. Graded on S/U basis only.

**Credit Hour:** 1

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**JOURN 8100: MA Thesis Seminar**

Choosing and developing an appropriate research topic for a thesis; designing a research strategy and learning appropriate investigative techniques. Must be completed before starting thesis. Graded on S/U basis only.

**Credit Hour:** 1

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**JOURN 8106: The Magazine: Then and Now**

Examines magazines' history, role, economics and ethical practices, and the companies and people who produce them, particularly in the United States. It also reviews research perspectives that have illuminated this medium.

**Credit Hours:** 3

**Prerequisites:** JOURN 8000

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**JOURN 8110: Editing and News Design for the High School Advisor**

Fundamentals of editing and headline writing for publication. Principles of design with emphasis on newspaper usage.

**Credit Hours:** 3

**Prerequisites:** Restricted to students in the online College of Education Master's program for high school journalism instructors

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**JOURN 8120: Media Law and Ethics for the High School Advisor**

Legal concepts, including prior restraint, libel, privacy, obscenity, contempt and access as they related to print, broadcast, scholastic journalism, advertising and other areas. Includes examination of media ethics and practice.

**Credit Hours:** 3

**Prerequisites:** Restricted to students in the online College of Education Master's program for high school journalism instructors

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**JOURN 8185: Area Seminar in Journalism**

Seminar designed to accompany JOURN 8190, Area Problem. Through readings and discussions the master's student examines the special area related to the project.

**Credit Hours:** 3

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**JOURN 8190: Area Problem in Journalism**

Work project enabling a master's student to demonstrate professional competence; may be one offered in a graduate reporting program or a creative project designed to meet a particular interest of student. Graded on S/U basis only.

**Credit Hour:** 1-9

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**JOURN 9000: Doctoral Theory and Research I**

First semester of a one-year course that covers theory and method in important topic areas. Each topic would be examined from several theoretical and methodological points of view. Required of doctoral students.

**Credit Hours:** 3

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**JOURN 9006: Doctoral Theory and Research II**

Continuation of JOURN 9000. Required of doctoral students.

**Credit Hours:** 3

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**JOURN 9008: Readings in Journalism**

Directed readings for doctoral candidates. Designed to supplement work in other courses and to broaden student's knowledge of trends, interpretations and developments in the media.

**Credit Hour:** 1-5

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**JOURN 9010: Doctoral Research Design**

This course is designed to meet the University requirement for a first-year qualifying examination process for doctoral students, involve students in research early in their programs and encourage students to recruit members of their doctoral committees.

**Credit Hours:** 3

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**JOURN 9085: Problems in Journalism**

Individual work on chosen and specified problems not associated with the doctoral dissertation or project. Topic must be arranged with supervising teacher prior to registration.

**Credit Hour:** 1-4

**Prerequisites:** Doctoral students only

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**JOURN 9087: Professional Development**

Weekly discussion session for doctoral students. Required of all doctoral students. Graded on S/U basis only.

**Credit Hour:** 1

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**JOURN 9090: Research in Journalism**

Guidance for doctoral candidates engaged in investigations looking toward production of the dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-9

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## Korean Courses

**KOREAN 1001: Topics in Korean - General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**KOREAN 1005: Topics in Korean - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**KOREAN 1100: Elementary Korean I**

Introductory course on Korean language. Five hours classroom instruction with one hour lab weekly.

**Credit Hours:** 6

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**KOREAN 1200: Elementary Korean II**

Five hours classroom instruction with one hour lab work weekly.

**Credit Hours:** 6

**Prerequisites:** C- or better in KOREAN 1100

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**KOREAN 1830: Survey of East Asian History**

(same as HIST 1830). Introductory survey of the history of East Asian countries (China, Korea, Vietnam, and Japan) in the past two thousand years, focusing on their cultural, economic, and political traditions as well as their transformations in the modern era. Graded on A-F basis only.

**Credit Hours:** 3

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**KOREAN 2001: Topics in Korean - General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing or instructor's consent

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**KOREAN 2005: Topics in Korean - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing or instructor's consent

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**KOREAN 2160: Intermediate Korean Language I**

Intermediate Korean I continues to build on the skills students acquired in the first-year series with increasing work in authentic materials and situations in conversation and reading that encourage students to understand the use of language in its social and cultural context.

**Credit Hours:** 3

**Prerequisites:** KOREAN 1200

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**KOREAN 2310: Korean Civilization I**

Focuses on understanding traditional Korean people and culture through examining social, political, economic, and belief systems. Considers literature, art, folklore, and history up to the late 19th century. May be taken independently of KOREAN 2320.

**Credit Hours:** 3

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**KOREAN 2320: Korean Civilization II**

Considers the situation and culture of Korea at the end of the Chosun Kingdom, and the period of modernization beginning about 1876. Investigates how modernization has changed Korea by looking at attitudes, behaviors, values, philosophies, and trends of Korea in the 20th and 21st centuries. May be taken independently of KOREAN 2310.

**Credit Hours:** 3

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**KOREAN 2810: History of Korea: Premodern to Hypermodern**

(same as HIST 2810). This course examines Korea historically. The area known as Korea and the people identified as Korean are considered temporally from the ancient times to the contemporary period. This course begins with the questions of what is Korea and when it became a distinct place in world history. More time is devoted to the contemporary period than other periods, and North Korea is equally considered with South Korea. This course is not only about what happened in Korea but also about how Korea's historical events are causally connected to world events, with the greater aim of universalizing Korea's historical questions.

**Credit Hours:** 3

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**KOREAN 3001: Topics in Korean-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent. Prerequisites: sophomore standing and instructor's consent;

**Credit Hour:** 1-3

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**KOREAN 3005: Topics in Korean - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and instructor's consent

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**KOREAN 3160: Intermediate Korean Language II**

Continues to build on the skills students acquire in the third semester of Korean language with increasing work in authentic materials and situations in conversation and reading. Encourages students to understand the use of language in its social and cultural context.

**Credit Hours:** 3

**Prerequisites:** KOREAN 2160, or instructor's consent

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**KOREAN 3180: Advanced Korean I**

The course is designed to advance students to greater strength in oral communication competence, reading skills, and socio-cultural knowledge of Korea. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or higher in KOREAN 3160, or equivalent

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**KOREAN 3650: Korean Politics**

This course is designed to help student understand the dynamics of Korean politics by critically examining major political issues in Korean political history since 1945. Korea is well known country as a rare example that has achieved rapid economic development as well as democratization in a short period of time in the world. However, Korea has experienced severe political struggles in the process of its political development. I assume Korea has survived three stages of political struggles, that is, the struggle for state-building, the struggle for the economic development, and the struggle for democratization which is in progress. For critical understanding of the Korean politics I will deal with the important issues in each stage of political struggles. I am also planning to deal with somewhat external issues that might have affected the Korean political process, that is, North Korean nuclear challenge and unification questions, and Sino-US rivalry in the East Asia.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**KOREAN 3800: Korean Economic Development and US-Korean Free Trade Agreement**

Covers introductory theories of economic development and overviews Korean historical economic development plans. Aids with understanding how South Korean achieved high levels of economic development and what policies the South Korean Government implemented to spur growth. US -Korea Free Trade Agreement is a good example of how trade promotes the achievement of development goals.

**Credit Hours:** 3

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**KOREAN 3890: Korean Society Through Cinema**

(same as FILMS\_VS 3895). Examines the way in which Korean film reveals the cultural, political, and ideological orientation of the society in which it is created and circulated. Compares films from North and South Korea, considering modernity, gender, nation-hood, and class. Graded on A/F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**KOREAN 4001: Topics in Korean-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing and instructor's consent

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**KOREAN 4005: Topics in Korean - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing and instructor's consent

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**KOREAN 4220: North Korean Politics**

This course is designed to help student understand the dynamics of North Korean politics. North Korea can be described as an exceptional country in many ways. First, the transition of power in the North Korea was made through the hereditary succession like a monarchy even though it claimed to be a socialist country. Second, North Korea has survived as a socialist country, while most of the communist countries including the Soviet Union and East European countries collapsed in the late 1980s and the early 1990s. Third, the North Korea, one of the poorest countries, has developed the nuclear weapons as well as other weapons of mass destruction, threatening the international security. For critical understanding of the North Korean politics I will trace the Korean communist movement, and deal with the North Korean political history since 1945. I am also planning to deal with the ideology and important governmental structure including the Korean Workers' party, the Military Commission and the social control structures. Then I will examine the current issues including economic reforms, the nuclear challenge, and the several issues with the South Korea like unification questions and the conclusion of the peace treaty to end the Korean War.

**Credit Hours:** 3

**Prerequisites:** junior standing required

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**KOREAN 4260: The Korean Diaspora in the U.S., Japan and China**

Interdisciplinary course related to the phenomenon of migration and settlement from Korea. Course seeks to deepen understanding of the ways in which Korean immigrants have shaped and continue to shape social thought as well as institutions in the United States, Japan and China. Draws upon literature, history and cultural studies to examine experiences of Koreans living in the U.S., Japan and China. Through reading critical literatures, students address issues such as immigration history, race/ethnicity, racism and resistance, gender and sexuality, culture and identity, labor, migration and globalization, class, education, religion.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent required

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**KOREAN 4690: Korean Politics - South and North Korea**

(same as POL\_SC 4690). This course is designed to help student understand the dynamics of Korean politics by critically examining major

political issues in Korean political history since 1945. Korea is the only country that still remained in the Cold War international structure. Since the division of Korean peninsula, the two Koreas are competing each other for the legitimacy among Koreans. For critical understanding of the Korean politics, I will first deal with the division of Korean peninsula and emergence of two Koreas, Korean war and the political implication of the two Koreas. And then I will focus on the South Korean politics of which country that is well known as a rare example that has achieved rapid economic growth as well as democratization in a short period of time in the world. I am also planning to deal with several issues that might have affected the South-North Korean politics, that is. ROK-US Alliance, North Korean nuclear challenge and unification questions, and Sino-US rivalry in the East Asia.

**Credit Hours:** 3

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**KOREAN 4867: North Korea: History, Political Economy, Culture** (same as HIST 4867). The aim of this course is to survey North Korea's history, especially in terms of political economy and culture. Through several themes, we will examine the historical situations of North Korea from its beginnings in the postliberation period to the present, as North Korea undergoes monumental changes. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing, or instructor's consent

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## Laboratory Animal Medicine Courses

### **LAB\_AN 8090: Research in Laboratory Animal Medicine**

Research expected to terminate in a thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

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### **LAB\_AN 9087: Seminar in Laboratory Animal Medicine**

Theme-oriented seminars and discussions in the field of laboratory animal medicine, comparative medicine or related areas. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** departmental consent

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### **LAB\_AN 9437: Pathology of Laboratory Animals**

Pathogenesis, pathology and diagnosis of naturally occurring diseases in animals used in research.

**Credit Hours:** 4

**Prerequisites:** departmental consent

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### **LAB\_AN 9468: Laboratory Animal Biology**

Anatomy, taxonomy, reproduction, genetics, nutrition, and behavior of common laboratory animals. Emphasis is placed on mice and rats, including genetically-engineered models with comparative discussions on other laboratory animals. Prerequisites: departmental consent

**Credit Hours:** 4

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### **LAB\_AN 9469: Laboratory Animal Resource Management**

Policies, standards and regulations in the care and use of laboratory animals, including colony management, animal procurement, cost accounting, facility design, and supervisory skills.

**Credit Hours:** 4

**Prerequisites:** departmental consent

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### **LAB\_AN 9476: Grant and Manuscript Writing for Biomedical Researchers**

Topics include experimental design applied biostatistics and writing effective grant proposals and scientific manuscripts. Methods include lecture, discussion and assignments including an individual grant proposal which will be reviewed by a mock study section.

**Credit Hours:** 3

**Prerequisites:** LAB\_AN 9475; instructor's consent

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### **LAB\_AN 9477: Laboratory and Project Management**

This course will provide graduates with professional development skills and career guidance including instruction in laboratory and project management. Topics will include job searching, start-up considerations, equipping a lab, personnel management and budget management. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** enrollment in Comparative Medicine Area Program or approval of course coordinator

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## Latin Courses

### **LATIN 1100: Elementary Latin I**

Forms, grammar, syntax.

**Credit Hours:** 4

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### **LATIN 1100H: Honors Elementary Latin**

Beginning Latin for Honors Eligible students.

**Credit Hours:** 4

**Prerequisites:** Honors eligibility required

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### **LATIN 1200: Elementary Latin II**

Continuation of LATIN 1100.

**Credit Hours:** 4

**Prerequisites:** LATIN 1100

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### **LATIN 1200H: Honors Elementary Latin II**

Continuation of LATIN 1100H.

**Credit Hours:** 4

**Prerequisites:** LATIN 1100. Honors eligibility required

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### **LATIN 2000: Latin Reading**

Readings in Latin prose and poetry.

**Credit Hours:** 3

**Prerequisites:** LATIN 1200

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### **LATIN 2000H: Latin Reading - Honors**

Readings in Latin prose and poetry.

**Credit Hours:** 3

**Prerequisites:** LATIN 1200. Honors eligibility required

**LATIN 4121: Methods of Teaching Foreign Languages**

(same as SPAN 4120, FRENCH 4120). Theory and techniques of current foreign language methodology and their application in the classroom. Presentation of instructional projects, classroom observations, and strategies for classroom management. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**LATIN 4300: Latin Poetry**

(cross-leveled with LATIN 7300). Readings in selections from the Latin poets.

**Credit Hours:** 3

**Prerequisites:** LATIN 2000

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**LATIN 4350: Latin Prose**

(cross-leveled with LATIN 7350). Selections from various Latin prose writers; some composition at instructor's discretion.

**Credit Hours:** 3

**Prerequisites:** LATIN 2000

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**LATIN 4500: Latin Stylistics**

(cross-leveled with LATIN 7500). Study and writing of connected prose compositions.

**Credit Hour:** 1-3

**Recommended:** LATIN 4300

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**LATIN 4510: Age of the Scipios**

(cross-leveled with LATIN 7510). Critical readings in and integrated analyses of the culture of the second century B.C.

**Credit Hour:** 3-6

**Recommended:** LATIN 4300

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**LATIN 4520: Age of Cicero**

(cross-leveled with LATIN 7520). Critical readings in and integrated analyses of the culture of the last decades of the Roman Republic.

**Credit Hours:** 3

**Recommended:** LATIN 4300

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**LATIN 4530: Vergil**

(cross-leveled with LATIN 7530). Readings, discussion, and literary analysis of Vergil Aeneid.

**Credit Hours:** 3

**Recommended:** LATIN 4300

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**LATIN 4540: Augustan Literature**

Critical readings in and integrated analyses of the culture of Augustan Rome.

**Credit Hours:** 3

**Recommended:** LATIN 4300

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**LATIN 4580: The Theodosian Age**

(cross-leveled with LATIN 7580). A survey of major literary works of the late fourth and early fifth centuries. Readings from Augustine, Ambrose, Prudentius, Paulinus of Nola, Ammianus Marcellinus, Claudian.

**Credit Hours:** 3

**Recommended:** LATIN 4300

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**LATIN 4590: Medieval Latin**

(cross-leveled with LATIN 7590). Selected texts of Middle Ages and Renaissance. For students with primary interest in history, literature, philosophy, religion, Romance philology, or the classical tradition, experience with Latin sources in their field.

**Credit Hours:** 3

**Recommended:** LATIN 4300

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**LATIN 4600: Survey of Latin Literature**

(cross-leveled with LATIN 4600). Latin literature from origins to end of Roman Empire; emphasis on authors not covered in other courses, to provide general view of styles and genres.

**Credit Hours:** 3

**Recommended:** LATIN 4300

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**LATIN 4960: Special Readings in Latin**

Readings in authors and texts not covered in other courses.

**Credit Hour:** 1-3

**Recommended:** LATIN 4300

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**LATIN 7300: Latin Poetry**

(cross-leveled with LATIN 4300). Readings in selections from the Latin poets. Available to students for graduate credit in departments other than Classical Studies.

**Credit Hours:** 3

**Prerequisites:** LATIN 2000 or equivalent

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**LATIN 7350: Latin Prose**

(cross-leveled with LATIN 4350). Selections from various Latin prose writers; some composition at instructor's discretion. Available to students for graduate credit in departments other than Classical Studies.

**Credit Hours:** 3

**Prerequisites:** LATIN 2000

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**LATIN 7500: Latin Stylistics**

(cross-leveled with LATIN 4500). Study and writing of connected prose compositions.

**Credit Hours:** 3

**Prerequisites:** two years classical Latin or equivalent

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**LATIN 7510: Age of the Scipios**

(cross-leveled with LATIN 4510). Critical readings in and integrated analyses of the culture of the second century B.C.

**Credit Hour:** 3-6

**Prerequisites:** two years Classical Latin or equivalent

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**LATIN 7520: Age of Cicero**

(cross-leveled with LATIN 4520). Critical readings in and integrated analyses of the culture of the last decades of the Roman Republic.

**Credit Hours:** 3

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**Prerequisites:** two years Classical Latin or equivalent

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**LATIN 7530: Vergil**

(cross-leveled with LATIN 4530). Readings, discussion, and literary analysis of Vergil's Aeneid.

**Credit Hours:** 3

**Prerequisites:** two years of Classical Latin or equivalent

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**LATIN 7580: The Theodosian Age**

(cross-leveled with LATIN 4580). A survey of major literary works of the late fourth and early fifth centuries. Readings from Augustine, Ambrose, Prudentius, Paulinus of Nola, Ammianus Marcellinus, Claudian.

**Credit Hours:** 3

**Prerequisites:** two years of Classical Latin or equivalent

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**LATIN 7590: Medieval Latin**

(cross-leveled with LATIN 4590). Selected texts of Middle Ages and Renaissance. For students with primary interest in history, literature, philosophy, religion, Romance philology, or the classical tradition, experience with Latin sources in their field.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**LATIN 7600: Survey of Latin Literature**

(cross-leveled with LATIN 4600). Latin literature from origins to end of Roman Empire; emphasis on authors not covered in other courses, to provide general view of styles and genres.

**Credit Hours:** 3

**Prerequisites:** two years Classical Latin or equivalent

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**LATIN 7960: Special Readings in Latin**

Readings in authors and texts not covered in other courses.

**Credit Hour:** 2-3

**Prerequisites:** two years Classical Latin or equivalent

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**LATIN 8000: Proseminar in Latin Texts**

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**LATIN 8010: Latin Rough Guide**

Intensive exploration of Latin literature from the Roman Republic through the Late Empire. Emphasis upon texts as both literary and cultural artifacts whose interpretation requires familiarity with the historical and archaeological legacy of antiquity as well as modern exegetical strategies.

**Credit Hours:** 3

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**LATIN 9287: Seminar in Latin Lyric and Elegiac Poetry**

Seminar in Latin Lyric and Elegiac Poetry

**Credit Hours:** 3

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**LATIN 9387: Seminar in Neronian Literature**

Seminar in Neronian Literature

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**Credit Hours:** 3

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**LATIN 9587: Seminar in Latin Epic Poetry**

Seminar in Latin Epic Poetry.

**Credit Hour:** 1-99

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**LATIN 9687: Seminar in the Augustan Age**

Integrated studies in the culture of the age of Augustus--its literature, art and architecture, religion, political and social institutions.

**Credit Hour:** 3-6

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**LATIN 9787: Seminar in Late Antiquity**

Integrated studies in the culture of late antiquity with interdisciplinary focus.

**Credit Hours:** 3

**Prerequisites:** consent required for non graduate students

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## Law Courses

**LAW 1100: Cases and Controversies in American Law**

Discover the American legal system through the case method used at law schools across the United States. Students will learn legal principles and will then apply their knowledge to new sets of facts, practicing the skills lawyers use when serving clients. Topics include constitutional law, contracts, criminal law, property, and torts. Course is taught by law faculty for undergraduates. Graded on A-F basis only.

**Credit Hours:** 3

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**LAW 1100H: Cases and Controversies in American Law - Honors**

Discover the American legal system through the case method used at law schools across the United States. Students will learn legal principles and will then apply their knowledge to new sets of facts, practicing the skills lawyers use when serving clients. Topics include constitutional law, contracts, criminal law, property, and torts. Course is taught by law faculty for undergraduates. Graded on A-F basis only. Prerequisites: Honors eligibility required

**Credit Hours:** 3

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**LAW 2001: Topics in Law - General**

Organized study of selected topics in law. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent. Graded on A-F basis only.

**Credit Hour:** 1-3

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**LAW 2010: Law of the Internet**

Society has moved online - so have our legal disputes. Most of us have tapped 'I agree' without reading the fine print; streamed copyrighted works without paying a license fee; and crept someone via google and social media. Most of us have also been digitally hacked, phished, and spied upon; our personal data has been collected by private and governmental entities; and we have repeatedly heard these buzzwords of network neutrality and bitcoin. This is a survey course in the law of the internet -- civics of the internet. We cover regulation of the internet and big media companies such as Facebook and Google; privacy law from various angles; liability for various nefarious activities (including actions

taken by AI rather than humans); and yes, what happens when you click 'I agree.' Although we discuss computer technology, this is not a high-tech class. You will not need any technical expertise beyond knowing about email, the world wide web, and texting.

**Credit Hour:** 1-3

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**LAW 2010H: Law of the Internet - Honors**

Society has moved online - so have our legal disputes. Most of us have tapped 'I agree' without reading the fine print; streamed copyrighted works without paying a license fee; and creeped someone via google and social media. Most of us have also been digitally hacked, phished, and spied upon; our personal data has been collected by private and governmental entities; and we have repeatedly heard these buzzwords of network neutrality and bitcoin. This is a survey course in the law of the internet -- civics of the internet. We cover regulation of the internet and big media companies such as Facebook and Google; privacy law from various angles; liability for various nefarious activities (including actions taken by AI rather than humans); and yes, what happens when you click 'I agree.' Although we discuss computer technology, this is not a high-tech class. You will not need any technical expertise beyond knowing about email, the world wide web, and texting.

**Credit Hour:** 1-3

**Prerequisites:** Honors eligibility required

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**LAW 3800: Logical Reasoning and Legal Analysis**

This course provides students with the basic concepts necessary to improve their scores on the Law School Admission Test (LSAT), thereby improving their proficiency in key skills such as reading comprehension, analytical reasoning, and logical reasoning. The course will consist of (1) readings and lectures; (2) ten practice tests taken as homework, corrections to practice tests, and (3) a final exam. Graded on A-F basis only.

**Credit Hours:** 3

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**LAW 4001: Topics in Law - General**

Organized study of selected topics in law. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent. Graded on A-F basis only.

**Credit Hour:** 1-3

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**LAW 4940: Internships in Law**

This course is designed to help students learn how the law affects working environments of all kinds, from businesses to government agencies to non-profit organizations. Students will arrange an internship with an organization of their choice and will obtain work experience in a professional setting. Students will then complete assignments related to how various sources of law (such as state and federal statutes, state and federal regulations, and state and federal court opinions) affect that organization. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** Students must have completed at least 55 credit hours before taking this course. Students must have an overall GPA of at least 2.00

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**LAW 5010: Civil Procedure I**

Fundamental and recurrent problems in civil actions in federal and state courts; remedies; pleading; discovery; trials; jurisdiction; appeals; joinder; and preclusion.

**Credit Hour:** 1-3

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**LAW 5015: Civil Procedure II**

Continuation of LAW 5010.

**Credit Hour:** 1-3

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**LAW 5020: Contracts I**

Contract formation, insufficient and defective agreement, bases of promissory liability (including consideration and promissory estoppel), restitution, and abuse of bargaining process, Statutes of Frauds, parol evidence rule and principles of interpretation, contract performance and risk allocation, remedies for breach.

**Credit Hour:** 1-3

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**LAW 5025: Contracts II**

A continuation of Law 5020

**Credit Hour:** 1-3

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**LAW 5035: Criminal Law**

The purposes of criminal law; nature of criminal responsibility; characteristics of particular crimes.

**Credit Hour:** 1-4

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**LAW 5040: Property I**

Classification of property; personal property; possession, bailment, lien, gift, bona fide purchase; land conveyancing at common law under statute of uses; freehold estate in land; concurrent estate in land; and introduction to future interests.

**Credit Hours:** 3

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**LAW 5045: Property II**

Landlord and tenant; easements, profits, and licenses; support; introduction to water rights, nuisance, covenants running with the land, equitable servitudes, zoning, and modern conveyances.

**Credit Hours:** 3

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**LAW 5050: Property**

Classification of real and personal property; rights to found goods; bailments; possession and adverse possession; estates in land and future interests; concurrent ownership; Landlord and tenant; easements, profits and licenses; covenants running with land and equitable servitudes; contracts for the sale of land; conveyancing.

**Credit Hour:** 1-5

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**LAW 5070: Torts**

Principles and practices governing recovery of damages for injuries to person or property. Topics typically covered are intentional torts, negligence, strict liability, products liability, immunities and a survey of various 'no fault' proposals.

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**Credit Hour:** 1-5

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**LAW 5080: Legal Research and Writing**

An introduction to the basics of legal research, legal citation and legal writing. Each student writes two objective office memoranda, and a client letter.

**Credit Hour:** 1-3

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**LAW 5085: Advocacy and Research**

An introduction to Computer Assisted Legal Research, written advocacy, oral advocacy, and the Missouri rules of appellate procedure. Each student writes a trial court motion and brief and then argues that motion. Each student also writes an appellate brief and presents an oral argument in the First Year Moot Court Competition directed by the Board of Advocates (BOA).

**Credit Hour:** 1-3

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**LAW 5090: Foundations of Legal Studies II**

A limited enrollment course designed to assist first-year students to better understand the legal system, prepare for examinations and improve their legal analysis and reasoning skills. Graded on S/U basis only.

**Credit Hour:** 1-2

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**LAW 5095: Lawyering: Problem Solving and Dispute Resolution**

The course is designed to provide students an introduction to critical lawyering skills; to give students an overview of the alternative processes that a lawyer can employ to resolve a client's problem; and to offer students an understanding of the lawyer's role as a problem solver. It includes an introduction to Interviewing, Counseling, Negotiation, Mediation, Arbitration, mixed dispute resolution processes and ways to choose or build dispute resolution processes.

**Credit Hour:** 1-2

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**LAW 5220: Constitutional Law**

Study of theories of judicial review and justiciability; sources of federal legislative power, commerce, taxing, spending, treaty, presidential, military powers; power of states to regulate and tax interstate commerce; preemption; state actions doctrine; due process, equal protection, and First Amendment rights.

**Credit Hour:** 1-4

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**LAW 5240: Criminal Procedure**

Constitutional and other limitations placed upon law enforcement officers and prosecutors.

**Credit Hour:** 1-3

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**LAW 5260: Evidence**

The basic law of evidence; use in trials, relevancy, circumstantial proof and real proof; use of witnesses; methods of examination; presumptions and burden of proof; and, functions of judge and jury.

**Credit Hour:** 1-4

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**LAW 5280: Professional Responsibility**

Responsibilities of lawyer to client, courts and the public. Topics include: organization of the legal profession, fees, conflicts of interest, the confidential relationship, advertising and solicitation, unauthorized practice and courtroom behavior.

**Credit Hour:** 1-3

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**LAW 5310: Administrative Law**

Administrative Law is concerned with the process government agencies use to make decisions. As such it develops the requirements for establishing rules and policies. It also covers the means by which agencies enforce regulations and statutory provisions, and the means for securing judicial review of rules and enforcement actions.

**Credit Hour:** 1-3

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**LAW 5320: Advanced Legal Research**

Skills training in advanced research techniques and resources used in law practice. Designed to help students become critical legal information consumers with an emphasis on developing effective, cost-efficient research strategies. Topics include advanced litigation research, legislative and regulatory history, audience research, research in transactional practice areas, and research in other practice areas including legal ethics, public interest law, and international law. In-depth practice with Lexis, Westlaw and free Internet sources, including appropriate and effective use of social networking tools to extend research is also taught.

**Credit Hour:** 1-2

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**LAW 5321: Advanced Legal Writing**

This course is designed to help students think purposefully about the process of writing and to practice writing and editing in a disciplined way. Students will do exercises involving: rhetorical techniques; grammar; punctuation; and, word usage. Students also will either rewrite or critique portions of appellate briefs or judicial opinions to emphasize a particular technique.

**Credit Hour:** 1-3

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**LAW 5323: Advanced Torts: Dignitary and Economic Torts**

The course will examine dignitary and economic torts covering but not limited to such topics as: defamation, invasion of privacy, tortious interference, misrepresentation and injurious falsehood. Unlike tortious conduct that results in an individual suffering physical harm or contact, the claims that arise from these torts represent one of two kinds of non-physical injury - independent dignitary harms that are similar to or include emotional harms or independent economic or commercial harms. The purpose of the course is to provide students with an opportunity to explore tortious conduct and remedies available that are omitted typically from the First Year Torts course.

**Credit Hour:** 1-3

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**LAW 5325: Advanced Trial Practice**

This course will expand student knowledge of opening statements, direct/cross examination of witnesses, jury instructions, and closing arguments. The course also will focus significantly on the examination/cross examination of expert witnesses. Grading is based on student participation in the examination of witnesses and a semester-ending

written trial brief. NOTE: Intersession Trial Practice will not satisfy the prerequisite.

**Credit Hour:** 1-3

**Prerequisites:** LAW 5260 Evidence and LAW 5925 Trial Practice

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**LAW 5330: Advocacy, Family Violence and Public Policy**

Interdisciplinary presentations examine both the state of family violence in America and the cross disciplinary issues in effective intervention, including legal procedures. The seminar is open to 2nd or 3rd year law students and other professional graduate students with permission of the faculty.

**Credit Hour:** 1-2

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**LAW 5337: American Legal History to 1876**

This is a review of Legal History. The course covers such topics as the impact of the English common law heritage; the development of law in the American colonies; and, slavery, race and gender in 19th century America. The course ends with the conclusion of the Civil War. The course will explore the effects of historical events on the development of law, but the course does not presume prior study of American history.

**Credit Hour:** 1-3

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**LAW 5338: American Legal History from 1876**

Historical study of the development of American law since the Civil War. The course will cover such topics as the Civil War amendments to the Constitution; Reconstruction and its aftermath; legal change during the rise of industrialism; race and gender in late 19th century and 20th century America; law in the Progressive Era; the growth of civil liberties and civil rights in the Supreme Court; the law during war and the Depression; jurisprudential trends; and the Civil Rights Movement of the 1960s. The course will explore the effects of historical events on the development of law, but the course does not presume prior study of American history.

**Credit Hour:** 1-3

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**LAW 5340: Antitrust Law**

Introduces antitrust and economic analysis and the role of competition, with an emphasis on price fixing, horizontal and vertical restraints of trade, monopoly, and merger problems.

**Credit Hour:** 1-3

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**LAW 5345: Appellate Advocacy**

The course enhances skills training for the preservation and presentation of matters on appeal. In addition, the courses provides an introductory examination of extraordinary remedies (as a complement to appeal) and other unique actions filed in the Supreme Court of Missouri.

**Credit Hour:** 1-3

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**LAW 5350: Arbitration**

Law, policy and practices relating to the arbitration process as it is utilized in commercial and international sectors. Topics include modern arbitration statutes (e.g., the Federal Arbitration Act), enforceability of agreements to arbitrate, public policy defenses against enforcement of arbitration agreements, arbitrators and administering institutions,

components of the arbitral process, arbitral remedies and awards, and the arbitration award in the courts.

**Credit Hour:** 1-3

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**LAW 5365: Bankruptcy**

The course focuses on the rights of both secured and unsecured creditors under state and federal law. State law covers collective actions and individual actions such as execution, attachment, garnishment, and the law of fraudulent conveyances. Federal law concentrates on liquidation proceedings under Chapter 7 of the Bankruptcy Code and reorganizations for wage earners under Chapter 13 of the Code. The course will include, as time permits, an introduction to the business reorganization provisions of Chapter 11.

**Credit Hour:** 1-3

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**LAW 5370: Basic Business Principles for Lawyers**

This course is designed for students who want to understand the language and practices of business regardless of whether they contemplate being a business lawyer or not. All lawyers, regardless of their specialty, regularly encounter the language and concepts of business. The purpose of the class is to provide law students with little or no business knowledge or background with the information they need to practice law effectively in a business environment. This class is intended to educate students to be comfortable with business concepts regardless of their prior background. So liberal arts undergraduates should feel comfortable taking this class.

**Credit Hour:** 1-3

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**LAW 5375: Basic Federal Income Taxation**

The course is designed to introduce students to the income tax considerations that arise in a variety of legal contexts and is also beneficial for students not planning to pursue a career in tax. Topics covered are federal income tax problems of individual taxpayers; nature of income; when and to whom income is taxable; exclusion from tax base; deduction; tax effects of exchange or other disposition of capital assets.

**Credit Hour:** 1-4

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**LAW 5392: Business, Entrepreneurship, and Tax Law Review**

The Business, Entrepreneurship, and Tax Law Review (BETR) is affiliated with the Center for Intellectual Property and Entrepreneurship (CIPE). The BET Review journal will give students an opportunity to hone their legal research and writing skills, as well as their leadership skills as editors of the journal, on contemporary issues in growing areas of legal practice. It will also provide an outlet for the publication of articles stemming from symposia and a colloquium series that will be held on topics in the fields of intellectual property, entrepreneurship, and tax. Graded on S/U basis only.

**Credit Hour:** 1-2

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**LAW 5395: Business Organizations**

The course is the law school's foundation course in business law. Topics covered include the study of agency, partnership, limited partnerships, limited liability partnerships, limited liability companies, and corporations. It is recommended for students in all areas of interest. The course is a prerequisite for several advanced electives in business law.

**Credit Hour:** 1-4



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**LAW 5410: Children and the Law**

The course covers the status, rights and obligations of children in contemporary American law; civil proceedings and criminal prosecutions alleging child abuse or neglect; foster care; termination of parental rights; juvenile protective legislation; and delinquency. Emphasis is placed on juvenile justice doctrine, policy and practice issues and the historical and contemporary operation of juvenile and family courts.

**Credit Hour:** 1-3

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**LAW 5415: Constitutional and Civil Rights Litigation**

The course provides advanced analysis of the protection of civil liberties that derive from the United States Constitution and federal statutes. The statutes which will be covered most extensively include the Reconstruction Era laws now codified at 42 U.S.C. Sections 1981, 1983 and 1985; the Rehabilitation Act of 1973; Title IX of the Educational Amends. of 1972; and, Titles II and VI of the Civil Rights Acts of 1964.

**Credit Hour:** 1-3

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**LAW 5420: Client Interviewing and Counseling**

The course covers the nature and conduct of the counseling process including basic interviewing techniques, psychological factors affecting the interview process, facilitating and structuring the interview, clarification of statements and ascertaining legal issues, and dealing with client resistance and hostility. Graded on S/U basis only.

**Credit Hour:** 1-3

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**LAW 5425: Clinical Skills**

The course provides the skills training for students enrolled in the Criminal Clinic. Lectures and simulations are designed to facilitate student skills in case preparation and presentation and client representation. The course provides students with experience in addressing ethical concerns, conducting fact investigation, client interviewing and counseling, drafting legal documents, direct and cross examination, and, making and responding to objections. (Not available to students on probation).

**Credit Hour:** 1-4

**Prerequisites:** LAW 5260 Evidence and LAW 5280 Professional Responsibility

**Corequisites:** LAW 5470 Criminal Clinic and LAW 5475 Criminal Clinic Writing Project

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**LAW 5430: Commercial Real Estate Leasing**

The course is a seminar focusing on the study of selected topics involved in the negotiation, drafting, and interpretation of commercial real estate leases. Topics will include but are not limited to: rental provisions, defining the premises, use of the premises, condition of the premises, assignments and subleases, maintenance and repairs, casualty insurance, default/remedies, and collateral lease documentation. The course looks at the various parties involved in the process of commercial real estate leasing, their respective interests, and the dynamics of the negotiation and drafting process in which these parties memorialize their respective interests in the lease document. There is a heavy focus upon the careful reading, review, negotiation and revision of the lease document. Grading is based upon a series of exercises involving

document review, negotiation, and drafting, and includes both individual and group work.

**Credit Hour:** 1-3

**Prerequisites:** LAW 5856 Real Estate Finance, or LAW 5858 Real Estate Transactions, or LAW 5697 Landlord/Tenant Law and Practice

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**LAW 5435: Comparative Law**

The course examines the differences and similarities between the major legal systems of the world, focusing on distant areas of substantive and procedural law to demonstrate diverse methods of addressing similar legal issues. The course includes a discussion of the historical distinctions between the common and civil law traditions but also moves the analysis forward to address more recent legal innovations and the recognition of new groupings of legal systems. Students will leave the class with a solid understanding of (1) how U.S. legal principles compare to approaches used elsewhere and (2) the uses and benefits of the comparative approach. Principles taught in this course will be equally applicable to those who anticipate practicing domestic U.S. law as well as those who expect to develop an international practice. No foreign language skills are necessary for this course.

**Credit Hour:** 1-3

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**LAW 5440: Complex Litigation**

The course will examine principles and practical techniques relevant to complex civil cases. Building on civil procedure, the course will focus on litigation involving multiple parties and/or multiple jurisdictions. Each student will be required to complete several drafting assignments.

**Credit Hour:** 1-3

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**LAW 5441: Complex Litigation: Mass Torts**

This course will explore aspects of complex civil litigation through the lens of mass torts lawsuits. It will specifically examine issues such as discovery and scientific evidence, alternative liability issues, class action and multi-district litigation, and alternatives to litigation. This course will involve a final exam.

**Credit Hour:** 1-3

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**LAW 5450: Conflict and Conflict Management**

The course is designed to give lawyers a better understanding of the meaning and dynamics of conflict, so that they may better understand their client's situations, as well as the mechanisms that may be most appropriate to the resolution of any particular dispute. The course draws its theoretical teachings from a variety of disciplines beyond law: psychology, sociology, anthropology and economics.

**Credit Hour:** 1-3

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**LAW 5454: Contract Drafting**

The course teaches students the principles of drafting commercial agreements. Although the course will be of particular interest to students pursuing a corporate or commercial law career, the concepts are applicable to any transactional practice. Students will learn how transactional lawyers translate business deals into contract provisions, as well as techniques for minimizing ambiguity and drafting with clarity. Through a combination of lecture, hands-on drafting exercises and extensive homework assignments, students will learn about different types of contracts, other documents used in commercial transactions,

and the drafting problems that contracts and other documents present. Course will also focus on how a drafter can add value to a deal by finding, analyzing and resolving business issues. Grades will be based on the graded assignments, good faith completion of the ungraded assignments, and class participation.

**Credit Hour:** 1-3

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#### **LAW 5455: Copyright Law**

The course examines the nature of copyright law; common law misappropriation; scope of common law copyrights; the Copyright Revision Act of 1976 as amended; formalities of registration (fixation, copyright notice); copyrightable subject matter; originality; exclusive rights of copyright owner; scope of copyright protection; substantial similarity and infringement; fair use; joint and composite works; duration, renewal, termination, transfer; remedies; artists moral rights; federal preemption; international protection; copyrightability of computer software; and, copyright issues on the internet.

**Credit Hour:** 1-3

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#### **LAW 5465: Corporate Taxation**

The course provides an in-depth study of the federal income taxation of corporations and their shareholders, including the tax aspects of forming and capitalizing a corporation, corporate distributions, redemptions, and taxable and tax-free corporate liquidations. This course will be taught using the problem method of instruction.

**Credit Hour:** 1-3

**Prerequisites or Corequisites:** Must have taken or be currently enrolled in LAW 5375 Basic Federal Income Taxation

**Prerequisites:** LAW 5375 Basic Federal Income Taxation

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#### **LAW 5470: Criminal Clinic**

The Criminal Clinic is available during both the Fall and Winter semesters. It can only be taken once. Enrollment is limited to 8 students per semester. Students must also enroll in Clinical Skills and Criminal Clinic Writing Project and have completed, or be enrolled in, LAW 5280 Professional Responsibility and LAW 5260 Evidence. (Not available to students on probation).

**Credit Hour:** 1-5

**Prerequisites:** LAW 5280 Professional Responsibility, LAW 5260 Evidence. Students must have prior permission of professor

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#### **LAW 5475: Criminal Clinic Writing Project**

This is the Writing Section accompanying course LAW 5470.

**Credit Hour:** 1-2

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#### **LAW 5477: Criminal Justice Administration**

The course examines the justice system's processing of formal criminal cases from the point at which a defendant is formally charged and going forward. The course reviews the processing and adjudication of criminal cases. Topics include the defendant's rights under the Sixth Amendment (e.g. jury trial, speedy trial, confrontation clause, and compulsory process rights); Eighth Amendment issues (e.g. bail and cruel and unusual punishment); criminal discovery (e.g. the prosecutor's Brady obligation to provide exculpatory evidence to defendants); expert witnesses; pretrial and trial publicity; plea bargaining; sentencing (e.g. use of discretionary guidelines and minimum mandatory systems); and appeals. This will

be both an advanced criminal procedure course (similar to 'bail to jail' courses at other law schools) and an advanced criminal law course.

**Credit Hour:** 1-3

**Recommended:** successful completion both LAW 5035 Criminal Law and LAW 5240 Criminal Procedure before taking this course

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#### **LAW 5485: Cross-Cultural Dispute Resolution**

The course will focus on the impact culture can have on the private ordering of disputes. Culture affects communication, perceptions regarding conflict and methods for resolution. As the world becomes more interrelated and Missouri and the U.S. more diverse, lawyers need to be prepared to resolve problems across cultural lines. 20-25% of the grade will come from timely attendance and class participation.

**Credit Hour:** 1-3

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#### **LAW 5496: Deal Skills Class**

The course introduces students to business and legal issues common to commercial transactions. Class will emphasize the thought process involved in, and required by, the practice of transactional law, skills such as interviewing, counseling and communicating with your client, understanding business issues and drafting contract provisions to reflect those issues, negotiation deals and managing a transaction closing. Simulation exercise, in-class role-play and lectures, out-of-class due diligence, negotiation and other exercises.

**Credit Hour:** 1-3

**Prerequisites:** Either LAW 5395 - Business Organization or LAW 5454 - Contracting Drafting. Students cannot enroll concurrently in Corporate Finance and Deal Skills. Students who have completed Deal Skills are precluded from enrolling in Corporate Finance. However, students are allowed to enroll in Deal Skills even if they have already taken Corporate Finance

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#### **LAW 5497: Death Penalty Law**

The course will focus primarily on the U.S. Supreme Court's capital punishment jurisprudence over the past 35 years or more, with particular attention to how it has shaped state statutory schemes and legal argumentation in capital sentencing trials.

**Credit Hour:** 1-3

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#### **LAW 5516: Dispute Resolution in the Digital Age**

The course will explore the need for expanded and equalized access to remedies in consumer cases, and how the internet opens doors to online dispute resolution ('ODR') systems that utilize cost-effective negotiation, mediation, and arbitration processes for resolving complaints. ODR has its drawbacks, but it can be especially effective and satisfying for low dollar claims such as those in most consumer contexts because of its efficiencies. ODR also has potential to ease power imbalances that have hindered market regulation. Accordingly, this course will look at the various systems currently used by major companies such as eBay, as well as the rules and treaty developments in global markets. We also will do ODR simulation exercises, led by Colin Rule, who has been a leader in creating ODR systems. The class also will include deep consideration of both the potential and drawbacks of ODR systems. All ODR processes are not beneficial, and thus we will also discuss development of best practices and question policy directions.

**Credit Hour:** 1-4

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**LAW 5520: Drafting of Legal Instruments**

The course examines problems frequently encountered in general office practice (land transfers, mortgages, leases, contracts, wills, business organizations, etc.), with drafting of the related instruments. Use and adaptation of legal forms. Graded on S/U basis only.

**Credit Hour:** 1-2

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**LAW 5525: Education Law**

This course examines the application of discrete doctrines from criminal law, constitutional law, juvenile law, employment law, and disability law to the legal problems facing American schools. Students will explore the ways in which the objectives of these discrete legal doctrines either promote or interfere with our educational policies. Substantive areas of concentration include state regulation of education; freedom of speech, association and religion; equal educational opportunity; employment of teachers; and discipline of students.

**Credit Hour:** 1-3

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**LAW 5530: Elder Law**

This course address legal issues impacting older individuals, including discussion of government benefits (Social Security, Medicaid, Medicare, Supplemental Security Income), long-term care (types, contract issues, civil rights, and financial planning), guardianship and conservatorship, planning for incapacity, and health care decisions at the end of life. The course emphasizes planning techniques for the average client. Grade will be based on a short paper and take-home exam. The course may be taken for writing credit.

**Credit Hour:** 1-3

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**LAW 5532: Election Law**

Election Law has become more important in recent years. This course will introduce students to the many theoretical and practical constitutional, statutory, common law, and policy issues that accompany the franchise, including: legislative districting, voting rights, campaign finance, political parties, interest groups, direct democracy, and alternative democratic structures. The course will emphasize federal law, but will also address Missouri state law as appropriate.

**Credit Hour:** 1-3

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**LAW 5534: Electronic Discovery**

This course provides an in-depth treatment of the legal, technical, and cost management issues involving electronically stored information ('ESI') in civil litigation. Covers the 2006 FRCP ESI amendments (Rules 26 meet and confer, 34, production, and 37 sanctions), FRE 502 (privilege review and production), state e-discovery rules, the rapidly developing ESI case law, and emerging best practices from the Sedona Conference Cooperation Proclamation, the Electronic Discovery Reference Model, and other E-discovery authorities. Practice drafting litigation holds, preservation orders, and related e-discovery documents regularly used in civil litigation. Grading is based on student projects and a final examination.

**Credit Hour:** 1-3

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**LAW 5537: Emotional Intelligence in Law**

Success in law requires more than substantive legal knowledge. It also requires self-awareness, or 'emotional intelligence,' by the lawyer in order to be able to operate effectively in a complex and nuanced legal environment. This course is designed to help students develop their emotional intelligence by cultivating such personal and social competencies as personal and social awareness, understanding of motivation, empathy and social skills.

**Credit Hour:** 1-3

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**LAW 5540: Employment Discrimination**

This course examines the laws which prohibit discriminatory practices in employment. Title VII is the primary focus, but coverage is also given to the Equal Pay Act, the Americans with Disabilities Act, and the Age Discrimination in Employment Act. Additionally, the course addresses the administrative process available for dealing with employment discrimination complaints, the prima facie case requirement and burden shifting analysis used in civil rights cases, and affirmative action requirements.

**Credit Hour:** 1-3

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**LAW 5543: Employment Law**

Employment Law focuses on the legal relationship between employers and employees in the non-unionized workplace. The course will survey a variety of issues regarding the establishment, maintenance and termination of the employment relationship. For example, the course will cover the common law aspects of that relationship, particularly contracts and torts. It will examine statutory modifications of the common law in areas such as wage and hours, pensions, whistle-blower protection, unemployment insurance, workers compensation, and health and safety.

**Credit Hour:** 1-3

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**LAW 5544: Entrepreneurship Legal Clinic**

The Entrepreneurship Legal Clinic (the 'ELC') combines business law issues, intellectual property, and transactional experiential learning. The ELC explores the lawyer's role as counsel to entrepreneurs engaged in early-stage ventures. Students will survey the legal and business issues encountered by entrepreneurs and develop the practical skills necessary to effectively represent them, including client interviewing and counseling, entity formation and planning, governance issues, employee issues, intellectual property analysis (except patents [presently]), and contract drafting. Students will work on actual client matters approved by the ELC's Supervising Attorney. Students must have the Supervising Attorney's permission to enroll, and they must satisfy the Requisites listed below. The Clinic is graded and enrollment is limited.

**Credit Hour:** 1-4

**Corequisites:** LAW 5280 - Professional Responsibility

**Recommended:** LAW 5395 -Business Organizations

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**LAW 5545: Environmental Law**

Federal and state regulation of the environment, including the economic and philosophical foundations of environmental regulation, the common law roots of environmental regulation, and substantive coverage of a number of environmental statutes, such as the Clean Air Act, Clean Water Act, Resource Conservation and Recovery Act, Comprehensive Environmental Response, Compensation and Liability Act, National Environmental Policy Act, and Endangered Species Act.

**Credit Hour:** 1-3

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**LAW 5555: Estate Planning**

Applies substantive law learned in Estates and Trusts and Basic Income Tax to the drafting of estate planning documents and related documents typical of those used in law practice. Grade based entirely on student projects.

**Credit Hour:** 1-4

**Prerequisites:** LAW 5560 and LAW 5375

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**LAW 5560: Estates and Trusts**

Wills: probate process and will contests, intestate succession; restrictions on testation; execution, revival of wills; integration, incorporation by reference, events of independent significance; will substitutes; will construction; family protection.. Trusts: elements and creations; modification and termination; beneficial interests; charitable trusts; trust construction; powers of appointment; trust administration and fiduciary duties.

**Credit Hour:** 1-4

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**LAW 5570: Externship**

The Externship offers students an opportunity to develop the skills necessary to bridge the gap between law school and law practice. Through the Externship, students prepare for 'effective and responsible participation in the legal profession' (ABA Std. 301) by applying the core concepts learned in law school courses to the challenges presented in the actual, in-office practice of law. Details concerning the requirements and structure of the course are available at the Externship webpage. Students cannot take more than 6 hours of Externship credits, except in the Semester-in-Practice program and subjected to the additional limitations of that program. Credits earned in Landlord/Tenant Practicum count toward that 6-hour Externship limit. Graded on S/U basis only.

**Credit Hour:** 1-9

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**LAW 5575: Family Law**

After surveying the variety of family arrangements in contemporary America and central issues concerning the practice of domestic relations law, this course covers marriage; dissolution; distribution of marital property; alimony; child custody; visitation and support; post-dissolution disputes over custody and child-rearing; non-marital families and non-marital children; private agreements in family law; and alternative dispute resolution in collaboration with other professions in client representations, and ethical and policy issues.

**Credit Hour:** 1-3

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**LAW 5580: Family Violence Clinic: Individual and Social Justice**

Rule 13 certified law students represent needy abused women and children in 13 rural Missouri counties. Students obtain orders of protection in adult abuse courts, and appear in protective custody cases in juvenile courts. Weekly debriefings may include interprofessional graduate students. Law students must complete LAW 5330 Advocacy, Family Violence and Public Policy before or during their clinical experience. (Not available to students on probation).

**Credit Hour:** 1-4

**Prerequisites:** LAW 5280 Professional Responsibility

**Corequisites:** LAW 5330 Advocacy, Family Violence and Public Policy

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**Recommended:** LAW 5260 Evidence

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**LAW 5584: Fiduciary Administration**

This course will cover key issues that arise in the administration of decedent's estates and trusts, including the necessity for probate, rights of creditors, the fiduciary obligations of trustees and personal representatives, investments, and accounting and distribution. Depending on class size, grading will be based either on an exam, a practice-oriented project, or both.

**Credit Hour:** 1-3

**Prerequisites:** LAW 5560 Estates and Trusts

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**LAW 5585: Federal Courts**

The course will examine the role of federal courts and their relationship to state courts. Topics covered: justiciability; federal question and diversity jurisdiction; sovereign immunity; abstention; and habeas corpus.

**Credit Hour:** 1-3

**Prerequisites:** LAW 5220 Constitutional Law

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**LAW 5590: Freedom of Speech and Association**

A study of the rights of speech and association under the First Amendment of the United States Constitution. Major Supreme Court decisions regarding freedom of speech, including content-based and content-neutral restrictions of speech, regulation of commercial speech, regulation of obscenity and pornography, regulation of speech in public and private fora, libel and privacy law, forced association with persons or ideas, and subsidization of speech.

**Credit Hour:** 1-3

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**LAW 5591: Food Law and Policy**

This course examines the laws that govern food safety and food labeling, and considers how well this network works to protect American consumers. It also considers current issues affecting the global food system. Representative topics include recent food safety problems such as tainted meat and salmonella contamination of eggs; food labeling issues such as the use of the term 'grass fed' in meat labeling and the use of GMO seed; organic standards; government efforts to address the obesity problem; urban food deserts; animal welfare concerns; the regulation of pet food, and the like. Specific topics addressed each semester will depend on current events and recent legal developments. Students will be graded on the basis of research paper and class participation. The course will often include a writing section designed to meet the upper-level writing requirement. The course may be offered from time to time as a paper-only course, designed to meet the upper-level writing requirement.

**Credit Hour:** 1-3

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**LAW 5592: Firearms Law**

This class will examine the historical development and modern context of the regulation of firearms. Although emphasizing domestic law, some international and comparative perspectives will be examined. The class may be taken for writing credit.

**Credit Hour:** 1-3

**Prerequisites:** LAW 5220 Constitutional Law

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**LAW 5595: Gender, Race, Sexuality and the Law**

A study of the treatment of gender by the legal system. Topics will include a survey of writings by influential feminist legal scholars, historians and social scientists; a comparison of different theoretical frameworks; and an overview of substantive law and the latest legal developments involving gender. The primary aim of the course is to study various feminist theories to discern how gender is viewed by today's lawmakers and courts.

**Credit Hour:** 1-3

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**LAW 5615: Health Law: The Regulation of Providers**

An examination of the law governing the interactions between patients and their health care providers. The course will focus on rules governing the duty to treat, confidentiality, informed consent, medical malpractice liability, institutional vicarious liability, managed care liability, conditions of participation in federal programs like Medicare and Medicaid, fraud and abuse, and ERISA preemption. The course will cover antitrust and self-policing aspects of professional associations. The class also covers selected elements of public health law.

**Credit Hour:** 1-3

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**LAW 5620: Immigration Law**

A study of the development of U.S. immigration and refugee law and policy, with emphasis on current immigration problems and issues. Recent changes in the immigration laws, and future trends in dealing with increasing immigrant pressure.

**Credit Hour:** 2-3

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**LAW 5632: Innocence Project Clinic**

This is a joint clinic among the MU and UMKC law schools, and The Midwest Innocence Project, a non-profit organization. Law students will work under the supervision of the Clinic Director, a practicing lawyer, on cases of possible actual innocence from six states. Graded on S/U basis only.

**Credit Hour:** 1-4

**Prerequisites:** LAW 5946 Wrongful Convictions

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**LAW 5634: Innovation and Technology in the Practice of Law**

As in other industries, the legal profession is undergoing substantial disruption. Pressure to reduce client costs in the private sector and longstanding access to justice constraints in the public sector have fueled innovation through technology and redesign of traditional legal service models. The course surveys topics at the intersection of law and technology such as artificial intelligence, Blockchain, cybersecurity, data privacy, electronic discovery, social media, and smart contracts; established law practice tech applications including practice management software and document automation; and evolving machine learning and data analytics tools to future proof law. Innovations in the delivery of public sector legal services are considered. Throughout the course, students will experience and evaluate practice tools that are essential for a lawyer's technology competency.

**Credit Hour:** 1-3

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**LAW 5635: Insurance Law**

A basic course in the fundamentals of insurance law. Topics covered include defining insurance; risk and the nature of the insurance

relationship; insurable interest; indemnity; fortuity; subrogation; coordination of benefits; interpretation; rights at variance with policy provisions; contract formation; warranties, misrepresentation and concealment; condition; agents and brokers; introduction to regulation; introduction to insurance coverage.

**Credit Hour:** 1-3

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**LAW 5637: Insurance Claims Processing and Dispute Resolution**

This course provides an in-depth examination of claims processing and dispute resolution in the insurance business in both first-party (property, life, etc.) and third-party (liability) insurance. Topics covered include notice of loss, proof of loss, duty to cooperate; negotiation of insurance claims; appraisal; mediation and arbitration of insurance claims; remedies for noncompliance with claims processing obligations; and, bad faith. The topics will be covered from a national perspective, but special emphasis will also be given to Missouri law. This course is approved to count as an elective toward the Dispute Resolution Certificate.

**Credit Hour:** 1-4

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**LAW 5640: Intellectual Property**

This course is an introduction to the four broad areas of intellectual property. Students will learn about intellectual property, contract, and tort knowledge gained from the first year curriculum. The course will cover trademarks, trade secrets, patent law, and copyright law. Thus, the course will cover how one obtains the special property rights called the copyright, patent, trademark contract. Further, the course will cover how these intellectual property rights are protected from the tortious act of infringement, as well as any defense to infringement it is important to note that this introductory class cannot be used to satisfy any of the requirements for the Intellectual Property certificate; nor is this introductory course substitute for the more in-depth coverage offered by Patent Law and Policy, Copyright Law or Trademark Law. Rather, it is designed to allow students to explore basic intellectual property issues and to meet any prerequisites for Cyberspace Law, Software Law and International Intellectual Property. Students may find that taking this introductory course complements the rest of the intellectual property curriculum. Class participation and preparations is required, as is class attendance. An exam and several small written projects will be required.

**Credit Hour:** 1-3

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**LAW 5652: International Commercial Arbitration**

This course offers a study of arbitration as a dispute resolution process for international trade and business disputes. The course reviews ad hoc and institutional arbitration, the authority of arbitral panels, enforcement of agreement to arbitrate, challenging arbitrators, procedure and choice of law in arbitral proceedings, the enforcement of international arbitral awards. Special attention will be given to the international convention on the recognition and enforcement of international arbitral agreements and awards (New York Convention) and the UNCITRAL (U.N. Commission of International Trade Law) arbitral rules and model law. The course focuses on commercial arbitration as an international practice and not on arbitration under any particular national system. Students will participate in a hypothetical arbitration matter, beginning from the development of the claim to preliminary proceedings, the arbitration hearing, and ending with the arbitrators' award.

**Credit Hour:** 2-3

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**LAW 5660: International Human Rights**

The purpose of this course is to enable students to develop a basic understanding of the concept of international human rights law and the role played by international and regional organizations, states and private actors in defining and enforcing human rights. Beginning with the historical origins of human rights, the course will examine the international regional human rights instruments and institutions that form the sources of human rights law (the UN system, including the Charter and treaties, European, African and Inter-American human rights regimes). It will also examine the role of non-governmental organization, the International Criminal Court and International humanitarian law (the law of war), and the interaction between US civil rights law and International human rights. Throughout the course, students will be introduced to important critical themes of human rights, including: the distinctions between public and private acts, evolving theories of statehood, sovereignty immunity, cultural relativism, and the western tradition of individual rights, and the relationship between rights and duties. Issues examined will include: political participation and democratization, religious freedom, the use of torture, corporate liability, woman's rights, the right and status of refugees, genocide and war crimes.

**Credit Hour:** 1-3

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**LAW 5665: International Law**

Introduction to the international legal system, with emphasis on relations between nation-states or international entities. Topics include statehood and recognition, legislative and judicial jurisdiction, human rights and the status of the individual, treaties and international organizations.

**Credit Hour:** 1-3

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**LAW 5677: Internet Law and Practice**

This course will focus on preparing to advise business clients dealing with electronic commerce and internet law issues. There is no technological background requirement or prerequisite to take the class. We will explore a variety of themes including the control over the internet by both government and private actors; how online activities differ from their off-line counterparts; and how the laws should react to new forms of interaction and social structures found online. Specific doctrinal topics include problems of digital authorship and publication including rights of anonymity, copyrights, trademarks, defamation and other torts; sales and licensing of products; marketing, advertising and data-mining, including privacy issues; jurisdiction over online actors; and cyber-squatting. Grades will be based on the final exam and an optional short paper.

**Credit Hour:** 1-3

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**LAW 5680: Journal of Dispute Resolution**

Credit for work as prescribed by the faculty for members of the Journal of Dispute Resolution. Graded on S/U basis only.

**Credit Hour:** 1-3

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**LAW 5691: Jury Instructions**

Theoretical and practical aspects of jury instructions (including general and special verdicts) at trial are presented from the perspectives of the judge, counsel, the jury, and the court of appeals. The course will involve the students in researching and drafting instructions, using pattern instructions, observing or participating in a simulated jury instruction

conference, and writing an appellate court opinion that describes what the student has learned during the course.

**Credit Hour:** 1-3

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**LAW 5695: Labor Law**

The regulation of relations between employers and labor unions at common law and under federal and state legislation; primary emphasis on the National Labor Relations Act, as amended.

**Credit Hour:** 1-3

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**LAW 5697: Landlord Tenant Law and Practice**

This course focuses primarily on litigation under the Missouri Landlord Tenant statute and under federal administrative regulations governing public entities which provide housing and housing subsidies to low-income people including the processes for litigating against such entities. The course will address proper pleading, relevant evidentiary issues, and requisite settlement skills/strategies. This course is available to all 2L's and 3L's and requires Rule 13 certification. The course is required for all students enrolled in the Landlord/Tenant Practicum.

**Credit Hour:** 1-3

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**LAW 5698: Landlord/Tenant Practicum**

The Landlord-Tenant Practicum serves indigent individuals in Mid-Missouri. A Mid-Missouri Legal Services Corporation staff attorney supervises Rule 13 certified law students representing tenants including but not limited to those who are being evicted and/or who wish to sue their landlords for habitability or security deposit non-return. Students may also represent tenants who reside in public or subsidized housing in administrative actions brought by or against a Housing Authority. The practicum is graded and enrollment is limited. Credits earned in the Landlord/Tenant Practicum count toward the 6-hour Externship limit.

**Credit Hour:** 1-3

**Prerequisites or Corequisites:** LAW 5697 Landlord/Tenant Law and Practice

**Corequisites:** LAW 5280 Professional Responsibility

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**LAW 5700: Land Use Controls**

This course focuses on laws governing the use and development of land. The course examines legal rules and policy considerations related to zoning, subdivision controls, building codes, historic preservation, aesthetic regulation, growth management, eminent domain, nuisance law, regional land use conflicts, development exactions, and environmental land use restrictions.

**Credit Hour:** 1-3

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**LAW 5715: Law and Economics**

Study of the use of microeconomic analysis and methods in influencing the law. Topics: economic analysis of tort, contract and property law, the use and misuse of economics in the common law judging tradition, limitations on the use of economic analysis in law and links between economic analysis and constitutional law/public choice theory.

**Credit Hour:** 1-3

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**LAW 5717: The Law of Habeas Corpus and Post-Conviction Relief**

Course will cover principles and practices of post-conviction remedies available to collaterally attack a criminal conviction in state and federal courts. Students will prepare post-conviction motions and petitions for a writ of habeas corpus under state and federal rules.

**Credit Hour:** 1-3

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**LAW 5721: Law Practice Management and Technology**

Managing a successful law practice requires time and project management skills, as well as knowledge about the business of practicing law. This course explores the practical and ethical challenges that confront the solo or small firm lawyer. Students will be introduced to a range of resources for the solo and small firm lawyer, and gain practical experience in preparing a business plan, client welcome package, and policies and procedure manual. Material presented is relevant to both the litigation and the transactional lawyer.

**Credit Hour:** 1-3

**Prerequisites:** LAW 5280 Professional Responsibility

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**LAW 5723: The Law and Practice of Criminal Sentencing**

This simulation-based course examines the substantive law and practical operation of state and federal criminal sentencing systems and seeks to provide students with entry-level competence as advocates in the sentencing phase of criminal cases. Students will participate in a series of simulated sentencing proceedings in state and federal court, acting as counsel for the government or the defendant, or as the sentencing judge. Criminal Procedure and Criminal Justice Administration are recommended, but not required.

**Credit Hour:** 1-4

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**LAW 5730: Law Review**

Credit for work as prescribed by the faculty for members of the Missouri Law Review. Graded on S/U basis only.

**Credit Hour:** 1-3

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**LAW 5746: Legislative Practicum**

This course provides students with the opportunity to work with individual lawyer legislators, or lawyer staff, at the Missouri General Assembly. The students will assist members of the General Assembly with drafting legislation, preparing materials for hearings, conducting research and analysis to respond to broad public policy issues as well as constituent concerns. On occasion students may be assigned to legislative committees, legislative staff support services, or to groups lobbying for legislation. Students will be expected to meet periodically with the professor and to maintain a journal of their activities. Graded on S/U basis only.

**Credit Hour:** 1-3

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**LAW 5748: Life Skills for Lawyers**

Readings and discussions will focus on how members of the class want to live their lives as a lawyer. Students will be asked to examine their law school experience and visualize their place in the legal profession. Various problems faced by lawyers (e.g. the pressure to produce billable hours and dealing with clients) will be discussed. Some of the positive aspects of being a lawyer will be identified. The emphasis will be on what the problems and opportunities mean to you personally and the

importance of taking responsibility for your own personal and professional life. (not available to students on probation, except for students classified as 3L students).

**Credit Hour:** 1-3

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**LAW 5750: Local Government Law**

(same as PUB\_AF 8866). Structure and powers of local government units; state-local relations, including 'home rule'; local government finance, including taxation and indebtedness; incorporation and annexation; eminent domain; tort liability; land use controls; labor relations.

**Credit Hour:** 1-3

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**LAW 5765: Mediation**

A study of the process in which a neutral third party assists others in resolving a dispute or planning a transaction. The course addresses the mediation movement as regards public policy, politics, professional responsibility, malpractice, and negotiation. Students develop mediation and negotiation skills through readings, demonstrations, experimental exercises, and preparation of a case study.

**Credit Hour:** 1-3

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**LAW 5770: Mediation Clinic**

(same as LAW 6970). Students develop and refine mediation skills by observing and participating in simulated and real mediation cases. Graded on S/U basis only.

**Credit Hour:** 1-2

**Prerequisites:** LAW 5765 Mediation (or concurrent enrollment), or completion of an approved training. Limited to J.D. or LL.M. students in designated semesters

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**LAW 5800: Moot Court I**

Required only for those students participating in the New York City Bar National Moot Court and the National Black Law Student Association Moot Court Competitions. Graded on S/U basis only.

**Credit Hour:** 1-3

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**LAW 5805: Moot Court II**

Required only for those students participating in the New York City Bar National Moot Court and the National Black Law Student Association Moot Court Competitions. Graded on S/U basis only.

**Credit Hour:** 1-2

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**LAW 5808: Natural Resources Law**

This course is a foundational survey course in the law and policy related to management of natural resources. Resources covered may include public lands, waters, submerged lands and wetlands, forests, minerals and energy, wildlife and biodiversity and ecosystems. Topics also may include organic statutes establishing certain resource management standards and procedures, generally applicable statutes governing agency behavior, judicial review of agency decisions, integrated management of multiple resources, the use of ecosystem management and conservation methods, and takings.

**Credit Hour:** 1-3

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**LAW 5810: Negotiation**

Negotiation is an essential skill for most lawyers, regardless of practice area. Lawyers must negotiate with their counterparts, clients, partners, staff, courts, and many others in the course of representing a client. This course provides an in-depth understanding of the different models of negotiation, and practical skill development for meeting the many challenges that negotiation presents.

**Credit Hour:** 1-3

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**LAW 5815: Partnership Taxation**

This course will study the federal income tax treatment of partnerships and other entities treated as partnerships, including limited liability companies. The course will examine partnership formations, contributions to and distributions from partnerships, partnership operations, including special allocations of income and losses among partners, transfers of partnership interests, and partnership dissolution. This course will be taught using the problem method of instruction.

**Credit Hour:** 1-3

**Prerequisites:** LAW 5375 Basic Federal Income Taxation

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**LAW 5820: Patent Law and Policy**

This course will provide comprehensive coverage of the U.S. Patent Laws for those interested in obtaining general information about patents, as well as for those interested in practicing before the Patent and Trademark Office. The course will trace an invention through the application, examination, reconsideration, re-examination and litigation processes. If time permits, there may also be coverage of international treaties that affect U.S. Patent Laws as well as some comparison of U.S. Patent Laws and the Patent Laws of select countries. There are no course prerequisites and a technical background is not required because the course primarily focuses on the Patent Act, its requirements and its jurisprudence. Thus, students need only be familiar with applying statutes and cases to a fact pattern. In lieu of an examination or a paper, up to six written projects, between 3-10 pages each (approx. 40 pages overall), will be due at the end of the semester, giving students an intensive writing experience. The professor will review drafts of some of these projects during the semester and all of the projects will be discussed in class. These projects will allow students to help solve a clients hypothetical patent problem as we work through the Patent Act and its jurisprudence. Students may also have the opportunity to engage in client interviewing and counseling in order to complete the projects. There are no prerequisites and a technical background is not required.

**Credit Hour:** 1-3

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**LAW 5830: Pretrial Litigation**

Focus on the study of the legal principles, techniques, strategies and skills which pertain to civil pretrial practice, including: Professional and Ethical Considerations, Case Selection Case Investigation, Development of a case theory, Pleading, Discovery, Pretrial Conference, Motion Practice, Settlement Processes and Alternative Dispute Resolution.

**Credit Hour:** 1-3

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**LAW 5835: Products Liability**

A study of civil liability for personal injury, property damage, and economic loss caused by defective products. The study includes actions

for negligence, strict liability, misrepresentation and the effect of state and federal legislation on those actions.

**Credit Hour:** 1-3

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**LAW 5837: Property, Life, Disability and Health Insurance Law**

This course will explore the legal issues that arise in connection with the purchase and ownership of 'first-party' insurance policies, which includes the categories of personal and commercial property insurance, life insurance, accidental death insurance, disability insurance, and health insurance. The course will examine the law from a national perspective but will give special attention to Missouri law when appropriate. The emphasis will be on the legal issues that typically arise when the consumer comes into contact with the insurance industry with respect to these products. The coverage of health insurance will focus on the provision and regulation of private insurance, as distinct from government programs providing access to the health care system through insurance or insurance-like benefits.

**Credit Hour:** 1-3

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**LAW 5845: Publicly Held Corporation**

This course focuses on legal issues most relevant to large public corporations. Recommended for students interested in pursuing a career in corporate law or for students desiring study in corporate law beyond the Business Organizations course.

**Credit Hours:** 3

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**LAW 5856: Real Estate Finance**

This course examines legal and transactional issues relating to the financing of real estate. The course covers mortgage documentation; the use of mortgagee prior to foreclosure; transfers of mortgaged property; transfers of mortgages and securitization; payment and discharge of mortgages; default and impact of bankruptcy on real estate transactions. The grade will be based upon a final examination.

**Credit Hour:** 1-3

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**LAW 5858: Real Estate Transactions**

This course examines issues relating to the transfer of real estate and the practice of transactional real estate law. The course covers conveyance documentation, the recording system, title and survey review, title insurance, purchase and sale transactions, basis entity structure and tax considerations, environmental review, commercial leasing, valuation of real estate, and project cash flow. The grade will be based on a final examination.

**Credit Hour:** 1-3

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**LAW 5859: Real Estate Transaction Skills Project**

Students will participate in a weekly seminar class focused on contract drafting, negotiation, due diligence, and client management in the context of a transactional real estate law practice. The grade for the course will be based upon student performance on drafting and practice skills assignments. Projects may include the negotiation and drafting of a purchase contract; the negotiation and modification of a commitment for title insurance; survey review; review and evaluation of lease; and, lease drafting and negotiation. Student projects will include both individual and group work.

**Credit Hour:** 1



**Corequisites:** Concurrent registration in LAW 5858 Real Estate Transaction is required

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**LAW 5861: Regulation of Drugs and Medical Devices**

This course examines the U.S. Food and Drug Administration (FDA) interpretation and implementation of the federal Food, Drug, and Cosmetic Act (FDCA) and the Public Health Service Act (PHSA). FDA regulates food, drugs, animal drugs and feed, cosmetics, medical devices, tobacco products, and biological products (broadly speaking 'food and drugs'). The course considers not only the substantive regulations and policies applicable to food and drugs, but also issues of administrative law (agency practice and procedure, as well as judicial review), enforcement authority (powers and priorities), the agency's place within our federal system, and the place of food and drug law in the larger legal environment. The scope of the class will vary from semester to semester, usually covering at least drugs and devices.

**Credit Hour:** 1-3

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**LAW 5862: The Regulation of Medical Marijuana Businesses**

More than half of the states now authorize designated businesses to produce and sell marijuana commercially. However, these businesses remain subject to extensive state regulation. In 2018, Missouri adopted a constitutional amendment, Art. XIV, § 1, with a purpose to authorize medical marijuana. State regulations raise a host of legal questions: How do states award commercial licenses to grow and sell marijuana? Are any state licensing regulations preempted by federal law? Do state advertising restrictions violate the First Amendment? How are marijuana licensees disciplined for regulatory violations? Marijuana businesses also face numerous regulatory hurdles erected by the federal government, adding to the questions surrounding the marijuana industry: Do marijuana businesses have any viable legal defense against federal criminal prosecution? Can marijuana businesses register their trademarks? Can they deduct their expenses when they pay their federal taxes? Will courts enforce contracts with the marijuana industry? Can the industry obtain banking or legal services? The resolution of these issues is in a state of flux throughout the nation and, in particular, in Missouri, in light of Missouri's 2018 constitutional amendment. This class will address these and related questions surrounding the nascent marijuana industry.

**Credit Hour:** 1-3

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**LAW 5870: Remedies**

Survey of damages, history of equity; coverage of various equitable remedies and their adequacy, practicability, defenses, procedural problems, enforcement of decrees, merger of law and equity, contempt.

**Credit Hour:** 1-3

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**LAW 5875: Research in Law**

Independent Research with a faculty member is available during the Summer, Fall and Spring Semesters. Any student enrolling for Research credit must designate at the time of enrollment the professor who will supervise the research project. Credit is earned at the rate of 20 pages per credit hour. No more than three hours of Research may be taken or counted toward the law degree. Enrollment in LAW 5875 may, but need not, be structured so as to satisfy the upper-level writing requirement. Enrollment in LAW 5875 Research satisfies the Law School's writing requirement only if the project culminates in an individually authored paper of at least 20 pages, based on independent research, through a

process that involves an initial draft, critique by the supervising faculty members, and rewrite.

**Credit Hour:** 1-3

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**LAW 5885: Secured Transactions**

The course focuses on the rights of secured creditors and debtors under Article 9 of the Uniform Commercial Code, and includes coverage of creditors with special rights (such as taxing authorities and artisans), documentary exchanges under Article 7, and bulk sales under Article 6.

**Credit Hour:** 1-3

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**LAW 5890: Securities Regulation**

Financing of business through the sale of securities. Emphasis on federal securities acts, with some consideration of state statutes. Consideration of the registration process; exemptions from registration; the special antifraud rules; liabilities and criminal penalties; reporting; insider trading; and, proxy solicitation problems.

**Credit Hour:** 1-3

**Prerequisites:** LAW 5395 Business Organizations

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**LAW 5897: Sex, Reproduction and the Law**

This course surveys the legal and social history of state and federal regulation of sexual and reproductive behavior. It will explore constitutional rights vis a vis a number of specific legal and social issues including the demographics of conception, parenting, and domestic violence; forced sterilization; access to contraception and abortion; adoption; assisted reproductive technologies; left over pre-implantation frozen embryos; gestational surrogacy; rape; same sex marriage and family building; and stem cell research.

**Credit Hour:** 1-3

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**LAW 5905: Sports Law**

Substantive areas of concentration include sports litigation, labor law, NCAA regulations, legal relationships in professional sports, anti-trust aspects of sports activities, and collective bargaining.

**Credit Hour:** 1-3

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**LAW 5910: State Constitutional Law**

Since the departure of Chief Justice Warren, the U.S. Supreme Court and other federal courts have taken a less expansive view of the rights granted by the U.S. Constitution. Congress has also taken steps to turn over both funds and authority to states. Both developments have increased the importance of state constitutional law. The course would be taught in three parts: (1) History of state constitutions; their relationship to the U.S. Constitution and the major differences among them; (2) Individual rights; instances in which state constitutional provisions that are facially similar or identical to the Bill of Rights in the U.S. Constitution, have been interpreted by state courts to extend beyond the federal rights, and instances where state constitutions guarantee individual rights that are different from or in addition to those in the U.S. Constitution; and (3) Governmental obligations and authority; Constitutional provisions allocating governmental authority, such as limitations on legislative authority, the authority of the people to act through referendum or initiative and the relative authority of independent constitutional and officers.

**Credit Hour:** 1-2

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**LAW 5914: Tax Planning**

This course will examine the application of corporate and partnership tax planning principles to accomplish common business objectives. Students will interview hypothetical clients, prepare written planning documents, present their tax plans to the class, and analyze associated substantive tax and business issues in a seminar format. The grade in this course will be based on written planning documents, a class presentation, and class participation. There will be no final exam.

**Credit Hour:** 1-3

**Prerequisites:** LAW 5375 Basic Federal Income Taxation

**Recommended:** Students are strongly encouraged to have taken or be concurrently enrolled in LAW 5465 Corporate Taxation or LAW 5815 Partnership Taxation

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**LAW 5915: Tax Research**

This course provides students with an in-depth exploration of methods and sources for researching tax issues. The course provides students an opportunity to gain experience in using tax research tools. While primarily applicable to tax research, the knowledge gained by students will be helpful in future practice, regardless of practice area. Grades will be based on written assignments to be completed throughout the semester and one final project.

**Credit Hour:** 1-2

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**LAW 5916: Taxation of Property Transactions**

This course will examine tax laws and policies fundamental to real estate investment. Topics include depreciation and recapture, cash and accrual methods of accounting, installment sales, non-recognition transactions, including like-kind exchanges and bad involuntary conversions, and discharge of indebtedness issues arising out of real estate transactions. This course is designed to provide a detailed analysis of complex tax provisions necessary for advanced tax planning and will be taught using the problem method of instruction.

**Credit Hour:** 1-3

**Prerequisites:** LAW 5375 Basic Federal Income Taxation

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**LAW 5917: Topics in Law**

Various topics in law are explored in depth. Topics change each semester. Some sections may be graded either A-F only or S/U basis only.

**Credit Hour:** 1-5

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**LAW 5920: Trademark Law**

Nature of trademark law; common law and statutory trademarks and trade-names; Lanham Act of 1946; distinctiveness; types of marks; qualification of marks for registration (use in commerce, intent-to-use certification, secondary meaning, abandonment); registration procedures; exclusive rights of trademark owner; scope of protection; concurrent use; infringement (including 'gray market' use); international protection; remedies; state trademark acts; related common law doctrines; trademark usage on the Internet; and, domain name issues.

**Credit Hour:** 1-3

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**LAW 5923: Transnational Litigation**

This course addresses common areas of concern in private transnational litigation and provides students with an understanding of litigation tactics in this growing area of law. Topics include jurisdictional issues, forum selection, international service of process, international discovery, international choice of law, proving foreign law in U.S. courts, multiple proceedings (including parallel proceedings and interim/interlocutory assistance) and enforcement of foreign judgments. Although international in nature, the course covers many of the same sorts of concerns that arise in other sorts of complex civil litigation and emphasizes practical strategy points and transactional considerations.

**Credit Hour:** 1-3

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**LAW 5925: Trial Practice**

Skills based course that focuses on the techniques of pleading, discovery, jury selection, opening statements, direct/cross examination of witnesses, preparing jury instructions, and closing arguments. Each student participates in classroom problems selected from various phases of litigation, and in one complete trial. Some sections of this course may be offered as a graded section or graded on S/U basis only.

**Credit Hour:** 1-4

**Prerequisites:** LAW 5260 Evidence

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**LAW 5927: Veterans Clinic**

In this clinical program, students will help veterans in need and/or their dependents secure disability related benefits after an initial denial from the Regional VA office. This work will be done at the Board of Veterans' Appeals (BVA) level or before the Court of Appeals for Veterans' Claims (CAVC), both located in Washington D.C. The BVA and CAVC are federal tribunals, specially created to handle veterans' claims. Students will have the opportunity to work with the client, in a law firm type atmosphere, and prepare and argue appeals relating to the denial of benefits.

**Credit Hour:** 1-4

**Prerequisites or Corequisites:** LAW 5280 Professional Responsibility

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**LAW 5940: White Collar Crime**

Study of what are generally considered to be business or organizational crimes. General topics to be explored may include: mail and wire fraud, conspiracy, securities fraud, tax fraud, government contracting fraud (with particular emphasis on the False Claims Act), the Hobbs Act and the Racketeer Influenced and Corrupt Organizations Acts.

**Credit Hour:** 1-4

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**LAW 5945: Will and Trust Drafting**

Building on Estates and Trusts, applies substantive law of wills and trusts to actual drafting of documents typical of those used in law practice. Grade based entirely on student projects.

**Credit Hour:** 1-3

**Prerequisites:** LAW 5560 Estates and Trust

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**LAW 5946: Wrongful Convictions**

This course offers students an insider's look into the operation of the criminal justice system. It should be of particular interest to any student interested in working in a prosecutor's office, public defender's office or for a firm doing defense work. It is a prerequisite for any student wishing

to enroll in the Innocence Project clinic. The course is designed to help students gain insight into features of the criminal justice system that have a tendency to produce wrongful convictions. In addition to examining the causes of wrongful convictions, the course will consider systemic reforms that might minimize convicting the innocent. We will also work with the Midwest Innocence Project on cases of possible actual innocence. Finally, the class will also focus on recurring ethical issues that confront prosecutors and criminal defense lawyers.

**Credit Hour:** 1-4

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**LAW 5947: Workers' Compensation Law and Practice**

This course will cover the law and practice of Workers' Compensation Law both in general and in Missouri. About two-thirds of the class time will be spent studying and discussing the doctrinal basis of workers' compensation. In the balance of the time students will work on a simulation in which they will have the opportunity to work through different steps of a workers' compensation claim.

**Credit Hour:** 1-3

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**LAW 6500: London Program**

Students enrolled in classes in London. Credit will count toward graduation requirements. Zero billing hours.

**Credit Hour:** 1-16

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**LAW 6710: Comparative Dispute Resolution**

South Africa Program

**Credit Hour:** 1-2

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**LAW 6720: Comparative Constitutional Law**

South Africa Program

**Credit Hour:** 1-2

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**LAW 6730: Comparative Criminal Justice**

South Africa Program

**Credit Hour:** 1-2

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**LAW 6905: LLM Arbitration Seminar**

(same as LAW 6805). This course covers law, policy, and practices relating to the arbitration in the U.S. under modern arbitration statutes as well as arbitration of international commercial disputes under international conventions and arbitral rules.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**LAW 6920: LL.M. Externship**

Student will be placed (or secure placement) with attorney, professional mediator or arbitrator, or dispute resolution agency (government-based or private) for an externship ranging from three to nine weeks. Students will observe and, to the extent possible, participate in dispute resolution activities of mentor. Journal entries form basis for credit. Externship placements will be local, national or international. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** LL.M. students only

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**LAW 6925: LL.M. Independent Study**

Substantial research project on selected topic of choice.

**Credit Hour:** 1-3

**Prerequisites:** LL.M. students only

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**LAW 6930: LL.M. Major Research Project**

(same as LAW 6830). Development and presentation of substantial research paper on current topic in dispute resolution. Supervision of this work by appropriate faculty will be determined according to the topic selected.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**LAW 6932: Conflict and Conflict Management**

This course explores the nature and sources of conflict, the conditions under which conflict may escalate or de-escalate, models for understanding conflict, and strategies and techniques attorneys may use to effectively manage conflict. The course addresses both theory and skills. Graded on A-F basis only.

**Credit Hour:** 1-4

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**LAW 6933: Cross Cultural Dispute Resolution**

The course will focus on the impact culture can have on the private ordering of disputes. Culture affects communication, perceptions regarding conflict and methods for resolution. As the world becomes more interrelated and Missouri and the U.S. more diverse, lawyers need to be prepared to resolve problems across cultural lines. Graded on A-F basis only.

**Credit Hour:** 1-4

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**LAW 6934: Dispute Resolution in the Digital Age**

This course will explore Online Dispute Resolution (ODR) systems. We will look at the various systems currently used by major companies such as eBay, as well as the rules and treaty developments in global markets. We also will do ODR simulation exercises. The class also will include deep consideration of both the potential and drawbacks of ODR systems. Therefore, we also will discuss development of best practices and question policy directions. Graded on A-F basis only.

**Credit Hour:** 1-4

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**LAW 6935: Dispute System Design**

(same as LAW 6835). Analysis of system design principles and the management of multi-party complex disputes. Course will include overview of statutes, regulations, court rules and general policy considerations for the development of systematic approaches to the resolution of disputes as well as the consultation process inherent in system design work. An underlying theme for this course will be issues of program quality. Students will review scholarly work evaluating the ADR field and study basic research/evaluation methodologies.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**LAW 6945: Non-Binding Methods of Dispute Resolution**

(same as LAW 6845). Negotiation and mediation of disputes, focusing on the theory, strategy, and skills, and public policy issues involved in using non-binding methods of dispute resolution. The course addresses the role of attorneys in unassisted and mediated negotiation as well as the role of mediators. The course considers the professional responsibility of advocates negotiating for clients and of mediators.

**Credit Hour:** 3-4

**Prerequisites:** instructor's consent

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**LAW 6950: Practicum on Dispute Resolution Training and Education**

Structured training experience through participation in the first-year curriculum project; service as judges in J.D. student competitions, such as negotiation and client counseling; and assignments to appropriate upper division courses to assist with development of dispute resolution modules. Credit is earned for work over the entire academic year. Graded on a S/U basis only.

**Credit Hour:** 1-2

**Prerequisites:** LL.M. students only

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**LAW 6953: Public Policy Dispute Resolution**

Public policy disputes, such as those that occur in the energy, environmental, education, and health industries, are complex and challenging to manage. This course will explore the intersections of the executive, legislative, and judicial branches of both state and federal government and legal strategies for shaping public policy, whether through litigation, legislation, regulation, alternative dispute resolution or a combination of processes. We will look at two case studies and at least one current issue. Graded on A-F basis only.

**Credit Hour:** 1-4

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**LAW 6955: Topics**

Special and emerging topics in dispute resolution. Subject, content and credit varies, depending on available faculty and student interest.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**LAW 6970: Mediation Clinic**

(same as LAW 5770). Students develop and refine mediation skills by observing and participating in simulated and real mediation cases. Limited to J.D. or LL.M. students in designated semesters. Graded on S/U basis only.

**Credit Hour:** 1-2

**Prerequisites or Corequisites:** LAW 5765 (or concurrent enrollment), or completion of an approved training

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**LAW 6980: Overview of the US Legal System**

This course will introduce fundamentals of the U.S. legal system. Topics include the basic structure and function of U.S. legal institutions, the adversarial system and judicial process, the interaction of state and federal law in the American system of federalism, sources of law including statutory, common and administrative law, selected topics in constitutional law and civil and criminal procedure, and brief overviews in selected areas of substantive law such as contracts, property, family, tax, or torts. Graded on A-F basis only.

**Credit Hour:** 1-4

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**Learning, Teaching, & Curriculum Courses****LTC 1100: Orientation**

This course familiarizes and orients students with MU resources, College of Education programs and expectations and career options. Graded on S/U basis only.

**Credit Hour:** 1

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**LTC 1110: Orientation: Art Education**

This course familiarizes and orients students with MU resources, College of Education programs and expectations and career options, emphasizing Art Education. Graded on S/U basis only.

**Credit Hour:** 1

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**LTC 1120: Orientation: Math Education**

This course familiarizes and orients students with MU resources, College of Education programs and expectations and career options, emphasizing Math Education. Graded on S/U basis only.

**Credit Hour:** 1

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**LTC 1130: Orientation: Middle School Education**

This course familiarizes and orients students with MU resources, College of Education programs and expectations and career options, emphasizing Middle School Education. Graded on S/U basis only.

**Credit Hour:** 1

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**LTC 1155: Orientation: Science Education**

This course familiarizes and orients students with MU resources, College of Education programs and expectations and career options, emphasizing Science Education. Graded on S/U basis only.

**Credit Hour:** 1

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**LTC 1170: Orientation: English/Language Arts**

This course familiarizes and orients students with MU resources, College of Education programs, expectations and career options, emphasizing English/Language Arts education. Graded on S/U only.

**Credit Hour:** 1

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**LTC 1320: Scuba Theory**

The curriculum of the class includes bio-physics, hydrostatic pressures, physiology, fundamentals of compressed gases, environmental conditions, mechanics, first aid as it relates to diving, and planning speciality dives such as decompression, night, cave, ice, salvage and wreck diving.

**Credit Hours:** 3

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**LTC 2040: Inquiring into Schools, Community and Society I**

This course focuses on schooling in American society, the school community, the school culture and students' lives and identities. Studied are the political, cultural, and economic conditions of the schools.

**Credit Hours:** 3

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**LTC 2044: Inquiry into Schools, Community and Society: Field**

This field experience course supports the Inquiring into Schools, Community and Society (ISCS), component of Phase I. Graded on S/U basis only.

**Credit Hour:** 1

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**LTC 2200: School Health and Student Wellbeing**

This course will explore and analyze the critical role schools and teachers play to address students' physical, social, and emotional wellbeing. Research indicates that a healthy school environment can improve both academic and social outcomes. Focus areas include school safety, nutrition policy and health education.

**Credit Hours:** 3

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**LTC 4004: Field Experience**

This course is a stand alone field experience for College of Education majors to gain additional experience inside the classroom. Graded on S/U basis only.

**Credit Hour:** 0-2

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**LTC 4085: Problems in Curriculum and Instruction**

Studies professional programs and issues in health or physical education.

**Credit Hour:** 1-3

**Recommended:** instructor's consent

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**LTC 4085W: Problems in Curriculum and Instruction - Writing Intensive**

Studies professional programs and issues in health or physical education.

**Credit Hour:** 1-3

**Recommended:** instructor's consent

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**LTC 4091: Assessment and Family Collaboration in Early Childhood Education**

(cross-leveled with LTC 7091). Strategies for effectively observing and assessing young children and strategies for building positive family and community relationships, which support children's development and learning.

**Credit Hours:** 3

**Prerequisites:** Consent required (enrollment limited to students admitted to Phase II)

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**LTC 4110: Working with Infants and Toddlers**

(cross-leveled with LTC 7110). Experience working with children aged 6 weeks to 2 1/2 years and their families. Opportunity to apply theories of cognitive, language, and social development.

**Credit Hour:** 2-3

**Recommended:** Admittance to Phase II

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**LTC 4120: Early Childhood Education Literacy Methods & Assessment I**

(cross-leveled with LTC 7120). Strategies for assessing and supporting young children's literacy development. Graded on A-F basis only. Recommended: admittance to College of Education required and co enrollment of LTC 4210 and LTC 4124: K-3 Field Experience.

**Credit Hours:** 3

**Prerequisites:** Consent of department required

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**LTC 4120W: Early Childhood Education Literacy Methods & Assessment I - Writing Intensive**

(cross-leveled with LTC 7120). Strategies for assessing and supporting young children's literacy development. Graded on A-F basis only. Recommended: admittance to College of Education required and co enrollment of LTC 4210 and LTC 4124: K-3 Field Experience.

**Credit Hours:** 3

**Prerequisites:** Consent of department required

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**LTC 4124: Emergent and Developing Literacy Early Childhood Field Experience**

This field experience supports the LTC 4120 component of Phase II. Field experience expectations are delineated in the LTC 4120 course syllabi. Graded on a S/U basis only.

**Credit Hours:** 3

**Corequisites:** LTC 4120 and LTC 4210

**Recommended:** Admittance to Phase II

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**LTC 4130: Teaching and Learning Math, Science and Social Studies w/ Young Children**

(cross-leveled with LTC 7130). Strategies for assessing and supporting young children's math, science and social studies learning. Includes strategies for home-school collaboration. Must take concurrently with K-3 field experience. Graded on A-F basis only.

**Credit Hours:** 9

**Corequisites:** LTC 4134

**Recommended:** Admittance to Phase II

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**LTC 4134: Teaching & Learning Math, Sci & Soc Studies w/Young Children Field Experience**

This field experience supports the LTC 4130 component of Phase II. Field experience expectations are delineated in the LTC 4130 course syllabi. Graded on a S/U basis only.

**Credit Hours:** 3

**Corequisites:** LTC 4130

**Recommended:** Admittance to Phase II

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**LTC 4140: Curriculum, Theory and Classroom Management in Early Childhood Education**

(cross-leveled with LTC 7140). Reflection on the relationship of theory and practice in ECE. Consideration of various topics including historical influences on early childhood curriculum, models of early childhood curriculum, classroom management, and individualizing curriculum.

**Credit Hours:** 3

**Prerequisites:** Consent required (enrollment limited to students who have completed the first two semesters of Phase II)

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**LTC 4140W: Curriculum, Theory and Classroom Management in Early Childhood Education - Writing Intensive**

(cross-leveled with LTC 7140). Reflection on the relationship of theory and practice in ECE. Consideration of various topics including historical influences on early childhood curriculum, models of early childhood curriculum, classroom management, and individualizing curriculum.

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**Credit Hours:** 3

**Prerequisites:** Consent required (enrollment limited to students who have completed the first two semesters of Phase II)

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**LTC 4150: Early Childhood Education Literacy Teaching Methods and Assessment II**

(cross-leveled with LTC 7150). Advanced strategies for assessing and supporting young children's literacy development.

**Credit Hours:** 3

**Prerequisites:** Consent of department required

**Recommended:** LTC 4120 or LTC 7120, LTC 4124 K-3 Field experience and admittance to the ECE certification program in Phase II of the College of Education required

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**LTC 4150W: Early Childhood Education Literacy Teaching Methods and Assessment II - Writing Intensive**

(cross-leveled with LTC 7150). Advanced strategies for assessing and supporting young children's literacy development.

**Credit Hours:** 3

**Prerequisites:** Consent of department required

**Recommended:** LTC 4120 or LTC 7120, LTC 4124 K-3 Field experience and admittance to the ECE certification program in Phase II of the College of Education required

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**LTC 4160: Motor Development in Young Children**

For Early Childhood majors. Study of young children's motor development.

**Credit Hours:** 2

**Recommended:** Admission to Phase II

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**LTC 4170: Program Management & Environmental Organization in PreKindergarten**

Strategies for working with children aged 2-6 and their families. Emphasis on planning and implementing developmentally appropriate practice, designing effective learning environments, and managing programs.

**Credit Hours:** 3

**Prerequisites:** Consent required (enrollment limited to students admitted to Phase II, and completion of first 2 semesters of Phase II)

**Recommended:** Co-enrollment in LTC 4971 (Early Childhood section)

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**LTC 4194: Elementary Education Field Experience I**

Seminars and diverse 1-5 grade classroom experience focus is on the learner and learning in the elementary school. Graded on a S/U basis only.

**Credit Hour:** 1-3

**Recommended:** Admittance to Phase II

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**LTC 4200: Young Children's Emergent Language**

(cross-leveled with LTC 7200). For Early Childhood and Elementary Education majors. Study of young children's language development and implications for teachers.

**Credit Hours:** 2

**Corequisites:** LTC 4120, LTC 4124, and LTC 4210

**Recommended:** Admittance to Phase II

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**LTC 4210: Children's Language and Literature**

(cross-leveled with LTC 7210). For Early Childhood Education majors. Examines children's oral language development and surveys the field of children's literature for children ages birth to eight. Graded on A-F basis only.

**Credit Hours:** 3

**Corequisites:** LTC 4120 and LTC 4124

**Recommended:** Admittance to Phase II

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**LTC 4211: Literacy Assessment and Development**

Focus is on the development, assessment, and instruction of reading and writing motivations, skills, and strategies of diverse learners with emphasis on data interpretation and instruction. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4221: Contexts and Methods for Elementary Reading Instruction**

Students will closely explore the different contexts, methods, and materials for reading instruction in diverse settings. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4231: Contexts and Methods for Writing Instruction**

This course explores contexts and methods for writing instruction, with a focus on writing development, writing across the content, and multimodal and multilingual composition. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4231W: Contexts and Methods for Writing Instruction - Writing Intensive**

This course explores contexts and methods for writing instruction, with a focus on writing development, writing across the content, and multimodal and multilingual composition. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4240: Art for Children**

(cross-leveled with LTC 7270). This course focuses on appropriate teaching methods and strategies for teaching art (studio, art history, aesthetic, and criticism), artistic development of children, and curriculum, instructional, and organization strategies for the art classroom.

**Credit Hours:** 2

**Recommended:** Admittance to Phase II

---

**LTC 4241: Diverse Literature for Children and Youth**

Reading and discussion of diverse literature within a wide variety of genres will allow students to explore issues of diversity as related to elementary instruction. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4241W: Diverse Literature for Children and Youth - Writing Intensive**

Reading and discussion of diverse literature within a wide variety of genres will allow students to explore issues of diversity as related to elementary instruction. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4250: Music for Children**

Preparation of early childhood and elementary education students with the skills, knowledge, and philosophical foundations necessary to integrate music into the early childhood and elementary curricula.

**Credit Hours:** 2

**Recommended:** MUSIC\_NM 1608, MUSIC\_NM 1612, MUSIC\_NM 1618 or competency test; Admittance to Phase II

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**LTC 4260: Elementary Social Studies**

To develop knowledge of social studies and the skills to teach social studies in the elementary school. The course is designed to provide the student with the skills to plan, implement, and evaluate both the teaching and learning processes for the elementary social studies classroom.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4280: Teaching Science in Elementary Schools**

Concepts, materials, methods in the elementary school program.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4294: Elementary Education Field Experience II**

Seminars and diverse 1-5 grade classroom experiences focus is on the teacher and instruction in the elementary school. Graded on S/U basis only.

**Credit Hour:** 1-3

**Recommended:** Admittance to Phase II

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**LTC 4300: Learning and Teaching Number and Operation in the Elementary School**

The purpose of this course is to (a) develop a deeper understanding of number and operation, (b) connect the mathematical knowledge of number as described in (a) to the learning and teaching of number in elementary school.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4310: Learning and Teaching Geometry in the Elementary School**

The purpose of this course is to (a) develop a deeper understanding of geometry and measurement, (b) critically examine content and issues of the complexities in teaching and learning fundamental concepts of geometry and measurement in elementary schools.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4320: Middle School Social Studies I**

Curriculum decision making, instructional planning, techniques and strategies, materials selection, approaches to assessment in middle level social studies, all based upon early adolescent growth and development principles.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4324: Middle School Social Studies Field I**

This field experience supports the Learning, Teaching and Curriculum 4320 component of Phase II for MS students. Field experience expectations are delineated in the LTC 4320 course syllabi. Graded on S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4334: Middle School Social Studies Field Experience II**

This field experience supports the LTC 4550 component of Phase II for MS students. Field experience expectations are delineated in the LTC 4550 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4340: Middle School Science I**

(cross-leveled with LTC 7340). Concepts, materials, methods in middle school program.

**Credit Hours:** 4

**Prerequisites:** Consent required

**Recommended:** Admittance to Phase II

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**LTC 4340W: Middle School Science I - Writing Intensive**

(cross-leveled with LTC 7340). Concepts, materials, methods in middle school program.

**Credit Hours:** 4

**Prerequisites:** Consent required

**Recommended:** Admittance to Phase II

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**LTC 4344: Middle School Science Field I**

This field experience supports the Learning, Teaching and Curriculum 4340 component of Phase II. Field experience expectations are delineated in the LTC 4340 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4350: Middle School Science II**

(cross-leveled with LTC 7350). Concepts, materials, methods in the middle school program.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4354: Middle School Science Field Experience**

This field experience supports the LTC 4350 component of Phase II. Field experience expectations are delineated in the LTC 4350 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4360: Intro. Teaching Mathematics in Middle and Secondary Schools**

(cross-leveled with LTC 7360). Introduction to teaching mathematics including: professional mathematics teacher associations and journals, learning theories related to teaching mathematics, tools, and materials for teaching mathematics, curriculum and instructional strategies (middle and lower high school level), and techniques for assessing mathematical understanding.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4364: Intro. Teaching Math in Middle and Secondary School Field Experience**

This field experience supports the LTC 4360 component of Phase II. Field experience expectations are delineated in the LTC 4360 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4370: Teaching and Modeling Middle School Mathematics**

(cross-leveled with LTC 7370). Major issues/topics of the course include: nature of middle school students, lesson planning, developing and utilizing teaching strategies, assessment alternatives, teaching via problem solving and mathematical modeling, interdisciplinary strategies and materials, and techniques for assessing mathematical understanding.

**Credit Hours:** 3

**Prerequisites:** LTC 4360 or LTC 7360 and LTC 4581 or 7581

**Recommended:** Admittance to Phase II and at least 18 credit hours of required mathematics

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**LTC 4370W: Teaching and Modeling Middle School Mathematics - Writing Intensive**

(cross-leveled with LTC 7370). Major issues/topics of the course include: nature of middle school students, lesson planning, developing and utilizing teaching strategies, assessment alternatives, teaching via problem solving and mathematical modeling, interdisciplinary strategies and materials, and techniques for assessing mathematical understanding.

**Credit Hours:** 3

**Prerequisites:** LTC 4360 or LTC 7360 and LTC 4581 or 7581

**Recommended:** Admittance to Phase II and at least 18 credit hours of required mathematics

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**LTC 4374: Teaching and Modeling Middle School Mathematics Field Experience**

This field experience supports the LTC 4370 component of Phase II. Field experience expectations are delineated in the LTC 4370 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4380: Teaching Middle School Language Arts I**

(cross-leveled with LTC 7380). Integrates an understanding of literacy (highlighting reading) with content area demands, literature and other media texts, evaluation and inquiry within a context of diversity.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4384: Teaching Middle School Language Arts I Field Experience**

This field experience supports the LTC 4380 component of Phase II. Field experience expectations are delineated in the LTC 4380 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4390: Teaching Middle and Secondary English/Language Arts II**

(cross-leveled with LTC 7390). Prepares prospective educators with the knowledge, skills, and strategies necessary for integrating and teaching the English/Language Arts, primarily focusing on the teaching of writing and critical thinking.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4390W: Teaching Middle and Secondary English/Language Arts II - Writing Intensive**

(cross-leveled with LTC 7390). Prepares prospective educators with the knowledge, skills, and strategies necessary for integrating and teaching the English/Language Arts, primarily focusing on the teaching of writing and critical thinking.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4394: Teaching Middle School Language Arts II Field Experience**

This field experience supports the LTC 4390 component of Phase II. Field experience expectations are delineated in the LTC 4390 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4400: Teaching Middle and Secondary English/Language Arts III**

(cross-leveled with LTC 7400). Prepare prospective educators by focusing on the teaching of American culture and critical thinking, through literacy, mediacy, oracy, and cultural artifacts.

**Credit Hours:** 3

**Prerequisites:** LTC 4380 or LTC 7380 and LTC 4390 or LTC 7390

**Recommended:** Admittance to Phase II

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**LTC 4404: Teaching Middle School Language Arts III Field Experience**

This field experience supports the LTC 4400 component of Phase II. Field experience expectations are delineated in the LTC 4400 course syllabi. Graded on a S/U basis only.



**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4410: Teaching, Engaging and Assessing Middle-Level Students**

(cross-leveled with LTC 7410). In this course students will learn about the specific and individual needs of middle-level students and develop the skills and understandings to meet these needs.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4410W: Teaching, Engaging and Assessing Middle-Level Students - Writing Intensive**

(cross-leveled with LTC 7410). In this course students will learn about the specific and individual needs of middle-level students and develop the skills and understandings to meet these needs.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4414: Teaching, Engaging & Assessing Mid-Level Students Field Experience**

This field experience supports the LTC 4410 component of Phase II. Field experience expectations are delineated in the LTC 4410 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4420: Adolescent Literacy**

(cross-leveled with LTC 7420). Explores literacy implications of content areas. Topics include determining the difficulty of text, examining literature that supports content, creating alternative assessments, and evaluating reading/writing strategies as tools for learning. (Required of all students obtaining certification in middle school or concurrent certification in middle and secondary school area(s) except language arts.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4424: Middle School Literacy Field Experience**

This field experience supports the LTC 4420 component of Phase II. Field experience expectations are delineated in the LTC 4420 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4460: Teaching English to Speakers of Other Languages**

(same as LINGST 4650; cross-leveled with LTC 7460, LINGST 7650). Linguistic and pedagogical principles of teaching English to speakers of other languages. Graded A-F only.

**Credit Hours:** 3

**Prerequisites:** Consent required

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**LTC 4470: Teaching Secondary English/Language Arts I**

(cross-leveled with LTC 7470). Prepares prospective educators with the knowledge, skills, and strategies necessary for integrating and teaching

the English/Language Arts, Primarily focusing on Young Adult Literature and critical thinking.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4474: Teaching Secondary English/Language Arts I Field Experience**

This field experience supports the LTC 4470 component of Phase II. Field experience expectations are delineated in the LTC 4470 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4480: Teaching Middle and Secondary English/Language Arts II**

(cross-leveled with LTC 7480). Prepares prospective educators with the knowledge and strategies necessary for integrating and teaching the English/Language Arts, primarily focusing on the teaching of writing and critical thinking.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

---

**LTC 4480W: Teaching Middle and Secondary English/Language Arts II - Writing Intensive**

(cross-leveled with LTC 7480). Prepares prospective educators with the knowledge and strategies necessary for integrating and teaching the English/Language Arts, primarily focusing on the teaching of writing and critical thinking.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4484: Teaching Secondary English/Language Arts II Field Experience**

This field experience supports the LTC 4480 component of Phase II. Field experience expectations are delineated in the LTC 4480 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4490: Teaching Middle and Secondary English/Language Arts III**

(cross-leveled with LTC 7490). Prepares prospective educators by focusing on the teaching of American culture and critical thinking, through literacy, mediacy, oracy, and cultural artifacts.

**Credit Hours:** 3

**Prerequisites:** LTC 4470 or LTC 7470 and LTC 4480 or LTC 7480

**Recommended:** Admittance to Phase II

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**LTC 4494: Teaching Secondary English/Language Arts III Field Experience**

This field experience supports the LTC 4490 component of Phase II. Field experience expectations are delineated in the LTC 4490 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4500: Emergent Language in Early Childhood**

(cross-leveled with LTC 7500). Study of language learning in young children; how meaning of the environment is gained through language; implications for teachers working with children from varying language-learning environments.

**Credit Hours:** 3

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**LTC 4510: Assessment in Early Childhood Education**

A study of formal and informal assessment instruments and procedures used to measure progress and determine developmentally appropriate curriculum for children in early childhood settings.

**Credit Hours:** 3

**Recommended:** H\_D\_FS 3420 or equivalent child development or child psychology course

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**LTC 4530: Introduction to Social Studies**

Will introduce prospective teachers to the profession of social studies teaching; to the bases for making curriculum choices in social studies and the process of choosing content; and the process of planning curriculum and instruction in social studies classrooms.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4534: Secondary Social Studies I Field Experience**

This field experience supports the Learning, Teaching and Curriculum 4530 component of Phase II. Field experience expectations are delineated in the LTC 4530 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4541: Reading and Writing in the Social Studies**

(cross-leveled with LTC 7541). Focuses on the teaching of reading and writing strategies for social studies teachers. Students review literacy interventions related to reading and writing historical texts. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4544: Reading and Writing in the Social Studies Field**

This field experience supports the Learning, Teaching and Curriculum 4541 component of Phase II. Field experience expectations are delineated in the LTC 4541 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4550: Assessment in Social Studies**

Will address the purposes and development of social studies assessment for all levels from classroom to national assessment. Assessment will be used to reflect upon curriculum/instruction, make revisions and set goals.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

---

**LTC 4550W: Assessment in Social Studies - Writing Intensive**

Will address the purposes and development of social studies assessment for all levels from classroom to national assessment. Assessment will be used to reflect upon curriculum/instruction, make revisions and set goals.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4554: Secondary Social Studies III Field Experience**

This field experience supports the LTC 4550 component of Phase II. Field experience expectations are delineated in the LTC 4550 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

---

**LTC 4560: Reading and Writing in the Content Areas**

(cross-leveled with LTC 7560). For secondary school teachers. Specific ways teachers can help students improve reading and writing skills in content areas and ways they can be taught.

**Credit Hours:** 3

**Recommended:** Phase II admittance

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**LTC 4565: Reading and Writing in the Content Areas II**

(cross-leveled with LTC 7565). Reading and Writing in the Content Areas II explores specific reading and writing content area strategies, with a focus on struggling students and new investigations in disciplinary literacy.

**Credit Hours:** 3

**Prerequisites:** LTC 4560 or LTC 7560 or LTC 4380

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**LTC 4571: Introduction to Teaching Mathematics in Middle and Secondary Schools**

Introduction to teaching mathematics including: professional mathematics teacher associations and journals, learning theories related to teaching mathematics, tools, and materials for teaching mathematics, curriculum and instructional strategies (middle and lower high school level), and techniques for assessing mathematical understanding. **Recommended:** Admittance to Phase II

**Credit Hours:** 3

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**LTC 4574: Intro. Teaching Math in Middle and Secondary School Field Experience**

Field experience supporting the LTC 4571 component of Phase II. Field experience expectations are delineated in the LTC 4571 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4581: Teaching Mathematics in Middle and Secondary Schools: Focus on Algebra and Technology**

(cross-leveled with LTC 7581). Key issues in the teaching of pre-algebra through advanced algebra, appropriate use of technology, lesson planning, integration of appropriate models, mathematical connections. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** LTC 4571 or LTC 7571 or LTC 4360 or LTC 7360

**Recommended:** Admittance to Phase II

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**LTC 4584: Teaching Math in Middle and Secondary Schools: Algebra and Technology Field**

This field experience supports the Learning, Teaching and Curriculum 4581/7581 component of Phase II. Field experience expectations are delineated in the LTC 4581/LTC 7581 course syllabi. Graded on S/U basis only.

**Credit Hour:** 1

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**LTC 4590: Teach.Math in Sec.Schools: Focus on Geometry, Probability and Statistics**

(cross-leveled with LTC 7590). Provides experience which advanced students' knowledge, understanding, and facility in engaging students in learning mathematics. Major issues/topics highlighted in the course are: exploration of curriculum, teaching strategies, and assessment for geometry, probability and statistics.

**Credit Hours:** 3

**Prerequisites:** LTC 4571 or LTC 7571 and LTC 4581 or LTC 7581

**Recommended:** Admittance to Phase II

---

**LTC 4590W: Teach.Math in Sec.Schools: Focus on Geometry, Probability and Statistics - Writing Intensive**

(cross-leveled with LTC 7590). Provides experience which advanced students' knowledge, understanding, and facility in engaging students in learning mathematics. Major issues/topics highlighted in the course are: exploration of curriculum, teaching strategies, and assessment for geometry, probability and statistics.

**Credit Hours:** 3

**Prerequisites:** LTC 4571 or LTC 7571 and LTC 4581 or LTC 7581

**Recommended:** Admittance to Phase II

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**LTC 4594: Teach Math in Sec Sch: Focus on Geometry/Probability**

This field experience supports the LTC 4590 component of Phase II. Field experience expectations are delineated in the LTC 4590 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4631: Teach.Sci.Second.Sch.:Phil.,Hist., Sci.Inq.,Curr., Assm., & Teach I**

(cross-leveled with LTC 7631). An integration of the philosophy and history of science, technology, society; teaching science as inquiry; classroom management, strategies and curricula for teaching/learning science; and using technology in science learning.

**Credit Hours:** 4

**Prerequisites:** Consent required

**Recommended:** Admittance to Phase II

---

**LTC 4631W: Teach.Sci.Second.Sch.:Phil.,Hist., Sci.Inq.,Curr., Assm., & Teach I - Writing Intensive**

(cross-leveled with LTC 7631). An integration of the philosophy and history of science, technology, society; teaching science as inquiry; classroom management, strategies and curricula for teaching/learning science; and using technology in science learning.

**Credit Hours:** 4

**Prerequisites:** Consent required

**Recommended:** Admittance to Phase II

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**LTC 4634: Teaching Middle and Secondary Science I Field**

This field experience supports the Learning, Teaching and Curriculum 4631 component of Phase II. Field experience expectations are delineated in the LTC 4631 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

---

**LTC 4641: Teaching Middle and Secondary Science II**

An integration of the philosophy and history of science, technology, society; teaching science as inquiry; classroom management, strategies and curricula for teaching/learning science; and using technology in science learning.

**Credit Hours:** 3

**Prerequisites:** LTC 4631

**Recommended:** Admittance to Phase II

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**LTC 4644: Teaching Middle and Secondary Science II Field**

This field experience supports the LTC 4641 component of Phase II. Field experience expectations are delineated in the LTC 4641 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4651: Teach.Sci.Second.Sch.:Phil.,Hist.,Sci.Inq.,Curr.,Assm., & Tech III**

(cross-leveled with LTC 7651). An integration of the philosophy and history of science, technology, society; teaching science as inquiry; classroom management, strategies and curricula for teaching/learning science; and using technology in science learning.

**Credit Hours:** 3

**Prerequisites:** LTC 4631 and LTC 4641

**Recommended:** Admittance to Phase II

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**LTC 4654: Teach Sci MS/Sec Sch: Phil,Hist,Sci Inq,Curr,Assm & Tech III Fld**

This field experience supports the LTC 4651 component of Phase II. Field experience expectations are delineated in the LTC 4651 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4730: Overview of Art Education**

(cross-leveled with LTC 7730). This is the first of a three course sequence and serves as the foundation for inquiries of methodological and philosophical approaches to the teaching of the visual arts at the elementary and secondary level.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4734: Overview of Art Education Field Experience**

This field experience supports the Learning, Teaching and Curriculum 4730 component of Phase II. Field experience expectations are delineated in the LTC 4730 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4740: Inquiry into Art Education: Pre-School Through Middle School**

(cross-leveled with LTC 7740). The second of three course sequence. It will cover art education issues as they apply to the Pre-School through Middle School setting.

**Credit Hours:** 3

**Prerequisites:** LTC 4730 or LTC 7730

**Recommended:** Admittance to Phase II

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**LTC 4740W: Inquiry into Art Education: Pre-School Through Middle School - Writing Intensive**

(cross-leveled with LTC 7740). The second of three course sequence. It will cover art education issues as they apply to the Pre-School through Middle School setting.

**Credit Hours:** 3

**Prerequisites:** LTC 4730 or LTC 7730

**Recommended:** Admittance to Phase II

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**LTC 4744: Inquiry into Art Education: Pre-School Through Middle School Field Experience**

This field experience supports the LTC 4740 component of Phase II. Field experience expectations are delineated in the LTC 4740 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4750: Inquiry into Art Education: Secondary**

(cross-leveled with LTC 7750). The third of a three course sequence. Student will learn about secondary art education and make application to practice with emphasis on adolescent development, curriculum design, student assessment, instruction, diversity/equity, and professionalism.

**Credit Hours:** 3

**Prerequisites:** LTC 4740 or LTC 7740

**Recommended:** Admittance to Phase II

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**LTC 4754: Inquiry into Art Education: Secondary Field Experience**

This field experience supports the LTC 4750 component of Phase II. Field experience expectations are delineated in the LTC 4750 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4800: Educational and Cultural Experience Abroad**

(cross-leveled with LTC 7800). Students work in a collaborative setting with K-12 educations in the host country. Components of this experience include research, discussion, electronic communication, in-country observations, and co-teaching experiences with a focus on the host-country education and culture.

**Credit Hour:** 0-6

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**LTC 4960: Special Readings in Curriculum and Instruction**

Directed study of literature and research reports in education.

**Credit Hour:** 1-3

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**LTC 4970: Standardized Assessments**

This non-credit course will provide resources to assist with standardized assessments required to become a Missouri certified teacher. Graded on S/U basis only.

**Credit Hours:** 0

**Recommended:** Admittance to Phase III

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**LTC 4971: Internship and Capstone Seminar**

Internship is a full-semester experience in the public schools, including a capstone seminar addressing problems of practice (integrating subjects, reading and writing across the curriculum, meeting all students' needs), and evaluation of the interns preparation for entering the profession. It is offered each Fall and Spring for 10-16 credit hours. Admittance to College of Education required.

**Credit Hour:** 1-16

**Prerequisites:** ED\_LPA 4060 or ED\_LPA 7060

**Recommended:** Admittance to Phase III

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**LTC 4981: Internship I**

This field experience provides preservice interns a semester-long public school experience where they simultaneously engage in a unique combination of observation and teaching. Through observation, conferencing, reading, discussion, demonstration, and participation, the preservice intern will synthesize the course concepts of the Senior Year On-Site Program (SYOSP). Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** ED\_LPA 4060 or ED\_LPA 7060

**Recommended:** Admittance to Phase III

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**LTC 7040: Inquiring into Schools, Community and Society I**

This course focuses on schooling in American society, the school community, the school culture and students' lives and identities. Studied are the political, cultural, and economic conditions of the schools.

**Credit Hour:** 2-3

**Prerequisites:** completion of Phase I or enrollment in a graduate level program in the College of Education

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**LTC 7085: Problems in Curriculum and Instruction**

Studies professional programs and issues in health or physical education.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**LTC 7091: Assessment and Family Collaboration in Early Childhood Education**

(cross-leveled with LTC 4091). Strategies for effectively observing and assessing young children and strategies for building positive family and community relationships, which support children's development and learning.

**Credit Hours:** 3

**Prerequisites:** Consent required (enrollment limited to students admitted to Phase II)

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**LTC 7110: Working with Infants and Toddlers**

(cross-leveled with LTC 4110). Experience working with children aged 6 weeks to 2 1/2 years and their families. Opportunity to apply theories of cognitive, language, and social development.

**Credit Hours:** 3

**Prerequisites:** course in child development and admission to Phase II; admittance to College of Education required

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**LTC 7120: Early Childhood Education Literacy Methods & Assessment I**

(cross-leveled with LTC 4120). Strategies for assessing and supporting young children's literacy development. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of department required

**Recommended:** Admittance to College of Education required and co enrollment in LTC 4200 and LTC 4210 and K-3 field experience

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**LTC 7130: Teaching & Learning Math, Sci. & Social Studies w/Young Children**

(cross-leveled with LTC 4130). Strategies for assessing and supporting young children's math, science and social studies learning. Includes strategies for home-school collaboration. Must take concurrently with K-3 field experience. Graded on A-F basis only.

**Credit Hours:** 9

**Prerequisites:** Consent required (enrollment is limited to students admitted to the College of Education and have completed of ECE Language/Literacy block)

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**LTC 7140: Curriculum, Theory and Classroom Management in Early Childhood Education**

Reflection on the relationship of theory and practice in ECE. Consideration of various topics including historical influences on early childhood curriculum, models of early childhood curriculum, classroom management, and individualizing curriculum.

**Credit Hours:** 3

**Prerequisites:** Consent required (enrollment limited to students who have completed the first two semesters of Phase II)

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**LTC 7150: Early Childhood Education Literacy Teaching Methods and Assessment II**

(cross-leveled with LTC 4150). Advanced strategies for assessing and supporting young children's literacy development.

**Credit Hours:** 3

**Prerequisites:** Consent of department required

**Recommended:** LTC 4120 or LTC 7120, LTC 4124 K-3 Field Experience and admittance to the ECE certification program in Phase II of the College of Education

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**LTC 7200: Young Children's Emergent Language**

(cross-leveled with LTC 4200). For Early Childhood and Elementary Education majors. Study of young children's language development and implications for teachers.

**Credit Hours:** 2

**Prerequisites:** admittance to Phase II; admittance to College of Education required

**Corequisites:** LTC 4120, LTC 4210, and K-3 field experience

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**LTC 7220: Emergent Literacy**

Emergent reading. Instructional methods, diagnostic procedures, and materials appropriate for learners in elementary grades 1-3.

**Credit Hours:** 3

**Prerequisites:** completion of Phase I

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**LTC 7240: Art for Children**

(cross-leveled with LTC 4240). This course focuses on appropriate teaching methods and strategies for teaching art (studio, art history, aesthetic, and criticism), artistic development of children, and curriculum, instructional, and organization strategies for the art classroom.

**Credit Hours:** 2

**Prerequisites:** admittance to College of Education

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**LTC 7340: Middle School Science I**

(cross-leveled with LTC 4340). Concepts, materials, methods in middle school science.

**Credit Hours:** 4

**Prerequisites:** Consent required. (enrollment limited to Phase I admittance; admittance to the College of Education required)

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**LTC 7360: Intro. Teaching Mathematics in Middle & Secondary**

(cross-leveled with LTC 4360). Introduction to teaching mathematics including: professional mathematics teacher associations and journals, learning theories related to teaching mathematics, tools, and materials for teaching mathematics, curriculum and instructional strategies (middle and lower high school level), and techniques for assessing mathematical understanding.

**Credit Hours:** 3

**Prerequisites:** professional standing, MATH 1360; admittance to College of Education required

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**LTC 7400: Teaching Middle and Secondary English/Language Arts III**

(cross-leveled with LTC 4400). Prepares prospective educators by focusing on the teaching of American culture and critical thinking, through literacy, mediacy, oracy, and cultural artifacts.

**Credit Hours:** 3

**Prerequisites:** LTC 4380 or LTC 7380 and LTC 4390 or LTC 7390; admittance to Phase II of College of Education

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**LTC 7410: Teaching, Engaging and Assessing Middle-Level Students**

(cross-leveled with LTC 4410). In this course students will learn about the specific and individual needs of middle-level students and develop the skills and understandings to meet these needs.

**Credit Hours:** 3

**Prerequisites:** admittance to College of Education required

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**LTC 7420: Adolescent Literacy**

(cross-leveled with LTC 4420). Explores literacy implications of content areas. Topics include determining the difficulty of text, examining literature that supports content, creating alternative assessments, and evaluating reading/writing strategies as tools for learning. (Required of all students obtaining certification in middle school or concurrent certification in middle and secondary school area(s) except language arts.

**Credit Hours:** 3

**Prerequisites:** admittance to College of Education required

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**LTC 7460: Teaching English to Speakers of Other Languages**

(same as ENGLSH 7650). Linguistics and pedagogical principles of teaching English to speakers of other languages. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 7600 and ENGLSH 7610 or equivalent and acceptance into Phase II

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**LTC 7470: Teaching Secondary English/Language Arts I**

(cross-leveled with LTC 4470). Prepares prospective educators with the knowledge, skills, and strategies necessary for integrating and teaching the English/ Language Arts, primarily focusing on Young Adult Literature and critical thinking.

**Credit Hours:** 3

**Prerequisites:** admittance to Phase II of College of Education

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**LTC 7480: Teaching Middle and Secondary English/Language Arts II**

(cross-leveled with LTC 4480). Prepares prospective educators with the knowledge, skills, and strategies necessary for integrating and teaching the English/ language Arts, primarily focusing on the teaching of writing and critical thinking.

**Credit Hours:** 3

**Prerequisites:** admittance to Phase II of College of Education

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**LTC 7490: Teaching Middle and Secondary English/Language Arts III**

(cross-leveled with LTC 4490). Prepares prospective educators by focusing on the teaching of American culture and critical thinking, through literacy, mediacy, oracy, and cultural artifacts.

**Credit Hours:** 3

**Prerequisites:** LTC 4470 or LTC 7470 and LTC 4480 or LTC 7480; admittance to Phase II of College of Education

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**LTC 7500: Emergent Language in Early Childhood**

(cross-leveled with LTC 4500). Study of language learning in young children; how meaning of the environment is gained through language; implications for teachers working with children from varying language-learning environments.

**Credit Hours:** 3

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**LTC 7560: Reading and Writing in Content Areas**

(cross-leveled with LTC 4560). For secondary school teachers. Specific ways teachers can help students improve reading and writing skills in content areas and ways they can be taught.

**Credit Hours:** 3

**Prerequisites:** Consent required (enrollment is limited to College of Education admitted to Phase II with 60+ credit hours)

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**LTC 7565: Reading and Writing in the Content Areas II**

(cross-leveled with LTC 4565). Reading and Writing in the Content Areas II explores specific reading and writing content area strategies, with a focus on struggling students and new investigations in disciplinary literacy.

**Credit Hours:** 3

**Prerequisites:** LTC 4560 or LTC 7560 or LTC 4380

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**LTC 7571: Introduction Teaching Mathematics in Middle and Secondary**

Introduction to teaching mathematics including: professional mathematics teacher associations and journals, learning theories related to teaching mathematics, tools, and materials for teaching mathematics, curriculum and instructional strategies (middle and lower high school level), and techniques for assessing mathematical understanding.

**Credit Hours:** 3

**Prerequisites:** professional standing and MATH 2300

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**LTC 7581: Teaching Mathematics in Middle and Secondary Schools: Focus on Algebra and Technology**

(cross-leveled with LTC 4581). Key issues in the teaching of pre-algebra through advanced algebra, appropriate uses of technology, lesson planning, integration of appropriate models, mathematical connections. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** LTC 7571 or LTC 7360

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**LTC 7587: Seminar in Curriculum and Instruction**

Seminar in Curriculum and Instruction.

**Credit Hour:** 1-3

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**LTC 7590: Teach.Math in Sec.Schools: Focus on Geometry, Probability & Stat.**

(cross-leveled with LTC 4590). Provides experience which advanced students' knowledge, understanding, and facility in engaging students in learning mathematics. Major issues/topics highlighted in the course are: exploration of curriculum, teaching strategies, and assessment for geometry, probability and statistics.

**Credit Hours:** 3

**Prerequisites:** LTC 4570 or LTC 7570; admittance to College of Education required

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**LTC 7631: Teach.Sci.Second.Sch.:Phil.,Hist., Sci.Inq.,Curr.,Assm., & Tech 3**

(cross-leveled with LTC 4631). An integration of the philosophy and history of science, technology, society; teaching science as inquiry; classroom management, strategies and curricula for teaching/learning science; and using technology in science learning.

**Credit Hours:** 4

**Prerequisites:** Consent required (professional standing; admittance to College of Education required)

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**LTC 7641: Teaching Middle and Secondary Science II**

An integration of the philosophy and history of science, technology, society; teaching science as inquiry; classroom management, strategies and curricula for teaching/learning science; and using technology in science learning.

**Credit Hours:** 3

**Prerequisites:** professional standing and Teaching Science in the Secondary School, Part I; admittance to College of Education required

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**LTC 7730: Overview of Art Education**

(cross-leveled with LTC 4730). This is the first of a three course sequence and serves as the foundation for inquiries of methodological and philosophical approaches to the teaching of the visual arts at the elementary and secondary level.

**Credit Hours:** 3

**Prerequisites:** admittance to College of Education required

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**LTC 7740: Inquiry into Art Education: Pre-School Through Middle School**

(cross-leveled with LTC 4740). The second of three course sequence. It will cover art education issues as they apply to the Pre-School through Middle School setting.

**Credit Hours:** 3

**Prerequisites:** admittance to College of Education required

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**LTC 7750: Inquiry into Art Education: Secondary**

(cross-leveled with LTC 4750). The third of a three course sequence. Student will learn about secondary art education and make application to practice with emphasis on adolescent development, curriculum design, student assessment, instruction, diversity/equity, and professionalism.

**Credit Hours:** 3

**Prerequisites:** admittance to College of Education required

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**LTC 7800: Educational and Cultural Experience Abroad**

(cross-leveled with LTC 4800). Students work in a collaborative setting with K-12 educators in the host country. Components of this experience include research, discussion, electronic communication, in-country observations, and co-teaching experiences with a focus on the host-country education and culture.

**Credit Hour:** 0-6

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**LTC 8085: Problems in Curriculum and Instruction**

Problems in Curriculum and Instruction.

**Credit Hour:** 1-99

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**LTC 8600: Home-School Partnerships: Working with Families**

Examination of theoretical and philosophical foundations of parent involvement, social and cultural influences on contemporary families, current research on parent involvement, and characteristics of effective home-school-community partnerships. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8611: Instructional Leadership and Advocacy in Early Childhood Education**

This course supports students in examining the unique leadership context in early childhood education settings and the skills and dispositions required of leaders engaging a diverse, undercompensated workforce with a wide range of formal/degreed education. The course will explore the history of leadership in ECE, historical and contemporary policies that have shaped the field, and future directions for advocacy. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8612: Play, Inquiry, and Project-based Learning in Classrooms with Young Children**

Study of early childhood curriculum in contemporary educational settings along with selection of appropriate materials and development of instructional strategies for children, prekindergarten through early primary grades. Graded on A-F basis only.

**Credit Hour:** 2-3

**Prerequisites:** teaching experience or instructor's consent

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**LTC 8613: Advanced Assessment in Early Childhood**

(same as SPC\_ED 8490). Procedures and instruments used in assessment of young children, including screening, diagnosis, interpretation of diagnostic findings, and application to instructional plans. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Departmental consent required

**Recommended:** May be restricted to students in semester-based courses offered through Mizzou Online

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**LTC 8614: Language and Early Literacy Development**

Investigation of the language and early literacy development of young children from birth through age 8. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Department consent required

**Recommended:** May be restricted to students in semester-based courses offered through Mizzou Online

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**LTC 8615: The Missouri Writing Project**

Focus on 1) current theory and research in teaching writing; 2) development of effective practice in teaching, writing and reading; and 3) experimentation with writing and response.

**Credit Hour:** 3-4

**Prerequisites:** successful application to MWP

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**LTC 8616: The Teaching of Journalism**

The course focuses on the learning and teaching of middle, secondary, and post-secondary journalism/mass media course. Major strands of study include the theory and practice of journalism instruction, curriculum, and assessment.

**Credit Hours:** 3

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**LTC 8617: Teaching Writing in Middle and Secondary Classroom**

This course will encourage the student as a writer and as a teacher of writing, especially in the middle and high school setting. We will explore

various types of writing, with emphasis in English Education, including addressing national and state standards.

**Credit Hours:** 3

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**LTC 8618: Writing, Reading and Teaching Nonfiction**

Students will get more than their feet wet as they read and write a variety of nonfiction texts, explore nonfiction's value and relationship to other genres, and investigate its potential for learning.

**Credit Hours:** 3

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**LTC 8619: Media Literacy**

Teachers will learn how to incorporate visual images in the classroom while helping students 'read' the images of our media-rich culture. Teachers will pair media with literature; analyzed and evaluate different media; and design several assignments.

**Credit Hours:** 3

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**LTC 8621: Talk in the Curriculum**

This survey of oracy examines talk's essential role in learning and the connections among language, power and cultural identity.

**Credit Hours:** 3

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**LTC 8625: Language Acquisition and Development**

You will explore theories of language acquisition and development, and examine how language acquisition impacts reading and writing. Ideas for creating a language rich curriculum, second language learning, and cultural aspects of language will be addressed.

**Credit Hours:** 3

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**LTC 8635: Literature for Children and Youth**

Systematic study of selected areas of particular importance to students of literature, teachers, librarians, supervisors, and school administrators.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**LTC 8636: Teaching Literature**

This course involves exploration of theory, research, and practice in the teaching and learning of literature to students in Grades 9-12. It is intended for master's and doctoral students - experienced teachers enrolled in MU's English Education graduate program. This course addresses selected Common Core Standards, and focuses on an integrated approach to the teaching of literature and some nonfiction. Texts include novels, short stories, poems, literary nonfiction, and plays. The teaching of critical thinking, research skills, and technology are integrated into these experiences. This course promotes the use of various teaching and learning practices. The course is divided into the following major sections: 1) Introductions of Class Members; 2) Theories of Teaching Literature in the Classroom; and 3) Trying Out Theories on Selected Literature. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** This is a recommended course for early in a master's program

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**LTC 8637: Teaching Communication**

This course explores the theory, research, and practice in the teaching and learning of communication. This course is intended for master's and doctoral students - experienced teachers enrolled in MU's English Education graduate program. This course addresses selected Common Core Standards, and focuses on the teaching of speaking, listening, and language, as they occur within the best practices of English/Language Arts classrooms. The course involves variety of texts such as short stories, poems, literary nonfiction, and plays. The teaching of critical thinking, research skills, and technology are integrated into these experiences. This course encourages the use of various teaching and learning practices. The course is divided into the following major themes: 1) Introductions of Class Members; 2) Overview of Communication: Theory, Research, Practice; and 3) Teaching Communication in Context: Speaking, Listening, Reading, Writing. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** We recommend, but do not require, that you take this course early in your program

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**LTC 8638: Critical Literacy**

This course explores the theory, research, and practice of Critical Literacy. Students develop an understanding of the roots of critical literacy, based in critical theory, and critical pedagogy. Students develop an understanding of how critical literacy fits in conversation with other movements in literacy studies, particularly new literacies, while considering the research and practice rationales for using critical literacy as a way to engage student populations historically underserved by traditional approaches to literacy. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8640: Studies in English Education**

Exploration of the theory, research, and application of topics in the teaching of English, such as Writing/Thinking, Media, Literature, Language, and Creative Nonfiction. Topics announced at time of registration. May repeat to twelve hours with department's approval.

**Credit Hours:** 3

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**LTC 8641: Foundations of English Education**

This course focuses on foundational readings in the teaching and learning of English/Language Arts. The course requires intensive reading, writing, and discussion focusing on four subcategories of English Education: writing, literature, language and critical thinking. In addition, the course situates these topics within a historical perspective of the field. An additional focus of this course is on professional networking and development. It is expected that as students develop a greater understanding of the foundations of English Studies in Language Arts, they will see where their areas of expertise and knowledge join them to the profession as a leader. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8642: Teaching Writing and Reading in Content Areas**

Theory and practice of teaching reading and writing. Specific ways teachers can help students use writing to communicate about the course content, as well as to learn course concepts. Class also focuses on how to teach reading in reading classes, how to help students improve reading skills in content areas, and how reading and writing skills can reinforce each other.



**Credit Hours:** 3

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**LTC 8643: Teaching ESL/EFL to Adult Learners**

This course explores the characteristics of adult learners, theories of adult learning, and the contexts in which adults learn English as a second or foreign language. Students apply this knowledge in the design of language learning curricula and activities for adult learners. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8644: Teaching English Grammar and Pronunciation**

This course develops teachers' knowledge of the structure of the English language (its grammar and its sound system) and provides them with pedagogical skills in teaching grammar and pronunciation to second/foreign language learners. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** LTC 8645 and LTC 8648

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**LTC 8645: Second Language Acquisition**

This course examines theories of how humans develop first and second languages in childhood and adulthood and how this knowledge can be used to educate language learners. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8646: Materials for and Assessment of English Language Learners**

This course will examine the appropriate classroom materials, methods, reasons, and tools for the formal and informal assessment of English Language Learners. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8647: Language and Culture for Educators**

This course will examine how to prepare educators to effectively educate students from a range of linguistic and cultural backgrounds by developing a broad understanding of the definition and nature of culture and appropriate teaching strategies and materials for diverse students. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8648: Linguistics for Educators**

This course focuses on the form, meaning, and use of language in context and applying knowledge of linguistics to the teaching of English language learners. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8649: Methods of Teaching English Language Learners**

This course will examine how to prepare teachers to develop the investigative, decision-making, and reflective teaching skills needed to work with English Language Learners. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8650: English to Speakers of Other Languages Practicum**

This culminating course will allow students to apply the theory and practice of teaching English to non-native speakers in an educational setting. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8653: Education Toward Bi/Multilingualism: Theory, Policy, and Practice**

(same as ED\_LPA 8653). Overview of the theory, policy, and practice of using at least two languages in education to develop children's bi/multilingualism. Key topics include: (1) models of bilingual/multilingual education; (2) policy and politics of language education in the U.S. and international contexts; (3) psycholinguistic and sociocultural perspectives on bi/multilingual language development, as related to schooling; and (4) evaluation and assessment issues in bi/multilingual education.

**Credit Hours:** 3

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**LTC 8654: ESOL Curriculum Development**

This course prepares teachers to design a language learning curriculum for students who are learning English as a second or foreign language.

**Credit Hours:** 3

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**LTC 8660: Reading Miscue Analysis**

The process in which readers construct meaning by relating their socio-psycholinguistic backgrounds to discourse. 15 studied miscues (text deviations) are analyzed at several linguistic levels. A comprehension centered reading program is developed.

**Credit Hours:** 3

**Prerequisites:** LTC 7540 and LTC 7560, or equivalent

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**LTC 8664: Practicum in Child Study I**

Practicum experiences in diagnosing educational problems of school children.

**Credit Hour:** 3-5

**Prerequisites:** LTC 7540 or LTC 7560 or LTC 8670

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**LTC 8665: Practicum in Child Study II**

Practicum experiences in applying remedial procedures to children with educational problems.

**Credit Hour:** 3-5

**Prerequisites:** LTC 8664

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**LTC 8670: Analysis & Correction of Reading Disabilities**

Diagnostic and corrective procedures in reading instruction that may be used for clinical study.

**Credit Hours:** 3

**Prerequisites:** LTC 7540 or instructor's consent

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**LTC 8675: Foundations of Reading Instruction**

This online course examines principles and practices of teaching reading to PK-12 students; the nature of reading and literacy learning, the foundations of reading acquisition and development; and reading instructional across grade levels. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8681: Guiding all Readers Toward Independence**

This course is an exploration of ways to help all readers, particularly those who have been unable to achieve success in reading. Focus areas are assessment, evaluation, and planning, all examined through work with an individual reader in a targeted case study. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8682: Focus on Writing in the Classroom**

The course focuses on theory, research and practices in teaching writing in the elementary classroom (K-6) while developing a critical understanding of process methods to teach writing.

**Credit Hours:** 3

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**LTC 8683: Celebrating Reading Through Good Books**

Many people can read but do not. This course will explore ways to make reading a joyful, exciting experience. Assignments will include reading journal articles that will help students meet self determined goals. Sharing books will be an important part of this course.

**Credit Hours:** 3

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**LTC 8684: Integrating Literacy and Technology**

This will be a seminar course in which the students explore definitions of literacy, theoretical frameworks of educational technology, and literature that investigates the effectiveness of integrating literacy and technology. The students will also examine and evaluate a range of software used to integrate literacy and technology.

**Credit Hours:** 3

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**LTC 8685: Literature Opportunities: Using Children's and Young Adult's Literature in the Classroom**

This class examines genres in children's and young adult literature (grades 1-9). In-depth look at the work of children's authors and illustrators; explore issues of censorship, gender, and culture.

**Credit Hours:** 3

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**LTC 8686: Theory of Instructional Strategies**

The course investigates instructional strategies in K-12 and higher education classrooms and the theories behind those strategies. Content includes large and small group strategies, inquiry-based learning, student-centered and direct instruction, and differentiated instruction.

**Credit Hours:** 3

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**LTC 8687: Literacy and the Internet (Grades K-12)**

The internet offers a myriad of opportunities to engage K-12 students in meaningful, purpose-driven reading and writing. Students examine their own literacy programs, examine ways they can incorporate the internet, and create a classroom web site.

**Credit Hours:** 3

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**LTC 8688: Nature of Literacy in a Digital World**

New literacies are required to successfully engage in professional, civic, and personal lives that are imbued with technology. Students

examine the literacy skills required to proficiently read and write with text messages, blogs, wikis, social networks, and virtual worlds.

**Credit Hours:** 3

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**LTC 8689: Curricular Decisions for Literacy in a Digital World (Grades K-12)**

This course will focus on making a match between educational technologies that can be used to support literacy and your beliefs about literacy instruction. We will examine types of educational technologies, stances towards the integration of literacy and technology, various theoretical perspectives of literacy acquisition and development, aspects of literacy, and instructional approaches for literacy. You will examine various technologies and identify what best matches your literacy instruction. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8710: Nature of Science and Science Teaching**

Examines philosophical, historical and sociological views of the nature of science and implications for science education policy and science instruction.

**Credit Hours:** 3

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**LTC 8712: Inquiry and the Science Curriculum**

Examines inquiry as the foundation of the science curriculum. Includes study of exemplary programs and curriculum materials, and provides models for curriculum development in science education.

**Credit Hours:** 3

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**LTC 8714: Research in Science Education**

Studies appropriate research methodologies and reviews research and selected readings in science education. Allows option for elementary or secondary emphasis for specific areas: life, physical or earth sciences.

**Credit Hours:** 3

**Prerequisites:** undergraduate course in Science Education

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**LTC 8717: Teaching, Learning, & Research in Middle & Secondary School Sci.I**

Course I is for Post-Baccalaureate Majors seeking Middle and/or Secondary teacher certification. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** LTC 8942

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**LTC 8718: Teaching, Learning & Research Middle & Secondary School Sci.: II**

For Post-Baccalaureate Majors seeking Middle and/or Secondary teacher certification. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** LTC 8942

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**LTC 8719: Teaching, Learning, & Research Middle & Secondary**

For Post-Baccalaureate Majors seeking Middle and/or Secondary teacher certification. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** LTC 8942

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**LTC 8724: College Science Teaching**

(same as BIO\_SC 8724, PHYSCS 8310 and ASTRON 8310). Study of learner characteristics, teaching strategies, and research findings related to teaching science at the post-secondary level.

**Credit Hours:** 3

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**LTC 8725: Science Outreach: Public Understanding of Science**

(same as BIO\_SC 8725 and AN\_SCI 8725). Development of presentations to adult audiences on the science underlying issues of current interest. May be repeated for credit.

**Credit Hour:** 1-2

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**LTC 8726: Integrating Science with Outreach**

(same as BIO\_SC 8726). This course provides an opportunity for students to earn credit for outreach activities in the community. Students will capitalize on their area of study and scientific expertise in developing, implementing, and evaluating related outreach activities. May be repeated for credit.

**Credit Hour:** 1-6

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**LTC 8730: Survey of Art Education**

Provides survey of the development of art education and problems in the field by means of a critical inquiry.

**Credit Hours:** 3

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**LTC 8735: Visual Literacy and Visual Culture**

This course will investigate the intersection between art and language, exploring the connections between visual media and the written word-how these two areas inform and enrich each other.

**Credit Hours:** 3

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**LTC 8740: Curriculum in Art Education**

Advanced study of art education curricula, with option for elementary or secondary emphasis. Study of exemplary art programs, standards of quality, curriculum models, curriculum design and construction, concomitant instructional methods and evaluation.

**Credit Hours:** 3

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**LTC 8745: Visual Thinking Strategies I**

This course will introduce regular classroom and art educators to Visual Thinking Strategies theory and methodology, building practical VTS facilitation skills through structured guidance and feedback as each participant implements VTS lessons within his/her own teaching context.

**Credit Hours:** 3

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**LTC 8746: Visual Thinking Strategies II**

Visual Thinking Strategies II students will build upon the basic facilitation skills acquired during VTS I as they design an image-based studio curriculum tailored to their own students and classrooms. Action research and peer coaching are key features of the course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** LTC 8745

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**LTC 8750: Review of Research in Art Education**

Studies appropriate research methodologies and reviews research and selected readings in art education.

**Credit Hours:** 3

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**LTC 8765: Artistic Thinking: Multimedia Applications for Teaching Art**

This course is designed to keep pace with contemporary trends in technology and digital media literacies. Students will deeply explore current applications and develop curriculum implementation strategies for K-12 instruction in visual arts classrooms.

**Credit Hours:** 3

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**LTC 8766: Illuminating Process and Product: Making Learning Visible**

This course focuses on the evaluative processes that surround and are embedded in art education. Due to the subtle, nuanced, and product based nature of visual arts, evaluative practices should be studied, understood, and implemented in an effective and encouraging manner. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8767: The Art of Teacher Reflection**

This course investigates reflective practices making deep inquiries into theoretical teaching practices. Students will examine their educational heritage, cultural beliefs and the implications these beliefs have on their current and future classrooms. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8780: Managing Classrooms for Learning**

Theoretical assumptions, goals, and research that inform various approaches to classroom management advocated for practitioners. Includes strategies for conducting action research on classroom management.

**Credit Hour:** 1-3

**Prerequisites:** An educational psychology course or instructor's consent

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**LTC 8790: Patterns for Instruction in Social Studies**

Presents and evaluates strategies for planning, teaching, and evaluating social studies in elementary and secondary schools.

**Credit Hours:** 3

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**LTC 8800: Secondary Social Studies Curriculum**

Examines current theory, trends and practices in secondary social studies curriculum with a practicum in curriculum development.

**Credit Hours:** 3

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**LTC 8805: Inquiry into K-12 History and Social Science**

this course is designed as a directed study on a topic in social studies content for the K-12 classroom. The focus of the course is on what is taught in social studies. Graded on A-F basis only

**Credit Hours:** 3

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**LTC 8806: Issues in the Social Studies Classroom**

This course is designed to provide an intensive study of current trends and significant issues in social studies that affect the social studies classroom.

**Credit Hours:** 3

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**LTC 8807: Exploration of Research in Social Studies**

The course serves as the capstone experience for graduate students pursuing in the LTC Masters program with an emphasis in social studies education. This course prepares students to engage in classroom research specific to a social studies classroom and/or setting. Students will consider their role as classroom researchers. Students will be asked to synthesize course readings and discuss the underlining theories, dilemmas, and tensions found in the research. Students will also conduct a capstone project. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8860: Mathematics Curriculum**

Evolution of the mathematics curriculum during the 20th century will be studied. Emphasis will be given to examining major factors influencing the changing mathematics curriculum and their impact.

**Credit Hours:** 3

**Prerequisites:** teaching experience or the instructor's consent

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**LTC 8861: Teaching, Learning & Research in Middle & Secondary School Math I**

Course I for Post-Baccalaureate Majors seeking Middle and/or Secondary teacher certification. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8862: Teaching, Learning & Research Middle & Secondary School Math: II**

Course II for Post-Baccalaureate Majors seeking Middle and/or Secondary teacher certification. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** LTC 8861

**Corequisites:** LTC 8942

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**LTC 8863: Teaching, Learning, and Research Middle and Secondary Math III**

Course III for Post-Baccalaureate Majors seeking Middle and/or Secondary teacher certification. Graded on A-F basis only. Prerequisites: LTC 8861, and LTC 8862; Co-Requisites: LTC 8942.

**Credit Hours:** 3

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**LTC 8865: Assessment in Mathematics Education**

Examination of assessment practices and the accountability movement. Emphasis is placed on significant research findings in assessment and implications for planning, implementing, and evaluating mathematics instruction.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7100 and teaching experience

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**LTC 8866: Contemporary Curriculum Issues in Mathematics Education**

Mathematics curriculum is a concern to students, parents, school districts, business leaders, and government officials. This course examines current trends in mathematics curriculum from the perspective of mathematics educators, policymakers, and the public. Factors influencing changes in mathematics curriculum are examined. Graded on an A-F basis only.

**Credit Hours:** 2

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**LTC 8870: Studying Mathematics Teaching in Schools**

This course explores issues that must be considered in the study of mathematics teaching, with a focus on appreciating the complexity of teaching mathematics and the challenges involved with improving teaching within typical school systems and structures. It includes a survey of research on mathematics teaching and an introduction to a variety of research methodologies used in such studies. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Open to masters and doctoral students

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**LTC 8871: Teaching and Learning Number/Operations Advanced**

Course will develop understanding of learning and teaching pre-number concepts, counting and cardinality, numbers and operations in base ten. Emphasis will be given to how children think about and learn these concepts and how they fit into the elementary school curriculum. Graded on A-F basis only.

**Credit Hours:** 3

**Corequisites:** LTC 8881

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**LTC 8872: Teaching and Learning Rational Number Advanced**

The course is designed to develop an understanding of the learning and teaching of rational numbers and the ratio and proportional relationships. Emphasis will be given to how children think about and learn these concepts and how they fit into the elementary school curriculum. Graded on A-F basis only. Corequisites: LTC 8882

**Credit Hours:** 3

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**LTC 8873: Teaching and Learning Geometry and Measurement Advanced**

This course is designed to develop and understanding of the teaching and learning of geometry and measurement. Emphasis will be given to how children think about and learn these concepts and how they fit into an elementary mathematics curriculum. Graded on an A-F basis only.

**Credit Hours:** 3

**Corequisites:** LTC 8883

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**LTC 8874: Teaching and Learning Algebraic Reasoning Advanced**

Course focuses on the content and complexities of teaching and assessing algebraic reasoning in grades 1-6. Includes examinations of representation, analysis of mathematical structures, patterns, functions, and the transition from arithmetic to algebra. Graded on A-F basis only. Corequisites: LTC 8884

**Credit Hours:** 3

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**LTC 8875: Technology and Mathematics Education**

This course will focus on effective uses of technology in mathematics teaching and learning. Participants will experience different electronic technologies including computers, graphing calculators, and calculator based laboratories.

**Credit Hours:** 3

**Prerequisites:** Open to masters and doctoral students

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**LTC 8876: Teaching Data Analysis and Mathematical Modeling**

The course will develop understanding of data analysis and mathematical modeling. Emphasis will be given to how children think and learn about these concepts and how they fit into the elementary school curriculum. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8877: Foundations of Mathematics Leadership in Elem Schools**

This course provides opportunities for participants to develop knowledge and understanding of leadership principles and the process of continuous improvement as it related to the roles and responsibilities of elementary mathematics specialists. Graded on A-F basis only.

**Credit Hours:** 2

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**LTC 8878: Mathematical Leadership for Elementary Schools****Advanced**

This advanced leadership course focuses on research and practice related to teamwork, interaction, communication, conflict resolution, and leadership in K-5 schools. Candidates will examine effective strategies for influencing and facilitating school/district improvement. Course graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8879: Mathematical Thinking and Learning**

This course surveys empirical research on mathematical thinking and learning in grades K-12, explores the complexity and mathematical power in students' thinking, and cultivates skill in using clinical interview methods to study students' thinking and learning. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8881: Internship - Number and Operations in Elementary Schools**

A supervised mathematics teaching practicum with online seminars in which the candidate acquires experience working with a range of students and adult learners (parents and teachers) on number and operations concepts. Graded on A-F basis only. Corequisites: LTC 8871

**Credit Hour:** 1

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**LTC 8882: Internship - Rational Numbers in Elementary Schools**

A supervised mathematics teaching practicum with online seminars in which the candidate acquires experience working with a range of students and adult learners (teachers and parents) on rational number and proportional thinking concepts. Graded A-F basis only. Corequisites: LTC 8872

**Credit Hour:** 1

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**LTC 8883: Internship - Geometry/Masurement in Elementary Schools**

A supervised mathematics teaching practicum with online seminars in which the candidate acquires experience working with students and adult learners (teachers and parents) on geometry and measurement concepts appropriate for K-5 students. Graded on A-F basis only.

**Credit Hour:** 1

**Corequisites:** LTC 8873

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**LTC 8884: Internship - Algebraic Reasoning in Elementary Schools**

A supervised mathematics teaching practicum with online seminars in which the candidate acquires experience working with a range of students and adult learners (teachers and parents) on concepts related to algebraic reasoning appropriate for K-5 students. Course graded on A-F basis only. Corequisites: LTC 8874

**Credit Hour:** 1

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**LTC 8886: Contemporary Equity Issues in Mathematics Education**

Certain student populations (e.g., socioeconomically disadvantaged, racial minorities, English Language Learners, students with disabilities) have been traditionally underserved by the U.S. mathematics education system. This course explores the fundamental issues underlying this situation and explores mathematics teaching techniques that can be used to make students' learning opportunities more equitable. Graded on an A-F basis only.

**Credit Hours:** 3

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**LTC 8890: Mathematics Education Research**

Examination of major research efforts and significant findings on learning and teaching mathematics. Emphasis will be placed on becoming knowledgeable of research and on developing wise consumers of research in mathematics education.

**Credit Hours:** 3

**Prerequisites:** teaching experience or instructor's consent

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**LTC 8893: Integrating Instruction in Science and Mathematics, Grades 5-12**

This course is designed to help middle and secondary mathematics and science teachers enhance student understanding of mathematics and science through integration of the disciplines.

**Credit Hours:** 2

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**LTC 8896: Secondary Mathematics from an Advanced Perspective**

This course deepens understanding of the mathematics underlying the secondary school curriculum. It addresses high school content from the viewpoint of advanced mathematics. Connections are explored within high school content and between high school and college content. Content strands include analysis, algebra, and Euclidean and non-Euclidean geometry. Graded on an A-F basis only.

**Credit Hours:** 3

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**LTC 8900: Seminar in Curriculum and Instruction**

Seminar in Curriculum and Instruction. Some sections may be graded on A-F or S/U graded basis only.

**Credit Hour:** 1-3

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**LTC 8910: Individual Research**

Independent research not leading to thesis.

**Credit Hour:** 1-3

**Prerequisites:** consent required

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**LTC 8913: Curriculum Development**

Curriculum Development explores the intersections of learning, teaching, and curriculum. Students investigate not just various definitions of, types of, and purposes for educational curriculum, but more specifically focus on curriculum-in-practice. Student explore how teachers enact curriculum and the factors that inform curriculum use, such as state and national standards, standardized assessments, school contexts and curricular materials. Students study and apply models of curriculum development and curriculum decision-making for everyday classroom use, which may include backwards design, culturally-relevant designs, principles of learning and/or other curricular and instructional approaches. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8914: Culturally Responsive Pedagogy**

This course equips practicing teachers, curriculum developers, and community leaders with tools to address the varied cultural and social landscape of today's classrooms. Students examine political, cultural, and economic conditions of schools and develop strengths-based, culturally responsive approaches to teaching. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8915: Classroom Research-Learning, Teaching and Curriculum**

Study of original classroom research and theories of instruction leading to plans for personal research and theory development.

**Credit Hour:** 1-3

**Prerequisites:** advanced graduate standing

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**LTC 8930: Ethnographic Research in Education**

Investigate practical aspects, nature, and assumptions of ethnographic research in education. Pilot study required.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7170 or equivalent

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**LTC 8940: In-Service Course in Curriculum and Instruction**

Course work adapted to current vocational needs.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**LTC 8941: Internship in Curriculum and Instruction**

Provides internship experience under supervision in advanced levels of curriculum and instruction.

**Credit Hour:** 1-99

**Prerequisites:** departmental chairman's consent

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**LTC 8942: Advanced Internship in Curriculum and Instruction**

This internship is for students enrolled in MU COE Post-Baccalaureate Certification Programs. Graded on A-F basis only.

**Credit Hour:** 1-10

**Prerequisites:** instructor's consent

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**LTC 8950: Case Study Research Methods**

This course introduces graduate students to the advanced qualitative techniques related to case study research, within and across case coding strategies, and theoretical/philosophical underpinnings of case study research methodology.

**Credit Hours:** 3

**Prerequisites:** Previous introductory course in qualitative research methods is required

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**LTC 8951: Grounded Theory and Situated Inquiry**

(same as LTC 8951). For qualitative researchers attempting to understand social processes, Grounded Theory (GT) offers a way of developing theory empirically, 'from the bottom up.' In fact, this is what most distinguishes GT from other methods. It is explicitly emergent. It does not test a hypothesis. It provides useful tools to learn about participants' understandings and experiences of a social issue, process, or phenomena and to discover and construct theory to account for the social processes being studied. In this course, we will consider the theoretical underpinnings and practices of classic and contemporary GT methodologies. Importantly, we will conduct research and a GT analysis of data.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8957 and ESC\_PS 9620

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**LTC 8952: Narrative Inquiry Theory and Research Methods**

Narrative inquiry has gained popularity amongst researchers specifically in education and other social science fields with various theoretical and analytical approaches. In this advanced qualitative course, students will learn about these approaches and develop critical perspectives toward narrative inquiry. The purpose of this course is to expose students, in various disciplines, to the theoretical underpinnings of narrative inquiry and provide space to 'have a try' at several analytical methods for narrative research (i.e. thematic, structural, dialogic/performative, and image analysis). This course will equip students with narrative research method experiences that could be used for dissertation research.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8957 and ESC\_PS 9620

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**LTC 8953: Poststructural Theory and Research Methods**

Poststructural perspectives call into question the universals and/or structures of society. The purpose of this course is to expose students, in various disciplines, to poststructural theory and provide space to 'have a try' at thinking with theory for data analysis. This course provides space for students to read poststructural scholars' original writings. Readings for the course also allow students to read secondary sources and research studies that apply poststructural ideas. Students are encouraged to think of ways that poststructural theory can become a methodology and/or method for research in their discipline.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8957 and ESC\_PS 9620

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**LTC 8957: Qualitative Methods in Educational Research I**

(same as ESC\_PS 8957 and ED\_LPA 8957). This course provides a practical introduction to qualitative research and its applications in education and social sciences. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 9050: Curriculum Theories**

Examines key ideological orientations in curriculum theory, explores the notion of curriculum as more than 'a course of study' or 'structured knowledge,' and asserts that curriculum is embedded within historical discourses and practices of race, class, gender and sexuality. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Admittance into a doctoral program

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**LTC 9060: Theories of Learning and Implications for Education**

The course will familiarize students with the learning theories most widely drawn upon in educational research. Students will examine how theories are used and the range of interpretations of these theories. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Admittance into a doctoral program

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**LTC 9070: Philosophical Perspectives in Education Research**

An examination of the history and philosophy of social science research, including perspectives on ontology, epistemology, and axiology. Students will consider how various philosophical assumptions shape research paradigms, purposes, interests, and methodologies. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Admittance into a doctoral program

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**LTC 9080: Teacher Education Research**

This course is designed to prepare doctoral students as researchers who understand current trends and challenges for teacher education across the professional continuum, and who have the ability to formulate, compare, and problematize relevant research in the field.

**Credit Hours:** 3

**Prerequisites:** Admittance into a doctoral program

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**LTC 9090: Research in Curriculum and Instruction**

Graded on a S/U basis only.

**Credit Hour:** 1-99

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**LTC 9620: Qualitative Methods in Educational Research II**

(same as ED\_LPA 9620 and ESC\_PS 9620). This course constructs a conceptual and methodological bridge between the understandings of qualitative research developed in Qualitative Methods I and more advanced study of theories, designs, and methods. The focus is on theory, approaches to data analysis, and interpretation. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 9675: Language, Literacy, and Culture**

This course explores how culture mediates language and literacy learning from a variety of theoretical perspectives. It examines language and literacy practices in and out of school and the ways educational policies and institutions shape what practices are valued and sustained over time. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Doctoral students only

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**LTC 9750: Doctoral Research Seminar in Art Education**

This course focuses on art education research and is designed to offer doctoral students an opportunity to investigate, through readings, reflective thinking, writing, and discussion, the issues that impact art education research. Graded on A-F basis only.

**Credit Hour:** 1

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**LTC 9860: Research in Mathematics Education**

This course focuses on research connoisseurship and expertise, and provides concrete opportunities for students to present, critique, and discuss research. It is intentionally designed as a practical research-learning environment. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites or Corequisites:** Doctoral candidate status in Learning, Teaching, & Curriculum

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**Learning, Teaching, & Curriculum - Vocational Courses**

**LTC\_V 1050: Principles of Sales**

Provide the student with the concepts, tools and skills to become a professional salesperson. Emphasis is placed upon participation and performance of sales skills.

**Credit Hours:** 3

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**LTC\_V 1070: Word Processing and Presentation Concepts**

Instruction on preparing written documents and creating presentations for business, legal, medical, and social service career areas using word processing and presentation software; Special emphasis on the use of advanced features of computer business application software. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC\_V 1110: Principles of Retailing**

Examines problems, opportunities and trends in retailing. Problems and cases deal with store organization, budgeting, control, personnel and operation.

**Credit Hours:** 3

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**LTC\_V 4085: Problems in Curriculum and Instruction - CTE**

Study of professional programs and issues or technical problems related to the field of career and technical education.

**Credit Hour:** 1-99

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**LTC\_V 4210: Foundations of Adult Workforce Education**

Study of workforce education and human resource development; emphasis on the foundational concepts of adult learning theory and its application to the development and use of instructional methods, curriculum design, and procedures for adult workforce and professional education. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC\_V 4570: Career Guidance**

Problems, methods, and procedures involved in assisting individuals in choosing, preparing for, entering upon, and progressing in their career. For workforce development and human resource professionals, employment counselors, and teachers, counselors, and school administrators.

**Credit Hour:** 2-3

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**LTC\_V 4710: Business Software Applications**

Advanced concepts, features, and applications central to the major types of business software--spreadsheets, database management, word processing, graphics, and communications.

**Credit Hours:** 3

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**LTC\_V 4750: Occupational Analysis**

Techniques, procedures of analyzing occupations into their basic elements. Required of trade teachers, coordinators.

**Credit Hours:** 2

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**LTC\_V 4910: Application of Adult Learning Concepts**

(cross-leveled with LTC\_V 7910). Course introduces students to the foundational concepts of adult learning theory, with a focus on the application of these theories to the development and use of instructional methods, curriculum design, and program development principles for instructors of adult learners in a variety of instructional settings. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 4115; junior standing

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**LTC\_V 4920: Workforce Education and the Community College**

(cross-leveled with LTC\_V 7920). This course provides an overview of the philosophy, history, and development of the community college in America, and reviews the social, economic, and political forces affecting these institutions. It also explores the rationale and techniques for keeping instructional and organizational functions responsive to the changing educational and workforce needs of the community, with an emphasis on collaboration with public-sector economic development and workforce training programs and customized training services for private sector organizations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Junior standing or instructor approval

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**LTC\_V 7083: Teaching Personal Finance Literacy**

(same as FINPLN 7083) Principles and practices of teaching personal finance with particular emphasis on income, money management, spending and credit, and savings and investing. Course graded on A-F basis only.

**Credit Hours:** 3

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**LTC\_V 7085: Problems in Curriculum and Instruction-CTE**

Study of professional programs and issues or technical problems related to the field of career and technical education.

**Credit Hour:** 1-99

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**LTC\_V 7570: Career Guidance**

(cross-leveled with LTC\_V 4570). Problems, methods, procedures involved in assisting individuals in choosing, preparing for, entering upon, progressing in their vocation. For teachers, counselors, school administrators. Graded on A-F basis only.

**Credit Hour:** 2-3

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**LTC\_V 7750: Occupational Analysis**

Techniques, procedures of analyzing occupations into their basic elements. Required of trade teachers, coordinators.

**Credit Hours:** 2

---

**LTC\_V 7910: Application of Adult Learning Concepts**

(cross-leveled with LTC\_V 4910). Course introduces students to the foundational concepts of adult learning theories, with a focus on the application of these theories to the development and use of instructional methods, curriculum design, and program development principles for instructors of adult learners in a variety of instructional settings. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC\_V 8085: Problems in Workforce and Professional Education**

Independent, directed study on a topic in the areas of workforce, professional, or technology education.

**Credit Hour:** 1-99

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**LTC\_V 8190: Research Applications for Career and Technical Education**

Interpretation, evaluation, and application of research methodologies and findings in career and technical education.

**Credit Hours:** 3

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**LTC\_V 8210: Program Development in Adult Workforce Education**

The adult workforce and professional education movement; characteristics of and learning principles applied to adult students; instructional materials, methods and procedures in organizing and operating adult vocational education programs. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC\_V 8310: Foundations of Career and Technical Education**

Philosophy, background, nature, purpose, and role of career and technical education programs in secondary and post-secondary education and workforce development. For teachers and administrators working with career and technical education programs. Graded on A-F basis only.

**Credit Hours:** 3



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**LTC\_V 8350: Curriculum Development for Workforce and Professional Education**

In-depth investigation of curriculum development theory, research, issues, and procedures for workforce and professional education in the public and private sectors.

**Credit Hours:** 3

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**LTC\_V 8501: Topics in Workforce and Professional Education**

Topics in the field of workforce, professional, or technology education in the CTE program areas.

**Credit Hour:** 1-99

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**LTC\_V 8510: Evaluation in Workforce and Professional Education**

Development of evaluation procedures and the construction of evaluation devices for workforce and professional education. Emphasizes performance evaluation, improvement of instruction, and program review.

**Credit Hours:** 3

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**LTC\_V 8520: Implementation of Career and Technical Education Programs**

Types of organization, approved administrative and supervisory practices, and state and federal guidelines for programs of career and technical education. Graded on A-F basis only.

**Credit Hours:** 3

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## Linguistics Courses

**LINGST 1060: Human Language**

(same as ANTHRO 1060, SLHS 1060, ENGLSH 1060). General introduction to various aspects of linguistic study. Elementary analysis of language data, with some attention to application of linguistic study to other disciplines.

**Credit Hours:** 3

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**LINGST 2001: Topics in Linguistics-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** consent of chair

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**LINGST 2601: Languages of Africa**

(same as BL\_STU 2601 and ENGLSH 2601). Introduction to the diversity of the 2000+ African languages, including first-hand experience exploring a few in detail with native speakers. Features of African languages are compared with others of the world. Political and social aspects of language in Africa are discussed.

**Credit Hours:** 3

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**LINGST 2700: Elementary Logic**

(same as PHIL 2700). Introduces a symbolic language for representing the structure of arguments. Presents precise rules for demonstrating the validity of arguments. Covers natural deduction for sentence and predicate logic. Develops skill in constructing derivations.

**Credit Hours:** 3

**Prerequisites:** grade of C or higher in MATH 1100 or MATH 1120

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**LINGST 2820: Minds, Brains, and Machines**

(same as PSYCH 2820 and PHIL 2820). Cognitive science is a many-splendored thing. It draws on a variety of disciplines, including psychology, neuroscience, computer science, linguistics, anthropology, and philosophy. The purpose of this course is to introduce the central questions of cognitive science, the conceptual and empirical tools used to investigate those questions, and some of the answers that have emerged so far. After an initial overview of the foundations of the cognitive-scientific enterprise as a whole, we will see what particular sectors of it have to say about mental capacities such as language, categorization, reasoning, social cognition, and consciousness.

**Credit Hours:** 3

**Prerequisites:** sophomore standing required

**Recommended:** PSYCH 1000

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**LINGST 3001: Topics in Linguistics-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** consent of chair

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**LINGST 3010: American Phonetics**

(same as SLHS 3010). Analysis of production and acoustics of the sounds of speech with an emphasis on American English; practice in broad and narrow transcription using the International Phonetic Alphabet.

**Credit Hours:** 3

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**LINGST 3210: Anatomy and Physiology of the Speech Mechanism**

(same as SLHS 3210). Introduction to anatomical and functional aspects of the speech mechanism.

**Credit Hours:** 3

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**LINGST 3220: Speech Acoustics**

(same as SLHS 3220). An introduction to the acoustic aspects of speech as they relate to the respiratory, phonatory, resonatory, and articulatory systems.

**Credit Hours:** 2

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**LINGST 3470: Culture as Communication**

(same as ANTHRO 3470, COMMUN 3470). Study of the influence of culture on communication processes. Examines topics such as the impact of values, languages, and nonverbal behavior on intercultural interaction.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**LINGST 3620: Languages of the World**

(same as ENGLSH 3620). Introduction to the diversity of the world's languages emphasizing historical relations and structural similarities and differences.

**Credit Hours:** 3

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**LINGST 3710: Survey of Minority and Creole Languages of the U.S. and the Caribbean**

(same as SPAN 3710 and FRENCH 3710). Analysis of the state of the minority languages of the U.S. and the Creole languages of the Caribbean with particular attention to the social status of these languages and speakers' attitudes toward them in context of ethnic, cultural, and national identity (taught in English).

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**LINGST 3721: Spanish Phonetics**

(same as SPAN 3721). Introductory course to the study of Spanish phonological, phonetic and spelling systems, practice of pronunciation, phonetic transcriptions, and introduction to the variation of Spanish pronunciation in the Hispanic world. The course is conducted in Spanish.

**Credit Hours:** 3

**Prerequisites:** SPAN 2160

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**LINGST 4001: Topics in Linguistics-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** consent of chair

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**LINGST 4001H: Topics in Linguistics-General - Honors**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisites: consent of chair; honors eligibility required,

**Credit Hour:** 1-99

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**LINGST 4001W: Topics in Linguistics-General - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** consent of chair

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**LINGST 4100: Philosophy of Language**

(same as PHIL 4100; cross-leveled with LINGST 7100, PHIL 7100). Examination of contemporary views of the relationship between language, minds, and the world.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and PHIL 2700 or instructor's consent

**Recommended:** one other course in Philosophy

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**LINGST 4110: Advanced Logic**

(same as PHIL 4110; cross-leveled with LINGST 7110; PHIL 7110). Presents the method of truth trees for sentence and predicate logic. Examines proofs concerning the decidability, soundness, and completeness of formal systems. Emphasizes the theory of formal systems.

**Credit Hours:** 3

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**Prerequisites:** sophomore standing and PHIL 2700; or instructor's consent

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**LINGST 4200: Introduction to Old English**

(same as ENGLSH 4200; cross-leveled with ENGLSH 7200, LINGST 7200). A beginning study of the Old English or Anglo-Saxon language in its cultural context, with emphasis on gaining a reading knowledge.

**Credit Hours:** 3

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**LINGST 4412: Gender, Language and Communication**

(same as COMMUN 4412, ANTHRO 4412; cross-leveled with COMMUN 7412, ANTHRO 7412, LINGST 7412). Relationships among gender, language, nonverbal communication, and culture.

**Credit Hours:** 3

**Prerequisites:** junior standing or departmental consent

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**LINGST 4420: Historical Linguistics**

(same as ANTHRO 4420, ENGLSH 4660; cross-leveled with ANTHRO 7420, LINGST 7420, ENGLSH 7660). Methods of tracing the history of languages by glottochronology, and by comparative and internal reconstructions; cultural and linguistic implications of such reconstructions and of areal linguistics.

**Credit Hours:** 3

**Recommended:** junior/senior standing

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**LINGST 4600: Structure of American English**

(same as ENGLSH 4600; cross-leveled with ENGLSH 7600, LINGST 7600). Introduction to English linguistics. Study of the grammar and pronunciation of contemporary English, with the major focus on syntax.

**Credit Hours:** 3

**Recommended:** junior standing

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**LINGST 4610: History of the English Language**

(same as ENGLSH 4610; cross-leveled with ENGLSH 7610, LINGST 7610). Historical changes in the grammar and pronunciation of the English language from Old English to the present. Introduction to Indo-European origins of English.

**Credit Hours:** 3

**Recommended:** junior standing

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**LINGST 4620: Regional and Social Dialects of American English**

(same as ENGLSH 4620; cross-leveled with ENGLSH 7620, LINGST 7620). The study of regional and social variation in pronunciation, vocabulary, and syntax of American English.

**Credit Hours:** 3

**Recommended:** LINGST 4600 and LINGST 4610 or equivalent

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**LINGST 4630: Phonology**

(same as ENGLSH 4630; cross-leveled with ENGLSH 7630, LINGST 7630). Survey of the sound patterns of English and other languages.

**Credit Hours:** 3

**Recommended:** LINGST 1060 or LINGST 4600 or equivalent

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**LINGST 4640: Syntax**

(same as ENGLSH 4640; cross-leveled with ENGLSH 7640, LINGST 7640). Study of the properties of phrase and sentence-level grammar, emphasizing English, with some comparison to other languages.

**Credit Hours:** 3

**Recommended:** LINGST 1060 or LINGST 4600 or equivalent

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**LINGST 4710: History of the French Language**

(same as FRENCH 4710). Study of the French language from its Latin origin to the present. The course includes a survey of the external, social, political, and historical factors that have affected the development of French, followed by diachronic study of the internal structural features of the language.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**LINGST 4711: History of the Spanish Language**

(same as SPAN 4711). Diachronic analysis of phonological, morphological, and syntactical systems of Spanish, from Vulgar Latin to contemporary dialects.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**LINGST 4720: Structure of Modern French**

(same as FRENCH 4720; cross-leveled with LINGST 7720, FRENCH 7720). An introductory presentation of the phonological and syntactic systems of contemporary standard French.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3160

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**LINGST 4721: Structure of Modern Spanish**

(same as SPAN 4721; cross-leveled with LINGS 7721, SPAN 7721). Synchronic analysis of phonology morphology and syntax of spoken Spanish dialects.

**Credit Hours:** 3

**Recommended:** four 3000-level courses in Spanish

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**LINGST 4722: Spanish Across the Continents**

(same as SPAN 4722; cross-leveled with SPAN 7722). This course focuses on the effects of migratory movements on language change, considering the Spanish spoken in Latin America, Puerto Rico, Spain and the USA. The class sharpens awareness and recognition of the linguistic diversity of the Spanish-speaking regions of the world. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** four 3000-level courses in Spanish

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**LINGST 4723: Language and Society: Spanish in the U.S.**

(same as SPAN 4723; cross-leveled with SPAN 4723). This class surveys linguistic and social issues pertaining to Spanish in the U.S. (past, present and future). Topics include bilingualism, code switching (a.k.a. Spanglish), first language attrition, linguistic identity, and the role of Spanish in Education, services and media. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** four 3000-level courses in Spanish

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**LINGST 4730: Linguistic Theory and Language Acquisition**

The goal of this class is to study the implications of current linguistic theory for contemporary research on second language acquisition. In particular, the hypothesis that second language acquisition follows some of the same principles as first language acquisition is explored. Course is taught in English.

**Credit Hours:** 3

**Prerequisites:** LINGST 4720, LINGST 4721, or LINGST 4600

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**LINGST 4740: Interdisciplinary Introduction to NLP**

(same as CMP\_SC 4740; cross-leveled with LINGST 7740, CMP\_SC 7740). The goal of this course is to enable students to develop substantive NLP applications. Focus on current structural and statistical techniques for the parsing and interpretation of texts.

**Credit Hours:** 3

**Prerequisites:** senior standing

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**LINGST 4810: Psycholinguistics**

(same as SLHS 4810; cross-leveled with LINGST 7810, SLHS 7810). Examination of the knowledge and processes that underlie the human ability to produce and understand language.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**LINGST 4870: Field Methods in Linguistics**

(same as ANTHRO 4870 and ENGLSH 4670; cross-leveled with LINGST 7870, ANTHRO 7870, ENGLSH 7670). Intensive training in collection and analysis of data taken from a native speaker of a non-Indo-European language. May be repeated for credit.

**Credit Hours:** 4

**Prerequisites:** Contact the Linguistics advisor to request permission

**Recommended:** 9 hours of linguistics

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**LINGST 4870W: Field Methods in Linguistics - Writing Intensive**

(same as ANTHRO 4870 and ENGLSH 4670; cross-leveled with LINGST 7870, ANTHRO 7870, ENGLSH 7670). Intensive training in collection and analysis of data taken from a native speaker of a non-Indo-European language. May be repeated for credit.

**Credit Hours:** 4

**Prerequisites:** Contact the Linguistics advisor to request permission

**Recommended:** 9 hours of linguistics

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**LINGST 4960: Special Readings in Linguistics**

Independent study through readings, conferences, reports.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**LINGST 4991: Honors Thesis in Linguistics**

Based on an original research project in theoretical or applied linguistics. Topic, director, and second reader approved by Linguistics Committee, College of Arts and Science.

**Credit Hours:** 3

**Prerequisites:** qualification for Honors degree

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**LINGST 7100: Philosophy of Language**

(same as PHIL 7100; cross-leveled with LINGST 4100, PHIL 4100). Examination of contemporary views of the relationship between language, minds, and the world.

**Credit Hours:** 3

**Prerequisites:** PHIL 2700 or instructor's consent

**Recommended:** Some work in PHIL 1000, PHIL 3000 or PHIL 3200

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**LINGST 7110: Advanced Logic**

(same as PHIL 7110; cross-leveled with LINGST 4110, PHIL 4110). Presents the method of truth trees for sentence and predicate logic. Examines proofs concerning the decidability, soundness, and completeness for formal systems. Emphasizes the theory of formal systems.

**Credit Hours:** 3

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**LINGST 7200: Introduction to Old English**

(same as ENGLISH 7200; cross-leveled with LINGST 4200 and ENGLISH 4200). A beginning study of the Old English or Anglo-Saxon language in its cultural context, with emphasis on gaining a reading knowledge.

**Credit Hours:** 3

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**LINGST 7420: Historical Linguistics**

(same as ANTHRO 7420, ENGLISH 7460; cross-leveled with ANTHRO 4420, LINGST 4420, ENGLISH 4460). Methods of tracing the history of languages by glottochronology, and by comparative and internal reconstructions; cultural and linguistic implications of such reconstructions and of areal linguistics.

**Credit Hours:** 3

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**LINGST 7600: Structure of American English**

(same as ENGLISH 7600; cross-leveled with ENGLISH 4600, LINGST 4600). Introduction to English linguistics. Study of the grammar and pronunciation of contemporary English, with the major focus on syntax.

**Credit Hours:** 3

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**LINGST 7610: History of the English Language**

(same as ENGLISH 7610; cross-leveled with ENGLISH 4610, LINGST 7610). Historical changes in the grammar and pronunciation of the English language from Old English to the present. Introduction to Indo-European origins of English.

**Credit Hours:** 3

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**LINGST 7620: Regional and Social Dialects of American English**

(same as ENGLISH 7620; cross-leveled with ENGLISH 4620, LINGST 7620). The study of regional and social variation in pronunciation, vocabulary, and syntax of American English.

**Credit Hours:** 3

**Prerequisites:** LINGST 4600 or LINGST 7600 and LINGST 7610 or equivalent

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**LINGST 7630: Phonology**

(same as ENGLISH 7630; cross-leveled with ENGLISH 4630, LINGST 4630). Survey of the sound patterns of English and other languages.

**Credit Hours:** 3

**Recommended:** at least one course in linguistics

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**LINGST 7640: Syntax**

(same as ENGLISH 7640; cross-leveled with ENGLISH 4640, LINGST 4640). Study of the properties of phrase-and sentence-level grammar, emphasizing English, with some comparison to other languages.

**Credit Hours:** 3

**Recommended:** at least one course in linguistics

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**LINGST 7870: Field Methods in Linguistics**

(same as ANTHRO 7870, ENGLISH 7670; cross-leveled with ANTHRO 4870, ENGLISH 4670, LINGST 4870). Intensive training in collection and analysis of data taken from a native speaker of a non-Indo-European language. May be repeated for credit.

**Credit Hours:** 4

**Prerequisites:** instructor's consent

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**LINGST 8000: Problems**

Independent study through readings, analysis of special linguistic problems, reports.

**Credit Hours:** 3

**Prerequisites:** one Advanced Linguistics course and instructor's consent

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**LINGST 8120: Bilingualism and Language Contact**

(same as SPAN 8120 and FRENCH 8120). Global analysis of the study of Bilingualism from a combined sociocultural, sociolinguistic and psycholinguistic perspective based on current research and examination of various phenomena of language contact (taught in Eng.).

**Credit Hours:** 3

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**LINGST 8600: Seminar in the English Language**

(same as ENGLISH 8600). Descriptive and historical studies of the English language. Topics (e.g., The Germanic Origins, Modern Syntactic Analysis) announced at time of registration. May be repeated up to twelve hours with departmental approval.

**Credit Hours:** 3

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## Listening and Speaking (Intensive English Program) Courses

**IEPL\_0001: Listening and Speaking I**

Students will develop the listening and speaking skills required to comprehend and talk about basic information and everyday situations. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required

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**IEPL\_0002: Listening and Speaking II**

Students will develop the listening and speaking skills required to comprehend and talk about simple familiar topics. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required

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**IEPL\_0030: Listening and Speaking for Academic Purposes III**

Students will develop the listening and speaking skills required to comprehend and discuss adapted academic topics. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required

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**IEPL\_0040: Listening and Speaking for Academic Purposes IV**

Students will develop the listening and speaking skills required to comprehend and discuss academic topics and adapted university lectures. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required

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**IEPL\_0050: Listening and Speaking for Academic Purposes V**

Students will develop the listening and speaking skills required to comprehend and discuss university lectures and academic interactions. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required

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## Management Courses

**MANGMT 1030: Vasey Academy on Leadership Issues**

Business seminar course restricted to Vasey Academy scholars. Focus on leadership issues and on career opportunity exploration in key areas of business. Graded on A-F basis only.

**Credit Hour:** 1

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**MANGMT 1050: Contemporary Leadership Issues in Business**

Course focuses on contemporary business leadership practices and includes an overview of the accountancy, finance, management and marketing majors and careers in each of these fields.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MANGMT 2700: Introduction to Entrepreneurship**

This course introduces a wide range of entrepreneurial concepts, most of which will be explored more deeply in advanced courses in the entrepreneurship and innovation management minor. Students learn about attitudes and aptitudes that are highly associated with entrepreneurial and innovation behaviors including working effectively in teams under deadline pressure. Processes for opportunity identification and recognition, working under severe resource constraints, identifying

and testing key assumptions about business models, prototyping, and innovation diffusion are explored. Students will engage in experiential exercises in the field to learn more about these principles and processes. Students are encouraged to meet with and learn from real entrepreneurs through selected assignments. Graded on A-F basis only.

**Credit Hours:** 3

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**MANGMT 3000: Principles of Management**

Introduction to the basic concepts of management and organization and their application to business operations.

**Credit Hours:** 3

**Prerequisites:** Completion of 45 semester hours. May require consent

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**MANGMT 3000H: Principles of Management - Honors**

Introduction to the basic concepts of management and organization and their application to business operations. The honors section includes additional breadth (topics) and depth (topical detail) above and beyond regular sections utilizing critical review of case studies.

**Credit Hours:** 3

**Prerequisites:** Completion of 45 semester hours. Honors eligibility required

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**MANGMT 3200: Business and Society**

This course emphasizes the ethical implications of managerial decisions and the relationships between businesses and stakeholder groups. Major topics include corporate governance, social responsibility, rights and obligations, and international business.

**Credit Hours:** 3

**Prerequisites:** Admission to upper level business program

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**MANGMT 3200H: Business and Society - Honors**

This course emphasizes the ethical implications of managerial decisions and the relationships between businesses and stakeholder groups. Major topics include corporate governance, social responsibility, rights and obligations, and international business.

**Credit Hours:** 3

**Prerequisites:** Admission to upper level business program. Honors eligibility required. Other students may be allowed to register after early registration provided space is available. Consent may be required

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**MANGMT 3200HW: Business and Society - Honors/Writing Intensive**

This course emphasizes the ethical implications of managerial decisions and the relationships between businesses and stakeholder groups. Major topics include corporate governance, social responsibility, rights and obligations, and international business.

**Credit Hours:** 3

**Prerequisites:** Admission to upper level business program. Honors eligibility required. Other students may be allowed to register after early registration provided space is available

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**MANGMT 3200W: Business and Society - Writing Intensive**

This course emphasizes the ethical implications of managerial decisions and the relationships between businesses and stakeholder groups. Major topics include corporate governance, social responsibility, rights and obligations, and international business.

**Credit Hours:** 3

**Prerequisites:** Admission to upper level business program

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**MANGMT 3300: Introduction to Business Processes and Technologies**

Introduces students to cross-functional business processes including both transactional and decision making forms. Current and emerging technologies used to facilitate efficient and effective action in these processes are explored. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** 24 credit hours. Restricted to students in the College of Business during early registration. Other students may register after early registration

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**MANGMT 3540: Introduction to Business Law**

The legal aspects of business related to society--introduction to the legal system; constitutional, criminal, tort law; contracts and sales law cases and problems; administrative regulation of business and consumer issues.

**Credit Hours:** 3

**Prerequisites:** Completion of 30 semester hours. May be restricted to CoB students only w/30 credit hours during early registration. Other students may register after early registration, provided there is space available. NO OVERRIDES/PERMISSIONS will be given for this class once the lectures/labs fill

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**MANGMT 3700: Diversity and Inclusion in Management**

Discuss elements of diversity including race, gender, ethnicity, religion, sexual orientation, socioeconomic status, and age, among others, as these impact effective management in the workplace through a variety of workplace performance-related outcomes. Explore ways to contribute to, learn from, and benefit from a more diverse and inclusive work environment. Examine methods of optimizing human performance and potential in organizations. Create personal action plan to increase awareness, knowledge, skills and global perspective relative to diversity and inclusion. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MANGMT 3000. May be restricted to CoB students w/30 credit hours during early registration. Other students may register after early registration provided space is available

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**MANGMT 3720: The Entrepreneurial Mindset**

The course will engage students in experiences that develop entrepreneurial characteristics such as a passion for business, tenacity despite failure, self-determination, management of risk, self-confidence, creating opportunities, creativity, initiative, and detail orientation. The product of this course intends to be a well-prepared student-entrepreneur fully confident to launch a thought-out business model. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** ABM 3283, MANGMT 4700, T\_A\_M 3800

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**MANGMT 3760: Design Thinking for New Business Innovation**

The Design Thinking for New Business Innovation course is ideally taken as the second course in a three course sequence (sequencing of courses is not required). Students, working in teams, first learn how to recognize

potential opportunities in a range of business contexts (MANGMT 4700). Next, students learn how to identify meaningful issues for customers in a more focused context, how to generate multiple solutions and form these into cohesive business concepts, and how to carefully test for feasible value with potential customers using rough prototypes (this course).

Finally, students learn how to develop a comprehensive business plan in areas like operations, marketing, finance, and human resources based on a business model concept for a given industry (MANGMT 4730). Such a detailed plan can be used to appeal to potential funding sources and serves as a guide for strategic action by a new venture. This course, as the middle course, bridges into the domains of both of the other two courses to give students a flavor for what can be learned in both. Graded on A-F basis only.

**Credit Hours:** 3

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**MANGMT 3900: International Management**

Analyzes the essential management functions within a global economy and provides a basic literacy in international management strategy and decision-making. Global markets are examined using legal, technological, ethical, and cultural considerations. Management principles in planning, organizing, leading, and controlling international trade and commerce are examined. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MANGMT 3000

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**MANGMT 3901: Special Topics in Management**

Study of a selected topic in management taken as part of an organized short-term study abroad program. Some sections of this course may be graded on either on A-F or S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** May require consent

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**MANGMT 3901H: Special Topics in Management - Honors**

Study of a selected topic in management taken as part of an organized short-term study abroad program. Some sections of this course may be graded on either on A-F or S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** May require consent. Honors eligibility required

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**MANGMT 3910: Managing Across Cultures**

Applying cultural dimensions to developing cross-cultural behavioral competencies utilizing code-switching training methods. For all persons interested in improving international person-to-person interactions.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 3920: Managing People in the Global Enterprise**

Focuses on management of people in global organizations- especially for-profit enterprises. Topics include differences across countries in recruitment and selection, training and development, leadership and motivation, compensation, cross-cultural negotiation, and employment relations. The use of expatriates and host country nationals as managers is contrasted. Challenges involved in repatriating expatriates and their families after lengthy terms of service in foreign countries are explored. Graded on A-F basis only.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 3975: Current Issues in International Management**

Study of current issues and practices in international management taken as part of an organized short term study abroad program. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**MANGMT 4010: Operations Management**

(cross-leveled with MANGMT 7010). Managerial analysis of operating problems, with emphasis on planning and control systems. Math Reasoning Proficiency Course. May require consent.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MANGMT 3000

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**MANGMT 4020: Human Resource Management**

(cross-leveled with MANGMT 7020) Introduction to strategies and best practices in attracting, retaining, developing, and compensating employees. May require consent.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MANGMT 3000

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**MANGMT 4030: Organizational Behavior**

(cross-leveled with MANGMT 7030). Examines theoretical constructs and research findings on human behavior in work organizations such as businesses, especially individual differences, dyadic relations and small group behavior. May require consent.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MANGMT 3000

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**MANGMT 4050: Management of Service Operations**

Managing services, especially the operation's activity in service firms. Includes determining the service package, forecasting service demand, managing demand, capacity analysis and management, scheduling, cost control, service quality, and human resource management. Standardization, franchising, and service automation addressed.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MANGMT 3000

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**MANGMT 4060: Project Management Fundamentals**

Application of predictive and agile project management methods and techniques for project breakdown, scheduling, resource allocation, and evaluation of project performance.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MANGMT 3000

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**MANGMT 4070: Supply Chain Management**

(cross-leveled with MANGMT 7070). An examination of the concepts, processes and institutions that are fundamental to an understanding of supply chain management in a global environment. Graded on A-F basis only.

**Credit Hours:** 3

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**MANGMT 4080: Managing Global Trade**

(cross-leveled with MANGMT 7080). International trade is the exchange of goods and services between countries giving rise to a world economy that is affected by global events. This course will focus on global trade management issues, procedures, requirements, and strategies. The implementation of international market strategy, global supply chains, and trade finance will also be explored. These topics will be examined by exploring trade factors that influence organizations and trade relations such as different cultural norms, government regulations, technology, resources, and logistics. Graded on A-F basis only.

**Credit Hours:** 3

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**MANGMT 4090: Purchasing and Supply Management**

(cross-leveled with MANGMT 7090). This course examines the critical role of the procurement function within the organization. The objective is to provide students with a fundamental understanding of the purchasing/sourcing function, key issues and developments in purchasing and supply management within the context of SCM, and to identify ways that purchasing can make a positive contribution to the competitiveness of the firm. Topics include an intro to the field/role in SCM; developing global sourcing strategies using commodity/channel/category management; make-or-buy decisions; supplier identification and selection; contract and pricing practices; negotiation; spend analytics including value analysis for services; contract performance monitoring; traditional versus collaborative supplier development; cross-functional relationship management, and ethics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MANGMT 4010

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**MANGMT 4110: Total Quality Management**

Introductory, comprehensive approach to quality planning, analysis, and control. Applications orientation. Integrates customer needs, product and service design and delivery, and continuous improvement into all organizational activities. Examines full range of behavioral, technical, and organizational aspects relating to quality.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MANGMT 3000

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**MANGMT 4120: Human Resource Management Law**

Analysis and evaluation of legal and administrative regulations of terms of employment; Fair Labor Standards, discriminatory practices, safety and health regulations, other regulations.

**Credit Hours:** 3

**Prerequisites:** Restricted to COB students ONLY during early registration. Other students may register after early registration, provided there is space available. NO PERMISSIONS/OVERRIDES will be given for this class once it fills

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**MANGMT 4130: Advanced Organizational Behavior**

Based upon behavioral science concepts and research findings directed toward understanding and explaining human behavior within organizations. Case studies, individual or team projects.

**Credit Hours:** 3

**Prerequisites:** MANGMT 4030. Restricted to COB students ONLY during early registration. Other students may register after early registration,

provided there is space available. NO PERMISSIONS/OVERRIDES will be given for this class once it fills

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**MANGMT 4140: Business Communication**

The course provides the fundamentals of business communication skills, including written, oral communication, listening, multicultural communication, and teamwork skills, with an emphasis on written communication skills as a method to communicate with important stakeholders.

**Credit Hours:** 3

**Prerequisites:** Restricted to Trulaske College of Business students admitted to upper level

**Corequisites:** MANGMT 3000

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**MANGMT 4140W: Business Communication - Writing Intensive**

The course provides the fundamentals of business communication skills, including written, oral communication, listening, multicultural communication, and teamwork skills, with an emphasis on written communication skills as a method to communicate with important stakeholders.

**Credit Hours:** 3

**Prerequisites:** Restricted to Trulaske College of Business students admitted to professional degree program during early registration

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**MANGMT 4185: Problems in Management**

Undergraduate students may select topics for study and investigation. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-9

**Prerequisites:** instructor's consent

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**MANGMT 4201: Topics in Management**

(cross-leveled with MANGMT 7201). Selected current topics in management. Offered on an experimental, one-semester basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MANGMT 3000. Restricted to College of Business students ONLY during early registration. Other students may register after early registration, provided there is space available

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**MANGMT 4201H: Topics in Management - Honors**

Selected current topics in management. Offered on an experimental, one-semester basis only.

**Credit Hours:** 3

**Prerequisites:** will vary with different topics. Honors eligibility required

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**MANGMT 4201W: Topics in Management - Writing Intensive**

(cross-leveled with MANGMT 7201). Selected current topics in management. Offered on an experimental, one-semester basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MANGMT 3000. Restricted to COB students ONLY during early registration. Other students may register after early registration, provided there is space available. NO PERMISSIONS/OVERRIDES will be given for this class once it fills

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**MANGMT 4210: Management Science**

Further development of models and quantitative analysis as applied to production management problems. Management research design and experimentation; computer applications; quantitative case analyses; individual industrial field studies. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites or Corequisites:** STAT 3500 and ACCTCY 2258 or CMP\_SC 1050, Junior standing required

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**MANGMT 4220: Compensation Theory and Practice**

Examines the empirical research and theory relating to the effect of compensation administration systems upon employee satisfaction and performance. Analysis of financial compensation systems and benefit programs in use in modern organizations.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MANGMT 4020. Restricted to Business students ONLY during early registration. Other students may register after early registration, provided there is space available. NO PERMISSIONS/OVERRIDES will be given for this class once it fills

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**MANGMT 4310: Modern Manufacturing**

Contemporary qualitative and quantitative analysis of automation systems for production and inventory; robotics, digital data matrix and Q/R coding, PLC overview; uncertainty, risk, and policy considerations; analysis of networks; management problems in application.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MANGMT 4010

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**MANGMT 4320: Selected Problems in Human Resource Management**

Advanced studies in selected administrative and technical policies, practices in employee relations, with individual and group project work, research. Focuses on policy issues, research findings, advanced techniques.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MANGMT 4020. Restricted to Business students ONLY during early registration. Other students may register after early registration, provided there is space available. NO PERMISSIONS/OVERRIDES will be given for this class once it fills

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**MANGMT 4340: Crisis Management**

Management strategies for organizational crisis events, including: constituent analysis, identity creation, image building, reputation control, media relations, internal communications, government relations, and investor relations. Concepts are explored through case studies, film, literature, and current events in popular culture.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MANGMT 3000. Restricted to Business students ONLY during early registration. Other students may register after early registration, provided there is space available

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**MANGMT 4350: Leadership Development**

Provides a comprehensive understanding of leadership development within the corporate environment. Examines causes and outcomes of different styles of leadership that are designed to fit the needs of individuals and/or specific situations.

**Credit Hours:** 3



**Corequisites:** MANGMT 3000

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**MANGMT 4420: Collective Bargaining**

Content, negotiation, administration of collective labor agreements and settlement of disputes.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MANGMT 3000. Restricted to Business students ONLY during early registration. Other students may register after early registration, provided there is space available. NO PERMISSIONS/OVERRIDES will be given for this class once it fills

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**MANGMT 4450: Management of Electronic Commerce**

An introduction to electronic commerce. Topics covered include definition and scope of e-commerce, tools and technologies used, strategies, and understanding of this dynamic field.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MANGMT 3000. Restricted to Business students ONLY during early registration. Other students may register after early registration, provided there is space available. NO PERMISSIONS/OVERRIDES will be given for this class once it fills

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**MANGMT 4520: Change Management in Business**

Provides a comprehensive understanding of the processes of change in the corporate environment. Examines antecedents of change such as acquisitions, mergers, technology and new leadership as well as approaches to managing change using tools from organization development (OD).

**Credit Hours:** 3

**Prerequisites or Corequisites:** MANGMT 3000

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**MANGMT 4540: Legal Aspects of Business Organization and Operation**

(cross-leveled with MANGMT 7570). Includes agency and employment relationships, sole proprietorships, partnerships, and corporations, also operational aspects of business associations such as administrative regulation, taxation, bankruptcy, and trade regulation.

**Credit Hours:** 3

**Prerequisites:** MANGMT 3540

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**MANGMT 4610: Database Management**

This is an introductory course on database (DB) technology. It introduces such technology and provides hands-on experience in designing and developing DBs to meet organizational goals. Topics include database concepts such as entity-relationship modeling, data modeling, relational database development, SQL, application of popular database systems software, data warehousing, and selected advanced topics in business use of DBs. Students work in groups to develop a database system project for an organization of their choice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MANGMT 3000

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**MANGMT 4620: Web Development Fundamentals**

An introduction to the fundamentals of design, technology and project management aspects of developing websites. Some web based programming languages including HTML, CSS, JavaScript and ASP/

VBScript and an introduction to Adobe Photoshop and Macromedia Dreamweaver.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 2258

**Corequisites:** MANGMT 3000

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**MANGMT 4700: Principles of Entrepreneurship**

An introductory course designed to provide a solid foundation of the role of entrepreneurship. The focus is on the creation of new ventures, the decisions leading to their development, and the factors that lead to their success.

**Credit Hours:** 3

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**MANGMT 4710: The Entrepreneurial Process**

This course deals with critical thinking, logic, emotional intelligence, ethics and a problem solving/decision making frame in the context of the entrepreneurial business phases: opportunity identification; launch after gathering resources; managing growth and harvesting rewards.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MANGMT 3000. Restricted to Business students ONLY during early registration. Other students may register after early registration, provided there is space available. NO PERMISSIONS/OVERRIDES will be given for this class once it fills

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**MANGMT 4720: Experiential Entrepreneurship**

The course will engage students in experiences that develop entrepreneurial characteristics such as a passion for business, tenacity despite failure, self-determination, management of risk, self-confidence, creating opportunities, creativity, initiative, and detail orientation.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MANGMT 3000. Restricted to Business students ONLY during early registration. Other students may register after early registration, provided there is space available. NO PERMISSIONS/OVERRIDES will be given for this class once it fills

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**MANGMT 4730: New Business Planning and Management**

Analysis of the major functional areas of the start-up firm including accounting, finance, human resources, information systems, logistics, management, marketing, production/operations, purchasing and sales. Focus is also placed on generating ideas, scanning for environmental trends, and critically evaluating opportunities.

**Credit Hours:** 3

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**MANGMT 4740: Entrepreneurial Consulting for Small Business**

This course is focused on developing the critical skills required to operate and manage a business in the growth phase following startup. Typically in this phase, the company has found and served customers and is cash flow positive. However, formal organization of the company and properly managing growth can be a challenge to the entrepreneur. The pitfalls of growth can be very different from organization to organization. For some it might be meeting production schedules, for others it might be expanding the management structure through hiring to increase organizational capacity. Properly financing growth can be a challenge for all. Graded on A-F basis only.

**Credit Hours:** 3

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**MANGMT 4940: Professional Management Internship**

Provides experience with management activities in business organizations (or, occasionally, in a governmental or not-for-profit setting). Students are required to prepare and execute a plan of study approved by the instructor and to complete written assignments detailed in the plan. Course only satisfies a professional elective requirement of the program. Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites:** COB student with a management concentration, and Internship Coordinator's consent

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**MANGMT 4970: Strategic Management**

Enterprise-level case studies, simulations, similar exercises to integrate business functional decisions; assessment of environmental influences on business. Development, implementation of company strategies.

**Credit Hours:** 3

**Prerequisites:** MANGMT 3000, MRKTNG 3000, FINANC 3000 and 93 credit hours earned. Open only to seniors admitted to a professional program in the CoB

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**MANGMT 4970W: Strategic Management**

Enterprise-level case studies, simulations, similar exercises to integrate business functional decisions; assessment of environmental influences on business. Development, implementation of company strategies.

**Credit Hours:** 3

**Prerequisites:** MANGMT 3000, MRKTNG 3000, FINANC 3000 and 93 credit hours earned. Open only to seniors admitted to a professional program in the CoB

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**MANGMT 7010: Operations Management**

(cross-leveled with MANGMT 4010). Managerial analysis of operating problems, with emphasis on planning and control systems. Math Reasoning Proficiency Course. May require consent.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MANGMT 3000

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**MANGMT 7020: Human Resource Management**

(cross-leveled with MANGMT 4020). Introduction to strategies and best practices in attracting, retaining, developing, and compensating employees. May require consent.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MANGMT 3000

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**MANGMT 7030: Organizational Behavior**

(cross-leveled with MANGMT 4030). Examines theoretical constructs and research findings on human behavior in work organizations such as businesses, especially individual differences, dyadic relations and small group behavior. May require consent.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MANGMT 3000

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**MANGMT 7070: Supply Chain Management**

(cross-leveled with MANGMT 4070). An examination of the concepts, processes and institutions that are fundamental to an understanding of

supply chain management in a global environment. Graded on A-F basis only.

**Credit Hours:** 3

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**MANGMT 7080: Managing Global Trade**

(cross-leveled with MANGMT 4080). International trade results from the buying and selling of goods and services across country borders. Events that occur globally, advancements in technology, and country policies all affect trade. This course focuses on global trade management issues, procedures, requirements, and strategies. It explores international market selection and entry strategies, risk factors, global supply chains, and trade finance. The course examines trade factors that influence organizations and trade relations including current events, different cultural considerations, governmental regulation, innovation and technology, financial resources, and logistics. Graded on A-F basis only.

**Credit Hours:** 3

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**MANGMT 7090: Purchasing and Supply Management**

(cross-leveled with MANGMT 4090). This course examines the critical role of the procurement function within the organization. The objective is to provide students with a fundamental understanding of the purchasing/sourcing function, key issues and developments in purchasing and supply management within the context of SCM, and to identify ways that purchasing can make a positive contribution to the competitiveness of the firm. Topics include an intro to the field/role in SCM; developing global sourcing strategies using commodity/channel/category management; make-or-buy decisions; supplier identification and selection; contract and pricing practices; negotiation; spend analytics including value analysis for services; contract performance monitoring; traditional versus collaborative supplier development; cross-functional relationship management, and ethics. Graded on A-F basis only.

**Credit Hours:** 3

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**MANGMT 7201: Topics in Management**

(cross-leveled with MANGMT 4201). Selected current topics in management. Offered on an experimental, one-semester basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MANGMT 3000. Restricted to College of Business students ONLY during early registration. Other students may register after early registration, provided there is space available

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**MANGMT 7380: Organizational Behavior and Management: The Individual**

An examination of factors influencing behavior in organizations. An analysis of research, theory, and current practices dealing with managing people in work organizations. Focus on the individual within the organizational context.

**Credit Hour:** 1.5

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**MANGMT 7390: Organizational Behavior and Management: Dyadic, Group and Organizational Processes**

An examination of factors influencing behavior in organizations. An analysis of research, theory, and current practices dealing with managing people in work organizations. Focus on dyadic, group and system-wide processes. Prerequisites: MANGMT 7380

**Credit Hour:** 1.5

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**MANGMT 7410: Management Information Systems**

A managerially-oriented, case-based introduction to information systems. Emphasizes how information systems technology can aid managers in improving organizational performance, group work, and personal productivity, thus providing competitive advantage.

**Credit Hour:** 1.5

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**MANGMT 7420: Managerial Statistics**

Overview of statistics as an aid in decision making. Emphasis on summarizing data, statistical inference, sampling techniques, and regression based forecasting as applied to problems in business.

**Credit Hour:** 1.5

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**MANGMT 7430: Operations Strategy**

Introduction to Operations Management function within an organization—the function which controls key resources necessary to produce and deliver a firm's goods or services to customers. Surveys strategic problems common to operations within complex organization. Emphasizes planning, control, and decision making to gain competitive advantage through operations-related activities. Stresses concepts, models, and behaviors across technologies, sectors, and industries, rather than emphasizing a few specific conversion technologies.

**Credit Hour:** 1-3

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**MANGMT 7450: Business Analytics**

This course focuses on two areas of knowledge. One focus is on developing relevant statistical thinking skills, including an awareness and management of risk, and recognizing the type of statistical analysis that is appropriate for a given managerial problem. The other is on developing an understanding of the role of business analytics in the organization, at the managerial, tactical and strategic level. Graded on A-F basis only.

**Credit Hours:** 3

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**MANGMT 7470: Data Analysis for Managers**

Statistical thinking approaches to address common business data and problems. Analysis of real-world cases and unstructured data using statistical features of spreadsheet software and communication of results in managerial format. Graded A-F only.

**Credit Hour:** 1.5

**Prerequisites:** Open to Crosby MBA students ONLY

**Corequisites:** MANGMT 7420

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**MANGMT 7480: Managerial Analytics**

Spreadsheet modeling procedures to address common business problems. Analysis of real-world cases and unstructured problems using basic and advanced features software and communication of results in managerial format. Graded A-F only.

**Credit Hour:** 1.5

**Prerequisites:** MANGMT 7420 and MANGMT 7470. Open to Crosby MBA students ONLY

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**MANGMT 7540: Legal Aspects of Business Organization and Operation**

(cross-leveled with MANGMT 4540). Includes agency and employment relationships, sole proprietorships, partnerships, and corporations, also operational aspects of business associations such as administrative regulation, taxation, bankruptcy, and trade regulation.

**Credit Hours:** 3

**Prerequisites:** MANGMT 3540. Restricted to COB students

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**MANGMT 7970: Introduction to Strategic Management**

Examines through case analysis and simulation how business-level managers overseeing a profit center in a specific industry set direction for a firm's activities in that industry and develop policies to implement that direction. Emphasis is on aligning business strategy with overarching corporate strategy (in diversified firms) and integrating functional perspectives (marketing, operations, finance, R&D, purchasing, human resources, etc.) by effectively resolving conflicts in these perspectives when formulating effective strategy. Focus is also placed on balancing short-term efficiency in a business unit with long-term effectiveness through cultivating continuous innovation processes that redefine the business unit over time.

**Credit Hour:** 1.5

**Prerequisites:** Open to Crosby MBA students only

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**MANGMT 8001: Topics in Management**

Selected current topics in management. Some sections may be graded on an A-F or S/U basis only. Some sections may require consent.

**Credit Hour:** 1-6

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**MANGMT 8054: Entrepreneurship and Media of the Future**

(same as JOURN 8054). This course will give students an intense hands-on experience in working with real entrepreneurs on complex business problems in the journalism field. Example companies are the Associated Press, Kachingle, the Chicago Sun-Times, Spot-Ups and the Media Policy Center. The goal is to offer a solution or solutions to the stated problem, and to present these ideas in a competitive, symposium environment. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** graduate standing in Journalism or MBA program

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**MANGMT 8085: Problems in Management**

Graduate students may select topics for study and investigation. Selected sections of the course may be offered either on A-F or S/U basis only.

**Credit Hour:** 1-99

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**MANGMT 8100: Exploring the Digital Globe**

Impacts of technological change and globalization are explored from the perspective of business, law and journalism. The first course required for the 'CDiG certificate'. Issues involving electronic commerce, digitization and globalization will be analyzed through online and in-class projects, class discussion and guest lectures.

**Credit Hours:** 3

**Prerequisites:** enrollment in CDiG Graduate Certificate Program or instructor's consent

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**MANGMT 8200: Commercialization of Life Science Innovations**

(same as BIOL\_EN 8200). This course will provide educational content and experiences that equip course participants to navigate the main pathways for commercialization of biomedical innovations. Students will also learn how to access sources of capital for R&D and develop an understanding of the role of FDA approval and the processes for approval of different types of biomedical products. Students will become familiar with quality assurance programs required in the biomedical industry. Students will also become familiar with the most common business models for biomedical companies and the importance of product development and commercialization alliances.

**Credit Hours:** 3

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**MANGMT 8330: Current Issues in Human Resource Management**

Exploration of current trends, issues, and controversies involving the managing of human resources in organizations, with an emphasis on how human resources can provide competitive advantage. Considers multiple perspectives, including that of employers, employees, and other stakeholders.

**Credit Hours:** 3

**Prerequisites:** MANGMT 8310 or MANGMT 7380 and MNGMT 7390

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**MANGMT 8360: Negotiations**

A structured overview of negotiations; includes the development of improved negotiation skills. Topics include power, distributive negotiations, integrative negotiations, maneuvers, tactics, strategies, conflict, complex negotiations, mediation, and negotiation ethics.

**Credit Hours:** 3

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**MANGMT 8380: Personal and Professional Development**

Readings, activities, and discussions designed to build individual self-awareness of leadership strengths and change management skills for both personal and career development. Graded on A-F basis only.

**Credit Hour:** 1-3

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**MANGMT 8400: Management Science Modeling**

Application of management science modeling procedures to organizational decision making. Topics include mathematical programming, queuing, and network models. Stresses managerial point of view with analysis of problems and interpretation of computer solutions.

**Credit Hour:** 1.5

**Prerequisites:** MANGMT 7420

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**MANGMT 8410: Decision Making and Risk**

Managerial approaches to decision making under risk and uncertainty with emphasis on decision analysis, spreadsheet simulation, and computer solutions via other management science models. Discussion of rational and behavioral decision making and procedures for assessing risk and uncertainty.

**Credit Hour:** 1.5

**Prerequisites:** MANGMT 7400 or equivalent

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**MANGMT 8420: Decision Support Systems**

The theory, methodology and implementation of Decision Support Systems (DSS). Topics include the DSS concept, applications, organizational issues, hardware and software technology, developmental methodology, data-model-user relationships, user interfaces, implementation strategies, and evaluation procedures. Includes hands-on building of a DSS.

**Credit Hours:** 3

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**MANGMT 8510: Project Management**

An advanced introduction to methods and techniques for managing projects, with selective attention to human resource issues as required. Includes project breakdown analysis, task network scheduling, resource allocation, and assessment/evaluation of project performance.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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**MANGMT 8540: Entrepreneurial Ventures**

Analysis of management challenges facing entrepreneurial startups and alternative strategic responses to those challenges. Views issues from multiple functional perspectives to design cross-functional solutions to entrepreneurial problems.

**Credit Hours:** 3

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**MANGMT 8550: Launching a High-Growth Venture**

An experiential learning course using a business plan competition to simulate planning and securing capital for high-growth ventures. Participants with management, marketing or finance interests learn skills for preparing and presenting business plans to investors.

**Credit Hours:** 3

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**MANGMT 8560: Legal Strategies for Entrepreneurs**

The study of how legal decisions affect a business organization of various transitional states of development, from start up to going public. Designed for both MBA and Law students, who work together planning legal transitions of a business.

**Credit Hours:** 3

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**MANGMT 8800: Turnaround Management and Strategy**

No turnaround is the same, and there is no secret formula that will work every time. However, there are basic principles that can take a leader to a point where they can position a company in a more stable environment quickly, which will ultimately help the company to survive. Most students who pursue a business career will find themselves in a Turnaround or restructure environment sometime in their career. This class will give the student the upper hand in understanding why these situations occur, who and what is the cause, and a framework to be part of the solution.

**Credit Hours:** 3

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**MANGMT 8900: Corporate Governance and Professional Accountability**

Corporate governance (CG) is the set of processes, customs, policies, laws, and institutions affecting how a company is directed, administered or controlled. CG includes the relationships among the many stakeholders involved and the goals by which the corporation is

governed. In contemporary business corporations, the main external stakeholder groups are shareholders, debtholders, trade creditors, suppliers, customers and communities affected by the corporation's activities. Internal stakeholders are the board of directors, executives, and other employees. This course will illustrate some of these key relationships, including how they can go wrong and the trade-offs managers have to make to manage all of these relationships. This course can be seen as a course on the professional responsibilities of business leaders. It is based on the assumption that business, like law and medicine, is a profession whose practitioners carry out essential functions in society. When individuals enter the profession, they undertake to fulfill a distinctive set of responsibilities that go with their chosen role. Graded on A-F basis only.

**Credit Hours:** 3

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#### **MANGMT 8970: Strategy and Global Competitiveness**

Investigates alternative goals of business enterprises relative to internal resources and external environment; development and implementation of policies and strategies to achieve objectives. Cases, computer simulations, and/or field research may supplement published materials.

**Credit Hour:** 1-3

**Prerequisites:** MANGMT 7970 for the 1.5 credit hour version of the course. Open to MBA Students only

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#### **MANGMT 9010: Research Methods in the Organization Sciences**

Identifying research questions, critiquing research ideas, planning, conducting, and communicating research using experimental, cross-sectional, survey and qualitative methods.

**Credit Hours:** 3

**Prerequisites:** PhD student or instructor's consent

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#### **MANGMT 9030: Seminar in Macro Organizational Behavior**

This course is designated to introduce students to content areas within the organizational behavior literature. Topics in 'macro' organizational behavior will be covered, including groups and teams, organizational culture, and national culture. We will also cover a number of topics outside of traditional organizational behavior topics, including negotiation and social conflict, creativity, empowerment, and other topics as the instructor sees fit. Readings will consist of a combination of recent and classic journal articles on the topics.

**Credit Hours:** 3

**Prerequisites:** PhD Students and instructor's consent

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#### **MANGMT 9040: Seminar in Human Resource Management**

Intensive study of current research, issues and methodology of the applied science of human resource management. Topics include recruitment and selection, training, job performance and performance feedback, and career success.

**Credit Hours:** 3

**Prerequisites:** PhD student or instructor's consent

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#### **MANGMT 9060: Seminar in Corporate Strategy**

The doctoral seminar in strategy focuses on the topics of strategy content research (what strategies are used by firms, and what is their effect on performance, corporate and competitive strategy, etc.) but also

considering important related research streams of strategy process and implementation.

**Credit Hours:** 3

**Prerequisites:** PhD student or instructor's consent

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#### **MANGMT 9080: Seminar in Entrepreneurship**

The doctoral seminar in Entrepreneurship is intended to provide students with a broad coverage of the literature. It focuses on the foundations and 'cutting edge' research in entrepreneurship content research. Topics covered in the course include: a theoretical overview of entrepreneurship, identification of opportunities, the decision to exploit opportunities, resource assembly and new markets, founders and entrepreneurial teams, venture capital and venture capitalists, entrepreneurship and efficient governance, initial public offerings (IPOs), new ventures (strategy, growth, performance), entrepreneurial networks and alliances, and international entrepreneurship.

**Credit Hours:** 3

**Prerequisites:** PhD student or instructor's consent

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#### **MANGMT 9087: Seminar in Management**

Intensive studies of current research and issues. Readings, independent investigations, reports.

**Credit Hour:** 1-99

**Prerequisites:** open to Ph.D. students, or instructor's consent

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#### **MANGMT 9090: Research in Management**

Thesis research for Ph.D. degree. Graded on a S/U basis only.

**Credit Hour:** 1-99

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#### **MANGMT 9101: Topics Seminar in Management**

Reading and critical evaluation of selected current management literature and research. May be repeated.

**Credit Hour:** 1-3

**Prerequisites:** Ph.D. students only

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## **Marketing Courses**

#### **MRKTNG 3000: Principles of Marketing**

Institutions, processes, and problems involved in producing and transferring goods and services from producer to consumers; emphasis on economics and social aspects.

**Credit Hours:** 3

**Prerequisites or Corequisites:** ECONOM 1014, ECONOM 1024, ECONOM 1000, or ECONOM 1051 or ABM 1041

**Prerequisites:** 45 semester hours

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#### **MRKTNG 3000H: Principles of Marketing - Honors**

Institutions, processes, and problems involved in producing and transferring goods and services from producer to consumers; emphasis on economics and social aspects.

**Credit Hours:** 3

**Prerequisites or Corequisites:** ECONOM 1014, ECONOM 1024, ECONOM 1000 or ECONOM 1051, or ABM 1041

**Prerequisites:** 45 semester hours; Honors eligibility required

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**MRKTNG 3410: Personal Selling**

Modern selling methods that focus on solving customer problems rather than using manipulative techniques. Principles underlying the sale process. Practical methods for building long-term customer relationships in business-to-business contexts are emphasized. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MRKTNG 3000. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with an emphasis in Marketing

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**MRKTNG 3510: Procurement Processes and Analytics**

Overview of the procurement process used by retailers; execution of pricing strategies, negotiations, retail planning at the category and item level; use of software to analyze data and make procurement decisions. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MRKTNG 3000. During Early Registration some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with an emphasis in Marketing

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**MRKTNG 3901: Special Topics in Marketing**

Study of a selected topic in Marketing in a course taken for credit as part of an organized study abroad program. May be repeated for credit. Graded on S/U basis only.

**Credit Hour:** 1-3

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**MRKTNG 3975: Current Issues in International Marketing**

Study of current issues and practices in international marketing in a course taken for credit as part of an organized study abroad program. May be repeated for credit. Graded on S/U basis only.

**Credit Hour:** 1-3

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**MRKTNG 4000: Marketing Management**

Further examination of marketing issues: market analysis, market research, positioning, products, pricing, promotion, distribution, relationship management, other topics.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000, and ACCTCY 2010 or ACCTCY 2026, or ACCTCY 2036 or ACCTCY 2136H. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing

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**MRKTNG 4000H: Marketing Management - Honors**

Further examination of marketing issues: market analysis, market research, positioning, products, pricing, promotion, distribution, relationship management, other topics.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000; ACCTCY 2010 or ACCTCY 2026 or ACCTCY 2036 or ACCTCY 2136H; Honors eligibility required

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**MRKTNG 4050: Marketing Research**

Procedures for defining marketing research problems; specifying information requirements; collecting, analyzing, interpreting, and presenting data for use in marketing decision making. Utilizes student projects and research-related computer assignments.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000, STAT 3500. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing

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**MRKTNG 4185: Problems in Marketing**

In-depth independent study of marketing topic(s). Student must have course plan (assignments, evaluation criteria, etc.) approved by faculty sponsor. Contact Marketing Department office for details and enrollment permission. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** Departmental consent, MRKTNG 3000

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**MRKTNG 4201: Topics in Marketing**

Selected marketing-related topics. Subjects may vary across semesters. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000

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**MRKTNG 4220: Consumer Behavior**

Dimensions of the consumer market and decision-making process of consumers; analyzing economic, psychological and socio-psychological influences on consumer market and buying behavior.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing

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**MRKTNG 4220H: Consumer Behavior - Honors**

Dimensions of the consumer market and decision-making process of consumers; analyzing economic, psychological and socio-psychological influences on consumer market and buying behavior.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000 and Honors eligibility required

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**MRKTNG 4250: Retail Marketing**

Strategies, policies, tactics, and procedures of marketing in a retailing environment.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing

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**MRKTNG 4250H: Retail Marketing - Honors**

Strategies, policies, tactics, and procedures of marketing in a retailing environment.

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**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000 and Honors eligibility required

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**MRKTNG 4420: Sales Management**

Methods and tools employed by salespeople and field sales managers; emphasis on underlying behavioral and quantitative theory.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with an emphasis in Marketing

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**MRKTNG 4430: Advanced Professional Selling**

Emphasis on the analytics approach to sales. This reflects the overall trends in business practice, and specifically in the world of sales with increasing reliance on Sales Force Automation (SFA) and Customer Relationship Management (CRM) tools. Students will need to come to class with laptops or tablets. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3410

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**MRKTNG 4440: Services Marketing**

Challenges, problems, and strategies specific to marketing in service industries. Topics include the unique characteristics of services and managing service-oriented businesses; service design and service recovery; service quality and customer satisfaction service pricing issues and demand management; and management of service customers and employees. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with an emphasis in Marketing

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**MRKTNG 4510: Artificial Intelligence and Machine Learning Applications in Sales and Marketing**

This course is intended to introduce students to cutting-edge Artificial Intelligence and Machine Learning (AI&ML) applications in the domain of sales and marketing. Students will use a proprietary, cloud-based software tool to learn about underlying models, but prior knowledge of programming languages is not required. The course will take an analytics approach and will require students to work with data sets. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MRKTNG 3000. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with an emphasis in Marketing

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**MRKTNG 4550: Integrated Marketing Communications**

Design, coordination, and management of marketing communications. Focus on the role of integrated marketing communications in the overall marketing process, with emphasis on advertising and sales promotion strategies and tactics.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing

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**MRKTNG 4550H: Integrated Marketing Communications - Honors**

Design, coordination, and management of marketing communications. Focus on the role of integrated marketing communications in the overall marketing process, with emphasis on advertising and sales promotion strategies and tactics. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000 and Honors eligibility required

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**MRKTNG 4650: e-Marketing**

Strategic and managerial challenges and issues related to use of the Internet and other electronic channels as marketing tools.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing

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**MRKTNG 4720: Global Marketing**

Strategic and managerial issues associated with international trade and international marketing.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000. During early registration, some section may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing

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**MRKTNG 4880: Contemporary Issues in Marketing**

Selected topical issues, their impact on marketing and marketers, and implications for firms and industries. Emphasis on scanning the external environment, projection of trends, and analysis; strategy development based on environmental analysis.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis on marketing

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**MRKTNG 4890: Marketing Supply Chain Analytics**

(cross-leveled with MRKTNG 7890) This course focuses on applying data analytic tools and techniques at various supply chain stages, specifically focusing on retailers. At the end of the course, the students will develop supply chain analytical skills for solving several marketing supply chain problems such as demand forecasting, inventory management, and sales and operations planning. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** STAT 3500 or equivalent

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**MRKTNG 4900: Analyzing and Communicating Business Data**

This course focuses on the analysis of marketing and other business data with basic statistical techniques. Students will learn when and how to use statistical techniques to solve marketing and other business problems and how to effectively communicate the results of statistical tests to managers. The course covers univariate procedures and regression. Graded on A-F basis only.

**Credit Hours:** 3

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**Prerequisites:** ACCTCY 2258, MRKTNG 3000, STAT 2500, STAT 3500

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**MRKTNG 4910: Marketing Data Analytics**

(cross-leveled with MRKTNG 7910). Introduction and overview of Artificial and Machine Learning applications in the domain of sales and marketing. Students will work with analytical tools and models without any coding requirements, learn to derive actionable insight from using these tools, and gain knowledge of contemporary issues involving collecting, analyzing, and sharing consumer data. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with an emphasis in Marketing

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**MRKTNG 4920: Data Visualization**

An introduction to data visualization. Students will learn the principles for effective visual representation of data and learn how to prepare data visualizations using the Tableau platform. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** ACCTCY 2258

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**MRKTNG 4930: Databases for Marketing Decisions**

This is an applied course on marketing databases. The course helps students harness database management techniques to solve complex problems in the domain of marketing. In addition to learning the principles of relational database management systems (DBMS), students will learn how to apply database management skills (combined with other statistical packages) to make data-driven decisions that address important marketing problems. Specifically, they will learn how to do market segmentation analysis, cluster analysis, market share analysis, customer relationship management, brand and store positioning, and market and product sales forecasting. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 2258, MRKTNG 3000, STAT 2500, STAT 3500

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**MRKTNG 4950: Data-Based Decision-Making in Marketing**

A systematic, analytical approach to marketing decision-making. Students will build their analytical skills through a combination of lectures, cloud-based software tools, and business case studies. Emphasis is on a hands-on approach to solve real-world marketing problems in domains such as segmentation, targeting, positioning, pricing, and resource allocation. Students will be able to assess the financial impact of marketing expenditures including bottom-line metrics and will draw on data visualization basics to effectively present their analysis to their peers. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 2258, MRKTNG 3000, STAT 2500, STAT 3500

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**MRKTNG 7460: Managerial Marketing**

Introduces concepts and theories for marketing decision making. Provides an overview of principles and tools to analyze and understand marketing situations in order to develop and execute appropriate marketing initiatives.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required

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**MRKTNG 7470: Advanced Marketing Management**

Develops knowledge and skills to manage marketing activities at the strategic and tactical levels. Course utilizes case studies, interactive class exercises, and advanced marketing readings. Students will learn to apply relevant concepts for effective marketing strategy development, marketing planning, and implementation of marketing mix decisions.

**Credit Hour:** 1-3

**Prerequisites:** MBA program consent required; MRKTNG 7460

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**MRKTNG 7890: Marketing Supply Chain Analytics**

(cross-leveled with MRKTNG 4890). This course focuses on applying data analytic tools and techniques at various supply chain stages, specifically focusing on retailers. At the end of the course, the students will develop supply chain analytical skills for solving several marketing supply chain problems such as demand forecasting, inventory management, and sales and operations planning. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Obtain consent in Graduate Programs Office

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**MRKTNG 7910: Marketing Data Analytics**

(cross-leveled with MRKTNG 4910). Introduction and overview of Artificial and Machine Learning applications in the domain of sales and marketing. Students will work with analytical tools and models without any coding requirements, learn to derive actionable insight from using these tools, and gain knowledge of contemporary issues involving collecting, analyzing, and sharing consumer data. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** GPO Consent

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**MRKTNG 8001: MBA Topics in Marketing**

Advanced study of selected marketing-related topics. Subjects vary across semesters.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required and completion of MRKTNG 7460 and MRKTNG 7470

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**MRKTNG 8060: Competitive Marketing Strategy**

Builds on the foundations of Marketing 7460 and 7470. Focuses on quantitative market intelligence-based design, execution, and adaptation of a market-drive business strategy to improve a firm's financial performance over time in a competitive environment. Uses a competitive, multi-period, marketing simulation game in which students are assigned to manage one of several firms competing in an industry. Prerequisites: MBA Program consent required: MRKTNG 7460 and MRKTNG 7470. Cannot receive credit for both MRKTNG 8050 and MRKTNG 8060.

**Credit Hour:** 1-3

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**MRKTNG 8070: Marketing Business Models**

Builds on the foundations of Marketing 4760 and 7470. Focuses on the formulation and analysis of marketing strategy and contemporary business models for creating and capturing value in different industries such as consumer goods, services, retailing, media, sports, entertainment, and online businesses. Business revenue and profit models will be evaluated in conjunction with marketing performance.

**Credit Hour:** 1-3



**Prerequisites:** MBA Program consent required, MRKTNG 7460 and MRKTNG 7470. Cannot receive credit for both MRKTNG 8050 and MRKTNG 8070

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**MRKTNG 8085: MBA Independent Study in Marketing**

Advanced independent study of marketing topics(s). Student must have a course plan (assignments, evaluation criteria, etc.) approved by a marketing faculty member. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** departmental and MBA Program consent required; MRKTNG 7460, MRKTNG 7470

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**MRKTNG 8180: Applied Statistics for Marketing Analytics**

This course is designed to increase students' understanding of essential statistical methods, focusing primarily on interpretation and application in marketing contexts. During the course, students will apply statistical concepts and analyses in diverse marketing settings with a variety of data sets. By the end of the course, students will know when and how to apply fundamental statistical techniques in marketing situations, how to interpret the results of statistical analysis, and how to present results in a managerially useful manner. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** MBA program consent, prior statistical coursework

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**MRKTNG 8280: Research for Marketing Decisions**

Methods for generating and using information related to marketing decisions. The course is aimed at the manager who designs, conducts, and/or uses the research. Emphasizes the design of research studies to inform managers' decisions and techniques for gathering and analyzing primary and secondary data.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent, MRKTNG 7460, MRKTNG 7470, MRKTNG 8180

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**MRKTNG 8350: Business-to-Business Marketing**

Advanced study of the marketing of goods and services to business customers; customer relationship management, and functionally integrated approaches to solving business problems.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required and completion of MRKTNG 7460 and MRKTNG 7470

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**MRKTNG 8420: Sales Force Management**

Basic tasks of sales management as well as the application of theories and concepts to effectively manage that function. Topics covered include salesperson effectiveness, deployment, motivation, organizational design, compensation and evaluation.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required and completion of MRKTNG 7460 and MRKTNG 7470

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**MRKTNG 8650: Digital Marketing**

The use of the Internet and other electronic channels as marketing tools. Emphasis on integration of digital interactions and communication into the overall marketing strategy.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required and completion of MRKTNG 7460 and MRKTNG 7470

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**MRKTNG 8680: Database Marketing**

A quantitatively-oriented, hands-on course regarding the use of customer data for making decisions about marketing campaigns and targeting of individual customers. Concepts and applications in this course emphasize statistical analysis of large datasets involving customer records. The analytical and statistical programming skills learned in the course should be useful in any data-oriented business environment. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required, MRKTNG 7460, MRKTNG 7470, MRKTNG 8180, MRKTNG 8280

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**MRKTNG 8720: International Marketing**

Strategic and managerial issues associated with international trade and international marketing. The course focuses on managerial decision making in the differing and complex environments across foreign markets, alternative methods by which firms enter foreign markets and the development and implementation of international marketing strategies.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required and completion of MRKTNG 7460 and MRKTNG 7470

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**MRKTNG 8750: Brand Management**

Focuses on the creation and execution of profitable brand strategies. Examines the practice of branding, the key components of brand equity, and how firms can build and sustain successful brands in competitive markets.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required, MRKTNG 7460 and MRKTNG 7470

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**MRKTNG 8760: Marketing Analytics for Business Decisions**

A systematic, analytical approach to marketing decision-making. Students will be able to build their analytical skills through a combination of lectures, Excel-based software tools, and business case studies. Emphasis is on hands-on approaches for solving real-world marketing problems in domains such as segmentation, targeting, positioning, and resource allocation. The course will help students understand the financial impact of marketing expenditures including ROI assessment. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites or Corequisites:** MRKTNG 8180

**Prerequisites:** GPO consent required

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**MRKTNG 8770: Marketing Databases and SQL**

A user/analyst perspective to relational databases used in marketing applications. Fundamentals of relational databases, including database concepts, table design, views, normalization, and security. Hands-on training in SQL (Structured Query Language) on database tables and views to retrieve, change, join, filter, sort, group, and summarize data.

Data analysis with SQL and Excel combined. Presentation of SQL results sets. Course graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites or Corequisites:** MRKTNG 8180

**Prerequisites:** GPO consent required

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**MRKTNG 8780: Advanced Marketing Analytics**

Analytical methods for solving marketing problems. Emphasis on use of multivariate statistical techniques (e.g. regression models, time series models, principal components analysis, cluster analysis, discriminant analysis, ANOVA, survival/duration models, etc.) to aid marketing tasks and decisions in areas such as customer classification, segmentation, profiling, and targeting; prospecting with archival data; customer response to marketing interventions; customer acquisition/retention tactics; customer relationship management (CRM); sales forecasting; media allocation decisions; market basket analysis; etc. Graded on an A-F basis only.

**Credit Hour:** 1-3

**Prerequisites or Corequisites:** MRKTNG 8180

**Prerequisites:** GPO Consent Required

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**MRKTNG 8800: R for Marketing Analytics**

Statistical analysis in R, including various types of regression analysis and other multivariate techniques. Emphasis is also placed on deriving relevant managerial implications from the results returned by R software. Graded on A-F basis only.

**Credit Hour:** 1.5

**Prerequisites or Corequisites:** MRKTNG 8180

**Prerequisites:** Graduate Programs Office consent

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**MRKTNG 8810: Python for Marketing Analytics**

The science of processing data using expert systems for faster and smarter decision-making. The course covers statistical and machine learning methods, their core principles, and real-life applications in marketing. Provides hands-on training in using Python in a variety of applications. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites or Corequisites:** MRKTNG 8180

**Prerequisites:** MBA Program consent

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**MRKTNG 8820: Artificial Intelligence and Machine Learning Applications in Marketing**

Artificial Intelligence and Machine Learning (AI&ML) applications in the domain of marketing. Topics covered include applications using neural networks, support vector machines, and deep learning, among others. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites or Corequisites:** MRKTNG 8180

**Prerequisites:** MBA Program consent

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**MRKTNG 9010: Introduction to Research Methods in Marketing**

Introduces students to the research process. Examines philosophy of science, constructs and measurement issues regarding validity, and hypothesis-testing. Provides an overview of experimental and survey research methods, with introduction to qualitative research, model-building, and research using secondary data.

**Credit Hour:** 1-3

**Prerequisites:** Ph.D. students only; instructor's consent

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**MRKTNG 9020: Seminar in Advanced Research Methods in Marketing**

Familiarizes students with advanced research methods in marketing, emphasizing problem developmental and conceptualization, operationalization of research questions, measurement, and survey research.

**Credit Hour:** 1-3

**Prerequisites:** MRKTNG 9010 or equivalent; Ph.D. students only;

instructor's consent

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**MRKTNG 9030: Seminar in Applied Multivariate Analysis in Marketing**

Familiarizes students with multivariate analysis of data used for research in marketing. Emphasizes application of multivariate methods, presentation of set, performing preliminary assessment of data quality and distribution, assessing measurement quality, and conducting a variety of multivariate and structural equation models, regression, logistic regression, discriminate analysis, cluster analysis, multi-way frequency analysis, and ANOVA.

**Credit Hour:** 1-3

**Prerequisites:** basic course in multivariate statistical methods; Ph.D.

students only; instructor's consent

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**MRKTNG 9090: Research in Marketing**

Thesis research for Ph.D. degree. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** Ph.D. students only

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**MRKTNG 9101: Current Topics Seminar in Marketing**

Reading and critical evaluation of selected current marketing literature and research. Graded on S/U basis only. May be repeated.

**Credit Hour:** 1-3

**Prerequisites:** Ph.D. students only

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**MRKTNG 9185: Doctoral Independent Study in Marketing**

Independent study of a marketing topic or research project. Arranged in consultation with a graduate faculty member. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** Ph.D. students only; instructor's consent

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**MRKTNG 9210: Seminar in Marketing Strategy**

Focuses on research topics that pertain to strategic marketing programs and decisions, such as marketing productivity, services marketing, product innovation management, and pricing, among others. Coverage is also given to defining the domain of research in marketing and to the development and use of related theories.

**Credit Hour:** 1-3

**Prerequisites:** Ph.D. students only; instructor's consent

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**MRKTNG 9220: Seminar Marketing Models**

Familiarizes students with quantitative modeling approaches to address a variety of marketing problems. The focus is on the nature, relevance,

and properties of mathematical models and analytical methods that are employed to address various types of marketing decisions. Students will gain an understanding of the process of model-building, testing and implementation.

**Credit Hour:** 1-3

**Prerequisites:** Ph.D students only; instructor's consent

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#### **MRKTNG 9230: Seminar in Consumer Behavior**

Exposes doctoral students to perspectives on consumer behavior that draw from a variety of disciplines, including marketing, psychology, decision theory, sociology, and cultural anthropology. Students also learn about the different methods researchers employ to study consumers. Covers both classic and contemporary literature. Students are encouraged to evaluate and synthesize existing literature in the pursuit of new research ideas.

**Credit Hour:** 1-3

**Prerequisites:** Ph.D. students only; instructor's consent

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#### **MRKTNG 9600: Seminar in Marketing**

Readings, independent investigations and reports. May be repeated.

**Credit Hour:** 1-3

**Prerequisites:** Ph.D. students only

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## **Mathematics Courses**

#### **MATH \_0110: Intermediate Algebra**

MATH \_0110 is a preparatory course for college algebra that carries no credit towards any baccalaureate degree. However, the grade received in MATH \_0110 does count towards a student's overall GPA. The course covers operations with real numbers, graphs of functions, domain and range of functions, linear equations and inequalities, quadratic equations; operations with polynomials, rational expressions, exponents and radicals; equations of lines. Emphasis is also put on problem-solving.

**Credit Hours:** 3

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#### **MATH 1050: Quantitative Reasoning**

Promotes mathematical literacy among students. This course will cover important mathematical ideas and problem solving skills in the context of science, technology, and/or society. Topics may include: logic and critical thinking, Venn Diagrams, problem solving, sets, units of measure, percentages and ratios, counting and probability, exponential growth and decay, linear and exponential models. Quantitative Reasoning is designed to stimulate interest in and appreciation of mathematics and quantitative reasoning as valuable tools for comprehending the world in which we live. This course does not satisfy the prerequisite of any other MATH course.

**Credit Hours:** 3

**Prerequisites:** C- or higher in MATH \_0110 or a sufficient score on the myMath test

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#### **MATH 1100: College Algebra**

A review of exponents, order of operations, factoring, and simplifying polynomial, rational, and radical expressions. Topics include: linear, quadratic, polynomial, rational, inverse, exponential, and logarithmic functions and their applications. Students will solve equations involving these functions, and systems of linear equations in two variables, as well

as inequalities. See the Math website for specific requirements. A student may receive at most 5.0 credit hours among MATH 1100, MATH 1120, MATH 1140, MATH 1160.

**Credit Hours:** 3

**Prerequisites:** C- or higher in MATH \_0110 or a sufficient score on the ALEKS exam or MyMathTest Intermediate Algebra score of 70% or higher

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#### **MATH 1140: Trigonometry**

A student may receive only 5 credits from among MATH 1100, MATH 1140, and MATH 1160. A Student may receive at most 5.0 credit hours from MATH 1100, MATH 1120, MATH 1140, and MATH 1160.

**Credit Hours:** 2

**Prerequisites:** C- or higher in MATH 1100 or sufficient ALEKS score or MyMathTest College Algebra score of 70% or higher

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#### **MATH 1160: Precalculus Mathematics**

Review of elementary algebra. Background material for MATH 1500, including algebraic, trigonometric, logarithmic, exponential functions. A student may receive at most 5 credits from among MATH 1100, MATH 1140, and MATH 1160.

**Credit Hours:** 5

**Prerequisites:** B+ or higher in MATH \_0110 (at MU), or C- or higher in MATH 1100, or sufficient ALEKS score or MyMathTest College Algebra score of 60% or higher

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#### **MATH 1300: Finite Mathematics**

A selections of topics in finite mathematics such as: basic financial mathematics, counting methods and basic probability and statistics, systems of linear equations and matrices. Warning: without a College Algebra exemption, a sufficient ALEKS score will not suffice unless it is a proctored exam (for MATH 1100 credit).

**Credit Hours:** 3

**Prerequisites:** Grade of C- or higher in MATH 1100, or MATH 1160, or both a College Algebra exemption and sufficient ALEKS score

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#### **MATH 1360: Geometric Concepts**

This course is primarily for education majors. This course covers topics of Euclidean geometry such as the study of points, lines, angles, polygons, circles, congruence, similarity, transformations, symmetry, area, surface area, arc length, and volume. Polyhedra, spheres, cones, and other solids are discussed. The course includes constructions and proofs, and uses inductive and deductive reasoning throughout. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** C- or higher in MATH 1100 or sufficient ALEKS exam score or MATH 1160 or equivalent

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#### **MATH 1400: Calculus for Social and Life Sciences I**

The real number system, functions, analytic geometry, derivatives, integrals, maximum-minimum problems. No credit for students who have completed a calculus course. A student may receive credit for MATH 1320 or MATH 1400 but not both. A student may receive at most 5 units of credit among the MATH 1320 or MATH 1400 and MATH 1500. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** grade of C- or higher in MATH 1100, or MATH 1160, or sufficient ALEKS score

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**MATH 1500: Analytic Geometry and Calculus I**

Elementary analytic geometry, functions, limits, continuity, derivatives, antiderivatives, definite integrals. A student may receive at most 5 units of credit among the Mathematics courses MATH 1320 or MATH 1400 and MATH 1500. Math Reasoning Proficiency Course.

**Credit Hours:** 5

**Prerequisites:** grade of C- or higher in MATH 1160 or C - or higher in both MATH 1100 and MATH 1140 or sufficient ALEKS score or MyMathTest PreCalculus score of 70% or higher

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**MATH 1500H: Analytic Geometry and Calculus I - Honors**

Elementary analytic geometry, functions, limits, continuity, derivatives, antiderivatives, definite integrals. Honors eligibility required. A student may receive at most 5 units of credit among MATH 1320 or MATH 1400 and MATH 1500. Math Reasoning Proficiency course.

**Credit Hours:** 5

**Prerequisites:** C- or higher in MATH 1160 or C- in both MATH 1100 and MATH 1140 and sufficient ALEKS score. Honors Eligibility required

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**MATH 1601: Selected Topics in Mathematics-General**

The special topics covered may vary from term to term. This course may be repeated.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**MATH 1602: Selected Topics in Mathematics-Biological/Physical/Math**

The special topics covered may vary from term to term. This course may be repeated.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**MATH 1700: Calculus II**

Definite integrals, applications and techniques of integration, elementary transcendental functions, infinite series. Math Proficiency Reasoning course.

**Credit Hours:** 5

**Prerequisites:** a grade of C- or better in MATH 1500

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**MATH 1700H: Calculus II - Honors**

Definite integrals, applications and techniques of integration, elementary transcendental functions, infinite series. Math Reasoning Proficiency course.

**Credit Hours:** 5

**Prerequisites:** a grade of C- or better in MATH 1500. Honors eligibility required

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**MATH 2100: Calculus for Social and Life Sciences II**

Riemann integral, transcendental functions, techniques of integration, improper integrals and functions of several variables. No credit for students who have completed two calculus courses. Math Reasoning Proficiency course.

**Credit Hours:** 3

**Prerequisites:** C- or higher in MATH 1320 or MATH 1400 or MATH 1500

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**MATH 2300: Calculus III**

Vectors, solid analytic geometry, calculus of several variables. Math Reasoning Proficiency course.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in MATH 1700

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**MATH 2300H: Calculus III - Honors**

Vectors, solid analytic geometry, calculus of several variables. Math Reasoning Proficiency course.

**Credit Hours:** 3

**Prerequisites:** grade of C or better in MATH 1700. Honors eligibility required

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**MATH 2320: Discrete Mathematical Structures**

Sets, functions, logic, relations, induction, recursion, counting techniques, graphs, trees, algorithms. Math Reasoning Proficiency course.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or higher in MATH 1700

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**MATH 3000: Introduction to Advanced Mathematics**

Gateway to theoretical math courses. Focus on reading and writing math proofs/rigorously developing background needed in Adv Calc/Abstract Alg. Topics include logic, set theory, properties of functions and integers, the real number system, completeness of the real numbers, sequences of real numbers.

**Credit Hours:** 3

**Prerequisites:** Consent of Department required. Recommended MATH 1700

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**MATH 3000W: Introduction to Advanced Mathematics - Writing Intensive**

Gateway to theoretical math courses. Focus on reading and writing math proofs/rigorously developing background needed in Adv Calc/Abstract Alg. Topics include logic, set theory, properties of functions and integers, the real number system, completeness of the real numbers, sequences of real numbers.

**Credit Hours:** 3

**Prerequisites:** Consent of Department required. Recommended MATH 1700

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**MATH 4002: Topics in Mathematics-Biological Sciences**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May repeat for credit with Departmental consent.

**Credit Hour:** 1-6

**Prerequisites:** MATH 2300 and instructor's consent

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**MATH 4006: Topics in Mathematics-Mathematical Sciences**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May repeat for credit with Departmental consent.

**Credit Hour:** 1-6

**Prerequisites:** MATH 2300 and instructor's consent

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**MATH 4007: Topics in Mathematics-Physical Sciences**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May repeat for credit with Departmental consent.

**Credit Hour:** 1-6

**Prerequisites:** MATH 2300 and instructor's consent

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**MATH 4060: Connecting Geometry to Middle and Secondary Schools**

(cross-leveled with MATH 7060). Euclidean foundations, logic, Euler Characteristic, congruence, area, Pick's Theorem, volume, Cavalieri's Principle, surface area, similarity, symmetry, transformations, matrices, introduction to spherical geometry.

**Credit Hours:** 3

**Prerequisites:** Consent of Department required

**Recommended:** MATH 1360 or MATH 1500

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**MATH 4070: Connecting Algebra to Middle and Secondary Schools**

(cross-leveled with MATH 7070). A detailed study of integer and rational arithmetic and algebra. Topics include: Binomial Theorem, induction, division algorithm, Euclid's Algorithm, Fundamental Theorem of Arithmetic, Pythagorean triples, modular arithmetic and generalizations to polynomials, matrices and other axiomatic structures.

**Credit Hours:** 3

**Prerequisites:** MATH 1400, enrollment is restricted to Math Education majors

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**MATH 4080: Calculus Connections**

Course topics include: sequences, series, functions, limits, continuity, differentiation, optimization, curve sketching, antidifferentiation, areas of plane regions, lengths of plane curves, areas of surfaces of revolution, and volumes of solids.

**Credit Hours:** 3

**Prerequisites:** MATH 1160, enrollment is restricted to Math Education majors

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**MATH 4100: Differential Equations**

(cross-leveled with MATH 7100). Traditional introductory course in ordinary differential equations. Includes 1st and 2nd order linear differential equations with numerous applications; Laplace transforms; power series solutions; numerical methods, linear systems.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or above in MATH 2300

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**MATH 4140: Matrix Theory**

(cross-leveled with MATH 7140). Basic properties of matrices, determinants, vector spaces, linear transformations, eigenvalues, eigenvectors, and Jordan normal forms. Introduction to writing proofs.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MATH 2300 or MATH 2320. Writing intensive sections require ENGLISH 1000

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**MATH 4140W: Matrix Theory - Writing Intensive**

Basic properties of matrices, determinants, vector spaces, linear transformations, eigenvalues, eigenvectors, and Jordan normal forms. Introduction to writing proofs.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MATH 2300 or MATH 2320. Writing intensive sections require ENGLISH 1000

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**MATH 4150: History of Mathematics**

This is a history course with mathematics as its subject. Includes topics in the history of mathematics from early civilizations onwards. The growth of mathematics, both as an abstract discipline and as a subject which interacts with others and with practical concerns, is explored. Prerequisites or Corequisite: MATH 2300 or MATH 2340. Writing intensive sections require ENGLISH 1000.

**Credit Hours:** 3

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**MATH 4150W: History of Mathematics - Writing Intensive**

This is a history course with mathematics as its subject. Includes topics in the history of mathematics from early civilizations onwards. The growth of mathematics, both as an abstract discipline and as a subject which interacts with others and with practical concerns, is explored. Prerequisites or Corequisite: MATH 2300 or MATH 2340. Writing intensive sections require ENGLISH 1000.

**Credit Hours:** 3

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**MATH 4300: Numerical Analysis**

(cross-leveled with MATH 7300). Machine arithmetic, approximation and interpolation, numerical differentiation and integration, nonlinear equations, linear systems, differential equations, error analysis. Selected algorithms will be programmed for solution on computers.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MATH 2300 and MATH 4100

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**MATH 4310: Numerical Linear Algebra**

(cross-leveled with MATH 7310). Solution of linear systems of equations by direct and iterative methods. Calculation of eigenvalues and eigenvectors of matrices. Selected algorithms programmed for solution on computers.

**Credit Hours:** 3

**Prerequisites:** MATH 2300 and familiarity with software such as Mathematica, MatLab, Maple, etc

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**MATH 4315: Introduction to Mathematical Statistics**

(same as STAT 4710; cross-leveled with MATH 7315, STAT 7740). Introduction to theory of probability and statistics using concepts and methods of calculus.

**Credit Hours:** 3

**Prerequisites:** MATH 2300 or instructor's consent

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**MATH 4320: Introduction to Probability Theory**

(same as STAT 4750; cross-leveled with MATH 7320, STAT 7750). Probability spaces; random variables and their distributions; repeated trials; probability limit theorems.

**Credit Hours:** 3

**Prerequisites:** MATH 2300 or instructor's consent

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**MATH 4330: Theory of Numbers**

(cross-leveled with MATH 7330). Divisibility, factorization, arithmetic functions, means value theorems, distribution of prime numbers, congruences, primitive roots, character theory, Riemann zeta function, and Dirichlet L-functions.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or higher in MATH 2300. Recommended MATH 2320

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**MATH 4350: Introduction to Non-Euclidean Geometry**

(cross-leveled with MATH 4350). Account of rise, development of non-Euclidean geometries. Intensive study of plane hyperbolic geometry.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

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**MATH 4355: Mathematics of Financial Derivatives I**

(cross-leveled with MATH 7355). Long and short positions, forward contracts, exchange traded index futures, European and American call and put options, put-call parity, trading and hedging strategies, synthetic transactions, arbitrage, currency options, fixed income portfolio management, duration, convexity, interest rate and currency swaps, embedded options.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or higher in MATH 2300 and either STAT 2500 or STAT 4710 or MATH 4315

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**MATH 4370: Interest Theory**

(cross-leveled with MATH 7370). This course covers the concepts underlying the theory of interest and their applications to valuation of various cash flows, annuities certain, bonds, and loan repayment. This course is designed to help students prepare for Society of Actuaries exam FM (Financial Mathematics). It is oriented towards problem solving techniques applied to real-life situations and illustrated with previous exam problems.

**Credit Hours:** 3

**Prerequisites:** grade of C-or better in MATH 2300

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**MATH 4371: Models for Life Contingencies I**

(cross-leveled with MATH 7371). The sequence MATH 4371 - MATH 4372 is designed to help students prepare for the Society of Actuaries exam LTAM (Long-Term Actuarial Mathematics). This course teaches the basic theory of life contingent actuarial models and the applications of those models to insurance and other financial risks. Covered topics include: survival models, life tables and selection, insurance benefits, life annuities, premium calculation and reserves.

**Credit Hours:** 3

**Prerequisites:** MATH 4320 or STAT 4750, and MATH 4370

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**MATH 4372: Models for Life Contingencies II**

(cross-leveled with MATH 7372). The sequence MATH 4371 - MATH 4372 is designed to help students prepare for the Society of Actuaries exam LTAM (Long-Term Actuarial Mathematics). This course extends the life-death contingency models of Math 4371 to more general multiple-state and multiple-life models applied to problems involving a wide range

of insurance and pension benefits. Covered topics include: Markov chains, multiple decrement models, joint life and last survivor benefits, pension mathematics, profit testing.

**Credit Hours:** 3

**Prerequisites:** A grade of C- or better in MATH 4371

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**MATH 4400: Introduction to Topology**

(cross-leveled with MATH 7400). Topics from topology of Euclidean spaces, generalizations to metric spaces and topological spaces. Fundamentals of point set topology.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

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**MATH 4500: Applied Analysis**

(cross-leveled with MATH 7500). Solution of the standard partial differential equations (wave, heat, Laplace's eq.) by separation of variables and transform methods; including eigenfunction expansions, Fourier and Laplace transform. Boundary value problems, Sturm-Liouville theory, orthogonality, Fourier, Bessel, and Legendre series, spherical harmonics.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or higher in MATH 4100

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**MATH 4510: Higher Algebra**

(cross-leveled with MATH 7510). Introduction to rings, integral domains, fields, groups.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or higher in MATH 2300 or MATH 2320

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**MATH 4520: Statistical Inference I**

(same as STAT 4760; cross-leveled with MATH 7520, STAT 7760). Sampling; point estimation; sampling distribution; tests of hypotheses; regression and linear hypotheses.

**Credit Hours:** 3

**Prerequisites:** MATH 4320

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**MATH 4540: Mathematical Modeling I**

(cross-leveled with MATH 7540). Solution of problems from industry, physical, social and life sciences, economics, and engineering using mathematical models.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or higher in MATH 2300 and MATH 4100

**Recommended:** Familiarity with software such as MATHEMATICA, MATLAB, or MAPLE

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**MATH 4560: Nonlinear Dynamics, Fractals and Chaos**

(cross-leveled with MATH 7560). Conceptual introduction to nonlinear dynamics, bifurcation and stability of steady states, chaos in nonlinear differential equations and maps, fractal dimension, strange attractors, and applications to physical science.

**Credit Hours:** 3

**Prerequisites:** MATH 4100 or MATH 7100, MATH 4140 or MATH 7140, and familiarity with software such as MATHEMATICA, MATLAB, or MAPLE

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**MATH 4590: Mathematics of Financial Derivatives II**

(cross-leveled with MATH 7590). Binomial and Black-Scholes pricing models. Option Greeks, delta and gamma hedging, market maker profit theory. Asian, barrier, compound gap and exchange options. Lognormal and Monte Carlo price simulation. Geometric Brownian Motion and Ito's Lemma. Interest rate models and volatility.

**Credit Hours:** 3

**Prerequisites:** MATH 2300 and either STAT 2500 or STAT 4710 or MATH 4315

**Recommended:** MATH 4355

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**MATH 4700: Advanced Calculus of One Real Variable I**

(cross-leveled with MATH 7700). Basic topology of the real line, numerical sequences and series, continuity, differentiability, Riemann integration, uniform convergence, power series.

**Credit Hours:** 3

**Prerequisites:** Grade of C - or higher in MATH 3000

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**MATH 4720: Introduction to Abstract Algebra I**

(cross-leveled with MATH 7720). Basic properties of integers, fundamental theorem of arithmetic, introduction to groups, rings and fields.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or higher in MATH 3000

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**MATH 4900: Advanced Multivariable Calculus**

(cross-leveled with MATH 7900). This is a course in calculus in several variables. The following is core material: Basic topology of n-dimensional Euclidian space; limits and continuity of functions; the derivative as a linear transformation; Taylor's formula with remainder; the Inverse and Implicit Function Theorems, change of coordinates; integration (including transformation of integrals under changes of coordinates); Green's Theorem. Additional material from the calculus of several variables may be included, such as Lagrange multipliers, differential forms, etc.

**Credit Hours:** 3

**Prerequisites:** MATH 4700

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**MATH 4920: Introduction to Abstract Linear Algebra**

(cross-leveled with MATH 7920). Study of vector spaces over arbitrary fields: topics include linear maps on finite dimensional vector spaces, bilinear and multi-linear forms, invariant subspaces and canonical forms.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or higher in MATH 4720

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**MATH 4940: Introduction to Complex Variables**

(cross-leveled with MATH 7940). Complex functions, contour integration, power series, residues and poles, conformal mapping.

**Credit Hours:** 3

**Prerequisites:** MATH 4110 or MATH 4700

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**MATH 4960: Special Readings in Mathematics**

**Credit Hour:** 1-3

**Prerequisites:** Consent of Department required

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**MATH 4996: Honors in Mathematics**

Special work for senior B.A. Honors and B.S. Honors candidates.

**Credit Hours:** 2

**Prerequisites:** Consent of Department required

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**MATH 7060: Connecting Geometry to Middle and Secondary Schools**

(cross-leveled with MATH 4060). Euclidian foundations, basic concepts of symbolic logic, polyhedra, Euler Characteristic, congruence, area, Picks Theorem, volume, Cavalier's Principles, surface area, similarity, reflections, translations, rotations, symmetry, vectors, general transformations, determinants, matrices, transformations using matrices, brief introduction to spherical geometry.

**Credit Hours:** 3

**Prerequisites:** MATH 1360 or MATH 1500, enrollment is restricted to Math Education majors

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**MATH 7070: Connecting Algebra to Middle and Secondary Schools**

(cross-leveled with MATH 4070). A detailed study of integer and rational arithmetic and algebra. Topics include: Binomial Theorem, induction, division algorithm, Euclid's Algorithm, Fundamental Theorem of Arithmetic, Pythagorean triples, modular arithmetic and generalizations to polynomials, matrices and other axiomatic structures. Prerequisites: MATH 1400, enrollment is restricted to Math Education majors

**Credit Hours:** 3

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**MATH 7100: Differential Equations**

(cross-leveled with MATH 4100). Traditional introductory course in ordinary differential equations. Includes 1st and 2nd order linear differential equations with numerous applications; Laplace transforms; power series solutions; numerical methods, linear systems.

**Credit Hours:** 3

**Prerequisites:** graduate standing and MATH 2300

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**MATH 7140: Matrix Theory**

(cross-leveled with MATH 4140). Basic properties of matrices, determinants, vector spaces, linear transformations, eigenvalues, eigenvectors, and Jordan normal forms. Introduction to writing proofs.

**Credit Hours:** 3

**Prerequisites:** graduate standing and one of MATH 2300, MATH 2320, MATH 2120 or MATH 2340

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**MATH 7150: History of Mathematics**

This is a history course with mathematics as its subject. Includes topics in the history of mathematics from early civilizations onwards. The growth of mathematics, both as an abstract discipline and as a subject which interacts with others and with practical concerns, is explored. Pre- or Co-requisite: MATH 2300 or MATH 2340 and graduate standing.

**Credit Hours:** 3

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**MATH 7300: Numerical Analysis**

(cross-leveled with MATH 4300). Machine arithmetic, approximation and interpolation, numerical differentiation and integration, nonlinear

equations, linear systems, differential equations, error analysis. Selected algorithms will be programmed for solution on computers.

**Credit Hours:** 3

**Prerequisites:** graduate standing and MATH 2300 and MATH 4100 or equivalent

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#### **MATH 7310: Numerical Linear Algebra**

(cross-leveled with MATH 4310). Solution of linear systems of equations by direct and iterative methods. Calculation of eigenvalues and eigenvectors of matrices. Selected algorithms programmed for solution on computers.

**Credit Hours:** 3

**Prerequisites:** MATH 2300 and prior experience writing programs in Mathematica and /or in a computer language such as Fortran, Pascal, or C

**Recommended:** MATH 4140

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#### **MATH 7330: Theory of Numbers**

(cross-leveled with MATH 4330). Divisibility, factorization, arithmetic functions, means value theorems, distribution of prime numbers, congruences, primitive roots, character theory, Riemann zeta function, and Dirichlet L-functions.

**Credit Hours:** 3

**Prerequisites:** MATH 2300; recommended MATH 2320 or MATH 2340, and MATH 4940 or MATH 7940

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#### **MATH 7350: Introduction to Non-Euclidean Geometry**

(cross-leveled with MATH 4350). Account of rise, development of non-Euclidean geometries. Intensive study of plane hyperbolic geometry.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

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#### **MATH 7355: Mathematics of Financial Derivatives I**

(cross-leveled with MATH 4355). Long and short positions, forward contracts, exchange traded index futures, European and American call and put options, put-call parity, trading and hedging strategies, synthetic transactions, arbitrage, currency options, fixed income portfolio management, duration, convexity, interest rate and currency swaps, embedded options.

**Credit Hours:** 3

**Prerequisites:** MATH 2300 and STAT 2500 or STAT 4710/ MATH 4315, or instructor's consent

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#### **MATH 7370: Interest Theory**

(cross-leveled with MATH 4370). This course covers the main probability tools applied to financial risk modeling, and the financial mathematics concepts used in calculating present and accumulated values for various cash flows. It is a helpful tool in preparing for the Society of Actuaries exams P (Probability) and FM (Financial Mathematics), and it is oriented towards problem solving techniques illustrated with previous exam problems. Students are encouraged to take MATH 4355 prior to this course.

**Credit Hours:** 3

**Prerequisites:** MATH 2300, MATH 4320/ STAT 4750

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#### **MATH 7371: Models for Life Contingencies I**

(cross-leveled with MATH 4371). The sequence MATH 4371 - MATH 4372 is designed to help students prepare for the Society of Actuaries exam LTAM (Long-Term Actuarial Mathematics). This course teaches the basic theory of life contingent actuarial models and the applications of those models to insurance and other financial risks. Covered topics include: survival models, life tables and selection, insurance benefits, life annuities, premium calculation and reserves.

**Credit Hours:** 3

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#### **MATH 7372: Models for Life Contingencies II**

(cross-leveled with MATH 4372). The sequence MATH 4371 - MATH 4372 is designed to help students prepare for the Society of Actuaries exam LTAM (Long-Term Actuarial Mathematics). This course extends the life-death contingency models of MATH 4371 to more general multiple-state and multiple-life models applied to problems involving a wide range of insurance and pension benefits. Covered topics include: Markov chains, multiple decrement models, joint life and last survivor benefits, pension mathematics, profit testing.

**Credit Hours:** 3

**Prerequisites:** A grade of C- or better in MATH 4371 or MATH 7371

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#### **MATH 7400: Introduction to Topology**

(cross-leveled with MATH 4400). Topics from topology of Euclidean spaces, generalizations to metric spaces and topological spaces. Fundamentals of point set topology.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

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#### **MATH 7500: Applied Analysis**

(cross-leveled with MATH 4500). Solution of the standard partial differential equations (wave, heat, Laplace's eq.) by separation of variables and transform methods; including eigenfunction expansions, Fourier and Laplace transform. Boundary value problems, Sturm-Liouville theory, orthogonality, Fourier, Bessel, and Legendre series, spherical harmonics.

**Credit Hours:** 3

**Prerequisites:** MATH 4100/ MATH 7100

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#### **MATH 7510: Higher Algebra**

(cross-leveled with MATH 4510). Introduction to rings, integral domains, fields, groups.

**Credit Hours:** 3

**Prerequisites:** MATH 2300 OR MATH 2320

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#### **MATH 7540: Mathematical Modeling I**

(cross-leveled with MATH 4540). Solution of problems from industry, physical, social and life sciences, economics, and engineering using mathematical models.

**Credit Hours:** 3

**Prerequisites:** graduate standing and 3 semesters of calculus and some exposure to ordinary differential equations or instructor's consent

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**MATH 7560: Nonlinear Dynamics, Chaos and Fractals**

(cross-leveled with MATH 4560). Conceptual introduction to nonlinear dynamics, bifurcation and stability of steady states, chaos in nonlinear differential equations and maps, fractal dimension, strange attractors, and applications to physical science.

**Credit Hours:** 3

**Prerequisites:** graduate standing and MATH 4100/ MATH 7100, MATH 4140/ MATH 7140, and familiarity with software such as MATHEMATICA, MATLAB, or MAPLE

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**MATH 7590: Mathematics of Financial Derivatives II**

(cross-leveled with MATH 4590). Binomial and Black-Scholes pricing models. Option Greeks, delta and gamma hedging, market maker profit theory. Asian, barrier, compound, gap and exchange options. Lognormal and Monte Carlo price simulation. Geometric Brownian Motion and Ito's Lemma. Interest rate models and volatility. Prerequisites: MATH 2300 and either STAT 2500 or STAT 4710 or MATH 4315.

**Credit Hours:** 3

**Prerequisites:** MATH 2300 and either STAT 2500 or STAT 4710 or MATH 4315

**Recommended:** MATH 4355

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**MATH 7700: Advanced Calculus of One Real Variable I**

(cross-leveled with MATH 4700). Series of real numbers, limits of functions, continuity and uniform continuity, differentiability, and Riemann integration.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

**Recommended:** MATH 4140 and one other mathematics course number above MATH 2300

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**MATH 7720: Introduction to Abstract Algebra I**

(cross-leveled with MATH 4720). Basic properties of integers, fundamental theorem of arithmetic, introduction to groups, rings and fields.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

**Recommended:** MATH 4140 and one other Mathematics course numbered above 2300

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**MATH 7900: Advanced Multivariable Calculus**

(cross-leveled with MATH 4900). This is a course in calculus in several variables. The following is core material: Basic topology of n-dimensional Euclidian space; limits and continuity of functions; the derivative as a linear transformation; Taylor's formula with remainder; the Inverse and Implicit Function Theorems, change of coordinates; integration (including transformation of integrals under changes of coordinates); Green's Theorem. Additional material from the calculus of several variables may be included, such as Lagrange multipliers, differential forms, etc.

**Credit Hours:** 3

**Prerequisites:** MATH 4700/ MATH 7700

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**MATH 7920: Introduction to Abstract Linear Algebra**

(cross-leveled with MATH 4920). Study of vector spaces over arbitrary fields: topics include linear maps on finite dimensional vector spaces, bilinear and multi-linear forms, invariant subspaces and canonical forms.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

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**MATH 7940: Introduction to Complex Variables**

(cross-leveled with MATH 4940). Complex functions, contour integration, power series, residues and poles, conformal mapping.

**Credit Hours:** 3

**Prerequisites:** MATH 4110/ MATH 7110 OR MATH 4700/ MATH 7700

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**MATH 7960: Special Readings in Mathematics**

**Credit Hour:** 1-3

**Prerequisites:** MATH 2300 and instructor's consent

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**MATH 7980: Mathematics Problem Solving**

Creative advanced problem solving bringing together methods such as integration, probability and Euclidean geometry.

**Credit Hours:** 3

**Prerequisites:** MATH 4140 and another 4000 level Mathematics course, or instructor's consent

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**MATH 8085: Problems in Mathematics**

Problems in Mathematics

**Credit Hours:** 3

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**MATH 8090: Master's Thesis Research in Mathematics**

Students will be required to complete an independent project. Topics are chosen in consultation with a faculty advisor and are subject to departmental consent. Graded on S/U basis only.

**Credit Hours:** 3

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**MATH 8102: Topics in Algebra**

Advanced topics in algebra.

**Credit Hours:** 3

**Prerequisites:** MATH 8410

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**MATH 8190: Masters Project in Mathematics**

Masters Project in Mathematics

**Credit Hours:** 3

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**MATH 8202: Topics in Functional Analysis**

Topics in Functional Analysis

**Credit Hours:** 3

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**MATH 8210: Basic Algebra**

Accelerated problem solving course in linear and abstract algebra. Will prepare students for the algebra qualifying exam.

**Credit Hours:** 3

**Prerequisites:** MATH 4720, MATH 4920, or instructor's consent, or equivalent

**Corequisites:** MATH 8220 and MATH 8250

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**MATH 8220: Basic Analysis**

Accelerated problem-solving course in advanced calculus and complex analysis. Will prepare students for the analysis qualifying exam.

**Credit Hours:** 6

**Prerequisites:** MATH 4700, MATH 4900, MATH 4940, instructor's consent or equivalent

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**MATH 8250: Basic Topology and Geometry**

Topological spaces, differential manifolds, differential forms, integration of vector fields.

**Credit Hours:** 3

**Prerequisites:** MATH 4700, MATH 4900, MATH 4140, or instructor's consent, or equivalent

**Corequisites:** MATH 8210 and MATH 8220

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**MATH 8302: Topics in Harmonic Analysis**

Topics in Harmonic Analysis

**Credit Hours:** 3

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**MATH 8402: Topics in Mathematical Physics**

Topics in Mathematical Physics

**Credit Hours:** 3

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**MATH 8410: Algebra I**

Theory of algebraic structures--groups, rings, fields, algebraic and transcendental extensions of fields.

**Credit Hours:** 3

**Prerequisites:** MATH 4720 and MATH 4920, or equivalent

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**MATH 8411: Algebra II**

Theory of modules, Galois theory and additional topics to be selected by the instructor.

**Credit Hours:** 3

**Prerequisites:** MATH 8410 or equivalent

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**MATH 8420: Theory of Functions of Real Variables I**

Properties of functions of one real variable. Lebesgue measure and integration on the line.

**Credit Hours:** 3

**Prerequisites:** MATH 4700 or MATH 7700 and MATH 4900 or MATH 7900, or equivalent

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**MATH 8421: Theory of Functions of Real Variables II**

Continuation of MATH 8420. General measure and integration theory. Elements of the theory of Hilbert and Banach spaces, linear functions and linear operators.

**Credit Hours:** 3

**Prerequisites:** MATH 8420

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**MATH 8425: Complex Analysis I**

Rigorous introduction to the theory of functions of a complex variable.

**Credit Hours:** 3

**Prerequisites:** MATH 4940 or MATH 7940 or equivalent

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**MATH 8426: Complex Analysis II**

Analytic continuation, Riemann surfaces, entire and meromorphic functions, selected topics.

**Credit Hours:** 3

**Prerequisites:** MATH 8425

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**MATH 8440: Advanced Ordinary Differential Equations I**

Topics from existence and uniqueness theorems, plane autonomous systems, periodicity and boundedness of solutions of second order nonlinear equations, perturbation theory, Sturm-Liouville systems, behavior of solutions at singularities.

**Credit Hours:** 3

**Prerequisites:** MATH 4700 or MATH 7700 or equivalent

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**MATH 8445: Partial Differential Equations I**

Fourier and integral transforms, first and second order partial differential equations, methods of characteristics, Laplace's equation, Dirichlet and Neumann problems, Green's functions and maximum principles.

**Credit Hours:** 3

**Prerequisites:** MATH 4700 or MATH 7700 or instructor's consent required

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**MATH 8446: Partial Differential Equations II**

The Cauchy-Kovalevski theorem, the Lewy example, the heat operator, the wave operator, Sobolev spaces, local regularity of elliptic boundary value problems.

**Credit Hours:** 3

**Prerequisites:** MATH 8445

**Recommended:** MATH 8420

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**MATH 8460: Mathematical Finance I**

(same as FINANC 8340). Financial instruments and derivative: stocks, bonds, futures option prices on interest rates, swaps, etc. Mathematical models of stock price fluctuations. Interest rates and options on interest rates. Swaps. Open markets and properties of stock option prices. Stochastic models. Binomial trees. Continuous time stochastic modeling. No arbitrage modeling. European and American options. BlackScholes model and differential equation, for the price of European option. Exotic options. Interest rate models.

**Credit Hours:** 3

**Prerequisites:** graduate standing in Mathematics. Knowledge of elementary probability or instructor's consent

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**MATH 8461: Mathematical Finance II**

Diffusion Processes as models for stock price fluctuations. Contingent claims and arbitrage. Mathematical analysis of risk neutral valuation of contingent claims. Self-financing portfolios and hedging. Hedging contingent claims. Partial differential equations for valuation of derivative securities. Completeness of the markets and hedging. Parity relations and delta hedging. Several underlying assets.

**Credit Hours:** 3

**Prerequisites:** knowledge of advance probability/stochastic processes or instructor's consent

**Recommended:** MATH 8460

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**MATH 8480: Advanced Probability**

(same as STAT 9810). Measure theoretic probability theory. Characteristic functions; conditional probability and expectation; sums of independent random variables including strong law of large numbers and central limit problem.

**Credit Hours:** 3

**Prerequisites:** MATH 4320 or MATH 8220; or instructor's consent

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**MATH 8502: Topics of Geometry**

Topics of Geometry.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MATH 8587: Topology Seminar**

Topology Seminar

**Credit Hours:** 3

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**MATH 8615: Algebraic Geometry I**

Affine and projective varieties and schemes; nullstellensatz; Zariski topology, morphisms and rational maps; divisors and linear systems; topics from curves, surfaces, Grassmann varieties; commutative algebra and homological algebra as needed.

**Credit Hours:** 3

**Prerequisites:** MATH 8410

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**MATH 8616: Algebraic Geometry II**

Continuation of MATH 8615.

**Credit Hours:** 3

**Prerequisites:** MATH 8615

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**MATH 8618: Introduction to Algebraic Topology**

Development of singular homology theory; reference to other homology and cohomology theories. Introduction to homological algebra.

**Credit Hours:** 3

**Prerequisites:** MATH 8250

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**MATH 8628: Functional Analysis I**

Linear topological spaces, Banach spaces, Hilbert spaces. Operator theory, including the Hahn-Banach, uniform boundedness and closed graph theorems.

**Credit Hours:** 3

**Prerequisites:** MATH 4900 and instructor's consent or MATH 8420

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**MATH 8630: Harmonic Analysis I**

An introduction to Fourier Analysis in one and higher Dimensions. Topics include Fourier Series, conjugate functions, Fourier transforms, distributions, interpolation, and maximal functions.

**Credit Hours:** 3

**Prerequisites:** MATH 8420

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**MATH 8631: Harmonic Analysis II**

Singular integrals, Littlewood-Paley theory, Hardy spaces, bounded mean oscillation, weighted norm inequalities, boundary value problems, and analysis on groups.

**Credit Hours:** 3

**Prerequisites:** MATH 8630

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**MATH 8650: Differentiable Manifolds and Riemannian Geometry**

Tensor product spaces and tensor fields on manifolds. Differentiation and integration of differential forms. Riemannian geometry and applications.

**Credit Hours:** 3

**Prerequisites:** MATH 4700 or MATH 4400

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**MATH 8655: General Topology I**

Introduction to axiomatic theory of general topology. Continuous functions and homeomorphisms. Convergence in abstract topological spaces. Compact and locally compact spaces. Connectedness. Metrizable spaces.

**Credit Hours:** 3

**Prerequisites:** MATH 4900, MATH 4400 or instructor's consent

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**MATH 8702: Topics in Applied Mathematics**

Selected topics in applied mathematics drawn from variety of areas: partial differential equations, tensor analysis, calculus of variations, asymptotic methods, integral equations, advanced theory of transforms and distributions, numerical analysis.

**Credit Hours:** 3

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**MATH 9090: Doctoral Dissertation Research in Mathematics**

Doctoral Dissertation Research in Mathematics. Graded on a S/U basis only.

**Credit Hour:** 1-9

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**MATH 9387: Harmonic Analysis Seminar**

Harmonic Analysis Seminar

**Credit Hours:** 3

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**MATH 9487: Mathematical Physics Seminar**

Mathematical Physics Seminar

**Credit Hours:** 3

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**MATH 9502: Topics in Topology**

Advanced topics in topology or topological algebra.

**Credit Hours:** 3

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**MATH 9787: Applied Mathematics Seminar**

Applied Mathematics Seminar

**Credit Hours:** 3

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**MATH 9887: Analysis Seminar**

Analysis Seminar

**Credit Hours:** 3

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## Mechanical And Aerospace Engineering Courses

### MAE 1000: Introduction to Mechanical Engineering

Introduction to the mechanical engineering profession, the Mechanical and Aerospace Engineering Department and curriculum, and the core disciplines of mechanical engineering. Introduction to engineering problem solving, ethics, and design.

**Credit Hour:** 1

**Prerequisites:** Restricted to engineering students only

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### MAE 1100: Introduction to Computer Aided Design

Introduction to 2D and 3D mechanical modeling techniques using computer-aided design (CAD) software. Topics include 3D part and assembly modeling, 2D part and assembly drawings, standards of engineering drawings, and basic animation and simulation. Graded on A-F basis only. Prerequisites/

**Credit Hours:** 3

**Prerequisites:** Restricted to Engineering Students only, or by departmental consent

**Corequisites:** MATH 1500

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### MAE 1100H: Introduction to Computer Aided Design - Honors

Introduction to 2D and 3D mechanical modeling techniques using computer-aided design (CAD) software. Topics include 3D part and assembly modeling, 2D part and assembly drawings, standards of engineering drawings, and basic animation and simulation. Graded on A-F basis only. Prerequisites/

**Credit Hours:** 3

**Prerequisites:** Restricted to Engineering Students only, or by departmental consent. Honors eligibility required

**Corequisites:** MATH 1500

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### MAE 2100: Programming and Software Tools

Introduction to the use of computers, programming, and software. Topics include MATLAB syntax and programming techniques, algorithm design, and programming with Excel spreadsheets.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in MATH 1700. Restricted to Mechanical Aerospace Engineering students only

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### MAE 2200: Engineering Materials

The nature of the structure of engineering materials. The relationship of material structure to physical properties. Mechanical behavior of engineering materials. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in ENGINR 1200 and CHEM 1320. Restricted to Mechanical and Aerospace Engineering students only

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### MAE 2200W: Engineering Materials - Writing Intensive

The nature of the structure of engineering materials. The relationship of material structure to physical properties. Mechanical behavior of engineering materials. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in ENGINR 1200 and CHEM 1320. Restricted to Mechanical and Aerospace Engineering students only

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### MAE 2300: Thermodynamics

(same as ENGINR 2300). Fluid properties, work and heat, first law, second law, entropy, applications to vapor and ideal gas processes.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in PHYSICS 2750; restricted to MAE students only

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### MAE 2600: Dynamics

Basic fundamentals of particle and rigid body dynamics; energy and momentum methods.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in ENGINR 1200. Restricted to Mechanical and Aerospace Engineering students only

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### MAE 3100: Computational Methods for Engineering Design

Introduction to numerical methods for linear system analysis, curve-fitting, integration and differentiation, and optimization. The numerical methods are demonstrated through computer implementation and application to engineering design problems.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MATH 4100 grade of C- or better

**Prerequisites:** Grade of C- or better in MAE 2100; Restricted to Mechanical and Aerospace Engineering students only

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### MAE 3400: Fluid Mechanics

A basic course in fluid mechanics. Topics include: fluid properties, hydrostatics, conservation laws, infinitesimal and finite control volume analysis, Navier-Stokes equations, dimensional analysis, internal and external flows.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MAE 2300 grade of C- or better

**Prerequisites:** Grade of C- or better in MAE 2600; Restricted to Mechanical and Aerospace Engineering students only

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### MAE 3500: Manufacturing Methods

Fundamentals of manufacturing processes including forming, machining, casting, micro/nano manufacturing, rapid prototyping, and smart manufacturing systems. Emphasis on material selection and design considerations for manufacturing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MAE 1100 and MAE 2200.

Restricted to Mechanical and Aerospace Engineering students only

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### MAE 3600: Dynamic Systems and Control

Modeling and analysis of dynamic systems and introduction to feedback control. Topics include dynamic modeling and response of mechanical, electrical, fluid, and thermal systems; and feedback control systems analysis.

**Credit Hours:** 3

**Prerequisites or Corequisites:** ENGINR 2100 grade of C- or better

**Prerequisites:** Grade of C- or better in MAE 2600 and MAE 3100 and MATH 4100. Restricted to Mechanical and Aerospace Engineering students only

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**MAE 3600H: Dynamic Systems and Control - Honors**

Modeling and analysis of dynamic systems and introduction to feedback control. Topics include dynamic modeling and response of mechanical, electrical, fluid, and thermal systems; and feedback control systems analysis.

**Credit Hours:** 3

**Prerequisites or Corequisites:** ENGINR 2100 grade of C- or better

**Prerequisites:** Grade of C- or better in MAE 2600 and MAE 3100 and MATH 4100. Restricted to Mechanical and Aerospace Engineering students only. Honors eligibility required

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**MAE 3800: Instrumentation and Measurements Laboratory**

Design and reporting of experimental investigations. Topics include instrument design equations, sources of error, and calibration. Survey of instruments to measure: voltage, resistance, current, time, frequency, displacement, velocity, acceleration, strain, force, and torque.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MAE 3600 grade of C- or better

**Prerequisites:** grade of C- or better in ENGINR 2100 and ENGINR 2200 and Physics 2760; Restricted to Mechanical and Aerospace Engineering students only

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**MAE 3900: Mechanism Design**

Analysis of kinematics and dynamics of machinery. Topics include design and selection of various mechanisms. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MAE 2600 and MAE 3100.

Restricted to Mechanical and Aerospace Engineering students only

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**MAE 3910: Machine Element Design**

Application of stress and fatigue analyses to the design of machine elements such as fasteners, springs, shafts, and gears. Topics include selection of appropriate materials and machine elements. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in ENGINR 2200 and MAE 2200.

Restricted to Mechanical and Aerospace Engineering students only

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**MAE 4001: Topics in Mechanical and Aerospace Engineering**

Current and new technical developments in mechanical and aerospace engineering. Enrollment limited to Mechanical and Aerospace Engineering students only. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** See instructor provided prerequisites

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**MAE 4085: Problems in Mechanical and Aerospace Engineering**

Special design, experimental and analytical problems in mechanical and aerospace engineering.

**Credit Hour:** 1-99

**Prerequisites:** Instructor's consent

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**MAE 4210: Aerospace Structures**

(cross-leveled with MAE 7210). Fundamentals of the mechanics and design issues of aerospace structures. Analysis of thin skins with stiffeners for external surfaces, bulkheads and frames for shape support, and fasteners for holding components together. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or better in ENGINR 2200

---

**MAE 4220: Materials Selection**

(cross-leveled with MAE 7220). Study of the physical and mechanical metallurgy of alloy systems of interest in engineering applications.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 2200; Restricted to Mechanical and Aerospace Engineering students only

---

**MAE 4230: Nanomaterials**

(cross-leveled with MAE 7230). The primary goal of this course is to introduce students into the new field of nanostructured materials. The emphasis of the course is to introduce the students into synthesis and characterization of nanomaterials, the behavior of such materials with nanoscale structures, and their technological applications.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 2200 or equivalent

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**MAE 4230W: Nanomaterials - Writing Intensive**

(cross-leveled with MAE 7230). The primary goal of this course is to introduce students into the new field of nanostructured materials. The emphasis of the course is to introduce the students into synthesis and characterization of nanomaterials, the behavior of such materials with nanoscale structures, and their technological applications.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 2200 or equivalent

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**MAE 4231: Transport Phenomena in Materials Processing**

(same as BIOL\_EN 4231; cross-leveled with BIOL\_EN 7231, MAE 7231). Applications of fluid flow, heat transfer, and mass transfer in steady-state and unsteady-state materials processing with applications to metals, polymers, and ceramics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MAE 4300

**Prerequisites:** C- or better in Math 4100

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**MAE 4232: Ceramic Materials and Processing**

(cross-leveled with MAE 7232). Treatment of ceramics materials, structure, and ceramic processing with hands-on demonstration/labs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 2200

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**MAE 4250: Composite Materials**

(cross-leveled with MAE 7250). A survey of composite materials used in engineering emphasizing fiber-reinforced composites but including laminate and particulate composites.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 2200. Restricted to Mechanical and Aerospace Engineering students only

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**MAE 4270: Nondestructive Evaluation of Materials**

(cross-leveled with MAE 7270). The role of nondestructive evaluation (NDE) in engineering is explored. Ultrasonic NDE is studied in detail. Labs are used to support the study of ultrasonic NDE. Other NDE techniques are surveyed.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 2200, Mechanical and Aerospace Engineering students only

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**MAE 4280: Introduction to Finite Element Methods**

(cross-leveled with MAE 7280). The application of matrix operations, energy concepts and structural mechanics to the development of the finite element method. Application of finite element method to beams, frames and trusses.

**Credit Hours:** 3

**Prerequisites:** C- or better in ENGINR 2200, MAE 3100, MAE students only

---

**MAE 4290: Welding Engineering**

(cross-leveled with MAE 7290). Welding is the most common method of joining similar as well as dissimilar materials. This course thus introduces the basic science and engineering aspects of commonly used fusion and non-fusion welding processes. Stress analysis and failure of welded joints is also introduced to develop safe and durable welded structures.

**Credit Hours:** 3

**Prerequisites:** senior standing in Mechanical and Aerospace Engineering

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**MAE 4300: Heat Transfer**

Fundamentals of conduction, convection and radiation. Use of nondimensional parameters. Theory and design of simple heat exchangers.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MAE 2300 and MAE 3400. Restricted to Mechanical and Aerospace Engineering students only

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**MAE 4310: Intermediate Heat Transfer**

(cross-leveled with MAE 7310). Advanced topics in conduction, convection, and radiation. Heat exchanges and their applications will also be analyzed.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 4300 and Mechanical Engineering students only

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**MAE 4320: Design of Thermal Systems**

(cross-leveled with MAE 7320). Thermal systems are simulated by mathematical models (often on a digital computer), followed by optimization. Supporting topics include: economics, heat transfer, thermodynamics, and optimization.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 4300

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**MAE 4320W: Design of Thermal Systems - Writing Intensive**

Thermal systems are simulated by mathematical models (often on a digital computer), followed by optimization. Supporting topics include: economics, heat transfer, thermodynamics, and optimization.

**Credit Hours:** 3

**Recommended:** MAE 4300

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**MAE 4325: Nanoscale Energy Transport**

(cross-leveled with MAE 7325). This course examines non-equilibrium energy processes from the vantage point of fundamental energy carriers. Topics include foundational solid state physics, statistical energy carrier distributions, density of states, and dispersion relationships. Energy transport will be discussed in terms of kinetic theory, the Landauer Formalism, and the Boltzmann Transport Equation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Senior standing in MAE

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**MAE 4340: Heating and Air Conditioning**

(cross-leveled with MAE 7340). General principles of thermal science applied to the design of environmental control systems. Topics covered include heating and cooling load calculations, annual operating and life cycle cost estimating, duct and pipe sizing, and equipment selection.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 4300 and MAE students only

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**MAE 4350: Industrial Energy Analysis**

(cross-leveled with MAE 7355). Energy use in industrial systems: furnaces, boilers, compressors, motors, lighting, etc. Insulation in building envelopes. Renewable energy sources. Energy auditing and economic analysis. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MAE 4300

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**MAE 4371: Energy Systems and Resources**

(same as ECE 4020, NU\_ENG 4315; cross-leveled with ECE 7020, NU\_ENG 7315, MAE 7371). Analysis of present energy usage in Missouri, USA and the world, evaluation of emerging energy technologies and trends for the future. Economics and environmental impact of the developed technologies. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or better in ENGINR 2300

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**MAE 4380: Intermediate Thermodynamics**

(cross-leveled with MAE 7380). Topics from classical and statistical thermodynamics.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 2300

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**MAE 4390: Aerospace Propulsion**

(cross-leveled with MAE 7390). Analysis of aircraft engines and spacecraft propulsion systems.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3400 and Junior standing in Mechanical and Aerospace Engineering

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**MAE 4420: Intermediate Fluid Mechanics**

(cross-leveled with MAE 7420). Topics in potential and viscous flow theory, and computational fluid dynamics.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3400

---

**MAE 4430: Introduction to Computational Fluid Dynamics and Heat Transfer**

(cross-leveled with MAE 7430). Introduction to the principles and development of the finite difference approximations to the governing differential equations of viscous and inviscid fluid flow, as well as heat transfer. Introduction to discretization methods and the calculation of flow fields, convection, diffusion and conduction.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3400

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**MAE 4440: Aerodynamics**

(cross-leveled with MAE 7440). Presents fundamentals of wing and airfoil theory for incompressible flow, including fluid kinematics and dynamics, potential flow, flow about a body, thin-airfoil theory, and finite wing.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3400

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**MAE 4450: Gas Dynamics**

(cross-leveled with MAE 7450). One dimensional compressible flow with and without friction and heat transfer. Isentropic flow and shock phenomenon in nozzles and diffusers.

**Credit Hours:** 3

**Prerequisites:** C- or better MAE 3400

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**MAE 4460: Microfluidics**

(cross-leveled with MAE 7460). This course focuses on liquid transport in micro/nano fluidic devices and related electrohydrodynamics. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** MAE 3400

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**MAE 4600: Advanced Mechanics of Materials**

(same as CV\_ENG 4600; cross-leveled with MAE 7600 and CV\_ENG 7600). Analysis of more complicated problems in stresses, strains.

**Credit Hours:** 3

**Prerequisites:** C- or better in ENGINR 2200, MAE 2200 and Junior standing in MAE

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**MAE 4620: Aircraft Flight Performance**

(cross-leveled with MAE 7620). Analysis of aircraft flight and aircraft performance metrics. Topics include airplane aerodynamics and propulsion, steady flight, range, endurance, take-off and landing, and aircraft maneuvers. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 2600, MAE 3100, MAE 3400, and Junior standing in Mechanical and Aerospace Engineering

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**MAE 4630: Space Flight Mechanics**

(cross-leveled with MAE 7630). Analysis of spacecraft orbits and trajectories. Topics include orbital mechanics, orbital maneuvers, interplanetary missions, and entry flight mechanics.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 2600, MAE 3100, and Junior standing in Mechanical and Aerospace Engineering

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**MAE 4635: Spacecraft Attitude Dynamics and Control**

(cross-leveled with MAE 7635). Spacecraft attitude representations; Spacecraft rotational kinematics and dynamics; Attitude determination and sensors; Environmental torques; Attitude stabilization strategies with gravity gradient, single and dual spins; Attitude control with momentum exchange devices. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MAE 3600

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**MAE 4660: Vibration Analysis**

(same as CV\_ENG 4660; cross-leveled with MAE 7660, CV\_ENG 7660). Vibration theory and its application to mechanical systems. Topics include free and forced vibration analysis of single- and multi-degree of freedom systems.

**Credit Hours:** 3

**Prerequisites:** C- or better in MATH 4100 and MAE 2600

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**MAE 4680: Introduction to MEMS**

(cross-leveled with MAE 7680). The course will start with a survey of the widespread applications of MEMS sensors and actuators. Micro fabrication methods used in conventional semiconductor industry will be introduced. MEMS-specific process will be emphasized. Fundamental principles in electric circuits and mechanics will be reviewed. Special attention is on mechanical issues encountered in MEMS design and fabrication.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3600 and Junior standing in Mechanical and Aerospace Engineering

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**MAE 4690: Aircraft Flight Dynamics**

(cross-leveled with MAE 7690). Introduction to atmospheric flight mechanics, Static stability, Dynamic stability, Aircraft coordinate systems, Aircraft equations of motion, Small perturbation Analysis and Linearization, Aerodynamic force and moment representations, Longitudinal motion, Lateral/directional motion, Introduction to flight controls. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 2600, MAE 3100, and MAE 3400 and Junior Standing in Mechanical and Aerospace Engineering

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**MAE 4710: Hydraulic Control System**

(cross-leveled with MAE 7710). Analysis of hydraulic control components and systems. Topics include pumps, valves, actuators, and industrial and mobile control systems. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3400, MAE 3600, and Junior standing in Mechanical and Aerospace Engineering

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**MAE 4720: Modern Control**

(cross-leveled with MAE 7720). Analysis and design of control systems using state-space methods. Topics include controllability and observability, feedback control using pole-placement, state observers, optimal linear-quadratic feedback control, and optimal estimation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3600 and Junior standing in Mechanical and Aerospace Engineering

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**MAE 4730: Mechatronics**

(cross-leveled with MAE 7730). Design of systems which require the integration of mechanical and electronic components. Topics include microcontrollers, sensors, actuators, mechanical systems, real time control system programming, and modeling of electronic and mechanical systems.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3600 and Junior standing in Mechanical and Aerospace Engineering

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**MAE 4740: Digital Control**

(cross-leveled with MAE 7740). Design and analysis of control systems using discrete-time methods. Topics include z-transforms, sampling and reconstruction, stability analysis, and digital controller design.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3600 and Junior standing in Mechanical and Aerospace Engineering

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**MAE 4750: Classical Control**

(same as BIOL\_EN 4310, ECE 4310; cross-leveled with MAE 7750, BIOL\_EN 7310, ECE 7310 ). Study of feedback control design based on classical continuous-time methods. Topics include performance specifications, stability analysis, root locus compensator design, and frequency domain analysis and compensator design.

**Credit Hours:** 3

**Prerequisites:** C- or better in MATH 4100

---

**MAE 4825: Materials and Manufacturing Laboratory**

Experiments in materials characterization, material properties, and manufacturing processes. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** C- or better in MAE 3500 and MAE 3800, Restricted to Mechanical and Aerospace Engineering students only

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**MAE 4834: Thermal Fluids Laboratory**

Applied thermal and fluid systems, such as HVAC and psychometrics, will be introduced. Experiments conducted on thermal/fluid hardware components will be used to reinforce concepts. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MAE 4300 and MAE 3800. Restricted to Mechanical and Aerospace Engineering students only

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**MAE 4834W: Thermal Fluids Laboratory - Writing Intensive**

Applied thermal and fluid systems, such as HVAC and psychometrics, will be introduced. Experiments conducted on thermal/fluid hardware components will be used to reinforce concepts. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MAE 3800 and MAE 4300. Restricted to Mechanical and Aerospace Engineering students only

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**MAE 4930: Applied Mechanical Optimization**

(cross-leveled with MAE 7930). Introduction to mathematical programming techniques and applications to the design of mechanical systems and components.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3100, Mechanical and Aerospace Engineering students only

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**MAE 4940: Aircraft Design**

(cross-leveled with MAE 7940). Conceptual design of aircraft, from initial sizing and design layout to design analysis, optimization and trade studies. Fundamental theories for aircraft design including sizing, aerodynamic forces, airfoil selection, wing loading, configuration layout payloads, propulsion systems, landing gear, aerospace structures, and cost analysis. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or better in ENGINR 2200, MAE 3400, MAE 3600, and Junior standing in MAE

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**MAE 4980: Senior Capstone Design**

Senior design experience. Topics include reliability, safety, manufacturability, economic, and environmental constraints; design case studies; and industrial design projects. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** C- or better in MAE 4825, MAE 4834, and STAT 4710 or IMSE 2110

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**MAE 4980W: Senior Capstone Design - Writing Intensive**

Senior design experience. Topics include reliability, safety, manufacturability, economic, and environmental constraints; design case studies; and industrial design projects. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** C- or better in MAE 4825, MAE 4834, and STAT 4710 or IMSE 2110

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**MAE 4990: Undergraduate Research in Mechanical and Aerospace Engineering**

Independent investigation or project in Mechanical Engineering. Enrollment limited to senior Mechanical and Aerospace Engineering students only.

**Credit Hour:** 0-6

**Prerequisites:** instructor's consent

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**MAE 4995: Undergraduate Honors Research Mechanical & Aerospace Engineering**

Independent investigation to be presented as an undergraduate honors thesis. Enrollment limited to Honors Mechanical and Aerospace Engineering students only. Prerequisites: Consent required

**Credit Hour:** 1-99

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**MAE 4995W: Undergraduate Honors Research Mechanical & Aerospace Engineering - Writing Intensive**

Independent investigation to be presented as an undergraduate honors thesis. Enrollment limited to Honors Mechanical and Aerospace Engineering students only. Prerequisites: Consent required

**Credit Hour:** 1-99

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**MAE 7001: Topics in Mechanical and Aerospace Engineering**

Current and new technical developments in mechanical and aerospace engineering. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** See instructor provided prerequisites

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**MAE 7210: Aerospace Structures**

Fundamentals of the mechanics and design issues of aerospace structures. Analysis of thin skins with stiffeners for external surfaces, bulkheads and frames for shape support, and fasteners for holding components together. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** grade of C or better in ENGINR 2200

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**MAE 7220: Materials Selection**

(cross-leveled with MAE 4220). Study of the physical and mechanical metallurgy of alloy systems of interest in engineering applications.

**Credit Hours:** 3

**Prerequisites:** MAE 2200

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**MAE 7230: Nanomaterials**

(cross-leveled with MAE 4230). The primary goal of this course is to introduce students into the new field of nanostructured materials. The emphasis of the course is to introduce the students into synthesis and characterization of nanomaterials, the behavior of such materials with nanoscale structures, and their technological applications.

**Credit Hours:** 3

**Prerequisites:** MAE 2200 or equivalent

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**MAE 7231: Transport Phenomena in Materials Processing**

(same as BIOL\_EN 7231; cross-leveled with MAE 4231, BIOL\_EN 4231) Applications of fluid flow, heat transfer, and mass transfer in steady-state and unsteady-state materials processing with applications to metals, polymers, and ceramics. Graded A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MAE 2200, MAE 3400, MAE 4300 (or equivalent courses) and MATH 4100

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**MAE 7232: Ceramic Materials and Processing**

(cross-leveled with MAE 4232). Treatment of ceramics materials, structure, and ceramic processing with hands-on demonstration/labs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MAE 2200 or equivalent course

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**MAE 7250: Composite Materials**

(cross-leveled with MAE 4250). A survey of composite materials used in engineering emphasizing fiber-reinforced composites but including laminate and particulate composites.

**Credit Hours:** 3

**Prerequisites:** MAE 2200

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**MAE 7270: Nondestructive Evaluation of Materials**

(cross-leveled with MAE 4270). The role of nondestructive evaluation (NDE) in engineering is explored. Ultrasonic NDE is studied in detail. Labs are used to support the study of ultrasonic NDE. Other NDE techniques are surveyed.

**Credit Hours:** 3

**Prerequisites:** MAE 2200

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**MAE 7280: Introduction to Finite Element Methods**

(cross-leveled with MAE 4280). The application of matrix operations, energy concepts and structural mechanics to the development of the finite element method. Application of finite element method to beams, frames and trusses. Prerequisites: ENGINR 2200, MAE 3100, MAE students only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Mechanical and Aerospace Engineering students only

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**MAE 7290: Welding Engineering**

(cross-leveled with MAE 4290). Welding is the most common method of joining similar as well as dissimilar materials. This course thus introduces the basic science and engineering aspects of commonly used fusion and non-fusion welding processes. Stress analysis and failure of welded joints is also introduced to develop safe and durable welded structures.

**Credit Hours:** 3

**Prerequisites:** senior standing or graduate level

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**MAE 7310: Intermediate Heat Transfer**

(cross-leveled with MAE 4310). Advanced topics in conduction, convection, and radiation. Heat exchanges and their applications will also be analyzed.

**Credit Hours:** 3

**Prerequisites:** MAE 4300

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**MAE 7320: Design of Thermal Systems**

(cross-leveled with MAE 4320). Thermal systems are simulated by mathematical models (often on a digital computer), followed by optimization. Supporting topics include: economics, heat transfer, thermodynamics, and optimization.

**Credit Hours:** 3

**Prerequisites:** MAE 4300

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**MAE 7325: Nanoscale Energy Transport**

(cross-leveled with MAE 4325). This course examines non-equilibrium energy processes from the vantage point of fundamental energy carriers. Topics include foundational solid state physics, statistical energy carrier distributions, density of states, and dispersion relationships. Energy transport will be discussed in terms of kinetic theory, the Landauer Formalism, and the Boltzmann Transport Equation. Graded on A-F basis only.

**Credit Hours:** 3

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**MAE 7340: Heating and Air Conditioning**

(cross-leveled with MAE 4340). General principles of thermal science applied to the design of environmental control systems. Topics covered include heating and cooling load calculations, annual operating and life cycle cost estimating, duct and pipe sizing, and equipment selection.

**Credit Hours:** 3

**Prerequisites:** MAE 4300

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**MAE 7355: Industrial Energy Analysis**

(cross-leveled with MAE 4350). Energy use in industrial systems: furnaces, boilers, compressors, motors, lighting, etc. Insulation in building envelopes. Renewable energy sources. Energy auditing and economic analysis. Graded on A-F basis only.

**Credit Hours:** 3

**Corequisites:** MAE 4300 or instructor's consent

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**MAE 7371: Energy Systems and Resources**

(same as ECE 7020, NU\_ENG 7315; cross-leveled with ECE 4020, NU\_ENG 4315, MAE 4371). Analysis of present energy usage in Missouri, USA and the world, evaluation of emerging energy technologies and trends for the future. Economics and environmental impact of the developed technologies.

**Credit Hours:** 3

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**MAE 7380: Intermediate Thermodynamics**

(cross-leveled with MAE 4380). Topics from classical and statistical thermodynamics.

**Credit Hours:** 3

**Prerequisites:** ENGINR 2300

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**MAE 7390: Aerospace Propulsion**

(cross-leveled with MAE 4390). Analysis of aircraft engines and spacecraft propulsion systems.

**Credit Hours:** 3

**Prerequisites:** MAE 3400

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**MAE 7420: Intermediate Fluid Mechanics**

(cross-leveled with MAE 4420). Topics in potential and viscous flow theory, and computational fluid dynamics.

**Credit Hours:** 3

**Prerequisites:** MAE 3400

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**MAE 7430: Introduction to Computational Fluid Dynamics and Heat Transfer**

(cross-leveled with MAE 4430). Introduction to the principles and development of the finite difference approximations to the governing differential equations of viscous and inviscid fluid flow, as well as heat transfer. Introduction to discretization methods and the calculation of flow fields, convection, diffusion and conduction.

**Credit Hours:** 3

**Prerequisites:** MAE 3400, MAE 4300 and MAE 4420

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**MAE 7440: Aerodynamics**

(cross-leveled with MAE 4440). Presents fundamentals of wing and airfoil theory for incompressible flow, including fluid kinematics and dynamics, potential flow, flow about a body, thin-airfoil theory, and finite wing.

**Credit Hours:** 3

**Prerequisites:** MAE 3100 and MAE 3400

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**MAE 7450: Gas Dynamics**

(cross-leveled with MAE 4450). One-dimensional compressible flow with and without friction and heat transfer. Isentropic flow and shock phenomenon in nozzles and diffusers.

**Credit Hours:** 3

**Prerequisites:** MAE 3400

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**MAE 7460: Microfluidics**

(cross-leveled with MAE 4460). This course focuses on liquid transport in micro/nano fluidic devices and related electrohydrodynamics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MAE 3400

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**MAE 7600: Advanced Mechanics of Materials**

(same as CV\_ENG 7600; cross-leveled with MAE 4600 and CV\_ENG 4600). Analysis of more complicated problems in stresses, strains.

**Credit Hours:** 3

**Prerequisites:** C- or better in ENGINR 2200, MAE 2200 and Junior standing in MAE

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**MAE 7620: Aircraft Flight Performance**

(cross-leveled with MAE 4620). Analysis of aircraft flight dynamics and aircraft performance. Topics include airplane aerodynamics and propulsion, steady flight, flight performance, aircraft maneuvers, aircraft stability, and an introduction to flight controls. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MAE 3600

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**MAE 7630: Space Flight Mechanics**

(cross-leveled with MAE 4630). Analysis of spacecraft motion. Topics include orbital dynamics, spacecraft attitude dynamics, satellite trajectory design, and spacecraft control system design.

**Credit Hours:** 3

**Prerequisites:** MAE 3600

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**MAE 7635: Spacecraft Attitude Dynamics and Control**

(cross-leveled with MAE 4635). Spacecraft attitude representations; Spacecraft rotational kinematics and dynamics; Attitude determination and sensors; Environmental torques; Attitude stabilization strategies with gravity gradient, single and dual spins; Attitude control with momentum exchange devices. Graded on A-F basis only.

**Credit Hours:** 3

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**MAE 7660: Vibration Analysis**

(same as CV\_ENG 7660; cross-leveled with CV\_ENG 4660, MAE 4660). Vibration theory and its application to Mechanical systems. Topics include free and forced vibration analysis of single and multi-degree of freedom systems.

**Credit Hours:** 3

**Prerequisites:** C- or better in MATH 4100 and MAE 2600

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**MAE 7680: Introduction to MEMS**

(cross-leveled with MAE 4680). The course will start with a survey of the widespread applications of MEMS sensors and actuators. Micro fabrication methods used in conventional semiconductor industry will be introduced. MEMS-specific processes will be emphasized. Fundamental principles in electric circuits and mechanics will be reviewed. Special attention is on mechanical issues encountered in MEMS design and fabrication. Graded on A-F basis only.

**Credit Hours:** 3

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**MAE 7690: Aircraft Flight Dynamics**

(cross-leveled with MAE 4690). Introduction to atmospheric flight mechanics, Static stability, Dynamic stability, Aircraft coordinate systems, Aircraft equations of motion, Small perturbation Analysis and Linearization, Aerodynamic force and moment representations, Longitudinal motion, Lateral/directional motion, Introduction to flight controls. Graded on A-F basis only.

**Credit Hours:** 3

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**MAE 7710: Hydraulic Control Systems**

(cross-leveled with MAE 4710). Analysis of hydraulic control components and systems. Topics include pumps, valves, actuators, and industrial and mobile control systems.

**Credit Hour:** 1-3

**Prerequisites:** MAE 3400 and MAE 3600

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**MAE 7720: Modern Control**

(cross-leveled with MAE 4720). Analysis and design of control systems using state-space methods. Topics include controllability and observability, feedback control using pole-placement, state observers, optimal linear-quadratic feedback control, and optimal estimation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MAE 3600

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**MAE 7730: Mechatronics**

(cross-leveled with MAE 4730). Design of systems which require the integration of mechanical and electronic components. Topics include microcontrollers, sensors, actuators, mechanical systems, real time

control system programming, and modeling of electronic and mechanical systems.

**Credit Hours:** 3

**Prerequisites:** MAE 3600

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**MAE 7750: Classical Control**

(same as ECE 7310, BIOL\_EN 7310; cross-leveled with MAE 4750, ECE 4310, BIOL\_EN 4310). Study of feedback control design based on classical continuous-time methods. Topics include performance specifications, stability analysis, root locus compensator design, and frequency domain analysis and compensator design.

**Credit Hours:** 3

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**MAE 7910: Mechanism Design**

(cross-leveled with MAE 4910). Analysis of kinematics and dynamics of machinery. Topics include design and selection of various mechanisms. Graded on A-F basis only.

**Credit Hours:** 3

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**MAE 7930: Applied Mechanical Optimization**

(cross-leveled with MAE 4930). Introduction to mathematical programming techniques and applications to the design of mechanical systems and components.

**Credit Hours:** 3

**Prerequisites:** MAE 3100

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**MAE 7940: Aircraft Design**

(cross-leveled with MAE 4940). Conceptual design of aircraft, from initial sizing and design layout to design analysis, optimization, and trade studies. Fundamental theories for aircraft design, including sizing, aerodynamic forces, airfoil selection, wing loading, configuration layout, payloads, propulsion systems, landing gear, aerospace structures, and cost analysis. Graded A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MAE 3400, MAE 3600, MAE 3600

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**MAE 8001: Advanced Topics in Mechanical and Aerospace Engineering**

Advanced Topics in Mechanical and Aerospace Engineering.

**Credit Hours:** 3

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**MAE 8085: Problems in Mechanical and Aerospace Engineering**

Supervised investigation in mechanical and aerospace engineering to be presented in the form of a report.

**Credit Hour:** 1-99

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**MAE 8087: Graduate Seminar in Mechanical and Aerospace Engineering**

Reviews recent investigations, projects of major importance in mechanical and aerospace engineering. Graded on S/U basis only.

**Credit Hour:** 1

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**MAE 8240: Mechanical Behavior of Materials**

This course will cover the mechanical behavior of metallic, ceramic, polymeric, and composite materials and their relationships to the underlying microstructures. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MAE 2200 and graduate standing in engineering, or instructor's consent

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**MAE 8250: Plasma Technology for Materials Engineering**

The course is intended to give graduate students a fundamental knowledge of plasma-assisted materials processing and an understanding of state-of-the-art plasma processing technology and applications. The content is designed for graduate students from materials science, mechanical engineering, chemical engineering, electrical engineering, etc. Graded on A-F basis only.

**Credit Hours:** 3

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**MAE 8280: Finite Element Methods**

(same as CV\_ENG 8208). The concepts and fundamentals of the finite element method with applications to problems in solid and fluid mechanics.

**Credit Hours:** 3

**Prerequisites:** MAE 4280

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**MAE 8300: Microscale Heat Transfer**

Review of existing models. Concept of thermal lagging and the second-law admissibility. Applications to low temperatures, thermal processing of thin-film devices; amorphous materials; advanced composites.

**Credit Hours:** 3

**Prerequisites:** MAE 4300

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**MAE 8311: Heat Transfer-Convection**

Principles of heat transfer by convection, review of boundary layer theory, laminar and turbulent heat transfer, temperature-dependent fluid properties, high velocity heat transfer and an introduction to mass transfer.

**Credit Hours:** 3

**Prerequisites:** MAE 4300 and MAE 8410

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**MAE 8313: Heat Transfer-Conduction**

Distribution of temperature and temperature history within solids by the four essential methods of evaluation of these temperature fields.

**Credit Hours:** 3

**Prerequisites:** MAE 4300

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**MAE 8315: Multiphase Heat Transfer**

Fundamentals and application of heat and mass transfer and fluid flow with phase change; melting and solidification, sublimation and vapor deposition, condensation, evaporation, nucleate and film boiling, two-phase flow. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MAE 4300

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**MAE 8320: Continuum Mechanics**

(same as CV\_ENG 8320). Introductory course in the mechanics of continuous media. Basic concepts of stress, strain, constitutive relationships; conservation laws are treated using Cartesian tensor notation. Examples from both solid and fluid mechanics investigated.

**Credit Hours:** 3

**Prerequisites:** MAE 3400, MATH 4100, ENGINR 2200

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**MAE 8330: Theory of Elasticity**

(same as CV\_ENG 8330). Stress and strain at a point. General equations of elasticity. Plane stress, plain strain problems; torsion of prismatic bars. Energy methods.

**Credit Hours:** 3

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**MAE 8332: Thermal Stresses**

General equations of thermoelasticity, Constitutive equations of thermoelastoplasticity; Analytical and numerical analyses of thermal stresses in bars, beams, 3D media, 2D plane stress and strain media, cylinders, and spheres. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MAE 4300, or instructor's consent

**Recommended:** MAE 8330

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**MAE 8350: Theory of Elastic Stability**

(same as CV\_ENG 8350). Buckling of Columns, frames, arches and other structural systems. Kinematic approach to stability. Large deflections. Energy approach to buckling. Plate and shell buckling. Inelastic buckling of columns. Creep buckling.

**Credit Hours:** 3

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**MAE 8360: Theory of Plasticity**

(same as CV\_ENG 8360). Plastic yield conditions and stress-strain relations. Behavior of elastic-perfectly plastic members. Plain strain in plastic members.

**Credit Hours:** 3

**Prerequisites:** MAE 8330 or instructor's consent

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**MAE 8380: Advanced Thermodynamics**

Advanced topics from classical thermodynamics.

**Credit Hours:** 3

**Prerequisites:** MAE 4380

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**MAE 8420: Computational Heat Transfer and Fluid Dynamics**

Introduction to numeric analysis techniques applied to heat transfer and fluid dynamics problems. Coverage will include, the development of discretization equations for the control volume approach and solution strategies of those equations. Results from numeric simulations will be compared with close form analytic solutions and commercial numeric code output.

**Credit Hours:** 3

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**MAE 8430: Introduction to Two Phase Flow**

An introduction to the analysis of the mechanics and transport processes in two phase flows.

**Credit Hours:** 3

**Prerequisites:** MAE 3400

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**MAE 8450: Introduction to Turbulence**

An introduction to the physical phenomena of turbulence, supported by mathematical and statistical descriptions. Especially appropriate for engineers involved in research of momentum, heat, and mass transport.

**Credit Hours:** 3

**Prerequisites:** MAE 4420

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**MAE 8510: Manufacturing Design**

Design for manufacture methods, their capabilities and applications. Design of intelligent manufacturing systems using sensory systems and artificial intelligence techniques.

**Credit Hours:** 3

**Prerequisites:** MAE 3100 and MAE 4500

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**MAE 8620: Advanced Dynamics**

(same as CV\_ENG 8620). Fundamental principles of advanced rigid body dynamics with applications. Special mathematical techniques including Lagrangian and Hamiltonian methods.

**Credit Hours:** 3

**Prerequisites:** MAE 2600

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**MAE 8740: Robust Control**

Definition of the robust performance problem with the goal of achieving specified signal levels in the face of plant uncertainty; uncertainty and robustness, stabilization, design constraints, loopshaping, model matching and design for robust performance.

**Credit Hours:** 3

**Prerequisites:** MAE 4750, and MAE 8780 or instructor's consent

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**MAE 8750: Nonlinear Control**

Nonlinear systems analysis techniques including phase plane analysis, Lyapunov theory. Control design including feedback linearization, sliding control, and adaptive control.

**Credit Hours:** 3

**Prerequisites:** MAE 4750 and MAE 8780

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**MAE 8760: Optimal Control**

The course will study optimization under dynamic constraints and optimal control theory. Topics include calculus of variation, Pontryagin's minimum principle, dynamic programming, and linear quadratic optimal control. Graded on A-F basis only.

**Credit Hours:** 3

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**MAE 8910: Modular Machine Tool Design**

This course introduces necessary concepts and tools for modular machine tool design. Students will learn how to apply mechanical design knowledge and commercially available subassemblies and parts to design modular machine tools for mass production application.

**Credit Hours:** 3

**Prerequisites:** MAE 4980 or instructor's consent

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**MAE 8930: Advanced Mechanical System Modeling and Optimization**

Calculus of variations is introduced as a basic tool. Hamilton's Principle is used for system modeling. Numerical solution methods are used for dynamic simulation. Genetic algorithm and other algorithms are applied for system optimization. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MAE 3600 and MAE 4980. Seniors will require consent

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**MAE 8990: Research-Masters Thesis in Mechanical and Aerospace Engineering**

Independent investigation in field of mechanical and aerospace engineering to be presented as a thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**MAE 9990: Research-Doctoral Dissertation Mechanical & Aerospace Engineering**

Independent investigation in field of mechanical and aerospace engineering to be presented as a thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**Medical Pharmacology and Physiology Courses**

**MPP 1111: How to Inquire and Investigate**

In this course we will be interviewing faculty members from different departments to learn about their area of research and they will also be interviewing me about my area of research. How does one learn about a new subject with all its technical language (jargon)? What are common themes and approaches in different disciplines? What are conceptual and viewpoint differences in different disciplines?

**Credit Hour:** 1

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**MPP 2010: The Science of Sex, Drugs and Rock'n'Roll**

This course will examine the data and theories for how drugs affect the body, for the physiology of reproduction and, for how sound affects the body. These topics will be used to motivate an understanding, and provide training in applying, the key scientific principles. Graded on A-F basis only.

**Credit Hour:** 1

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**MPP 2015: Toxins, The Good, The Bad, and the Beautiful**

In this course, the students will explore toxins. We will discuss how toxins are formed, the 'value' of the toxin to the organism that makes it, how the toxin is delivered, the effect of the toxin on the target animal and on humans. In addition, we will discuss how toxins have led to new therapies and drugs. We will also analyze some famous cases of apparent toxin poisoning. In all cases, the students will be urged to critically evaluate the data and the theories and encouraged to think of novel uses of toxins and of experiments that would provide important new information about the toxins and their effects.

**Credit Hours:** 3

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**MPP 2015H: Toxins, The Good, The Bad, and the Beautiful - Honors**

In this course, the students will explore toxins. We will discuss how toxins are formed, the 'value' of the toxin to the organism that makes it, how the toxin is delivered, the effect of the toxin on the target animal and on humans. In addition, we will discuss how toxins have led to new therapies and drugs. We will also analyze some famous cases of apparent toxin poisoning. In all cases, the students will be urged to critically evaluate the data and the theories and encouraged to think of novel uses of toxins and of experiments that would provide important new information about the toxins and their effects.

**Credit Hours:** 3**Prerequisites:** Honors eligibility required**MPP 2015W: Toxins, The Good, The Bad, and the Beautiful - Writing Intensive**

In this course, the students will explore toxins. We will discuss how toxins are formed, the 'value' of the toxin to the organism that makes it, how the toxin is delivered, the effect of the toxin on the target animal and on humans. In addition, we will discuss how toxins have led to new therapies and drugs. We will also analyze some famous cases of apparent toxin poisoning. In all cases, the students will be urged to critically evaluate the data and the theories and encouraged to think of novel uses of toxins and of experiments that would provide important new information about the toxins and their effects.

**Credit Hours:** 3**MPP 2020: Bodily Fluids and Functions**

In this course, the students will study body fluids. We will learn about how the fluids are formed and the functions of the fluids. We will also critically evaluate some theories about the formation and function of the fluids.

**Credit Hours:** 3**MPP 2020W: Bodily Fluids and Functions - Writing Intensive**

In this course, the students will study body fluids. We will learn about how the fluids are formed and the functions of the fluids. We will also critically evaluate some theories about the formation and function of the fluids.

**Credit Hours:** 3**MPP 2222: Let's Do Experiments for Research**

This course is designed to provide students a hands on opportunity to do experiments in the first part of the semester, students will be working primarily on two projects that they chose from a list developed by the previous class; the second half of the semester will be not only working on those projects, but developing the choice of projects for students to start for the next time the course is offered. The projects can be basic science, translational science, or developing education activities/experiments or a combination of these. Some of the choices will involve safe materials and will require no additional training. Other choices may involve human subjects, animal tissues, or hazardous chemicals in which case, the students will need to obtain the appropriate training and that can be done to fulfill part of this course's requirements.

**Credit Hours:** 3**MPP 3202: Elements of Physiology**

Beginning course for sophomore and above designed to cover the basic functional aspects of major organ systems of the body.

**Credit Hours:** 5**Prerequisites:** sophomore standing**MPP 3202H: Elements of Physiology - Honors**

Beginning course for sophomore and above designed to cover the basic functional aspects of major organ systems of the body.

**Credit Hours:** 5**Prerequisites:** sophomore standing; honors eligibility required**MPP 3290: Undergraduate Research**

Laboratory experience and opportunity to explore research in medical pharmacology and physiology.

**Credit Hour:** 1-3**MPP 3333: Fundamentals of Human Physiology**

This course presents the basic concepts of physiology using a problem based approach. The major organs systems are discussed with the relevance to everyday physiology as well as clinical and animal applications discussed.

**Credit Hours:** 3**MPP 3333H: Fundamentals of Human Physiology - Honors**

This course presents the basic concepts of physiology using a problem based approach. The major organs systems are discussed with the relevance to everyday physiology as well as clinical and animal applications discussed.

**Credit Hours:** 3**MPP 3337: Human Physiology Laboratory**

This lab course will involve experiments to illustrate basic physiology concepts.

**Credit Hours:** 2**MPP 3500: Introduction to Human Physiology**

This is an online course that will introduce students to basic concepts in human physiology, with a focus on the integrated function of organ system in homeostasis/human health. The final section of the course will expose students to important issues in exercise physiology, specifically the impact of exercise on cardiovascular and metabolic functions.

**Credit Hours:** 3**Recommended:** Cell Biology, Biochemistry**MPP 4001: Undergraduate Topics in Medical Pharmacology and Physiology**

Selected topics not in regularly offered courses.

**Credit Hour:** 1-3**Prerequisites:** instructor's consent**MPP 4085: Undergraduate Problems in Medical Pharmacology and Physiology**

This course is designed to provide well-qualified undergraduate students the opportunity to engage in advanced study in topics in pharmacology or physiology with individual faculty members. Topics will be drawn from recent primary literature. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**MPP 4085W: Undergraduate Problems in Medical Pharmacology and Physiology - Writing Intensive**

This course is designed to provide well-qualified undergraduate students the opportunity to engage in advanced study in topics in pharmacology or physiology with individual faculty members. Topics will be drawn from recent primary literature. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**MPP 4202: Medical Physiology**

(cross-leveled with MPP 7422). Medical Physiology is intended for health scientists. Fat, bone, digestion, nutrition, appetite and brain health will be emphasized for health reform and updates for nervous, muscle, heart, vasculature, liver, renal, lung and endocrine systems with analysis for preventative medicine. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Nutrition or Biochemistry

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**MPP 4204: Medical Pharmacology**

(cross-leveled with MPP 7424). Medical pharmacology teaches the science of drug actions in medicine today, and principles of pharmacokinetics/dynamics. Future health professionals will learn prescription judgment and quality/cost improvements for patient safety. An online laboratory will teach drug database information technology.

**Credit Hours:** 4

**Prerequisites or Corequisites:** BIO\_SC 3700 or MPP 3202 or MPP 4202 or equivalent physiology course from other colleges

**Recommended:** nutrition or biochemistry courses are recommended but not required

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**MPP 4204H: Medical Pharmacology-Honors**

Medical pharmacology teaches the science of drug actions in medicine today, and principles of pharmacokinetics/dynamics. Future health professionals will learn prescription judgment and quality/cost improvements for patient safety. An online laboratory will teach drug database information technology.

**Credit Hours:** 4

**Prerequisites or Corequisites:** BIO\_SC 3700 or MPP 3202 or MPP 4202 or equivalent physiology course from other colleges; Honors eligibility required

**Recommended:** nutrition or biochemistry courses are recommended but not required

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**MPP 4417: Diagrams, Figures and Graphs**

(cross-leveled with MPP 7717). In this course, we will examine what features optimize the drawing of diagrams, figures and graphs for communication to different audiences. Graded on A-F basis only.

**Credit Hour:** 1

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**MPP 7302: Drug Discovery and Action**

This course is designed to provide the student with an in depth knowledge of specific aspects of cardiovascular physiology with major

emphasis on cardiac structure and function. Topics are covered in 1, 3-4 hour session per week and are based on reading assignments from the literature. The following topics have been addressed in previous offerings but the specific topics may vary from year to year: Heart muscle structure related to function; Contractile proteins structures and function; Regulation of protein synthesis; Regulation of myocardial hypertrophy; Regulation of myocardial metabolism; Myocardial mechanics systolic and diastolic function; Mechanisms of length dependent contraction; Control of electrical-mechanical coupling processes; Mechanisms for adrenergic regulation of myocardial function.

**Credit Hour:** 1

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**MPP 7422: Medical Physiology**

(cross-leveled with MPP 4202). Medical Physiology is intended for health scientist. Fat, bone, digestion, nutrition, appetite and brain health will be emphasized for health reform and updates for nervous, muscle, heart, vasculature, liver, renal, lung and endocrine systems with analysis for preventative medicine. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Nutrition or Biochemistry

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**MPP 7424: Medical Pharmacology**

(cross-leveled with MPP 4204). Pharmacology teaches the science of drug actions in medicine today and principles of pharmacokinetics/dynamics. Future medical researchers will learn molecular probes for medical research and translational science to improve health care. An online laboratory will teach drug database information technology. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites or Corequisites:** BIO\_SC 3700 or MPP 3202 or MPP 4202 or equivalent physiology course from other colleges

**Recommended:** nutrition or biochemistry courses are recommended but not required

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**MPP 7717: Diagrams, Figures, and Graphs**

(cross-leveled with MPP 4417). In this course, we will examine what features optimize the drawing of diagrams, figures and graphs for communication to different audiences. Graded on A-F basis only.

**Credit Hour:** 1

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**MPP 8000: Scientific Discovery Leading to Life Science Innovations**

(same as BIOL\_EN 8000). This course explains the scientific discovery process from idea to product release, examining problem identification, need validation, and commercialization. Clinical, business and engineering perspectives are examined to understand translating innovation into clinical practice. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** must be enrolled in a graduate degree program

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**MPP 8004: Regulatory Issues in Clinical Research and Clinical Trials**

(same as BIOL\_EN 8004). The goal of the course is to highlight key FDA regulatory issues for conducting human clinical trials and clinical research. For clinical trials, FDA has set up several compliance programs and guidance documents as a part of human subject protection (HSP)/

Bioresearch Monitoring (BIMO) initiatives. The aim of the program was to strengthen FDA oversight and protection of subjects in clinical trials and to preserve confidentiality of data. The HSP/BIMO initiative comprehends all FDA regulated clinical trials including human drugs and biological drug products, devices, foods, and veterinary medicine. The course is designed for students in medical professions, management, biomedical engineering, and related areas. Adequate knowledge regarding FDA guidance in conducting human clinical trials and clinical research will help professionals steer drug/device development and commercialization in their respective field. This course will be offered online only. An introduction to essential disciplines for conducting clinical trials and clinical research will be provided. The basics of good clinical practices (GCPs), biostatistics and clinical epidemiology in relation to clinical trials will be presented. Several relevant case studies for conducting clinical trials, both nationally and internationally, will be discussed. The importance of data collection and data management while conducting clinical trials will be explained. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Knowledge in biomedical sciences, clinical sciences

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**MPP 8050: Non-Thesis Research in Medical Pharmacology and Physiology**

Opportunities for graduate research in physiology or pharmacology not leading to dissertation. Graded on A-F basis only.

**Credit Hour:** 1-5

**Prerequisites:** instructor's consent

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**MPP 8085: Graduate Problems in Medical Pharmacology and Physiology**

Guided study to strengthen knowledge in physiology and pharmacology. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**MPP 8090: Thesis Research in Medical Pharmacology and Physiology**

Research for Master's Students in physiology or pharmacology, leading to dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**MPP 8100: Design and Development of Biomedical Innovations**

(same as BIOL\_EN 8100, ENGINR 8100). The overarching goal of this course is to help participants understand the design and development (drug or device) process in biomedical innovation. This course will help participants to understand the process of choosing unmet clinical needs, articulate a need statement without integrating solution, design and develop a solution. Participants will learn to assess the commercial potential of clinical needs by performing market analysis and valuing customer needs. A conceptual understanding about development of a prototype for a device and also drug development by different brainstorming process will be provided. Details of regulatory, reimbursement, patenting process required for product development will be explained with examples. An overview about how to evaluate preliminary designs, define product specifications, comply with manufacturing principles and methods, costs, cGMP requirements will be explained. Quality control and Quality assurance necessities

for drug/device will be elucidated with case studies. Participants will gain knowledge about different business models for drug and devices, estimate market penetration and how to make profitable, patient-driven products. Graded on A-F basis only,

**Credit Hours:** 3

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**MPP 8411: Mammalian Pharmacology and Physiology**

An integrated course covering the basic concepts in physiology and pharmacology of the cardiovascular, gastrointestinal, endocrine, renal, and respiratory systems with an emphasis of applying the key concepts to clinically relevant examples. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites:** instructor's consent

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**MPP 8412: Seminar in Medical Pharmacology and Physiology**

Instruction in critical evaluation, review, and summary of scientific data and practice in oral presentation of scientific research seminar. Taught in conjunction with weekly department seminar series.

**Credit Hour:** 1

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**MPP 8415: Responsible Conduct of Research thru Engagement, Enactment and Empowerment NIH and other Federal Age**

The emphasis is on the scientific research ethics problems in interdisciplinary work. Student involvement can include designing mock misconduct trials or writing advocacy letters to change current policy.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MPP 8417: Scientific Communication**

A course to foster and improve students ability to communicate orally and in writing. Student enrolled in the course will be expected to write a report and present a seminar on a topic related to one of the lab rotation projects to the mentor of the rotation and other interested faculty members and students. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MPP 8420: Skills in Biomedical Research**

This course focuses on introducing graduate students to the basics of biomedical research. Course objectives are to provide new graduate students with a basic understanding of laboratory safety issues and fundamental skills that are integral to research including principles of experimental design, theory and practical application of modern research techniques, written and oral communication of research information, and scientific record keeping standards. Graded on S/U basis only.

**Credit Hours:** 2

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**MPP 8500: Translational Biosciences I**

This course covers foundational principles in molecular and cellular biology that are required for understanding a wide range of biomedical science disciplines, including cancer biology, microbiology, virology and physiology. This is a lecture-based course that also feature a discussion session each week in which students will read/discuss current primary scientific literature to emphasize the translational implications of these pathways. Graded on A-F basis only.



**Credit Hours:** 5

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**MPP 8550: Skills in Translational Biosciences I**

Skills in Translational Biosciences I will provide students an overview of current techniques in biomedical sciences, including bioethics. Students will also be exposed to state of the art techniques ranging from subcellular to whole animal studies, as well as medical bioinformatics, health outcomes and epidemiology. The course will have a significant emphasis on reading primary literature in a journal club format.

**Credit Hours:** 4

**Recommended:** This course is to be taken concurrent with MPP 8500

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**MPP 9090: Thesis Research in Medical Pharmacology and Physiology**

Research for PhD students in physiology or pharmacology, leading to dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**MPP 9422: Medical Pharmacology and Physiology Journal Club**

On a weekly basis, individual students are assigned current high profile journal articles to present to their fellow students and faculty in a journal club setting. Each student in the course is required to read the paper in advance and participate in discussions of the figures and general topics that is being presented. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** enrolled in MPP PhD graduate program

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**MPP 9426: Transmembrane Signaling**

This course is for advanced level graduate students. The course is designed to develop state of the art knowledge and understanding of current research issues in the cell signaling. The major emphasis is on receptor and non-receptor mediated transmembrane signaling events underlying physiological and pharmacological responses of the cells. Students are also involved in class presentations, and the development and critical review of new research proposals, all focused on cellular signaling.

**Credit Hours:** 4

**Prerequisites:** basic courses in biochemistry and or cell and molecular biology or equivalent

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**MPP 9429: Principles and Frontiers of Molecular Pharmacology**

An in-depth examination of pharmacodynamics, structure-activity relationships, pharmacokinetics/drug metabolism, and toxicology, followed by a consideration of emerging concepts regarding membrane receptors and channels and their role in biology and medicine.

**Credit Hours:** 5

**Prerequisites:** Students must have completed a physiology, biochemistry or cell biology course

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**MPP 9430: Cardiovascular Physiology**

This course is designed to provide the student with an in depth knowledge of specific aspects of cardiovascular physiology with major emphasis on cardiac structure and function. Topics are covered in 1, 3-4 hour session per week and are based on reading assignments from the literature. The following topics have been addressed in previous

offerings but the specific topics may vary from year to year: Heart muscle structure related to function; Contractile proteins structures and function; Regulation of protein synthesis; Regulation of myocardial hypertrophy; Regulation of myocardial metabolism; Myocardial mechanics systolic and diastolic function; Mechanisms of length dependent contraction; Control of electrical-mechanical coupling processes; Mechanisms for adrenergic regulation of myocardial function.

**Credit Hours:** 3

**Prerequisites:** MPP 4310 and MPP 8411 or the equivalent (e.g., UM first year medical school curriculum, V\_BSCI 8421, or BIO\_SC 3700 with supporting courses)

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**MPP 9431: Control of Energy Metabolism**

(same as V\_BSCI 9431). This advanced elective is in a lecture/discussion format using primary literature to explore how cells organize and regulate metabolism to meet energy demands.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MPP 9432: Mammalian Membrane Physiology**

This course is designed to stimulate active learning of the concepts of modern membrane physiology. Throughout the course, a balance will be maintained between examining classic papers in the field and current literature, including not only theories that have held up over time, but areas in which there is current dispute as the best model that describes the observations.

**Credit Hour:** 1-3

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**MPP 9434: Microvascular Circulatory Function**

(same as V\_BSCI 9425). An in-depth study of microcirculatory structure and function in various tissues with emphasis on recent developments in the understanding of the mechanisms involved in nutrient supply, edema formation, lymphatic function and fluid balance.

**Credit Hours:** 4

**Prerequisites:** V\_BSCI 8420 and V\_BSCI 8421 or equivalent and instructor's consent

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**MPP 9435: Molecular Exercise Biology**

(same as V\_BSCI 9435). Skeletal muscle mechanics, contractions theories, transgenic models, development, gene expression regulation, adaptation to exercise, aging, metabolic functions, and inactivity induced chronic diseases.

**Credit Hour:** 1-3

**Prerequisites:** course director's consent required for enrollment

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**MPP 9437: Neural Cardiorespiratory Control**

(same as V\_BSCI 9467). Course objectives include developing a general understanding of CNS mechanisms in the regulation of the cardiovascular and respiratory system, including autonomic, neurohumoral and body fluid homeostatic mechanisms, gaining knowledge of the major advances and topics in the field and becoming familiar with some of the methods used to study CNS cardiorespiratory regulation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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## Medicine-Interdisciplinary Courses

### **MED\_ID 5041: Structure and Function of the Human Body I**

Biochemical principles, cell biology, human development, histology and gross anatomy with clinical correlates utilizing patient examples and non-invasive techniques.

**Credit Hours:** 6

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### **MED\_ID 5042: Interviewing**

Development of skills needed to obtain a history of the patient's present illness, past medical history and other pertinent background information. Vitality important to medical practice, these skills are role modeled, practiced and evaluate with detailed feedback. Additional emphasis is placed on the doctor-patient relationship, ethics and the role of the physician as a therapeutic agent.

**Credit Hours:** 3

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### **MED\_ID 5043: Structure and Function of the Human Body II**

Study of the structure and function of the body's metabolic, nervous and muscular systems.

**Credit Hours:** 6

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### **MED\_ID 5044: Physical Examination**

Introduction to the doctor-patient relationship and systematic physical examination of the patient. Certification in basic life support is also included.

**Credit Hours:** 3

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### **MED\_ID 5045: Structure and Function of the Human Body III**

Study of the structure and function of the body's cardiovascular, gastrointestinal, and urinary systems.

**Credit Hours:** 6

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### **MED\_ID 5046: Psychosocial Aspects of Medicine**

A brief study of the history of medicine and the impact of key events on current medical practice. Study of the biopsychosocial model, biomedical ethics and specific psychosocial problems encountered by physicians such as compliance, problems based in human sexuality, substance abuse and death and dying.

**Credit Hours:** 3

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### **MED\_ID 5047: Structure and Functions of the Human Body IV**

Study of the structure and function of the endocrine, reproductive, vascular systems. The classification of pathogenic and non-pathogenic organisms, mechanisms of infection, the immune response and the interaction between pharmacologic agents and exogenous organisms.

**Credit Hours:** 6

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### **MED\_ID 5048: Clinical Epidemiology and Preventive Medicine**

Application of clinical epidemiology to understanding measurement of population characteristics and to the critical analysis of the literature through analysis of study designs and interpretation of the results

and causal relationships. Study of prevention, screening and health maintenance as important aspects of health care.

**Credit Hours:** 3

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### **MED\_ID 5051: Ambulatory Clinical Experience I**

Ambulatory Clinical Experience I

**Credit Hour:** 1

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### **MED\_ID 5052: Ambulatory Clinical Experience II**

Ambulatory Clinical Experience II

**Credit Hour:** 1

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### **MED\_ID 5180: FULL-TIME ENROLLMENT FOR POST-SOPHOMORE FELLOWS**

FULL-TIME ENROLLMENT FOR POST-SOPHOMORE FELLOWS

**Credit Hours:** 18

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### **MED\_ID 5205: Individualized Study**

Individualized Study

**Credit Hour:** 1-5

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### **MED\_ID 5207: Summer Clinical Practicum Internal Medicine**

Summer Clinical Practicum Internal Medicine. 4 week course. Zero credit hours, 4 FA hours.

**Credit Hours:** 0

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### **MED\_ID 5213: Leadership Practicum**

Leadership Practicum

**Credit Hours:** 0

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### **MED\_ID 5215: Summer Clinical Practicum - Medical Education**

Summer Clinical Practicum - Medical Education- Zero billing hours and 4 FA hours

**Credit Hours:** 0

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### **MED\_ID 5217: Summer Clinical Practicum - Rural Track**

This represents non-credit clinical and research experiences that medical students may take during the summer following their first (M1) year of medical school. 8 weeks. Zero Credit.

**Credit Hours:** 0

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### **MED\_ID 5341: Structure/Function Human Body I - Remediation**

Structure/Function Human Body I - Remediation

**Credit Hours:** 6

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### **MED\_ID 5342: Interviewing - Remediation**

Interviewing - Remediation

**Credit Hours:** 3

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### **MED\_ID 5343: Structure/Function Human Body II - Remediation**

Structure/Function Human Body II - Remediation

**Credit Hours:** 6

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**MED\_ID 5344: Physical Exam - Remediation**

Physical Exam - Remediation

**Credit Hours:** 3

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**MED\_ID 5345: Structure/Function Human Body III**

Structure/Function Human Body III

**Credit Hours:** 6

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**MED\_ID 5346: Psychosocial Aspects Med - Remediation**

Psychosocial Aspects Med - Remediation

**Credit Hours:** 3

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**MED\_ID 5347: Structure/Function Human Body IV - Remediation**

Structure/Function Human Body IV - Remediation

**Credit Hours:** 6

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**MED\_ID 5348: Clinical Epidemiology and Preventive Medicine - Remediation**

Clinical Epidemiology and Preventive Medicine - Remediation

**Credit Hours:** 3

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**MED\_ID 5551: Pathophysiology I**

Pathophysiologic mechanisms of cell injury, inflammation and repair, hemodynamic disturbances, genetic disorders, autoimmune response, immune deficiency and hypersensitivity reactions.

**Credit Hours:** 6

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**MED\_ID 5552: Diagnostic Tests and Medical Decisions**

Assessment of the appropriate use and interpretation of common diagnostic tests and their contribution to medical decisions and the care of patients. Includes emphasis on the review of systems, interactive hypothesis testing, differential diagnosis probability, sensitivity and specificity, and cost benefit and cost effectiveness analysis.

**Credit Hours:** 3

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**MED\_ID 5553: Pathophysiology II**

Pathophysiologic mechanisms of cardiovascular disease, diseases of the respiratory system, disorders of the blood, and nutritional diseases.

**Credit Hours:** 6

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**MED\_ID 5554: Psychopathology and Behavioral Medicine**

Presentation and discussion of the U.S. health care system and health care reform, financing and resource allocation, and the impact of change on individuals, communities, employers and the government. Included are analyses of the ethical and legal implications of health care and health care reform.

**Credit Hours:** 3

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**MED\_ID 5555: Pathophysiology III**

Pathophysiologic mechanisms of the digestive, endocrine and urogenital systems.

**Credit Hours:** 6

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**MED\_ID 5556: Clinical Practicum**

A continuation of Block 6 objectives and a clinical practicum and review comprise this block.

**Credit Hours:** 3

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**MED\_ID 5557: Pathophysiology IV**

Pathophysiology of infectious diseases, reproductive disorders, musculoskeletal and soft tissues diseases, diseases affecting the nervous system and skin diseases.

**Credit Hours:** 6

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**MED\_ID 5558: Physician as a Person**

Exploration of the physician as a person, the balance between professional and personal demands, family life, membership in a community, the stresses and rewards of the medical profession, professional ethics and the doctor-patient relationship. A four week clinical review completes this block.

**Credit Hours:** 3

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**MED\_ID 5561: Advanced Physical Diagnosis I**

Advanced Physical Diagnosis I

**Credit Hour:** 1

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**MED\_ID 5570: Advanced Clinical Skill Practicum**

This course is designed for MD/PhD students and other medical students away on research or post-sophomore fellowship leave. Approval to enroll must be obtained from the Director of the MD/PhD program or the Faculty Director of Clinical curriculum. Graded on S/U basis only.

**Credit Hours:** 0

**Prerequisites:** Advanced Physical Diagnosis; must have satisfactorily completed the second year of medical school

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**MED\_ID 5751: Pathophysiology I - Remediation**

Pathophysiology I - Remediation

**Credit Hours:** 6

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**MED\_ID 5752: Diagnosis Test/Med Decision - Remediation**

Diagnosis Test/Med Decision - Remediation

**Credit Hours:** 3

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**MED\_ID 5753: Pathophysiology II - Remediation**

Pathophysiology II - Remediation

**Credit Hours:** 6

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**MED\_ID 5755: Pathophysiology III - Remediation**

Pathophysiology III - Remediation

**Credit Hours:** 6

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**MED\_ID 5756: Clinical Practicum - Remediation**

Clinical Practicum - Remediation

**Credit Hours:** 3

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**MED\_ID 5757: Pathophysiology IV - Remediation**

Pathophysiology IV - Remediation

**Credit Hours:** 6

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**MED\_ID 5758: Physician as a Person - Remediation**

Physician as a Person - Remediation

**Credit Hours:** 3

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**MED\_ID 5850: Contemplating Medicine, Patients, Self and Society**

The purpose of the longitudinal COMPASS course is to foster the development of patient-centered physicians in relation to patients, self and society. This is accomplished through an innovative longitudinal small group experience using a variety of learning methods including group discussion, reflective writing, storytelling, reading and case problem solving. The small group membership includes students from each of the 4 medical school classes and 2 faculty Guides. Curricular themes and small group session titles for the 4 year course recur on a two year cycle. The content and focus of each session is unique. Students in the first, second and third years of medical school will receive a final course grade (satisfactory or unsatisfactory) at the end of their M4 year. The final course grade will reflect the student's performance in the small group sessions and performance on the capstone assignment.

**Credit Hour:** 1-5

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**MED\_ID 5950: Remediation of MED\_ID 5850**

Medical Students who receive an unsatisfactory grade in MED\_ID 5850 Contemplating Medicine, Patients, Self and Society will enroll for this course in order to remediate their grade.

**Credit Hour:** 1-5

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**MED\_ID 6030: SCC Advanced Biomedical Sciences Elective**

Students will work under the supervision of an MU faculty member at MU's Springfield Clinical Campus in a pre-approved learning experience. Activities that fulfill this requirement may include, but are not limited to: Anatomy dissection at Missouri State University (MSU), research project at a Springfield based clinical location or lab (Cox, Mercy, MSU), PBL case writing, and cross cultural medicine (global health study abroad). ABS elective content and requirements will be similar to those offered at MU's Columbia Clinical Campus.

**Credit Hours:** 5

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**MED\_ID 6031: SCC Advanced Clinical Selective**

Students will work under the supervision of a faculty preceptor at the Springfield Clinical Campus. Students will see patients in the outpatient clinic and/or inpatient hospital setting, perform a history and exam, and develop a patient-centered assessment and plan. They will then discuss their findings, assessment and plan with the faculty preceptor and go see the patient together. The student will complete oral patient presentations and document patient encounters in the medical record as directed by the faculty preceptor. Students will enhance their knowledge, skills, and

attitudes about patient-centered care through active participation in direct patient care activities while under the supervision of a faculty preceptor. Students will integrate previously acquired knowledge and concepts and apply them to the care and management of patients.

**Credit Hours:** 5

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**MED\_ID 6032: SCC General Elective**

Students will work under the supervision of a faculty preceptor at the Springfield Clinical Campus. Students will see patients in the outpatient clinic and/or inpatient hospital setting, perform a history and exam, and develop a patient-centered assessment and plan. They will then discuss their findings, assessment and plan with the faculty preceptor and go see the patient together. The student will complete oral patient presentations and document patient encounters in the medical record as directed by the faculty preceptor. Students will enhance their knowledge, skills, and attitudes about patient-centered care through active participation in direct patient care activities while under the supervision of a faculty preceptor. Students will integrate previously acquired knowledge and concepts and apply them to the care and management of patients.

**Credit Hours:** 5

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**MED\_ID 6040: SCC Advanced Clinical Surgical Selective**

Students will enhance their knowledge, skills, and attitudes about patient-centered care through active participation in direct patient care activities while under the supervision of a faculty preceptor. Students will integrate previously acquired knowledge and concepts and apply them to the care and management of patients.

**Credit Hours:** 5

**Recommended:** Successful completion of 5 of 7 core clerkships, including the Surgery clerkship. Additional department specific pre-requisites may apply

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**MED\_ID 6244: ABS Quality Improvement and Patient Safety Elective**

The 4th year student will work with leaders in the Office of Clinical Effectiveness to identify an improvement project to be conducted during the elective. Students will have self-paced readings/didactic expectations, and will be expected to review and report on medical literature relevant to the care process(es) targeted for improvement. To complete their project, the student will present the improvement work to patient safety and quality improvement leaders, as well as stakeholders in the care process(es) identified for improvement efforts.

**Credit Hours:** 5

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**MED\_ID 6390: ABS Individualized Study in Medicine-M1**

Goals/Objectives: Participate in PBL as a tutor under the guidance of an experienced faculty tutor. Review the literature appropriate to each case. Update one PBL case that is used in the course of the block OR update a problem solving exam OR write a new problem solving exam. Students must submit the case or exam electronically to the course coordinator. Evaluation: Student's performance as tutor will be evaluated by the supervising faculty member and the tutor group members. Notes: During a four-week block, the fourth year student will tutor an M-1 PBL group (Monday, Wednesday, & Friday mornings) under the supervision of a senior faculty member. Contact course coordinator for case update details. Submission date for case update is set two weeks after the tutoring session ends. The student will attend all tutor preparation meetings and prepare for PBL through reading, self-directed study and

discussions with faculty. Complete student mid-block and end-of-block evaluation as directed.

**Credit Hours:** 5

**Prerequisites:** M4s registering for PBL tutoring must be in good standing and not on probation. M4s must not have come before the CSP for an automatic vote for dismissal

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**MED\_ID 6391: ABS Individualized Study in Medicine-M2**

ABS Individualized Study in Medicine-M2

**Credit Hours:** 5

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**MED\_ID 6393: ABS Interdisciplinary Research**

ABS Interdisciplinary Research

**Credit Hour:** 5-10

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**MED\_ID 6394: ABS Cross-Cultural Medicine**

ABS Cross-Cultural Medicine

**Credit Hours:** 5

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**MED\_ID 6396: ABS Medical Practice Organization**

ABS Medical Practice Organization

**Credit Hour:** 5-10

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**MED\_ID 6397: ABS Academic Tutoring for M1/M2 Students**

ABS Academic Tutoring for M1/M2 Students

**Credit Hours:** 5

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**MED\_ID 6398: ABS County Public Health**

ABS County Public Health

**Credit Hours:** 5

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**MED\_ID 6399: ABS Case Writing**

ABS Case Writing

**Credit Hours:** 5

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**MED\_ID 6690: Elective Individual Study in Medicine - M1**

Elective Individual Study in Medicine - M1

**Credit Hours:** 5

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**MED\_ID 6691: Elective Individual Study in Medicine - M2**

Goals/Objectives: Participate in PBL as a tutor under the guidance of an experienced faculty tutor. Evaluations: the student's performance as tutor will be evaluated by the supervising faculty member and the tutor group members. Notes: During the four-week block, the fourth year student will tutor a M-2 PBL group (Tuesday and Thursday afternoons) under the supervision of a senior faculty member.

**Credit Hours:** 5

**Prerequisites:** M4s registering for PBL tutoring must be in good standing and not on probation. M4s must not have come before the CSP for an automatic vote for dismissal

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**MED\_ID 6692: Case/Exam Writing Elective**

The fourth year medical student will work as part of a team in order to develop learning materials for the first and second year students. Students will work closely with faculty advisors and clinical mentors to develop educationally sound learning materials. Under the guidance of faculty preceptors, medical students will author one original PBL case including a comprehensive tutor guide and multiple choice examination questions covering the case objectives, AND one original Clinical Reasoning Exam including an annotated key.

**Credit Hours:** 5

**Prerequisites:** fourth year medical student in good standing

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**MED\_ID 6693: Simulation Preparation for Internship**

This course is meant to increase the medical students' knowledge and skillsbase in preparation for the first year of internship. In order to accomplish this, the students will be exposed to a variety situations common to first year residents through activities created with simulation. Throughout the course, students will demonstrate how to provide effective and efficient patient-centered care, while improving their communication skills and professionalism with patients and other healthcare providers. Students will understand the role of simulation in medical education and develop skills in debriefing of scenarios throughout the course. At the end of the course, students will be expected to complete a simulation capstone project. Prerequisites: Class level: 4th year medical student. Approval by Simulation Director and Completion of all Core Clerkship Requirements.

**Credit Hours:** 5

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**MED\_ID 6694: Nutrition Elective**

The Nutrition 4-week elective is largely a customizable elective that can be designed to match a student's interest(s) with a wide range of mentored nutrition experiences. The experience will include some fixed elements such as participation in a weekly seminar series and/or weekly journal clubs in which the student will be expected to present research papers. Focused experiences can be designed in areas including, but not limited, to Medical Nutrition Therapy, General Dietetics, Inpatient TPN/ICU and enteral feeds, Research Nutrition Studies, and Bariatric Surgery Nutrition. A wide variety of clinical environments will be available (pediatric obesity/endocrinology, failure to thrive, gastroenterology, cancer, etc.). Students will learn using a variety of experiences, evidence-based materials, patient simulations, and case studies. Students will produce a final written product of a revised or new PBL case or a paper on a specific nutrition prescription for a given diagnosis.

**Credit Hours:** 5

**Prerequisites:** Successful completion of the first two years of medical school

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**MED\_ID 6925: Springfield Clinical Campus Elective**

Students will work under the supervision of a faculty preceptor at the Springfield Clinical Campus. Students will see patients in the outpatient clinic and/or inpatient hospital setting, perform a history and exam, and develop a patient-centered assessment and plan. They will then discuss their findings, assessment and plan with the faculty preceptor and go see the patient together. The student will complete oral patient presentations and document patient encounters in the medical record as directed by the faculty preceptor.

**Credit Hours:** 2

**Prerequisites:** successful completion of the first two years of medical school

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**MED\_ID 6934: Sexual and Gender Minority Health Issues Across the Lifecourse**

The purpose of this course is to increase student's familiarity with sexual and gender minority health issues likely to be seen in practice. Integral to the course structure is improved cultural competency in not only appropriate language and terms used within the community but also a sense of the social-cultural issues each generation has faced growing up in America.

**Credit Hours:** 2

**Prerequisites:** successful completion of the first two years of medical school

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## Medieval Renaissance Studies Courses

**MDVL\_REN 2004: Topics in Medieval and Renaissance Studies-Social Science**

Organized study of selected medieval and Renaissance topics. Subjects and earnable credit may vary from semester to semester. Topics announced at time of enrollment. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

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**MDVL\_REN 2005: Topics in Medieval and Renaissance Studies-Humanities**

Organized study of selected medieval and Renaissance topics. Subjects and earnable credit may vary from semester to semester. Topics announced at time of enrollment. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

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**MDVL\_REN 3004: Topics in Medieval and Renaissance Studies-Social Science**

Organized study of selected medieval and Renaissance topics. Subjects and earnable credit may vary from semester to semester. Topics announced at time of enrollment. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent

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**MDVL\_REN 3005: Topics in Medieval and Renaissance Studies-Humanities**

Organized study of selected medieval and Renaissance topics. Subjects and earnable credit may vary from semester to semester. Topics announced at time of enrollment. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent

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**MDVL\_REN 4104: Studies in Medieval and Renaissance Cultures-Social Science**

(cross-leveled with MDVL\_REN 7104). In-depth study of selected topics in medieval and Renaissance cultures. Subjects vary from semester to

semester. Topics announced at time of enrollment. May be repeated for credit with departmental consent.

**Credit Hours:** 3

**Prerequisites:** Junior standing or Instructor's consent

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**MDVL\_REN 4105: Studies in Medieval and Renaissance Cultures-Humanities**

(cross-leveled with MDVL\_REN 7105). In-depth study of selected topics in medieval and Renaissance cultures. Subjects vary from semester to semester. Topics announced at time of enrollment. May be repeated for credit with departmental consent.

**Credit Hours:** 3

**Prerequisites:** Junior standing or Instructor's consent

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**MDVL\_REN 4411: Studies in Medieval and Renaissance Languages**

(cross-leveled with MDVL\_REN 7411). Study of a medieval or early modern language.

**Credit Hours:** 3

**Prerequisites:** Instructors consent

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**MDVL\_REN 4535: Monastic Worlds**

(same as REL\_ST 4535; cross-leveled with MDVL\_REN 7535, REL\_ST 7535). Monastic Worlds is an experiential learning course designed to serve as a Humanities Field School in medieval and early modern studies. It will be taught by faculty from UMKC and UMC through the Intercampus Course Sharing initiative. The class introduces students to humanities research methodology and the religious history and culture of premodern Europe and the contemporary Midwest by using the monastic communities as a focal point to learn about musicology, history, art history, literature, and religion. Following two weeks of online course modules, students will travel to the Benedictine communities of Conception Abbey in Conception, Missouri and Mount Saint Scholastica's in Atchison, Kansas, for additional face-to-face classes and research projects. On-site, students will participate in communal living and attend face-to-face classes on the historical and cultural worlds of medieval and early modern Europe. They will practice ethnography through observation of and participation in communal life of prayer, study, book production, and labor. Students will also have the opportunity to work with the manuscripts and rare books owned by these communities and visit the largest reliquary collection in North America, housed at the nearby Benedictine community of the Sisters of Perpetual Adoration in Clyde, MO. This course has an associated fee. Contact teaching faculty for this year's fee details. Graded on A-F basis only.

**Credit Hours:** 3

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**MDVL\_REN 7104: Studies in Medieval and Renaissance Cultures-Social Science**

(cross-leveled with MDVL\_REN 4104). In-depth study of selected topics in medieval and Renaissance cultures. Subjects vary from semester to semester. Topics announced at time of enrollment. May be repeated for credit with departmental consent.

**Credit Hours:** 3

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**MDVL\_REN 7105: Studies in Medieval and Renaissance Cultures-Humanities**

(cross-leveled with MDVL\_REN 4105). In-depth study of selected topics in medieval and Renaissance cultures. Subjects vary from semester to semester. Topics announced at time of enrollment. May be repeated for credit with departmental consent.

**Credit Hours:** 3

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**MDVL\_REN 7411: Studies in Medieval and Renaissance Languages**

(cross-leveled with MDVL\_REN 4411). Study of a medieval or early modern language.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**MDVL\_REN 7535: Monastic Worlds**

(same as REL\_ST 7535; cross-leveled with MDVL\_REN 4535, REL\_ST 4535). Monastic Worlds is an experiential learning course designed to serve as a Humanities Field School in medieval and early modern studies. It will be taught by faculty from UMKC and UMC through the Intercampus Course Sharing initiative. The class introduces students to humanities research methodology and the religious history and culture of premodern Europe and the contemporary Midwest by using the monastic communities as a focal point to learn about musicology, history, art history, literature, and religion. Following two weeks of online course modules, students will travel to the Benedictine communities of Conception Abbey in Conception, Missouri and Mount Saint Scholastica's in Atchison, Kansas, for additional face-to-face classes and research projects. On-site, students will participate in communal living and attend face-to-face classes on the historical and cultural worlds of medieval and early modern Europe. They will practice ethnography through observation of and participation in communal life of prayer, study, book production, and labor. Students will also have the opportunity to work with the manuscripts and rare books owned by these communities and visit the largest reliquary collection in North America, housed at the nearby Benedictine community of the Sisters of Perpetual Adoration in Clyde, MO. This course has an associated fee. Contact teaching faculty for this year's fee details. Graded on A/F basis only.

**Credit Hours:** 3

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**MDVL\_REN 8411: Studies in Medieval and Renaissance Languages**

Study of a medieval or early modern language.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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## Microbiology Courses

**MICROB 2800: Microbiology for Nursing and Health Professions**

This course will provide basic principles for understanding microbial growth, function, and control. This includes a survey of microbial cellular structure/functions, immunology concepts, epidemiology, specimen handling, and causes of microbial disease (bacterial, viral, and parasitic). Material is presented in lecture and corresponding laboratory exercises that will allow students to explore the microbial world around them.

**Credit Hours:** 4

**Prerequisites:** The overall content is 'restricted to Freshman and sophomore Nursing and Health Related Professional students only'. Other inquires contact department

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**MICROB 3200: Medical Microbiology and Immunology**

Focus on medically important viruses, bacteria, fungi and parasites with emphasis on their disease causing potential and mechanisms. Introduction to cells and molecules of the immune system with emphasis on their role in fighting infectious diseases. Discussion of treatment and prevention strategies. Lecture material will be reinforced with laboratory demonstrations and hands-on exercises. The course is intended for preprofessional students.

**Credit Hours:** 4

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**MICROB 3800: Case-Based Microbiology: Assembling Systemic Health Connections**

Detailed infectious diseases across organ systems. The biological characteristics and pathologic mechanisms of infectious diseases caused by bacteria, viruses, fungi and parasites are explored in a case-based learning. Student-driven learning objectives for each case (to include microbiology, anatomy, physiology, pharmacology, technology and clinical LO's each case) help groups connect scientific information across disciplines.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

**Recommended:** MICROB 2800 or MICROB 3200, MPP 3202, and PTH\_AS 2201

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**MICROB 4300: Bacterial Pathogenesis**

(cross-leveled with MICROB 7404). This team taught course covers the biology and virulence mechanisms of bacterial pathogens, with emphasis on those causing human and zoonotic diseases. Topics covered include bacterial structure, genetics, physiology, and metabolism; antibiotic resistance; host-pathogen interactions; microbiomes and emerging pathogens.

**Credit Hours:** 2

**Prerequisites:** MICROB 3200 or equivalent. Consent from Course Director is required to insure academic readiness

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**MICROB 4303: Fundamental Virology**

(cross-leveled with MICROB 7303). Classification of viruses, life cycles, genome organization and expression, host-virus interactions, oncogenes and cellular transformation, viral pathogenesis, viral gene therapy approaches, strategies for anti viral therapy.

**Credit Hours:** 2

**Prerequisites:** undergraduates require instructor's consent. This course will include evaluation of current literature and require paper presentations

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**MICROB 4304: Immunology**

(cross-leveled with MICROB 7304). This is a comprehensive team-taught, basic immunology course covering cells and organs of the immune system, lymphocyte development, innate immunity, antibody production, antibody-antigen presentation, CD4+ and CD8+ T lymphocyte responses, cytokines, autoimmunity and immunodeficiency among other immunologically relevant topics. Completion of a biochemistry, genetics, or molecular biology course would be helpful. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** MICROB 3200 or BIOCHM 4270

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**MICROB 7101: Structure and Synthesis of Macro Molecules**

This multiple-instructor course is designed to provide students with a detailed understanding of the structure, function, and biophysical properties of bio-molecules. Principles and techniques of molecular biology related to the study of recombinant DNA and genetic analysis, protein structure, function and basic immunological principles will be covered. Admission is dependent on approval by course director.

**Credit Hours:** 2

**Prerequisites:** consent required

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**MICROB 7303: Fundamental Virology**

(cross-leveled with MICROB 4303). Classification of viruses, life cycles, genome organization and expression, host-virus interactions, oncogenes and cellular transformation, viral pathogenesis, viral gene therapy approaches, strategies for anti viral therapy.

**Credit Hours:** 2

**Prerequisites:** Undergraduates require instructor's consent. This course will include evaluation of current literature and require paper presentations

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**MICROB 7304: Immunology**

(cross-leveled with MICROB 4304). Covers innate immunity, antibodies, antigens, MHC, antigen presentation, lymphocyte development, antigen specific receptors, lymphocyte activation and differentiation, immune effector mechanisms, hypersensitivities, tolerance, autoimmunity, immunodeficiencies. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** MICROB 3200 or BIOCHM 4270 or BIOCHM 4272 or instructor's consent

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**MICROB 7404: Foundations in Bacteriology and Pathogenesis**

(cross-leveled with MICROB 4300). This team taught course covers the biology and virulence mechanisms of bacterial pathogens, with emphasis on those causing human and zoonotic disease. Topics covered include bacterial structure, genetics, physiology, and metabolism; antibiotic resistance; host-pathogen interactions; microbiomes and emerging pathogens.

**Credit Hours:** 3

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**MICROB 8050: Graduate Student Survival Skills**

This course is an introduction to inform new graduate students about the Microbiology program and provide them with the knowledge to access resources and information needed for a successful transition into their course work and research. The course will also focus on guidelines in selecting mentors and their relationships, time management, good notebook practices, presentation and posters, comprehensive exams, and computer skills needed. Graded on A-F basis only.

**Credit Hour:** 1

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**MICROB 9001: Topics in Microbiology**

Current topics, highly specialized topics taught infrequently, or courses taught by visiting professors.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**MICROB 9085: Problems in Microbiology**

Students assigned individual problems in microbiology for library or lab investigation. Graded on A-F basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**MICROB 9087: Seminar in Microbiology**

Presentation and critical discussion of student and faculty research, current literature, and guest lectures on subjects in various areas of microbiology. Graded on A-F basis only.

**Credit Hour:** 1

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**MICROB 9090: Research in Microbiology**

Original investigations in various areas of microbiology related to bacteria, fungi, rickettsia, viruses, and animal parasites, or immunology relating to antigens and antibodies of infectious and noninfectious nature designed for graduate thesis research. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**MICROB 9403: Advanced Medical Microbiology**

Similar to MICROB 4300 but treats medical microbiology and immunology in a more advanced manner. Methods of preparation and instruction stressed. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MICROB 9404: Advanced Bacterial Pathogenesis**

Literature based lectures and discussions covering current issues in bacterial pathogenesis. Focus is on understanding host-pathogen interactions that lead to disease. Topics include bacterial toxins and secreted virulence factors, intracellular bacterial growth and survival, host cell death and inflammatory pathways. Course will focus on a few model pathogens and discuss the molecular mechanisms of the pathogen and host that contribute to virulence. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** MICROB 7404

**Recommended:** MICROB 4304 or MICROB 7304

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**MICROB 9407: Advanced Immunology**

Literature based lectures and discussions covering current issues in molecular and cellular immunology. Topics include innate immunity; lymphocyte development; inflammation; tolerance, infection, and autoimmunity; mucosal immunity; asthma and allergy and tumor immunology.

**Credit Hours:** 4

**Prerequisites:** MICROB 4304 or MICROB 7304, or instructor's consent

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**MICROB 9432: Molecular Biology II**

(same as BIOCHM 9432 and BIO\_SC 9432). Detailed experimental analysis of eukaryotic cellular and molecular biology relevant to cellular and viral gene expression, post-transcriptional and post-translational modifications and genome replication. Models for developmental genetic



analysis and genetic determinants controlling developmental processes utilizing the current literature will be examined.

**Credit Hours:** 4

**Prerequisites:** MICROB 9430

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#### **MICROB 9449: Infection and Immunity**

Writing, discussion, literature driven course, covering topics that focus on the interface between infectious diseases, cancer and the immune system. May be repeated for credit. Graded A-F basis only.

**Credit Hours:** 4

**Prerequisites:** 2nd year Graduate student with bacteriology, virology, microbial pathogenesis and immunology background only. 1st year graduate students require instructor approval

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## **Military Science Courses**

#### **MIL\_SC 1100: Foundations of Officership**

Introduces students to issues and competencies that are central to a commissioned officer's responsibilities. Establish framework for understanding officership, leadership, and Army values followed and 'life skills' such as physical fitness and time management.

**Credit Hour:** 1

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#### **MIL\_SC 1110: Introductory Military Science Laboratory I**

Field application of skills taught in MIL\_SC 1100, to include leadership, land navigation, tactical skills and basic soldier skills.

**Credit Hour:** 1

**Recommended:** MIL\_SC 1100

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#### **MIL\_SC 1120: Basic Leadership**

Establishes foundation of basic leadership fundamentals such as problem solving, communication, briefings and effective writing, goal setting, techniques for improving listening and speaking skills and an introduction to counseling.

**Credit Hour:** 1

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#### **MIL\_SC 1130: Introductory Military Science Laboratory II**

Field application of skills taught in MIL\_SC 1120, to include leadership, land navigation, tactical skills and basic soldier skills.

**Credit Hour:** 1

**Recommended:** MIL\_SC 1120

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#### **MIL\_SC 1140: Introduction to Outdoor Adventure Skills**

This course is an entry-level outdoor education program designed to introduce students to general skills in outdoor adventure-type activities, team-building, leadership and physical fitness. This program emphasizes the importance of the individual's role within a team, problem-solving through critical thinking, improving oral and written communication skills, physical and mental resilience and demonstrating a commitment to lifelong learning. This course introduces students to several general concepts within outdoor education. Students will gain an understanding and appreciation of life-development skills through a series of real-world training labs. Subject materials will range from individual empowerment abilities to life-saving techniques. Through the usage of the experiential learning model, students will be introduced to new topics each week and

then will apply this knowledge in a practical application format. Graded on A-F basis only.

**Credit Hours:** 2

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#### **MIL\_SC 2200: Individual Leadership Studies**

Students identify successful leadership characteristics through observation of others and self through experimental learning exercises. Students record observed traits (good and bad) in a dimensional leadership journal and discuss observations in small group settings.

**Credit Hours:** 2

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#### **MIL\_SC 2210: Intermediate Military Science Laboratory I**

Progressively more challenging leadership scenarios presented in a field and classroom environment. Students practice basic military skills such as squad-level offensive and defensive operations. First aid topics and drill and ceremony are also taught.

**Credit Hour:** 1

**Recommended:** MIL\_SC 2200

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#### **MIL\_SC 2220: Leadership and Teamwork**

Study examines how to build successful teams, various methods for influencing action, effective communication in selling and achieving goals, the importance of timing the decision, creativity in the problem solving process, and obtaining team buy-in through immediate feedback.

**Credit Hours:** 2

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#### **MIL\_SC 2230: Intermediate Military Science Laboratory II**

Progressively more challenging leadership scenarios presented in a field and classroom environment. Students practice basic military skills such as platoon-level offensive and defensive operations. Practical application of night land navigation.

**Credit Hour:** 1

**Recommended:** MIL\_SC 2220

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#### **MIL\_SC 3160: Death by a Thousand Cuts: Counterinsurgency/ Insurgency the American Experience**

This course explores the problem of insurgency and counterinsurgency in terms of what we can learn from these conflicts. It examines counterinsurgency theory and practice, the Philippine Insurrection, Banana Wars, Vietnam War, Afghanistan, and Iraq.

**Credit Hours:** 3

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#### **MIL\_SC 3161: The American Experience in Vietnam**

This course was developed to provide students the opportunity to examine the American experience in the Vietnam War, to search for meanings in this experience, and to arrive at their own conclusions concerning the impact of the war upon the nation. Moreover, it challenges the students to think critically about war and the use of military power to settle differences between nations. May be repeated for credit.

**Credit Hours:** 3

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#### **MIL\_SC 3162: Counterinsurgency in Asia**

This course explores the problem of insurgency and counterinsurgency in Asia in terms of what we can learn from these conflicts. The course

examines the insurgency in the Philippine Insurrection 1899-1902, the Vietnam War, the Soviet-Afghan War, in Thailand, Sri Lanka and Malayan Emergency. May be repeated for credit.

**Credit Hours:** 3

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**MIL\_SC 3163: U.S. Military History in the Western Tradition**

Analysis of United States military history from the Colonial period to the present, (1609-2012). It is a comprehensive look into the evolution of warfare in America, military traditions and heritage, and technology. This course analyzes the following: American Revolution, War of 1812, Mexican American War, Civil War, Indian Wars, Spanish American War, World War I, Inter War Period, World War II, Korean War, Vietnam War, Gulf War, Afghanistan and Iraq. All cadets are required to take this course for commissioning. May be repeated for credit.

**Credit Hours:** 3

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**MIL\_SC 3164: Nation Building through a Barrel of a Gun**

(same as POL\_SC 3164). This course was developed to provide students the opportunity to examine the dilemmas of military intervention, nation-building/peacekeeping operations and exit strategies. This course is designed to challenge students to think critically and arrive at their own conclusions about the use of military power to settle differences between nations, and use of military forces to conduct nation building.

**Credit Hours:** 3

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**MIL\_SC 3165: 'Chasing Ghost', The History of Irregular Warfare**

(same as POL\_SC 3165). This course explores the history of Irregular Warfare from the guerrilla perspective. The course examines the works of Mao Tse-Tung, Che Guevara, T.E. Lawrence and several other Guerrilla Leaders. You will analyze the evolution of Irregular Warfare through history and understand the complexities associated with the difficulties of countering and defeating Irregular Warfare. Graded on A-F basis only.

**Credit Hours:** 3

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**MIL\_SC 3230: Leadership and Problem Solving**

Students conduct self-assessment of leadership style, develop personal fitness regimen, and learn to plan and conduct individual/small unit tactical training while testing reasoning and problem-solving techniques. Students receive direct feedback on leadership abilities. Student must be a contracted cadet to enroll in this course.

**Credit Hours:** 3

**Recommended:** MIL\_SC 1100 and MIL\_SC 2200

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**MIL\_SC 3240: Leadership and Ethics**

Examines the role communications, values, and ethics play in effective leadership. Topics include ethical decision-making, considerations of others, spirituality in the military, and survey Army leadership doctrine. Emphasis on improving oral and written communication ability.

**Credit Hours:** 3

**Recommended:** MIL\_SC 3230

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**MIL\_SC 3250W: Leadership and Management**

Develops student proficiency in planning and executing complex operations, functioning as a member of a staff, and mentoring

subordinates. Students explore training management, methods of effective staff collaboration, and developmental counseling techniques.

**Credit Hours:** 3

**Recommended:** MIL\_SC 3240

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**MIL\_SC 3260: Officership**

Study includes case study analysis of military law and practical exercises on establishing an ethical command climate, service as an officer; capstone exercise. Leadership lab Students must complete a semester long Senior Leadership Project that requires them to plan, organize, collaborate, analyze, and demonstrate their leadership skills.

**Credit Hours:** 3

**Recommended:** MIL\_SC 3250W

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**MIL\_SC 3270: Advanced Transition to Lieutenant I**

Independent research, analysis and monthly discussion on related military topics. Personal, academic and professional goals and objectives, development and maintenance of an officer evaluation report support form.

**Credit Hours:** 3

**Prerequisites:** MIL\_SC 3250W, MIL\_SC 3260

**Recommended:** department head permission

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**MIL\_SC 3280: Advanced Transition to Lieutenant II**

Independent research, analysis and monthly discussion on related military topics. Personal academic and professional goals and objectives, development and maintenance of an officer evaluation report support form.

**Credit Hours:** 3

**Prerequisites:** MIL\_SC 3250W, MIL\_SC 3260

**Recommended:** department head permission

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## MU Informatics Institute Courses

**INFOINST 7001: Topics in Informatics**

This course provides the overview to the informatics foundations as well as introduces topics regarding the current informatics-driven areas of science. Graded on A-F basis only.

**Credit Hours:** 3

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**INFOINST 7002: Introduction to Informatics**

This course provides an overview to informatics foundations in addition to introducing topics regarding the current informatics-driven areas of science. Topics to include: recent trends in informatics; database management and Big Data analytics; data visualization, bioinformatics, health informatics, geoinformatics, nursing informatics, social informatics, and legal informatics. Graded on A-F only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**INFOINST 7010: Computational Methods in Bioinformatics**

(same as CMP\_SC 7010). Fundamental concepts and basic computational techniques for mainstream bioinformatics problems. Emphasis placed on computational aspect of bioinformatics including

formulation of a biological problem, design of algorithms, confidence assessment of software development. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4050 and STAT 4710

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#### **INFOINST 7430: Introduction to Health Informatics**

Introduction to the use of clinical information systems in healthcare. Topics include clinical data, standards, electronic medical records, computerized provider order entry, decision support, telemedicine, and consumer applications. Graded on A-F basis only

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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#### **INFOINST 8001: Topics in Informatics**

Organized study of selected topics. Subjects and earned credit may vary from semester to semester. Repeatable upon consent of department. Graded A-F basis only.

**Credit Hours:** 3

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#### **INFOINST 8005: Applications of Bioinformatics Tools in Biological Research**

This service course is designed for bioinformatics non-major students from life sciences, biological sciences, plant sciences, animal sciences, biochemistry, medicine fields and others. This course will provide an introduction to the current state of the art topics in bioinformatics and the computational tools available to the research community for application to biological research questions. Students will learn how to effectively utilize the tools and software packages to analyze data and visualize the results. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

**Recommended:** Graduate students are expected to have basic knowledge in algorithms, databases, and molecular biology

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#### **INFOINST 8085: Problems in Informatics**

Independent, directed study on a topic in the area of informatics. Some sections may be graded A-F or S/U.

**Credit Hour:** 1-6

**Prerequisites:** Instructor's consent required

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#### **INFOINST 8087: Seminar in Informatics**

Students attend and/or present at informatics seminars approved by the institute. Graded on S/U basis only.

**Credit Hour:** 0.5-1

**Prerequisites:** instructor's consent required

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#### **INFOINST 8088: Lab Rotations in Informatics**

This course is designed to train students in both computational/informatics and life science/hospital laboratories to foster critical research collaborations in biomedical informatics. Students are expected to write reports with their advisors and the mentor of the rotation. Graded on S/U basis only.

**Credit Hour:** 1-3

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#### **INFOINST 8090: Dissertation (pre-candidacy) Research in Informatics**

Research leading to dissertation before comprehensive examination. Graded on S/U basis only.

**Credit Hour:** 1-99

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#### **INFOINST 8150: Integrative Methods in Bioinformatics**

(same as CMP\_SC 8150). With biology entering the Big Data era, scientists are overwhelmed with the amount and the diversity of the experimental, statistical, and omics data about the biological objects they study. As a result, the frontier bioinformatics and computational genomics methods have started to utilize a so-called integrative approach, where the computational and informatics methods are used to combine the high-throughput and low-throughput data. The main objective of this course is to teach students how to utilize bioinformatics and programming techniques for such multi-omics data integration. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOINST 8005 or instructor's permission

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#### **INFOINST 8190: Computational Systems Biology**

(same as CMP\_SC 8390). This course covers current theories and methods in the modeling and analysis of high-throughput experiments such as microarrays, proteomics, and metabolomics. Topics include the inference of causal relations from experimental data and reverse engineering of cellular systems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOINST 7010 or CMP\_SC 7010; INFOINST 8010

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#### **INFOINST 8310: Computational Genomics**

(same as CMP\_SC 8130). This course introduces computational concepts and methods of genomics to students. The course covers genome structure, database, sequencing, assembly, annotation, gene and RNA finding, motif and repeats identification, single nucleotide polymorphism, and epigenomics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOINST 7010 or CMP\_SC 7010

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#### **INFOINST 8350: Integrative Methods in Bioinformatics**

Course objective is to introduce the most popular experimental methods from the point of view of the information sources that can be used in. Students will learn to use data obtained directly from biological experiments and how to suggest new experiments to improve results. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOINST 7010 or CMP\_SC 7010

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#### **INFOINST 8390: Computational Systems Biology**

This course covers current theories and methods in the modeling and analysis of high-throughput experiments such as microarrays, proteomics, and metabolomics. Topics include the inference of casual relations from experimental data and reverse engineering of cellular systems. Graded A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOINST 7010 or CMP\_SC 7010; INFOINST 8010 or instructors consent

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**INFOINST 8450: Precision Medicine Informatics**

(same as PTH\_AS 7450). This course will introduce students with the theoretical and practical aspects of precision medicine informatics. Topics include: complex diseases, computational genomics/proteomics, informatics of molecular interactions and biological pathways, somatic mutations, signal transduction and cancer, biomarker discovery, machine learning and data mining for PMI, networks methods for PMI, knowledge representation and reasoning for PMI. The course will consist of a set of didactic lectures, computational assignments, in-class demonstrations of PMI methods and discussions of recent publications.

**Credit Hours:** 3

**Prerequisites:** INFOINST 8005 with C or better or INFOINST 7010 with C or better or instructor's consent

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**INFOINST 8810: Research Methods in Informatics**

Research Methods in Health and Bioinformatics is a writing intensive course that provides students with an understanding of research proposal development, literature searching, research synthesis, research designs, evaluation methods, and ethics. Graded A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Second semester or later in PhD program or instructor's consent

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**INFOINST 8870: Knowledge Representation in Biology and Medicine**

The main topics presented in the course are: logic systems, knowledge representation methods, production systems and representation of statistical and uncertain knowledge. Graded A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HMI 7430 and HMI 7440

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**INFOINST 8880: Machine Learning Methods for Biomedical Informatics**

(same as CMP\_SC 8180) This course teaches statistical machine learning methods and their applications in biomedical informatics. The course covers theories of advanced statistical machine learning methods and teaches how to develop machine learning methods to solve biomedical problems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 7050 and INFOINST 7010 or CMP\_SC 7010 or INFOINST 8005

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**INFOINST 9090: Dissertation (post-candidacy) Research in Informatics**

Research leading to Ph.D. dissertation after comprehensive examination. Graded on S/U basis only.

**Credit Hour:** 1-99

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## Music-Applied Music Courses

**MUS\_APMS 1435: Studio Instruction for Majors**

Acceptable as a secondary applied subject on B.S. in music education and B.M. degrees. Materials varies according to educational purpose. May be repeated for credit.

**Credit Hour:** 1

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**Prerequisites:** instructor's consent

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**MUS\_APMS 2455: Studio Instruction**

Credit accepted toward all undergraduate music and music education degrees. May be repeated for credit.

**Credit Hour:** 1-5

**Prerequisites:** instructor's consent

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**MUS\_APMS 3455: Studio Instruction**

Accepted as upperclass credit only in Music Education, music theory, history, or composition. May be repeated for credit.

**Credit Hour:** 1-3

**Prerequisites:** 8 hours and 4 semesters of MUS\_APMS 2455 or equivalent; audition by committee, and instructor's consent

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**MUS\_APMS 3970: Junior Recital**

Preparation and presentation of Junior Recital. Appropriate applied music course to be taken concurrently. May be repeated for credit. Each recital must be approved by a committee at least two weeks before the recital.

**Credit Hour:** 1

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**MUS\_APMS 4455: Studio Instruction**

For B.M. degrees in performance. Study of pedagogy in studio class. May be repeated for credit.

**Credit Hour:** 1-5

**Prerequisites:** 8 hours and 4 semesters of MUS\_APMS 2455; audition; instructor's consent

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**MUS\_APMS 4970: Senior Recital**

Preparation and presentation of Senior Recital. Appropriate applied music course to be taken concurrently. May be repeated for credit. Each recital must be approved by a committee at least two weeks before the recital.

**Credit Hour:** 1

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**MUS\_APMS 7435: Studio Instruction**

For music teachers needing instruction in secondary instruments or voice. Maybe repeated for credit.

**Credit Hour:** 1

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**MUS\_APMS 7455: Studio Instruction**

For graduate credit on M.A., M.Ed., and Ph.D. degrees. Study of pedagogy in studio class. May be repeated for credit.

**Credit Hour:** 1-5

**Prerequisites:** audition; instructor's consent

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**MUS\_APMS 8455: Studio Instruction**

Required for graduate credit as major applied study on M.M. degree. Acceptable for graduate credit on M.A., M.Ed., Ed.D., and Ph.D. degrees. Maybe repeated for credit.

**Credit Hour:** 1-5

**Prerequisites:** audition by committee and instructor's consent

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**MUS\_APMS 8970: Graduate Recital**

Preparation and presentation of Graduate Recital. Appropriate applied music course to be taken concurrently. May be repeated for credit. Each recital must be approved by a committee at least two weeks before the recital.

**Credit Hour:** 1

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**Music-Courses for Non-Majors Courses**

**MUSIC\_NM 1005: Topics in Music-Humanities**

Organized study of selected topics. Subjects vary from semester to semester. May be repeated once for additional credit with departmental consent.

**Credit Hour:** 1-3

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**MUSIC\_NM 1085: Problems in Music**

Independent investigation leading to a paper project. Sections are: Music Theory, Music Composition, Music History, Music Performance/Pedagogy. May be repeated for credit.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**MUSIC\_NM 1211: Fundamentals of Music I**

Introduction to rhythmic, melodic, harmonic, and structural elements of music. Designed for non-music majors. No credit for music majors or minors.

**Credit Hours:** 2

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**MUSIC\_NM 1214: Songwriting and Beat Making**

Introductory course into the world of creating music that starts from the very beginnings of melody, harmony, and form to a finished, recorded product ready to be released.

**Credit Hours:** 3

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**MUSIC\_NM 1300: Experiencing Music Through Concert Attendance**

Development of music listening skills through concert attendance, reading and class attendance.

**Credit Hour:** 1

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**MUSIC\_NM 1310: Masterpieces of Western Music**

Introduction to the Western fine-art tradition through the study of representative masterworks, emphasis on developing listening skills; directed to non-majors.

**Credit Hours:** 3

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**MUSIC\_NM 1311: Jazz, Pop, and Rock**

Historical introduction to jazz (to approximately 1970) and the American popular song, including rock and roll (to approximately 1980); directed to non-majors.

**Credit Hours:** 3

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**MUSIC\_NM 1313: Introduction to World Music**

Introduction to the musical traditions of selected non-Western societies; emphasis on developing listening skills; directed to non-majors, but music majors may enroll.

**Credit Hours:** 3

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**MUSIC\_NM 1314: Orchestral Masterpieces**

In-depth study of selected symphonic works of masters from Joseph Haydn to Aaron Copland. Students develop critical listening skills to identify orchestral instruments and perceive the structure and character of selected orchestral works. Directed to non-music majors. Graded on A-F basis only.

**Credit Hours:** 3

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**MUSIC\_NM 1315: Musical Profile-Bach**

Systematic study of the music of J.S. Bach directed to the general student. Graded on A-F basis only.

**Credit Hour:** 1

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**MUSIC\_NM 1316: Music Profile--Wolfgang A. Mozart**

A systematic introduction to the music of Wolfgang Amadeus Mozart. Graded on A-F basis only.

**Credit Hour:** 1

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**MUSIC\_NM 1318: Music Profile--Claude Debussy**

A systematic introduction to the music of Claude Debussy. Graded on A-F basis only.

**Credit Hour:** 1

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**MUSIC\_NM 1320: Musical Profile-Copland**

Systematic study of the music of Aaron Copland directed to the general student. Graded on A-F basis only.

**Credit Hour:** 1

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**MUSIC\_NM 1330: Introduction to African-American Music**

Introduction to the history and scholarship of African American music from eighteenth through twentieth centuries. Focus on African legacies and retentions, slave culture, the black church, minstrelsy, folk traditions, spirituals, ragtime, blues, jazz, soul, R&B, and hip hop.

**Credit Hours:** 3

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**MUSIC\_NM 1335: Introduction to Soul and Country**

(same as BL\_STU 1335). Examination of musical cultures signified by 'soul' and 'country'. Study of the evolution and aesthetics of these genres and how they deal with concepts like identity, class, race, and ethnicity; gender and sexuality; politics and patriotism.

**Credit Hours:** 3

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**MUSIC\_NM 1445: Studio Instruction**

Acceptable for non-majors and majors requiring a half-hour lesson with instructor's consent. May be repeated for credit.

**Credit Hour:** 1

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**MUSIC\_NM 1608: Beginning Piano Class**

For non-music majors only.

**Credit Hour:** 1

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**MUSIC\_NM 1609: Intermediate Piano Class**

For non-music majors only. Continuation of MUSIC\_NM 1608.

**Credit Hour:** 1

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**MUSIC\_NM 1612: Elementary Folk Guitar Class**

Teaching correct hand position, strum patterns, and chords needed for accompaniment of popular and folk songs.

**Credit Hour:** 1

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**MUSIC\_NM 1618: Basic Musicianship**

Development of musicianship through music reading, playing, creating, and perceptive listening, including study of pitch, rhythm, structure, style, expressive and interpretive elements, and related vocabulary. No credit for music majors or minors or students who have completed MUSIC\_NM 1211 or MUSIC\_NM 1212.

**Credit Hours:** 3

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**MUSIC\_NM 1651: Voice Class I**

Fundamentals of singing: posture, breath support, control, vocalization, concepts of tone quality, placement and resonance. Literature selected for students with no previous vocal training. Adapted to needs of drama and other interdisciplinary students.

**Credit Hour:** 1

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**MUSIC\_NM 2306: Perceiving Musical Traditions and Styles**

An introduction to music from the late Baroque to the present day, including fine art, folk, and popular music. Designed to serve as a foundation for developing knowledge and skills of musical perception that will eventually lead to thoughtful written commentary on musical performances. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**MUSIC\_NM 2306H: Perceiving Musical Traditions and Styles - Honors**

An introduction to music from the late Baroque to the present day, including fine art, folk, and popular music. Designed to serve as a foundation for developing knowledge and skills of musical perception that will eventually lead to thoughtful written commentary on musical performances. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000. Honors eligibility required

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**MUSIC\_NM 2310: Live Music: Up Close and Personal**

Study of classical chamber music from 1770-present through live performances. Artistic, cultural and historical contexts; development of listening skills and basic music vocabulary. No credit for music majors and music minors.

**Credit Hour:** 1

**Recommended:** Humanities credit for non-music students

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**MUSIC\_NM 2320: History of the Classical Guitar**

Historical development of the classical guitar and guitar music from 1400 to today.

**Credit Hours:** 2

**Recommended:** Humanities credit for any and all non-music majors

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**MUSIC\_NM 2445: Studio Instruction for Non-Majors**

Acceptable for non-majors only. May be repeated for credit.

**Credit Hour:** 1-2

**Prerequisites:** audition by examining committee and instructor's consent

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**MUSIC\_NM 4445: Studio Instruction for Non-Majors**

Acceptable for non-majors only. May be repeated for credit.

**Credit Hour:** 1-2

**Prerequisites:** audition by examining committee and instructor's consent

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**MUSIC\_NM 7445: Studio Instruction for Non-Majors**

Acceptable for graduate s credit for non-majors only. May be repeated for credit.

**Credit Hour:** 1-2

**Prerequisites:** instructor's consent

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## Music-Ensemble Courses Courses

**MUS\_ENS 1841: Instrumental Ensemble**

Provides experience in instrumental performance and repertory. Open to all MU students by audition. May be repeated for credit. Enrollment in Marching Band is limited to a maximum of five semesters. Sections are: Philharmonic Orchestra, Chamber Orchestra, Symphonic Band, Wind Ensemble, Concert Band, Varsity Band, Studio Jazz Ensemble, Jazz Lab Band, Marching Band. Some sections may be graded on an S/U or A-F basis only.

**Credit Hour:** 0-1

**Prerequisites:** Audition

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**MUS\_ENS 1842: Choral Ensemble**

Provides experience in choral performance and repertory. Open to all MU students. May be repeated for credit. Sections are: University Singers, Chamber Singers, Choral Union, Vocal Jazz Ensemble, Concert Chorale, Men's Chorus, Women's Chorus. Some sections may be graded on an S/U or A-F basis only.

**Credit Hour:** 0-1

**Prerequisites:** audition required for all but Choral Union

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**MUS\_ENS 1846: Chamber Music**

Preparation and performance of chamber music. May be repeated for credit. Sections are: String Ensemble, Woodwind Ensemble, Brass Ensemble, Percussion Ensemble. Jazz Combo. Some sections may be graded on an S/U or A-F basis only.

**Credit Hour:** 0-1

**Prerequisites:** audition and instructor's consent

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**MUS\_ENS 1865: Opera Workshop**

Study, preparation and performance of selected operatic or musical theatre work in staged or concert versions. Open to all MU students by audition. Credit arranged; may be repeated for credit. Some sections may be graded on an S/U or A-F basis only.

**Credit Hour:** 0-1

**Prerequisites:** audition and instructor's consent

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**MUS\_ENS 4866: Musical Theatre Performance**

(same as THEATR 4460). A practical study for the actor of theatrical songs through character analysis, lyric interpretation, and movement. A performance course.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_ENS 8841: Instrumental Ensemble**

Research, preparation and performance of instrumental compositions. May be repeated for credit. Sections and credit hours are: Philharmonic Orchestra, Chamber Orchestra, Symphonic Band, Wind Ensemble, Concert Band, Studio Jazz Ensemble, Jazz Lab Band, Marching Band. Some sections may be graded on an S/U or A-F basis only.

**Credit Hour:** 0-1

**Prerequisites:** audition and instructor's consent

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**MUS\_ENS 8842: Choral Ensemble**

Research, preparation and performance of choral compositions. May be repeated for credit. Sections are: University Singers, Chamber Singers, Choral Union, Vocal Jazz Ensemble, Concert Choral, Men's Chorus, Women's Chorus. Some sections may be graded on an S/U or A-F basis only.

**Credit Hour:** 0-1

**Prerequisites:** audition and instructor's consent

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**MUS\_ENS 8846: Advanced Chamber Ensemble**

Study, preparation and performance of chamber music. May be repeated for credit. Sections are: String Ensemble, Woodwind Ensemble, Brass Ensemble, Percussion Ensemble, Jazz Combo. Some sections may be graded on an S/U or A-F basis only.

**Credit Hour:** 0-1

**Prerequisites:** audition and instructor's consent

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**MUS\_ENS 8865: Advanced Opera Workshop**

Study, preparation and performance of selected operatic or musical theatre works in staged or concert versions. Credit arranged; may be repeated for credit. Some sections may be graded on an S/U or A-F basis only.

**Credit Hour:** 0-2

**Prerequisites:** audition and instructor's consent

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## Music-General Courses

**MUS\_GENL 1091: Recital Attendance for Undergraduate Music Majors**

Required attendance of eleven music events from the Music Department listing. 0 credit, and may be repeated until the total degree requirement is satisfactorily met. No tuition charged. Graded on S/U basis only.

**Credit Hours:** 0

**Prerequisites:** Undergraduate music or music education majors only

---

**MUS\_GENL 3085: Problems in Music**

Independent investigation leading to a paper or project. May be repeated for credit. Sections are: Music Theory, Music Composition, Music History, Music Performance/Pedagogy.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**MUS\_GENL 3085W: Problems in Music - Writing Intensive**

Independent investigation leading to a paper or project. May be repeated for credit. Sections are: Music Theory, Music Composition, Music History, Music Performance/Pedagogy.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**MUS\_GENL 4005: Topics in Music-Humanities**

Organized study of selected topics in music. Subjects and credit variable. May be repeated for additional credit with departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** junior standing in Music and instructor's consent

---

**MUS\_GENL 4005W: Topics in Music-Humanities - Writing Intensive**

Organized study of selected topics in music. Subjects and credit variable. May be repeated for additional credit with departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** junior standing in Music and instructor's consent

---

**MUS\_GENL 4029: Music Travel Course**

(cross-leveled with MUS\_GENL 7029). Experience designed to broaden music students' perspectives on music in different social and/or cultural context(s). Participant bears cost of the course.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

---

**MUS\_GENL 4510: Career Development for Musicians**

(cross-leveled with MUS\_GENL 7510). Examination of professional opportunities available in the Creative Economy; development of a framework for career planning, professional portfolio, and personal business plan.

**Credit Hours:** 2

**Prerequisites:** sophomore standing and instructor's consent

---

**MUS\_GENL 4512: Principles of Arts Entrepreneurship**

(cross-leveled with MUS\_GENL 7512). Provisions of a solid foundation of the core principles of entrepreneurial practice: creation of new ventures, the decisions leading to their development, and the factors that lead

to their success. Students identify a career objective and develop a framework for achieving it.

**Credit Hours:** 2

**Prerequisites:** MUS\_GENL 4510; sophomore standing or instructor's consent

---

**MUS\_GENL 4514: Arts Marketing**

(cross-leveled with MUS\_GENL 7514). Exploration of marketing the arts in the 21st Century. Students formulate a marketing plan for a project or career goal, including establishing a competitive advantage, identifying target markets, formulating marketing strategy, and measuring outcomes.

**Credit Hour:** 1

**Prerequisites:** MUS\_GENL 4510; Sophomore standing or instructor's consent

---

**MUS\_GENL 4516: Grant Writing for the Arts**

(cross-leveled with MUS\_GENL 7516). Exploration of the nuts and bolts of grant writing, including resources for freelance performers and teachers, and alternative fundraising strategies for individual venture ideas. Students identify a grant opportunity and draft a funding proposal for a real or imagined project.

**Credit Hour:** 1

**Prerequisites:** MUS\_GENL 4510; sophomore standing or instructor's consent

---

**MUS\_GENL 4518: Arts Industry Survey**

(cross-leveled with MUS\_GENL 7518). In-depth survey of the commercial arts industry world, with emphasis on career opportunities within the recording, performing, music retail, and music management sectors.

**Credit Hour:** 1

**Prerequisites:** MUS\_GENL 4510 and sophomore standing

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**MUS\_GENL 4520: Non-Profit Management in the Arts**

(cross-leveled with MUS\_GENL 7520). Introduction to management strategy and its application within the not-for-profit arts sector.

**Credit Hour:** 1

**Prerequisites:** MUS\_GENL 4510, sophomore standing or instructor's consent

---

**MUS\_GENL 4522: Community Engagement in the Arts**

(cross-leveled with MUS\_GENL 4522). Introduction to community-based arts and their relationship to personal branding in the non-profit arts sector.

**Credit Hour:** 1

**Prerequisites:** MUS\_GENL 4510, sophomore standing, or instructor's consent

---

**MUS\_GENL 4530: Leadership, Advocacy, and Policy in the Arts**

(cross-leveled with MUS\_GENL 7530). Seminar investigating advocacy methods, the application of leadership within non-profit arts organizations, arts policy and implications for artists in the 21st century. Writing and research-based work is a heavy component.

**Credit Hour:** 1

**Prerequisites:** MUS\_GENL 4510 and sophomore standing

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**MUS\_GENL 4540: Music Entrepreneurship Practicum**

(cross-leveled with MUS\_GENL 7540). Students either A) design and execute an entrepreneurial music leadership project in the community, or B) complete an internship (and accompanying report) with an approved partner organization, supervised by the instructor.

**Credit Hour:** 1-2

**Prerequisites:** MUS\_GENL 4510, sophomore standing or instructor's consent

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**MUS\_GENL 4550: Movement and Wellness for Musicians**

(cross-leveled with MUS\_GENL 7550). Students will actively engage with various somatic practices with the goal of holistically improving musical performance.

**Credit Hour:** 1

**Prerequisites:** Instructor's consent

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**MUS\_GENL 7005: Topics in Music**

Organized study of selected topics in music. Subjects and credit variable. May be repeated with departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** departmental consent

---

**MUS\_GENL 7029: Music Travel Course**

(cross-leveled with MUS\_GENL 4029). Experience designed to broaden music students' perspectives on music in different social and/or cultural context(s). Participant bears cost of the course.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

---

**MUS\_GENL 7510: Career Development for Musicians**

(cross-leveled with MUS\_GENL 4510). Examination of professional opportunities available in the Creative Economy; development of a framework for career planning, professional portfolio, and personal business plan.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

---

**MUS\_GENL 7512: Principles of Arts Entrepreneurship**

(cross-leveled with MUS\_GENL 4512). Provision of a solid foundation of the core principles of entrepreneurial practice: creation of new ventures, the decisions leading to their development, and the factors that lead to their success. Students identify a career objective and develop a framework for achieving it.

**Credit Hours:** 2

**Prerequisites:** MUS\_GENL 7510 and instructor's consent

---

**MUS\_GENL 7514: Arts Marketing**

(cross-leveled with MUS\_GENL 4514). Exploration of marketing the arts in the 21st Century. Students formulate a marketing plan for a project or career goal, including establishing a competitive advantage, identifying target markets, formulating marketing strategy, and measuring outcomes.

**Credit Hour:** 1

**Prerequisites:** MUS\_GENL 7510 and instructor's consent



---

**MUS\_GENL 7516: Grant Writing for the Arts**

(cross-leveled with MUS\_GENL 4516). Explorations of the nuts and bolts of grant writing, including resources for freelance performers and teachers, and alternative fundraising strategies for individual venture ideas. Students identify a grant opportunity and draft a funding proposal for a real or imagined project.

**Credit Hour:** 1

**Prerequisites:** MUS\_GENL 7510; instructor's consent

---

**MUS\_GENL 7518: Arts Industry Survey**

(cross-leveled with MUS\_GENL 4518). In-depth survey of the commercial arts industry world, with emphasis on career opportunities within the recording, performing, music retail, and music management sectors.

**Credit Hour:** 1

**Prerequisites:** MUS\_GENL 7510 or instructor's consent

---

**MUS\_GENL 7520: Non-Profit Management in the Arts**

(cross-leveled with MUS\_GENL 4520). Introduction to management strategy and its application within the not-for-profit arts sector.

**Credit Hour:** 1

**Prerequisites:** MUS\_GENL 7510 or instructor's consent

---

**MUS\_GENL 7522: Community Engagement in the Arts**

(cross-leveled with MUS\_GENL 4522). Introduction to community-based arts and their relationship to personal branding in the non-profit arts sector.

**Credit Hour:** 1

**Prerequisites:** MUS\_GENL 7510 or instructor's consent

---

**MUS\_GENL 7530: Leadership, Advocacy, and Policy in the Arts**

(cross-leveled with MUS\_GENL 4530). Seminar investigating advocacy methods, the application of leadership within non-profit arts organizations, arts policy and implications for artists in the 21st century. Writing and research-based work is a heavy component.

**Credit Hour:** 1

**Prerequisites:** MUS\_GENL 7510 or instructor's consent

---

**MUS\_GENL 7540: Music Entrepreneurship Practicum**

(cross-leveled with MUS\_GENL 4540). Students either A) design and execute an entrepreneurial music leadership project in the community, or B) complete an internship (and accompanying report) with an approved partner organization, supervised by the instructor.

**Credit Hour:** 1-2

**Prerequisites:** MUS\_GENL 7510 or instructor's consent

---

**MUS\_GENL 7550: Movement and Wellness for Musicians**

(cross-leveled with MUS\_GENL 4550). Students will actively engage with various somatic practices with the goal of holistically improving musical performance.

**Credit Hour:** 1

**Prerequisites:** Instructor's consent

---

**MUS\_GENL 8085: Problems in Music**

Independent investigation leading to a paper or project. May be repeated for credit. Sections are: Music Theory, Music Composition, Music History, Music Performance/Pedagogy.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**MUS\_GENL 8090: Research in Music**

Thesis course. May be repeated for additional credit. Sections are: Music Theory, Music Composition, Music History. Performance/Pedagogy. Graded on S/U basis only.

**Credit Hour:** 1-99

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## Music-Instrumental And Vocal Repertory Courses

**MUS\_I\_VR 3753: Piano Literature I**

Survey of keyboard music from ca. 1600 to ca. 1800.

**Credit Hours:** 2

**Prerequisites:** junior standing and instructor's consent

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**MUS\_I\_VR 3753W: Piano Literature I - Writing Intensive**

Survey of keyboard music from ca. 1600 to ca. 1800.

**Credit Hours:** 2

**Prerequisites:** junior standing and instructor's consent

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**MUS\_I\_VR 3754: Piano Literature II**

Survey of keyboard music from Beethoven's time to the present.

**Credit Hours:** 2

**Prerequisites:** MUS\_I\_VR 3753 or instructor's consent

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**MUS\_I\_VR 4767: Vocal Literature I**

(cross-leveled with MUS\_I\_VR 7767). Introduction to and study of song literature with emphasis on style and interpretation. Prerequisites: junior standing

**Credit Hours:** 2

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**MUS\_I\_VR 4768: Vocal Literature II**

Continuation of MUS\_I\_VR 4767.

**Credit Hours:** 2

**Prerequisites:** MUS\_I\_VR 4767 or instructor's consent

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**MUS\_I\_VR 4776: Orchestral Excerpts**

(cross-leveled with MUS\_I\_VR 7776). Study and preparation of selected excerpts from the standard audition repertoire, culminating in a mock audition. May be repeated for credit.

**Credit Hour:** 1

**Prerequisites:** Instructor's consent required

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**MUS\_I\_VR 4780: Classical Guitar Repertory I**

(cross-leveled with MUS\_I\_VR 7780). Survey of guitar repertory and history from 1400 to present.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**MUS\_I\_VR 4781: Classical Guitar Repertory II**

(cross-leveled with MUS\_I\_VR 7781). Continued study of guitar repertory from 1400 to present, with emphasis on organological development of the guitar and performance practice.

**Credit Hour:** 1

**Prerequisites:** MUS\_I\_VR 4780; instructor's consent

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**MUS\_I\_VR 7767: Advanced Vocal Literature I**

Study of specific aspects of vocal repertory. Individual projects in research, analysis and performance.

**Credit Hours:** 3

**Prerequisites:** MUS\_APMS 7455 or instructor's consent

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**MUS\_I\_VR 7768: Advanced Vocal Literature II**

Continuation of MUS\_I\_VR 7767.

**Credit Hours:** 3

**Prerequisites:** MUS\_I\_VR 7767 or instructor's consent

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**MUS\_I\_VR 7776: Orchestral Excerpts**

(cross-leveled with MUS\_I\_VR 4776). Study and preparation of selected excerpts from the standard audition repertoire, culminating in a mock audition. May be repeated for credit.

**Credit Hour:** 1

**Prerequisites:** instructor's consent required

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**MUS\_I\_VR 7780: Graduate Classical Guitar Repertory I**

(cross-leveled with MUS\_I\_VR 4780). Survey of guitar repertory and history from 1400 to present.

**Credit Hour:** 1

**Prerequisites:** instructor's consent required

---

**MUS\_I\_VR 7781: Graduate Classical Guitar Repertory II**

(cross-leveled with MUS\_I\_VR 4781). Continued study of guitar repertory from 1400 to present, with emphasis on organological development of the guitar and performance practice.

**Credit Hour:** 1

**Prerequisites:** MUS\_I\_VR 7780. Instructor's consent required

---

**MUS\_I\_VR 8753: Piano Repertory I**

Study of specific aspects of Baroque and Classical keyboard music. Individual projects in research, analysis and performance.

**Credit Hours:** 2

**Prerequisites:** MUS\_APMS 7455 or instructor's consent

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**MUS\_I\_VR 8754: Piano Repertory II**

Study of specific aspects of nineteenth- and twentieth century piano music. Individual projects in research, analysis and performance.

**Credit Hours:** 2

**Prerequisites:** MUS\_I\_VR 8753 or instructor's consent

---

**MUS\_I\_VR 8765: Choral Repertory**

Survey of choral works from selected periods with an emphasis on various aspects of choral performance. May be repeated once for additional credit.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

---

**MUS\_I\_VR 8770: Band Repertory**

To survey band and wind ensemble repertoire with emphasis on various aspects of performance practice in order to prepare the student for a career which includes conducting advanced high school and college bands and wind ensembles.

**Credit Hours:** 3

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**MUS\_I\_VR 8773: String Instrument Repertory I**

**Credit Hour:** 1

**Prerequisites:** MUS\_APMS 7455 or instructor's consent

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**MUS\_I\_VR 8774: String Instrument Repertory II**

Continuation of MUS\_I\_VR 8773.

**Credit Hour:** 1

**Prerequisites:** MUS\_I\_VR 8773

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**MUS\_I\_VR 8775: Orchestral Repertory**

A survey of orchestral repertory, emphasizing various aspects of performance practice. Appropriate for graduate music conducting majors who wish to pursue a career which includes conducting orchestras at the advanced high school, college, and professional levels. May be repeated.

**Credit Hours:** 2

**Prerequisites:** Conducting experience at the high school or college level and instructor's consent

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## Music-Instrumental And Vocal Techniques Courses

**MUS\_I\_VT 1610: Group Piano for Music Majors I**

Beginning piano for music majors and concentrations only.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**MUS\_I\_VT 1611: Group Piano for Music Majors II**

Continuation of MUS\_I\_VT 1610.

**Credit Hour:** 1

**Prerequisites:** MUS\_I\_VT 1610 with a minimum grade of C- or instructor's consent

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**MUS\_I\_VT 1620: Jazz Piano Class**

Beginning piano technique and study of common jazz piano voicings for accompaniment and solo performance.

**Credit Hour:** 1

**Prerequisites:** MUSIC\_NM 1211 or MUS\_THRY 1220; instructor's consent required

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**MUS\_I\_VT 2610: Group Piano for Music Majors III**

Continuation of MUS\_I\_VT 1611.

**Credit Hour:** 1

**Prerequisites:** MUS\_I\_VT 1611 with a minimum grade of C- or instructor's consent

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**MUS\_I\_VT 2611: Group Piano for Music Majors IV**

Continuation of MUS\_I\_VT 2610.

**Credit Hour:** 1

**Prerequisites:** MUS\_I\_VT 2610 with a minimum grade of C- or instructor's consent

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**MUS\_I\_VT 2631: Basic Conducting and Score Reading**

To develop the basic psychomotor and score reading skills prerequisite to the art of conducting.

**Credit Hours:** 2

**Prerequisites:** grade of C- or better in MUS\_THRY 2220

---

**MUS\_I\_VT 2633: Rehearsal Clinic: Choral Conducting I**

To develop musical and interpersonal skills requisite for successful leadership of a choral ensemble, emphasizing rehearsal strategies and repertoire.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_I\_VT 2631 or instructor's consent

---

**MUS\_I\_VT 2634: Rehearsal Clinic: Band Conducting I**

To develop musical and interpersonal skills requisite for successful rehearsal leadership, emphasizing strategies effective for rehearsal of wind and percussion ensembles.

**Credit Hour:** 1

**Prerequisites:** Grade of C- or better in MUS\_I\_VT 2631 or instructor's consent

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**MUS\_I\_VT 2635: Rehearsal Clinic: Choral Conducting II**

Continuation of MUS\_I\_VT 2633.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_I\_VT 2633

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**MUS\_I\_VT 2636: Rehearsal Clinic: Band Conducting II**

Continuation of MUS\_I\_VT 2634.

**Credit Hour:** 1

**Prerequisites:** Grade of C- or better in MUS\_I\_VT 2634

---

**MUS\_I\_VT 2637: Woodwinds I**

Class instruction in clarinet and saxophone; playing and methods/ materials for teaching. Taught on a laboratory basis. Meets twice weekly.

**Credit Hour:** 1

**Prerequisites:** major in Music or Music Education

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**MUS\_I\_VT 2638: Woodwinds II**

Class instruction in flute and double reeds; playing and methods/ materials for teaching. Taught on a laboratory basis. Meets twice weekly.

**Credit Hour:** 1

**Prerequisites:** major in Music or Music Education

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**MUS\_I\_VT 2640: Strings I**

Class instruction in violin and viola; playing and methods and materials for teaching. Taught on a laboratory basis. Meets twice weekly.

**Credit Hour:** 1

**Prerequisites:** major in Music or Music Education. Grade of C- or better in MUS\_THRY 1221 or instructor's consent

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**MUS\_I\_VT 2641: Strings II**

Class instruction in violoncello and string bass; playing and methods and materials for teaching. Taught on a laboratory basis. Meets twice weekly.

**Credit Hour:** 1

**Prerequisites:** major in Music or Music Education. Grade of C- or better in MUS\_THRY 1221 or instructor's consent. Recommend enrolling after earning a grade of C- or better in MUS\_I\_VT 2640

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**MUS\_I\_VT 2645: Brass I**

Class instruction in trumpet and horn; playing and methods/ materials for teaching. Taught on a laboratory basis. Meets twice weekly.

**Credit Hour:** 1

**Prerequisites:** major in Music or Music Education

---

**MUS\_I\_VT 2646: Brass II**

Class instruction in trombone, euphonium, and tuba; playing and methods/materials for teaching. Taught on a laboratory basis. Meets twice weekly.

**Credit Hour:** 1

**Prerequisites:** major in Music or Music Education

---

**MUS\_I\_VT 2648: Percussion**

Class instruction in percussion instruments; playing and methods and materials for teaching. Taught on a laboratory basis. Meets twice weekly.

**Credit Hour:** 1

**Prerequisites:** major in Music Education

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**MUS\_I\_VT 2649: Percussion II**

Extension of MUS\_I\_VT 2648. Topics include marching percussion, drumset, Latin accessory instruments, and percussion ensemble literature.

**Credit Hour:** 1

**Prerequisites:** MUS\_I\_VT 2648

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**MUS\_I\_VT 2661: Keyboard Skills for Piano Majors I**

Study of sightreading, harmonization, transposition, figured bass realization, and duet skills.

**Credit Hours:** 2

**Prerequisites:** grade of C- or better in MUS\_THRY 1221 and MUS\_THRY 1231; instructor's consent

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**MUS\_I\_VT 2662: Keyboard Skills for Piano Majors II**

Study of score reading, duet performance, and collaborative experiences with voice and instruments.

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**Credit Hours:** 2

**Prerequisites:** grade of C- or better in MUS\_I\_VT 2661; instructor's consent

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**MUS\_I\_VT 3642: Seminar in String Techniques**

In-depth study of publications, philosophies, repertory, grading, specific problems for the string player. May be repeated once for credit.

**Credit Hour:** 1

**Prerequisites:** MUS\_I\_VT 2640 and MUS\_I\_VT 2641, or instructor's consent

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**MUS\_I\_VT 3643: Symposium in Instrumental Music**

Study of procedures, techniques and literature for variable combinations of wind, string, and percussion classes and the administration of instrumental music programs.

**Credit Hours:** 2

**Prerequisites:** junior standing in Music or Music Education or instructor's consent

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**MUS\_I\_VT 3644: Jazz Methods and Materials**

Training and supervised practice in conducting Jazz Ensembles; study of administration, methods, and materials pertinent to teaching Jazz, Rock, and Commercial Music in high school and college.

**Credit Hour:** 1

**Prerequisites:** junior standing or instructor's consent

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**MUS\_I\_VT 3646: Marching Band Techniques**

Study of techniques and procedures used in the development of field and street marching.

**Credit Hours:** 2

**Prerequisites:** junior standing in Music or Music Education

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**MUS\_I\_VT 3670: Diction in Singing: Italian**

Study of the correct principles and application of Italian diction in singing the solo vocal, operatic and choral literature; the International phonetic alphabet; spoken language drill, study and recitation of representative literature.

**Credit Hour:** 1

**Prerequisites:** sophomore standing

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**MUS\_I\_VT 3671: Diction in Singing: German**

Study of the correct principles and application of German diction in singing the solo vocal, operatic and choral literature; the International Phonetic Alphabet spoken language drill, study and recitation of representative literature.

**Credit Hour:** 1

**Prerequisites:** sophomore standing

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**MUS\_I\_VT 3672: Diction in Singing: French**

Study of the correct principles and application of French diction in singing the solo vocal, operatic, and choral literature; the International Phonetic Alphabet spoken language drill, study and recitation of representative literature. Prerequisites: sophomore standing

**Credit Hour:** 1

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**MUS\_I\_VT 3673: Diction in Singing: English**

Study of the correct principles and application of English diction in singing the solo vocal, operatic and choral literature; the International phonetic alphabet; spoken language drill, study and recitation of representative literature.

**Credit Hour:** 1

**Prerequisites:** Sophomore standing

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**MUS\_I\_VT 4640: Introduction to Improvisation**

(cross-leveled with MUS\_I\_VT 7640). Introduction to contemporary improvisation, aimed at classically trained musicians. No improvisational experience necessary.

**Credit Hours:** 2

**Prerequisites:** Consent of instructor

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**MUS\_I\_VT 4645: Jazz Improvisation**

Creation of a melodic vocabulary for jazz improvisation through study and application of jazz chord-scale theory, solo transcription, and careful listening to the vanguard of jazz.

**Credit Hours:** 2

**Prerequisites:** MUSIC\_NM 1211 or MUS\_THRY 1220, instructor's consent

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**MUS\_I\_VT 4650: Composing for Percussion**

(cross-leveled with MUS\_I\_VT 7650). Hands-on compositional practice course with weekly exercises, weekly compositional sketches and score study. The course will allow students to collaborate with performers, solve compositional problems, and write for a wide variety of percussion instruments. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 2216 or by Instructor's Consent

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**MUS\_I\_VT 4661: Piano Pedagogy Survey I**

Study of approaches for teaching young beginning and intermediate student; survey of materials and resources.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_I\_VT 4662: Piano Pedagogy Survey II**

Study of approaches for teaching older, more advanced and class piano students; survey of materials and resources.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_I\_VT 4663: Piano Pedagogy Laboratory**

Supervised instruction in private and class piano . May be repeated once for additional credit.

**Credit Hour:** 1

**Prerequisites:** MUS\_I\_VT 4661 and MUS\_I\_VT 4662

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**MUS\_I\_VT 4680: Classical Guitar Pedagogy**

Basic anatomical and physiological aspects of guitar performance, setting technical and musical goals for students, repertoire development in relation to age, level, and musical style. Career goals (building a private studio, lesson planning, organizational skills) are addressed.

**Credit Hour:** 1

**Prerequisites:** Audition required and instructor's consent

---

**MUS\_I\_VT 7640: Introduction to Improvisation**

(cross-leveled with MUS\_I\_VT 4640). Introduction to contemporary improvisation, aimed at classically trained musicians. No improvisational experience necessary.

**Credit Hours:** 2

**Prerequisites:** Consent of instructor

---

**MUS\_I\_VT 7645: Graduate Jazz Improvisation**

Creation of a melodic vocabulary for jazz improvisation through study and application of jazz chord-scale theory, solo transcription, and careful listening to the vanguard of jazz.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

---

**MUS\_I\_VT 7650: Composing for Percussion**

(cross-leveled with MUS\_I\_VT 4650). A hands-on compositional practice course with weekly exercises, weekly compositional sketches and score study. The course will allow students to collaborate with performers, solve compositional problems, and write for a wide variety of percussion instruments. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 2216 or by Instructor's Consent

---

**MUS\_I\_VT 7680: Graduate Classical Guitar Pedagogy**

Basic anatomical and physiological aspects of guitar performance, setting technical and musical goals for students, repertoire development in relation to age, level and musical style. Career goals (building a private studio, lesson planning, organizational skills) are addressed.

**Credit Hour:** 1

**Prerequisites:** Audition and approval of instructor

---

**MUS\_I\_VT 8646: Jazz Pedagogy I**

Study of historical and current trends in jazz education and pedagogy, including administration and curriculum, through assigned readings, supervised teaching, classroom discussion, survey of materials, and formation of an annotated bibliography. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**MUS\_I\_VT 8647: Jazz Pedagogy II**

Continuation of MUS\_I\_VT 8646; formulation of an extensive philosophy of jazz education. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MUS\_I\_VT 8646 and instructor's consent

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**MUS\_I\_VT 8671: Principles of Singing I**

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_I\_VT 8673: Advanced Choral Conducting**

Advanced conducting techniques in the interpretation of choral literature; score analysis. May be repeated for additional credit.

**Credit Hours:** 2

**Prerequisites:** MUS\_I\_VT 2633 or instructor's consent

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**MUS\_I\_VT 8674: Advanced Instrumental Conducting**

Advanced conducting techniques in the interpretation of band and orchestral literature; score analysis. May be repeated for additional credit.

**Credit Hours:** 2

**Prerequisites:** MUS\_I\_VT 2634 or instructor's consent

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**MUS\_I\_VT 8681: Advanced Piano Pedagogy I**

A survey of materials and techniques of instruction for teaching the young beginner and the intermediate piano student.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_I\_VT 8682: Advanced Piano Pedagogy II**

A survey of materials and techniques of instruction for teaching class piano, the older beginner, and the advanced student.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_I\_VT 8683: Piano Pedagogy Internship**

Supervised teaching of individual and group lessons. May be repeated once for credit.

**Credit Hour:** 1

**Prerequisites:** MUS\_I\_VT 8681 and MUS\_I\_VT 8682 and instructor's consent

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**MUS\_I\_VT 8684: Group Piano Pedagogy**

Preparation of graduate students to teach group piano to both college level music majors and adult beginners.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_I\_VT 8689: Band Techniques**

To develop individual conducting techniques as well as instrumental ensemble techniques. Emphasis is placed on the learning process to give the student a perspective to improve the techniques of others.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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## Music-Music Education Courses

**MUS\_EDUC 1100: Orientation: Music Education**

This course familiarizes and orients students with MU resources, Music Education degree expectations and career options. Graded on S/U basis only.

**Credit Hour:** 1

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**MUS\_EDUC 4140: Teaching Music I**

Study of skills, knowledge, and philosophical foundations necessary to teach general music to children in grades preK - 5, including methods, philosophies, and teacher and learner behaviors.

**Credit Hours:** 3

**Prerequisites:** junior standing; music education major or instructor's consent

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**MUS\_EDUC 4141: Teaching Music I Field Experience**

This field experience supports the MUS\_EDUC 4140 course. Field experience expectations are delineated in the course syllabus. Graded on a S/U basis only.

**Credit Hour:** 1

**Prerequisites:** junior standing; music education major or instructor's consent

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**MUS\_EDUC 4142: Teaching Music II**

Study of a broad repertoire of music literature and instructional materials, including critical evaluation and analysis for use in the general music classroom.

**Credit Hours:** 2

**Prerequisites:** MUS\_EDUC 4140

---

**MUS\_EDUC 4142W: Teaching Music II - Writing Intensive**

Study of a broad repertoire of music literature and instructional materials, including critical evaluation and analysis for use in the general music classroom.

**Credit Hours:** 2

**Prerequisites:** MUS\_EDUC 4140

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**MUS\_EDUC 4143: Teaching Music II Field Experience**

This field experience supports the MUS\_EDUC 4142 course. Field experience expectations are delineated in the course syllabus. Graded on a S/U basis only.

**Credit Hour:** 1

**Prerequisites:** MUS\_EDUC 4141

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**MUS\_EDUC 4143W: Teaching Music II Field Experience - Writing Intensive**

This field experience supports the MUS\_EDUC 4142 course. Field experience expectations are delineated in the course syllabus. Graded on a S/U basis only.

**Credit Hour:** 1

**Prerequisites:** MUS\_EDUC 4141

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**MUS\_EDUC 4144: Teaching Music III**

A study of various strategies for the successful teaching of middle and high school music programs.

**Credit Hours:** 3

**Prerequisites:** MUS\_EDUC 4142

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**MUS\_EDUC 4144W: Teaching Music III - Writing Intensive**

A study of various strategies for the successful teaching of middle and high school music programs.

**Credit Hours:** 3

**Prerequisites:** MUS\_EDUC 4142

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**MUS\_EDUC 4145: Teaching Music III Field Experience**

This field experience supports the MUS\_EDUC 4144 course. Field experience expectations are delineated in the course syllabus. Graded on a S/U basis only.

**Credit Hour:** 1

**Prerequisites:** MUS\_EDUC 4143

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**MUS\_EDUC 4145W: Teaching Music III Field Experience - Writing Intensive**

This field experience supports the MUS\_EDUC 4144 course. Field experience expectations are delineated in the course syllabus. Graded on a S/U basis only.

**Credit Hour:** 1

**Prerequisites:** MUS\_EDUC 4143

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**MUS\_EDUC 8140: Advanced Techniques in Music Education-General**

A review and evaluation of teaching/learning strategies in general music instruction.

**Credit Hour:** 2-5

**Prerequisites:** Music methods or instructor's consent

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**MUS\_EDUC 8141: Advanced Techniques in Music Education-Early Childhood**

A review and evaluation of teaching/learning strategies in early childhood music instruction.

**Credit Hour:** 2-5

**Prerequisites:** Music methods or instructor's consent

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**MUS\_EDUC 8142: Curriculum Materials in Music Education-General**

A development of critical abilities in evaluation and selection of music education materials for general music.

**Credit Hour:** 2-5

**Prerequisites:** instructor's consent

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**MUS\_EDUC 8143: Curriculum Materials in Music Education-Vocal**

A development of critical abilities in evaluation and selection of music education materials for secondary vocal music.

**Credit Hour:** 2-5

**Prerequisites:** instructor's consent

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**MUS\_EDUC 8150: Foundations of Music Education**

A study of the history, philosophy and rationale of music education.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_EDUC 8151: Measurement and Research in Music Education**

Introduction to measurement and research strategies and techniques employed by music educators to assess music achievement, aptitude, perception, performance, cognition, and affective development. Emphasis on reading with understanding and applying research to pedagogical practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Graduate standing in music education

---

**MUS\_EDUC 8152: Psychology of Music Instruction and Performance**

Introduction to the study of psychological factors, theories and research related to the musical development and performance of children, adolescents, and adults, with implications and applications for music education programs and instruction. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Graduate standing in music education

---

**MUS\_EDUC 8160: Current Issues in Music Education**

This course is designed to stimulate thinking about current issues related to the field of music education and the influences of these issues on approaches to music teaching and learning.

**Credit Hour:** 1-3

**Prerequisites:** Graduate standing in music education

---

**MUS\_EDUC 8170: Doctoral Seminar in Music Education**

Emphasis on knowledge, strategies, and skills necessary for doctoral students to be prepared to make contributions to the profession as successful college teachers, researchers, master teachers in K-12 schools, and arts administrators. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** Admission to doctoral study in music education

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**MUS\_EDUC 9090: Research in Music Education**

Research leading to the dissertation. Graded on S/U basis only.

**Credit Hour:** 1-12

**Prerequisites:** Doctoral student in Music Education who have submitted passed comprehensive examination

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**Music-Music History And Literature Courses**

**MUS\_H\_LI 1322: Introduction to Music in the United States**

Historical overview of American folk, popular, and fine-art music; emphasis on listening skills.

**Credit Hours:** 2

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**MUS\_H\_LI 2307: History of Western Music I**

Historical survey of selected European practices up to 1700 following a consideration of the major fine-art traditions of the world.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 1322

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**MUS\_H\_LI 2308: History of Western Music II**

Historical survey of Western fine-art music from approximately 1700 to the present.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2307

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**MUS\_H\_LI 4311: Historical Studies in Art Song**

(cross-leveled with MUS\_H\_LI 7311). Historical survey of works for solo voice and instruments.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4311W: Historical Studies in Art Song - Writing Intensive**

(cross-leveled with MUS\_H\_LI 7311). Historical survey of works for solo voice and instruments.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4312: Historical Studies in Choral Music**

(cross-leveled with MUS\_H\_LI 4312). Historical survey of works featuring choral ensembles.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4312W: Historical Studies in Choral Music - Writing Intensive**

(cross-leveled with MUS\_H\_LI 7312). Historical survey of works featuring choral ensembles.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4313W: Historical Studies in Opera - Writing Intensive**

(cross-leveled with MUS\_H\_LI 7313). Historical survey of opera.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

---

**MUS\_H\_LI 4315: Historical Studies in Chamber Music**

(cross-leveled with MUS\_H\_LI 7315). Historical survey of works for small ensembles, instrumental and vocal.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

---

**MUS\_H\_LI 4315W: Historical Studies in Chamber Music - Writing Intensive**

(cross-leveled with MUS\_H\_LI 7315). Historical survey of works for small ensembles, instrumental and vocal.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4317: Historical Studies in Jazz and Popular Music**  
(cross-leveled with MUS\_H\_LI 7317). Historical survey of works from the realm of American jazz and popular music.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4317W: Historical Studies in Jazz and Popular Music - Writing Intensive**  
(cross-leveled with MUS\_H\_LI 7317). Historical survey of works from the realm of American jazz and popular music.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

---

**MUS\_H\_LI 4318: Studies in World Music**  
(cross-leveled with MUS\_H\_LI 7318). Advanced systematic study of musical activities in selected world cultures, with the emphasis on developing listening skills and understanding the role of music in a culture.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2307 and MUS\_H\_LI 2308

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**MUS\_H\_LI 4318W: Studies in World Music - Writing Intensive**  
(cross-leveled with MUS\_H\_LI 7318). Advanced systematic study of musical activities in selected world cultures, with the emphasis on developing listening skills and understanding the role of music in a culture.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2307 and MUS\_H\_LI 2308

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**MUS\_H\_LI 4320W: Historical Studies in African-American Music - Writing Intensive**  
(cross-leveled with MUS\_H\_LI 7320). Exploration of history and current scholarship in African-American music from the eighteenth to twenty-first centuries. Genres include folk music, religious music, blues, ragtime, jazz, musical theater, art music, R&B, funk, soul, disco, house, hip-hop and rap.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and Instructor's consent

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**MUS\_H\_LI 4330: Music of the Postmodern Era**  
(cross-leveled with MUS\_H\_LI 7330). Systematic study of fine-art musical practice from approximately 1945 to the present.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308

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**MUS\_H\_LI 4336: Music in the Baroque Era**  
(cross-leveled with MUS\_H\_LI 7336). Systematic study of European musical practice from approximately 1600 to 1750.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4337: Music of the Classic Era**  
(cross-leveled with MUS\_H\_LI 7337). Systematic study of European musical practice from approximately 1750 to 1800.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

---

**MUS\_H\_LI 4337W: Music of the Classic Era - Writing Intensive**  
(cross-leveled with MUS\_H\_LI 7337). Systematic study of European musical practice from approximately 1750 to 1800.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4338: Music of the Romantic Era**  
(cross-leveled with MUS\_H\_LI 7338). Systematic study of European musical practice from approximately 1800 to 1900.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

---

**MUS\_H\_LI 4338W: Music of the Romantic - Writing Intensive**  
(cross-leveled with MUS\_H\_LI 7338). Systematic study of European musical practice from approximately 1800 to 1900.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

---

**MUS\_H\_LI 4339: Music of the Modern Era**  
(cross-leveled with MUS\_H\_LI 7339). Systematic study of fine-art musical practice from approximately 1900 to the present.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308

---

**MUS\_H\_LI 4340: Focal Composers**  
Systematic study of the works of landmark composers: J.S. Bach, Mozart, Beethoven, Verdi/Wagner, Debussy, or Stravinsky, studied in rotation. Repeatable for up to 6 hours or credit.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

---

**MUS\_H\_LI 4340W: Focal Composers - Writing Intensive**  
Systematic study of the works of landmark composers: J.S. Bach, Mozart, Beethoven, Verdi/Wagner, Debussy, or Stravinsky, studied in rotation. Repeatable for up to 6 hours or credit.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4341: Advanced Studies in American Music**  
(cross-leveled with MUS\_H\_LI 7341). Systematic study of the diverse streams of musical practice in the United States from the colonial time to the present.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4341W: Advanced Studies in American Music - Writing Intensive**

(cross-leveled with MUS\_H\_LI 7341). Systematic study of the diverse streams of musical practice in the United States from the colonial time to the present.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4342: Contemporary Issues in Musicology**

(cross-leveled with MUS\_H\_LI 7342). Systematic study of single musicological problem of contemporary relevance.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

---

**MUS\_H\_LI 4342W: Contemporary Issues in Musicology - Writing Intensive**

(cross-leveled with MUS\_H\_LI 7342). Systematic study of single musicological problem of contemporary relevance.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4350: Introduction to Ethnomusicology**

(cross-leveled with MUS\_H\_LI 7350). Study of theories, historical development, research methodologies, and practice of ethnomusicology, in an interdisciplinary approach. Topics include ethnographic research, oral and literate sources, transcription and analysis, critical analysis, and interpretative techniques.

**Credit Hours:** 3

**Prerequisites:** grade of C-or better in MUS\_H\_LI 2308; instructor's consent

---

**MUS\_H\_LI 4350W: Introduction to Ethnomusicology - Writing Intensive**

(cross-leveled with MUS\_H\_LI 7350). Study of theories, historical development, research methodologies, and practice of ethnomusicology, in an interdisciplinary approach. Topics include ethnographic research, oral and literate sources, transcription and analysis, critical analysis, and interpretative techniques.

**Credit Hours:** 3

**Prerequisites:** grade of C-or better in MUS\_H\_LI 2308; instructor's consent

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**MUS\_H\_LI 4352W: Historical Studies in African Music - Writing Intensive**

(same as BL\_STU 4352; cross-leveled with MUS\_H\_LI 7352).

Ethnomusicological introduction to the music and culture of countries and ethnic groups in Africa. Traditional and contemporary popular styles are explored, and influences of Islamic invasions, missionary arrivals, colonial conquests, neo-colonial trends, and globalization.

**Credit Hours:** 3

**Prerequisites:** grade of C-or better in MUS\_H\_LI 2308; instructor's consent

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**MUS\_H\_LI 4376: American Musicals**

(same as THEATR 4720). Historical survey of the development of the 20th-Century American Musical in Theatre and Film.

**Credit Hours:** 3

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**MUS\_H\_LI 4399: Graduate History Review**

Review of history for graduate students. Does not fulfill graduate degree requirements. Graded on S/U basis only.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_H\_LI 7311: Historical Studies in Art Song**

(cross-leveled with MUS\_H\_LI 4311). Advanced historical survey of works for solo voice and instruments.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_H\_LI 7312: Historical Studies in Choral Music**

(cross-leveled with MUS\_H\_LI 4312). Advanced historical survey of works featuring choral ensembles.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_H\_LI 7313: Historical Studies in Opera**

(cross-leveled with MUS\_H\_LI 4313). Advanced historical survey of opera.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**MUS\_H\_LI 7315: Historical Studies in Chamber Music**

(cross-leveled with MUS\_H\_LI 4315). Advanced historical survey of works for small ensembles, instrumental and vocal.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**MUS\_H\_LI 7317: Historical Studies in Jazz and Popular Music**

(cross-leveled with MUS\_H\_LI 4317). Advanced historical survey of works from the realm of American jazz and popular music.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_H\_LI 7318: Studies in World Music**

(cross-leveled with MUS\_H\_LI 4318). Advanced systematic study of musical activities in selected world cultures, with emphasis on developing listening skills and understanding the role of music in a culture.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**MUS\_H\_LI 7320: Historical Studies in African-American Music**

(cross-leveled with MUS\_H\_LI 4320). Exploration of history and current scholarship in African-American music from the eighteenth to the twenty-first centuries. Genres include folk music, religious music, blues, ragtime, jazz, musical theater, art music, R&B, funk, soul, disco, house, hip-hop and rap.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_H\_LI 7330: Music of the PostModern Era**

(cross-leveled with MUS\_H\_LI 4330). Systematic study of fine-art musical practice from approximately 1945 to the present.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

---

**MUS\_H\_LI 7336: Music in the Baroque Era**

(cross-leveled with MUS\_H\_LI 4336). Advanced systematic study of European musical practice from approximately 1600 to 1750.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**MUS\_H\_LI 7337: Music of the Classic Era**

(cross-leveled with MUS\_H\_LI 4337). Advanced systematic study of European musical practice from approximately 1750 to 1800.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_H\_LI 7338: Music of the Romantic Era**

(cross-leveled with MUS\_H\_LI 4338). Advanced systematic study of European musical practice from approximately 1800 to 1900.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_H\_LI 7339: Music of the Modern Era**

(cross-leveled with MUS\_H\_LI 4339). Advanced systematic study of fine-art musical practice from approximately 1900 to the present.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**MUS\_H\_LI 7341: Advanced Studies in American Music**

(cross-leveled with MUS\_H\_LI 4341). Advanced systematic study of the diverse streams of musical practice in the United States from the colonial time to the present.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**MUS\_H\_LI 7342: Contemporary Issues in Musicology**

(cross-leveled with MUS\_H\_LI 4342). Advanced systematic study of single musicological problem of contemporary relevance.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**MUS\_H\_LI 7350: Introduction to Ethnomusicology**

(cross-leveled with MUS\_H\_LI 4350). Study of theories, historical development, research methodologies, and practice of ethnomusicology, in an interdisciplinary approach. Topics include ethnographic research, oral and literate sources, transcription and analysis, critical analysis, and interpretative techniques.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_H\_LI 8313: Introduction to Graduate Study**

Introduction to library procedures, basic sources of information in music and techniques for research.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_H\_LI 8314: Introduction to Graduate Studies in Music II**

The application of basic music bibliography, research techniques, and conventions of music scholarship.

**Credit Hour:** 1

**Prerequisites:** MUS\_H\_LI 8313 or instructor's consent

---

**MUS\_H\_LI 8340: Focal Composers**

Advanced systematic study of the works of landmark composers: J.S. Bach, Mozart, Beethoven, Verdi/Wagner, Debussy, or Stravinsky, studied in rotation. Repeatable for up to 6 hours or credit.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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## Music-Music Theory Courses

**MUS\_THRY 1210: Introduction to Computer Technology and Music**

Introduces Finale, music engraving and playback software, and introduces sequencing and other software applications that may impact students while they are in school and as professional musicians.

**Credit Hours:** 2

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**MUS\_THRY 1213: Introduction to Music Theory**

Introduction to music notation and to rhythmic, melodic, harmonic, and structural elements of music. Emphasis on written skills, but ear training, sight singing, and keyboard components included as well. Graded on A/F basis only.

**Credit Hours:** 2

**Prerequisites:** consent required. Placement by exam

---

**MUS\_THRY 1220: Tonal Music Theory I**

Review of fundamentals. Study of rhythm, melody, harmonic, structure and stylistic characteristics of various periods. Application through original composition projects. Prerequisites: none for Music majors; others: instructor's consent.

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**Credit Hours:** 2

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**MUS\_THRY 1221: Tonal Music Theory II**

Continuation of MUS\_THRY 1220. Study of smaller forms and introduction to chromatic harmony.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 1220

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**MUS\_THRY 1230: Aural Training and Sight Singing I**

Development of aural and sight singing skills.

**Credit Hours:** 2

**Prerequisites or Corequisites:** MUS\_THRY 1220

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**MUS\_THRY 1231: Aural Training and Sight Singing II**

Continuation of MUS\_THRY 1230.

**Credit Hours:** 2

**Prerequisites or Corequisites:** MUS\_THRY 1221

**Prerequisites:** Grade of C- or better in MUS\_THRY 1230

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**MUS\_THRY 2215: Composition I**

Fundamentals of composition and writing in small forms.

**Credit Hours:** 2

**Prerequisites:** grade of B- or better in MUS\_THRY 1220, MUS\_THRY 1221, MUS\_THRY 1230, MUS\_THRY 1231, and instructor's consent

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**MUS\_THRY 2216: Composition II**

Continuation of MUS\_THRY 2215.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 2215

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**MUS\_THRY 2220: Tonal Music Theory III**

Chromatic harmony, variation techniques and contrapuntal genres. Study of traditional forms in instrumental, vocal and choral compositions. Applications through original composition projects.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 1221

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**MUS\_THRY 2221: Tonal Music Theory IV**

Continued study of chromatic harmony and compositions in larger forms. Application through original composition projects.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 2220

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**MUS\_THRY 2230: Aural Training and Sight Singing III**

Continuation of MUS\_THRY 1231. Further development of aural and sight singing skills with an emphasis on chromatic harmony and decorative pitches. Introduction of structural perception.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 1231 and MUS\_THRY 2220 or MUS\_THRY 2220 concurrently

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**MUS\_THRY 2231: Aural Training and Sight Singing IV**

Continuation MUS\_THRY 2230.

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**Credit Hours:** 2

**Prerequisites or Corequisites:** MUS\_THRY 2221

**Prerequisites:** Grade of C- or better in MUS\_THRY 2230

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**MUS\_THRY 3215: Composition III**

Further development of creative writing in traditional forms.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 2216

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**MUS\_THRY 3216: Composition IV**

Continuation of MUS\_THRY 3215.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 3215

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**MUS\_THRY 4210: Jazz Harmony and Arranging I**

(cross-leveled with MUS\_THRY 7210). Study of basic melodic and harmonic materials commonly used in jazz. Application through arranging projects for small jazz groups.

**Credit Hours:** 2

**Prerequisites:** MUSIC\_NM 1211 or MUS\_THRY 1220; instructor's consent required

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**MUS\_THRY 4211: Jazz Harmony and Arranging II**

(cross-leveled with MUS\_THRY 7211). Continuation of MUS\_THRY 4210. Study of advanced melodic and harmonic materials commonly used in jazz. Application through arranging projects for small and large jazz groups.

**Credit Hours:** 2

**Prerequisites:** MUS\_THRY 4210; instructor's consent

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**MUS\_THRY 4212: Jazz Theory I**

Comprehensive study of the grammar and syntax of jazz harmony.

**Credit Hour:** 1

**Prerequisites:** Grade of C- or better in MUSIC\_NM 1211 or MUS\_THRY 1220

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**MUS\_THRY 4215: Composition V**

Writing of works in larger forms for a solo instrument or chamber ensemble.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 3216

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**MUS\_THRY 4216: Composition VI**

Continuation of MUS\_THRY 4215. May be repeated for additional credit.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 4215

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**MUS\_THRY 4220: Post-Tonal Music Theory**

(cross-leveled with MUS\_THRY 7220). The study and application of analytical procedures in post-tonal music.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 2221

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**MUS\_THRY 4221: Analysis of Music**

An analytical study of rhythmic, melodic, harmonic and structural aspects of 18th-, 19th- and 20th-century music.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 2221 or equivalent

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**MUS\_THRY 4223: Eighteenth-Century Counterpoint**

(cross-leveled with MUS\_THRY 7223). Study of contrapuntal procedures and representative works of the eighteenth century. Emphasis on compositions and style of Johann Sebastian Bach. Original composition projects: canon, invention, and fugue.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_THRY 2221

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**MUS\_THRY 4225: Sixteenth-Century Counterpoint**

(cross-leveled with MUS\_THRY 7225). Analysis of contrapuntal procedures and representative compositions of 16th century. Emphasis on styles of Palestrina, Lassus and Victoria. Stylistic writing in two, three or more voices.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_THRY 2221

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**MUS\_THRY 4225W: Sixteenth-Century Counterpoint - Writing Intensive**

(cross-leveled with MUS\_THRY 7225). Analysis of contrapuntal procedures and representative compositions of 16th century. Emphasis on styles of Palestrina, Lassus and Victoria. Stylistic writing in two, three or more voices.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_THRY 2221

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**MUS\_THRY 4226: Instrumentation**

(cross-leveled with MUS\_THRY 7226). This course will provide students with the background to successfully write for all instruments of the orchestra and wind ensemble. Topics will include ranges, tessitura, and basic techniques. Central to the course will be writing projects for ensembles. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** MUS\_THRY 2221

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**MUS\_THRY 4227: Orchestration**

(cross-leveled with MUS\_THRY 7227). Study of orchestral instruments and the process of scoring for various orchestral combinations.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 2221

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**MUS\_THRY 4229: Band Arranging**

Transcription, scoring of solo and ensemble literature for band instrument combinations of varying sizes up to and including concert band.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 2221

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**MUS\_THRY 4230: Choral Arranging**

Transcription and arrangement of music suitable for performance by various vocal ensembles.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 2221

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**MUS\_THRY 4231: Schenkerian Analysis**

Techniques of musical analysis developed by Heinrich Schenker.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_THRY 2221

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**MUS\_THRY 4232: Rhythmic Analysis of Tonal Music**

Introduction to rhythmic analysis, including context of current thinking, basic concepts, various approaches, selected topics, performance issues, and particular problems.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_THRY 2221

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**MUS\_THRY 4241: Advanced Schenkerian Analysis**

(cross-leveled with MUS\_THRY 7241). Continuation of MUS\_THRY 4231, with a focus on the analysis of complete works, including larger forms.

**Credit Hours:** 3

**Prerequisites:** Grade of C-minus or better in MUS\_THRY 4231, or equivalent at another institution

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**MUS\_THRY 4245: Introduction to Electronic Music**

(cross-leveled with MUS\_THRY 7245). Techniques used in the creation of music with tape recorders, voltage-controlled synthesizers and electronics.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 4220

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**MUS\_THRY 4247: Introduction to Digital Synthesis**

Introduction to the techniques of digital synthesis, including the study of programming, and Musical Instrument Digital Interfacing.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_THRY 4250: Analysis of Musical Styles**

(cross-leveled with MUS\_THRY 7250). Analytical study of specific rhythmic, melodic, harmonic, and structural factors which constitute the stylistic practices of a specific period or composer. May be repeated for credit with departmental consent.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 2221

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**MUS\_THRY 4252: Keyboard Harmony and Score Reading**

(cross-leveled with MUS\_THRY 7252). Study of idiomatic chord progressions and harmonization strategies at the keyboard, including figured bass, score reading, and score playing. Skills are reinforced by analysis, both at sight and prepared.

**Credit Hours:** 3

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**Prerequisites:** Grade of C- or better in MUS\_THRY 2221; instructor's consent

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**MUS\_THRY 4271: Pedagogy of Music Theory I**

Techniques and materials for teaching basic music theory courses for high schools and colleges.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 2221

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**MUS\_THRY 4284: Contemporary Analytical Techniques**

Study and application of various analytical systems for 20th century compositions. Analysis of music employing contemporary theories.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 2221

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**MUS\_THRY 4290: Music Composition Seminar**

(cross-leveled with MUS\_THRY 7290). A venue for student, faculty, and guest composers to actively exchange thoughts and ideas about the music of today. Through lectures, presentations, attendance of New Music Initiative events, and reading assignments pertaining to topics in new music, this course will give students a greater understanding of what it means to be a composer writing in our time by discussing issues raised from their experiences inside and outside of class. Graded on S/U basis only. Corequisites: Students enrolled in one of the following: MUS\_THRY 2215, MUS\_THRY 2216, MUS\_THRY 3215, MUS\_THRY 3216, MUS\_THRY 4215, MUS\_THRY 4216 or consent.

**Credit Hour:** 1

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**MUS\_THRY 4299: Graduate Theory Review**

Review of music theory for graduate students in music. Does not fulfill graduate degree requirements. Graded on S/U basis only.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_THRY 7210: Advanced Jazz Harmony and Arranging I**

(cross-leveled with MUS\_THRY 4210). Study of basic melodic and harmonic materials commonly used in jazz. Application through arranging projects for small jazz groups.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_THRY 7211: Advanced Jazz Harmony and Arranging II**

(cross-leveled with MUS\_THRY 4211). Continuation of MUS\_THRY 7210. Study of advanced melodic and harmonic materials commonly used in jazz. Application through arranging projects for small and large groups.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_THRY 7215: Composition I**

Fundamentals of Composition: Writing in small forms. For non-composition graduate students in music.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_THRY 7216: Composition II**

Continuation of MUS\_THRY 7215.

**Credit Hours:** 2

**Prerequisites:** MUS\_THRY 7215

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**MUS\_THRY 7220: Post-Tonal Music Theory**

(cross-leveled with MUS\_THRY 4220). Graduate review in the study and application of analytical procedures to 20th century music literature. Special readings; individual projects. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_THRY 7221: Analysis of Music**

Graduate review in the analytical study of rhythmic, melodic, harmonic and structural aspects of 18th-, 19th- and 20th-century music.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_THRY 7223: Eighteenth-Century Counterpoint**

(cross-leveled with MUS\_THRY 4223). Advanced study of contrapuntal procedures and representative works of the eighteenth century. Emphasis on compositions and style of Johann Sebastian Bach. Original composition projects: canon, invention, and fugue. Prerequisites: instructor's consent

**Credit Hours:** 3

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**MUS\_THRY 7225: Sixteenth-Century Counterpoint**

(cross-leveled with MUS\_THRY 4225). Advanced analysis of contrapuntal procedures and representative compositions of 16th century. Emphasis on styles of Palestrina, Lassus and Victoria. Stylistic writing in two, three or more voices.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_THRY 7226: Instrumentation**

(cross-leveled with MUS\_THRY 4226). This course will provide students with the background to successfully write for all instruments of the orchestra and wind ensemble. Topics will include ranges, tessitura, and basic techniques. Central to the course will be writing projects for ensembles. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** MUS\_THRY 2230 or the equivalent

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**MUS\_THRY 7227: Advanced Orchestration**

(cross-leveled with MUS\_THRY 4227). Study of orchestral instruments and the process of scoring for various orchestral combinations.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

---

**MUS\_THRY 7229: Band Arranging**

Advanced transcription, scoring of solo and ensemble literature for band instrument combinations of varying sizes up to and including concert band.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

---

**MUS\_THRY 7230: Choral Arranging**

Advanced transcription and arrangement of music suitable for performance by various vocal ensembles.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

---

**MUS\_THRY 7231: Schenkerian Analysis**

Advanced techniques of musical analysis developed by Heinrich Schenker.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**MUS\_THRY 7232: Rhythmic Analysis of Tonal Music**

Advanced study of rhythmic analysis, including context of current thinking, basic concepts, various approaches, selected topics, performance issues, and particular problems.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**MUS\_THRY 7241: Advanced Schenkerian Analysis**

(cross-leveled with MUS\_THRY 4241). Continuation of MUS\_THRY 7231, with a focus on the analysis of complete works, including larger forms.

**Credit Hours:** 3

**Prerequisites:** Grade of C-minus or better in MUS\_THRY 4231 or MUS\_THRY 7231, or equivalent at another institution

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**MUS\_THRY 7245: Introduction to Electronic Music**

(cross-leveled with MUS\_THRY 7245). Advanced techniques used in the creation of music with tape recorders, voltage-controlled synthesizers and electronics.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

---

**MUS\_THRY 7247: Introduction to Digital Synthesis**

Graduate-level introduction to the techniques of digital synthesis, including the study of programming, and Musical Instrument Digital Interfacing.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

---

**MUS\_THRY 7250: Analysis of Musical Styles**

(cross-leveled with MUS\_THRY 4250). Advanced analytical study of specific rhythmic, melodic, harmonic, and structural factors which constitute the stylistic practices of a specific period or composer. May be repeated for credit with departmental consent. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_THRY 7252: Keyboard Harmony and Score Reading**

(cross-leveled with MUS\_THRY 4252), Study of idiomatic chord progressions and harmonization strategies at the keyboard, including figured bass, score reading, and score playing. Skills are reinforced by analysis, both at sight and prepared.

**Credit Hours:** 3

**Prerequisites:** demonstrable keyboard proficiency at level of Bach invention; instructor's consent

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**MUS\_THRY 7271: Pedagogy of Music Theory I**

Advanced techniques and materials for teaching basic music theory courses for high schools and colleges.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

---

**MUS\_THRY 7290: Music Composition Seminar**

(cross-leveled with MUS\_THRY 4290). A venue for student, faculty, and guest composers to actively exchange thoughts and ideas about the music of today. Through lectures, presentations, attendance of New Music Initiative events, and reading assignments pertaining to topics in new music, this course will give students a greater understanding of what it means to be a composer writing in our time by discussing issues raised from their experiences inside and outside of class. Graded on S/U basis only. Corequisites: Enrollment in one of the following: MUS\_THRY 7215, MUS\_THRY 7216, MUS\_THRY 8215, MUS\_GENL 8090 or consent.

**Credit Hour:** 1

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**MUS\_THRY 8215: Composition VII**

Intensive work in larger forms. Seminar, private lessons. May be repeated for credit with departmental consent.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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## Natural Resources Courses

**NAT\_R 1040: Conservation Studies**

A one-week field experience in natural resource management issues—soil and water conservation, air pollution, fish and wildlife habitat requirements, importance of forest ecosystems. Limited to high school students who have completed their junior year and taken the PSAT or equivalent. Graded on S/U basis only.

**Credit Hour:** 1

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**NAT\_R 1060: Ecology and Conservation of Natural Resources**

Introduction to the principles of resource and conservation describing the foundation of the variety of natural resources and conservation practices used to protect and maintain these resources.

**Credit Hours:** 3

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**NAT\_R 1070: Ecology and Renewable Resource Management**

Introduction to ecological principles and their relationship to resource use and management.

**Credit Hours:** 3

**Prerequisites:** restricted to Natural Resources majors

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**NAT\_R 2002: Topics in Natural Resources - Biological**

Organized study of selected topics. Subjects and credit may vary from semester to semester.

**Credit Hour:** 1-99

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**NAT\_R 2080: Outdoor Recreation Consortium**

Outdoor Recreation Consortium is a collaborative course taught by MU, North Carolina State University, Penn State University, East Carolina University, Texas A&M University and Western Illinois University. The course uses Great Smoky Mountains National Park as a case study for understanding the relationship between ecosystem management, natural resource management, tourism, and outdoor recreation. This course is based around a one week trip to the Smokies. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** NAT\_R 1070 or PRST 2111 or ENV\_SC 1100 and permission of instructor

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**NAT\_R 2160: Issues in Natural Resources and the Environment**

This course provides an introduction to ecological and environmental challenges in natural resource management in our rapidly changing world. Topical discussions will provide students with informed perspectives of several contemporary issues that affect the sustainability of our natural resources.

**Credit Hours:** 3

**Recommended:** This course is recommended as an introductory course for non-science majors

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**NAT\_R 2325: Introduction to Geographic Information Systems**

Cover basic theories and techniques of GIS; including vector and raster data representation, vector data digitizing, attribute data input, map projection, layout database manipulation, terrain analysis and spatial interpolation.

**Credit Hours:** 3

**Prerequisites:** NAT\_R 1070 or instructor's consent

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**NAT\_R 3110: Natural Resource Biometrics**

Sampling methods and analysis as applied to a variety of natural resources, including fisheries, range, recreation, forests, water and wildlife.

**Credit Hours:** 3

**Recommended:** STAT 2500 or equivalent

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**NAT\_R 3290: Hydrologic Measurement Techniques**

Students will be introduced to field methods and tools used by water resource and environmental science professionals. Students will sample and measure hydrologic and environmental variables, learn about data storage systems, and access and analyze data. Course may be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** MATH 1100 or permission of instructor

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**NAT\_R 3290W: Hydrologic Measurement Techniques - Writing Intensive**

Students will be introduced to field methods and tools used by water resource and environmental science professionals. Students will sample

and measure hydrologic and environmental variables, learn about data storage systems, and access and analyze data. Course may be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** MATH 1100 or permission of instructor

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**NAT\_R 3400: Water Quality and Natural Resource Management**

(same as ENV\_SC 3400). Introduction to broad aspects of water quality science, management, and policy. Topics include aquatic ecology, eutrophication, lake and coastal management, water supply and treatment, watershed management with respect to agriculture and urban development, and toxicology. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** CHEM 1320 and ENV\_SC 1100 or NAT\_R 1070

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**NAT\_R 4001: Topics in Natural Resources**

Organized study of selected topics. Subjects may vary from semester to semester.

**Credit Hour:** 1-99

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**NAT\_R 4024: Foundations of Environmental Education**

(same as ENV\_SC 4024; cross-leveled with NAT\_R 7024). This course provides a theoretical foundation to environmental education (EE). The purpose of this course is to develop the knowledge and skills for developing quality, age-appropriate EE for students in both formal and non-formal education setting. The emphasis is on EE curriculum materials, resources, and programs that can be used with students in settings at classrooms, nature centers, museums, and parks. This course involves training in the Missouri Department of Conservation Discover Nature School educational materials, and in observing and teaching EE lessons in a local nature center. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1010 or ENV\_SC 1100 or NAT\_R 1060 or NAT\_R 1070 or NAT\_R 2160 or Instructor's consent

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**NAT\_R 4100: Lake Ecology**

(same as ENV\_SC 4100; cross-leveled with NAT\_R 7100). Ecology of inland waters with emphasis on productivity. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** senior standing or BIO\_SC 3650

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**NAT\_R 4300: Methods in Aquatic Ecology**

(same as ENV\_SC 4300; cross-leveled with ENV\_SC 7300, NAT\_R 7300). Methods used for quantitative assessment of water quality and quantity in inland waters. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Senior standing or BIO\_SC 3650 and ENV\_SC 4100 or NAT\_R 4100 or NAT\_R 4200 or FOREST 4390 or NAT\_R 3400

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**NAT\_R 4353: Natural Resource Policy/Administration**

This course examines law, policy, and administration related to public lands and natural resources in the United States. The focus of this course is U.S. federal decision-making; we will also discuss Missouri state-level processes and selected topics in international environmental governance. Substantive policy areas addressed by this course include: public

lands, wildlife and fisheries, water resources, forests, and energy and mineral resources. This course uses case studies to illustrate historical and contemporary natural resource management challenges. It also addresses topics on governance such as public participation, the role of lobbyists, campaign finance, and the use of technology to improve policy-making. This course will use a variety of teaching methods, including lecture and classroom discussion, guest speakers, map quizzes, and a natural resources book club.

**Credit Hours:** 3

**Prerequisites:** senior standing or instructor's consent

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#### **NAT\_R 4365: GIS Applications**

Introduces logical thinking and techniques in applying GIS to practical problems. Covers general GIS functionalities, Arc View Spatial Analyst including georeference, terrain analysis, hydrological analysis, grid, and remote sensing image processing.

**Credit Hours:** 3

**Prerequisites:** GEOG 3040 or NAT\_R 2325

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#### **NAT\_R 4385: Landscape Ecology and GIS Analysis I**

(same as GEOG 4810). Examination of the landscape-scale approach to biodiversity, ecosystem dynamics, and habitat management. Particular emphasis on the use of Geographic Information Systems to analyze the spatial dimension of ecological patterns and processes.

**Credit Hours:** 3

**Prerequisites:** GEOG 3040 or NAT\_R 2325

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#### **NAT\_R 7001: Topics in Natural Resources**

Organized study of selected topics. Subjects may vary from semester to semester.

**Credit Hour:** 1-99

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#### **NAT\_R 7024: Foundations of Environmental Education**

(cross-leveled with NAT\_R 4024, ENV\_SC 4024). This course provides a theoretical foundation to environmental education (EE). The purpose of this course is to develop the knowledge and skills for developing quality, age-appropriate EE for students in both formal and non-formal education setting. The emphasis is on EE curriculum materials, resources, and programs that can be used with students in settings at classrooms, nature centers, museums, and parks. This course involves training in the Missouri Department of Conservation Discover Nature School educational materials, and in observing and teaching EE lessons in a local nature center. Graded on A-F basis only.

**Credit Hours:** 3

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#### **NAT\_R 7100: Lake Ecology**

(same as ENV\_SC 7100; cross-leveled with ENV\_SC 4100 and NAT\_R 4100). Ecology of inland waters with emphasis on productivity. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** BIO\_SC 3650

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#### **NAT\_R 7300: Methods in Aquatic Ecology**

(same as ENV\_SC 7300; cross-leveled with NAT\_R 4300, ENV\_SC 4300). Methods used for quantitative assessment of water quality and quantity in inland waters. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** senior standing or BIO\_SC 3650. ENV\_SC/NAT\_R 4100 OR 3400 OR FOR 4390

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#### **NAT\_R 7353: Natural Resource Policy/Administration**

(cross-leveled with NAT\_R 4353). This course examines law, policy, and administration related to public lands and natural resources in the United States. The focus of this course is U.S. federal decision-making; we will also discuss Missouri state-level processes and selected topics in international environmental governance. Substantive policy areas addressed by this course include: public lands, wildlife and fisheries, water resources, forests, and energy and mineral resources. This course uses case studies to illustrate historical and contemporary natural resource management challenges. It also addresses topics on governance such as public participation, the role of lobbyists, campaign finance, and the use of technology to improve policy-making. This course will use a variety of teaching methods, including lecture and classroom discussion, guest speakers, map quizzes, and a natural resources book club.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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#### **NAT\_R 7365: GIS Applications**

Introduces logical thinking and techniques in applying GIS to practical problems. Cover general GIS functionalities, Arc View Spatial Analyst including georeference, terrain analysis, hydrological analysis, grid, and remote sensing image processing.

**Credit Hours:** 3

**Prerequisites:** GEOG 3040, NAT\_R 1080 and NAT\_R 1090, or instructor's consent

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#### **NAT\_R 8001: Topics in Natural Resources**

Organized study of selected topics. Subjects may vary from semester to semester.

**Credit Hour:** 1-99

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#### **NAT\_R 8024: Program Development and Evaluation in Informal Settings**

This advanced level course focuses on designing, conducting, and analyzing quantitative educational research data and evaluation studies that measure the impact and effectiveness of environmental education and/or STEM education programs. Applied statistics in educational research will be taught. Evaluation is a set of approaches and techniques used to make judgments about the effectiveness or quality of a program or treatment; to inform decisions about its design, development, and implementation. This course provides theoretical background and techniques of program development and evaluation. This course will practice using qualitative and quantitative data for data analysis and manuscript writing. This is designed for those who will be working in leadership or supervisory capacities to gain skills in conducting needs assessments, designing programs, and conducting formative and summative evaluations of these programs for citizen science, inquiry-based learning, place-based program, students-centered, science



outreach program, and nature explore study programs. By the end of the semester, students will have a ready-to-submit manuscript completed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENV\_SC 4024 or NAT\_R 4024 or NAT\_R 7024

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**NAT\_R 8050: Masters Non-Thesis Research in Natural Resources**

Research credits associated with a non-thesis M.S. project. May be repeated for credit. Graded on S/U basis only.

**Credit Hour:** 1-10

**Prerequisites:** restricted to Masters students in the School of Natural Resources

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**NAT\_R 8090: Master Thesis Research in Natural Resources**

Research credits leading to M.Sc. thesis. May be repeated for credit. Graded on S/U basis only.

**Credit Hour:** 1-10

**Prerequisites:** Restricted to Masters students in the School of Natural Resources

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**NAT\_R 8290: Hydrologic Measurement and Synthesis**

Students are introduced to methods fundamental to measuring hydrologic processes, and assessing physical data, including field measurement, and data logging and acquisition information systems. Students will gain experience analyzing and synthesizing hydrologic data using tools commonly used by water resource professionals. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** MATH 1100, STAT 2530, PHYSCS 1210. If deficient in prerequisite courses, or unsure of qualification, contact instructor for consent

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**NAT\_R 8300: Urban Biodiversity, Conservation, and Planning**

The importance of urban biodiversity is debated by many in the conservation community. Some researchers and managers focus on threats to biodiversity associated with urbanization and land use change. In contrast to this approach people who live in, study, or care about cities: ecologists, wildlife managers, conservation biologists, planners, and local residents have debated what biodiversity means in urban settings. Recent literature on biodiversity in cities notes the range of ecological, social, and cultural meanings of urban biodiversity and stresses the importance of defining the setting and scales at which biodiversity is being assessed. This approach to urban biodiversity has documented the importance of conservation of rare species and habitats but also the importance of managing the range of habitats in and around where people live, work, and play. This course builds on the work of the NSF-funded Urban Biodiversity Research Coordination Network (UrBioNet), with course modules taught by UrBioNet steering committee members.

**Credit Hours:** 3

**Recommended:** Coursework in ecology, conservation / management or planning will be helpful in this course

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**NAT\_R 8325: Introduction to Geographic Information Systems**

Cover theories and techniques of GIS; including vector and raster data representation, vector data digitizing, attribute data input, map projection, layout database manipulation, terrain analysis and spatial interpolation.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**NAT\_R 8395: Landscape Ecology and GIS Analysis II**

(same as GEOG 8815). Provide students with principles and applications of landscape ecology and firm understandings of spatial analysis techniques using GIS. Discuss metrics for spatial pattern and models for landscape-scale dynamics.

**Credit Hours:** 3

**Prerequisites:** NAT\_R 4365; FOREST 4320 or equivalent; basic statistics; instructor's consent

**Recommended:** GEOG 4810 or GEOG 7810

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**NAT\_R 8450: Advanced Limnology**

This graduate course will cover the physical, chemical, and biological processes of lakes and streams emphasizing biological production, water quality, and emerging issues. This seminar-style graduate course will familiarize students with the limnological literature. Students will learn how to critically read, interpret, and evaluate journal publications. They will learn the publication process from beginning to end with the opportunity to provide perspectives and assessments of emerging manuscripts in the limnological field. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** NAT\_R 4100 or NAT\_R 7100

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**NAT\_R 8500: Qualitative Research**

Introduces students to qualitative field research from design, data collection, analysis, reporting, and peer-reviewed publication. Readings emphasize qualitative methods in a variety of social and behavioral sciences to address environmental problems.

**Credit Hours:** 3

**Recommended:** PRST 8430

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**NAT\_R 8860: International Comparative Rural Policy**

(same as PUB\_AF 8860. AAE 8860). Compares the rural policy objectives and implementation strategies of various countries, and assesses these policies in terms of economic, social, environmental outcomes and their implications for international relations. Includes 2-weeks of study Abroad. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**NAT\_R 9001: Topics in Natural Resources**

Organized study of selected topics. Subjects and topics may vary from semester to semester. Graded on S/U basis only.

**Credit Hour:** 1-10

**Prerequisites:** instructor's consent. Restricted to School of Natural Resources Graduate Students

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**NAT\_R 9090: Dissertation Research in Natural Resources**

Research leading to a dissertation and Ph.D. in the School of Natural Resources. Graded on S/U basis only.

**Credit Hour:** 1-10

**Prerequisites:** Restricted to PhD students in the School of Natural Resources

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**NAT\_R 9490: Ecohydrology: Contemporary Topics**

A series of discussions centered on primary literature within disciplines relevant to the participants. All Natural Resources disciplines are encouraged to participate (e.g., ecology, wildlife, fisheries, recreation/tourism, hydrology, atmospheric sciences, soils, etc.) with emphasis on interdisciplinary research (i.e. integrated natural, social and/or physical scientific research). May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1

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## Naval Science Courses

**NAVY 1100: Introduction to Naval Science**

This course serves as an introduction to the organization of the Naval Service, the varied career opportunities available, the long held customs and traditions of the service, and the duties of a Junior Officer.

**Credit Hours:** 3

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**NAVY 1200: Seapower and Maritime Affairs**

Seminars examine the application of seapower as an instrument of foreign policy by the major nations of the world. Emphasis placed on role of the Navy.

**Credit Hours:** 3

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**NAVY 2110: Naval Ship Systems I**

Ship construction, stability and damage control, basic thermodynamics, the steam cycle and engineering plant, including introduction to gas turbine, diesel and nuclear powered systems.

**Credit Hours:** 3

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**NAVY 2130: Evolution of Warfare**

Evolution of strategy, tactics, weapons and leadership from earliest beginning through the Vietnam period. Development of military policy, the impact of warfare on the political, social and economic structure of nations.

**Credit Hours:** 3

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**NAVY 2210: Naval Ship Systems II**

Naval weapons systems, their employment and control, including the basic fire control problem, with emphasis on new systems.

**Credit Hours:** 3

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**NAVY 3120: Marine Navigation**

Theoretical and practical application of the principles of marine navigation. Includes fundamentals of dead reckoning, piloting, tides and current, celestial navigation, electronic navigation.

**Credit Hours:** 3

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**NAVY 3140: Leadership and Management**

This course will provide a basic understanding of the interrelationship between authority, responsibility and accountability within a task

oriented organization. Students will learn to apply leadership and management skills to prioritize competing demands and to attain mission objectives; the importance of planning and follow-up; and develop a basic understanding of communication and counseling as it pertains to personnel management.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or by consent of Professor of Naval Science

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**NAVY 3220: Naval Operations**

Principles and concepts of naval operations: rules of the road, command and control in naval operations, communications, ASW warfare, international maritime law, and practical solution of relative motion problems.

**Credit Hours:** 3

**Prerequisites:** NAVY 3120

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**NAVY 3230: Fundamentals of Maneuver Warfare**

This course prepares future military officers and other leaders for service by studying modern tactical principles, current military developments, and other aspects of warfare and their interactions with and influences on maneuver warfare doctrine. There is a specific focus on the United States Marine Corps as the premier maneuver warfighting organization. Study also includes historical influences on tactical, operational, and strategic levels of maneuver warfare practices in the current and future operating environments. Graded on A-F basis only.

**Credit Hours:** 3

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**NAVY 4940: Leadership and Ethics**

(same as PEA\_ST 4940). The curriculum provides a foundation in leadership, ethical decision making, the Law of Armed Conflict and the military justice system. Course explores ethical theories and helps students to build an ethical framework for decision making. Topic areas include: Kant, Utilitarianism, Stoicism, Constitutional Paradigm, Uniform Code of Military Justice and Law of Armed Conflict. Designed as a capstone course for juniors and seniors enrolled in NROTC it is open to all MU students.

**Credit Hours:** 3

**Prerequisites:** junior standing required

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**NAVY 4940W: Leadership and Ethics - Writing Intensive**

(same as PEA\_ST 4940). The curriculum provides a foundation in leadership, ethical decision making, the Law of Armed Conflict and the military justice system. Course explores ethical theories and helps students to build an ethical framework for decision making. Topic areas include: Kant, Utilitarianism, Stoicism, Constitutional Paradigm, Uniform Code of Military Justice and Law of Armed Conflict. Designed as a capstone course for juniors and seniors enrolled in NROTC it is open to all MU students.

**Credit Hours:** 3

**Prerequisites:** junior standing required

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## Neurology Courses

### NEUROL 6003: Neurology Clerkship

Students see patients with neurological disorders in the outpatient clinics, in hospital settings, and on consultation services.

**Credit Hours:** 4

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### NEUROL 6013: Rural Neurology Clerkship

Rural Neurology Clerkship

**Credit Hours:** 4

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### NEUROL 6023: Springfield Neurology Clerkship

Students see patients with neurological disorders in the outpatient clinics, in hospital settings, and on consultation services.

**Credit Hours:** 4

**Prerequisites:** successful completion of the first two years of medical school

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### NEUROL 6103: Remediation Neurology Clerkship

Enrolled students are those who received an unsatisfactory grade in a Child Health Clerkship at any Mizzou Med location or site. This course gives the student an opportunity to rectify their deficiency.

**Credit Hours:** 4

**Prerequisites:** NEUROL 6003 Neurology Clerkship, received unsatisfactory grade

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### NEUROL 6123: Remediation Springfield Neurology Clerkship

Students see patients with neurological disorders in the outpatient clinics, in hospital settings, and on consultation services.

**Credit Hours:** 4

**Prerequisites:** successful completion of the first two years of medical school

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### NEUROL 6303: ABS Neurology Research

ABS Neurology Research

**Credit Hours:** 5

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### NEUROL 6845: Neurology

Neurology

**Credit Hours:** 5

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### NEUROL 6850: Advanced Neurology

Advanced Neurology

**Credit Hours:** 5

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### NEUROL 6923: Neuromuscular Disorders

One week will be spent in the outpatient unit and one inpatient. The inpatient experience will consist of rounding on neuromuscular patients and being an integral part of patient care. A significant portion of the experience will be spent in Electromyography (EMG). During the outpatient experience, the student will rotate with one of three neuromuscular specialists and participate in patient care, and participate in MDA clinic.

**Credit Hours:** 2

**Prerequisites:** successful completion of the first two years of medical school

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## Nuclear Engineering Courses

### NU\_ENG 2201: Topics in Nuclear Engineering

Current and new developments in nuclear engineering.

**Credit Hours:** 3

**Prerequisites:** sophomore standing; PHYSCS 1210 and PHYSCS 1220 and MATH 1100 or MATH 1120 or instructor's consent

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### NU\_ENG 2303: Harnessing the Atoms in Everyday Life: Fulfill M Curie's Dream

Introduction to applications of nuclear science and technology, utilizing web-based learning scenarios.

**Credit Hours:** 3

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### NU\_ENG 4001: Topics in Nuclear Engineering

Current and new developments in nuclear engineering. May be repeated for credit.

**Credit Hour:** 2-5

**Prerequisites:** instructor's consent

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### NU\_ENG 4303: Radiation Safety

(same as RA\_SCI 4303) Types and origins of radiation; radiation detection and measurement; radiation interactions; shielding; dose calculations; federal, state and local regulations; and procedures for safe uses of radiation. Laboratory experiments in radiation measurements and protection.

**Credit Hours:** 3

**Prerequisites:** college physics, calculus based

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### NU\_ENG 4305: Survey of Nuclear Engineering

Introductory topics in nuclear engineering. Atomic and nuclear physics; nuclear reactor principles under steady-state and transient conditions; heat removal; shielding; instrumentation; power generation; fusion.

**Credit Hours:** 3

**Prerequisites:** concurrent with MATH 4100

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### NU\_ENG 4315: Energy Systems and Resources

(same as ECE 4020, MAE 4371; cross-leveled with ECE 7020, NU\_ENG 7315, MAE 7371). Analysis of present energy usage in Missouri, USA and the world, evaluation of emerging energy technologies and trends for the future. Economics and environmental impact of the developed technologies. Prerequisites: C- or better in ENGINR 2300

**Credit Hours:** 3

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### NU\_ENG 4315W: Energy Systems and Resources - Writing Intensive

(same as ECE 4020). Analysis of present energy usage in Missouri, USA and the world, evaluation of emerging energy technologies and trends for the future. Economics and environmental impact of the developed technologies.

**Credit Hours:** 3

**Prerequisites:** ENGINR 2300 or equivalent

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**NU\_ENG 4319: Physics and Chemistry of Materials**

(same as PHYSCS 4190, BIOL\_EN 4480, CHEM 4490, BME 4480; cross-leveled with NU\_ENG 7319, PHYSCS 7190, BIOL\_EN 7480, CHEM 7490). Physics and Chemistry of Materials is a 3 credit hours course offered every spring semester for students from Physics, Chemistry, Engineering and Medical Departments and consists of lectures, laboratory demonstrations, two mid-term and one final exam. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2750, CHEM 1320 or equivalent, or instructor's consent

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**NU\_ENG 4328: Introductory Radiation Biology**

(same as BIO\_SC 4328, RADIOL 4328; cross-leveled with BIO\_SC 7328, RADIOL 7328, V\_M\_S 7328). Concepts of ionizing radiations, their actions on matter through effects on simple chemical systems, biological molecules, cell, organisms, man.

**Credit Hours:** 3

**Prerequisites:** junior standing, Sciences/Engineering; one course in Biological Sciences and Physics/Chemistry; or instructor's consent

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**NU\_ENG 4330: Science and Technology of Terrorism and Counter Terrorism**

(same as PEA\_ST 4330; cross-leveled with NU\_ENG 7330). Terrorism has been a familiar tool of political conflict, and it has assumed greater importance during the past twenty years. This subject has been treated by political scientists in various forms, but the scientific and technological aspects of different forms of terrorism cannot be found in a single place. It is important for persons who propose counter measures to understand the basics of different types of terrorism such as for instance the nature of chemical agents, their properties such as toxicity, etc. in order to build better defense systems.

**Credit Hours:** 3

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**NU\_ENG 4331: Nonproliferation Issues for Weapons of Mass Destruction**

(cross-leveled with NU\_ENG 7331). Nonproliferation and impact on technology and world events.

**Credit Hours:** 3

**Prerequisites:** junior/senior standing or instructor's consent. May be repeated for credit

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**NU\_ENG 4331W: Nonproliferation Issues for Weapons of Mass Destruction - Writing Intensive**

Nonproliferation and impact on technology and world events.

**Credit Hours:** 3

**Prerequisites:** junior/senior standing or instructor's consent. May be repeated for credit

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**NU\_ENG 4346: Introduction to Nuclear Reactor Engineering I**

(same as ECE 4030; cross-leveled with NU\_ENG 7346, ECE 7030). Engineering principles of nuclear power systems, primarily for the production of electrical energy.

**Credit Hours:** 3

**Prerequisites:** ENGINR 1200, ENGINR 2300 or equivalent

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**NU\_ENG 4369: Principles of Direct Energy Conversion**

(cross-leveled with NU\_ENG 7369). Principles and utilization of thermoelectric, thermionic, photovoltaic, magnetohydrodynamic generators and fuel cells.

**Credit Hours:** 3

**Prerequisites:** ENGINR 2300, MAE 3400, or equivalent

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**NU\_ENG 4375: Introduction to Plasmas**

(same as ECE 4550; cross-leveled with NU\_ENG 7375, ECE 7550). Equations of plasma physics, interaction of waves and plasmas; plasma sheaths and oscillations; measurements and applications.

**Credit Hours:** 3

**Prerequisites:** ECE 4930 or instructor's consent

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**NU\_ENG 4391: Nuclear Radiation Detection**

(cross-leveled with NU\_ENG 7391). Principles and application of radiation detectors and analyzers: ionization, Geiger-Muller, proportional, liquid and solid scintillation, semiconductor, pulse height analyzers, coincidence circuits, data reduction, tracer applications, activation analysis. Lectures, laboratory.

**Credit Hours:** 3

**Prerequisites:** senior standing or instructor's consent

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**NU\_ENG 7001: Topics in Nuclear Science and Engineering**

Current and new developments in nuclear engineering.

**Credit Hour:** 2-5

**Prerequisites:** instructor's consent

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**NU\_ENG 7080: Medical Ethics for Medical Physics**

This course will start with an introduction into medical ethics then transitions into research procedures with humans and animals. This course will cover research ethics, professional conduct, authorship, publishing, and plagiarism.

**Credit Hour:** 1

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**NU\_ENG 7085: Special Problems in Nuclear Science and Engineering**

Special Problems in Nuclear Science and Engineering.

**Credit Hour:** 1-5

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**NU\_ENG 7087: Seminar in Nuclear Science and Engineering**

Reviews of investigations and projects of importance in nuclear engineering.

**Credit Hour:** 1

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**NU\_ENG 7302: Safe Handling of Radioisotopes**

Introduction of methods and procedures for safe handling of radioisotopes in the research laboratory. Intensive lecture and laboratory training sessions designed for persons planning to use radioisotopes at the University.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**NU\_ENG 7303: Radiation Safety**

(same as RA\_SCI 7303; cross-leveled with NU\_ENG 4303). Types and origins of radiation; radiation detection and measurement; radiation interactions; shielding; dose calculations; federal, state and local regulations; and procedures for safe uses of radiation. Laboratory experiments in radiation measurements and protection.

**Credit Hours:** 3

**Prerequisites:** college physics, calculus based

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**NU\_ENG 7306: Advanced Engineering Math**

(cross-leveled with NU\_ENG 7306). Applies ordinary and partial differential equations to engineering problems; Fourier's series; determinants and matrices; Laplace transforms; analog computer techniques.

**Credit Hours:** 3

**Prerequisites:** MATH 4100

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**NU\_ENG 7313: Nuclear Science for Engineering for Secondary Science Teachers**

This one-week course is for high school science and math teachers, and provides basic of nuclear science concepts and their applications, types of radiation (including radiation detection and protection), and industrial, medical and nuclear power generation application.

**Credit Hours:** 3

**Prerequisites:** instructor's consent; actively engaged in STEM teaching at the secondary level

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**NU\_ENG 7315: Energy Systems and Resources**

(same as ECE 7020, MAE 7371; cross-leveled with ECE 4020, MAE 4371, NU\_ENG 4315 ). Analysis of present energy usage in Missouri, USA and the world, evaluation of emerging energy technologies and trends for the future. Economics and environmental impact of the developed technologies.

**Credit Hours:** 3

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**NU\_ENG 7319: Physics and Chemistry of Materials**

(same as PHYSCS 7190, BIOL\_EN 7480, CHEM 7490; cross-leveled with NU\_ENG 4319, PHYSCS 4190, BIOL\_EN 4480, CHEM 4490, BME 4480). Physics and Chemistry of Materials is a 3 credit hours course offered every spring semester for students from Physics, Chemistry, Engineering and Medical Departments and consists of lectures, laboratory demonstrations, two mid-term and one final exam. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2750, CHEM 1320 or equivalent, or instructor's consent

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**NU\_ENG 7320: Natural Resources and Nuclear Energy**

Not for engineering students. Lecture, demonstration; describes physical environment, energy, power plants, nuclear reactors; radioactivity, its biological effects; health physics measures, rad-waste disposal; nuclear safeguards, nuclear explosives, societal implications.

**Credit Hours:** 3

**Prerequisites:** high school algebra

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**NU\_ENG 7328: Introductory Radiation Biology**

(same as BIO\_SC 7328, RADIOL 7328, and V\_M\_S 7328; cross-leveled with BIO\_SC 4328, RADIOL 4328). Concepts of ionizing radiations, their actions on matter through effects on simple chemical systems, biological molecules, cell, organisms, man.

**Credit Hours:** 3

**Prerequisites:** Sciences/Engineering; one course in Biological Sciences and Physics/Chemistry; or instructor's consent

---

**NU\_ENG 7330: Science and Technology of Terrorism and Counter Terrorism**

(cross-leveled with NU\_ENG 4330, PEA\_ST 4330). Terrorism has been a familiar tool of political conflict, and it has assumed greater importance during the past twenty years. This subject has been treated by political scientists in various forms, but the scientific and technological aspects of different forms of terrorism cannot be found in a single place. It is important for persons who propose counter measures to understand the basics of different types of terrorism such as for instance the nature of chemical agents, their properties such as toxicity, etc. in order to build better defense systems.

**Credit Hours:** 3

---

**NU\_ENG 7331: Nonproliferation Issues for Weapons of Mass Destruction**

(cross-leveled with NU\_ENG 4331). Nonproliferation and impact on technology and world events.

**Credit Hours:** 3

**Prerequisites:** junior or senior standing or instructor's consent

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**NU\_ENG 7335: Nuclear Safeguards Science and Technology**

(same as ECE 7335). This course provides an overview of nuclear materials management and safeguards, including physical protection systems, material accounting and control, monitoring, and regulatory issues.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 4303 or NU\_ENG 7303

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**NU\_ENG 7341: Nuclear Chemical Engineering**

Principles and processes of importance in the field of nuclear technology.

**Credit Hours:** 3

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**NU\_ENG 7346: Introduction to Nuclear Reactor Engineering I**

(same as ECE 7030; cross-leveled with NU\_ENG 4346, NU\_ENG 4030). Engineering principles of nuclear power systems, primarily for the production of electrical energy.

**Credit Hours:** 3

**Prerequisites:** ENGINR 1200, ENGINR 2300 or equivalent

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**NU\_ENG 7349: Nuclear Engineering Materials**

Properties of materials for reactor components; radiation damage and corrosion; metallurgy of reactor materials.

**Credit Hours:** 3

**Prerequisites:** upper division or graduate standing in Physical Sciences or Engineering, or instructor's consent

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**NU\_ENG 7353: Introduction to Fusion**

Basic plasma physics, principles of thermonuclear fusion, plasma confinement and heating, and devices.

**Credit Hours:** 3

**Prerequisites:** graduate standing in Engineering or Science or instructor's consent

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**NU\_ENG 7357: Nuclear Heat Transport**

Principles of heat transport in nuclear reactors. Brief review of the theory of flow coast down and convective heat transfer. Heat transfer loop experiments on flow coast down, steady state and transient forced convection heat transfer, boiling heat transfer.

**Credit Hours:** 2

**Prerequisites:** NU\_ENG 4305, NU\_ENG 4346 or instructor's consent

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**NU\_ENG 7365: Nuclear Power Engineering**

(cross-leveled with NU\_ENG 4365). Nuclear reactor heat generation and removal; nuclear reactor coolants; analysis of nuclear reactor power plants.

**Credit Hours:** 3

**Prerequisites:** ENGINR 2300

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**NU\_ENG 7369: Principles of Direct Energy Conversion**

(cross-leveled with NU\_ENG 4369). Principles and utilization of thermoelectric, thermionic, photovoltaic, magnetohydrodynamic generators and fuel cells.

**Credit Hours:** 3

**Prerequisites:** ENGINR 2300, MAE 3400, or equivalent

---

**NU\_ENG 7375: Introduction to Plasmas**

(same as ECE 7550; cross-leveled with NU\_ENG 4375, ECE 4550). Equations of plasma physics, interaction of waves and plasmas; plasma sheaths and oscillations; measurements and applications.

**Credit Hours:** 3

**Prerequisites:** ECE 4930 or instructor's consent

---

**NU\_ENG 7391: Nuclear Radiation Detection**

(cross-leveled with NU\_ENG 4391). Principles and application of radiation detectors and analyzers: ionization, Geiger-Muller, proportional, liquid and solid scintillation, semiconductor, pulse height analyzers, coincidence circuits, data reduction, tracer applications, activation analysis. Lectures, laboratory.

**Credit Hours:** 3

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**NU\_ENG 8001: Advanced Topics in Nuclear Science and Engineering**

Advanced developments in nuclear engineering.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**NU\_ENG 8085: Problems in Nuclear Science and Engineering**

Supervised investigation in nuclear engineering to be presented in the form of a report.

**Credit Hour:** 1-6

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**NU\_ENG 8090: Research in Nuclear Science and Engineering**

Independent investigation in nuclear engineering to be presented as a thesis. Graded on an S/U basis only.

**Credit Hour:** 1-99

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**NU\_ENG 8402: Nuclear Fuel Cycle**

Covers the nuclear fuel cycle from mine through enrichment, fuel element burn-up reactor physics, chemical reprocessing, waste disposal, with special emphasis on the newer proliferation-resistant fuel cycles.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 4346 or NU\_ENG 4305 and instructor's consent

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**NU\_ENG 8403: Applied Topics in Medical Physics and Health Physics**

Directed observations and experience in scientific aspects of daily operations in nuclear medicine, diagnostic radiology, radiotherapy and health physics.

**Credit Hour:** 1-6

**Prerequisites:** departmental consent

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**NU\_ENG 8404: Nuclear Reactor Laboratory I**

Application of reactor physics principals to operation of and experiments with the University of Missouri Research Reactor. Neutron activation analysis, instrumentation, reactivity evaluation.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 4346 or NU\_ENG 8411

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**NU\_ENG 8409: Interaction of Radiation with Matter**

Theory/applications of radiation interaction processes. Reviews nuclear physics concepts; radioactive decay; sources/ spectra of ionizing radiation; collision mechanisms for charged particles, electromagnetic radiation, neutrons for interaction with matter.

**Credit Hours:** 3

**Prerequisites:** Entrance requirements

---

**NU\_ENG 8412: Nuclear Reactor Theory II**

Linear and non-linear reactor kinetics; perturbation theory; temperature and fission product effects; control rod theory; transport theory.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 8411 or NU\_ENG 4346

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**NU\_ENG 8422: Radiation Shielding**

Fundamentals of radiation interactions stressing neutron and gamma radiation transport; ray theory, removal theory, multi-group transport shield design principles.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 8409 or instructor's consent

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**NU\_ENG 8429: Radiation Dosimetry**

Basis and applications of conventional and microscopic radiation dosimetry. Dose concepts and quantities; biological dose-response models; dose measurement principles; photon, charged particle, and neutron dosimetry.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 8409

**Recommended:** NU\_ENG 4328

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**NU\_ENG 8432: Nuclear Thermal Hydraulics and Safety**

Engineering topics from reactor heat transfer and thermal stresses, fuel cycle analysis, power plant thermodynamics, shielding, and reactor safety analysis.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 8411 or NU\_ENG 4346, or instructor's consent

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**NU\_ENG 8434: Fracture Mechanics I**

(same as MAE 8220). Mechanics of flawed structure. Concepts include Griffith theory, Barenblatt's theory, Irwin analysis, energy analysis of cracked bodies, fracture toughness testing, plane strain, plane stress, transition temperature concepts, subcritical flaw growth.

**Credit Hours:** 3

**Prerequisites:** MAE 3200 or instructor's consent

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**NU\_ENG 8435: Physics of Diagnostic Radiology**

Principles and applications of X-ray production and interactions. Images production concepts including X-ray film, intensifying screens, grids, fluoroscopy, image intensification and television monitors. Image quality analysis and assessment.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 8409 or equivalent or instructor's consent

---

**NU\_ENG 8439: Clinical Physics in Radiotherapy**

Principles and applications of radiation producing units, exposure and dose measurements, and calibration. External beam physics parameters and application to fixed field and rotational field treatment planning.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 8409 or equivalent or instructor's consent

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**NU\_ENG 8452: Ultrasound and Magnetic Resonance Imaging**

The physical principles of MRI and ultrasound including clinical instrumentation, artifacts in images, biological effects and quality control. Images obtained with both techniques will be presented.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 4391, NU\_ENG 8409, NU\_ENG 4306 or equivalent

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**NU\_ENG 8453: Advanced Fusion Theory**

Plasma stability theory, charged particle diffusion, slowing down of charged particles, interaction of radiation with matter, direct energy conversion using charged particles, and engineering considerations.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 4353 and NU\_ENG 4375 or PHYSICS 8450 or instructor's consent

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**NU\_ENG 8461: Neutron Transport Theory**

The Boltzmann equation; general properties and solution; numerical methods of solving the transport equation; neutron thermalization and neutron spectra.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 8412; MATH 4940, MATH 4300, or instructor's consent

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**NU\_ENG 8470: Fast Reactor Analysis**

Analytical methods for designing fast breeder reactor systems. Graded on a S/U basis only.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 8412, NU\_ENG 8432, NU\_ENG 8451 or instructor's consent

---

**NU\_ENG 8471: Radiation Protection**

Theory and applications of radiation protection and health physics. Radiation dosimetry methods and calculations, shielding evaluations, equipment surveys and inspection, environmental monitoring, radiation standards and regulations and administration presented.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 4303 and NU\_ENG 4328

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**NU\_ENG 9090: Research in Nuclear Science and Engineering**

Independent investigation in nuclear engineering to be presented as a thesis. Graded on an S/U basis only.

**Credit Hour:** 1-99

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## Nuclear Medicine Courses

**NUCMED 1000: Introduction to Nuclear Medicine**

Introduction to the profession of nuclear medicine technology. In addition to scheduled clinical experiences, topics include educational requirements, procedures, and professional trends.

**Credit Hour:** 1

**Prerequisites:** Pre-Health Professions students only

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**NUCMED 3255: Orientation to Clinical Practice**

This course provides an introductory experience to clinical practice. Must be accepted into Nuclear Medicine Program. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to Nuclear Medicine students, junior standing required

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**NUCMED 3256: Clinical Nuclear Medicine I**

Introductory clinical course. Introduces instrumentation, administration, procedures, and laboratory techniques. Includes supervised clinical participation.

**Credit Hours:** 2

**Prerequisites:** NUCMED 3263 and restricted to Nuclear Medicine students only

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**NUCMED 3263: Morphological Correlations in Nuclear Medicine I**

Anatomy, physiology, and pathology of the human body as assessed using medicine techniques. The first of two courses that address current clinical applications of nuclear medicine.

**Credit Hours:** 3

**Prerequisites:** restricted to Nuclear Medicine students only

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**NUCMED 3328: Introductory Radiation Biology**

(same as BIO\_SC 4328, NU\_ENG 4328, V\_M\_S 7328). Concepts of ionizing radiations, their actions on matter through effects on simple chemical systems, biological molecules, cell, organisms, man.

**Credit Hours:** 3

**Prerequisites:** junior standing

**Recommended:** Sciences/Engineering; one course in Biological Sciences and Physics/Chemistry; or instructor's consent

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**NUCMED 4085: Problems in Nuclear Medicine**

Supervised investigation in an aspect of nuclear medicine technology, usually culminating in a written report.

**Credit Hour:** 1-3

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**NUCMED 4232: Clinical In Vitro**

Detailed review of current regulations and procedures governing the use of open sources of radioactivity in a nuclear medicine setting.

**Credit Hours:** 3

**Prerequisites:** Restricted to Nuclear Medicine students

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**NUCMED 4268: Clinical Nuclear Medicine II**

Continuation of clinical series taught in conjunction with NUCMED 3256 and NUCMED 4232. Addresses advanced therapeutic and diagnostic procedures, computer applications, and quality assurance procedures.

**Credit Hours:** 3

**Prerequisites:** NUCMED 3256. Restricted to Nuclear Medicine students only

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**NUCMED 4268W: Clinical Nuclear Medicine II - Writing Intensive**

Continuation of clinical series taught in conjunction with NUCMED 3256 and NUCMED 4232. Addresses advanced therapeutic and diagnostic procedures, computer applications, and quality assurance procedures.

**Credit Hours:** 3

**Prerequisites:** NUCMED 3256. Restricted to Nuclear Medicine students only

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**NUCMED 4269: Clinical Nuclear Medicine III**

Final course in clinical series. Seminar discussion of the areas of professional ethics, current medical-legal considerations, and future nuclear medicine applications.

**Credit Hour:** 1

**Prerequisites:** NUCMED 3256. Restricted to Nuclear Medicine students only

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**NUCMED 4299: Morphological Correlations in Nuclear Medicine II**

Anatomy, physiology, and pathology of the human body as assessed using nuclear medicine techniques. The second of two courses that address current clinical applications of nuclear medicine.

**Credit Hours:** 3

**Prerequisites:** NUCMED 3263, restricted to Nuclear Medicine students

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**NUCMED 4327: Nuclear Medicine Instrumentation**

Radionuclide imaging systems and the use of computers. Topics include Anger camera systems, emission tomography, ultrasound, nuclear magnetic resonance, and bone absorptiometry.

**Credit Hours:** 3

**Prerequisites:** Restricted to Nuclear Medicine students

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**NUCMED 4329: Radiopharmaceuticals in Nuclear Medicine**

(cross-leveled with NUCMED 7329). Introduces concepts of radiopharmacy, generator systems, labeling of materials, quality control procedures and FDA regulations concerning radiopharmaceuticals.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

**Recommended:** CHEM 1320

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**NUCMED 4330: PET in Nuclear Medicine**

(cross-leveled with NUCMED 7330). Overview of special isotope production techniques for positron emitting agents; instrumentation concerns beyond standard Anger imaging; and image critique and analysis with morphologic correlation. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Nuclear Medicine students only

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**NUCMED 4841: Microbiological Control and Radiation Monitoring**

This lecture and laboratory class includes analytic techniques used for monitoring and controlling microbial, particulate, and radioactive contamination. Topics will include testing of QC supplies, monitoring of clean room environments, product testing both before and after sterilization, bioburden / microbial limit testing, sterility testing as a qualitative measure for contamination control, endotoxin testing, waste handling, and disposal techniques. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites or Corequisites:** CDS 4328, or NUCMED 3328 and RA\_SCI 4303; CHEM 2100 ; BIOCHM 3630; MICROB 2800; STAT 1200 or STAT 1300 or STAT 1400

**Corequisites:** concurrent enrollment in NUCMED 4842

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**NUCMED 4842: Statistical Analysis in Radioisotope Manufacturing**

This combination lecture and computer lab class covers topics including statistical methods for sample evaluation, data analysis software coding (e.g., MINTAB), quality assurance methodologies used for ensuring radiochemical and radioisotopic quality and integrity during production, transportation, and end use, and practice standards for maintaining regulatory compliance. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites or Corequisites:** CDS 4328, or NU\_ENG 4328 and NU\_ENG 4303; CHEM 2100; BIOCHM 3630; STAT 1200 or STAT 1300 or STAT 1400



**Corequisites:** concurrent enrollment in NUCMED 4841

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**NUCMED 4843: Quality Control of Radiochemical Products**

This course is designed to be a correlative course taken in conjunction with other nuclear medicine courses and will provide an overview of reactor and accelerator based production of radioisotopes, and the techniques used to ensure product identity, strength, and purity. Additionally, course topics will include the discussion of the factors affecting radiochemical integrity, Good Laboratory Practice (GLP), Good Manufacturing Practice (GMP), FDA documentation practices, vendor qualifications, and control of materials. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CDS 4328 (or NU\_ENG 4328 and NU\_ENG 4303); CHEM 2100; BIOCHM 3630; STAT 1200 or STAT 1300 or STAT 1400

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**NUCMED 4939: Nuclear Clinical Internship I**

Application of nuclear medicine in supervised clinical settings. Clinical experience to include imaging procedures and techniques, radiation safety, safe handling of radiopharmaceuticals, and quality control. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** NUCMED 4299; Restricted to Nuclear Medicine Students

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**NUCMED 4940: Nuclear Clinical Internship II**

Application of nuclear medicine in supervised clinical settings. Clinical experience to include imaging procedures and techniques, radiation safety, safe handling of radiopharmaceuticals, and quality control. Graded on A-F basis only.

**Credit Hours:** 6

**Prerequisites:** Restricted to Nuclear Medicine students

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**NUCMED 4941: Nuclear Clinical Internship III**

Application of nuclear medicine in supervised clinical settings. Clinical experience to include imaging procedures and techniques, radiation safety, safe handling of radiopharmaceuticals, and quality control. Graded on A-F basis only.

**Credit Hours:** 7

**Prerequisites:** NUCMED 4940. Restricted to undergraduate Nuclear Medicine students

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**NUCMED 7085: Problems in Nuclear Medicine**

Supervised investigation in an aspect of nuclear medicine technology, usually culminating in a written report.

**Credit Hours:** 3

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**NUCMED 7329: Radiopharmaceuticals in Nuclear Medicine**

(course-leveled with NUCMED 4329). Introduces concepts of radiopharmacy, generator systems, labeling of materials, quality control procedures and FDA regulations concerning radiopharmaceuticals.

**Credit Hours:** 3

**Prerequisites:** CHEM 1320 and instructor's consent

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**NUCMED 7330: PET in Nuclear Medicine**

(cross-leveled with NUCMED 4330). Overview of special isotope production in techniques for positron emitting agents; instrumentation

concerns beyond standard Anger imaging; and image critique and analysis with morphologic correlation. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 1210 and NUCMED 4327 or instructor's consent

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## Nursing Courses

**NURSE 1000: Advisory Seminar for Nursing**

Orientation to the undergraduate nursing program, professional role development, and introduction to the professional milieu. Graded on an S/U basis only.

**Credit Hour:** 1

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**NURSE 2000: Nursing as a Profession**

Introduces the structure of nursing knowledge and explores professional nursing role characteristics from historical, ethical, legal, economic, professional, occupational and social perspectives. Examines nursing as subsystem of the health care system.

**Credit Hours:** 3

**Prerequisites:** sophomore standing. Restricted to pre-nursing majors with a GPA of 2.8 or higher

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**NURSE 2000H: Nursing as a Profession - Honors**

Introduces the structure of nursing knowledge and explores professional nursing role characteristics from historical, ethical, legal, economic, professional, occupational, and social perspectives. Examines nursing as subsystem of the health care system. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing with undergraduate GPA of 2.8 or higher; honors eligibility required

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**NURSE 2100: Communication Issues in Nursing**

In this course students develop their interpersonal communication skills and cultural competency in health care. Topics include social determinants of health, biases in the healthcare setting, diversity issues in health care, health literacy and health disparities. Students will learn evidence-based communication techniques.

**Credit Hours:** 2

**Prerequisites:** Sophomore Standing. Restricted to pre-nursing majors only

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**NURSE 2100H: Communication Issues in Nursing - Honors**

Reviews psychosocial and communication issues. Focuses on improving interpersonal communication skills and learning how to provide therapeutic interventions to people with selected mental health issues. An experiential model emphasizes personal skill development strategies.

**Credit Hour:** 2-3

**Prerequisites:** Sophomore Standing. Restricted to pre-nursing majors only. Honors eligibility required

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**NURSE 2200: Foundations of Communication and Professionalism in Nursing**

In this course, students develop their interpersonal communication skills and cultural competency in health care. Topics include social determinants of health, biases in the healthcare setting, health literacy, and health disparities. Students will learn evidence-based communication techniques. Graded on A-F basis only.

**Credit Hours:** 3

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**NURSE 2200H: Foundations of Communication and Professionalism in Nursing - Honors**

In this course, students develop their interpersonal communication skills and cultural competency in health care. Topics include social determinants of health, biases in the healthcare setting, health literacy, and health disparities. Students will learn evidence-based communication techniques. Graded on A-F basis only.

**Credit Hours:** 3

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**NURSE 3000: Health Care Resiliency**

This course examines the unique psychosocial, spiritual, and physical stressors health professionals encounter while carrying out their duties. Self-care practices are examined that build the resilience needed to address challenging professional demands. This course draws on the extensive scientific literature that explores health and wellness promotion. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** For Clinical Nursing majors only during Early Registration

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**NURSE 3002: Topics in Nursing - Biological, Physical, Mathematical**

Specialized topics in nursing not available through regularly offered courses. Sections may be offered either on S/U or A-F basis.

**Credit Hour:** 1-4

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**NURSE 3002H: Topics in Nursing - Biological Sciences- Honors**

Specialized topics in nursing not available through regularly offered courses. Sections may be offered either on S/U or A-F basis.

**Credit Hour:** 1-4

**Prerequisites:** Honors Eligibility required

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**NURSE 3080: Introduction to Nursing Informatics**

Informatics is the science of managing information. This course provides basic content for understanding informatics in nursing. Principles, theories, and practices of informatics from seeking and storing to retrieving and analyzing information will be presented. Students will apply basic content as they consider informatics from consumer and provider perspectives for current or future use as nursing professionals.

**Credit Hours:** 3

**Prerequisites:** RN-BSN students only

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**NURSE 3080W: Introduction to Nursing Informatics - Writing Intensive**

Informatics is the science of managing information. This course provides basic content for understanding informatics in nursing. Principles, theories, and practices of informatics from seeking and storing to retrieving and analyzing information will be presented. Students will apply

basic content as they consider informatics from consumer and provider perspectives for current or future use as nursing professionals.

**Credit Hours:** 3

**Prerequisites:** RN-BSN students only

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**NURSE 3100: Pharmacology for Nursing**

This course will focus on pharmacological classification and the nurse's role in medication administration and patient education. Medication issues with special populations will be addressed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** NURSE 3200 or NURSE 3260

**Prerequisites:** Restricted to Clinical BSN Accelerated students; restricted to clinical majors during early registration; PTH\_AS 2201 and PTH\_AS 2203 and MPP 3202

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**NURSE 3170: Nursing Skills, Technologies, and Simulation**

Provides laboratory experiences for fundamental to complex nursing skills and procedures. Focuses on application of therapeutic interventions and procedure to provide safe, patient-centered care.

**Credit Hours:** 4

**Prerequisites:** Clinical BSN Nursing CLN\_BSN

**Recommended:** NURSE 3270

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**NURSE 3180: Role Transitions**

Explores returning-to-school issues important to adult learners. Links previous basic nursing courses with baccalaureate courses and begins building new knowledge on prior nursing education.

**Credit Hours:** 3

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**NURSE 3200: Pathophysiology**

Focus is on commonly occurring alterations in health across the life span. Developmental concepts, diagnostics, and treatment modalities are integrated throughout course content. Enrollment requires admission to the clinical nursing major BSN option.

**Credit Hours:** 4

**Prerequisites:** Restricted to pre-nursing and students in the Clinical Nursing Major. PTH\_AS 2201 and PTH\_AS 2203 and MPP 3202

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**NURSE 3260: Pathophysiology**

Focus is on commonly occurring alterations in health across the life span. Developmental concepts, diagnostics, and treatment modalities are integrated throughout course content. Course is designed for students applying to the accelerated BSN option.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MICROB 2800 or MICROB 3200

**Prerequisites:** MPP 3202; PTH\_AS 2201 and PTH\_AS 2203

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**NURSE 3270: Foundations of Nursing: Physical Assessment and the Nursing Process**

NURSE 3270 provides knowledge and skills in physical assessment and the application of the Nursing Process. Clinical application of foundational knowledge determines the health status of individuals.

**Credit Hours:** 5

**Prerequisites or Corequisites:** For Clinical BSN, students must have completed NURSE 2000 and NURSE 2100 and be concurrently enrolled in NURSE 3170, NURSE 3200, NURSE 3300; for Clinical BSN Accelerated students must have completed NURSE 3200 or NURSE 3260 and be concurrently enrolled NURSE 3170 and NURSE 3100 or NURSE 3300

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**NURSE 3280: Fundamentals of Nursing**

This course assists students to identify and apply the nursing process in both laboratory and clinical settings. The course provides classroom, laboratory and clinical experiences for learning fundamental to complex nursing skills and technologies. Assists students with necessary application of foundational knowledge and critical thinking in the clinical setting. The student will utilize skills of data collection, documentation, communication, implementation and evaluation of a plan of care to meet health care needs. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites or Corequisites:** NURSE 3200 or NURSE 3260 and NURSE 3370 and NURSE 3300 or NURSE 3100

**Prerequisites:** Restricted to Clinical BSN Nursing Major

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**NURSE 3300: Pharmacology and Nursing Implications**

This course will focus on pharmacological classifications and the nurse's role in medication administration and patient education. Medication issues with special populations will be addressed. Graded on a A-F basis only.

**Credit Hours:** 4

**Prerequisites or Corequisites:** NURSE 3200 or NURSE 3260

**Prerequisites:** Restricted to Clinical Nursing Majors. PTH\_AS 2201 and PTH\_AS 2203 and MPP 3202

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**NURSE 3350: Individual Study**

Independent study for qualified students in specific areas of interest in nursing under faculty guidance. Some sections may be graded A-F only or S/U only.

**Credit Hour:** 0-6

**Prerequisites:** instructor's consent

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**NURSE 3370: Health Assessment in Nursing**

This course provides opportunities for students to acquire and build upon knowledge of health and illness and to develop skill in assessment of the whole individual. Students will learn a holistic approach to assessment, focused on physical, mental and social aspects, to determine the health status of individuals, families and communities. Students will develop skills in taking a health history and conducting a complete head-to-toe assessment of adults as well as individuals across the life-span from infants and children to older adults. Students will perform skills in a laboratory setting that are transferable to the clinical setting. The student is expected to apply knowledge from prerequisite and concurrent courses in data collection and interpretation of findings to determine the need for nursing care. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites or Corequisites:** NURSE 3200 or NURSE 3260 and NURSE 3370 and NURSE 3300 or NURSE 3100

**Prerequisites:** Traditional Students - Clinical Nursing Majors (CLN\_BSN) NURSE 2200 or NURSE 2100; Accelerated Students - Acceptance into the Accelerated Nursing Program

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**NURSE 3470: Mental Health Nursing**

Students discover behavioral, social, interpersonal, and neuro-biological aspects of mental health nursing. Therapeutic use of self in designing and implementing nursing care for clients throughout the life cycle is emphasized. Content on psychopathology is included.

**Credit Hours:** 5

**Prerequisites or Corequisites:** NURSE 3900 or NURSE 3900H

**Prerequisites:** NURSE 3280 and NURSE 3300 or NURSE 3100 and NURSE 3370

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**NURSE 3670: Nursing of Adults I**

Application of the nursing process to deliver care for hospitalized adults with health deviations. Evidence, technologies, professional standards and collaboration are used to enhance patient-centered, safe and effective care.

**Credit Hours:** 6

**Prerequisites or Corequisites:** NURSE 3900 or NURSE 3900H

**Prerequisites:** NURSE 3280 and NURSE 3300 or NURSE 3100 and NURSE 3370

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**NURSE 3750: Nursing of the Childbearing Family**

This course provides learning experiences with childbearing families. Students apply the nursing process to promote health and well-being for the childbearing family. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NURSE 3260 or NURSE 3200, and NURSE 3270, NURSE 3100, admission to accelerated BSN option

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**NURSE 3760: Pediatric Nursing**

Provides learning experiences with children and their families from newborn to adolescents. Examines health alterations that interfere with self-care in and for children.

**Credit Hours:** 3

**Prerequisites:** NURSE 3270, admission to accelerated option

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**NURSE 3800: Gerontological Nursing Care**

Emphasis on normal aging processes, health promotion, disease prevention, management of complex health conditions, and evaluation of care for older adults.

**Credit Hours:** 3

**Prerequisites or Corequisites:** NURSE 3300 or NURSE 3100

**Prerequisites:** NURSE 3370 and NURSE 3280

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**NURSE 3900: Introduction to Nursing Science**

Introduces nursing as a science from the perspective of knowledge development. Structures nursing knowledge from a theoretical perspective. Presents nursing research as a method of knowledge development and validation.

**Credit Hours:** 3

**Prerequisites:** STAT 1200 or STAT 1300 or ESC\_PS 4170 and Clinical Nursing Major

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**NURSE 3900H: Introduction to Nursing Science - Honors**

Introduces nursing as a science from the perspective of knowledge development. Students examine the structure of nursing knowledge using theory, research and clinical practice. Nursing research is discussed as a method of building nursing knowledge, developing practice based on evidence, and validation of clinical activities. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Clinical Nursing Majors and STAT 1200 or STAT 1300 or ESC\_PS 4170; Honors eligibility required

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**NURSE 4110: RN to MS Role Transition**

Seamless academic progression to support registered nurses prepared in community colleges and hospital based programs to advance their education is essential, based upon recommendations from professional nursing organizations, as well as institutions of higher learning. This course focuses on the role transitions encountered in advanced nursing roles at the master's level. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** RN to MSN majors

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**NURSE 4200: Nursing Ethics and Law**

This course examines and explores legal and ethical principles and applications as they pertain to clinical nursing practice and healthcare. The information in this course is applied in concurrent and subsequent program courses and provides a foundation for ethical and legal professional nursing practice.

**Credit Hours:** 3

**Prerequisites:** Restricted to RN-BSN students

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**NURSE 4200W: Nursing Ethics and Law - Writing Intensive**

Analyzes clinical nursing situations using ethical principles and decision-making models. Examines the basic doctrines and principles foundational for providing legally sound nursing practice.

**Credit Hour:** 3-4

**Prerequisites or Corequisites:** NURSE 3080 or NURSE 3670

**Prerequisites:** Senior Clinical Major

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**NURSE 4201: Legal Concepts in Nursing**

This course examines fundamental legal guidelines for professional nursing practice using content gleaned from nursing and medicine. The student will analyze and apply legal principles pertaining to nursing practice. Enrollment requires a prerequisite of a medical ethics, healthcare ethics or a bioethics course which is subject to instructor approval. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** PHIL 2440 or PHIL 1150 or HLTH\_SCI 4480

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**NURSE 4210: Nursing Ethics**

This course examines and explores legal and ethical principles and applications as they pertain to clinical nursing practice and healthcare. The information in this course is applied in concurrent and subsequent program courses and provides a foundation for ethical and legal professional nursing practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** NURSE 3370

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**NURSE 4210W: Nursing Ethics - Writing Intensive**

This course examines and explores legal and ethical principles and applications as they pertain to clinical nursing practice and healthcare. The information in this course is applied in concurrent and subsequent program courses and provides a foundation for ethical and legal professional nursing practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** NURSE 3370

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**NURSE 4270: Nursing of Children**

Nursing of children with acute and chronic health and developmental deviations. Self-care and dependent care abilities are emphasized. Content includes health promotion for infants, children and adolescents.

**Credit Hours:** 4

**Prerequisites or Corequisites:** For accelerated BSN students NURSE 3470

**Prerequisites:** For Clinical BSN, students must have completed NURSE 3470 and NURSE 3670

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**NURSE 4270H: Nursing of Children - Honors**

Nursing of children with acute and chronic health and developmental deviations. Self-care and dependent care abilities are emphasized. Content includes health promotion for infants, children and adolescents.

**Prerequisites or Corequisites:** For accelerated BSN students NURSE 3470; Honors eligibility required

**Credit Hours:** 4

**Prerequisites:** For Clinical BSN, students must have completed NURSE 3470 and NURSE 3670

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**NURSE 4300: Nursing Issues/Leadership and Management**

Examines leadership and organizational theories in relation to resource management and effective delivery of nursing to sets of clients. Analyzes societal/political issues and trends related to nursing and contemporary health care.

**Credit Hours:** 3

**Prerequisites or Corequisites:** NURSE 3670

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**NURSE 4380: Health Assessment and Pathophysiology**

Examines biologic basis for selected commonly occurring diseases throughout the life-span. Study and performance of health assessments with application of findings to adults and children.

**Credit Hours:** 3

**Prerequisites:** RN-BSN student

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**NURSE 4400: Nursing Leadership and Management**

Examines leadership, management, and organizational theories in relation to resource management and effective delivery of nursing to sets of clients. Analyzes societal and political issues and trends related to nursing and contemporary health care. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** RN-BSN student

**Corequisites:** NURSE 3080

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**NURSE 4470: Nursing of the Childbearing Family**

This course provides nursing care learning experiences for childbearing families. Students apply the nursing process to promote health and well-being for the childbearing family.

**Credit Hours:** 4

**Prerequisites:** For Clinical BSN, students must have completed NURSE 3470 and NURSE 3670

**Corequisites:** For Accelerated BSN students NURSE 3670

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**NURSE 4870: Nursing of Adults II**

Application of nursing process to care for adults with acute physiological health deviations. Leadership and management principles are integrated in delivering care for sets of clients.

**Credit Hour:** 3-7

**Prerequisites or Corequisites:** NURSE 4970

**Prerequisites:** NURSE 3470 and NURSE 3670 and NURSE 4270 and NURSE 4470

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**NURSE 4870H: Nursing of Adults II Honors**

Application of nursing process to care for adults with acute physiological health deviations. Leadership and management principles are integrated in delivering patient care. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** NURSE 3470 and NURSE 3670 and NURSE 4270 and NURSE 4470; Honors eligibility required

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**NURSE 4930: Evidence-Based Nursing Practice**

Concepts of evidence-based nursing practice are applied to clinical nursing questions, emphasizing use of research findings in practice settings to generate best nursing practices and optimal patient care outcomes.

**Credit Hours:** 5

**Prerequisites:** NURSE 4950

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**NURSE 4930W: Evidence-Based Nursing Practice - Writing Intensive**

Concepts of evidence-based nursing practice are applied to clinical nursing questions, emphasizing use of research findings in practice settings to generate best nursing practices and optimal patient care outcomes.

**Credit Hours:** 5

**Prerequisites:** NURSE 4950

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**NURSE 4950: Nursing Theory and Research**

Addresses nursing research as means of acquiring and refining knowledge. Research utilization to impact nursing addressed. Examines development and utilization of nursing theory.

**Credit Hours:** 3

**Prerequisites:** STAT 1200 or ESC\_PS 4170. Must be a RN-BSN student

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**NURSE 4950W: Nursing Theory and Research - Writing Intensive**

Addresses nursing research as means of acquiring and refining knowledge. Research utilization to impact nursing addressed. Examines development and utilization of nursing theory.

**Credit Hours:** 3

**Prerequisites:** STAT 1200 or ESC\_PS 4170. Must be a RN-BSN student

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**NURSE 4970: Nursing in Communities**

Examines roles and functions of nurses within community with emphasis on application of community/public health concepts and design and implementation of nursing systems of care for individuals, families, and populations.

**Credit Hour:** 4-5

**Prerequisites:** Restricted to RN-BSN students. NURSE 4950 and NURSE 4930

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**NURSE 4970H: Nursing in Communities - Honors**

(same as NURSE 4970W). Examines roles and functions of nurses within community with emphasis on application of community/public health concepts and design and implementation of nursing systems of care for individuals, families, and populations. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites:** Honors eligibility required. Students must meet one of the following - Traditional students - NURSE 4470, NURSE 4270 and NURSE 3470; or Accelerated students - NURSE 3750 and NURSE 3760 and pre- or co-enrolled in NURSE 3470

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**NURSE 4970HW: Nursing in Communities - Honors/Writing Intensive**

Examines roles and functions of nurses within community with emphasis on application of community/public health concepts and design and implementation of nursing systems of care for individuals, families, and populations.

**Credit Hours:** 5

**Prerequisites:** Honors Eligibility required; Students must meet one of the following - Traditional students - NURSE 4470, NURSE 4270 and NURSE 3470; or Accelerated students - NURSE 3750 and NURSE 3760 and pre- or co-enrolled in NURSE 3470

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**NURSE 4970W: Nursing in Communities - Writing Intensive**

Examines roles and functions of nurses within community with emphasis on application of community/public health concepts and design and implementation of nursing systems of care for individuals, families, and populations.

**Credit Hours:** 5

**Prerequisites or Corequisites:** Accelerated students - NURSE 3670 and NURSE 3470 and NURSE 4270 and NURSE 4470

**Prerequisites:** Students must meet one of the following - Traditional students - NURSE 4470, NURSE 4270

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**NURSE 7010: Biostatistical Foundations for Health Researchers**

Examines basic concepts of data management, study design, descriptive and inferential biostatistics using analytic software. Emphasizes statistical literacy and critical thinking for health researchers. Graded on A-F basis only.

**Credit Hours:** 3

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**NURSE 7087: Leadership and Technology Institute**

Introduction to knowledge and skills essential to support research and practice doctorates. May be repeated for credit.

**Credit Hour:** 1

**Prerequisites:** Admission to DNP or PhD program

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**NURSE 7089: Transition to APRN Practice**

The Transition to APRN Practice course is designed to provide additional guidance, support, and reinforcement of knowledge for new APRNs as they transition into practice. Case conferences, webinars, discussion, and speakers will be utilized to address a variety of topics of interest to the practitioner. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** MSN APRN Completion

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**NURSE 7100: Theoretical Basis for Advanced Nursing**

Analysis, application and evaluation of a variety of nursing and non nursing theories used in advanced nursing practice and research.

**Credit Hours:** 3

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**NURSE 7110: Advanced Nursing Roles and Professional Communication**

This course provides an overview of advanced nursing roles (Clinical Nurse Specialists, Nurse Practitioners [MS and DNP prepared], Executives, Educators, and Nurse Researchers [PhD]) and professional issues for which foundational knowledge of other advanced nursing courses will build. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Admission to the graduate program or faculty consent

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**NURSE 7120: Advanced Physiology and Pathophysiology**

Focus on the normal and altered physiological functioning of body systems. Provides essential knowledge of human health and disease across the lifespan necessary for advanced nursing practice.

**Credit Hours:** 3

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**NURSE 7130: Advanced Pharmacology and Pharmacotherapeutics**

Advanced practice nurse drug therapy management for health maintenance and treatment of acute episodic and chronic health problems in various populations over the life span.

**Credit Hours:** 3

**Prerequisites:** BSN or instructor's consent

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**NURSE 7140: Advanced Health Assessment and Promotion**

Expands history and physical assessment techniques across lifespan. Addresses diagnostic reasoning, differential diagnosis, selection of common diagnostic test, disease risk factors, and health promotion strategies.

**Credit Hours:** 3.5

**Prerequisites:** BSN or instructor's consent

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**NURSE 7150: Research Basis for Advanced Nursing**

Examines fundamentals of scientific inquiry. Addresses research design issues. Focuses on interpreting, critiquing, and synthesizing research findings.

**Credit Hours:** 3

**Prerequisites:** NURSE 7100

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**NURSE 7160: Scientific Foundations for Health Sciences**

Students examine integrity in scientific research; scientific inquiry fundamentals; research design issues; theory analysis, application, and evaluation; data analyses for research designs; and critical evaluation of research findings in health sciences. Graded on A-F basis only.

**Credit Hours:** 4

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**NURSE 7500: Foundations of Care Management: Professional, Legal, Financial, and Business**

This course will introduce students to the interdisciplinary care management role. Topics covered include practice settings and models of care as well as professional, legal, financial, and leadership responsibilities within the context of the current U.S. health system. Graded on A-F basis only.

**Credit Hours:** 3

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**NURSE 7510: Pharmacology, Pathophysiology, & Physical Assessment for Care Managers**

This course develops student's knowledge of common acute and chronic health conditions. Topics include normal and altered physiological functioning, physical assessment, and therapeutic interventions. Students gain an understanding of human health and disease across the lifespan, which can be applied to care management practice. Graded on A-F basis only.

**Credit Hours:** 3

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**NURSE 7750: Functional Dimensions of Aging**

(same as ARCHST 7640, F\_C\_MD 7750, HMI 7750, H\_D\_FS 7750, SOC\_WK 7752). This online course provides a variety of learning activities to facilitate understanding and appreciation of physical, psychosocial, and economic challenges older adults may experience. Content will include determinants of and approaches to quality of life and successful aging. Graded on A-F basis only.

**Credit Hours:** 3

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**NURSE 7751: Psychosocial Function and Older Adults**

(same as ARCHST 7650, F\_C\_MD 7751, HMI 7751, H\_D\_FS 7751, P\_HLTH 7751 and SOC\_WK 7751). This course takes an Interdisciplinary approach to understanding the psychosocial function of older adults and explores approaches to alleviate disabling conditions that interfere with psychosocial function and quality of life in old age. Graded on A-F basis only.

**Credit Hours:** 3

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**NURSE 8001: Topics in Advanced Clinical Nursing**

Specialized topics in advanced clinical nursing not available through regularly offered courses.

**Credit Hours:** 3

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**NURSE 8002: Research Topics in Nursing and Health**

Topics courses are intended for special offerings, or as opportunities to experiment with a new course prior to seeking approval for it as a regular course. Graded on A-F basis only.

**Credit Hours:** 3

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**NURSE 8010: Family Dynamics and Intervention**

(same as H\_D\_FS 8012). Theories of family function and dysfunction; techniques of assessment; models of family intervention. Practicum with selected families.

**Credit Hours:** 3

**Prerequisites:** NURSE 7100 (Nursing students)

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**NURSE 8020: Intermediate Statistical Methods for Health Researchers**

Examination of generalized linear models, multiple logistic regression, and multilevel modeling as applied to health sciences research.

**Credit Hours:** 3

**Prerequisites:** NURSE 7010 or equivalent

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**NURSE 8030: Interpreting Statistical Evidence in the Health Sciences**

Students learn to critically evaluate statistical designs and data analysis methods used in health sciences research and scientific evidence for health care decision making. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** Graduate level statistics course

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**NURSE 8085: Problems in Nursing**

Guided readings, special study and/or a practicum in an area of the student's interest or in an area which the student needs to strengthen. Selected sections of the course may be offered on A-F or S/U basis only.

**Credit Hour:** 1-4

**Prerequisites:** instructor's consent

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**NURSE 8090: Research in Nursing**

Original investigation for presentation as thesis or dissertation. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** graduate statistics, instructor's consent

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**NURSE 8100: Principles of Epidemiology**

Explores key concepts of epidemiology and epidemiologic methods for studying the distribution and determinants of health and disease in populations. Application to public health and population-based practice addressed.

**Credit Hours:** 3

**Prerequisites:** NURSE 7150 or faculty consent

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**NURSE 8150: Interprofessional Practice: Transforming Healthcare**

This course provides an introduction to interprofessional care management theories and models within the health professions. Differences and similarities of the specific elements that comprise various models of care management will be explored. Core competencies of interprofessional collaborative practice will be examined with specific emphasis placed on developing a wraparound service model that uses an interprofessional team approach. Graded on A-F basis only.

**Credit Hours:** 3

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**NURSE 8160: Evidence Based Care Management Practice for Individuals and Populations**

This course builds upon fundamentals of interdisciplinary care management. Evidence based practice concepts are explored including distinguishing relevant resources and critiquing specific evidence related to care management. Tools, assessments, and techniques used in the management of complex patients with physical and mental health needs will be examined. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NURSE 7500 and NURSE 7510

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**NURSE 8170: Public Health, Sociocultural Issues, and Health Policy**

Explores concepts of public health, social determinants of health, and health policy interventions. This course evaluates the role of the advanced practice nurse in the development, implementation, advocacy for and administration of programs and policies designed to meet the health needs of the public. Graded on A-F basis only.

**Credit Hours:** 3

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**NURSE 8210: Special Health Care Needs of Children**

Perform developmental, neuro developmental, and psychosocial assessments of chronically ill children. Collaborate with families, schools; health care, community, family services to meet child's needs.

**Credit Hour:** 3.5-5

**Prerequisites:** NURSE 7100 or instructor's consent

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**NURSE 8300: Public Health and Sociocultural Issues**

Explores concepts of public health with a focus on the advanced practice nurse in population-based/primary care practice; core public health functions will be addressed at three service levels--the aggregate, the family, and the individual.

**Credit Hours:** 3

**Prerequisites:** NURSE 7100

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**NURSE 8310: Health Disparities of Rural and Other Underserved Populations**

In-depth examination of rural and other vulnerable populations and their interactions with the health care system including access, utilization, and outcomes. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** NURSE 7087, NURSE 8300 or faculty consent

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**NURSE 8400: Adult and Geriatric Primary Care I**

Advanced practice nursing clinical diagnosis and management of acute and chronic cardiovascular, respiratory, HEENT, renal, metabolic and musculoskeletal problems in adults, older adults and their families.

**Credit Hour:** 3.5-5

**Prerequisites:** NURSE 7120, NURSE 7130, NURSE 7140

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**NURSE 8410: Adult and Geriatric Primary Care II**

Advanced practice nursing clinical diagnosis and management of acute and chronic gastrointestinal, endocrine, hematological, neuropsychological problems and bioterrorism and CAM issues in adults, older adults and their families.

**Credit Hour:** 3.5-5

**Prerequisites:** NURSE 8400

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**NURSE 8420: Newborn Through Adolescence Primary Care**

Advanced nursing practice of newborn through adolescence of health maintenance/promotion, clinical diagnosis and management of common childhood illness, behavioral, developmental problems. Advanced knowledge of human growth, development, family dynamics, community resources, collaborative relationships. Integrated clinical practicum.

**Credit Hour:** 3.5-5

**Prerequisites:** NURSE 7140 or NURSE 7310

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**NURSE 8425: Participatory Approaches for Health and Health Systems**

(same as F\_C\_MD 8425). Focuses on the use of participatory approaches for the design of health and health-system interventions. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NURSE 8100 or F\_C\_MD 8420 or instructor consent

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**NURSE 8430: Reproductive and Sexual Health Primary Care**

Reproductive, sexual issues, adolescence through aging. Design, delivery, evaluation of nursing management of women, reproductive health care of men. Stresses personal health promotion.

**Credit Hour:** 3.5-5

**Prerequisites:** NURSE 7140, NURSE 8410 or instructor's consent

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**NURSE 8540: Advanced Diagnostics and Reasoning I**

Expands upon knowledge of advanced assessment, diagnostic, and procedural skills; utilizes current technology in a cost-effective and patient-centered manner. Clinical increases specialty-specific knowledge. May be repeated for credit.

**Credit Hour:** 3.5-5

**Prerequisites:** 4th clinical specialty course

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**NURSE 8545: Advanced Diagnostics II**

Expands upon initial advanced assessment, diagnostic, and procedural skills; utilizes the latest technology in a cost-effective and patient-centered manner. Clinical component allows for increasing specialty-specific knowledge to provide appropriate evidence-based management of pediatric, adult and geriatric populations. Population focus will be discipline specific. Graded on A-F basis only.

**Credit Hour:** 3.5-5

**Prerequisites:** NURSE 8540

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**NURSE 8610: Diagnostics and Psychopharmacology for Mental Health Nurses**

Emphasis is on the neurobiologic basis and diagnosis of mental health problems and advanced nursing management of psychiatric conditions using pharmaceutical agents.

**Credit Hour:** 3.5-4

**Prerequisites:** NURSE 7120, NURSE 7130 and NURSE 7140

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**NURSE 8620: Brief Individual Psychotherapy for Mental Health Nurses**

Develops advanced skills in assessment, treatment, and follow-up evaluation of individuals experiencing acute mental health problems. Emphasizes brief psychotherapy based on frameworks from nursing and other disciplines.

**Credit Hour:** 3.5-4

**Prerequisites:** NURSE 8610

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**NURSE 8640: Group Therapy and Social Skills Training**

Application of group and behavioral methods in mental health prevention, promotion, maintenance, and restoration. Designing, implementing, and evaluating mental health promotion groups and social skills training programs.

**Credit Hour:** 3.5-4

**Prerequisites:** NURSE 8610

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**NURSE 8660: Mental Health Nursing Interventions for Families**

Application of nursing and family theories in advanced nursing management of families experiencing a variety of problems. Emphasis on designing, implementing, and evaluating advanced nursing interventions for families.

**Credit Hour:** 3.5-4

**Prerequisites:** NURSE 8620 or consent of instructor

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**NURSE 8680: Pediatric Mental Health Assessment and Treatment**

Develops advanced skills in psychiatric assessment and follow-up evaluation of children and adolescents experiencing mental health problems. Explores diagnosis, treatment, and management of child and adolescent mental health disorders. Graded on A-F basis only.

**Credit Hour:** 3.5-4

**Prerequisites:** NURSE 8610 or faculty consent

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**NURSE 8710: Clinical Management of Acute and Critical Care Problems**

Advanced practice nurse management of selected clinical problems across the lifespan commonly encountered in the acute and/or critical care settings. Patient safety, technology, and product selection addressed. Integrated clinical practicum with selected population and setting. May be repeated for credit.

**Credit Hour:** 3.5-5

**Prerequisites:** NURSE 7140

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**NURSE 8720: Symptom Management in Acute and Chronic Illness**

Clinical management of symptoms of acute and chronic illness across the lifespan. Preparation for teaching patient self-management strategies. Integrated clinical practicum with selected population and setting.

**Credit Hour:** 3-5

**Prerequisites:** NURSE 7140 and NURSE 7150 or faculty consent

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**NURSE 8820: Health Care Financial Management**

Prepares nurses to use the techniques that facilitate financial analysis and decision-making for patient care programs across the healthcare continuum. Focuses on efficient, effective management of resources for delivery of quality healthcare services. Prerequisites: NURSE 7100



**Credit Hours:** 4

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**NURSE 8830: Informatics Applications and Innovations in Health Care Systems**

This course explores informatics from the perspective of health related fields through technology assessment and evaluation, and research and development in technological innovations. The impact of technology on patient privacy will also be examined. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NURSE 7087 or instructor's consent

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**NURSE 8840: Nursing Leadership, Innovation, and Entrepreneurship**

This course will provide an overview of leadership theories and strategies for managing individuals, groups, or systems within rapidly changing healthcare environments. Innovative and cutting edge phenomena in healthcare will be explored as well as entrepreneurship. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NURSE 7087 or instructors consent

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**NURSE 8854: Teaching Strategies in Nursing**

Examines principles, issues, techniques, and evaluation methods in teaching nursing. Focuses on the development of a variety of teaching strategies and evaluation methods for didactic and clinical settings.

**Credit Hours:** 3

**Prerequisites:** NURSE 7100 and NURSE 7110 or instructor's consent

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**NURSE 8860: Organizations & Human Resource Management in Nursing**

This course will examine various organizational theories, organizational behavior, and the impact of change within organizations. Participants will apply and analyze workforce management principles in regard to employee rights, resources, and responsibilities. May be repeated for credit. Graded on an A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NURSE 7087 or instructors consent

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**NURSE 8864: Curriculum Development in Nursing**

Examines theoretical foundations, principles, and issues in curriculum design. Explores systematic evaluation of curriculum at all levels.

**Credit Hours:** 3

**Prerequisites:** NURSE 7100 and NURSE 7110 or instructor's consent

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**NURSE 8890: Clinical/Scholarly Project**

Design, implement and evaluate nursing projects derived from theory, including written report with explanation or justification to support the empirical and/or theoretical basis for the project. Graded on a S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** NURSE 7100, NURSE 7150, graduate statistics

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**NURSE 8900: Research Practicum in Nursing**

Selected independent research activities in conjunction with ongoing research programs of faculty. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** NURSE 7150, graduate statistics, instructor's consent

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**NURSE 8910: Translational Evidence-Based Nursing Practice**

Provides essential skills for utilizing research to support practice change: assessing practice based problems, analyzing current evidence, proposing practice changes, and developing plans for implementing evidence-based practice concepts.

**Credit Hours:** 3

**Prerequisites:** NURSE 8100 or NURSE 7150, or faculty consent

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**NURSE 8920: Quality, Safety, and Performance Outcomes**

Uses information systems to identify and analyze patient safety and other clinical issues and recommend system-wide actions and measurement plans that result in safe, effective, efficient, equitable, patient-centered outcomes.

**Credit Hours:** 3

**Prerequisites:** NURSE 8910

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**NURSE 8930: Health Program Design and Management**

Designing, implementing and evaluating effective health programs. Addresses leadership and organizational change issues.

**Credit Hours:** 3

**Prerequisites:** NURSE 8920 or instructor's consent

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**NURSE 8940: Nursing and Health Policy**

Designed to explore and critically evaluate the role of nursing and nurse leaders/scholars in health policy development and the organization and financing of health care in response to the health and social needs of the public.

**Credit Hours:** 3

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**NURSE 8950: Teaching Nursing Practicum**

Participation in application of principles and methods of teaching, learning, and evaluation to the education of nursing students. Graded on S/U basis only.

**Credit Hours:** 4

**Prerequisites:** NURSE 8854 and NURSE 8864

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**NURSE 8954: Distance-Mediated Teaching Nursing Practicum**

Faculty-guided application of distance mediated teaching, learning, and evaluation methods with graduate &/or undergraduate nursing students. Course graded on S/U basis only.

**Credit Hours:** 4

**Prerequisites:** NURSE 8854 and NURSE 8864 or equivalents

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**NURSE 8955: Care Management Role-Focused Practicum**

Care management will be delivered in the student's setting and population of interest with an approved preceptor. Students will have the opportunity to operationalize content from prerequisite courses related to care management practice. Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites:** NURSE 7500, NURSE 7510, NURSE 8150 and NURSE 8160

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**NURSE 8960: Leadership in Nursing and Healthcare Systems Practicum**

Participation in application of principles and methods of leadership, management, and evaluation to facilitate patient care operations in various settings. Graded on an S/U basis only.

**Credit Hours:** 5

**Prerequisites:** NURSE 8800, NURSE 8810, NURSE 8820

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**NURSE 8980: Advanced Clinical Nursing Practicum**

Intensive preceptor or faculty-guided clinical experience that synthesizes previous theory and clinical coursework. Refines knowledge and skills required to transition to an autonomous advanced nursing practice role. Graded on S/U basis only.

**Credit Hour:** 2-7

**Prerequisites:** NURSE 7110, NURSE 8910 or faculty consent

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**NURSE 8990: Practice Inquiry**

In this course, students will demonstrate a culmination of knowledge and skills learned throughout the MS program. Students must successfully complete a critical review of the literature in an integrative review format on a healthcare topic of their choice related to their area of study. The MS Examination is the final course product comprised of the comprehensive oral presentation that assists in evaluating the paper process and students meeting program outcomes. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** Course must be completed in last semester of coursework

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**NURSE 9020: Hierarchical Linear Models for Health Researchers**

Introduction to the use of hierarchical or multilevel models which take into account dependencies between observations. Content will cover basic concepts, theory, and application of hierarchical linear models. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NURSE 8020 or instructor consent

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**NURSE 9070: DNP Clinical Residency**

Intensive clinical experience. Prepare experts in advanced nursing practice and leadership to effectively evaluate practice problems, translate evidence into practice, monitor outcomes, and implement innovative models of care. May be repeated for credit. Some sections may be graded on either an A-F or S/U basis only.

**Credit Hour:** 1-5

**Prerequisites:** NURSE 8930 and NURSE 8450 or NURSE 8610

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**NURSE 9080: DNP Residency Project**

Final synthesis of DNP coursework culminating in an in-depth practice change project or case analysis impacting a rural or other underserved population or critical healthcare system need. May be repeated for credit. Some sections may be offered on an A-F or S/U graded basis only.

**Credit Hour:** 1-3

**Prerequisites or Corequisites:** NURSE 8930 and NURSE 9070

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**NURSE 9087: Leadership and Transformational Role Institute**

Synthesis of advanced nursing practice knowledge and leadership skills. Prepares DNP graduate to implement an advanced nursing practice role that will result in practice and/or policy change at the local, state, or national levels. May be repeated for credit.

**Credit Hours:** 2

**Prerequisites or Corequisites:** NURSE 9080 and NURSE 9070

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**NURSE 9090: Research in Nursing and Health**

Original research leading to dissertation. Graded on S/U basis only.

**Credit Hour:** 1-12

**Prerequisites:** Instructor's consent

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**NURSE 9100: State of the Science**

The existing body of research literature is the foundation upon which new scientific knowledge is built. This course will guide the student through the purpose and processes of scholarly writing. Students will conduct a systematic review of the scientific literature on a selected focus area in the health sciences. Students will work with course faculty, with input from the student's advisor, to develop and implement strategies to search, evaluate, and synthesize the literature in the selected area. Scholarly writing will be emphasized in this course. Graded on an A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Admission to a doctoral program or permission of instructor

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**NURSE 9120: Philosophical and Theoretical Basis for Research**

Based on an understanding of the philosophy of science, critically appraise and adapt conceptual models and theoretical frameworks for use in research.

**Credit Hours:** 3

**Prerequisites:** NURSE 7100 or faculty consent

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**NURSE 9131: Responsible Conduct of Research in the Health and Social Sciences**

(same as H\_D\_FS 9131) This course examines professional research ethics including the rights of human subjects. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Instructor's permission required

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**NURSE 9132: Writing Research Grants: Skill Building**

(same as H\_D\_FS 9130). This course teaches the components of writing a research grant for external funding. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NURSE 9120, graduate research methods course, or instructor's permission

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**NURSE 9410: Advanced Quantitative Methods**

(same as H\_D\_FS 9200). Study of explanatory and predictive quantitative designs in health-related research, including nested, double-blind, time series, casual models, retrospective cohort; secondary database use will be explored.

**Credit Hours:** 3

**Prerequisites:** NURSE 9131, Advanced Statistics Course

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**NURSE 9420: Qualitative Methods**

(same as H\_D\_FS 9420) Examines the following selected qualitative research approaches appropriate for the study of nursing phenomena and the extension or modification of scientific knowledge so as to be relevant to nursing: case study research methods, verbal qualitative approaches, and nonverbal qualitative approaches. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NURSE 7150 and doctoral status (or permission of faculty)

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**NURSE 9450: Doctoral Seminar: Social Determinants of Health**

Doctoral seminar on defining, measuring and conducting research on social determinants of health. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** NURSE 9120 and NURSE 9410

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**NURSE 9460: Theories and Interventions in Health Behavior Science**

Focuses on health behavior science theories, linking theories to measurement, and designing health behavior interventions. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** NURSE 9100, NURSE 9120 or faculty consent

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**NURSE 9470: Technology Evaluation in Health Care Systems Research**

(same as HMI 9440). Examines technology applications and evaluation methods used to determine outcomes, efficiencies, effectiveness, satisfaction, and cost of using technology. Prerequisites: 6 credit hours of graduate statistics;

**Credit Hours:** 3

**Prerequisites or Corequisites:** NURSE 9410 or faculty consent

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**NURSE 9540: Seminar in Nursing**

Course content varies. May be repeated to a maximum of six hours.

**Credit Hour:** 1-99

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**NURSE 9550: Meta-Analysis Research**

(Same as H\_D\_FS 9550). Examines quantitative synthesis including research questions, search strategies, coding issues, meta-analysis statistical procedures, and interpretation of findings. Emphasizes conceptual understanding and practical methods.

**Credit Hours:** 3

**Prerequisites:** 6 credit hours of graduate statistics courses, NURSE 9410 or graduate level quantitative methods course

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**NURSE 9560: Qualitative Systematic Reviews**

(Same as SOC\_WK 9560 and H\_D\_FS 9560) Examine and carry out elements of qualitative systematic reviews: topic/problem identification, data collection, and analysis. Understand how to limit threats to validity and maximize generalizability.

**Credit Hours:** 3

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**Prerequisites:** NURSE 9420 or equivalent

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**NURSE 9710: Advanced Research Practicum**

Mentored research experience designed by student, mentor, and program committee based on student's substantive areas of interest and program of research. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites or Corequisites:** NURSE 9120; advisor consent

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## Nutrition Courses

**NUTRIT 7020: Monogastric Nutrition**

(same as AN\_SCI 7312 and NEP 7020; cross-leveled with AN\_SCI 4312 and NEP 4020). Principles of nutrition, feed formulation and recent research in poultry feeding. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** AN\_SCI 3242

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## Nutrition and Exercise Physiology Courses

**NEP 1001: Topics in Nutritional Sciences**

Supervised study in specialized topic of nutritional sciences.

**Credit Hour:** 1-99

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**NEP 1034: Introduction to Human Nutrition**

Basic nutrition principles, including: nutrient functions, food sources, and needs; healthy eating tools; energy balance and weight management; nutrition and fitness; nutrition through the life cycle; food safety; and consumer topics. No credit if taken after NEP 2340.

**Credit Hours:** 3

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**NEP 1034H: Introduction to Human Nutrition - Honors**

Basic nutrition principles, including: nutrient functions, food sources, and needs; healthy eating tools; energy balance and weight management; nutrition and fitness; nutrition through the life cycle; food safety; and consumer topics. No credit if taken after NEP 2340.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**NEP 1210: The Ethics of Eating**

This introductory course for non-majors provides a general overview of the scope of ethical issues we should consider surrounding the food we eat. We explore the intersection of the science and societal issues regarding what we eat. We will discuss what we choose to eat, how related issues such as agricultural practices and food transportation impact those choices with an emphasis on the intersection of the science and current societal considerations.

**Credit Hours:** 3

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**NEP 1310: Food and Cultures of the World**

Trans-disciplinary approach to nutrition, considering anthropological, physiological, geographical, socioeconomic and psychological elements in world nutrition. These ideas will be explored in the context of cuisines and cultures that are found in the US, but originate elsewhere.

**Credit Hours:** 3

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**NEP 1310W: Food and Cultures of the World - Writing Intensive**

Trans-disciplinary approach to nutrition, considering anthropological, physiological, geographical, socioeconomic and psychological elements in world nutrition. These ideas will be explored in the context of cuisines and cultures that are found in the US, but originate elsewhere.

**Credit Hours:** 3

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**NEP 1340: Introduction to Exercise and Fitness**

Provides students with practical information about exercise and physical fitness. After taking this class, students will be prepared to be physically active, understand the 'Do's and Don'ts' of exercise, and know how to live a healthy way of life. As part of the course, students will assess their current level of activity/fitness, develop a plan for improvement, and put that plan into action.

**Credit Hours:** 3

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**NEP 1485: Career Exploration in Exercise Science**

Undergraduate course designed to provide an overview of the components important to developing an understanding and appreciation of all aspects of Exercise Science. Graded on A-F basis only.

**Credit Hour:** 1

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**NEP 1995: Nutritional Food Science**

The study of components of food systems and how they are affected by processing, preservation, preparation and by techniques that improve taste, texture, flavor, appearance and nutrient retention. This course is 100% online and includes a virtual lab. Graded on A-F basis only.

**Credit Hours:** 3

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**NEP 2085: Problems in Nutritional Sciences**

Supervised study in a specialized phase of nutritional sciences.

**Credit Hour:** 1-99

**Prerequisites:** consent required

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**NEP 2140: Exercise Practicum I**

This course provides an overview of the necessary skills and techniques for successful implementation of exercise programming. This course will help prepare the student for completion of the PANHP degree and prepare for completion of the ACSM EP-C certification.

**Credit Hours:** 3

**Prerequisites:** NEP 1340 and NEP 1485

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**NEP 2222: Landscape of Obesity**

The societal, economic, medical, behavioral, and psychological causes and results of the obesity epidemic and potential modes of treatment and prevention. Lecture course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing required

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**NEP 2340: Human Nutrition I**

Basic concepts of normal nutrition related to physiological/ chemical processes; changing nutrient needs during human life cycle, emphasis on

adult; some social/psychological influences on dietary habits. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or better in CHEM 2030 or CHEM 2100 or CHEM 2160H

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**NEP 2340H: Human Nutrition I - Honors**

Basic concepts of normal nutrition related to physiological/chemical processes; changing nutrient needs during human life cycle, emphasis on adult; some social/psychological influences on dietary habits. Includes weekly discussion on controversial issues. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CHEM 2030 or CHEM 2100 or CHEM 2160H. NEP majors must have a C- or better in CHEM 2030, CHEM 2100 or CHEM 2160H. Honors eligibility required

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**NEP 2380: Diet Therapy for Health Professionals**

Principles underlying normal nutrition and diet for health and disease. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**NEP 2450: Nutrition Throughout the Life Span**

Nutritional requirements, challenges, community nutrition programs, and eating patterns throughout the life span with emphasis on health promotion and disease prevention; Role of beliefs, culture, socio-psychological influences, and economic resources in food selection and nutrition/health status. Lecture/discussion course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NEP 1034 or NEP 2340 or NEP 2380 or equivalent. Nutrition and Exercise Physiology majors must earn a C or better in NEP 2340 or 2380 to enroll

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**NEP 2460: Eating Disorders**

Definition, etiology, treatment, and research related to eating disorders: anorexia nervosa, bulimia nervosa and binge eating disorder/obesity. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** NEP 1034 or 2380

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**NEP 3001: Topics in Nutritional Science**

Instruction in specific subject matter areas in the field of food science and nutrition.

**Credit Hour:** 1-99

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**NEP 3085: Problems in Nutritional Sciences**

Advanced problems in a selected field of food science and nutrition.

**Credit Hour:** 1-99

**Prerequisites:** consent required

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**NEP 3085W: Problems in Nutritional Sciences - Writing Intensive**

Advanced problems in a selected field of food science and nutrition.

**Credit Hour:** 1-99

**Prerequisites:** consent required

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**NEP 3131: International Nutrition and Exercise Physiology**

Immersion into and examination of selected cultures - beliefs, practices, policies and social structures around food, physical activity and health. Graded on A-F basis only.

**Credit Hour:** 0-6

**Prerequisites:** instructor's consent

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**NEP 3131H: International Nutrition and Exercise Physiology - Honors**

Immersion into and examination of selected cultures - beliefs, practices, policies and social structures around food, physical activity and health. Graded on A-F basis only.

**Credit Hour:** 0-6

**Prerequisites:** instructor's consent; Honors eligibility required

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**NEP 3290: Food Service I: Supervised Practice Experience**

A practicum designed to expose the student to concepts of quantity food production, evaluation of products and resources, personnel administration and application of food microbiological principles. 1 lecture class and 4 hours of supervised practice per week. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Open only to students accepted into the Coordinated Program in Nutrition and Foods/Dietetics. Department consent required

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**NEP 3360: Nutritional Assessment Supervised Practice Experience**

Supervised practice to develop skills in screening individuals for nutrition risk; use of dietary, anthropometric, laboratory, clinical and sociocultural criteria to assess nutritional status of individuals, 8 hours of supervised practice per week. Enrollment limited to students who have taken or are concurrently enrolled in NEP 4360; Open to Nutrition and Food majors in the Coordinated Program in Dietetics only.

**Credit Hours:** 2

**Prerequisites:** Open only to students accepted into the Coordinated Program in Nutrition and Foods/Dietetics. Departmental consent required

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**NEP 3370: Medical Nutrition Therapy I: Supervised Practice Experience**

Practice and application of principles of nutrition care for selected disease states. 12 hours of supervised practice per week. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Open to students accepted into the Coordinated Program in Nutrition and Foods/Dietetics only. Department consent required

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**NEP 3390: Teaching and Counseling Techniques in Nutrition**

Principles and theories of learning; Resources, methods and techniques for teaching food/nutrition principles and dietary guidelines; Group dynamics and facilitation; Introduction to counseling theories and methods used in nutrition care of individuals. Lecture course. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** C or better in PSYCH 1000 and NEP 2340

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**NEP 3400: Teaching & Counseling Techniques in Nutr. Supervised Practice Exp**

Skill development and practice in counseling individuals for health promotion and disease prevention and the teaching of food and nutrition topics to groups. 4 hours of supervised practice per week. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Open only to students accepted into the Coordinated Program in Nutrition and Foods/Dietetics. Department consent required

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**NEP 3420: Role of Inactivity in Chronic Diseases**

This course is designed to provide an understanding of selected topics related to physical inactivity and chronic diseases and conditions including obesity, type 2 diabetes, hypertension, vascular dysfunction, atherosclerosis, heart failure, and dementia. Specifically, this course will focus on examining the scientific evidence supporting the role of sedentarism as a causal factor in the development of chronic diseases and the role of physical activity as a mitigating factor. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NEP 1340 and MPP 3202 or BIO\_SC 3700 - NEP majors must receive a C or better in the pre-reqs

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**NEP 3450: Activity Throughout the Lifespan**

Course is designed to develop knowledge and understanding of the value of physical activity across the lifespan. The physiology, psychology, and guidelines of exercise, along with the integration of nutrition with physical activity, will be explored from pregnancy through early development and into old age. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NEP 1340 - NEP majors must have a C or higher; May be restricted to Nutrition and Fitness/ Physical Activity, Nutrition and Human Performance majors only during early registration

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**NEP 3550: Corporate, Community, and Personal Fitness**

Course is designed to develop the knowledge and understanding of exercise application for corporate wellness, community programs, and personal fitness. Topics covered will include exercise prescription, behavioral and motivational theories, legality, ethics and professionalism, and how these topics relate to corporate, community, and personal fitness clients. Students should be able to understand the various needs of these populations and how to apply the science of physical activity, nutrition, and human performance to each. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NEP 1340 and NEP 2340 or NEP 2380. NEP majors must have a C or better in these courses to enroll

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**NEP 3590: Community Nutrition Supervised Practice Experience**

A practicum which explores and applies the concepts and techniques of nutrition programming in a community setting. 4 hours of supervised practice per week. Enrollment limited to students who have taken NEP 4590. Open to students enrolled in the Coordinated Program in Dietetics only. Graded on A-F basis only.

**Credit Hour:** 1

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**Prerequisites:** Open to Nutrition and Foods students accepted into the Coordinated Program in Dietetics. Departmental consent required

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**NEP 3800: Prevention and Care of Athletic Injury**

Theory, practice in prevention, emergency care, rehabilitation of injuries encountered in vigorous games.

**Credit Hours:** 3

**Prerequisites:** PTH\_AS 2201. Restricted from Pre-Nutrition and Fitness majors

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**NEP 3820: Kinesiology**

Study of the relationships of physical laws, mechanical principles, and structural parameters to the analysis of human motion, with emphasis on application to daily activities, sport/athletic performance, and developmental exercise.

**Credit Hours:** 3

**Prerequisites:** PTH\_AS 2201

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**NEP 3850: Physiology of Exercise**

This is the basic course in exercise physiology, which applies specific principles and concepts of human physiology to the physical work situation. This course will look at ventilation, oxygen transport, cardiovascular physiology, muscle physiology and the metabolic systems; and emphasis will be given to the adaptations to exercise and training.

This course will first explore basic exercise physiology and then will explore many of the applied issues pertaining to performance and health. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PTH\_AS 2201; MPP 3202 or BIO\_SC 3700. Restricted from Pre-Nutritional and Fitness students

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**NEP 3850W: Physiology of Exercise - Writing Intensive**

This is the basic course in exercise physiology, which applies specific principles and concepts of human physiology to the physical work situation. This course will look at ventilation, oxygen transport, cardiovascular physiology, muscle physiology and the metabolic systems; and emphasis will be given to the adaptations to exercise and training.

This course will first explore basic exercise physiology and then will explore many of the applied issues pertaining to performance and health. Graded on A-F basis only..

**Credit Hours:** 3

**Prerequisites:** C or better in PTH\_AS 2201; MPP 3202 or BIO\_SC 3700. C- or better in ENGLISH 1000

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**NEP 4001: Topics in Nutrition and Exercise Physiology**

Instruction in specific subject matter areas in the field of nutrition science and exercise physiology.

**Credit Hour:** 1-3

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**NEP 4088: Advanced Seminar in Dietetics**

Examines current applications in nutrition and dietetics, using journal articles and position and practice papers. Graded on A-F basis only.

**Credit Hour:** 1-5

**Prerequisites:** Department consent required. Must be enrolled in Coordinated Program in Dietetics

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**NEP 4200: Sports Performance and Conditioning**

(cross-leveled with NEP 7200). Course utilizes scientific theory and applied instruction to teach procedures, techniques, and modalities used to improve physical sports performance. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PTH\_AS 2201, MPP 3202 or BIO\_SC 3700 - NEP majors must have a C or better in these courses. Junior or senior standing required

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**NEP 4280: Food Service Management**

(cross-leveled with NEP 7280). Issues related to marketing and financial control in the foodservice sector. Lecture course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MANGMT 3000 or equivalent

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**NEP 4290: Food Serv. II: Adv. Food Service Manage. Supervised Practice Exp**

A practicum tailored to apply marketing and budgetary principles in the foodservice industry. 8 hours of supervised practice per week. Enrollment limited to students with concurrent enrollment in NEP 4280. Open to students admitted to the Dietetics program. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Open to students accepted into the Coordinated Program in Dietetics only. Departmental consent required

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**NEP 4330: Human Nutrition II Laboratory**

(cross-leveled with NEP 7330). A techniques course in nutrition, usually taken concurrently with NEP 4340.

**Credit Hours:** 2

**Prerequisites:** NEP 2340, Biochemistry and instructor's consent

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**NEP 4340: Human Nutrition II Lecture**

(cross-leveled with NEP 7340). Physiological and biochemical aspects of nutrition; functions of methods of measuring nutritional status; various aspects of applied nutrition. Continuation of NEP 2340. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NEP 2340 - NEP majors must have a C or better to enroll and either BIOCHM 3630, BIOCHM 4270 or BIOCHM 4272

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**NEP 4360: Nutritional Assessment**

(cross-leveled with NEP 7360). Introduction to the nutrition assessment process. The identification of dietary, anthropometric, laboratory, clinical and sociocultural parameters used to assess nutritional status of individuals. Lecture course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C or better in NEP 2340

---

**NEP 4370: Medical Nutrition Therapy I**

(cross-leveled with NEP 7370). In-depth study of physiological/ biochemical changes in selected disease states (cardiovascular disease, rehabilitation, diabetes and cancer); development of principles underlying nutrition therapy. Lecture course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C or better in NEP 4360

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**NEP 4380: Medical Nutrition Therapy II**

(cross-leveled with NEP 7380). Evaluation, design and monitoring of the nutrition care of complex health disorders such as advanced gastrointestinal complications, major organ transplant, and metabolic disorders with an emphasis on nutrition support. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C or better in NEP 4370

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**NEP 4385: Professional Development I**

(cross-leveled with NEP 7385). Course designed to provide career exploration and assessment and prepare students for the final rotations in the coordinated program in dietetics. Graded on A-F basis only. Enrollment limited to students enrolled in the coordinated program in Dietetics.

**Credit Hour:** 1

**Prerequisites:** Departmental consent required

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**NEP 4400: Pathophysiology of Diseases Affecting Metabolic Health**

There is not a universally-accepted definition of 'metabolic health', however, a similar combination of assessment criteria including measurements of body weight/composition, blood pressure, lipid profile, insulin sensitivity/resistance, and systemic inflammation are frequently used for clinical and research purposes. This course will explore the disordered physiological processes in diseases affecting these metabolic health parameters. Focus will be on the leading causes of death in the US, cardiovascular disease, stroke and cancer, as well as the related diseases of diabetes and osteoporosis, all of which are diseases of enormous burden to the US healthcare system. The common theme of modifiable factors (diet, exercise, sleep) to prevent and manage these chronic conditions will be woven throughout the course. This course may be particularly useful for students seeking careers in health care and prevention. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MPP 3202 or BIO\_SC 3700 and BIOCHM 3630 or BIOCHM 4270

**Recommended:** NEP 2340 and PTH\_AS 2201

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**NEP 4480: Pediatric Exercise Physiology**

Course is designed to develop knowledge and understanding of the value of physical activity in the pediatric population. The physiology, psychology, and guidelines of exercise will be explored in the developmental process of youth. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NEP 1340 and NEP 3850W - NEP majors must have a C or better in these courses

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**NEP 4550: Exercise is Medicine**

Provide an overview of Exercise Is Medicine On Campus. As the designated Exercise is Medicine program on campus we will explore ways to promote the program across the MU Campus, develop student engagement, and implement the program through event planning and

collaboration with key services on the MU Campus. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** NEP 3450, NEP 3850, majors only

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**NEP 4590: Community Nutrition**

(cross-leveled with NEP 7590). Public health nutrition and chronic disease prevention, food security, nutrition programs and food access, public policy, sustainable agriculture and food production systems, cultural food practices, needs assessment. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NEP 2340 or NEP 2380. Restricted from Pre-Nutrition and Fitness majors

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**NEP 4750: Cardiopulmonary Rehabilitation - A Multifactorial Process**

A guide to the practice of Cardiopulmonary Rehab in the 21st Century. We will explore the interdisciplinary aspects of a successful approach to the delivery of cardiac and pulmonary rehabilitation throughout a broad spectrum of patients. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NEP 3450 and NEP 3850W. NEP majors must earn a C or better in these courses to enroll

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**NEP 4860: Exercise Prescription**

Course investigates theory and methods of testing and prescribing exercise for circulatory fitness, body composition, muscle strength, joint and muscle ranges in motion, and posture. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** NEP 3850W. All NEP majors must have a C- or better in this class to enroll

**Prerequisites:** MPP 3202 or BIO\_SC 3700 and, PTH\_AS 2201. All NEP majors must have a C or better in these courses to enroll

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**NEP 4940: Internship in Nutritional Science and Exercise Physiology**

Combines study, observation and employment in an area of exercise physiology and/or nutrition. Written reports, faculty evaluation .

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent required

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**NEP 4950: Capstone: Research in Nutritional Sciences**

Introduction to research, including the types of basic, clinical, and outcomes-based research. Defining research problems related to nutrition and exercise sciences, developing hypotheses, reviewing scientific literature, writing research protocols, analyzing data. Lecture course.

**Credit Hours:** 2

**Prerequisites:** NEP 2340 and either STAT 2500 or ESC\_PS 4170 and senior standing. Restricted from Pre-Nutrition and Fitness majors

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**NEP 4951: Nutrition Research Communication**

Analyze and interpret data; present results of a research study in manuscript and seminar presentation formats. Emphasis on effective communication of nutrition research to scientific and lay audiences. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** NEP 4950 or instructor's consent

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**NEP 4951W: Nutrition Research Communication - Writing Intensive**

Analyze and interpret data; present results of a research study in manuscript and seminar presentation formats. Emphasis on effective communication of nutrition research to scientific and lay audiences. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** NEP 4950 or instructor's consent

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**NEP 4970: PANHP Capstone: Sports Nutrition**

(cross-leveled with NEP 7970). Integration of research literature with knowledge from previous coursework, emphasis on sports nutrition research, nutrient requirements of athletes, critical evaluation of ergogenic aids. Graded on A-F basis only. Prerequisites: C or better in all pre-reqs: NEP 2340, and either MPP 3202 or BIO\_SC 3700, and either STAT 1200 or ESC\_PS 4170; Senior standing. Restricted to Nutrition and Fitness or Physical Activity, Nutrition and Human Performance majors only.

**Credit Hours:** 2

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**NEP 4975: Practice of Dietetics Supervised Practice Experience**

Supervised practice in providing quality nutrition services in clinical, community, management and specialty settings. 40 hours of supervised practice per week.

**Credit Hours:** 10

**Prerequisites:** NEP 3590, NEP 4280, NEP 4290, NEP 4380, NEP 4381, and NEP 4590; Open to students admitted to the Dietetics Program only

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**NEP 7001: Topics in Nutritional Science and Exercise Physiology**

Instruction in specific subject matter areas in the field of food science and nutrition.

**Credit Hour:** 1-99

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**NEP 7020: Monogastric Nutrition**

(same as AN\_SCI 7312 and NUTRIT 7020; cross-leveled with NEP 4020 and AN\_SCI 4312). Principles of nutrition, feed formulation and recent research in poultry feeding. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** AN\_SCI 3242

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**NEP 7085: Problems in Nutritional Sciences and Exercise Physiology**

Advanced problems in a selected field of food science and nutrition.

**Credit Hour:** 1-99

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**NEP 7200: Sports Performance and Conditioning**

(cross-leveled with NEP 4200). Course utilizes scientific theory and applied instruction to teach procedures, techniques, and modalities used to improve physical sports performance. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PTH\_AS 2201, MPP 3202 or BIO\_SC 3700 - NEP majors must have a C or better in these courses

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**NEP 7330: Human Nutrition II Laboratory**

(cross-leveled with NEP 4330). A techniques course in nutrition, usually taken concurrently with NEP 4340.

**Credit Hours:** 2

**Prerequisites:** NEP 2340, Biochemistry and instructor's consent

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**NEP 7340: Human Nutrition II Lecture**

(cross-leveled with NEP 4340). Physiological and biochemical aspects of nutrition; functions of methods of measuring nutritional status; various aspects of applied nutrition. Continuation of NEP 2340. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NEP 2340 - NEP majors must have a C or better to enroll and either BIOCHM 3630, BIOCHM 4270 or BIOCHM 4272

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**NEP 7360: Nutritional Assessment**

(cross-leveled with NEP 4360). Introduction to the nutrition assessment process. The identification of dietary, anthropometric, laboratory, clinical and sociocultural parameters used to assess nutritional status of individuals. Lecture course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NEP 2340

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**NEP 7370: Medical Nutrition Therapy I**

(cross-leveled with NEP 4370). In-depth study of physiological/biochemical changes in selected disease states (cardiovascular disease, rehabilitation, diabetes and cancer); development of principles underlying nutrition therapy. Lecture course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C or better in NEP 4360

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**NEP 7380: Medical Nutrition Therapy II**

(cross-leveled with NEP 4380). Evaluation, design and monitoring of the nutrition care of complex health disorders such as advanced gastrointestinal complications, major organ transplant, and metabolic disorders with an emphasis on nutrition support. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C or better in NEP 4370

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**NEP 7381: Nutrition Therapy II: Supervised Practice Experience**

Practice in the nutrition care of complex health disorders with emphasis on nutrition support. 16 hours of supervised practice per week. Enrollment limited to students with concurrent enrollment in NEP 7380. Open to students admitted to Dietetics program only. Graded A-F only.

**Credit Hours:** 4

**Prerequisites:** NEP 4370 or NEP 7370

**Corequisites:** NEP 4380 or NEP 7380

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**NEP 7385: Professional Development I**

(cross-leveled with NEP 4385). Course designed to provide career exploration and assessment and prepare students for the final rotations in the coordinated program in dietetics.

**Credit Hour:** 1

**Corequisites:** Concurrent enrollment in NEP 7380, NEP 7381



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**NEP 7390: Professional Development II**

Lectures and discussions focus on issues and trends in dietetics. Discussions are used to encourage the development of skills and attitudes that foster life-long professional learning. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** NEP 7385, and in the Coordinated Program for Dietetics

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**NEP 7500: Research in Nutritional Sciences and Exercise Physiology**

Original investigations, usually in connection with one of the research projects of Agricultural Experiment Station. Written report required.

**Credit Hour:** 1-99

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**NEP 7590: Community Nutrition**

(cross-leveled with NEP 4590). Public health nutrition and chronic disease prevention, food security, nutrition programs and food access, public policy, sustainable agriculture and food production systems, cultural food practices, needs assessment. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Nutrition course or instructor's consent

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**NEP 7950: Research in Dietetics**

(cross-leveled with NEP 4950). Introduction to research, including the relationship of basic, clinical, and outcomes-based research to dietetics practice. Defining research problems in a dietetics practice setting, developing hypotheses, reviewing scientific literature, writing research protocols, analyzing data. Lecture course.

**Credit Hours:** 2

**Prerequisites:** statistics course

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**NEP 7970: PANHP Capstone: Sports Nutrition**

(cross-leveled with NEP 4970). Integration of research literature with knowledge from previous coursework, emphasis on sports nutrition research, nutrient requirements of athletes, critical evaluation of ergogenic aids. Graded on A-F basis only. Prerequisites: C or better in all pre-reqs: NEP 2340, and either MPP 3202 or BIO\_SC 3700, and either STAT 1200 or ESC\_PS 4170; Senior standing. Restricted to Nutrition and Fitness or Physical Activity, Nutrition and Human Performance majors only.

**Credit Hours:** 2

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**NEP 8001: Topics in Nutritional Sciences and Exercise Physiology**

Instruction in specific subject matter areas in the field of nutrition science and exercise physiology. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1-3

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**NEP 8030: Etiology of Obesity**

This course is designed to provide an understanding of the cause and implications of human obesity. General topic areas covered will include: methodologies of obesity research, physiology of obesity, behavioral and environmental factors influencing obesity, obesity and disease, therapeutic approaches to obesity, and emerging topics in obesity.

The structure of this course will be mixture of lectures and interactive discussions/reviews of primary research articles in these areas. Students will be expected to present and critically evaluate research papers relevant to the field of obesity.

**Credit Hours:** 3

**Prerequisites:** NEP 7340

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**NEP 8085: Problems in Nutritional Sciences and Exercise Physiology**

Individual studies include a minor research problems.

**Credit Hour:** 1-99

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**NEP 8087: Masters Seminar in Nutritional Sciences and Exercise Physiology**

Seminar features expert presentations of current research and issue-based applications that represent the breadth of nutritional sciences and/or exercise physiology. Graded on S/U basis only.

**Credit Hour:** 1

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**NEP 8090: Masters Research in Nutritional Sciences and Exercise Physiology**

Original investigation of advanced nature, leading to thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**NEP 8095: Internship in Exercise Physiology**

The internship experience will take place in professionally supervised settings, and allow students to complement their academic work with employment-related experiences. Organizations, companies and business that offer internships can be selected to match with student interests. This experience will offer the student meaningful learning opportunities that will complement their career goals.

**Credit Hours:** 4

**Prerequisites:** must be accepted into the Exercise Physiology graduate program, 3.0 GPA or higher, completed 50% of the coursework at the masters level

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**NEP 8125: Preventive and Therapeutic Exercise Physiology**

Graduate level course designed to prepare Masters Candidates for a career in Clinical Exercise Physiology. Students will be provided opportunities to develop knowledge, skills, and ability to work with individuals with diverse range of chronic diseases and disabilities. Graded on A-F basis only.

**Credit Hours:** 3

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**NEP 8127: Advanced Physiological Assessment and Exercise Prescription**

Graduate Level course designed to enhance the Exercise Science student's knowledge and skills in the administration of appropriate physiological assessments and the interpretation of the results from those tests. Course Objectives: 1) Understand the nature and importance of physiological assessments. 2) Understand the measurable components of physical fitness and how each of them relates to overall health. 3) Become familiar with and conduct various tests of physical and performance related parameters Body Composition -

Girth measurements, skin folds, bioelectrical impedance; BODPOD, DEXA; Cardiorespiratory Fitness - Resting measurements, submaximal protocols; VO<sub>2</sub>max testing; Musculoskeletal Fitness - Muscular strength and endurance testing; flexibility testing. 4) Interpret results of various test batteries conducted in class. 5) Understand limitations of tests conducted in class. 6) Develop research thesis ideas for comparison of techniques. Graded on A-F basis only.

**Credit Hours:** 3

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**NEP 8220: Cardiovascular Disease and Exercise**

Advanced study through readings and discussion of selected topics related to cardiovascular risk and disease development, including hypertension, endothelial dysfunction, vascular insulin resistance, arterial stiffness, atherosclerosis and heart failure, with a particular emphasis on the effects of physical activity and exercise. Special focus will also be placed on understanding the links between lack of physical activity, metabolic disorders, and increased cardiovascular risk. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Undergraduate level exercise physiology is highly recommended

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**NEP 8310: Nutritional Biochemistry of Lipids**

(same as AN\_SCI 8431 and NUTRIT 8310). Current concepts in the nutritional regulation of lipid metabolism. Emphasis on integrating information and interpreting current research data.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 4270 and BIOCHM 4272

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**NEP 8340: Nutrition in Human Health**

(same as NUTRIT 8340). Nutritional aspects of maintaining human health with emphasis on micronutrients, basis for dietary recommendations, and nutrition public health initiatives. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 4270 and BIOCHM 4272; 4000-level nutrition course; graduate standing or current enrollment in the Masters in Dietetics Program

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**NEP 8380: Medical Nutrition Therapy III**

In-depth study of physiological/biochemical changes in advanced selected disease states focusing on special complex clinical issues of infants, children, and the geriatric population, as well as investigation into cutting edge treatments for these special populations. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** NEP 7380; Coordinated Program students in Masters in Dietetics only

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**NEP 8501: Hot Topics in Nutrition, Exercise and Disease**

This course addresses various topics and examine the interaction of nutrition and exercise/physical activity on these topics. The topics and assignments will focus on a specific physiological topic and how nutrition and exercise can either prevent disease and/or possibly minimize disease progression. The topics in this course will focus on current hot topics in the literature and the format will vary by instructor, but may include

didactic, seminar, journal club style, presentations, etc. Graded on A-F basis only.

**Credit Hour:** 1-3

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**NEP 8850: Advanced Exercise Physiology**

Lectures, laboratory experiences, and readings in current literature to provide reasonable depth in selected areas of physiology as applied to activity and health.

**Credit Hours:** 3

**Prerequisites:** NEP 4850 and Chemistry

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**NEP 8860: Exercise Endocrinology**

The nervous system and the endocrine system integrate to regulate the functions of the body. These systems are tightly linked and frequently one system cannot be considered without consideration of the other system. This course integrates endocrine physiology and the impact that exercise has on the endocrine response. This class will focus on the glands producing hormones, the target organs, mechanisms and how both acute and chronic exercise impacts hormone action. This is an advanced exercise physiology course designed for graduate students in Exercise Physiology or the life sciences and will consist of lectures, readings and discussion. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NEP 8850, V\_BSCI 8420 or graduate standing in the Life Sciences

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**NEP 8870: Exercise Metabolism**

Review of major metabolic pathways and the effect of exercise upon them. Special topics include indirect calorimetry, EPOC, anaerobic threshold; weight control, ergogenic aids, and exercise nutrition.

**Credit Hours:** 3

**Prerequisites:** NEP 4850 and Chemistry

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**NEP 8975: Dietetics Supervised Practice Experience**

This course provides supervised practice for students in their final semester in the Coordinated Program in Dietetics at the University of Missouri. Supervised practice is designed to provide quality nutrition experiences in clinical, community and management settings. Students are in their field sites for 40 hours/week for supervised practice for approximately 13 weeks. In addition, classblocks are held in Columbia three times throughout the semester for a total of approximately three weeks (may also include supervised practice activities). Graded on A-F basis only.

**Credit Hours:** 10

**Prerequisites:** For dietetic students in their final semester in the Coordinated Program (CP) only. Consent required

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**NEP 9087: Doctorate Seminar in Nutritional Sciences and Exercise Physiology**

Seminar features expert presentations of current research and issue-based topics that represent the breadth of nutritional sciences and exercise physiology. Graded on S/U basis only.

**Credit Hour:** 1

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**NEP 9090: Doctorate Research in Nutritional Sciences and Exercise Physiology**

Original investigation of advanced nature, leading to a dissertation.  
Graded on a S/U basis only.

**Credit Hour:** 1-99

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## Obstetrics And Gynecology Courses

**OB\_GYN 6004: Obstetrics/Gynecology Clerkship**

Students rotate on the obstetric service, the gynecology service and the gynecologic oncology service, seeing a broad range of patients in both inpatient and outpatient settings. In addition, they attend lectures and interactive case presentations.

**Credit Hours:** 8

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**OB\_GYN 6014: Rural Obstetrics/Gynecology Clerkship**

Rural Obstetrics/Gynecology Clerkship

**Credit Hours:** 8

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**OB\_GYN 6024: Springfield Obstetrics and Gynecology Clerkship**

Students rotate on the obstetric service, the gynecology service and the gynecologic oncology service, seeing a broad range of patients in both inpatient and outpatient settings. In addition, they attend lectures and interactive case presentations.

**Credit Hours:** 8

**Prerequisites:** successful completion of the first two years of medical school

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**OB\_GYN 6041: SCC Gynecologic Surgical Oncology Selective**

The medical student will work as a member of the Gynecologic Oncology team providing hands-on clinical and surgical services in the inpatient, outpatient, and consultative settings. Students will learn using a variety of evidence-based resources, on-line resources, and from clinical dialogue with the members of the health care team.

**Credit Hours:** 5

**Prerequisites:** Successful completion of 5 of the 7 core clerkships. One of the 5 must be the Obstetrics and Gynecology Clerkship

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**OB\_GYN 6053: SCC Obstetrics/Gynecology Selective**

The fourth-year student will work as a member of the health-care team, providing hands-on clinical and surgical services in the inpatient, outpatient, and consultative settings. The medical student will participate in daily rounds under the direction of the attending physician. Students will learn using a variety of evidence-based resources, on-line resources, and dialogue with other team members in the clinical setting. The student will be expected to perform at a sub-intern level. To provide the student with additional clinical and surgical experience in obstetrics and gynecology. The student will learn how to integrate previously acquired knowledge and concepts, then apply them in the management of patients.

**Credit Hours:** 5

**Prerequisites:** Successful completion of 5 of the 7 core clerkships. One of the 5 must be the Obstetrics and Gynecology Clerkship. Springfield faculty approval is required prior to registration

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**OB\_GYN 6104: Remediation OB/GYN Clerkship**

Enrolled students are those who received an unsatisfactory grade in a OB/GYN Clerkship at any Mizzou Med location or site. This course gives the student an opportunity to rectify their deficiency.

**Credit Hours:** 8

**Prerequisites:** OB\_GYN 6004 Clerkship, received unsatisfactory grade

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**OB\_GYN 6313: ABS OB/Gynecology Research**

ABS OB/Gynecology Research

**Credit Hours:** 5

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**OB\_GYN 6315: ABS OB/Gynecology Research and Review**

ABS OB/Gynecology Research and Review

**Credit Hour:** 5-10

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**OB\_GYN 6563: OB/GYN Clinical Reproductive Endocrinology**

OB/GYN Clinical Reproductive Endocrinology

**Credit Hours:** 5

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**OB\_GYN 6565: Reproductive Medicine and Infertility Offsite**

The 4th year student will work as a member of the Reproductive Endocrinology and Infertility team, providing hands-on clinical and surgical services in the inpatient, outpatient and consultative settings. The medical student will participate in daily outpatient clinic and any observe surgical services related to care of those patients. Students will learn using a variety of evidence-based resources, on-line resources and from clinical dialogue with the members of the care team.

**Credit Hours:** 5

**Prerequisites:** Successful completion of the first two years of medical school and the OB/GYN Clerkship

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**OB\_GYN 6583: Obstetrics/Gynecology Offsite Advanced Elective**

Obstetrics/Gynecology Offsite Advanced Elective

**Credit Hours:** 5

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**OB\_GYN 6765: OB/GYN - Rural**

OB/GYN - Rural

**Credit Hours:** 5

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**OB\_GYN 6865: Maternal-Fetal Medicine Selective**

Goals/Objectives: To expose the student to high-risk obstetrical experiences in the Maternal Fetal Medicine division. All obstetrical selectives are done at Women's and Children's Hospital.

**Credit Hours:** 5

**Prerequisites:** Ob-Gyn Clerkship

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**OB\_GYN 6866: Obstetrical**

Goals/Objectives: To provide the student with additional obstetrical experience in the Labor and delivery suite. All obstetrical electives are done at the Missouri Ob/Gyn Associates Clinic and Women's and Children's Hospital. Evaluations: The student will be graded on their ward performance. An evaluation for this rotation will be completed by the appropriate faculty and resident physicians. Notes: While on this rotation students will have exposure to various faculty members, residents, and

fellow medical students. Students will participate in the evaluation of patients on labor and delivery including those presenting for evaluation of first trimester problems and labor evaluations. Some participation in operative procedures and labor management is expected. Students will have exposure to antenatal testing and ultrasonography including the interpretation of ultrasounds and limited participation in genetic counseling and invasive ante-partum diagnostic procedures is expected. Night call will be required and can be worked into the core rotation's student call schedule. Teaching will be on an ongoing bases with Dr. Floyd keeping daily routine with the students expected to participate in management decisions.

**Credit Hours:** 5

**Prerequisites:** Ob-Gyn Clerkship. Core reading for this rotation will include Obstetrics, Normal and Problem Pregnancies, latest edition, edited by Gabbe, Niebyl and Simpson

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#### **OB\_GYN 6867: Obstetrical/Gynecological Outpatient**

Obstetrical/Gynecological Outpatient

**Credit Hours:** 5

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#### **OB\_GYN 6868: Urogynecology Selective**

The 4th year medical student will work as part of a team providing hands-on clinical services in an inpatient, outpatient, and consultative setting. Students will participate in daily morning report, weekly didactic sessions, weekly surgical procedures and Friday afternoon seminars. Students will learn using a variety of evidence-based resources and direct faculty interaction. Successful completion of one of the core Obstetrics and Gynecology Clerkship courses: OB\_GYN 6004 or OB\_GYN 6014, and/or OB\_GYN 6104.

**Credit Hours:** 5

**Prerequisites:** Successful completion of the first two years of medical school

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#### **OB\_GYN 6930: Obstetrics/Gynecology Outpatient Two-Week Elective**

The 3rd or 4th year medical student will work as part of a team providing hands-on clinical services in an outpatient setting. Students will participate in daily clinic evaluations of patients. Students will learn using a variety of evidence-based resources and direct faculty teaching. Students will also participate in weekly teaching didactics within the OB/GYN department such as Grand Rounds.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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#### **OB\_GYN 6937: Ultrasound Two Week Elective**

To provide additional clinical ultrasound experience in the outpatient setting. Students will learn how to integrate acquired knowledge and concepts; then apply them in the management of patients in an outpatient OB/GYN setting.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two year of medical school

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#### **OB\_GYN 6960: Gynecologic/Oncology Surgery**

**Goals/Objectives:** To provide the student with additional surgical and gynecological clinical experience. All gynecologic surgical electives are performed at Ellis Fischel Cancer Center and the University Hospital. **Evaluations:** An evaluation for this rotation will be completed by the elective chairmen and appropriate resident physicians. The students will be graded on their clinic, ward, and operating room performance. **Notes:** While on this rotation, students will have exposure to faculty members, three residents, and other fellow medical students. They will have the opportunity to assist in gynecologic oncology surgical cases, attend tumor clinics where they will encounter various procedures such as colposcopies, cryotherapy, and cervical and endometrial biopsies. A copy of a representative weekly schedule is available from the department student coordinator. In addition, students will be required to make two ten minute presentations with audio-visual aids on assigned topics. The students will not take night call, but are expected to attend patient rounds on weekdays and weekends with the residents. The department also holds conferences on Tuesdays and Thursdays which are to be attended. Core reading for this rotation will include Clinical Gynecologic Oncology by DiSaia and Creasman.'

**Credit Hours:** 5

**Prerequisites:** Ob-Gyn Clerkship

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#### **OB\_GYN 6963: SCC OB GYN Outpatient 2-Week Elective**

Third or fourth year medical student(s) will work as a member of the team providing hands on OB-GYN clinical and surgical services in outpatient and consultative settings. Students will participate in the daily clinical care setting and mini lectures throughout the week. Students will learn using a variety of evidence-based resources including online references, case conferences, and daily clinical dialogue with members of the care team.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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#### **OB\_GYN 6964: Obstetrics/Gynecology Offsite Advanced Selective**

Obstetrics/Gynecology Offsite Advanced Selective

**Credit Hours:** 5

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## **Occupational Therapy Courses**

#### **OC\_THR 1000: Introduction to Occupational Therapy**

Introductory course to provide students information about the occupational therapy profession. Registered therapists lecture on clinical aspects. Students participate in discussions on program requirements, placement, and trends in the profession.

**Credit Hour:** 1

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#### **OC\_THR 4085: Problems in Occupational Therapy**

Independent investigation leading to the completion of a project or paper. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** Instructor's consent

**Recommended:** Junior standing

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**OC\_THR 5010: Professional Development**

This course provides a foundation for understanding professional development as students evolve into occupational therapy practitioners. Students are provided an introduction to professional associations, legislative processes affecting occupational therapy practice, and requirements for initial and ongoing professional registration, certification, and licensure. Students examine how occupational therapists interface with other stakeholders within a complex healthcare environment to ensure that the occupational needs of individuals and communities are met. Advocacy and ethical decision making as a part of contemporary practice are also introduced. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Occupational Therapy students

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**OC\_THR 5020: Foundations and Theory in Occupational Therapy**

Historical, philosophical, and conceptual foundations of occupational therapy practice will be analyzed for the purpose of understanding current standards and models of practice. As a core concept of occupational therapy practice, students will be expected to analyze therapeutic activities to assure the therapy process is client and occupation centered. Concepts of occupation, occupational balance, and occupational justice will be addressed as related to contemporary domestic and global issues. Students will discover the value of professional organizations and learn how to access and utilize official documents of the OT profession. Development of a professional occupational therapy identity and methods to further personal and professional growth will be explored. Students will develop a foundational knowledge of occupational therapy management and the role of the occupational therapist in the supervision of OT assistants and OT students. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Occupational Therapy students only

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**OC\_THR 5030: Human Development and Occupation**

Overview from an occupational perspective of typical development from infancy through adolescence and the biopsychosocial development and aging process from young adulthood through end of life. Emphasis on the impact of personal and contextual factors on occupational development throughout the lifespan. This course will contain a variety of instructional methods including online learning, lecture, lab, and active learning assignments. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Occupational Therapy students

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**OC\_THR 5100: Introduction to Interprofessional Practice**

(same as PH\_THR 5100; cross-leveled with HTH\_PR 7100, HTH\_PR 4100). This course serves as a foundation and introduction to interprofessional education and collaboration. Students who enroll in this course will be assigned to mini-teams of students from a range of disciplines. Through this course, students will develop an understanding of their own unique role as a healthcare provider and the importance of client- and community-centered care and effective teamwork, as well as communication skills.

**Credit Hour:** 1

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**OC\_THR 5110: Introduction to Evidence-Based Practice**

This course will introduce you to the importance of research for the profession of occupational therapy and provide you with basic skills

necessary to locate, evaluate, and incorporate evidence into clinical practice. All of the classwork, assignments, and journal clubs are designed to provide you with the opportunity to put into practice the ideas, language, and components of research that are presented in the readings, lectures, and discussions. Writing assignments, interactive journal clubs, blog posts, and critical appraisals will be the methods of assessing your understanding of the material and assist you in learning how to communicate your understanding of evidence to support occupational therapy practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Occupational Therapy students

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**OC\_THR 5120: Principles of Assessment**

This course introduces foundational knowledge regarding assessment as part of the occupational therapy process. Students will develop an understanding of the complexity of assessment for individuals with a wide range of limitations in various areas of practice that reflects occupation and evidence and occupation based practice. Throughout the course, students will be provided with opportunities to develop self-reflection and critical thinking skills as they integrate knowledge of the human condition and the occupational needs of those served. Students will also develop an understanding of how assessment is guided by theoretical knowledge and clinical reasoning. An increased understanding of the role of the OT as a member of the healthcare assessment team within an ever evolving society is also addressed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to occupational therapy students only

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**OC\_THR 5130: Conditions in Occupational Therapy**

This course introduces students to a variety of health conditions relevant to occupational therapy practice and each condition's potential impact on client factors and performance skills as they relate to occupational performance across the lifespan. Course content includes an overview of developmental, mental health, neurological, orthopedic, traumatic, and chronic health conditions commonly addressed in occupational practice settings. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Restricted to occupational therapy students

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**OC\_THR 5140: Human Motion and Occupation**

Daily occupation will be explored through human movement within the context of the physical environment. Students will learn to analyze common activities while taking into account body structures and functions, activity demands, environmental supports, and technology supports. Assessment of human movement and movement-related deficits will be addressed and methods for adapting the environment and selecting appropriate assistive technologies will be introduced. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Restricted to Occupational Therapy students only

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**OC\_THR 5150: Concepts of Neuroscience**

This foundational course uses a systems-based approach to examine the major structures and functions of the human nervous system. The content will explore the effects of a normal and abnormal nervous system on occupational performance. Theories, evaluation, and treatment topics

related to the neurological system will be introduced. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to occupational therapy students

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**OC\_THR 5160: Psychosocial Aspects of Occupational Therapy**

This course will engage students in the examination of the role of the occupational therapist in the promotion of mental health and wellness in a variety of clinical and community based contexts. Throughout this course students will demonstrate entry-level clinical competence in both the therapeutic use of self and in providing group interventions for clients represented by a wide range of developmental levels. Students will actively explore course content through self-guided learning, hands on and practical learning experiences including leadership of group interventions and development of service delivery plans. Upon completion of this course, students will synthesize knowledge of mental health conditions, sociocultural factors, occupational justice, and theory related to recovery and mental health interventions to develop roles for occupational therapists in addressing societies' occupational and mental health needs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Occupational Therapy students only

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**OC\_THR 5210: Adult Practice**

This course utilizes active learning methodologies to engage students in learning about occupational therapy intervention with the adult population in various practice settings. Students will use assessment results and activity analysis in combination with evidence and clinical reasoning to guide intervention planning for enhancing occupational performance. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Restricted to Occupational Therapy Students only

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**OC\_THR 5220: Pediatric Practice**

This course is designed to provide students with an understanding of common frames of reference and theories utilized in pediatric practice, as well as increase student understanding of the interplay of common conditions and the influence of conditions on participation in the home and community and the role of the occupational therapist with children and as a member of the therapeutic team. Emphasis is also placed on development of clinical reasoning skills and implementation of evidence based practice. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Restricted to occupational therapy students

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**OC\_THR 5230: Application of Evidence Based Practice**

This course will expose you to the process of writing a research proposal. Specific topics include writing an answerable research question, literature searching, research ethics and Institutional Review Boards (IRBs), study designs, methods for recruitment, data collection, and data analysis, and funding for research. You will work with a group (or individually) to prepare a research proposal for a clinically-relevant question. Guest speakers from various healthcare fields (including physical therapy, communication sciences disorders, and medicine) will enhance learning. This course is held in conjunction with the 1 credit OC\_THR 5231 - Application of Evidence Based Practice Mentor Hour. Students will meet

with a faculty mentor weekly to review progress on the proposal. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** Restricted to Occupational Therapy students

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**OC\_THR 5231: Application of Evidence Based Practice - Mentor Hour**

This course is the 1-credit mentor hour that is associated with OC\_THR 5230: Application of Evidence Based Practice. The student will meet with the research faculty mentor for 1 hour per week with additional work and meetings as appropriate. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Restricted to Occupational Therapy students

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**OC\_THR 5240: Clinical Reasoning and Documentation**

This course focuses on developing the observation, clinical reasoning, and documentation skills necessary in effectively reporting occupational therapy services across practice settings. Students are also introduced to ethical, legal, and reimbursement policies impacting occupational therapy documentation. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to Occupational Therapy students only

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**OC\_THR 5250: Emerging Trends in Occupational Therapy**

Students explore contextual factors associated with individual and population access to quality rehabilitation, health, and wellness services in societies and communities. Using their knowledge of the changing landscape of occupational therapy service delivery, students will assess the potential roles of occupational therapists in strengthening the health and wellness of communities and populations. Additionally, students will explore ways in which occupational therapists can collaborate and partner with organizations and communities to promote the full inclusion and participation of individuals in all aspects of society. Students will explore and negotiate innovative ways to deliver occupational therapy services in non-traditional clinical practice settings. Graded on A-F basis only.

**Credit Hour:** 1

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**OC\_THR 5260: Occupational Therapy Practicum I**

This clinical course is designed to provide students an opportunity to implement the occupational therapy process with individuals experiencing limitations in occupational performance. Through this hands-on experience, students will gain opportunities for application of theory and a deepened understanding of occupational therapy practice by identifying strengths and limitations during the evaluation process, developing and measuring client-centered goals, planning and executing interventions, implementing home programs, and preparing and performing discharge procedures. Graded on S/U basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to Occupational Therapy Students only

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**OC\_THR 5310: Advanced Practice Strategies**

Students will learn to synthesize knowledge regarding common conditions seen in children and adults and understand functional implications related to occupational performance. Students will also gain a greater understanding of the role of the occupational therapist

across settings when working with children and adults in contemporary society. Learning will culminate with students applying theory and an understanding of cognitive, mental, physical and sensory contributions to occupational performance when developing assessment and intervention plans. Exploration and application of evidence-based practice is an essential component of this course. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Restricted to occupational therapy students

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**OC\_THR 5320: Performance, Participation, and Well-Being**

Students will explore occupational performance and participation in daily life through the lenses of health promotion and prevention. The factors that contribute to individuals' lifestyle and health choices including culture, diversity, and disability, will be discussed. Topics such as health literacy and self-management will be covered in relation to participation. Contextual factors and the environment, from narrow to broad in scope, are also the focus of this course. Environmental modifications, assistive technologies, compensatory strategies, and advanced strategies for grading and adapting tasks to support occupational performance will be explored in depth beyond introductory coursework. Other non-traditional contexts for participation such as work integration, driving, community mobility and transportation will also be explored. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to Occupational Therapy students

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**OC\_THR 5330: Functional Cognition**

This course provides an overview of theoretical models of cognitive function, an overview of an occupational therapy cognitive assessment framework and assessment tools, and an introduction to models of intervention for working with individuals with cognitive disabilities across the lifespan. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to Occupational Therapy Majors

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**OC\_THR 5340: Evidence Based Practice Seminar**

Students who wish to pursue this one credit seminar option will implement the proposal that was designed during OC\_THR 7830 - Application of Evidence-Based Practice. Working with a research mentor, the student will carry out the proposed research project including data collection, data analysis, and dissemination. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Restricted to Occupational Therapy students

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**OC\_THR 5410: Case Based Learning**

Integrates clinical reasoning and critical thinking, client-centered practice, and evidence-based decision making into the occupational therapy process across the lifespan in various practice domains. Problem-based methodology emphasizes small group learning and problem solving, self/peer evaluation, and self-directed learning. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Restricted to Occupational Therapy students

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**OC\_THR 5420: Populations and Communities**

This course provides students with foundational knowledge and background of the broad concept of community and community based

practice in occupational therapy. Students will explore community health, wellness, occupational and social justice, and health disparities. Discovering the role and emerging roles of OT in addressing social and community issues will occur through reading, reflection, discussion, and other assignment work. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Restricted to occupational therapy students

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**OC\_THR 5430: Leadership, Management, and Policy**

This course will provide an overview of the leadership and management responsibilities of occupational therapy leaders in varying practice settings. The significance of public and organizational policy will be discussed as related to service delivery and advocacy of consumer access to occupational therapy services. Content includes the supervisory roles of occupational therapists, professional standards of practice, ethics in practice, quality improvement activities, and the importance of professional competencies. The course content also includes leadership and mentoring of individuals and teams to provide evidence-based, occupation-based, and client-centered practice across a wide range of socio-cultural contexts. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Occupational Therapy students

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**OC\_THR 5440: Contemporary Issues in Occupational Therapy**

This course focuses on the integration of clinical skills, professionalism, and current trends and topics in occupational therapy. Students will engage in direct application of knowledge through a variety of experiences and guided assignments. Collaboration with other professionals will be explored in the context of client supports, referrals, and supervision of OTAs. Students will determine appropriate interventions for clients and populations considering reimbursement, in terms of group design, home programming, and appropriate discharge from services. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to Occupational Therapy students only

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**OC\_THR 5450: Occupational Therapy Practicum II**

This course is designed to further advance practice skills and an understanding of the occupational therapy process through diverse experiences. Opportunities will be provided to increase professional development through application of evidence based practice in action. An increased emphasis and understanding of the role of families and caregivers, other stakeholders such as providers and service agencies and the greater community as they relate to occupational therapy practice are also addressed. Graded on S/U basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to occupational therapy students only

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**OC\_THR 5460: Professional Seminar**

This course requires students to apply and integrate information that they have learned throughout their professional coursework about the various roles of occupational therapists as practitioners, scholars, educators, and advocates. Students will reflect upon personal and professional competencies as they relate to the stated ability-based outcomes of the MU OT Department's curriculum design and each student's future career goals. They will design a plan for ongoing professional development as they prepare for transition to Level II Fieldwork and entry-level practice.

To facilitate this process, this course requires students to review the AOTA Code of Ethics, AOTA Standards of Practice, AOTA Standards for Continuing Competence, and other AOTA Official Documents that guide occupational therapy practice. Students will also explore various resources for fieldwork, certification exam preparation, entry-level practice, professional development, involvement in professional associations, making ethical decisions, and resolving conflicts. Students will update their professional resume and develop a plan for employment search as they approach graduation. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Restricted to Occupational Therapy students

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#### **OC\_THR 5510: Fieldwork Level II-A**

In-depth practicum experience in delivering occupational therapy services to clients. Designed to promote clinical reasoning and reflective practice. Settings include traditional and emerging areas of occupational therapy practice. Emphasis on hands-on experiences and translation of theory into practice. Graded on S/U basis only.

**Credit Hours:** 6

**Prerequisites:** Restricted to occupational therapy students

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#### **OC\_THR 5520: Fieldwork Level II-B**

In-depth practicum experience designed to produce competent, entry-level, generalist occupational therapists. Settings include traditional and emerging areas of occupational therapy practice. Emphasis on hands-on experiences and translation of theory into practice. Graded on S/U basis only.

**Credit Hours:** 6

**Prerequisites:** Restricted to occupational therapy students

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#### **OC\_THR 5610: Theoretical Concepts of OT**

Conceptual foundations of occupational therapy practice will be analyzed for the purpose of understanding current standards and models of practice. Concepts of occupation, occupational balance, and occupational justice will be addressed as related to contemporary domestic and global issues.

**Credit Hours:** 3

**Prerequisites:** Acceptance into the Professional OT program is required

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#### **OC\_THR 5620: Evidence Based Practice**

In order to be effective practitioners, educators and clinical researchers; occupational therapists must possess a foundational understanding of the research process including the structure of qualitative and quantitative studies, methodologies and an understanding of basic statistical applications. Students will locate and critique various forms of OT literature to inform practice decisions. At the completion of this course, students will be able to locate, evaluate and incorporate evidence into clinical practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** Acceptance into the Occupational Therapy Program

**Prerequisites:** Students must be accepted into the professional Occupational Therapy Program in order to take this course

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#### **OC\_THR 5630: Community Based OT Practice**

This course provides students with foundational knowledge and background of the broad concept of community and community-based practice in occupational therapy. Students will explore community health, wellness, occupational and social justice, and health disparities. Discovering the role and emerging roles of OT in addressing social and community issues will occur through reading, reflection, discussion, and other assignments. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Acceptance into the Professional Occupational Therapy program

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#### **OC\_THR 5650: Self-directed OT Practicum**

Students will work with a faculty mentor on a self-selected project related to a practice area of interest. This course will help students identify options for the doctoral capstone project and experience. Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites:** Admission to the professional Occupational Therapy program

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#### **OC\_THR 5999: Problems in Occupational Therapy**

Independent investigation leading to the completion of a project or paper. Repeatable upon consent of department. May be offered on S/U or A-F basis.

**Credit Hour:** 1-99

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#### **OC\_THR 6010: Advanced Occupation Based Practice**

This course focuses on examination of occupation-based practice across diverse OT settings and throughout the history of the profession. Students will reflect on fieldwork and/or work-related experiences in OT practice settings and compare and contrast those experiences to theory and policy that affect OT practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Enrollment in occupational therapy program

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#### **OC\_THR 6030: OT Practicum III**

This course is designed to provide students the opportunity to develop a mentoring relationship with both faculty and other students in the foundational phase of OT learning. Students will apply practice knowledge as well as relevant evidence through diverse experiences. Opportunities for leadership, reflection, and collaboration will be provided. This course is meant to complement content from concurrent courses in the same semester. Graded on A-F basis only.

**Credit Hours:** 2

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#### **OC\_THR 7085: Problems in Occupational Therapy**

Independent investigation leading to the completion of a project or paper. Repeatable upon consent of department. May be offered on S/U or A-F basis.

**Credit Hour:** 1-99

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## Ophthalmology Courses

### OPHTH 6050: SCC Introduction to Ophthalmology

This curriculum is designed to introduce you to the specialty of ophthalmology, which involves the recognition, diagnosis, and management of diseases of the eye. Students will work in the outpatient setting seeing patients Monday through Friday. The primary clinic for this course may be in Bolivar or Springfield. Students on the Ophthalmology elective are integrated into the outpatient, inpatient, and surgical care programs as if they were beginning first-year resident physicians in the specialty. They are taught ophthalmic instrumentation, ophthalmological examination techniques, and the fundamentals of ocular surgical procedures.

**Credit Hours:** 5

**Prerequisites:** Surgery Clerkship

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### OPHTH 6323: ABS Ophthalmology Research

ABS Ophthalmology Research

**Credit Hour:** 5-10

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### OPHTH 6585: Ophthalmology

Ophthalmology

**Credit Hours:** 5

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### OPHTH 6903: SCC Ophthalmology Two Week Elective

This curriculum is designed to introduce you to the specialty of ophthalmology, which involves the recognition, diagnosis, and management of diseases of the eye. Students will work with an attending Ophthalmologist from the Springfield Clinical Campus. This may involve travel to Bolivar. During this 2 week elective, students will become familiar with the screening eye examination, learn to perform a more comprehensive ocular examination, learn about common ocular abnormalities and treatments, and become familiar with the common ophthalmic instruments.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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### OPHTH 6936: Introduction to Ophthalmology

Welcome to the Ophthalmology Elective. This curriculum is designed to introduce you to the specialty of ophthalmology, which involves the recognition, diagnosis, and management of diseases of the eye. Students will work in the outpatient setting seeing patients at the University Eye Institute. Students will participate in didactic sessions each week. During this 2 week elective, students will become familiar with the screening eye examination, learn to perform a more comprehensive ocular examination, learn about common ocular abnormalities and treatments, and become familiar with the common ophthalmic instruments.

**Credit Hours:** 2

**Prerequisites:** successful completion of the first two years of medical school

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### OPHTH 6990: Ophthalmology Surgical Selective

The medical student will be exposed to the full spectrum of medical and surgical ophthalmology. The medical student will work alongside Ophthalmology attendings, fellows, and residents in outpatient clinics and

in the operating room. The medical student will take histories and perform ocular examinations in an outpatient setting. The medical student will observe inpatient consultations and operating room procedures.

**Credit Hours:** 5

**Prerequisites:** Successful completion of 5 of the 7 core clerkships

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## Parks, Recreation, Sport & Tourism Courses

### PRST 1010: The American Leisure Experience

History of recreation and leisure movement; theories and philosophies of play, recreation and leisure. Developmental stages of leisure services to contemporary status. Graded on A-F basis only.

**Credit Hours:** 3

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### PRST 1011: Academic Planning and Career Orientation in Parks, Recreation and Tourism

Orientation to the field and analysis of career opportunities in leisure services. Academic planning leading to B.S. in parks, recreation and tourism. Graded on S/U basis only.

**Credit Hour:** 1

**Recommended:** Parks, Recreation and Sport Major

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### PRST 1081: Sport Facility Design

This course will investigate the functions of management in terms of design, implementation, operating and financing public assembly facilities in order to help sell the sport product. Venues such as public and private arenas, coliseums and stadiums will be studied. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites or Corequisites:** PRST 2010

**Prerequisites:** May be restricted to Parks, Recreation, and Tourism majors

**Corequisites:** PRST 2082, PRST 2083

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### PRST 1084: Recreational Shooting Sports

This course provides introductory instruction and hands-on shooting with an introduction to shooting range management. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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### PRST 2010: Foundations of Sport

This course will examine the meaning of sport management in terms of its history, scope, principles, issues and future trends. In addition, this course examines the job responsibilities and competencies required of sport managers in a variety of sport organizations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Parks, Recreation and Sport Major

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### PRST 2060: Tourism Management

Introduction to the scope and scale of the tourism industry. Focus on the industry components, concepts, structures, relationships, and issues with regard to accommodation, transportation, travel, regional development,

political system, and the economic, social and environmental effects of tourism. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PRST 1011

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**PRST 2080: Global Sport Environments**

This course will provide an overview of organization and management of domestic and international sport, including the Olympic movement and examination of the globalization of U.S. professional sports. The course will also look into facility design and technology used in sports environment. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Parks, Recreation and Tourism; Parks, Recreation and Sport Major

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**PRST 2082: Domestic and International Sports Environment**

This course will provide an overview of organization and management of domestic and international sport, including the Olympic movement and examination of the globalization of U.S. profession sports. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites or Corequisites:** PRST 2010

**Corequisites:** PRST 1081, PRST 2083

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**PRST 2083: Technological Advancement in Sport**

This course will teach students how to solve sports technology problems they will face in their future career, plus develop computer aided design and manufacturing skills. They will also gain skills in team work, communication and presentation, IT, research and project management. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites or Corequisites:** PRST 2010

**Corequisites:** PRST 1081, PRST 2082

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**PRST 2101: Topics in Parks, Recreation, Sports and Tourism**

Specialized topic content in parks, recreation and tourism programs, management and/or development. Subject content and credit may vary by semester based on faculty resources and student needs. Offered periodically.

**Credit Hour:** 1-3

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**PRST 2101W: Topics in Parks, Recreation, Sports and Tourism - Writing Intensive**

Specialized topic content in parks, recreation and tourism programs, management and/or development. Subject content and credit may vary by semester based on faculty resources and student needs. Offered periodically.

**Credit Hour:** 1-3

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**PRST 2107: Aquatics Science**

A scientific perspective on water chemistry, preventive maintenance of aquatic facilities with an emphasis on the newest safety and engineering design information and construction techniques. Graded on A-F basis only.

**Credit Hours:** 3

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**PRST 2111: Park Planning and Design**

Presentation of basic planning principles. Evaluation of existing areas and facilities based upon planning guidelines. Consideration of park plans, standards, terminology, map preparation and evaluation.

**Credit Hours:** 3

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**PRST 2115: Practicum Experience**

An organized undergraduate experiential learning opportunity. In which students and faculty visit identified cities to meet with professionals in the field, tour parks, recreation, sport and tourism venues and network with professionals.

**Credit Hour:** 1-3

**Prerequisites or Corequisites:** PRST 1011

**Prerequisites:** instructor's consent

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**PRST 2281: Business of Sport and Recreation**

This course focuses on the business side of sport management, considering issues of marketing, sponsorship, and sales. Students will also be presented with actual models relevant to working in sales in the competitive sport environment. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Parks, Recreation and Sport Major

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**PRST 2355: Private and Commercial Recreation Principles and Practice**

Considers principles, practices, influences in public/ private leisure services; influence of tourism/travel on public/private recreation services. Graded on A-F basis only.

**Credit Hours:** 3

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**PRST 2711: Experience Internship**

This course is designed as an independent study for students to gain professional experience. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** PRT/PRST Major and Instructor Consent

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**PRST 2750: Methods in Research and Evaluation**

An overview of social research methods, including terms, human and scientific inquiry, ethical behavior, literature review, sampling questionnaire construction, types of data collection, statistical analysis, and reporting of results. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** PRST 1011

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**PRST 3101: Topics in Parks, Recreation and Tourism**

Organized study of selected topics in parks, recreation and tourism. Subjects may vary from semester to semester.

**Credit Hour:** 1-3

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**PRST 3185: Sports Economics and Finance**

This course focuses on the economic and financial issues within the sport industry. The class will help students understand basic and complex concepts within economics and finance in a sport context, and to grasp

the importance of financial and economic decision making. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PRST 1011; Restricted to Parks, Recreation, and Tourism majors with Sport Management emphasis or instructor consent

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**PRST 3185H: Sports Economics and Finance - Honors**

This course focuses on the economic and financial issues within the sport industry. The class will help students understand basic and complex concepts within economics and finance in a sport context, and to grasp the importance of financial and economic decision making. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PRST 1011; Restricted to Parks, Recreation, and Tourism majors with Sport Management emphasis or instructor consent. Honors eligibility required

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**PRST 3189: Pre-Internship and Career Development Seminar**

The course is designed to prepare students for PRST 4940 and careers beyond the internship. Emphasis is placed on students' responsibilities prior to enrollment in PRST 4940, selecting internship sites and completing internship requirements. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** PRT/PRST Major in Junior/Senior Standing; PRST 1011

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**PRST 3210: Personnel Management and Leadership**

Considers theories and practices of leadership and management in leisure services employment. Topic presentation in relationships, attitudes, supervision, motivation and group functioning. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Parks, Recreation and Tourism/ Parks, Recreation and Sport majors

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**PRST 3210W: Personnel Management and Leadership - Writing Intensive**

Considers theories and practices of leadership and management in leisure services employment. Topic presentation in relationships, attitudes, supervision, motivation and group functioning. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Parks, Recreation and Tourism/ Parks, Recreation and Sport majors

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**PRST 3215: Program and Event Development**

Fundamental principles and techniques of program development and event management; seasonal, year round, specialty areas and total agency program planning. The purpose of this course is to make students better prepared to implement and evaluate recreation programming and events that fulfill the diverse needs of society. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** PRST 1011, or instructor's consent; restricted to Parks, Recreation and Tourism, Parks, Recreation and Sport majors

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**PRST 3220: Introduction to Recreation for Individuals with Disabilities**

Principles, concepts and historical development of recreation for individuals with disabilities. Explanation of attitudes, issues, practice and barriers related to recreation participation. Graded on A-F basis only.

**Credit Hours:** 3

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**PRST 3230: Outdoor Recreation Policy**

An overview of parks and outdoor recreation, natural environment, supply-demand-need relationships, interpretative programming, management philosophies/practices will be studied.

**Credit Hours:** 3

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**PRST 3230W: Outdoor Recreation Policies - Writing Intensive**

An overview of parks and outdoor recreation, natural environment, supply-demand-need relationships, interpretative programming, management philosophies/practices will be studied.

**Credit Hours:** 3

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**PRST 3231: Interpretation of Natural and Cultural Resources**

Interpretive principles and techniques employed to communicate the values/meanings of natural and cultural resources to visitors.

**Credit Hours:** 3

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**PRST 3282: Governance and Policy in Sport and Leisure**

This course serves as a comprehensive study in examining how leisure organizations address fundamental issues of governance and policy. Through careful use of policy and understanding of governance, organizations often form strategies in their attempts to gain an advantage. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PRT/PRST Major

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**PRST 4100: Ethics and Diversity**

(cross-leveled with PRST 7100). This course examines an encompassing perspective of ethics and diversity within North American and international sport and recreation organizations. Specifically, the purpose of this course is to provide students with an analysis and understanding of the various ways that people within sport and recreation organizations can differ, and how differences based on this diversity impact life experiences and outcomes.

**Credit Hours:** 3

**Prerequisites:** Parks, Recreation, & Sport Major

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**PRST 4101: Topics in Parks, Recreation and Tourism**

Organized study of selected topics in parks, recreation and tourism. Subjects may vary from semester to semester.

**Credit Hour:** 1-3

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**PRST 4150: Contemporary Issues in Sport**

(cross-leveled with PRST 7150). This course provides an analysis of the place of sport in American society and the impact of sport on American culture. Social and cultural contexts in which sport exists and how those contexts are influenced by sport will be examined. Concepts and theories

will be utilized to examine how social issues and change, relationships, and organization affect sport. Emphasis will be placed on current issues and trends in sport and society. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PRS Major

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**PRST 4208: Administration and Organizational Behavior** (cross-leveled with PRST 7208). Theoretical foundations of the organization and administration of leisure services in both community and institutional settings. Emphasis on the roles of the administrator. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PRST 1011; Restricted to Parks, Recreation and Tourism; Parks, Recreation and Sport majors

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**PRST 4250: Parks, Health and Wellness**

(cross-leveled with PRST 7250). Exposure to nature in parks and natural areas can improve physical, psychological and social health. This course explores the concepts, research, theories and contemporary issues related to the health benefits of parks and exposure to nature. Through this course, students will examine the importance of parks and natural resources to public health. The course emphasizes case studies and practical applications in addition to guided discussions of assigned readings. Offered periodically. Graded on A-F basis only.

**Credit Hours:** 3

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**PRST 4333: Park and Sport Facility Operations**

(cross-leveled with PRST 7333). Basic principles, practices and problems associated with the operations of park and sport facilities including green space, aquatic facilities, sports fields, outdoor park facilities and buildings. Additional focus on necessary maintenance personnel management, equipment management and management of volunteers within a park system or sports facility. Graded on A-F basis only.

**Credit Hours:** 3

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**PRST 4340: Recreation Land Management**

(cross-leveled with PRST 7340). This course provides students with an understanding of the principles and practices of recreation land management. Topics include federal land management agencies, wilderness management, benefits based management, recreation opportunity spectrum, limits of acceptable change, citizen participation in decision making, and visitor experience/resource protection.

**Credit Hours:** 3

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**PRST 4350: Problems in Parks, Recreation, Sport and Tourism**

Individual study with a designated faculty member.

**Credit Hour:** 1-3

**Prerequisites:** Instructor Consent

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**PRST 4357: Domestic and International Tourism: Resources, Market, and Impacts**

(cross-leveled with PRST 7357). Nature and scope of tourism planning at the local, regional, and national levels; economic social, environmental, and policy considerations. Comparative study of initiating, planning and

implementing tourism and the organization of community resources for developing and controlling a tourism industry. Graded on A-F basis only.

**Credit Hours:** 3

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**PRST 4385: Legal Aspects of Sport**

This course studies the U. S. legal system, its structure and terminology. Legal aspects of contract law, statutory law, constitutional law, intellectual property, torts, negligence, and risk management in sport will be examined. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PRT/PRST Major; PRST 1011

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**PRST 4940: Parks, Recreation, Sport and Tourism Internship**

Supervised professional experience with an approved organization. Course entails weekly reports, case studies, agency evaluations and a special project related to the student's curricular emphasis. Students must complete core, emphasis, and pre-internship courses with a C- or better to be eligible to start the capstone. Graded on A-F basis only.

**Credit Hours:** 12

**Prerequisites:** PRST 1011 and PRST 3189, PRST majors only, instructor's consent. Students must complete core, emphasis, and pre-internship courses with a C- or better to be eligible to start the capstone

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**PRST 4949: Western Canada Study Abroad**

This course provides students an educational opportunity to explore Western Canada. Students analyze natural resource management, customer and visitor relations, community relations, cultural entrepreneurship, and transportation networks with US and Canadian Management methods.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**PRST 7101: Topics in Parks, Recreation and Sport**

Specialized topics in recreation and park administration dynamics. Subjects and credits vary by semester based on available faculty resources and expertise. Course content announced in advance. Graded on A-F basis only.

**Credit Hour:** 1-3

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**PRST 7208: Administration and Organizational Behavior**

(cross-leveled with PRST 4208). Theoretical foundations of the organization and administration of leisure services in both community and institutional settings. Emphasis on the roles of the administrator. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PRST 1011; Restricted to Parks, Recreation and Tourism; Parks, Recreation and Sport majors

---

**PRST 7250: Parks, Health and Wellness**

(cross-leveled with PRST 4250). Exposure to nature in parks and natural areas can improve physical, psychological and social health. This course explores the concepts, research, theories and contemporary issues related to the health benefits of parks and exposure to nature. Through this course, students will examine the importance of parks and natural resources to public health. The course emphasizes case studies and

practical applications in addition to guided discussions of assigned readings. Offered periodically. Graded on A-F basis only.

**Credit Hours:** 3

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**PRST 7260: Sustainable Tourism**

(cross-leveled with PRST 4260). Sustainability in the tourism field refers to the adoption of sound environmental, economic, and socio-cultural practices in tourism development and management. Sustainable tourism is considered an alternative to mass tourism and covers a wide range of different tourism niches (e.g., sports tourism, agritourism, ecotourism, film tourism). This course is designed to provide students with a basic understanding of tourism impacts and sustainable tourism development. Students will be introduced to theory, practice, history, terminology and issues in the planning and management of major tourism niches. Graded on A-F basis only.

**Credit Hours:** 3

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**PRST 7333: Park and Sport Facility Operations**

(cross-leveled with PRST 4333). Basic principles, practices and problems associated with the operations of park and sport facilities including green space, aquatic facilities, sports fields, outdoor park facilities and buildings. Additional focus on necessary maintenance personnel management, equipment management and management of volunteers within a park system or sports facility. Graded on A-F basis only.

**Credit Hours:** 3

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**PRST 7340: Recreation Land Management**

(cross-leveled with PRST 4340). This course provides students with an understanding of the principles and practices of recreation land management. Topics include federal land management agencies, wilderness management, benefits based management, recreation opportunity spectrum, limits of acceptable change, citizen participation in decision making, and visitor experience/resource protection.

**Credit Hours:** 3

---

**PRST 7357: Domestic and International Tourism: Resources, Market, and Impacts**

(cross-leveled with PRST 4357). Nature and scope of tourism planning at the local, regional, and national levels; economic social, environmental, and policy considerations. Comparative study of initiating, planning and implementing tourism and the organization of community resources for developing and controlling a tourism industry. Graded on A-F basis only.

**Credit Hours:** 3

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**PRST 7960: Guided Reading in Parks, Recreation, Sport and Tourism**

Selected reading in parks, recreation, sport and tourism identified to fulfill a graduate student's academic needs or specialized interests.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**PRST 8080: Foundations of Sport**

This course focuses on the business side of sport management, primarily considering issues of marketing, sponsorship, and sales. In this, students will not only supplement knowledge of these concepts, but

also be presented with actual models relevant to working in sales in the competitive sport environment. Graded on A-F basis only.

**Credit Hours:** 3

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**PRST 8088: Sport and Leisure Economics**

This course focuses on the business side of sport management, primarily considering issues of marketing, sponsorship, and sales. In this, students will not only supplement knowledge of these concepts, but also be presented with actual models relevant to working in sales in the competitive sport environment. Graded on A-F basis only.

**Credit Hours:** 3

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**PRST 8089: Research Project**

Individual research on approved project. Involves creativity and scholarly inquiry where product does not adhere to the traditional thesis format. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** Parks, Recreation and Tourism graduate major

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**PRST 8090: Thesis Research in Parks, Recreation, Sport and Tourism**

Research leading to thesis in field of parks, recreation and tourism. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** Parks, Recreation and Tourism graduate major

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**PRST 8400: Constructs of Leisure**

Review analysis and implications of fundamental psycho-social determinants of leisure behavior. Application theories of determinants to existing and proposed leisure service systems.

**Credit Hours:** 3

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**PRST 8401: Topics in Recreation and Park Administration**

Specialized topics in recreation and park administration dynamics. Subjects and credits vary by semester based on available faculty resources and expertise. Course content announced in advance.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**PRST 8411: Independent Work in Parks, Recreation, Sport and Tourism**

Independent research or special projects in parks, recreation, sport and tourism.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**PRST 8430: Research Methods in Parks, Recreation and Tourism**

Analysis of basic research methodology. Review and analysis of research work completed in recreation, park and leisure field.

**Credit Hours:** 3

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**PRST 8436: Visitor Behavior and Policy**

Course presents issues, concerns and policies dealing with multi-management/planning/operations of outdoor resource based recreation.

Such issues as energy, economics, social/ political, pollution and user characteristics will be studied.

**Credit Hours:** 3

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**PRST 8450: Administration in Leisure Service Delivery**

Review, analysis and synthesis of administrative functions as related to public and private recreation and leisure service enterprises.

**Credit Hours:** 3

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**PRST 8460: Financial Operations in Leisure Service Delivery**

Review and critical analysis of financial functions, strategies and methodology as related to public and private recreation and leisure service enterprises.

**Credit Hours:** 3

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**PRST 8940: Internship in Parks, Recreation and Tourism**

Supervised student practice in recreation, park or related settings under qualified instructor.

**Credit Hour:** 1-6

**Prerequisites:** Parks, Recreation and Tourism graduate major

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## Pathology & Anatomical Science Courses

**PTH\_AS 2201: Human Anatomy Lecture**

A systems-based survey of human gross anatomy including structure, function and history. Internet access required: lectures and assignments will be online. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Minimum cumulative MU GPA of 2.5 required

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**PTH\_AS 2203: Human Anatomy Laboratory**

A systems-based survey of human gross anatomy. Internet access required: most materials will be online. One on-campus laboratory meeting per week. Graded A-F only. Recommend: Minimum cumulative MU GPA of 2.5 and completed or currently enrolled in PTH\_AS 2201.

**Credit Hours:** 2

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**PTH\_AS 3460: Research and Instructional Techniques**

Involves library and laboratory research. Includes development of oral and written communications skills.

**Credit Hours:** 3

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**PTH\_AS 4210: Seminar in Pathology and Anatomical Sciences**

Presentation and discussion of original investigations and current literature.

**Credit Hour:** 1

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**PTH\_AS 4220: Forensic Pathology and Death Investigation**

(cross-leveled with PTH\_AS 7020). Forensic Pathology and Death Investigation.

**Credit Hours:** 2

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**PTH\_AS 4220H: Forensic Pathology and Death Investigation - Honors**

(cross-leveled with PTH\_AS 7020). Forensic Pathology and Death Investigation.

**Credit Hours:** 2

**Prerequisites:** Honors eligibility required

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**PTH\_AS 4220W: Forensic Pathology and Death Investigation - Writing Intensive**

(cross-leveled with PTH\_AS 7020). Forensic Pathology and Death Investigation.

**Credit Hours:** 2

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**PTH\_AS 4222: Gross Human Anatomy (The Health Professions)**

(cross-leveled with PTH\_AS 7222). Gross structure and neuroanatomy of the human body; dissection of extremities, back, head, neck abdomen and thorax.

**Credit Hours:** 7

**Prerequisites:** instructor's consent

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**PTH\_AS 4222H: Gross Human Anatomy (The Health Professions) - Honors**

(cross-leveled with PTH\_AS 7222). Gross structure and neuroanatomy of the human body; dissection of extremities, back, head, neck abdomen and thorax.

**Credit Hours:** 7

**Prerequisites:** instructor's consent; Honors eligibility required

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**PTH\_AS 6033: SCC ABS Surgical Anatomy**

The 4th year anatomy student will work independently or as a team to dissect and explore regions of cadavers particular to their interests. We generally offer the following regions (Lower Limb, Upper Limb, Pelvis, Thorax, Abdomen, Head & Neck). Students will improve their anatomical knowledge and learn using hands-on experiences and a variety of evidence-based resources while exploring the human body. Requirements: A) Complete a dissection relevant to your interests of the following regions: brain, head and neck, thorax, abdomen, pelvis, upper limb (one side), lower limb (one side). B) Give a 15-minute presentation to Occupational Therapy or Physician Assistant class about the anatomy of your region behind clinical practice. Schedule this presentation with the course coordinator and/or the course director within two months of the scheduled block. However, presentation slides must be given to the course faculty leader by the end of the block. C) Prepare 5 PowerPoint slides for use in Occupational Therapy or Physician Assistant courses on clinically-relevant anatomy for the audience by the end of the block. After review by course faculty the slides will also be sent to Columbia for consideration of use in M1 classes. D) Complete an exit interview with a faculty member to discuss the student's experience during the course.

**Credit Hours:** 5

**Prerequisites:** Successful completion of the first 2 years of medical school and 5 of the 7 core clerkships

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**PTH\_AS 6331: ABS Advanced Medical Neurosciences**

ABS Advanced Medical Neurosciences

**Credit Hour:** 5-10

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**PTH\_AS 6333: ABS Pathology/Anatomical Science Research**

ABS Pathology/Anatomical Science Research

**Credit Hours:** 5

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**PTH\_AS 6341: ABS Science Anatomical Science Teaching**

ABS Science Anatomical Science Teaching

**Credit Hours:** 5

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**PTH\_AS 6343: ABS Surgical Anatomy**

ABS Surgical Anatomy

**Credit Hours:** 5

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**PTH\_AS 6345: ABS Surgical Anatomy of the Head and Neck**

ABS Surgical Anatomy of the Head and Neck

**Credit Hours:** 5

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**PTH\_AS 6347: ABS Surgical Anatomy of the Back and Limbs**

ABS Surgical Anatomy of the Back and Limbs

**Credit Hours:** 5

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**PTH\_AS 6600: Anatomic Pathology**

Anatomic Pathology

**Credit Hours:** 5

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**PTH\_AS 6602: Clinical Pathology**

Clinical Pathology

**Credit Hours:** 5

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**PTH\_AS 6604: Forensic Pathology**

Forensic Pathology

**Credit Hours:** 5

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**PTH\_AS 6606: Anatomic/Clinical Pathology**

Anatomic/Clinical Pathology

**Credit Hours:** 5

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**PTH\_AS 6608: Anatomy Elective**

Anatomy Elective

**Credit Hours:** 5

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**PTH\_AS 6916: Anatomic Pathology Two-Week**

This is a two week rotation. Students will learn how to integrate information and apply previously acquired knowledge and concepts to the assessment and interpretation of surgical pathology, cytopathology, and/or autopsy cases. Students will learn about the procedures necessary to arrive at anatomic pathology diagnoses and the work that goes into specimen processing and examination so as to produce diagnoses.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

---

**PTH\_AS 7020: Forensic Pathology and Death Investigation**

Summary of Forensic Death Investigation from beginning to end. Will include some of the current laboratory techniques seen on 'CSI' Team taught by experts in the fields including medical examiners, death investigators, forensic anthropologists, police CSI teams, lawyers and others.

**Credit Hours:** 2

**Prerequisites:** Basic Biology

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**PTH\_AS 7222: Gross Human Anatomy (The Health Professions)**

(cross-leveled with PTH\_AS 4222). Gross/human structure through dissection. Graded on A-F basis only.

**Credit Hours:** 7

**Prerequisites:** Acceptance into Physical Therapy Programs or instructor's consent

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**PTH\_AS 7400: Seminars in Translational Medicine**

Students participate in regular seminars and discussion groups with other students interested in clinical and translational sciences. Students, working together with faculty in biomedical sciences and those working in clinical and translational fields, identify seminar topics. Learning objectives and written assignments are arranged on an individual basis. The course is open to all graduate level students and students enrolled in professional schools, for 0-5 credit hours, with instructor's approval. Graded on S/U basis only.

**Credit Hour:** 0-5

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**PTH\_AS 7450: Precision Medicine Informatics**

This course will introduce students with the theoretical and practical aspects of precision medicine informatics. Topics include: complex diseases, computational genomics/proteomics, informatics of molecular interactions and biological pathways, somatic mutations, signal transduction and cancer, biomarker discovery, machine learning and data mining for PMI, networks methods for PMI, knowledge representation and reasoning for PMI. The course will consist of a set of didactic lectures, computational assignments, in-class demonstrations of PMI methods and discussions of recent publications. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOINST 8005 with C or better or INFOINST 7010 with C or better or instructor's consent

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**PTH\_AS 8010: Current Issues in Anatomical Sciences**

Survey of the recent literature in integrative anatomy, including functional, evolutionary, developmental and translational anatomy, conducted through readings and discussion. Grade determined by participation and presentation of weekly readings. May be repeated for a maximum of 10 hours. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**PTH\_AS 8090: Advanced Pathology**

Open only to properly qualified graduate students, with counsel of faculty. Focus of MS-related research in evolutionary morphology, genomics, neuroscience, pathobiology or laboratory sciences. Graded on S/U basis only.

**Credit Hour:** 1-99

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**PTH\_AS 8100: Fundamentals of Evolutionary Biology**

Principles of modern evolutionary biology. Topics include: phylogeny, paleobiology, developmental processes, genetic and phenotypic variation, form and function, speculation, macroevolution, and molecular mechanisms.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PTH\_AS 8150: Fundamentals of Evolutionary Morphology**

This course is a survey of the fundamentals of modern evolutionary morphology. Topics will include: patterns of vertebrate evolution, comparative methods, development and ontogeny, constraint, functional morphology, evolutionary innovations, and experimental methods. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**PTH\_AS 8201: Human Anatomy: Back and Upper Limb**

Developmental, gross, and clinical anatomy of the human back and upper limb, including skeletal, muscular, nervous, and vascular tissues. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** instructor's consent required

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**PTH\_AS 8202: Human Anatomy: Thorax and Abdomen**

Developmental, gross, and clinical anatomy of the human thorax and abdomen. Graded on an A-F basis only.

**Credit Hours:** 2

**Prerequisites:** instructor's consent required

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**PTH\_AS 8203: Human Anatomy: Head, Neck and Neuroanatomy**

Developmental, gross and clinical anatomy of the human head, neck and neuroanatomy. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** instructor's consent required

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**PTH\_AS 8204: Human Anatomy: Pelvis and Lower Limb**

Developmental, gross and clinical anatomy of the human pelvis and lower limb. Graded A-F basis only.

**Credit Hours:** 2

**Prerequisites:** instructor's consent required

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**PTH\_AS 8285: Problems in Pathology and Anatomical Sciences**

Regions or systems which may include developmental, microscopic, and gross anatomy.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PTH\_AS 8290: Research in Pathology and Anatomical Sciences**

Research unrelated to thesis work in evolutionary morphology, genomics, neuroscience, pathobiology or laboratory sciences.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PTH\_AS 8450: Human Anatomy Teaching Practicum**

Provides practical experience teaching clinically oriented human anatomy in lecture and laboratory settings. For students pursuing doctoral degrees in Pathobiology. Enrollment is limited to students who have completed PTH\_AS 8201, PTH\_AS 8202, PTH\_AS 8203, and PTH\_AS 8204. Graded on S/U basis only. May be repeated for credit.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**PTH\_AS 8500: Seminar in Translational Neuroscience**

Students participate in seminars and discussion groups. Masters students identify seminar topics and present existing data with findings. PhD students identify seminar topics, conduct research and present findings. Learning objective and written assignments are arranged individually. May be repeated for credit. Graded on S/U basis only.

**Credit Hour:** 1-5

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**PTH\_AS 8640: Quantitative Methods in Life Sciences**

(same as BIO\_SC 8640). Quantitative Methods in Life Sciences is a graduate-level course in statistical analysis designed for the specific needs of students in life sciences, focusing on statistical literacy: performing, interpreting, and writing about biological data analysis. As such, the course assumes a basic understanding of some topics and little understanding of other topics. The course will cover most topics broadly and occasionally in great depth, highlighting the perils and pitfalls of different methods, while providing guidelines for a wide array of statistical approaches to data analysis. The course seeks to find the balance between really understanding all the math involved and learning to be a competent practitioner and consumer of analysis, emphasizing the practical over the theoretical, with additional focus on the communication of data (plotting, graphs, figures) and of results. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor

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**PTH\_AS 9090: Research in Pathology and Anatomical Sciences**

Open only to properly qualified graduate students, with counsel of faculty. Focus of PhD-related research in evolutionary morphology, genomics, neuroscience or pathobiology. Graded on S/U basis only.

**Credit Hour:** 1-99

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**PTH\_AS 9290: Research in Pathology and Anatomical Sciences**

Open only with instructor's consent. Courses with specialized lectures in various topics such as evolutionary morphology, genomics, neuroscience and pathobiology, depending on faculty expertise and student demand. Graded on S/U basis only.

**Credit Hour:** 1-99

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## Peace Studies Courses

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### PEA\_ST 1050: Introduction to Peace Studies

Interdisciplinary overview including theories on the nature of aggression and war, case studies of contemporary conflicts, consideration of various peace proposals, conditions making war or peace likely.

**Credit Hours:** 3

**Recommended:** sophomore standing. Writing intensive not fulfilled unless ENGLSH 1000 or equivalent has already been taken

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### PEA\_ST 1050W: Introduction to Peace Studies - Writing Intensive

Interdisciplinary overview including theories on the nature of aggression and war, case studies of contemporary conflicts, consideration of various peace proposals, conditions making war or peace likely.

**Credit Hours:** 3

**Recommended:** sophomore standing. Writing intensive not fulfilled unless ENGLSH 1000 or equivalent has already been taken

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### PEA\_ST 1051: International Conflict Resolution and Group Reconciliation

Theories of conflict resolution. We will study achieving peace through techniques and institutions that attempt personal and interactive reconciliation of opposing groups personally. Case studies might include the 'Truth and Reconciliation' committees following South African Independence, and similar projects to promote inter-group understanding in Middle East conflicts. The course will then analyze examples of the resolution of major international conflicts and issues, such as the Irish Peace Accords, the Camp David peace process for the Middle East, Strategic Nuclear Arms Limitation, and the Kyoto Protocol.

**Credit Hours:** 3

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### PEA\_ST 1051W: International Conflict Resolution and Group Reconciliation - Writing Intensive

Theories of conflict resolution. We will study achieving peace through techniques and institutions that attempt personal and interactive reconciliation of opposing groups personally. Case studies might include the 'Truth and Reconciliation' committees following South African Independence, and similar projects to promote inter-group understanding in Middle East conflicts. The course will then analyze examples of the resolution of major international conflicts and issues, such as the Irish Peace Accords, the Camp David peace process for the Middle East, Strategic Nuclear Arms Limitation, and the Kyoto Protocol.

**Credit Hours:** 3

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### PEA\_ST 1052: Global Warming, Climate Change, Catastrophic Climate Destabilization

Global warming, climate change and catastrophic climate destabilization as alternate conceptualizations. The greenhouse gas effect; the consequences of climate change for oceans, fresh water ecosystems, forests, agriculture, biodiversity, public health, social justice and global social stability. Potential solutions will be considered, including sustainable energy sources, efficiency of energy use, divestment from fossil fuels, and putting a price on carbon.

**Credit Hours:** 3

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### PEA\_ST 1052W: Global Warming, Climate Change, Catastrophic Climate Destabilization - Writing Intensive

Global warming, climate change and catastrophic climate destabilization as alternate conceptualizations. The greenhouse gas effect; the consequences of climate change for oceans, fresh water ecosystems, forests, agriculture, biodiversity, public health, social justice and global social stability. Potential solutions will be considered, including sustainable energy sources, efficiency of energy use, divestment from fossil fuels, and putting a price on carbon.

**Credit Hours:** 3

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### PEA\_ST 1120: Population and Ecology

(same as RU\_SOC 1120 and SOCIOL 1120). Changes in the structure and characteristics of population groups and their relationship to both human and non-human aspects of the biophysical environment.

**Credit Hours:** 3

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### PEA\_ST 1150: The Amish Community

(same as RU\_SOC 1150). Examines historical antecedents and contemporary culture and social structure of the Amish. Topics include cultural symbols, life ceremonies, the family, counter cultural pressures, stresses and social change.

**Credit Hours:** 3

**Recommended:** RU\_SOC 1000, SOCIOL 1000, or ANTHRO 1000

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### PEA\_ST 1150W: The Amish Community - Writing Intensive

(same as RU\_SOC 1150). Examines historical antecedents and contemporary culture and social structure of the Amish. Topics include cultural symbols, life ceremonies, the family, counter cultural pressures, stresses and social change.

**Credit Hours:** 3

**Recommended:** RU\_SOC 1000, SOCIOL 1000, or ANTHRO 1000

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### PEA\_ST 2000: Exploration in Social and Economic Justice

(same as SOC\_WK 2000). This course explores issues of fairness and equality in economic, political and social systems, and applies social justice principles to major social problems. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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### PEA\_ST 2000W: Exploration in Social and Economic Justice - Writing Intensive

(same as SOC\_WK 2000). This course explores issues of fairness and equality in economic, political and social systems, and applies social justice principles to major social problems. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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### PEA\_ST 2003: Topics in Peace Studies: Behavioral Science

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent. Graded on A-F basis only.

**Credit Hour:** 2-3

**Recommended:** Sophomore standing

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**PEA\_ST 2003W: Topics in Peace Studies: Behavioral Science - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent. Graded on A-F basis only.

**Credit Hour:** 2-3

**Recommended:** Sophomore standing

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**PEA\_ST 2004: Topics in Peace Studies - Social Sciences**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 2-3

**Recommended:** sophomore standing

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**PEA\_ST 2004W: Topics in Peace Studies - Social Sciences - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 2-3

**Recommended:** sophomore standing

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**PEA\_ST 2005: Topics in Peace Studies - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent. Graded on A-F basis only.

**Credit Hour:** 2-3

**Recommended:** sophomore standing

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**PEA\_ST 2016: Authoritarian Societies, States, and the Prospects for Democracy**

The course analyzes and critiques current authoritarian tendencies in civil society and the state, in politics, economy, culture, and individually experienced social life. It will synthesize varied approaches and theories from several disciplines, and will place developments in the US and other nations in historical and multicultural context. Topics may include: authoritarian racism and social control, movements and resistance against authoritarianism, mobilization through mass and social media, and authoritarianism as a global phenomena.

**Credit Hours:** 3

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**PEA\_ST 2016H: Authoritarian Societies, States, and the Prospects for Democracy - Honors**

The course analyzes and critiques current authoritarian tendencies in civil society and the state, in politics, economy, culture, and individually experienced social life. It will synthesize varied approaches and theories from several disciplines, and will place developments in the US and other nations in historical and multicultural context. Topics may include: authoritarian racism and social control, movements and resistance against authoritarianism, mobilization through mass and social media, and authoritarianism as a global phenomena. Prerequisites: Honors eligibility required

**Credit Hours:** 3

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**PEA\_ST 2016W: Authoritarian Societies, States, and the Prospects for Democracy - Writing Intensive**

The course analyzes and critiques current authoritarian tendencies in civil society and the state, in politics, economy, culture, and individually experienced social life. It will synthesize varied approaches and theories from several disciplines, and will place developments in the US and other nations in historical and multicultural context. Topics may include: authoritarian racism and social control, movements and resistance against authoritarianism, mobilization through mass and social media, and authoritarianism as a global phenomena.

**Credit Hours:** 3

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**PEA\_ST 2100: The Vietnam and Iraq Wars: Lessons for the Future**

An interdisciplinary analysis of the Vietnam War and the American-led war with Iraq. Course focuses on the reasons that America lost in Vietnam, the reasons it won in Iraq, and the lessons these conflicts provided for America's future. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PEA\_ST 2140: ART: Visual Culture and The Iconography of Social Intent**

The focus of the course is to encourage students to view and discuss visual arts in an informed manner. The course will also raise key issues in the humanities, such as how certain artists reflect upon and explore the cultural, social and historical impact of human agency. Provided is a basic review of the visual arts during selected time periods of the past, along with an emphasis on creative responses by modern and post-modern artists to the changing socio-economic and cultural landscape of the present day. The influence, manipulation, and oftentimes, conflictual aspects of the arts, will be discussed together with an appropriate overview of context, and vocabulary. Students will come to recognize and appreciate art's intriguing versatility, and the power of art 'to integrate individual and communal needs' (Dissanayake, 2000).

**Credit Hours:** 3

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**PEA\_ST 2182: Critical Dialogues: Nonviolence in Peace/Democracy Movements**

(same as SOCIOL 2182). History and theory of movements for peace, justice, and democracy. Development of violent and nonviolent tactics and factions in movements; relationship to state authority. Cases such as Gandhi's Independence, American Civil Rights, Arab Spring, and Occupy movements.

**Credit Hours:** 3

**Recommended:** PEA\_ST 1050

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**PEA\_ST 2182W: Critical Dialogues: Nonviolence in Peace/Democracy Movements - Writing Intensive**

(same as SOCIOL 2182). History and theory of movements for peace, justice, and democracy. Development of violent and nonviolent tactics and factions in movements; relationship to state authority. Cases such as Gandhi's Independence, American Civil Rights, Arab Spring, and Occupy movements.

**Credit Hours:** 3

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**Prerequisites:** PEA\_ST 1050 or instructor's consent

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**PEA\_ST 2200: Nuclear Weapons: Environmental, Health and Social Effects**

(same as HLTH\_SCI 2200 and SOCIOL 2281). Environmental consequences of the nuclear arms race, 'regional' nuclear war, and weapons testing for human health, agriculture, and society. Examining 'a world without nuclear weapons'; political dialogue on proliferation; Iran, North Korea, and nuclear weapons conventions. Graded on A-F basis only.

**Credit Hours:** 3

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**PEA\_ST 2200W: Nuclear Weapons: Environmental, Health and Social Effects-Writing Intensive**

(same as HLTH\_SCI 2200 and SOCIOL 2281). Environmental consequences of the nuclear arms race, 'regional' nuclear war, and weapons testing for human health, agriculture, and society. Examining 'a world without nuclear weapons'; political dialogue on proliferation; Iran, North Korea, and nuclear weapons conventions. Graded on A-F basis only.

**Credit Hours:** 3

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**PEA\_ST 2220: America in the 1960's**

(same as HIST 2220). Examines the political and cultural main currents of the 1960s. Emphasizes the challenges mounted by protest groups and the responses of America's political leadership to the ferment of the period.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PEA\_ST 2255: Youth, Islam, and Global Cultures**

(same as SOCIOL 2255). Youth subcultures and the social issues and problems faced by youth, focusing on the Islamic world and Muslim immigrants, in the United States and elsewhere. Social and behavioral theories and concepts such as paths to modernization, Orientalism, post-colonialism, population movements, social construction, identity, and recognition will be illustrated.

**Credit Hours:** 3

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**PEA\_ST 2280: Race, Democracy, and Violence in Cuba and Haiti**

(same as SOCIOL 2280, GEOG 2280). A sociological approach to understand race/ethnicity, identity, citizenship, human rights, violence, and political and economic systems in the Caribbean. Comparisons of the culture, politics, and historical trajectories of Cuba and Haiti using Post-Colonial and Feminist theories. Graded on A-F basis only.

**Credit Hours:** 3

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**PEA\_ST 2280W: Race, Democracy, and Violence in Cuba and Haiti - Writing Intensive**

(same as SOCIOL 2280, GEOG 2280). A sociological approach to understand race/ethnicity, identity, citizenship, human rights, violence, and political and economic systems in the Caribbean. Comparisons of the culture, politics, and historical trajectories of Cuba and Haiti using Post-Colonial and Feminist theories. Graded on A-F basis only.

**Credit Hours:** 3

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**PEA\_ST 2285: Large Corporations, Economic Crisis, Social Responsibility**

(same as SOCIOL 2285). Institutional power of the corporate CEO; ethical regulatory restraint. Historical contexts of economic crisis. Theories of justice, alternative concepts of justice in popular culture. Politics of policy issues in prosecution and criminalization of corporate behavior. Graded on A-F basis only.

**Credit Hours:** 3

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**PEA\_ST 2286: Technological Futures, National Security, and Civil Liberties**

(same as SOCIOL 2286). Contemporary practices and future trends in data collection and mining by the NSA and by businesses. The interplay of government and corporate power, and possibilities of regulation and maintenance of privacy and civil liberties. The development of digital intellectual copyright and its consequences on patterns of dissemination of knowledge.

**Credit Hours:** 3

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**PEA\_ST 2286W: Technological Futures, National Security, and Civil Liberties - Writing Intensive**

(same as SOCIOL 2286). Contemporary practices and future trends in data collection and mining by the NSA and by businesses. The interplay of government and corporate power, and possibilities of regulation and maintenance of privacy and civil liberties. The development of digital intellectual copyright and its consequences on patterns of dissemination of knowledge.

**Credit Hours:** 3

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**PEA\_ST 2287: Conspiracies, Popular Imagination, Evidence**

In-depth and critical analysis of cases involving allegations of 'conspiracy' in international affairs, contrasted with official reports and presentations of evidence in a variety of venues. Conspiracy theories considered might include those centering on 9-11 and the Kennedy assassination. Conspiracy theories will be compared and contrasted to what is known about secrecy and the functioning of elite political and economic institutions such as the Trilateral Commission and campaign financing organizations. Students will analyze a variety of NGO and government documents and investigative journalism drawing on Wiki Leaks. We will compare and contrast what is considered evidence in different venues such as the criminal justice system, government reports, journalism, and academic writing by historians, social and behavioral scientists, and natural scientists. Concepts clarified and utilized will include: state corporate crime, system determination, social construction, narrative, historical memory, symbolic politics, and individual and group responsibility.

**Credit Hours:** 3

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**PEA\_ST 2287W: Conspiracies, Popular Imagination, Evidence - Writing Intensive**

In-depth and critical analysis of cases involving allegations of 'conspiracy' in international affairs, contrasted with official reports and presentations of evidence in a variety of venues. Conspiracy theories considered might include those centering on 9-11 and the Kennedy assassination. Conspiracy theories will be compared and contrasted to what is known

about secrecy and the functioning of elite political and economic institutions such as the Trilateral Commission and campaign financing organizations. Students will analyze a variety of NGO and government documents and investigative journalism drawing on Wiki Leaks. We will compare and contrast what is considered evidence in different venues such as the criminal justice system, government reports, journalism, and academic writing by historians, social and behavioral scientists, and natural scientists. Concepts clarified and utilized will include: state corporate crime, system determination, social construction, narrative, historical memory, symbolic politics, and individual and group responsibility.

**Credit Hours:** 3

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**PEA\_ST 2288: Sports, Protest Movements, and Conflict Resolution**

This course will critically analyze the social significance of sports, focusing on events leading to and influencing protest movements and the peaceful outcomes (or lack thereof) of these movements through conflict resolution. We will identify the non-violent behaviors, strategies, and ideologies of numerous athletes such as: Muhammad Ali, Jim Brown, Harry Edwards, John Carlos and Tommy Smith, Colin Kaepernick, and their particular methods of rebellion and representation of issues. Furthermore, we will examine how fans, organizations, media, and sporting committees (i.e. International Olympic Committee) have reacted to athlete revolts, and the effectiveness of revolts in changing society.

**Credit Hours:** 3

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**PEA\_ST 2288W: Sports, Protest Movements, and Conflict Resolution - Writing Intensive**

This course will critically analyze the social significance of sports, focusing on events leading to and influencing protest movements and the peaceful outcomes (or lack thereof) of these movements through conflict resolution. We will identify the non-violent behaviors, strategies, and ideologies of numerous athletes such as: Muhammad Ali, Jim Brown, Harry Edwards, John Carlos and Tommy Smith, Colin Kaepernick, and their particular methods of rebellion and representation of issues. Furthermore, we will examine how fans, organizations, media, and sporting committees (i.e. International Olympic Committee) have reacted to athlete revolts, and the effectiveness of revolts in changing society.

**Credit Hours:** 3

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**PEA\_ST 2289: Towns in Missouri and the Midwest: Voices and Inequalities**

(same as GEOG 2289, RU\_SOC 2289). Focusing on towns and communities and their regional history and cultural traditions. Examines the issues and concerns of small-town America in the context of recent hardships and adverse economic trends. Examples of topics covered include case studies of communities such as Marceline, Missouri (Walt Disney's boyhood home), race and the immigration of non-whites in to rural areas; gender roles in small communities, the role of religion in small-town identity formation, and other current issues faced by 'middle America.' The responsiveness of government, large corporations, and institutions to the problems of diverse communities will be critically examined, with a multidisciplinary approach that draws on key theories and works in the disciplines of sociology, rural sociology, community development, and geography.

**Credit Hours:** 3

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**PEA\_ST 2289W: Towns in Missouri and the Midwest: Voices and Inequalities - Writing Intensive**

Focusing on towns and communities and their regional history and cultural traditions. Examines the issues and concerns of small-town America in the context of recent hardships and adverse economic trends. Examples of topics covered include case studies of communities such as Marceline, Missouri (Walt Disney's boyhood home), race and the immigration of non-whites in to rural areas; gender roles in small communities, the role of religion in small-town identity formation, and other current issues faced by 'middle America.' The responsiveness of government, large corporations, and institutions to the problems of diverse communities will be critically examined, with a multidisciplinary approach that draws on key theories and works in the disciplines of sociology, rural sociology, community development, and geography.

**Credit Hours:** 3

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**PEA\_ST 2290: Drugs, Violence and the Police in Latin America and Latina/o Communities in the United States**

A regional and global perspective on the 'war on drugs' and violence in Latin American countries such as Mexico and Colombia, as well as the United States. The course may include units on such topics as: the recent history of gangs in US urban areas; political violence in Central America and such countries as Colombia and Venezuela; and attempts to mediate and reconcile social conflicts and war in those areas. The interplay between gangs, drug policies, policing, and citizens' action and protests in major cities of the hemisphere, such as in Argentina and Brazil. Drugs, policing, gangs, and violence as a symbolic and hot button issue in domestic politics, and the consequences for public policy and the character of the discourse about public policy.

**Credit Hours:** 3

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**PEA\_ST 2291: Artificial Intelligence Big Data: Social, Political, Ethical Issues**

This course will enable students to evaluate contrasting interpretations by leading thinkers about the development of information technologies, the internet, and robotics and artificial intelligence. Current debates will be covered; topics might include: views that social media are constraining the development of human relationships (Turkel); that commercialization of the internet reduces its function to attention getting (Wu); that automation degrades the humanity of work (Carr) and restricts the pay for producing creative content (Lanier). On the other hand, the course will consider arguments that human mind can be reverse reengineered to advance a new era of artificially intelligent machines (Kurzweil). Current theories of information technology and society will be grounded in the multidisciplinary thinking about mind, intelligence, art, and work.

**Credit Hours:** 3

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**PEA\_ST 2291W: Artificial Intelligence Big Data: Social, Political, Ethical Issues - Writing intensive**

This course will enable students to evaluate contrasting interpretations by leading thinkers about the development of information technologies, the internet, and robotics and artificial intelligence. Current debates will be covered; topics might include: views that social media are constraining the development of human relationships (Turkel); that commercialization of the internet reduces its function to attention getting (Wu); that automation degrades the humanity of work (Carr) and restricts the pay for producing creative content (Lanier). On the other hand, the course will consider arguments that human mind can be reverse reengineered to

advance a new era of artificially intelligent machines (Kurzweil). Current theories of information technology and society will be grounded in the multidisciplinary thinking about mind, intelligence, art, and work.

**Credit Hours:** 3

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**PEA\_ST 2292: Internet Identities, and the Clash of Global Countercultures and Oppositional Cultures**

This course problematizes the development of individual and group identities on the internet and social media due to their multiple, global, shallow, shifting, segmented, and conflictual character. We emphasize a multidisciplinary examination of the internet presentation of diverse identities such as those of the 1960s counter-culture, the Christian right, militias, the alt-right, rural towns, terrorist cells, and life-style and sectarian political and religious groups. We will also examine the processes of publicity and celebrity in the creation of personal identities such as 'entrepreneur' (Bill Gates and Steve Jobs), 'geek', 'hacker,' and anonymous, and the development of internet technologies and personal identities in the context of commercialism and ideals such as freedom and rebellion. The intersection of personal, work, and professional identities will be considered. Sources will include autobiography, biography, and literature on such topics as diaspora, borders, Empire, and exile.

**Credit Hours:** 3

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**PEA\_ST 2293: Globalization, Identity and Citizenship**

(same as GEOG 2293, POL\_SC 2293). This course examines the forces of globalization that are transforming our world, and explores the various responses -- psychological, social and political -- that people have been making over the past fifty years. Part I examines globalization as an economic and geographical process, generating huge social consequences, with rapid growth, population movements, political change and a vast gap between global wealth and poverty. Part II focuses on the ways in which individuals are now seeking to find themselves in this globalizing world. Emphasis will be placed on the ways in which national identity, faith, gender and sexuality are emerging as key loci around which contemporary people (especially young people) are trying to forge new social identities for themselves. The course will conclude by examining the recently emerging (and highly contested) concept of 'global citizenship'. Graded on A-F basis only.

**Credit Hours:** 3

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**PEA\_ST 2293W: Globalization, Identity and Citizenship - Writing Intensive**

(same as GEOG 2293W, POL\_SC 2293W). This course examines the forces of globalization that are transforming our world, and explores the various responses -- psychological, social and political -- that people have been making over the past fifty years. Part I examines globalization as an economic and geographical process, generating huge social consequences, with rapid growth, population movements, political change and a vast gap between global wealth and poverty. Part II focuses on the ways in which individuals are now seeking to find themselves in this globalizing world. Emphasis will be placed on the ways in which national identity, faith, gender and sexuality are emerging as key loci around which contemporary people (especially young people) are trying to forge new social identities for themselves. The course will conclude by examining the recently emerging (and highly contested) concept of 'global citizenship'. Graded on A-F basis only.

**Credit Hours:** 3

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**PEA\_ST 2294: Public Health, Social Justice, Health Activism**

This course features a focus on (1) the literature on health and social justice movements and activism, and (2) community-based and local health problems and organizing, with a consideration of the relation between local community and the global. In a 'place matters' assignment, students will identify, collect, analyze, synthesize, and present relevant place-based data on factors influencing health. The concept of 'structural competency' underlies the approach of this course. Topics pursued might include: the water crisis in Flint, Michigan; women's health; racism and morbidity and mortality crisis; HIV/ AIDS activism; public health mobilization for immigrant rights; and health educators and ethical issues.

**Credit Hours:** 3

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**PEA\_ST 2294W: Public Health, Social Justice, Health Activism - Writing Intensive**

This course features a focus on (1) the literature on health and social justice movements and activism, and (2) community-based and local health problems and organizing, with a consideration of the relation between local community and the global. In a 'place matters' assignment, students will identify, collect, analyze, synthesize, and present relevant place-based data on factors influencing health. The concept of 'structural competency' underlies the approach of this course. Topics pursued might include: the water crisis in Flint, Michigan; women's health; racism and morbidity and mortality crisis; HIV/ AIDS activism; public health mobilization for immigrant rights; and health educators and ethical issues.

**Credit Hours:** 3

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**PEA\_ST 2320: Literature of Spanish Civil War**

(same as SPAN 2320). Study of the Spanish Civil War: History, Politics, Literature. May not be included in the area of concentration in Spanish.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PEA\_ST 2321: Germany in War and Peace: Division and Unity 1945-89**

This course will compare notions of war and peace in East (German Democratic Republic) and West Germany (Federal Republic of Germany), 1945-1989. In particular, there are three main ways to think about war and peace: 1. Dealing with the Nazi past; 2. Dealing with the Cold War present; Negotiating violence and peace within various dissent and peace movements.

**Credit Hour:** 2-3

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**PEA\_ST 2322: Rise of Hitler: Politics and Society in Germany**

This course will examine the social climate of Germany that contributed to the rise of Hitler and the National Socialist Party, 1914-1933. The Nazis, in order to revise the last peace at Versailles and to construct a New Racial Order, organized a national community and planned and initiated a world war.

**Credit Hours:** 2

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**PEA\_ST 2410: Philosophies of War and Peace**

(same as PHIL 2410). Moral issues about the recourse to war by the nation and the individual's obligations to participate. The nature of peace,

social and personal. Special attention to the Vietnam War and the nuclear age.

**Credit Hours:** 3

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**PEA\_ST 2410W: Philosophies of War and Peace - Writing Intensive** (same as PHIL 2410). Moral issues about the recourse to war by the nation and the individual's obligations to participate. The nature of peace, social and personal. Special attention to the Vietnam War and the nuclear age.

**Credit Hours:** 3

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**PEA\_ST 2490: Introduction to Indigenous Literatures** (Same as ENGLISH 2490). Introduces students to global indigenous literatures in English and translation. Graded on A-F basis only.

**Credit Hours:** 3

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**PEA\_ST 2550: Human Rights, Law, War and Peace**  
Interdisciplinary exploration of how human rights, law, war and peace are connected through an analysis of various theories and contemporary examples, which may include issues regarding citizenship in the United States today, the regulation of economic markets in the U.S. today, state surveillance, the military industrial complex, the manner in which gender affects the experience of warfare and individuals.

**Credit Hours:** 3

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**PEA\_ST 2600: CAFO: Concentrated Animals, Deep Ecology**  
Throughout the ages humans have toiled and tilled the land confirming their role as integral providers as well as graceful recipients of nature's bounty. The significant metamorphosis that this gentle and cautious stewardship of the earth has undergone, necessitates close scrutiny. This multi-disciplined humanities course will consider the prose of the human community as it intersects widespread industrialized animal production with its inevitable social, economic and environmental realities. Eco-Feminist readings and the Fine Arts with its theoretical underpinnings associated with a liberal arts aesthetic will invite a wider perspective.

**Credit Hours:** 3

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**PEA\_ST 2600W: CAFO: Concentrated Animals, Deep Ecology - Writing Intensive**  
Throughout the ages humans have toiled and tilled the land confirming their role as integral providers as well as graceful recipients of nature's bounty. The significant metamorphosis that this gentle and cautious stewardship of the earth has undergone, necessitates close scrutiny. This multi-disciplined humanities course will consider the prose of the human community as it intersects widespread industrialized animal production with its inevitable social, economic and environmental realities. Eco-Feminist readings and the Fine Arts with its theoretical underpinnings associated with a liberal arts aesthetic will invite a wider perspective.

**Credit Hours:** 3

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**PEA\_ST 3003: Topics in Peace Studies - Behavioral Science**  
Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 2-3

**Recommended:** sophomore standing

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**PEA\_ST 3005: Topics in Peace Studies - Humanities**  
Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing

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**PEA\_ST 3005H: Topics in Peace Studies - Humanities - Honors**  
Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing. Honors eligibility required

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**PEA\_ST 3140: Art of War and Peace**  
Exploration of selected visual art pieces and consideration of humanistic concerns during times of war and peace from various perspectives including a peace studies perspective. Viewing and discussing art within varied selected historical and cultural contexts that generated the imagery. Includes visits to studios and galleries. May be repeated for credit.

**Credit Hour:** 2-3

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**PEA\_ST 3230H: Terrorism and Conflict Resolution - Honors**  
Religious, ethnic, ideological movements; state and international reactions. Case studies from South America, Europe, Africa, Asia. Identifying problems, possible resolution. Dramatized thru discussions, documentaries, role-playing; short term paper, exams.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**PEA\_ST 3280: Internship in Peace Studies**  
Students work in a peace-related agency or institution for 1 to 3 credit hours. Repeatable for maximum of 6 hours. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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**PEA\_ST 3330: Environmental Justice** (same as SOCIOL 3330). Environmental justice refers to the ways in which the 'cost and benefits' of modern industrial society are distributed among social groups. This course is concerned with justice, not as an abstract concept, and inequality not in terms of numbers in a bank account. Social justice or inequality are lived, embodied experiences. An individual's likelihood of experiencing environmental harm is related to intersecting gender, race and class formations, among other things. Justice or inequality is not only embodied, it also happens in places--national and regional differences matter. In this course we will look at some of the extensive literature documenting the ways in which communities of color and poor communities are subject to disproportionate environmental risks. In addition, we will focus on gender as an important category in understanding environmental inequality. Graded on A-F basis only.

**Credit Hours:** 3

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**PEA\_ST 3350: Readings in Peace Studies**

Students may receive 1 to 3 credit hours for doing readings and research in a particular area of peace studies. At least one paper will be required. Repeatable for a maximum of 6 hours.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**PEA\_ST 3400: Fake News and Media Politics**

(same as SOCIOL 3400). In this course we study the political impact of the growing concentration of media ownership in the U.S. We develop critical thinking skills to identify 'fake news,' and types of media bias to compare U.S. media coverage of current issues with media in other parts of the world.

**Credit Hours:** 3

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**PEA\_ST 3400W: Fake News and Media Politics - Writing Intensive**

(same as SOCIOL 3400). In this course we study the political impact of the growing concentration of media ownership in the U.S. We develop critical thinking skills to identify 'fake news,' and types of media bias to compare U.S. media coverage of current issues with media in other parts of the world.

**Credit Hours:** 3

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**PEA\_ST 3401: Global Public Health and Health Care Systems**

(Same as HLTH\_SCI 3400). An introduction to public health in a global context, with an emphasis on understanding how disparities in socioeconomic status, differences in political and national health care systems and the work of international organizations impact health in communities around the world. Graded on A-F basis only.

**Credit Hours:** 3

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**PEA\_ST 3496: Digital Indigenous Studies**

(same as GEOG 3496). This course introduces students to Indigenous studies in a digital world. The course begins with study of Indigenous sovereignty and representation, and moves quickly to critical and theoretical readings in new media, tracing both the historical impact of digital technologies (such as GIS) on Native communities, and the ways that both urban and rural Native communities have engaged in innovative digital projects that expand the way we understand information and storytelling in digital environments. The course materials will cover a wide range of platforms and audio-visual genres, from documentary, community video, and animation productions, to GIS, video games, and social media sites. Students will engage with both scholars and artists working with new media through a program of public lectures, classroom visits, and Skype interviews. All interview will be archived as podcasts from the course website. Students will write weekly short response papers and produce independent audio-visual projects over the course of the semester, with opportunities to revise their work leading up to substantial final projects. The course will also integrate community outreach into the curriculum through online participation of students from the Kiowa Kids, an Indigenous language immersion and storytelling program.

**Credit Hours:** 3

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**PEA\_ST 3496H: Digital Indigenous Studies - Honors**

(same as GEOG 3496H). This course introduces students to Indigenous studies in a digital world. The course begins with study of Indigenous sovereignty and representation, and moves quickly to critical and theoretical readings in new media, tracing both the historical impact of digital technologies (such as GIS) on Native communities, and the ways that both urban and rural Native communities have engaged in innovative digital projects that expand the way we understand information and storytelling in digital environments. The course materials will cover a wide range of platforms and audio-visual genres, from documentary, community video, and animation productions, to GIS, video games, and social media sites. Students will engage with both scholars and artists working with new media through a program of public lectures, classroom visits, and Skype interviews. All interview will be archived as podcasts from the course website. Students will write weekly short response papers and produce independent audio-visual projects over the course of the semester, with opportunities to revise their work leading up to substantial final projects. The course will also integrate community outreach into the curriculum through online participation of students from the Kiowa Kids, an Indigenous language immersion and storytelling program. Prerequisites: Honors eligibility required

**Credit Hours:** 3

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**PEA\_ST 3496W: Digital Indigenous Studies - Writing Intensive**

(same as GEOG 3496). This course introduces students to Indigenous studies in a digital world. The course begins with study of Indigenous sovereignty and representation, and moves quickly to critical and theoretical readings in new media, tracing both the historical impact of digital technologies (such as GIS) on Native communities, and the ways that both urban and rural Native communities have engaged in innovative digital projects that expand the way we understand information and storytelling in digital environments. The course materials will cover a wide range of platforms and audio-visual genres, from documentary, community video, and animation productions, to GIS, video games, and social media sites. Students will engage with both scholars and artists working with new media through a program of public lectures, classroom visits, and Skype interviews. All interview will be archived as podcasts from the course website. Students will write weekly short response papers and produce independent audio-visual projects over the course of the semester, with opportunities to revise their work leading up to substantial final projects. The course will also integrate community outreach into the curriculum through online participation of students from the Kiowa Kids, an Indigenous language immersion and storytelling program.

**Credit Hours:** 3

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**PEA\_ST 3510: Think Global: Fundamentals of Globalization and Digital Technologies**

(same as JOURN 3510, GERMAN 3510, DST\_VS 3510, T\_A\_M 3010). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or instructor's consent

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**PEA\_ST 3510HW: Think Global: Fundamentals of Globalization and Digital Technologies - Honors - Writing Intensive**

(same as GERMAN 3510HW, T\_A\_M 3010HW, JOURN 3510HW, DST\_VS 3510HW). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing required and 2.75 GPA. Honors eligibility required

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**PEA\_ST 3510W: Think Global: Fundamentals of Globalization and Digital Technologies - Writing Intensive**

(same as JOURN 3510W, T\_A\_M 3010W, GERMAN 3510W, DST\_VS 3510W). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or instructor's consent

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**PEA\_ST 3520: Collective Behavior**

(same as SOCIOL 3520). Analysis of crowd behavior and related phenomena: rumors, disasters, fashions. Social responses to unclear, dangerous or unjust conditions. The dynamics of conflict, consensus and change.

**Credit Hours:** 3

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**PEA\_ST 3520W: Collective Behavior - Writing Intensive**

(same as SOCIOL 3520). Analysis of crowd behavior and related phenomena: rumors, disasters, fashions. Social responses to unclear, dangerous or unjust conditions. The dynamics of conflict, consensus and change.

**Credit Hours:** 3

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**PEA\_ST 3521: Group Decision Making Processes**

(same as COMMUN 3571). Procedures and techniques for interpersonal communication and decision making in small groups.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PEA\_ST 3522: New Media, Conflict and Control**

(same as SOCIOL 3522) This course will explore the increasing role of new media tools in conflict and surveillance. Examples from recent conflicts will illustrate how citizens and regimes use new media to communicate, report, mobilize, monitor, and/or control. Students will utilize new media as they research instances of democracy and control.

**Credit Hours:** 3

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**PEA\_ST 3600: Criminology**

(same as SOCIOL 3600). Sociology of law; constitutional, psychological, sociological theories of criminal behavior; process of criminal justice; treatment of corrections; control of crime.

**Credit Hours:** 3

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**PEA\_ST 3610: Ireland, 1100s to 1850**

(same as HIST 3610). Ireland, from Conquest to Famine: Ireland's history as the first British Colony, from the conquests of the 1100s and 1500s-1600s to the Irish rebellion of 1798 and the Great Famine and mass emigration of 1845-50.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PEA\_ST 3611: Ireland, 1850-1923**

(same as HIST 3611). Ireland, from Famine to Partition: Irish history from the Great Famine of 1845-50 to the revolutions of 1916-23 that brought partial independence from Britain but partitioned Ireland into two hostile and trouble states.

**Credit Hours:** 3

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**PEA\_ST 3612: Ireland, 1920-Present**

(same as HIST 3612). Ireland, from Partition to the Present: After surveying the conflicts that led to Irish revolution and partition in 1916-23, the course focuses on the development of post partition Ireland and Northern Ireland, and on the violence that has scarred Northern Ireland since the 1960s.

**Credit Hours:** 3

**Recommended:** HIST 3610 and/or HIST 3611

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**PEA\_ST 3780: World Political Geography**

(same as GEOG 3780). Geographic factors in the development of political boundaries traditions, and societal perspectives. Spatial patterns and geopolitical processes are explored in selected regions of the world.

**Credit Hours:** 3

**Prerequisites:** GEOG 1100 or GEOG 1200 or sophomore standing

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**PEA\_ST 3870: Social Revolution in Latin America**

(same as HIST 3870 and SOCIOL 3870). Twentieth century social revolutions in selected Latin American countries.

**Credit Hours:** 3

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**PEA\_ST 4003: Topics in Peace Studies - Behavioral Sciences**

Upperclass Topics. Subject may vary from semester to semester.

**Credit Hours:** 3

**Prerequisites:** junior standing required

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**PEA\_ST 4005: Topics in Peace Studies: Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent. Graded on A-F basis only.

**Credit Hour:** 2-6

**Recommended:** sophomore standing

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**PEA\_ST 4005H: Topics in Peace Studies: Humanities - Honors**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent. Graded on A-F basis only.

**Credit Hour:** 2-6

**Prerequisites:** Honors eligibility required

**Recommended:** sophomore standing

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**PEA\_ST 4005W: Topics in Peace Studies: Humanities - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent. Graded on A-F basis only.

**Credit Hour:** 2-6

**Recommended:** sophomore standing

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**PEA\_ST 4080: American Foreign Policy from Colonial Times to 1898**

(same as HIST 4080, CNST\_DEM 4080; cross-leveled with HIST 7080, PEA\_ST 7080). This class probes the entwined development of the U.S. nation and empire, to the backdrop of accelerating structures of global economic integration, technological innovation, and the hardening of national, racial, and ideological formations.

**Credit Hours:** 3

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**PEA\_ST 4230: Women, Development and Globalization**

(same as SOCIOL 4230 and WGST 4230 and BL\_STU 4230; cross-leveled with SOCIOL 4230, WGST 7230, BL\_STU 7230). Examines the history and structure of 'development' discourse and practices. Stresses the interconnections and impact on women globally. Reviews women's strategies in defining and instituting programs to improve quality of life in communities.

**Credit Hours:** 3

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**PEA\_ST 4240: Theory and Practice of Theatre of the Oppressed**

(same as THEATR 4240; cross-leveled with PEA\_ST 7240, THEATR 7240). Theory and practice of Augusto Boal's liberatory interactive theatre process, including application of techniques of specific social issues.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PEA\_ST 4260: The Age of Ascendancy: U.S. Foreign Relations, 1945-Present**

(same as HIST 4260; cross-leveled with PEA\_ST 7260, HIST 7260). Surveys the Cold War in Europe and Asia, the Korean and Vietnam Wars, and Middle East policy.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PEA\_ST 4287: Empire: Intellectual History, Literature, and Society**

(same as REL\_ST 4287; cross-leveled with PEA\_ST 7287; REL\_ST 7287). Intellectuals and writers passionately debated the wisdom of colonies, free trade, and war as economies became increasingly global over the centuries. The proponents, critics, and interpreters of Empire will offer us rich examples of themes and theories in the culture of specific nations and eras. Intellectual life will be studied in the context

of developments in social inequality, the culture of classes, media of communication, education, identities, transnational governance, and the nation-state. The course will be offered with different national and historical foci under different instructors, and may be repeated for credit with different instructors. Counts as the capstone experience for Peace Studies and is open to majors of other disciplines.

**Credit Hours:** 3

**Prerequisites:** junior standing

**Recommended:** senior standing

---

**PEA\_ST 4288: Law and Society: Corporate and White Collar Crime and Malfeasance**

(cross-leveled with PEA\_ST 7288). Instances of corporate crime and ethical misconduct analyzed through major theories of the sociology of law including critical legal studies, Legal Realism, sociological jurisprudence, collective representation theory, state- corporate crime, rationalization of legal institutions/ critical theory, and post-structuralism. Cases to be analyzed might include mortgage lending fraud and malpractice, insider trading, pyramid schemes, the Erie Railroad scandals, and Enron, Worldcom, Tyco, and other instances in the hi tech collapse of 2001. Other topics: Corporate crime in the media and in novels and popular culture, appropriate sentencing, global corporate crime.

**Credit Hours:** 3

**Prerequisites:** at least junior standing

**Recommended:** senior standing, 3.0 or above GPA, interest in graduate school

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**PEA\_ST 4331: Nonproliferation Issues for Weapons of Mass Destruction**

(same as NU\_ENG 4331). Nonproliferation impact on technology and world events.

**Credit Hours:** 3

**Prerequisites:** junior or senior standing

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**PEA\_ST 4331W: Nonproliferation Issues for Weapons of Mass Destruction - Writing Intensive**

(same as NU\_ENG 4331). Nonproliferation impact on technology and world events.

**Credit Hours:** 3

**Prerequisites:** junior or senior standing required or instructor's consent

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**PEA\_ST 4410: Politics and War**

(same as POL\_SC 4410). Why do wars occur? The function of force and uses of a threat of force. Problems of national security strategy and arms control.

**Credit Hours:** 3

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**PEA\_ST 4520: Political Sociology**

(same as SOCIOL 4520). Social bases of power and politics, economic and political elites, the political economy of the advanced societies, sources of political conflict and change. MA core course.

**Credit Hours:** 3

**Recommended:** SOCIOL 3200, SOCIOL 3510, SOCIOL 3520, or SOCIOL 3700

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**PEA\_ST 4550: Gender and Human Rights in Cross Cultural Perspective**

(same as SOCIOL 4550 and WGST 4550; cross-leveled with WGST 7550, SOCIOL 7550, PEA\_ST 7550) This course focuses on the global discourse on human rights and gender, emphasizing cross-cultural theories. Course includes the meaning of rights, Western and nonwestern perspectives, feminist contributions, important substantive debates, violations, policymaking and activism.

**Credit Hours:** 3

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**PEA\_ST 4600: Political and Social Philosophy**

(same as PHIL 4600). Contemporary and/or historical theories of justice and the state. Utilitarianism, liberalism, libertarianism, Marxism, Communitarianism and feminism may be among the views covered.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent

**Recommended:** two courses in Philosophy

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**PEA\_ST 4810: Case Studies in an Inter/Multicultural World**

(same as GERMAN 4810, T\_A\_M 4810, DST\_VS 4805). This inter-departmental course examines the ways in which people across the globe are affected every day by an unprecedented array of linkages that defy geographic and political boundaries. Also serves as one of the seminars for the certificate in Digital Global Studies. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing; 2.75 GPA or instructor's consent

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**PEA\_ST 4970: Senior Thesis I**

Senior essay on a Peace Studies topic requiring major research.

**Credit Hours:** 3

**Prerequisites:** PEA\_ST 1050, senior standing, and instructor's consent

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**PEA\_ST 4980: Peace Studies Abroad - Social Sciences**

A study abroad experience organized by MU and led by MU faculty. Provides students with interdisciplinary study in foreign cultures, career development, and global experience with issues such as war, domestic conflict, sustainable development, human rights, and nonviolent movements for peace and justice. May be repeated for credit.

**Credit Hour:** 3-6

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**PEA\_ST 7240: Theory and Practice of Theatre of the Oppressed**

(same as THEATR 7240; cross-leveled with PEA\_ST 4240, THEATR 4240). Theory and practice of Augusto Boal's liberatory interactive theatre process, including application of techniques of specific social issues.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PEA\_ST 7287: Empire: Intellectual History, Literature, and Society**

(same as REL\_ST 7287; cross-leveled with PEA\_ST 4287, REL\_ST 4287). Intellectuals and writers passionately debated the wisdom of colonies, free trade, and war as economies became increasingly global over the centuries. The proponents, critics, and interpreters of Empire will offer us rich examples of themes and theories in the culture of

specific nations and eras. Intellectual life will be studied in the context of developments in social inequality, the culture of classes, media of communication, education, identities, transnational governance, and the nation-state. The course will be offered with different national and historical foci under different instructors, and may be repeated for credit with different instructors. Counts as the capstone experience for Peace Studies and is open to majors of other disciplines.

**Credit Hours:** 3

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**PEA\_ST 7288: Law and Society: Corporate and White Collar Crime and Malfeasance**

(cross-leveled with PEA\_ST 4288). Instances of corporate crime and ethical misconduct analyzed through major theories of the sociology of law including critical legal studies, Legal Realism, sociological jurisprudence, collective representation theory, state-corporate crime, rationalization of legal institutions/ critical theory, and post-structuralism. Cases to be analyzed might include mortgage lending fraud and malpractice, insider trading, pyramid schemes, the Erie Railroad scandals, and Enron, Worldcom, Tyco, and other instances in the hi tech collapse of 2001. Other topics: Corporate crime in the media and in novels and popular culture, appropriate sentencing, global corporate crime.

**Credit Hours:** 3

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**PEA\_ST 7550: Gender and Human Rights in Cross Cultural Perspective**

(same as SOCIOL 7550 and WGST 7550; cross-leveled with WGST 4550, SOCIOL 4550, PEA\_ST 4550). Focuses on the global discourse on human rights and gender, emphasizing cross-cultural theories. Course includes the meaning of human rights, western and nonwestern perspectives, feminist contributions, important substantive debates, violations, policymaking and activism.

**Credit Hours:** 3

---

**PEA\_ST 7980: Peace Studies Abroad**

A study abroad experience organized by MU and led by MU faculty. Provides students with interdisciplinary study in foreign cultures, career development, and global experience with issues such as war, domestic conflict, sustainable development, human rights, and nonviolent movements for peace and justice. May be repeated for credit.

**Credit Hour:** 3-6

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## Personal Financial Planning Courses

**FINPLN 1183: Financial Survival**

Examines financial management issues needed to survive the critical college years-credit/credit cards, budgeting/planning, financial aid, loans, common financial mistakes, debt management, setting financial goals, effective use of financial resources. Graded on S/U basis only.

**Credit Hour:** 1

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**FINPLN 2083: Financial Planning Careers**

This course will provide the student with a broad, general introduction to careers in financial planning. Through readings, introspection, discussions, and guest speakers, the student will develop an understanding of the field.

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**Credit Hour:** 1

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**FINPLN 2183: Personal and Family Finance**

Individual and family finance, with particular emphasis on financial planning, savings, insurance, investments, taxes, use of credit, and financial aspects of housing. Math Reasoning Proficiency Course. Students who wish to pursue a Personal Financial Planning emphasis must earn a B- or better, in FINPLN 2183.

**Credit Hours:** 3

**Prerequisites:** MATH 1050 or MATH 1100 (or higher) with grade of C- or above

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**FINPLN 2183H: Personal and Family Finance - Honors**

Individual and family finance, with particular emphasis on financial planning, savings, insurance, investments, taxes, use of credit, and financial aspects of housing. Math Reasoning Proficiency Course. Students who wish to pursue a Personal Financial Planning emphasis must earn a B- or better, in FINPLN 2183.

**Credit Hours:** 3

**Prerequisites:** MATH 1050 or MATH 1100 (or higher) with grade of C- or above; Honors eligibility required

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**FINPLN 3282: Financial Counseling**

Practical course on client financial counseling. Course emphasizes client money issues including budgeting, credit, debt management, bankruptcy and other issues. Students also will learn counseling strategies and communication skills to motivate clients to change negative behaviors and/or adopt positive behaviors.

**Credit Hours:** 3

**Prerequisites or Corequisites:** FINPLN 2183 or instructor's consent

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**FINPLN 3283: Financial Planning: Computer Applications**

Development of expertise in analyzing and understanding family financial case situations. Applications include the use of leading financial planning software, as well as applications with spreadsheets.

**Credit Hours:** 3

**Prerequisites:** FINPLN 2183 with grade of C or above

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**FINPLN 4000: Problems in Personal Financial Planning**

Supervised and independent work.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**FINPLN 4187: Tax Planning**

(cross-leveled with FINPLN 7187). Principles, current law and practice of income taxation and its impact on personal financial planning for individuals, couples and families in their roles as investors, employees, and business owners. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FINPLN 2183; FINPLN 3283 or ACCTCY 2258.

Restricted to Personal Financial Planning emphasis area with a 2.5 cumulative gpa or higher; restricted to Personal Financial Management Services emphasis area with a 2.0 cumulative gpa or higher; restricted to Financial Counseling emphasis area with a 2.25 cumulative gpa; or instructor consent

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**FINPLN 4188: Community Agencies and Volunteerism**

Service learning in a non-profit community social support agency. Examines economic role of non-profits and volunteerism. Students engage in service and evaluate experience in seminar. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FINPLN 4187 or FINPLN 7187. Restricted to Personal Financial Planning majors or instructor's consent

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**FINPLN 4380: Assessing the American Dream**

A systems perspective examining ways choice and culture shape American levels and standards of living. The impact of trends in personal and family values, technology, the economy, mass media and social movements on household resource management.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

**Recommended:** junior standing

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**FINPLN 4380W: Assessing the American Dream - Writing Intensive**

(cross-leveled with FINPLN 7380). A systems perspective examining ways choice and culture shape American levels and standards of living. The impact of trends in personal and family values, technology, the economy, mass media and social movements on household resource management.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

**Recommended:** junior standing

---

**FINPLN 4381: Securities Industry Essentials**

(cross-leveled with FINPLN 7381). The Securities Industry Essentials (SIE) curriculum will prepare students for the Financial Industry Regulatory Authority (FINRA) SIE exam increasing their chances for career placement in the financial services industry upon graduation. Additionally, this course will explore current trends and techniques for financial advisor marketing and prospect/client management. Taught in a blended format, students will attend class 1 hour per week for 15 weeks. This course is open to any MU student in any degree program with a desire to enter the financial services industry. Graded on A-F basis only.

**Credit Hour:** 1

**Recommended:** Recommended for upper level students preparing for graduation and entering the financial services career field. Prior financial investment education is not required but recommended

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**FINPLN 4382: Financial Planning: Risk Management**

(cross-leveled with FINPLN 7382). Analysis of family financial risks and conservation of family assets via risk management, with primary focus on personal lines of insurance.

**Credit Hours:** 3

**Prerequisites:** FINPLN 2183; FINPLN 3283 or ACCTCY 2258; ECONOM 1014 or ABM 1041; ECONOM 1015 or ABM 1042; STAT 2500 or STAT 1300 and STAT 2200 or STAT 1400 and STAT 2200 or STAT 1200 and STAT 2200. Restricted to Personal Financial Planning emphasis area with a 2.5 cumulative gpa or higher; restricted to Personal Financial Management Services emphasis area with a 2.0 cumulative gpa

or higher; restricted to Financial Counseling emphasis area with a 2.25 cumulative gpa; or instructor consent

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**FINPLN 4383: Financial Planning: Investment Management**

(cross-leveled with FINPLN 7383). Introduction to investment for family financial planning.

**Credit Hours:** 3

**Prerequisites or Corequisites:** ECONOM 3229

**Prerequisites:** FINPLN 2183; FINPLN 3283 or ACCTCY 2258; STAT 2500 or STAT 1300 and STAT 2200 or STAT 1400 and STAT 2200 or STAT 1200 and STAT 2200. Restricted to Personal Financial Planning emphasis area with a 2.5 cumulative gpa or higher; restricted to Personal Financial Management Services emphasis area with a 2.0 cumulative gpa or higher; restricted to Financial Counseling emphasis area with a 2.25 cumulative gpa; or instructor consent

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**FINPLN 4386: Financial Planning: Employee Benefits and Retirement Planning**

(cross-leveled with FINPLN 7386). Fundamentals of employee benefits and retirement planning. Consideration of options via government, employer, financial markets. Special circumstances of women, part-time, and contingent workers considered. Restricted to Personal Financial Planning majors: Personal Financial Planning, Personal Financial Management Services, and Financial Counseling or instructor consent.

**Credit Hours:** 3

**Prerequisites:** FINPLN 4187 and FINPLN 4382 and FINPLN 4383

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**FINPLN 4387: Consumer and Household Economics**

Economic theory of consumer and household behavior, focusing on rationality, uncertainty, optimal search, heuristics, interactive decisions and considering implications for financial decision making and policy analysis.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1014 or ABM 1041; STAT 2500 or STAT 1300 and STAT 2200 or STAT 1400 and STAT 2200 or STAT 1200 and STAT 2200

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**FINPLN 4389: Financial Planning: Capstone**

The course emphasizes the use of analytical tools to develop effective financial plans for individuals and households.

**Credit Hours:** 3

**Prerequisites:** FINPLN 4187 and FINPLN 4382 and FINPLN 4383 and FINPLN 4386 and FINPLN 4393. Restricted to Personal Financial Planning majors or instructor's consent

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**FINPLN 4393: Financial Planning: Estate and Gift Planning**

Fundamentals, practical problems and solutions in basic estate and gift planning, business succession planning, and taxation issues.

**Credit Hours:** 3

**Prerequisites:** FINPLN 4187 and FINPLN 4382 and FINPLN 4383 or instructor's consent. Not available to Pre-Personal Financial Planning majors

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**FINPLN 4418: Topics in Personal Financial Planning**

Selected current topics in field of interest.

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**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**FINPLN 4483: Financial Success**

Examines financial management issues needed to survive the critical post-college years - managing educational debt; after-school budgeting; auto, health, and other forms of insurance; retirement planning and other investment issues; setting financial goals; effective use of financial resources. Graded on S/U basis only.

**Credit Hour:** 1

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**FINPLN 4992: Readings in Personal Financial Planning**

Selected readings in field of interest.

**Credit Hour:** 1-12

**Prerequisites:** Instructor's consent

**Recommended:** 2-3 hours in Personal Financial Planning

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**FINPLN 4993: Internship in Personal Financial Planning**

Enrollment in a major in the Department of Personal Financial Planning - Financial Planning (PFP), Personal Financial Management Services (PFMS), or Financial Counseling (FC). An exception may be made for those with a minor in PFMS or who obtain permission from the Department.

**Credit Hour:** 1-99

**Prerequisites:** Instructor consent required. Enrollment in a major in the Department of Personal Financial Planning - Financial Planning (PFP), Personal Financial Management Services (PFMS), or Financial Counseling (FC). An exception may be made for those with a minor in PFMS or who obtain consent from the Department

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**FINPLN 7000: Problems in Personal Financial Planning**

Prerequisites: Restricted to Personal Financial Planning Majors Only.

**Credit Hour:** 1-99

**Prerequisites:** 4000-level course in field of problem and instructor's consent

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**FINPLN 7001: Topics in Household Economics and Finance**

Selected current topics in field of interest.

**Credit Hour:** 1-99

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**FINPLN 7183: Fundamentals of Personal Financial Planning**

Issues and concepts related to the financial planning process, including determination of financial goals and expectations and analysis and evaluation of personal and family financial data with emphasis on savings, insurance, investments, taxes, credit and financial aspects of housing.

**Credit Hours:** 3

---

**FINPLN 7187: Financial Planning: Tax Planning**

(cross-leveled with FINPLN 4187). Principles, current law and practice of income taxation and its impact on personal financial planning for individuals, couples and families in their roles as investors, employees, and business owners. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FINPLN 2183; FINPLN 3283 or ACCTCY 2258 or equivalent or instructor's consent

---

**FINPLN 7282: Advanced Financial Counseling**

Students will learn client-centered financial counseling. Includes development of interviewing techniques, focus on personality strengths and weaknesses, creation of the sales process, and the role of technology in counseling. Graded on A-F basis only.

**Credit Hours:** 3

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**FINPLN 7380: Assessing the American Dream**

(cross-leveled with FINPLN 4380). A systems perspective examining ways choice and culture shape American levels and standards of living. The impact of trends in personal and family values, technology the economy, mass media and social movements on household resource management.

**Credit Hours:** 3

---

**FINPLN 7381: Securities Industry Essentials**

(cross-leveled with FINPLN 4381). The Securities Industry Essentials (SIE) curriculum will prepare students for the Financial Industry Regulatory Authority (FINRA) SIE exam increasing their chances for career placement in the financial services industry upon graduation. Additionally, this course will explore current trends and techniques for financial advisor marketing and prospect/client management. Taught in a blended format, students will attend class 1 hour per week for 15 weeks. This course is open to any MU student in any degree program with a desire to enter the financial services industry. Graded on A-F basis only.

**Credit Hour:** 1

**Recommended:** Recommended for students preparing for graduation and entering the financial services career field. Prior financial investment education is not required but recommended

---

**FINPLN 7382: Financial Planning: Risk Management**

(cross-leveled with FINPLN 4382). Analysis of family financial risks and conservation of family assets via risk management, with primary focus on personal lines of insurance.

**Credit Hours:** 3

**Prerequisites:** FINPLN 3283 or ACCTCY 2258; ECONOM 1014 or ABM 1041; ECONOM 1015 or ABM 1042; STAT 2500 or STAT 1300 and STAT 2200 or STAT 1400 and STAT 2200 or STAT 1200 and STAT 2200

---

**FINPLN 7383: Financial Planning: Investment Management**

(cross-leveled with FINPLN 4383). Management of family financial investments.

**Credit Hours:** 3

**Prerequisites or Corequisites:** ECONOM 3229

**Prerequisites:** FINPLN 2183; FINPLN 3283 or ACCTCY 2258; STAT 2500 or STAT 1300 and STAT 2200 or STAT 1400 and STAT 2200 or STAT 1200 and STAT 2200. Restricted to Personal Financial Planning emphasis area with a 2.5 cumulative gpa or higher; restricted to Personal Financial Management Services emphasis area with a 2.0 cumulative gpa or higher; restricted to Financial Counseling emphasis area with a 2.25 cumulative gpa; or instructor consent

---

**FINPLN 7386: Financial Planning: Employee Benefits and Retirement Planning**

(cross-leveled with FINPLN 4386). Fundamentals of employee benefits and retirement planning. Consideration of options via government, employer, financial markets. Special circumstances of women, part-time, and contingent workers considered.

**Credit Hours:** 3

**Prerequisites:** FINPLN 4382, FINPLN 4383, or instructor's consent

---

**FINPLN 7387: Consumer and Household Economics II**

(cross-leveled with FINPLN 4387). Economic theory of consumer and household behavior, focusing on rationality, uncertainty, optimal search, heuristics, interactive decisions and considering implications for financial decision making and policy analysis.

**Credit Hours:** 3

**Prerequisites:** ECONOM 4351 or equivalent

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**FINPLN 7389: Financial Planning: Capstone**

The course emphasizes the use of analytical tools to develop effective financial plans for individuals and households.

**Credit Hours:** 3

**Prerequisites:** FINPLN 4187, FINPLN 4382, FINPLN 4383 or instructor's consent. Not available to Pre-Personal Financial Planning majors

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**FINPLN 7393: Financial Planning: Estate and Gift Planning**

Fundamentals, practical problems and solutions in basic estate and gift planning, business succession planning, and taxation issues.

**Credit Hours:** 3

**Prerequisites:** FINPLN 4382 and FINPLN 4382

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**FINPLN 7960: Readings in Household Economics and Finance**

Readings in recent research in household economics and finance.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**FINPLN 7993: Internship in Personal Financial Planning**

Internship in Personal Financial Planning.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent; Restricted to Personal Financial Planning Majors Only

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**FINPLN 8001: Topics in Personal Financial Planning**

Selected current topics in field of interest.

**Credit Hour:** 1-99

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**FINPLN 8085: Problems in Household Economics and Finance**

Supervised independent work related to household economics and finance.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**FINPLN 8087: Seminar in Household Economics and Finance**

Report and discussion of recent research and practice in household economics and finance.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**FINPLN 8090: Master's Thesis Research in Personal Financial Planning**

Independent research leading to thesis or dissertation. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**FINPLN 8183: Military Personal Financial Readiness**

Financial planning process applied to military personnel and their families. Focus on service member status; financial readiness; record-keeping; management of cash flow, risk, credit and debt, savings, investments, tax, savings; education planning, retirement and estate planning. Graded on A-F basis only.

**Credit Hours:** 3

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**FINPLN 8187: Professional Practices in Financial Planning**

Practice management techniques for Financial Planners. Graded on A-F basis only.

**Credit Hours:** 3

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**FINPLN 8380: Family Systems**

Exploration of the family as a system within the broader context of society.

**Credit Hours:** 3

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**FINPLN 8381: Theories and Research in Personal Financial Planning I**

Course introduces students to the social science of family finances. Course covers the theories of family functioning, microeconomic theory related to family resource allocation decisions, the family as an economic unit, and the interaction of families and the economy. Graded on A-F basis only.

**Credit Hours:** 3

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**FINPLN 8382: Theories and Research in Personal Financial Planning II**

Course reviews theories and empirical research in household financial decision-making, drawing from macroeconomic theory, theories of household behavior, lifecycle hypothesis, behavioral economics and finance, theories of behavioral change and psychological theories of family well-being. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FINPLN 8381

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**FINPLN 8385: Housing and Real Estate**

The study of real estate as a component to household wealth. Graded on A-F basis only.

**Credit Hours:** 3

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**FINPLN 8389: Financial Planning Case Studies**

The analysis and development of appropriate presentations for effective financial plans.

**Credit Hours:** 3

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**FINPLN 8450: Applied Research in Household Economics and Planning**

Independent research not leading to a thesis. Report required. For students completing Master's in Personal Financial Planning.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**FINPLN 8483: Family Economics**

Multidisciplinary study of research on families as economic units. Examines trends in family income, wealth, labor market participation, household production, distribution of household resources, use of public goods, and underground economy.

**Credit Hours:** 3

---

**FINPLN 8485: Human Resource Development and Allocation**

Economic analysis of conditions, programs and policies related to development and use of human resources, with special reference to impact on families and households.

**Credit Hours:** 3

**Prerequisites:** FINPLN 4387 or instructor's consent

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**FINPLN 8488: Household Financial Decision Making**

This course provides a solid foundation for critical thinking and research on household financial decision making. A selective but extensive review of normative and descriptive theories and empirical studies pertinent to household financial decision making is provided. The focus is on developing a critical perspective in students that enables them to identify opportunities to advanced theory toward relevant applications through research on household financial decision making.

**Credit Hours:** 3

**Prerequisites:** instructor's consent. A knowledge of intermediate micro economics, introductory statistics, and introductory differential calculus is assumed

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**FINPLN 8500: Personal Financial Planning Capstone**

Independent work on project approved by major advisor and CFP (R) Program Director. For students completing Master's in Personal Financial Planning. May be repeated for credit.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**FINPLN 9090: Doctoral Dissertation Research in Personal Financial Planning**

Independent research leading to thesis or dissertation. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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## Philosophy Courses

### **PHIL 1000: The Big Questions: An Introduction to Philosophy**

Introduction to traditional philosophical problems and methods of philosophical inquiry. Consideration given to different philosophical theories on the nature of reality, human beings, nature and God; knowledge and how it is acquired; values and social issues.

**Credit Hours:** 3

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### **PHIL 1000H: The Big Questions: An Introduction to Philosophy - Honors**

Introduction to traditional philosophical problems and methods of philosophical inquiry. Consideration given to different philosophical theories on the nature of reality, human beings, nature and God; knowledge and how it is acquired; values and social issues.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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### **PHIL 1100: The Difference Between Right and Wrong: An Introduction to Ethics**

Introduction to different philosophical theories regarding when acts are morally right rather than wrong; when things are good rather than bad; nature of the 'good life', nature of ethical reasoning and justification.

**Credit Hours:** 3

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### **PHIL 1100H: The Difference Between Right and Wrong: An Introduction to Ethics - Honors**

Introduction to different philosophical theories regarding when acts are morally right rather than wrong; when things are good rather than bad; nature of the 'good life', nature of ethical reasoning and justification.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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### **PHIL 1150: Introductory Bioethics**

This course approaches moral problems in biomedical and scientific research from a philosophical perspective. First, we'll familiarize ourselves with ethics and political philosophy. Then we'll study the ethical issues that arise in connection with a series of issues, including research involving human and animal subjects, eugenics, the human genome project, cloning and stem cell research. By thinking about these issues, we learn how to think critically about particular moral quandaries, as well as to uncover and examine some of our deepest moral commitments.

**Credit Hours:** 3

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### **PHIL 1159: Blind Spots**

The human mind is systematically biased towards illusion, distortion, and error. Failing to recognize one's own biases, moreover, is a bias in itself - the so-called Blind Spot Bias. PHIL 1159 is an online philosophy course that will provide a comprehensive introduction to cognitive biases, and to the skills that can be used to identify and negotiate their influences on patterns of cognition and behavior. The course will be structured around case studies of particular biases, such as confirmation bias, probability neglect, and overconfidence. The course will employ a variety of instructional materials including popular science articles, essays written by philosophers and psychologists, and video lectures by the instructors and by other researchers. Assignments include discussion board posts,

a few short essays, and the creation of argument maps using MindMup, a free, web-based platform developed by researchers at Princeton University. Graded on A-F basis only.

**Credit Hours:** 3

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### **PHIL 1200: How to Think: Logic and Reasoning for Everyday Life**

Methods of analyzing and evaluating arguments of all types. Uses both informal and formal techniques. Identifies informal fallacies and introduces elementary symbolic logic.

**Credit Hours:** 3

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### **PHIL 1200H: How to Think: Logic and Reasoning for Everyday Life - Honors**

Methods of analyzing and evaluating arguments of all types. Uses both informal and formal techniques. Identifies informal fallacies and introduces elementary symbolic logic.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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### **PHIL 2005: Topics in Philosophy-Humanities**

Organized study of philosophical issues to which no regular course is devoted. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

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### **PHIL 2010: The Philosophy of Film**

(same as FILMS\_VS 2010). Philosophical problems having to do with film. Topic may include the nature of films, the differences between fiction and documentary film, ethical issues with film and filmmaking.

**Credit Hours:** 3

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### **PHIL 2100: Philosophy: East and West**

(same as S\_A\_ST 2100). Compares the interpretation and role of philosophical concepts such as experience, reason, permanence, change, immortality, soul, God, etc., in Indian, Chinese and European traditions.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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### **PHIL 2150: Philosophy of Race**

This course surveys developments in the philosophy of race. We will examine the ordinary conception of race and consider criticisms of it. Theorists in the field generally hold the ordinary notion of race in disrepute. The line of inquiry then becomes 'What does 'race' denote?' and 'Why'? In response, we will disambiguate race from closely associated concepts such as ethnicity, culture, nation, and class as part of a sustained investigation into the relationship between race and racism. Toward the end of the course, we will more directly reflect on implications of the inequality that race seems to track with a focus on mass incarceration and reparations. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** PHIL 1000, PHIL 1100, or PHIL 1200

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**PHIL 2200: Philosophy and Intellectual Revolution**

Examines such revolutions as the Copernican, Darwinian, Marxian and Freudian. What are the new views? How is our place in the universe affected? What puzzles arise in replacing old by new views?

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PHIL 2300: Philosophy and Human Nature**

Philosophical exploration and examination of theories of human nature with reference to relevant developments in such sciences as biology, psychology, and economics.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PHIL 2350: The Meaning of Life**

Does life have meaning, or is it essentially meaningless, absurd? This course will examine some of answers philosophers have given to this and related questions.

**Credit Hours:** 3

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**PHIL 2400: Ethics and the Professions**

Examination of ethical issues confronted by members of different professions such as medicine, law, business, journalism and engineering.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PHIL 2410: Philosophies of War and Peace**

(same as PEA\_ST 2410). Moral issues about the recourse to war by the nation and the individual's obligations to participate. The nature of peace, social and personal. Special attention to the Vietnam War and the nuclear age.

**Credit Hours:** 3

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**PHIL 2410W: Philosophies of War and Peace - Writing Intensive**

(same as PEA\_ST 2410W). Moral issues about the recourse to war by the nation and the individual's obligations to participate. The nature of peace, social and personal. Special attention to the Vietnam War and the nuclear age.

**Credit Hours:** 3

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**PHIL 2420: Ethical Issues in Business**

Major theories of moral obligation and justice and their application to business practices. Corporate responsibility, government regulation, investment and production, advertisement, the environment, preferential hiring, etc. through case studies, legal opinions and philosophical analysis.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PHIL 2430: Contemporary Moral Issues**

Review of the major contemporary ethical theories and their contribution to the resolution of major social issues such as euthanasia, suicide, abortion, capital punishment, violence and war. Emphasis on nature, interests, and rights of persons. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PHIL 2440: Medical Ethics**

Considers moral issues posed by developments in biological sciences and medical technology. Topics may include: genetic engineering, abortion and euthanasia, distribution of health care.

**Credit Hours:** 3

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**PHIL 2500: Philosophy and Gender**

(same as WGST 2500). A critical examination of central ideas and themes in feminist philosophical thought. Topics may include: sex, marriage, parenthood, reproduction, body image, pornography, prostitution.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PHIL 2500H: Philosophy and Gender - Honors**

A critical examination of central ideas and themes in feminist philosophical thought. Topics may include: sex, marriage, parenthood, reproduction, body image, pornography, prostitution.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**PHIL 2600: Rational Decisions**

Principles for making decisions in a rational way. Special attention to principles that use probabilities and utilities. Some discussion of decisions made in conjunction with other people, and decisions made for other people. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and grade of C or better in MATH 1050, MATH 1100, MATH 1160, MATH 1400, or MATH 1500

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**PHIL 2700: Elementary Logic**

(same as LINGST 2700). Introduces a symbolic language for representing the structure of arguments. Presents precise rules for demonstrating the validity of arguments. Covers natural deduction for sentence and predicate logic. Develops skill in constructing derivations. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and grade of C or better in MATH 1050, MATH 1100, MATH 1160, MATH 1400, or MATH 1500

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**PHIL 2820: Minds, Brains, and Machines**

(same as PSYCH 2820 and LINGST 2820). Cognitive science is a many-splendored thing. It draws on a variety of disciplines, including psychology, neuroscience, computer science, linguistics, anthropology, and philosophy. The purpose of this course is to introduce the central questions of cognitive science, the conceptual and empirical tools used to investigate those questions, and some of the answers that have emerged so far. After an initial overview of the foundations of the cognitive-scientific enterprise as a whole, we will see what particular sectors of it have to say about mental capacities such as language, categorization, reasoning, social cognition, and consciousness.

**Credit Hours:** 3



**Prerequisites:** sophomore standing

**Recommended:** PSYCH 1000

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**PHIL 2850: Minds and Morals: An Introduction to Moral Psychology**

Moral psychology is the interdisciplinary study of how we reason and act morally. This course is a systematic introduction to the field, drawing on research from both psychology and philosophy. Topics include competing theories of moral judgment, the situationist challenge to virtue ethics, and the role of deliberation in moral agency.

**Credit Hours:** 3

**Recommended:** PHIL 1100, PHIL 2820

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**PHIL 2900: Environmental Ethics**

Environmental Ethics explores the ethical, ecological, and policy dimensions of a range of issues such as climate change, land and natural resource management, sustainability, animal rights, hunting and fishing, ecofeminism, property rights, and environmental justice. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** PHIL 1100

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**PHIL 3000: Ancient Western Philosophy**

(same as AMS 3025). Philosophical thought on nature, knowledge, the gods, human life and society, from Thales to Augustine. Emphasis on Plato and Aristotle. The relevance of the ancients to contemporary life.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 3100: Medieval Philosophy**

Major thinkers from St. Augustine through 14th century Ockhamists.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 3200: Modern Philosophy**

Surveys critical and speculative thinking of modern period from Descartes to Kant in relation to scientific, religious and social movements.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 3200W: Modern Philosophy - Writing Intensive**

Surveys critical and speculative thinking of modern period from Descartes to Kant in relation to scientific, religious and social movements.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 3400: 19th Century Philosophy**

A careful and sympathetic study of some of the major thinkers of this period, notably Kierkegaard and Nietzsche.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**Recommended:** one course in Philosophy

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**PHIL 3500: Existentialism**

The nature of human existence, the meaning of life, the relation of the individual to nature, society, and any gods that may be, according to Kierkegaard, Nietzsche, Heidegger, Sartre, de Beauvoir, Camus and others. Students are encouraged to come to grips with the issues in relation to their own lives.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 3600: 20th Century Philosophy**

The course will be a survey of some of the notable philosophers/thinkers whose contributions have been made in the twentieth century.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 3700: Selected Modern Philosophers**

Advanced study of a particular philosopher or a number of philosophers from the same school in the modern period. May be taken twice for credit with permission of the department.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 3800: Selected Contemporary Philosophers**

Advanced study of a particular contemporary philosopher or philosophers. May be taken twice for credit with permission of the department.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 4001: Topics in Philosophy-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing and two courses in Philosophy, or instructor's consent; departmental consent for repetition

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**PHIL 4005: Topics in Philosophy-Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent for repetition.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing

**Recommended:** two courses in Philosophy, or instructor's consent

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**PHIL 4100: Philosophy of Language**

(same as LINGST 4100; cross-leveled with PHIL 7100, LINGST 7100). Examination of contemporary views of the relationship between language, minds, and the world.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and PHIL 2700

**Recommended:** one other course in Philosophy

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**PHIL 4110: Advanced Logic**

(same as LINGST 4110; cross-leveled with PHIL 7110, LINGST 7110). Presents the method of truth trees for sentence and predicate logic. Examines proofs concerning the decidability, soundness, and completeness of formal systems. Emphasizes the theory of formal systems. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and PHIL 2700

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**PHIL 4120: Selected Topics in Logic**

(cross-leveled with PHIL 7120). Possible topics include elementary set theory and modal logic, the logic of possibility and necessity.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and either PHIL 2700 or PHIL 4110

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**PHIL 4130: Probability and Induction**

(cross-leveled with PHIL 7130). This course studies probability, its various interpretations, and its basic principles. It identifies forms of reasoning that establish the probability of a conclusion. The methods of reasoning it treats are at the heart of science and practical affairs.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and PHIL 2700

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**PHIL 4150: Formal Semantics**

(cross-leveled with PHIL 7150). The course provides a systematic introduction to the semantics of natural languages, using the tools of formal logic. Prerequisites: Sophomore standing and one of the following classes: PHIL 2700, PHIL 4110, or ENGLSH 4640.

**Credit Hours:** 3

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**PHIL 4200: Metaphysics**

Metaphysics studies what there is and how things are, most generally speaking. Topics may include realism versus nominalism, substance and attribute, facts, modality, identity and causality.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** Previous work in PHIL 1000, PHIL 3000 or PHIL 3200

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**PHIL 4210: Philosophy of Mind**

(cross-leveled with PHIL 7210). Considers theories and arguments in contemporary philosophy of mind, focusing on the nature of mental states, their relation to brain states and the plausibility of various materialist theories of the mind.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** two Philosophy courses

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**PHIL 4220: Philosophy of Religion**

(cross-leveled with PHIL 7210). Considers basis for and nature of religious beliefs.

**Credit Hours:** 3

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**Prerequisites:** sophomore standing

**Recommended:** One course in Philosophy

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**PHIL 4300: Epistemology**

(cross-leveled with PHIL 7300). An examination of contemporary philosophical theories concerning the nature, sources and limits of knowledge and justified belief.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** Previous work in PHIL 1000, PHIL 3000, PHIL 3200

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**PHIL 4400: Philosophy of Science**

(cross-leveled with PHIL 7400). Why believe the scientific world-view? What, if anything, is the scientific method? Are today's theories really superior to past theories? Examines contemporary philosophical answers to such questions.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** two courses in Philosophy

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**PHIL 4410: Philosophy of History**

(cross-leveled with PHIL 7210). Readings from classic and contemporary philosophers of history. Problems about nature and limits of historical knowledge; relation between history and other disciplines; the existence, nature, and kinds of historical laws.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** two courses in Philosophy

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**PHIL 4420: Philosophy of Biology**

A survey of philosophical problems arising from consideration of evolutionary theory and the biological sciences. Topics may include reductionism, sociobiology, biological laws, and epistemic problems relating to evolutionary theory.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** two courses in Philosophy

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**PHIL 4500: Theories of Ethics**

(cross-leveled with PHIL 7500). Normative and meta-ethical theories. Topics may include the rationality and objectivity of morality, the meaning of moral language, the differences between deontological, utilitarian and virtue theories.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** two courses in Philosophy

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**PHIL 4600: Political and Social Philosophy**

(same as PEA\_ST 4600; cross-leveled with PHIL 4210). Contemporary and/or historical theories of justice and the state. Utilitarianism, Liberalism, Libertarianism, Marxism, Communitarianism and Feminism may be among the views covered.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** two courses in Philosophy

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**PHIL 4610: Philosophy of Law**

(cross-leveled with PHIL 7610). What is law? Are there pre- or trans-legal rights? Is punishment justifiable? How can judicial decisions be justified? What are the relations between law and morality?

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 4620: Marxism**

(cross-leveled with PHIL 7620). A philosophical examination of (a) the notion of critique as seen in Marx's early and middle writings, and (b) specific topics by such authors as Lenin, Lukacs and Plekhanov.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing

**Recommended:** two courses in Philosophy

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**PHIL 4700: Aesthetics**

(cross-leveled with PHIL 7700). Typical components of art; theories of art as representation, form, expression; relation of art to value.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 4700W: Aesthetics-Writing Intensive**

(cross-leveled with PHIL 7700). Typical components of art; theories of art as representation, form, expression; relation of art to value.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 4800: Asian Philosophy**

(same as S\_A\_ST 4800; cross-leveled with PHIL 7800). This course traces the origins of Indian and Chinese philosophical world views. Included are the major ideas in Hindu, Jaina, and Buddhist thought in India, and Taoism and Confucianism in China. Emphasis is placed on the diverse, assimilative, and pragmatic nature of Indian thought and its impact on contemporary Asian philosophy.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 4810: Philosophy of India**

(same as S\_A\_ST 4810; cross-leveled with PHIL 7810). General development of Indian philosophy.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 4850: Special Readings in Philosophy**

Regular individual meetings with an instructor as part of studying a sequence of readings, comparable in difficulty and number to readings assigned in a regularly-offered 4000-level course. Only by special arrangement with an instructor.

**Credit Hour:** 1-3

**Prerequisites:** junior standing

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**PHIL 4950: Senior Seminar in Philosophy**

A capstone course required of and only open to senior Philosophy majors. Course content will vary, depending on the professor teaching the course.

**Credit Hours:** 3

**Prerequisites:** senior Philosophy major

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**PHIL 4950W: Senior Seminar in Philosophy - Writing Intensive**

A capstone course required of and only open to senior Philosophy majors. Course content will vary, depending on the professor teaching the course.

**Credit Hours:** 3

**Prerequisites:** senior Philosophy major

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**PHIL 4998: Honors I in Philosophy**

Special work for Honors candidates.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**PHIL 4999: Honors II in Philosophy**

Special work for Honors candidates.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**PHIL 7100: Philosophy of Language**

(same as LINGST 7100; cross-leveled with PHIL 4100, LINGST 4100). Examination of contemporary views of the relationship between language, minds, and the world.

**Credit Hours:** 3

**Prerequisites:** PHIL 2700 or instructor's consent

**Recommended:** Some work in PHIL 1000, PHIL 3000 or PHIL 3200

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**PHIL 7110: Advanced Logic**

(same as LINGST 7110; cross-leveled with PHIL 4110, LINGST 4110). Presents the method of truth trees for sentence and predicate logic. Examines proofs concerning the decidability, soundness, and completeness of formal systems. Emphasizes the theory of formal systems.

**Credit Hours:** 3

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**PHIL 7120: Selected Topics in Logic**

(cross-leveled with PHIL 4120). Possible topics include elementary set theory and modal logic, the logic of possibility and necessity.

**Credit Hours:** 3

**Prerequisites:** PHIL 2700 or PHIL 7110

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**PHIL 7130: Probability and Induction**

(cross-leveled with PHIL 4130). This course studies probability, its various interpretations, and its basic principles. It identifies forms of reasoning that establish the probability of a conclusion. The methods

of reasoning it treats are at the heart of science and practical affairs.  
Prerequisites: PHIL 2700

**Credit Hours:** 3

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**PHIL 7150: Formal Semantics**

(cross-leveled with PHIL 4150). The course provides a systematic introduction to the semantics of natural languages, using the tools of formal logic.

**Credit Hours:** 3

**Prerequisites:** Basic proficiency in first order logic

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**PHIL 7210: Philosophy of Mind**

(cross-leveled with PHIL 4210). Considers theories and arguments in contemporary philosophy of mind, focusing on the nature of mental states, their relation to brain states and the plausibility of various materialist theories of the mind.

**Credit Hours:** 3

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**PHIL 7220: Philosophy of Religion**

(cross-leveled with PHIL 4220). Considers basis for and nature of religious beliefs. Philosophical approaches to religion, cultural implications of religion, psychoanalysis and religion, mysticism and myth.

**Credit Hours:** 3

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**PHIL 7300: Epistemology**

(cross-leveled with PHIL 4300). An examination of contemporary philosophical theories concerning the nature, sources and limits of knowledge and justified belief.

**Credit Hours:** 3

**Recommended:** Previous work in PHIL 1000, PHIL 3000, or PHIL 3200

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**PHIL 7400: Philosophy of Science**

(cross-leveled with PHIL 4400). Why believe the scientific world-view? What, if anything, is the scientific method? Are today's theories really superior to the past theories? Examines contemporary philosophical answers to such questions.

**Credit Hours:** 3

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**PHIL 7410: Philosophy of History**

(cross-leveled with PHIL 4410). Readings from classic and contemporary philosophers of history. Problems about nature and limits of historical knowledge; relation between history and other disciplines; the existence, nature, and kinds of historical laws.

**Credit Hours:** 3

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**PHIL 7500: Theories of Ethics**

(cross-leveled with PHIL 4500). Normative and meta-ethical theories. Topics may include the rationality and objectivity of morality, the meaning of moral language, the differences between deontological, utilitarian and virtue theories.

**Credit Hours:** 3

**Recommended:** one course in Philosophy

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**PHIL 7600: Political and Social Philosophy**

(cross-leveled with PHIL 4600, PEA\_ST 4600). Contemporary and/or historical theories of justice and the state. Utilitarianism, Liberalism, Libertarianism, Marxism, Communitarianism and Feminism may be among the views covered.

**Credit Hours:** 3

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**PHIL 7610: Philosophy of Law**

(cross-leveled with PHIL 4610). What is law? Are there pre- or trans-legal rights? Is punishment justifiable? How can judicial decisions be justified? What are the relations between law and morality?

**Credit Hours:** 3

---

**PHIL 7620: Marxism**

(cross-leveled with PHIL 4620). A philosophical examination of (a) the notion of critique as seen in Marx's early and middle writings, and (b) specific topics by such authors as Lenin, Lukacs and Plekhanov.

**Credit Hours:** 3

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**PHIL 7700: Aesthetics**

(cross-leveled with PHIL 4700). Typical components of art; theories of art as representation, form, expression; relation of art to value.

**Credit Hours:** 3

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**PHIL 7810: Philosophy of India**

(cross-leveled with PHIL 4810, S\_A\_ST 4810). General development of Indian philosophy.

**Credit Hours:** 3

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**PHIL 7850: Special Readings in Philosophy**

Special Readings in Philosophy.

**Credit Hour:** 1-3

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**PHIL 8090: Research in Philosophy**

Research not leading to thesis. Graded S/U only.

**Credit Hour:** 1-99

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**PHIL 8100: Protoseminar in Philosophy**

Introduction to graduate level work in philosophy. Required of all students entering the program, in the first year. An intensive workshop focused on skills rather than any particular philosophical content.

**Credit Hours:** 3

**Prerequisites:** restricted to first year graduate students

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**PHIL 8210: Teaching of Philosophy I**

Seminar meetings on course design, teaching methods, the evaluation of teaching, grading, instructor obligations, and teaching aids. Some individualized instruction, including help preparing for and assessing the effectiveness of practice teaching.

**Credit Hour:** 1

**Prerequisites:** graduate philosophy students

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**PHIL 8300: Dissertation Seminar**

The course will address writing and time management for Ph.D. students writing a dissertation. Also discussed will be preparation for the academic job market in philosophy, especially the development of an application dossier. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Philosophy Ph.D. student

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**PHIL 8510: Metaphysics: A Survey**

A graduate-level survey of central issues in metaphysics. May be repeated up to 6 hours of credit.

**Credit Hours:** 3

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**PHIL 8520: Philosophy of Mind: A Survey**

A graduate-level survey of central issues in the philosophy of mind.

**Credit Hours:** 3

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**PHIL 8530: Epistemology: A Survey**

A graduate-level survey of central issues in epistemology.

**Credit Hours:** 3

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**PHIL 8540: Philosophy of Language: A Survey**

A graduate-level survey of central issues in philosophy of language.

**Credit Hours:** 3

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**PHIL 9001: Topics in Philosophy**

Organized study of selected topics. Need departmental consent for repetition.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PHIL 9030: Topics in Modern Philosophy: 17th-19th Centuries**

Interpretation and evaluation of philosophical debates from the 17th to the 19th centuries. These will be addressed in relation to their historical context and current philosophical problems.

**Credit Hours:** 3

**Prerequisites:** Graduate Philosophy Student

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**PHIL 9050: Plato**

Advanced studies in Plato; emphasis on recent scholarship.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9060: Aristotle**

Advanced studies in Aristotle; emphasis on recent scholarship.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9090: Research in Philosophy**

Work toward preparation of thesis or dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** graduate Philosophy students

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**PHIL 9110: The Rationalists**

Interpretation and evaluation of major works of Descartes, Leibniz, and/or Spinoza in relation to their historical context and current philosophical problems.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9120: The Empiricists**

Epistemological and metaphysical doctrines of Locke, Berkeley and Hume.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9130: Kant**

Critique of Pure Reason: historical context, meaning and cohesion of its claims, critical assessment of them.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9240: Russell and Wittgenstein**

Each initially defends, but then rejects logical atomism. Metaphysical and epistemological themes of such intellectual phases and shifts of one or both philosophers.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9320: Social and Political Philosophy**

Topics of current interest in social and political philosophy. generally one of the following: social contract theory, utilitarianism, voting procedures, or convention.

**Credit Hours:** 3

**Prerequisites:** PHIL 4600 or instructor's consent and graduate Philosophy student

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**PHIL 9350: History of Eastern Ethics**

Historical survey of major eastern ethical theories. Explores broad range of ethical theories developed in Asia: Hindu and Buddhist in India; Taoism and Confucianism in China; and Zen in Japan.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9510: Decision Theory**

Principles for making rational decisions, including principles of expected utility theory, game theory, and social choice theory. A survey of basic ideas and an introduction to selected research topics.

**Credit Hours:** 3

**Prerequisites:** PHIL 4110; graduate Philosophy student

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**PHIL 9520: Ethical Theory**

Contemporary theories of the right and the good. Metaethical topics such as moral language, reasoning, and justification.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9610: Metaphysics**

Theories of the categories and structures of reality, e.g., appearance and reality, causality, space and time, God, Nature, the human being.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9710: Philosophy of Mind and Psychology**

Survey of important recent work in contemporary philosophy of mind and psychology. Graduate seminar.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9720: Foundations of Cognitive Science**

Examination of philosophical questions arising in cognitive science concerning, for instance, the nature of computation and representation, inter-disciplinary relations, the nature of cognitive scientific explanation, and its relation to folk psychological explanation.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9820: Epistemology**

Knowledge and opinion, the types, sources, and extent of knowledge, according to a variety of views.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9830: Philosophy of Science**

Examines central issues in general philosophy of science concerning the scientific method and the role in it of observation, the nature of rational theory-choice, progress, and the status of theories postulating unobservables.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9840: Philosophy of Language**

Topics of current interest in the philosophy of language.

**Credit Hours:** 3

**Prerequisites:** Graduate Philosophy student

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**PHIL 9850: Philosophy of Biology**

Philosophical problems relating to the life sciences, with attention given especially to explanation and reductionism in biology.

**Credit Hours:** 3

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**PHIL 9887: Seminar in Logic**

Topics of current interest in logic. Generally one of the following: inductive logic, set theory, conditionals, epistemic logic, or formal semantics.

**Credit Hours:** 3

**Prerequisites:** PHIL 4110 graduate Philosophy student

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**PHIL 9901: Seminar in Philosophy**

Special topics. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**Physical Medicine And Rehabilitation Courses**

**PM\_REH 6615: Physical Medicine and Rehabilitation**

Physical Medicine and Rehabilitation

**Credit Hours:** 5

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**PM\_REH 6915: Rehabilitation of Musculoskeletal and Neurologic Diseases**

The rotating student will be an integral part of the inpatient team, serving in an active role on the floor and participating in the evaluation and treatment of clinic patients. Daily morning rounds will be completed with the inpatient teams and will be followed by scheduled didactic sessions with various faculty throughout the week. Outpatient rotations will be included as a fundamental clinical experience and will encompass the breadth of PM&R to the best that can be accomplished in this short block. In-depth examinations of the neurologic and musculoskeletal systems will be performed.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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**Physical Therapy Courses**

**PH\_THR 1000: Introduction to Physical Therapy**

Acquaints students with the physical therapy profession including the required educational preparation, practice settings, sample interventions, current issues, trends and research. Graded on S/U basis only.

**Credit Hour:** 1

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**PH\_THR 4250: Human Kinesiology**

(same as HTH\_PR 4250). Study of principles of physical laws, biomechanics and anatomic structure relative to human movement. Applications through analysis of daily functional performance, exercise, and sport.

**Credit Hours:** 3

**Prerequisites:** PTH\_AS 2201

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**PH\_THR 4420: Foundations of Therapeutic Exercise**

Physiological basis of exercise throughout the lifespan with emphasis on the musculoskeletal, neuromuscular, cardiovascular/pulmonary and integumentary systems and the effects of injury and disease on these systems.

**Credit Hours:** 3

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**PH\_THR 5100: Introduction to Interprofessional Practice**

(same as OC\_THR 5100; cross-leveled with HTH\_PR 7100, HTH\_PR 4100). This course serves as a foundation and introduction to interprofessional education and collaboration. Students who enroll in this course will be assigned to mini-teams of students from a range of

disciplines. Through this course, students will develop an understanding of their own unique role as a healthcare provider and the importance of client- and community-centered care and effective teamwork, as well as communication skills.

**Credit Hour:** 1

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**PH\_THR 5110: Fundamentals of Physical Therapy**

Introduction to professional school and expectations, history of physical therapy; the profession, basic skills, first aid, infection control, vital signs, surface anatomy.

**Credit Hour:** 1

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**PH\_THR 5200: Problems in Physical Therapy**

Organized study of selected content/topics in physical therapy, health and wellness, prevention of disease and disability, and the rehabilitation sciences. Specific content may vary from semester to semester.

**Credit Hour:** 1

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**PH\_THR 5210: Applied Neurophysiology for Allied Health Students**

Principles of basic neurophysiology, emphasizing correlation of structure and function of the nervous system.

**Credit Hours:** 3

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**PH\_THR 5220: Biophysical Agents**

Includes biophysics, theory and techniques concerning usage of biophysical agents as adjuncts to exercise programs. This entails the use of thermal, electrical, light, hydrotherapy, and mechanical agents.

**Credit Hours:** 3

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**PH\_THR 5230: Clinical Evaluation and Procedures**

Principles and procedures of basic evaluation methods and documentation: transfers, body mechanics, muscle strength, range of motion, muscle length, neurologic tests.

**Credit Hours:** 4

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**PH\_THR 5240: Foundations of Therapeutic Exercise**

Physiologic basis of exercise throughout the lifespan with emphasis on the musculoskeletal, neuromuscular, cardiovascular/ pulmonary and integumentary systems and the effects of injury and disease on these systems.

**Credit Hours:** 3

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**PH\_THR 5250: Human Kinesiology**

Study of principles of physical laws, biomechanics and anatomic structure relative to human movement. Applications through analysis of daily functional performance, exercise, and sport.

**Credit Hours:** 3

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**PH\_THR 5260: Introduction to Clinical Education and PhysZOU I**

Introduction to the aspects of clinical education. Development of foundational clinical skills and behaviors, includes clinical experience in PhysZOU.

**Credit Hour:** 1

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**PH\_THR 5310: Applied Therapeutic Exercise**

Application of therapeutic exercise with an emphasis on evidenced-based exercise prescription, modes and techniques of exercise typically seen in rehabilitation.

**Credit Hours:** 3

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**PH\_THR 5320: Clinical Kinesiology**

Advanced Kinesiology addressing functional mobility; specifics of normal human gait; pathokinetics of gait. Assistive devices; wheelchairs; orthoses and prostheses.

**Credit Hours:** 3

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**PH\_THR 5330: Clinical Pathophysiology**

Interdisciplinary and case-based examination of the pathophysiology, prevention and general health management of disease/injury across the lifespan encountered in rehabilitation.

**Credit Hours:** 3

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**PH\_THR 5340: Introduction to Clinical Education and PhysZOU II**

Continuation of Introduction to Clinical Education and PhysZOU I with further emphasis on current events in the Physical Therapy profession as well as the professional attributes of communication, teamwork and problem solving, includes clinical experience in PhysZOU.

**Credit Hour:** 1

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**PH\_THR 5350: Introduction to Orthopedic Physical Therapy with Laboratory**

The physical therapy management of musculoskeletal disorders. a systematic clinical decision making model is introduced that considers the stage of inflammation and repair, impairments, and the systematic anatomical structure.

**Credit Hours:** 3

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**PH\_THR 5360: Pharmacology in Rehabilitation**

Principles of pharmacology including pharmacokinetics, pharmacodynamics, and toxicology of common drugs encountered in rehabilitation. Emphasis on pharmacology related to the musculoskeletal, neuromuscular, cardiovascular/ pulmonary and integumentary systems across the lifespan.

**Credit Hours:** 2

**Prerequisites:** Restricted to students accepted into professional major

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**PH\_THR 6000: Topics in Physical Therapy**

Organized study of selected topics in physical therapy, health and wellness, prevention of disease and disability, and the rehabilitation sciences. Specific content may vary from semester to semester.

**Credit Hour:** 1-99

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**PH\_THR 6010: Problems in Physical Therapy**

Organized study of selected content/topics in physical therapy, health and wellness, prevention of disease and disability, and the rehabilitation sciences. Specific content may vary from semester to semester.

**Credit Hour:** 1-3

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**PH\_THR 6410: Clinical Education I**

Full time, supervised clinical experience addressing application of basic skills in patient evaluation and treatment, documentation and professional behaviors.

**Credit Hours: 5**

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**PH\_THR 6510: Differential Diagnosis in Physical Therapy**

Evidence-based clinical decision making emphasizing health screenings and system review to determine physical therapy diagnosis/need for referral to other health care professionals.

**Credit Hours: 3**

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**PH\_THR 6520: Evidence-Based Practice**

This course focuses on improving students' knowledge and skills for asking clinical questions, accessing and appraising research evidence, and integrating research, patient preferences, clinical expertise, and context into clinical decision making.

**Credit Hours: 3**

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**PH\_THR 6530: Orthopedic Physical Therapy**

Physical therapy diagnosis, management, and prevention of disorders of the musculoskeletal systems; continuation of Introduction to Orthopedic Physical Therapy emphasizing physical therapy interventions.

**Credit Hours: 3**

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**PH\_THR 6540: Pediatric Physical Therapy**

Physical therapy evaluation and treatment of children with movement dysfunction. Emphasis on therapeutic exercise.

**Credit Hours: 4**

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**PH\_THR 6550: PhysZOU III**

Part-time clinical experience through PhysZOU clinic. Students will work as a team with peers and a clinical instructor to develop, perform and document physical therapy sessions.

**Credit Hours: 0.5**

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**PH\_THR 6560: Rehabilitation of the Neurologically Impaired Adult**

Physical Therapy evaluation and treatment of adults who have incurred neurological deficits; emphasis on the restorative care of individuals following spinal cord injury, stroke, and traumatic head injury.

**Credit Hours: 4**

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**PH\_THR 6610: Assessment and Neuropsychology of Pain**

Pain is a common problem that impairs people's quality of life and costs millions of dollars annually. Yet, an investigation of physical therapy education programs in the U.S. supported inadequate coverage of pain. This course focuses on the assessment and neuropsychology of pain in order to help future health care providers and scientists to improve the health and well-being of people with impaired quality of life due to pain.

**Credit Hour: 1**

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**PH\_THR 6620: Case Management: Acute and Chronic Medical and Surgical Conditions**

Evaluation and team approach to physical therapy management for persons of all ages with medical and surgical conditions: cardiopulmonary, rheumatic, oncologic, integumentary or wound care, including major burn injury. Psychosocial and ethical issues incorporated.

**Credit Hours: 5**

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**PH\_THR 6630: Clinical Education II**

Continuation of full time, supervised clinical experiences addressing application of clinical skills in patient evaluation, treatment, documentation and professional behaviors. Progression of performance expectations from prior Clinical Education courses.

**Credit Hours: 7**

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**PH\_THR 6640: Diagnostic Imaging in Rehabilitation**

Diagnostic imaging used by disciples within and outside of physical therapy. Emphasis placed on basic skills for analyzing images to determine interpretation of results as they apply to physical therapy examination and intervention.

**Credit Hours: 3**

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**PH\_THR 6650: PHYSZOU IV**

Continuation of part-time clinical experience through PhysZOU clinic. Students work as a team with peers and a clinical instructor to develop, perform and document physical therapy sessions.

**Credit Hours: 0.5**

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**PH\_THR 6660: Psychosocial Issues for Health Promotion**

Psychological and social factors impact people's health and the American Physical Therapy Association has called for interprofessional approaches for the provision of fitness, health promotion, wellness, and risk reduction programs to enhance quality of life for persons across the life-span. This course focuses on psychosocial issues for health promotion in order to help future health care providers and scientists to improve the health and well-being of people.

**Credit Hours: 2**

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**PH\_THR 6710: Case Management: Neurological Impairments Across the Lifespan**

Traditional and contemporary theories of physical therapy in advanced rehabilitation of children and adults with neurologic disorders; education/employment, ethical/legal issues; patient/client advocacy.

**Credit Hours: 5**

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**PH\_THR 6810: Case Management: Geriatrics and Orthopedics**

Complex orthopedic problems in older adults; supervision, reimbursement, ethical/legal situations; community programs for injury prevention.

**Credit Hours: 5**

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**PH\_THR 6820: Clinical Education III**

Continuation of full time, supervised clinical experiences addressing application of clinical skills in patient evaluation, treatment,



documentation, and professional behaviors. Progression of performance expectations from prior Clinical Education courses.

**Credit Hours:** 6

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**PH\_THR 6830: Health Policy for Physical Therapy**

This course is designed for physical therapy students and will provide an introduction to health policy along with an overview of the health care system in the United States, including its structures, financing mechanisms, and outcomes.

**Credit Hours:** 2

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**PH\_THR 6840: PhysZOU V**

Continuation of part-time clinical experience through PhysZOU clinic. Students will work as a team with peers and a clinical instructor to develop, perform and document physical therapy sessions.

**Credit Hours:** 0.5

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**PH\_THR 6850: Professional Issues**

The physical therapist as health care professional, administrator, and educator; legal, ethical, and political issues. Service delivery management; delegation of care; rural vs. urban health care needs.

**Credit Hours:** 3

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**PH\_THR 6910: Clinical Education IV**

Continuation of full time, supervised clinical experiences addressing application of clinical skills in patient evaluation, treatment, documentation and professional behaviors. Progression of performance expectations from prior Clinical Education courses.

**Credit Hours:** 5

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**PH\_THR 6920: PhysZOU VI And Professional Development Plan**

Continuation of part-time clinical experience through PhysZOU clinic. Students will work as a team with peers and a clinical instructor to develop, perform and document physical therapy sessions as well as finalize their Professional Development Plan.

**Credit Hours:** 0.5

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**PH\_THR 6930: Seminar in Physical Therapy**

Integrate previously learned content in unique patient cases and comprehensive review and evaluation of readiness for entry level physical therapist practice, in both didactic and psycho-motor domains. Enrollment is limited to students in professional physical therapy program.

**Credit Hours:** 4

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**PH\_THR 6940: Special Skills in Physical Therapy**

This course will offer a menu of options to students to develop additional knowledge about specific skills in the physical therapy profession. Students may choose topics of interest in addition to the mandatory sessions.

**Credit Hour:** 1

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**PH\_THR 7250: Human Kinesiology**

(same as HTH\_PR 4250). Study of principles of physical laws, biomechanics and anatomic structure relative to human movement.

Applications through analysis of daily functional performance, exercise, and sport.

**Credit Hours:** 3

**Prerequisites:** Human Anatomy

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**PH\_THR 7420: Foundations of Therapeutic Exercise**

Physiologic basis of exercise throughout the lifespan with emphasis on the musculoskeletal, neuromuscular, cardiovascular/ pulmonary and integumentary systems and the effects of injury and disease on these systems.

**Credit Hours:** 3

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**PH\_THR 7550: Psychosocial Issues for Health Promotion**

Psychological and social factors impact people's health and the American Physical Therapy Association has called for interprofessional approaches for the provision of fitness, health promotion, wellness, and risk reduction programs to enhance quality of life for persons across the life-span. This course focuses on psychosocial issues for health promotion in order to help future health care providers and scientists to improve the health and well-being of people. Graded on A-F basis only.

**Credit Hours:** 2

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**PH\_THR 7850: Assessment and Neuropsychology of Pain**

Pain is a common problem that impairs people's quality of life and costs millions of dollars annually. Yet, an investigation of physical therapy education programs in the U.S. supported inadequate coverage of pain. This course focuses on the assessment and neuropsychology of pain in order to help future health care providers and scientists to improve the health and well-being of people with impaired quality of life due to pain. Graded on A-F basis only.

**Credit Hour:** 1

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## Physics Courses

**PHYSCS 1007: Topics in Physics and Astronomy - Physical Science**

Study of selected topics in physics and astronomy. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

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**PHYSCS 1050: Concepts in Cosmology**

This course explores the development of our understanding of the origin and evolution of the Universe. We will embark on a qualitative description of the Big Bang theory, the expansion of the universe and its current structure, the cosmic microwave background radiation, the existence of dark matter and dark energy and their implications for the Universe's ultimate fate.

**Credit Hours:** 3

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**PHYSCS 1100: Science and Inventions**

This course covers the history of some of the most important inventions in science and their impact on past civilizations, current advances in science and inventions, funding and policies, and critical advances in technology required for future generations.

**Credit Hour:** 1

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**PHYSICS 1150: Concepts in Physics**

Introduction to fundamental concepts of physics for non-science majors. Concepts include the conservation of energy, the second law of thermodynamics, and the special theory of relativity. Students learn to reason and apply these concepts through writing assignments.

**Credit Hours:** 3

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**PHYSICS 1200: Everyday Wonders: Explaining How Ordinary Things Work**

How does an airplane fly? How does a steel boat float? How does your phone know when you are swiping the screen? Many things that seem wondrous can be explained using basic principles of physics. In this course students develop concepts in simple machines, fluids, waves, optics, and electricity as they explore real-world applications using simulations and hands-on experiments.

**Credit Hours:** 4

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**PHYSICS 1210: College Physics I**

This introductory college physics course uses algebra and trigonometry in developing some of the fundamental concepts of classical physics. Topics covered are vectors, kinematics, dynamics, gravity, momentum, energy, rotational kinematics, rotational dynamics, fluids, simple harmonic motion, waves and sound, and thermodynamics. Three lectures, one discussion, one lab weekly. Students may receive credit for PHYSICS 1210 or PHYSICS 2750, but not both.

**Credit Hours:** 4

**Prerequisites:** MATH 1100

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**PHYSICS 1220: College Physics II**

This introductory second semester college physics course uses algebra and trigonometry in developing some of the fundamental concepts of classical physics. Topics covered include electricity and magnetism, optics and modern physics. Three lectures, one discussion, one lab weekly. Students may receive credit for PHYSICS 1220 or PHYSICS 2760, but not both.

**Credit Hours:** 4

**Prerequisites:** grade of C- or better in PHYSICS 1210

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**PHYSICS 2002: Topics in Physics and Astronomy- Biological Science**

Study of selected topics in physics and astronomy. Subjects and earnable credit may vary from semester to semester. Course may be repeated for credit.

**Credit Hour:** 1-3

**Prerequisites:** MATH 1100

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**PHYSICS 2002H: Topics in Physics and Astronomy- Biological Science - Honors**

Study of selected topics in physics and astronomy. Subjects and earnable credit may vary from semester to semester. Course may be repeated for credit.

**Credit Hour:** 1-3

**Prerequisites:** MATH 1100; Honors eligibility required

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**PHYSICS 2007: Topics in Physics and Astronomy- Physical Science**

Study of selected topics in physics and astronomy. Subjects and earnable credit may vary from semester to semester. Course may be repeated for credit.

**Credit Hour:** 1-3

**Prerequisites:** MATH 1100

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**PHYSICS 2007H: Topics in Physics and Astronomy- Physical Science - Honors**

Study of selected topics in physics and astronomy. Subjects and earnable credit may vary from semester to semester. Course may be repeated for credit.

**Credit Hour:** 1-3

**Prerequisites:** MATH 1100; Honors eligibility required

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**PHYSICS 2010: Undergraduate Seminar in Physics**

Introduction to the Physics Department and presentation of topics of current interest in physics by faculty and students. Intended for physics majors at the freshman or sophomore level only. Graded on A-F basis only.

**Credit Hours:** 2

**Recommended:** for physics majors

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**PHYSICS 2200: Life and the Universe**

This course explores the connection between our everyday existence and the underlying physics' processes. Students will look at processes - essential to life - ranging from the very small (atomic level) to the very large (universe), and the many length scales in between (cellular level and human being level) as well as make connections between the laws of physics and the numbers that go into them and the prerequisites for the existence of life.

**Credit Hours:** 3

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**PHYSICS 2330: Exploring the Principles of Physics**

A hands-on course covering topics in Electricity, Magnetism, Forces, Motion and Energy. Pedagogy reflects styles used in K-12 classrooms; emphasis on inquiry, concept development, quantitative applications and technology. Enrollment limited to Elementary and Early Childhood Education majors who have completed MATH 1100 or higher.

**Credit Hours:** 4

**Prerequisites:** instructor's consent required

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**PHYSICS 2500: The Beautiful Invisible: Exploring Physics, Fiction, and Reality**

This course explores the conceptual structure of modern physics from a humanistic perspective. Rather than describing the natural world 'as it is', physical science weaves some key observations in a convincing and memorable narrative. It is not within its power to explain reality, but it can make it understandable, sometimes even predictable. Due to the presence of internal and external constraints, physical theories are akin to myths, i.e., fiction created by many authors over an extended period of time. The mythical character of a theory does not diminish its scientific validity - quite the contrary. Convincing myths are not easily found and better observations demand better myths. The mythical content of the theory is not some extraneous content that we introduce for the sake of popularization, but an essential part of the science itself.

**Credit Hours:** 3

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**PHYSICS 2750: University Physics I**

First course in calculus-based physics for science and engineering students. Topics covered are vectors, translational and rotational kinematics, translational and rotational dynamics, energy, momentum, gravity, oscillations, waves, fluids and thermodynamics. Three lectures, one discussion, one lab weekly. Students may receive credit for PHYSICS 1210 or PHYSICS 2750, but not both.

**Credit Hours:** 5

**Prerequisites:** MATH 1500 or equivalent

**Recommended:** MATH 1700

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**PHYSICS 2750H: University Physics I - Honors**

First course in calculus-based physics for science and engineering students. Topics covered are vectors, translational and rotational kinematics, translational and rotational dynamics, energy, momentum, gravity, oscillations, waves, fluids and thermodynamics. Three lectures, one discussion, one lab weekly. Students may receive credit for PHYSICS 1210 or PHYSICS 2750, but not both. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites:** MATH 1500 or equivalent. Honors eligibility required

**Recommended:** MATH 1700

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**PHYSICS 2760: University Physics II**

Second semester course in calculus-based physics for science and engineering students. Topics covered are electrostatics, circuits, magnetism, electromagnetic phenomena, optics, matter waves and particles and modern physics. Three lectures, one discussion, one lab weekly. Students may receive credit for PHYSICS 1220 or PHYSICS 2760, but not both.

**Credit Hours:** 5

**Prerequisites:** MATH 1700 and grade of C- or better in PHYSICS 2750

**Recommended:** MATH 2300

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**PHYSICS 2760H: University Physics II - Honors**

Second semester course in calculus-based physics for science and engineering students. Topics covered are electrostatics, circuits, magnetism, electromagnetic phenomena, optics, electromagnetic waves and relativity. Three lectures, one discussion, one lab weekly. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites:** MATH 1700 and grade of C- or better in PHYSICS 2750.

Honors Eligibility required

**Recommended:** MATH 2300

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**PHYSICS 3002: Topics in Physics and Astronomy - Biological Science**

Study of selected topics in physics and astronomy. Subjects and earnable credit may vary from semester to semester. May be repeated 3 times for credit.

**Credit Hour:** 1-3

**Prerequisites:** PHYSICS 1210 or PHYSICS 2750

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**PHYSICS 3007: Topics in Physics and Astronomy -Physical Science**

Study of selected topics in physics and astronomy. Subjects and earnable credit may vary from semester to semester. May be repeated 3 times for credit.

**Credit Hour:** 1-3

**Prerequisites:** PHYSICS 1210 or PHYSICS 2750

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**PHYSICS 3010: Introduction to Modern Astrophysics**

(same as ASTRON 3010). Elements of stellar, and galactic astrophysics. Interpretation of observations and physical conditions of various astronomical objects including stars, gaseous nebulae and, galaxies.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 2760

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**PHYSICS 3100: Teaching Physics**

Introduces modeling and inquiry methods of teaching about force, motion, energy, electricity and magnetism. Students learn research-base physics teaching methods, including eliciting prior understanding, facilitating conceptual change, and active learning strategies.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 1220 or PHYSICS 2760

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**PHYSICS 3150: Introduction to Modern Physics**

Relativistic kinematics and Lorentz transformations; historical basis for quantum mechanics; atomic structure; physics of solids; nuclear structure and decay.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 2760

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**PHYSICS 3150W: Introduction to Modern Physics - Writing Intensive**

Relativistic kinematics and Lorentz transformations; historical basis for quantum mechanics; atomic structure; physics of solids; nuclear structure and decay.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 2760

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**PHYSICS 3200: Physics of Space Explorations**

The course provides an overview of the solar system, spaceflight history, a review of Newtonian physics and law of universal gravitation, the application of these laws to spacecraft launch, entry, and orbit, planetary trajectories, and other special topics. Three focused case studies of actual space missions are addressed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1100

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**PHYSICS 3700: Introduction to Methods in Mathematical Physics**

The course discusses the application of mathematical techniques that students need for upper-level physics courses. Topics include: applications of complex variables, second-order linear differential equations with applications to AC circuits, matrices/linear algebra, calculus of variations, Fourier transforms and vector analysis.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 2760 and MATH 2300

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**PHYSCS 4020: Astrophysical Techniques**

(same as ASTRON 4020; cross-leveled with PHYSCS 7020). Elements of modern astronomical instruments, observations and analysis, with the emphasis in the optical regime. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**PHYSCS 4050: Electronic Laboratory**

(cross-leveled with PHYSCS 7050). Acquaints students with the foundations and techniques of electronics design, with emphasis on data acquisition and processing. Topics: circuits with discrete and integrated circuits, active and passive filters, amplifiers, power supplies, instrumentation and interfacing. Integrated lectures and labs. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** PHYSCS 2760

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**PHYSCS 4060: Advanced Physics Laboratory I**

This upper-level undergraduate laboratory course familiarizes students with the methods and procedures of experimental physics at an advanced level. The course covers principles of magnetism, graphic programming and interface techniques, weak-signal detection, and some modern physics discoveries such as, magneto-optical Kerr effect, digital holography and gamma-ray spectroscopy. Students work on research projects in the areas of condensed matter physics, materials science, modern spectroscopy, superconductivity, and quantum physics.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150

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**PHYSCS 4080: Major Themes in Classical Physics**

Introduction to classical physics: mechanics, electromagnetism and thermodynamics, emphasizing the unity and the connections between different parts of it.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**PHYSCS 4080W: Major Themes in Classical Physics - Writing Intensive**

Introduction to classical physics: mechanics, electromagnetism and thermodynamics, emphasizing the unity and the connections between different parts of it.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**PHYSCS 4100: Electricity and Magnetism I**

Mathematical preliminaries, properties of charge distributions at rest and in motion, the field concept, introduces electromagnetic radiation.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**PHYSCS 4102: Topics on Physics and Astronomy-Biological/Physical/Mathematics**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent for repetition.

**Credit Hour:** 1-3

**Prerequisites:** PHYSCS 2760 or instructor's consent

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**PHYSCS 4110: Light and Modern Optics**

(cross-leveled with PHYSCS 7110). Interaction of light with matter, spectroscopic techniques, wave optics, interferometry, multilayer films, polarization, non-linear optics, design of optical instruments, matrix methods, waveguides, fiber optics, acousto-optic and photo-elastic modulation. Includes both lectures and laboratory.

**Credit Hours:** 4

**Prerequisites:** PHYSCS 2760

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**PHYSCS 4120: Introduction to Thermodynamics**

Development of the concepts of temperature, heat, work, entropy, enthalpy and free energy. Applications to gases, liquids and solids. Statistical methods.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**PHYSCS 4140: Mechanics**

Development of fundamental concepts, principles of mechanics using mathematical methods. Many problems used.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**PHYSCS 4180: Solar System Science**

(same as GEOL 4180, ASTRON 4180; cross-leveled with GEOL 7180, PHYSCS 7180). Investigates physical states, interior structures and comparative geology of solar systems bodies: planets, moons, asteroids, comets, sun. Solar system formation and evolution.

**Credit Hours:** 3

**Prerequisites:** ASTRON 3010

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**PHYSCS 4190: Physics and Chemistry of Materials**

(same as NU\_ENG 4319, BIOL\_EN 4480, CHEM 4490, BME 4480; cross-leveled with PHYSCS 7190, NU\_ENG 7319, BIOL\_EN 7480, CHEM 7490). Physics and Chemistry of Materials is a 3 credit hours course offered every spring semester for students from Physics, Chemistry, Engineering and Medical Departments and consists of lectures, laboratory demonstrations, two mid-term and one final exam. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2750, CHEM 1320 or equivalent, or instructor's consent

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**PHYSCS 4210: Contributions to Science from Under-represented Groups**

(same as ASTRON 4210; cross-leveled with ASTRON 7210, PHYSCS 7210). STEM fields are amongst the areas of human endeavor that struggle with increasing their human diversity. Teaching of science rarely discusses the contributions or marginalizations of under-represented groups. Meanwhile, many women and indigenous cultures have contributed to progress in STEM but are often not recognized. In this course we will investigate these contributions, and the lack of recognition both historically and in the present day. The aim is to provide students with a better understanding of the advantages of and challenges in inclusive, diverse science. Initially the course will use astronomy as its

frame of reference because the sky was one of the earliest laboratories and consequently it has a long history with many indigenous cultures developing their own cosmologies and ways of studying the sky. As we discuss the role of Indigenous peoples, people of color, and women, we will investigate the role of power structures as well as systemic biases in the marginalization of these groups. This class will be strongly discussion oriented, with assessment based on the development throughout the semester, of a final project. As many students will be pursuing graduate school in STEM fields, the final project will be to develop a Broader Impact statement. Many federal funding agencies request or even require that research grants include a component aimed at 'broadening participation', i.e. making STEM more inclusive and diverse. Student will work on a multipart assignment that will culminate in a Broader Impact statement that may well be directly applicable to an NSF GRFP (Graduate Research Fellowship Program) or NSF Post-Doctoral Fellowship. In addition to the Broader Impact statement - students will give presentations and learn how to be more inclusive in their presentation design, following the principles of Inclusive Design for Learning. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760 or PHYSCS 1200 or instructors consent

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**PHYSCS 4230: Scanning and Transmission Electron Microscopy and Microanalysis**

(cross-leveled with PHYSCS 7230). This course is designed for senior undergraduate/graduate students. This course covers the basic principles and practical considerations using SEM, TEM, EDS, and EELS in the characterization of materials. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150 and instructor's consent

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**PHYSCS 4250: Stellar Astrophysics**

(same as ASTRON 4250). Basic astrophysics of stable and unusual stars, stellar systems. Investigates stellar dimensions, radiation, spectra, energy, evolution, populations; interstellar medium, stellar motions and aggregation.

**Credit Hours:** 3

**Prerequisites:** ASTRON 3010

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**PHYSCS 4310: Physics in Cell and Developmental Biology**

(same as BIO\_SC 4310). Discusses the role of physical mechanisms in specific cellular and developmental processes and phenomena, in particular those characterizing the embryonic stage of multicellular organisms. Each process and phenomenon is first described in biological terms and then within a physical model, with special emphasis on the interplay between the two descriptions.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760 and BIO\_SC 2300 or instructor's consent

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**PHYSCS 4350: Galactic Astronomy**

(same as ASTRON 4350). Observational properties of normal galaxies and clusters of galaxies, Seyfert and emission-line structure and dynamics of galaxies; interacting galaxies, quasi-stellar objects. Introduction to cosmology.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

**Recommended:** PHYSCS 4140

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**PHYSCS 4360: Extragalactic Astronomy**

(same as ASTRON 4360; cross-leveled with ASTRON 7360, PHYSCS 7360). This course introduces students to the most basic knowledge of extragalactic astronomy, starting from Milky Way and extending to the most distant universe. Topics covered will include galaxy morphology and classification, groups and clusters of galaxies, active galactic nuclei, and galaxy formation and evolution.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**PHYSCS 4390: Problems in Physics**

Problems in Physics

**Credit Hour:** 1-3

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**PHYSCS 4400: The Physics of Electronic Devices**

(cross-leveled with PHYSCS 7400). This course is designed for graduate and undergraduate students of Physics and Electrical Engineering who have an interest in learning the basic physical idea underlying the operation of electronic devices. The course consists of lectures, handout lecture notes, problem sets, two mid-term and one final exam. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150 or equivalent

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**PHYSCS 4410: Analysis of Biological Macromolecules and Biomaterials**

(cross-leveled with PHYSCS 7410). This interdisciplinary, team-taught course introduces basic concepts and experimental techniques for studying bio-macromolecules and biomaterials. A Problem Based Learning/ Writing Intensive approach uses four modules: Proteins, membranes, cellular interactions and biomaterials.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**PHYSCS 4420: Introduction to Biomedical Imaging**

(same as BIOL\_EN 4420, BME 4420; cross-leveled with PHYSCS 7420, BIOL\_EN 7420). This course offers a broad introduction to medical imaging. Topics to be covered include the physics basics and instrumentation of X-ray, CT, PET, SPECT, ultrasound, MRI, and optical imaging, as well as recent developments in biomedical imaging.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**PHYSCS 4450: Introduction to Cosmology**

(cross-leveled with PHYSCS 7450). Develops the physical concepts necessary for understanding the major recent discoveries in cosmology, such as the acceleration of the universe and dark energy. No prior knowledge of general relativity is assumed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150 or equivalent

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**PHYSCS 4460: Interstellar Medium**

(same as ASTRON 4460). The course discusses observational properties and physical and chemical processes occurring in the interstellar medium. Topics include interstellar diffuse and molecular clouds, HII regions, dust grains, interstellar chemistry, star formation, supernova remnants, and interstellar shock waves.

**Credit Hours:** 3

**Prerequisites:** ASTRON 3010

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**PHYSCS 4500: Computational Biological Physics**

(cross-leveled with PHYSCS 7500). Provides a practical introduction (hands-on approach) to the study of the structure and function of biomolecular systems by employing computational methods and theoretical concepts familiar from the physical sciences.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760 or instructor's consent

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**PHYSCS 4510: Single Molecule Biophysics**

(same as BIOCHM 4510; Cross-leveled with PHYSCS 7510). The course provides an overview of the biophysics of enzymes, nucleic acids and the cytoskeleton. Topics covered will include diffusion, molecular motors, polymerization and the cytoskeleton and the polymer properties of nucleic acids and microtubules

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**PHYSCS 4520: Introduction to Biophysics**

This course introduces the study of biological systems from the perspective of a physicist. Students will learn how to relate the structure of a particular system and its constituents to its function. The treatment of molecular and cellular phenomena will be based on physical principles quantified through the necessary analytical tools. Prominent biophysical methods and their fundamental operating principles will also be discussed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 1220 or PHYSCS 2760 or instructor's consent

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**PHYSCS 4550: Cosmochemistry**

(same as ASTRON 4550; cross-leveled with ASTRON 7550, PHYSCS 7550). Cosmic dust, stardust, spectra, energy, interstellar medium, meteorites, astromineralogy.

**Credit Hours:** 3

**Prerequisites:** ASTRON 3010

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**PHYSCS 4600: Semiconductor Optics**

(cross-leveled with PHYSCS 7600). It is an introductory-level course in the field of optical processes in semiconductors (both inorganic and organic) and solid-state optoelectronics, designed both for graduate and undergraduate students of Physics, Chemistry and Electrical Engineering. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150

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**PHYSCS 4620: Introduction to Materials Science**

This course on the science and technology of materials explores the interrelationship between processing, structure, properties (electrical, optical, magnetic), and performance. Observable properties of materials will be used to explore and understand the consequences of atomic- and molecular-level events. Structure-property correlations, including electronic, thermal, and mechanical properties, will be presented for different classes of materials including nanoscale materials. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150

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**PHYSCS 4650: Modern Condensed Matter Physics**

(cross-leveled with PHYSCS 7650). Introduces the basic concepts and gives an overview of the latest developments of modern condensed-matter physics as the forefront of (nano) science and technology. Combines lectures and computational laboratory, where students use and develop interactive computer simulations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150 or instructor's consent

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**PHYSCS 4680: Introduction to Density-Functional Theory**

(cross-leveled with PHYSCS 7680). This course provides an introduction to density-functional theory (DFT), the most widely used technique for calculating the electronic structure of materials. The course covers the basic formalism of DFT and practical applications, including hands-on computational exercises. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150 or instructor's consent

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**PHYSCS 4720: Nonlinear Dynamics**

(cross-leveled with PHYSCS 7720). This course provides an introduction to nonlinear dynamical systems and chaos, with examples from physics, chemistry, biology and engineering. The emphasis will be on applications, using a combination of analytical, computational and intuitive geometrical methods. Topics covered include phase portraits, fixed point analysis, bifurcations, limit cycles, strange-attractors, iterated maps, period doubling, chaos, fractals, scaling and universality. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 4100 or instructor's consent

**Recommended:** MATH 4140

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**PHYSCS 4800: Introduction to Quantum Mechanics I**

Foundations of wave mechanics; wave packets; Schrodinger equation and I-D problems; operators and eigenfunctions, spherically symmetric systems.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150 and MATH 4100

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**PHYSCS 4810: Introduction to Quantum Mechanics II**

Review of quantum mechanics and units, forms of radiation, radiation detectors, spacetime symmetries, internal symmetries, nuclear structure and form factors, low-energy nuclear models, recent developments.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 4800 or equivalent

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**PHYSCS 4850: Computational Methods in Physics**

(cross-leveled with PHYSCS 7850). Use of modern computational techniques in solving a wide variety of problems in solid state, nuclear, quantum and statistical physics.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 4800 or instructor's consent

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**PHYSCS 4940: Physics Internship**

This internship course will provide students with work experience in a public/private company/lab organization that is relevant to the physics major. It will enable students to apply their academic knowledge and critical thinking skills in a work environment, while enhancing personal and professional development. The internship is coordinated by a faculty member. Graded on S/U basis only.

**Credit Hour:** 0-3

**Prerequisites:** Instructor's Consent

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**PHYSCS 4950: Undergraduate Research in Physics**

Special studies for advanced undergraduate students in physics covering subjects not included in courses regularly offered. Departmental consent for repetition.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**PHYSCS 4960: Senior Thesis in Physics**

Special studies for senior undergraduate students in physics. The course requires an oral or poster presentations, or faculty-guided writing of a senior thesis involving independent research.

**Credit Hours:** 3

**Prerequisites:** instructor's consent and 3 units of PHYSCS 4950. Departmental consent required for repetition

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**PHYSCS 4985: Issues in Modern Physics and Engineering**

Students are expected to write a major paper on a selected topic from modern physics or engineering. The paper will review the current state of the experimental and theoretical research on the topic at a level appropriate to their peers.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150

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**PHYSCS 7020: Astrophysical Techniques**

(same as ASTRON 7020; cross-leveled with PHYSCS 4020). Elements of modern astronomical instruments, observations and analysis, with the emphasis in the optical regime. Graded on A-F basis only. .

**Credit Hours:** 3

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**PHYSCS 7050: Electronic Laboratory**

(cross-leveled with PHYSCS 4050). Acquaints students with the foundations and techniques of electronics design, with emphasis on data acquisition and processing. Topics: circuits with discrete and integrated circuits, active and passive filters, amplifiers, power supplies, instrumentation and interfacing. Integrated lectures and labs. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** PHYSCS 2760

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**PHYSCS 7085: Problems in Physics**

Laboratory work involving study of literature of special experiments in physics. Introduces research methods.

**Credit Hour:** 1-99

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**PHYSCS 7110: Light and Modern Optics**

(cross-leveled with PHYSCS 4110). Interaction of light with matter, spectroscopic techniques, wave optics, interferometry, multilayer films, polarization, non-linear optics, design of optical instruments, matrix methods, waveguides, fiber optics, acousto-optic and photo-elastic modulation. Includes both lectures and laboratory.

**Credit Hours:** 4

**Prerequisites:** PHYSCS 2760

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**PHYSCS 7180: Solar System Science**

(same as GEOL 7180 and ASTRON 7180; cross-leveled with GEOL 4180 and ASTRON 4180). Investigates physical states, interior structures and comparative geology of solar systems bodies: planets, moons, asteroids, comets, sun. Solar system formation and evolution.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 1220 or PHYSCS 2760 or instructor's consent

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**PHYSCS 7190: Physics and Chemistry of Materials**

(same as NU\_ENG 7319, BIOL\_EN 7480, CHEM 7490; cross-leveled with PHYSCS 4190, NU\_ENG 4319, BIOL\_EN 4480, CHEM 4490, BME 4480). Physics and Chemistry of Materials is a 3 credit hours course offered every spring semester for students from Physics, Chemistry, Engineering and Medical Departments and consists of lectures, laboratory demonstrations, two mid-term and one final exam. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2750, CHEM 1320 or equivalent, or instructor's consent

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**PHYSCS 7201: Topics in Physics**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent required

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**PHYSCS 7210: Contributions to Science from Under-represented Groups**

(same as ASTRON 7210; cross-leveled with PHYSCS 4210, ASTRON 4210). STEM fields are amongst the areas of human endeavor that struggle with increasing their human diversity. Teaching of science rarely discusses the contributions or marginalizations of under-represented groups. Meanwhile, many women and indigenous cultures have contributed to progress in STEM but are often not recognized. In this course we will investigate these contributions, and the lack of recognition both historically and in the present day. The aim is to provide students with a better understanding of the advantages of and challenges in inclusive, diverse science. Initially the course will use astronomy as its frame of reference because the sky was one of the earliest laboratories

and consequently it has a long history with many indigenous cultures developing their own cosmologies and ways of studying the sky. As we discuss the role of Indigenous peoples, people of color, and women, we will investigate the role of power structures as well as systemic biases in the marginalization of these groups. This class will be strongly discussion oriented, with assessment based on the development throughout the semester, of a final project. As many students will be pursuing graduate school in STEM fields, the final project will be to develop a Broader Impact statement. Many federal funding agencies request or even require that research grants include a component aimed at 'broadening participation', i.e. making STEM more inclusive and diverse. Student will work on a multipart assignment that will culminate in a Broader Impact statement that may well be directly applicable to an NSF GRFP (Graduate Research Fellowship Program) or NSF Post-Doctoral Fellowship. In addition to the Broader Impact statement - students will give presentations and learn how to be more inclusive in their presentation design, following the principles of Inclusive Design for Learning. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760 or PHYSCS 1200 or instructors consent

---

#### **PHYSCS 7230: Scanning and Transmission Electron Microscopy and Microanalysis**

(cross-leveled with PHYSCS 4230). This course is designed for senior undergraduate/graduate students. This course covers the basic principles and practical considerations using SEM, TEM, EDS, and EELS in the characterization of materials. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150 and instructor's consent

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#### **PHYSCS 7360: Extragalactic Astronomy**

(same as ASTRON 7360; cross-leveled with PHYSCS 4360, ASTRON 4360). This course introduces students to the most basic knowledge of extragalactic astronomy, starting from Milky Way and extending to the most distant universe. Topics covered will include galaxy morphology and classification, groups and clusters of galaxies, active galactic nuclei, and galaxy formation and evolution.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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#### **PHYSCS 7400: Physics of Electronic Devices**

(cross-leveled with PHYSCS 4400). This course is designed for graduate students of Physics and Electrical Engineering who have an interest in learning the basic physical idea underlying the operation of electronic devices. The course consists of lectures, handout lecture notes, problem sets, two mid-term and one final exam.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150 or equivalent

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#### **PHYSCS 7410: Analysis of Biological Macromolecules and Biomaterials**

(cross-leveled with PHYSCS 4410). This interdisciplinary, team-taught course introduces basic concepts and experimental techniques for studying bio-macromolecules and biomaterials. A Problem Based Learning/ Writing Intensive approach uses four modules: proteins, membranes, cellular interactions and biomaterials.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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#### **PHYSCS 7420: Introduction to Biomedical Imaging**

(same as BIOL\_EN 7420; crossleveled with PHYSCS 4420, BIOL\_EN 4420, BME 4420). This course offers a broad introduction to medical imaging. Topics to be covered include the physics basics and instrumentation of X-ray CT, PET, SPECT, ultrasound, MRI, and optical imaging, as well as recent developments in biomedical imaging.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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#### **PHYSCS 7450: Introduction to Cosmology**

(cross-leveled with PHYSCS 4450). Develops the physical concepts necessary for understanding the major recent discoveries in cosmology, such as the acceleration of the universe and dark energy. No prior knowledge of general relativity is assumed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150 or equivalent or instructor's consent

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#### **PHYSCS 7500: Computational Biological Physics**

(cross-leveled with PHYSCS 4500). Provides a practical introduction (hands-on approach) to the study of the structure and function of biomolecular systems by employing computational methods and theoretical concepts familiar from the physical sciences.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 1220 or PHYSCS 2760 or instructor's consent

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#### **PHYSCS 7510: Single Molecule Biophysics**

(same as BIOCHM 7510; cross-leveled with PHYSCS 4510). The course provides an overview of the biophysics of enzymes, nucleic acids and the cytoskeleton. Topics covered will include diffusion, molecular motors, polymerization of the cytoskeleton and the polymer properties of nucleic acids and microtubules

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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#### **PHYSCS 7550: Cosmochemistry**

(same as ASTRON 7550; cross-leveled with PHYSCS 4550, ASTRON 4550). Cosmic dust, stardust, spectra, energy, interstellar medium, meteorites, astromineralogy.

**Credit Hours:** 3

**Prerequisites:** ASTRON 3010

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#### **PHYSCS 7600: Semiconductor Optics**

(cross-leveled with PHYSCS 4600). It is an introductory-level course in the field of optical processes in semiconductors (both inorganic and organic) and solid-state optoelectronics, designed both for graduate and undergraduate students of Physics, Chemistry and Electrical Engineering.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150 or instructor's consent

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#### **PHYSCS 7650: Modern Condensed Matter Physics**

(cross-leveled with PHYSCS 4650). Introduces the basic concepts and gives an overview of the latest developments of modern condensed



matter physics as the forefront of (nano) science and technology. Combines lectures and computational laboratory, where students use and develop interactive computer simulations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150 or instructor's consent

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**PHYSCS 7680: Introduction to Density-Functional Theory**

(cross-leveled with PHYSCS 4680). This course provides an introduction to density-functional theory (DFT), the most widely used technique for calculating the electronic structure of materials. The course covers the basic formalism of DFT and practical applications, including hands-on computational exercises. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150 or instructor's consent

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**PHYSCS 7720: Nonlinear Dynamics**

(cross-leveled with PHYSCS 4720). This course provides an introduction to nonlinear dynamical systems and chaos, with examples from physics, chemistry, biology and engineering. The emphasis will be on applications, using a combination of analytical, computational and intuitive geometrical methods. Topics covered include phase portraits, fixed point analysis, bifurcations, limit cycles, strange-attractors, iterated maps, period doubling, chaos, fractals, scaling and universality. Graded on A-F basis only.

**Credit Hours:** 3

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**PHYSCS 7750: Interstellar Medium**

The course discusses observational properties and physical and chemical processes occurring in the interstellar medium. Topics include interstellar diffuse and molecular clouds, HII regions, dust grains, interstellar chemistry, star formation, supernova remnants, and interstellar shock waves.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 1220

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**PHYSCS 7850: Computational Methods in Physics**

(cross-leveled with PHYSCS 4850). Use of modern computational techniques in solving a wide variety of problems in solid state, nuclear, quantum and statistical physics.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 4800 or instructor's consent

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**PHYSCS 8040: Study of Techniques of Teaching College Physics**

Objectives, methods and problems related to teaching college physics. Some credit in this course is required for all students teaching physics. May repeat for 3 hours maximum.

**Credit Hour:** 1-3

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**PHYSCS 8090: Research in Physics**

Graduate research. Graded on S/U Basis only.

**Credit Hour:** 1-99

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**PHYSCS 8101: Topics of Physics and Astronomy**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent. Departmental consent for repetition

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**PHYSCS 8110: Physics for High School Teachers I**

This is a physics course designed primarily for high school teachers. Topics include motion, forces, Newton's Laws, electricity, k and magnetism. The course uses research based pedagogical methods utilizing inquiry, modeling, and hands-on techniques. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** instructor's consent

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**PHYSCS 8130: Physics for High School Teachers 3**

This is a physics course designed primarily for high school teachers. Topics include modern physics and history of science. The course uses research based pedagogical methods utilizing inquiry, modeling, and hands-on techniques. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**PHYSCS 8150: Condensed Matter Physics I**

Crystal structure, reciprocal lattice, phonons, neutron and x-ray scattering, free electron theory of metals, Fermi surfaces, energy bands, static properties of solids, semiconductors, devices, and quantum structures, optical properties, excitons, introduction to magnetism and superconductivity.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 4800 or equivalent

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**PHYSCS 8160: Condensed Matter Physics II**

The basic Hamiltonian, Phonons, theory of the electron gas, second quantization, Hartree and Hartree-Fock approximation, local-density method, tight-binding theory, electron-electron interaction and screening, Fermi liquid theory, transport properties, impurities, Green's function's, Localization, Quantum Hall effect, magnetism, superconductivity.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 8150

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**PHYSCS 8170: Structure, Electronic Structure and Properties of Condensed Matter**

This course covers the connections between the properties of matter and their atomic and electronic properties, especially by understanding macroscopic behaviors of condensed matter, such as magnetic ordering, vibrational properties, structural phase transitions, transport, optical properties and superconductivity. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** PHYSCS 8150

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**PHYSCS 8301: Topics in Astronomy and Astrophysics**

Selected topics from solar system, stellar, galactic and extragalactic astronomy and astrophysics. May be repeated to a maximum of six hours.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PHYSICS 8310: College Science Teaching**

(same as ASTRON 8310, BIO\_SC 8724 and LTC 8724). Study of learner characteristics, teaching strategies, and research findings related to teaching science at the post-secondary level.

**Credit Hours:** 3

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**PHYSICS 8350: Science Outreach: Public Understanding of Science**

(same as BIO\_SC 8725 and AN\_SCI 8725) This course is aimed at promoting public understanding and appreciation of science. The students will develop presentations that increase awareness of the impact of science on many aspects of our daily lives.

**Credit Hour:** 1-2

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**PHYSICS 8410: Concepts in Nanoscale Materials: Interdisciplinary Science**

This interdisciplinary course covers basic concepts in nanoscale materials, their characterization, and how and why they differ from conventional bulk materials. The course focuses on neutron scattering methods and uses lectures, problem-based modules, and writing assignments.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 3150 and instructor's consent

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**PHYSICS 8420: X-ray and Neutron Scattering Methods for Studying Surfaces/Interfaces of Nanocrystalline Materials**

This course develops the conceptual foundation of neutron and x-ray scattering methods for probing the structure of epitaxial films, nanomaterials and their buried interfaces. A particular emphasis is given to the use of intense synchrotron x-ray radiation. Course graded on A-F basis only.

**Credit Hours:** 3

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**PHYSICS 8550: Stellar Structure and Evolution**

(same as ASTRON 8550). Reviews of atomic and molecular spectra. Investigates quantum radiation law, emission and absorption processes, radiation transfer theory, continuous and discrete line spectra of stars, stellar composition.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 4250, PHYSICS 4800, or instructor's consent

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**PHYSICS 8610: Classical Mechanics**

The interplay of dynamics and symmetry, Hamilton's principle and Noether's theorem, Lagrangian, Hamiltonian, Hamilton-Jacobi theories of mechanics in special relativity. Rigid body motion, small oscillation, canonical transformations and fields as continuous mechanical systems.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 4140 or equivalent

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**PHYSICS 8620: Electrodynamics I**

Electrostatic potential and fields, boundary-value problems in electrostatics, methods of images, Green's functions, multipole

expansion, dielectrics, magnetostatics, magnetic materials, Maxwell's equations, time-varying fields.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 8610 or instructor's consent

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**PHYSICS 8640: Electrodynamics II**

Electromagnetic wave propagation, reflection, refraction, wave guides, cavities antennas and diffraction, tensors, special relativity, the Lorentz group, dynamics of relativistic particles and fields radiation by moving charges, retardation, bremsstrahlung. Additional topics may include magnetohydrodynamics and plasma physics.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 8620 or instructor's consent

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**PHYSICS 8660: Methods in Mathematical Physics**

Concentrates on mathematical techniques used in modern physics. Infinite series, functions of a complex variable, differential equations, Fourier series and integral, etc.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 4700 or instructor's consent

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**PHYSICS 8680: Thermodynamics and Statistical Mechanics**

Thermodynamics as applied in physics, chemistry; laws of distribution; statistical methods of study matter, radiation.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 8710 or concurrently

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**PHYSICS 8700: Non-Equilibrium Statistical Mechanics**

This course provides an introduction to the theoretical and mathematical description of classical stochastic systems with examples from biophysics and condensed matter physics.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 8680 or consent of instructor

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**PHYSICS 8710: Quantum Mechanics I**

Non-relativistic quantum theory in Hilbert space. States and self-adjoint observables, unitary time evolution in various pictures, the path-integral, identical particles, Fock space, angular momentum and some perturbation theory.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 8610

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**PHYSICS 8720: Quantum Mechanics II**

More perturbation theory, variational methods, semi-classical methods and application to radiation theory, linear response theory and rudiments of relativistic quantum mechanics including the Klein-Gordon equation and the Dirac equation.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 8710

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**PHYSICS 8820: Relativity and Gravitation**

Special and general theories of relativity. Discussion of accelerated observers and the principles of equivalence. Einstein's gravitational field equations, black holes, gravitational waves and cosmology.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 8610, PHYSCS 8620

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**PHYSCS 9090: Research in Physics**

Research leading to Ph.D. dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** PhD candidacy has been established

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## Plant Science Courses

**PLNT\_S 1002: Topics In Plant Science - Biological**

Initial offering of a course(s) in a specific subject matter area. Offered when proposed by a faculty member in that area of expertise.

**Credit Hour:** 1-4

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**PLNT\_S 1120: Career Development**

Introductory course for students planning a career in plant sciences. Includes an overview of each emphasis area, as well as development of professional skills required for a successful career. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Plant Science majors only

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**PLNT\_S 2002: Topics in Plant Science - Biological**

Initial offering of a course(s) in a specific subject matter area. Offered when proposed by a faculty member in that area of expertise.

**Credit Hour:** 1-4

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**PLNT\_S 2075: Environmental Horticulture**

Investigate interrelationships between plants and the environment. Special emphasis placed on improving homeowners' environmental stewardship and their knowledge of sustainable practices. Graded on A-F basis only.

**Credit Hours:** 3

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**PLNT\_S 2100: Introduction to Soils**

(same as SOIL 2100). Introduction to soil sciences with emphasis placed on physical, biological, and chemical properties and application to land use, plant growth and environmental problems.

**Credit Hours:** 3

**Recommended:** 3 hrs of Chemistry

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**PLNT\_S 2110: Plants and their Cultivation**

Principles of plant growth with emphasis on anatomy, physiology, and response to environmental factors. Production and protection of economically important crop and horticulture species.

**Credit Hours:** 3

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**PLNT\_S 2125: Plant Structure and Function**

Introduction to plant anatomy;physiology; how plant structures and processes are involved in growth/development. Labs explore photosynthesis, mineral nutrition, water relations, growth, and hormonal regulation.

**Credit Hours:** 3

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**Prerequisites:** BIO\_SC 1200 and CHEM 1100 or CHEM 1320

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**PLNT\_S 2155: Interior Plants**

Identification, cultural requirements and use of plants adaptable or capable of becoming acclimated to interior environments. Graded on A-F basis only.

**Credit Hour:** 1

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**PLNT\_S 2195: Grapes and Wines of the World**

(same as F\_S 2195). Explores the world of wine through study of viticultural principles and practices, wine styles, classifying wine, the winemaking process and New World and Old World wine regions. Learn wine tasting skills and experience wines from around the world. World wine consumption, social and physical health benefits of moderate wine consumption.

**Credit Hours:** 3

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**PLNT\_S 2210: Ornamental Woody Plants**

Identification and evaluation of trees and shrubs for landscape use.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1200 or instructor's consent

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**PLNT\_S 2215: Ornamental Herbaceous Plants**

Annuals, biennials, perennials, ground covers, and bulbs; their identification, nomenclature classification, culture and use.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1010 or BIO\_SC 1500 or BIO\_SC 1200

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**PLNT\_S 2220: Introduction to Floral Design**

Introduction to the basics of floral design with special emphasis on design mechanics, flower processing, care and handling. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Some sections of this course may be restricted to Plant Science Majors Only and/or students with 75 credit hours or less

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**PLNT\_S 2221: Everyday Floral Design**

Intermediate floral design course expanding skills from introductory floral design with emphasis on the elements and principles of design. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2220

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**PLNT\_S 2240: Landscape Graphic Communication**

Landscape design is a blend of art and science. This course is designed to help students expand their artistic skills, including graphic communications. Topics included to achieve this goal are drawing mediums and techniques, coloring mediums and techniques, symbol usage, and elevation drawings. Graded on A-F basis only.

**Credit Hours:** 2

**Recommended:** ART\_DRAW 1050

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**PLNT\_S 2250: Landscape Site Analysis**

In order to effectively design what a site can become a landscape designer must first be able to accurately see what it is. This course presents a detailed look at obtaining, calculating, and manipulating a site's topography and features while offering a glimpse into the methods and means required for implementation of the final landscape design. Graded on A-F basis only.

**Credit Hours:** 2**Recommended:** MATH 1100 or equivalent**PLNT\_S 2254: Landscape Design**

An introduction into the processes, principles, and practices of landscape design, this course begins with site analysis and moves through the drawing and presentation of your landscape concepts.

**Credit Hours:** 3**Prerequisites:** Completion of 30 hours**PLNT\_S 3002: Topics in Plant Science - Biological**

Initial offering of a course(s) in a specific subject matter area. Offered when proposed by a faculty member in that area of expertise.

**Credit Hour:** 1-4**PLNT\_S 3110: Horticultural Drainage and Irrigation Systems**

This course is designed to provide practical knowledge of drainage and irrigation systems for golf courses, sports fields, lawns, landscapes, greenhouses, nurseries and vineyards. Graded on A-F basis only.

**Credit Hours:** 2**PLNT\_S 3130: Undergraduate Seminar in Plant Science**

Discussion of assigned or selected topics in Plant Science, including participation in a panel debate and individual seminar oral presentations.

**Credit Hour:** 1**Prerequisites:** Completion of 60 credit hours**PLNT\_S 3210: Principles of Weed Science**

Introduction to principles of weed growth, reproduction, and impact on human activities. Discussion of weed control techniques and technology, weed identification, and developing weed management strategies.

**Credit Hours:** 4**Prerequisites:** PLNT\_S 2110 or BIO\_SC 1200**PLNT\_S 3213: Genetics of Agricultural Plants and Animals**

(same as AN\_SCI 3213). Concepts of molecular, transmission, and population and quantitative genetics. Emphasis given to breeding and biotechnological applications in plant and animal agriculture. Prerequisites: MATH 1100 or higher and one of the following: BIO\_SC 1100 or BIO\_SC 1200 or BIO\_SC 1500 or FW 1100.

**Credit Hours:** 3**PLNT\_S 3220: Special Occasion Floral Design**

Advanced floral design course with emphasis in silk décor, sympathy design and public ceremony design. Graded on A-F basis only.

**Credit Hours:** 3**Prerequisites:** PLNT\_S 2220 and PLNT\_S 2221 with grade of B or above in both**PLNT\_S 3221: Wedding Floral Design**

Advanced floral design course with emphasis in wedding floral design and personal pieces design. Graded on A-F basis only.

**Credit Hours:** 3**Prerequisites:** PLNT\_S 2220 and PLNT\_S 2221 with grade of B or above in both**PLNT\_S 3222: Retail Floral Management**

Course focusing on all areas of retail floral management: business finance, marketing, products and services, employee management, and customer service. Graded on A-F basis only.

**Credit Hours:** 3**Prerequisites:** PLNT\_S 2220 and PLNT\_S 2221**PLNT\_S 3222W: Retail Floral Management - Writing Intensive**

Course focusing on all areas of retail floral management: business finance, marketing, products and services, employee management, and customer service. Graded on A-F basis only.

**Credit Hours:** 3**Prerequisites:** PLNT\_S 2220 and PLNT\_S 2221**PLNT\_S 3225: Plant Breeding and Genetics**

Mendelian genetic principles and related genetic developments applicable in plant breeding. Discussion of established and new plant breeding procedures applicable to cultivar development.

**Credit Hours:** 3**Prerequisites:** PLNT\_S 2110 or equivalent**PLNT\_S 3230: Plant Propagation**

Principles and practices of propagation of horticultural plants.

Prerequisites: One of the following: PLNT\_S 2075, BIO\_SC 1200, or BIO\_SC 1500 or Instructor's consent.

**Credit Hours:** 3**PLNT\_S 3230W: Plant Propagation - Writing Intensive**

Principles and practices of propagation of horticultural plants.

Prerequisites: One of the following: PLNT\_S 2075, BIO\_SC 1200, or BIO\_SC 1500 or Instructor's consent.

**Credit Hours:** 3**PLNT\_S 3240: Principles of Viticulture I**

(same as F\_S 3240). Grapevine growth, development, selection, propagation, training systems, pruning, and harvesting; vineyard site selection, design, and development. Graded on A-F basis only.

**Credit Hours:** 4**Prerequisites:** F\_S 1010 and F\_S 2195 or PLNT\_S 2195; or PLNT\_S 2100; or PLNT\_S 2110; or PLNT\_S 2125

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**PLNT\_S 3250: Green Industry Bidding**

Principles of interpreting drawings, estimating labor, equipment, materials and other costs and recordkeeping for preparation of competitive green industry bids. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Plant Science major and completion of 30 credit hours

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**PLNT\_S 3252: Arboriculture and Pruning**

Concepts for establishment and management of urban trees. Emphasis on planting, fertilization, pruning, disease, hazard assessment and components of a municipal trees ordinance.

**Credit Hour:** 1

**Prerequisites:** PLNT\_S 2210 or instructor's consent

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**PLNT\_S 3254: Landscape AutoCAD**

AutoCAD is the most widely utilized computer aided drafting software program in the professional landscape design industry. This course will teach students how to utilize AutoCAD to transform their landscape design skills into a digital format and investigate the benefits of utilizing technology as a design tool. We will also explore other industry utilized software, and their functionality, with focus on landscape design and presentation. Additional software will include, but not be limited to, AutoDesk Revit; Adobe Photoshop; and Sketchup. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** PLNT\_S 2250 and PLNT\_S 2254

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**PLNT\_S 3260: Greenhouse Management**

Greenhouse design, environmental control and equipment. Practices associated with plant nutrition management, greenhouse pest control, postproduction handling and marketing of greenhouse crops, and greenhouse management are also covered.

**Credit Hours:** 4

**Prerequisites:** PLNT\_S 2075 or instructor's consent

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**PLNT\_S 3270: Forage Crops**

An introduction to principle forage crops, including identification, anatomy, physiology, and growth characteristics. Pasture production and management, grazing systems, and forage preservation and utilization will also be covered.

**Credit Hours:** 3

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**PLNT\_S 3275: Grain Crops**

Lecture and discussion covering production and utilization, plus growth and development of a wide range of grain crops, including Missouri crops. Problem solving tasks include agronomics, economics and environmental factors.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2110 or PLNT\_S 2125

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**PLNT\_S 3355: Introductory Turfgrass Management**

Characteristics of turf materials, principles of establishment and maintenance.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2100 or instructor's consent

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**PLNT\_S 3385: Problems in Plant Science**

Not accepted as a substitute for any regularly scheduled course. Problems arranged with individual faculty member in specific matter area.

**Credit Hour:** 1-4

**Prerequisites:** consent required

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**PLNT\_S 3510: Biology of Fungi**

(same as BIO\_SC 3510). The diverse roles of fungi in the biosphere will be explored by considering fungi we eat, fungi which destroy our food, fungi in folklore and fungi as global nutrient recyclers.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1200 or BIO\_SC 1500 or equivalent

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**PLNT\_S 3710: Introductory Entomology**

(same as BIO\_SC 3710). Emphasizes the role insects play in the scheme of life. Topics include insect structure, development, diversity, ecology, communication and behavior, and management. Prerequisites: Completion of 60 credit hours and one of the following: BIO\_SC 1100 (or F\_W 1100) or BIO\_SC 1200, or BIO\_SC 1500.

**Credit Hours:** 3

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**PLNT\_S 3715: Insect Diversity**

(same as BIO\_SC 3715). Laboratory exercises emphasizing external insect anatomy, classification, and identification (to family level). Preparation of an insect collection is required.

**Credit Hours:** 2

**Prerequisites or Corequisites:** PLNT\_S 3710 (or BIO\_SC 3710)

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**PLNT\_S 4002: Topics in Plant Science - Biological**

Initial offering of a course(s) in a specific subject matter area. Offered when proposed by a faculty member in that area of expertise.

**Credit Hour:** 1-4

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**PLNT\_S 4003: Topics in Plant Science - Biological- Lab**

Initial offering of a course(s) in a specific subject matter area. Offered when proposed by a faculty member in that area of expertise.

**Credit Hour:** 1-4

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**PLNT\_S 4225: Principles of Plant Breeding**

(cross-leveled with PLNT\_S 7225). This is an introductory course exploring the principles of plant breeding where we examine the application of genetics and the plant sciences to the breeding and improvement of field crops, focusing on conventional plant breeding principles. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2110 or PLNT\_S 2125 or BIO\_SC 1200

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**PLNT\_S 4270: Laboratory Techniques in Forage Analysis**

(cross-leveled with PLNT\_S 7270). This course explores the analysis of forages for yield and nutritive value. Students will learn how to properly collect forage samples in the field, followed by proper preservation and processing techniques. Students will perform all of the laboratory analyses necessary to determine the full nutritive value of their sampled

forages (dry matter yield, crude protein, fiber and digestibility), learning the what, how and why behind each analysis performed along the way. Lastly, students will learn how to compare different forage samples and draw conclusions based on their results. Students will be prepared for employment in the feed and forage analysis industry following completion of this course. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites or Corequisites:** PLNT\_S 3270

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**PLNT\_S 4313: Soil Fertility and Plant Nutrition**

(same as SOIL 4313; cross-leveled with PLNT\_S 7313, SOIL 7313).

Explanation of principles of delivery of plant nutrients to plants, discussion of the role of each essential nutrient in crop plants and introduction to the management of soil amendments.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100 or instructor's consent

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**PLNT\_S 4315: Crop Physiology**

(cross-leveled with PLNT\_S 7315). Basic course on crop growth and development. Emphasis is on physiological processes and morphology of crop plants, and their application to crop breeding and management decisions.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2125 or equivalent

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**PLNT\_S 4320: Molecular Plant Physiology**

(same as BIO\_SC 4320; cross-leveled with PLNT\_S 7320, BIO\_SC 7320). Modern physiology of higher plants using common cultivated plants as examples. Prerequisites: CHEM 1320 or CHEM 1330 and one of the following: BIO\_SC 1500 or BIO\_SC 1200.

**Credit Hours:** 3

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**PLNT\_S 4325: Advanced Plant Breeding**

(cross-leveled with PLNT\_S 7325). Will introduce students to the application of genetics and the plant sciences to the breeding and improvement of self-pollinated field crops. Classical, current and innovative plant breeding techniques will be addressed.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2110 or PLNT\_S 2125, and PLNT\_S 3213 (or equivalent), and PLNT\_S 3225 (or equivalent)

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**PLNT\_S 4340: Principles of Viticulture II**

(same as F\_S 4340). Environmental and biological factors influencing vine physiology and winegrape quality. Irrigation, canopy management, pest and disease control, budgets and current trends in viticulture. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** F\_S 3240 or PLNT\_S 3240

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**PLNT\_S 4345: Principles of Viticulture and Winemaking**

(same as F\_S 4345; cross-leveled with PLNT\_S 7345, F\_S 7345). This course will cover the basics needed by viticulturists and winemakers to understand grape vine growth and vineyard considerations along with winemaking principles. Viticultural topics will include grapevine growth and development, vineyard design and development, cultivar

selection, grapevine propagation, training systems, and harvest and pruning. Winemaking topics will include sensory analysis of grapes, chemical, microbiological and technological aspects of winemaking, and the analytical methods used for juice and wine analysis. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1010 or BIO\_SC 1020 or BIO\_SC 1030

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**PLNT\_S 4355: Advanced Turfgrass Management**

(cross-leveled with PLNT\_S 7355). Provides turfgrass majors a more informative and applicable look at mathematics of turfgrass management, application techniques, cultural practices, and soil/water relationships applicable to careers in golf course and sports turf management, lawn care, and professional grounds maintenance.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 3355 or instructor's consent

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**PLNT\_S 4360: Precision Agriculture Science and Technology**

(same as AG\_S\_M 4360, SOIL 4360; cross-leveled with PLNT\_S 7360, AG\_S\_M 7360, SOIL 7360). Precision agriculture is an information-based approach to farming whereby variability is managed to optimize crop production and reduce environmental pollution. This course provides an overview of precision agriculture technologies (like GIS, GPS, remote sensing), mapping methods, and case studies illustrating decisions and management.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2100 or SOIL 2100, or PLNT\_S 2110; MATH 1100; AG\_S\_M 1040

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**PLNT\_S 4365: Greenhouse Crops Production**

(cross-leveled with PLNT\_S 7365). Production management decision and commercial culture of the major floriculture crops.

**Credit Hours:** 4

**Prerequisites:** PLNT\_S 3260 or instructor's consent

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**PLNT\_S 4385: Problems in Plant Science**

Special problem in plant pathology designed for the minor program in Plant Pathology. Problems arranged on an individual student basis.

**Credit Hours:** 3

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**PLNT\_S 4400: Plant Anatomy**

(same as BIO\_SC 4400; cross-leveled with PLNT\_S 7400, BIO\_SC 7400). Comparative structure, growth of meristems; development, structure of important cell types, tissues systems; comparative anatomy of stem, root, leaf. Emphasizes anatomy of gymnosperms, angiosperms. Includes lab. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1200 or equivalent

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**PLNT\_S 4500: Biology and Pathogenesis of Plant-Associated Microbes**

(cross-leveled with PLNT\_S 7500). Diagnosis of diseases of plants caused by fungi, nematodes, viruses and bacteria Environmental and genetic factors leading to disease development and strategies for disease management, including biotechnology. Prerequisites: 5 hours from the

following courses: BIO\_SC 1010, BIO\_SC 1020, BIO\_SC 1030, BIO\_SC 1100, BIO\_SC 1200 or BIO\_SC 1500; and completion of 60 credit hours.

**Credit Hours:** 4

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**PLNT\_S 4520: Environmental Microbiology**

Fundamental knowledge of selected microbial processes that are important in agriculture, environmental detoxification, and microbial biotechnology. Emphasis is on molecular, genetic and physiological aspects of nitrogen metabolism, bioconversions, antibiotics and biocontrol.

**Credit Hours:** 3

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**PLNT\_S 4550: Plant Biotechnology**

(cross-leveled with PLNT\_S 7550). Principles of gene expression, metabolic pathway analysis and data mining, plant tissue culture and transformation, transgene integration and expression analysis, plant epigenome, emerging transgenic technologies, etc. Prerequisites: PLNT\_S 2125 and one of the following: PLNT\_S 3213, or BIO\_SC 2200 or BIO\_SC 2300.

**Credit Hours:** 4

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**PLNT\_S 4720: Aquatic Entomology**

(cross-leveled with PLNT\_S 7720). Identification, life histories, ecology of aquatic insects. Grading is based on lecture, lab, and a collection. For students of wildlife, fisheries management, aquatic biology, advanced entomology.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 3710 or PLNT\_S 3715 or equivalent, or instructor's consent

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**PLNT\_S 4730: Insect Pest Management for Plant Protection**

(cross-leveled with PLNT\_S 7730). History and concepts of Integrated Pest Management of insect pests, emphasizing complementary use of biological control, plant resistance, environmental manipulations, genetic manipulations, and selective use of insecticides.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 3710 or instructor's consent

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**PLNT\_S 4940: Internship in Plant Science**

Combines study, observation, and employment with an industry or government agency in area of agronomy or horticulture. Written and oral reports and faculty evaluation.

**Credit Hours:** 3

**Prerequisites:** Completion of 75 hours including two courses in department and instructor's consent

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**PLNT\_S 4950: Undergraduate Research in Plant Science**

Capstone experience consisting of investigations in Plant Science in support of an undergraduate thesis or special project portfolio.

**Credit Hour:** 1-3

**Prerequisites:** Completion of 75 credit hours and Plant Science Majors only

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**PLNT\_S 4970: Readings in Plant-Insect Interactions**

(cross-leveled with PLNT\_S 7970). This course is designed to provide graduate and advanced undergraduate students with skills to critically read and evaluate the primary scientific literature using the current primary literature in the field of plant-herbivore interactions. The rich history of chemical, physiological, population, and multi-trophic ecology studies on plant-insect interactions has produced an exciting, fast-paced interdisciplinary field at the forefront of ecology. This course is an ideal way to help students working in this field, or other areas of plant stress, to understand what is currently known, to experience the breadth of questions asked, and to think critically about what's published. Learning to evaluate the literature and prepare well-written critiques will help students to participate effectively in the important peer-review process of science. Graded on S/U basis only.

**Credit Hour:** 1

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**PLNT\_S 4975: Advanced Landscape Design**

(cross-leveled with PLNT\_S 7975). Development of project presentation techniques by analysis of the social, cultural, historical and ecological aspects of landscape design.

**Credit Hours:** 4

**Prerequisites:** PLNT\_S 2254 or instructor's consent

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**PLNT\_S 7001: Topics**

Initial offering of a course(s) in a specific subject matter area. Offered when proposed by a faculty member in that area of expertise.

**Credit Hour:** 1-4

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**PLNT\_S 7002: Topics- Lab**

Initial offering of a course(s) in a specific subject matter area. Offered when proposed by a faculty member in that area of expertise.

**Credit Hour:** 1-4

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**PLNT\_S 7085: Problems**

Advanced studies not expected to terminate in thesis. Problems arranged with individual faculty member in specific matter area.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**PLNT\_S 7087: Seminar**

In-depth development of advanced aspects of plant, insect, or microbial sciences through reviews of results of research in progress and current scientific publications. Graded on S/U basis only.

**Credit Hour:** 1

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**PLNT\_S 7225: Principles of Plant Breeding**

(cross-leveled with PLNT\_S 4225). This is an introductory course exploring the principles of plant breeding where we examine the application of genetics and the plant sciences to the breeding and improvement of field crops, focusing on conventional plant breeding principles. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2110 or PLNT\_S 2125 or BIO\_SC 1200

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**PLNT\_S 7270: Laboratory Techniques in Forage Analysis**

(cross-leveled with PLNT\_S 4270). This course explores the analysis of forages for yield and nutritive value. Students will learn how to properly collect forage samples in the field, followed by proper preservation and processing techniques. Students will perform all of the laboratory analyses necessary to determine the full nutritive value of their sampled forages (dry matter yield, crude protein, fiber and digestibility), learning the what, how and why behind each analysis performed along the way. Lastly, students will learn how to compare different forage samples and draw conclusions based on their results. Students will be prepared for employment in the feed and forage analysis industry following completion of this course. Graded on A-F basis only.

**Credit Hours:** 2

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**PLNT\_S 7313: Soil Fertility and Plant Nutrition**

(same as SOIL 7313; cross-leveled with PLNT\_S 4313, SOIL 4313). Explanation of principles of delivery of plant nutrients to plants, discussion of the role of each essential nutrient in crop plants and introduction to the management of soil amendments.

**Credit Hours:** 3

**Prerequisites:** SOIL 2110 or instructor's consent

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**PLNT\_S 7315: Crop Physiology**

(cross-leveled with PLNT\_S 4315). Basic course on crop growth and development. Emphasis is on physiological processes and morphology of crop plants, and their application to crop breeding and management decisions.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2125 or equivalent

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**PLNT\_S 7320: Molecular Plant Physiology**

(same as BIO\_SC 7320; cross-leveled with PLNT\_S 4320, BIO\_SC 4320). Modern physiology of higher plants using common cultivated plants as examples. May be taken with or without laboratory.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1500 or BIO\_SC 1200 and five hours of chemistry

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**PLNT\_S 7325: Advanced Plant Breeding**

(cross-leveled with PLNT\_S 4325). Will introduce students to the application of genetics and the plant sciences to the breeding and improvement of self-pollinated field crops. Classical, current and innovative plant breeding techniques will be addressed.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2110 or PLNT\_S 2125, and PLNT\_S 3213 (or equivalent), and PLNT\_S 3225 (or equivalent)

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**PLNT\_S 7345: Principles of Viticulture and Winemaking**

(same as F\_S 7345; cross-leveled with PLNT\_S 4345, F\_S 4345). This course will cover the basics needed by viticulturists and winemakers to understand grape vine growth and vineyard considerations along with winemaking principles. Viticultural topics will include grapevine growth and development, vineyard design and development, cultivar selection, grapevine propagation, training systems, and harvest and pruning. Winemaking topics will include sensory analysis of grapes, chemical, microbiological and technological aspects of winemaking, and

the analytical methods used for juice and wine analysis. Graded on A-F basis only.

**Credit Hours:** 3

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**PLNT\_S 7355: Advanced Turfgrass Management**

(cross-leveled with PLNT\_S 4355). Provides turfgrass majors a more informative and applicable look at mathematics of turfgrass management, application techniques, cultural practices, and soil/water relationships applicable to careers in golf course and sports turf management, lawn care, and professional grounds maintenance. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 3355 or instructor's consent

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**PLNT\_S 7360: Precision Agriculture Science and Technology**

(same as AG\_S\_M 7360 and SOIL 7360; cross-leveled with PLNT\_S 4360, AG\_S\_M 4360, SOIL 7360). Precision agriculture is an information-based approach to farming whereby variability is managed to optimize crop production and reduce environmental pollution. This course provides an overview of precision agriculture technologies (like GIS, GPS, remote sensing), mapping methods, and case studies illustrating decisions and management.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2100 or SOIL 2100, or PLNT\_S 2110; MATH 1100; AG\_S\_M 1040

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**PLNT\_S 7365: Greenhouse Crops Production**

(cross-leveled with PLNT\_S 4365). Production management decision and commercial culture of the major floriculture crops.

**Credit Hours:** 4

**Prerequisites:** PLNT\_S 3260 or instructor's consent

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**PLNT\_S 7370: Small Fruit and Vegetable Production**

Emphasizes production, management and marketing practices for small fruit and vegetable crops.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2100, PLNT\_S 3230, and PLNT\_S 3235

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**PLNT\_S 7400: Plant Anatomy**

(same as BIO\_SC 7400; cross-leveled with PLNT\_S 4400, BIO\_SC 4400). Comparative structure, growth of meristems; development, structure of important cell types, tissue systems; comparative anatomy of stem, root, leaf. Emphasized anatomy of gymnosperms, angiosperms. Includes lab. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1200 or equivalent

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**PLNT\_S 7500: Biology and Pathogenesis of Plant-Associated Microbes**

(cross-leveled with PLNT\_S 4500). Diagnosis of disease of plants caused by fungi, nematodes, viruses and bacteria. Environmental and genetic factors leading to disease development and strategies for disease management, including biotechnology.

**Credit Hours:** 4

**Prerequisites:** 5 hours BIO\_SC



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**PLNT\_S 7550: Plant Biotechnology**

(cross-leveled with PLNT\_S 4550). Principles of gene expression, metabolic pathway analysis and data mining, plant tissue culture and transformation, transgene integration and expression analysis, plant epigenome, emerging transgenic technologies, etc.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 2960 or equivalent; BIO\_SC 2200 or equivalent; BIO\_SC 2300 or equivalent; PLNT\_S 2125

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**PLNT\_S 7710: Systematic Entomology**

(cross-leveled with PLNT\_S 4710). Taxonomy of insects: emphasizes biology and classification of orders and suborders in lecture, and major families in lab. Insect collection required.

**Credit Hours:** 5

**Prerequisites:** PLNT\_S 3710 and PLNT\_S 3715 or 10 hours Biological Sciences

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**PLNT\_S 7720: Aquatic Entomology**

(cross-leveled with PLNT\_S 4720). Identification, life histories, ecology of aquatic insects. Grading is based on lecture, lab, and a collection. For students of wildlife, fisheries management, aquatic biology, advanced entomology.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 3710, PLNT\_S 3715 or equivalent or instructor's consent

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**PLNT\_S 7730: Insect Pest Management for Plant Protection**

(cross-leveled with PLNT\_S 4730). History and concepts of Integrated Pest Management for insects pests, emphasizing complementary use of biological control, plant resistance, environmental manipulations, genetic manipulations, and selective use of insecticides.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 3710 or instructor's consent

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**PLNT\_S 7820: Principles of Insect Physiology**

Major concepts of insect physiology emphasizing functions of organ-systems sensory physiology hormones in development, nutrition.

**Credit Hours:** 4

**Prerequisites:** PLNT\_S 3710, PLNT\_S 3715 and PLNT\_S 7810 or equivalent

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**PLNT\_S 7965: Readings in Plant Stress Biology**

Independent readings and discussion of recent research publications. Topics selected in consultation with supervisory faculty member.

**Credit Hour:** 1-9

**Prerequisites:** instructor's consent

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**PLNT\_S 7970: Readings in Plant-Insect Interactions**

(cross-leveled with PLNT\_S 4970). This course is designed to provide graduate and advanced undergraduate students with skills to critically read and evaluate the primary scientific literature using the current primary literature in the field of plant-herbivore interactions. The rich history of chemical, physiological, population, and multi-trophic ecology studies on plant-insect interactions has produced an exciting, fast-paced

interdisciplinary field at the forefront of ecology. This course is an ideal way to help students working in this field, or other areas of plant stress, to understand what is currently known, to experience the breadth of questions asked, and to think critically about what's published. Learning to evaluate the literature and prepare well-written critiques will help students to participate effectively in the important peer-review process of science. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Instructor's consent

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**PLNT\_S 7975: Advanced Landscape Design**

(cross-leveled with PLNT\_S 4975). Development of project presentation techniques by analysis of the social, cultural, historical and ecological aspects of landscape design.

**Credit Hours:** 4

**Prerequisites:** PLNT\_S 2254, instructor's consent

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**PLNT\_S 8001: Topics**

Instruction in specific subject matter areas in plant, insect or microbial sciences.

**Credit Hour:** 1-4

**Prerequisites:** instructor's consent

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**PLNT\_S 8010: Professionalism and Ethics**

Ethical issues in the conduct of scientific research including data integrity, plagiarism, and intellectual property. Scientific writing, lab management, peer review and other professional skills for the life sciences. Graded on A-F basis only.

**Credit Hours:** 2

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**PLNT\_S 8090: Thesis Research**

Original investigations in plant, insect or microbial science in support of thesis for master's candidates. Graded on S/U basis only.

**Credit Hour:** 1-10

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**PLNT\_S 8330: Molecular Breeding and Genomic Technology**

Development of molecular plant breeding, including genome sequencing, molecular markers, genotyping methods, and genome editing. The course provides the principles and application of marker-assisted trait introgression, genomics-assisted selection, and fundamental and methodology of genome editing for crop improvement. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 4325 or equivalent

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**PLNT\_S 8362: Introduction to Plant Metabolism**

(same as BIO\_SC 8362 and BIOCHM 8362). This course is part of a series that aims to provide a solid conceptual foundation in interdisciplinary plant biology for graduate students with a research emphasis in plant biology. This course examines the basic concepts and techniques used to understand plant metabolism. Graded on A-F basis only.

**Credit Hours:** 2

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**PLNT\_S 8365: Introduction to Molecular Cell Biology**

(same as BIOCHM 8365 and BIO\_SC 8365). This course is part of a series that aims to provide a solid conceptual foundation in interdisciplinary plant biology for graduate students with a research emphasis on plant biology. This course examines the basic concepts and techniques used to understand molecular cell biology. Graded on A-F basis only.

**Credit Hours:** 2

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**PLNT\_S 8410: Advanced Weed Science**

Discussion of herbicide physiology and fate in the environment, current development in weed science theory and methodology, and application of analytical procedures in weed research.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 3210

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**PLNT\_S 8420: Herbicide Mode of Action and Symptomology**

Designed for graduate students to gain an understanding of the in-depth processes by which herbicides interrupt normal plant growth and development at a tissue, cellular, and enzymatic level while learning to diagnose visual symptoms associated with herbicide injury. Course maybe repeated for credit. Graded on A-F basis.

**Credit Hours:** 2

**Prerequisites:** PLNT\_S 3210; instructor's consent

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**PLNT\_S 8430: Introduction to Bioinformatics Programming**

(same as AN\_SCI 8430). This course provides the basics of programming and database development to students in the life sciences who have little prior programming experience. It covers Unix/Linux, Perl, MySQL, the relational database design process, and common data formats used in genome informatics. Students will learn how programming skills can enhance their ability to analyze large biological datasets, and will gain hands on experience with examples focused on genomics and bioinformatics. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Instructor's consent

**Recommended:** Undergraduate or graduate course in Genetics

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**PLNT\_S 8505: Introduction to Plant Stress Biology**

(same as BIO\_SC 8505) This course is part of a series that aims to provide a solid conceptual foundation to interdisciplinary plant biology for graduate students with a research emphasis in plant biology. This course examines the basic concepts and techniques used to understand plant stress biology. Graded on A-F basis only.

**Credit Hours:** 2

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**PLNT\_S 8530: Research with Plant Stress Agents**

Students will learn key research strategies for abiotic and biotic plant stress agents. Students will complete two focused hands-on projects. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 7500 and PLNT\_S 7510 or PLNT\_S 7315, or PLNT\_S 7320, or equivalent

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**PLNT\_S 8720: Insect Behavior**

An examination of the breadth of behaviors found in insects, such as orientation mechanisms, communication, dispersal and migration, defensive mechanisms, lost location, feeding strategies, pollination, courtship and reproduction, and social behavior.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 3710 and PLNT\_S 3715 or 10 hours of Biological Sciences

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**PLNT\_S 9001: Topics**

Instruction in specific subject matter areas in plant, insect or microbial sciences.

**Credit Hour:** 1-4

**Prerequisites:** instructor's consent

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**PLNT\_S 9087: Seminar in Plant Science**

In-depth development of advanced aspects of plant, insect and microbial sciences through reviews of results of research in progress and current scientific publications. Graded on A-F or S/U basis dependent on section.

**Credit Hour:** 1

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**PLNT\_S 9090: Dissertation Research**

Original investigations in plant, insect or microbial science in support of dissertation for doctoral candidates. Graded on a S/U basis only.

**Credit Hour:** 1-10

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**PLNT\_S 9310: Ecology of Grazing Lands Systems**

Students travel to grazing lands ecosystems to learn: the components and function of grazing lands; research techniques in soil-plant-animal research; forage-livestock ecology; and the role of forages in conservation practices, wildlife habitat, and sustainable agriculture.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PLNT\_S 9415: Advanced Plant Physiology**

Advanced course in the physiology of plant growth and development. Discussion of current and classical studies in plant physiology with emphasis on responses to environmental variation.

**Credit Hour:** 1-3

**Prerequisites:** PLNT\_S 4315 or PLNT\_S 4320 or equivalent. Instructor's consent required

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**PLNT\_S 9440: Applied Quantitative and Statistical Genetics**

Estimation of genetic effects using means and variances, diallel analysis, environmental stability responses, index selection, and gain from selection.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 4330, STAT 4510, STAT 4530, AN\_SCI 9423, or equivalent

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**PLNT\_S 9540: Genetics of Plant-Microorganism Interaction**

Molecular and general genetics of the interactions between plants and pathogenic or symbiotic microorganisms.

**Credit Hours:** 3

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**Prerequisites:** PLNT\_S 7500 and PLNT\_S 7510, one course each in Biochemistry and Genetics

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**PLNT\_S 9810: Insect Ecology**

Ecological aspects of insect populations and communities including population dynamics, predator-prey interactions, competition, diversity and stability. Quantitative methods are emphasized.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 3710 and PLNT\_S 3715, STAT 1400 and BIO\_SC 3650 or instructor's consent

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## Political Science Courses

**POL\_SC 1100: American Government**

Topics covered include Constitution, federalism, civil liberties, political attitudes, interest groups, political parties, nominations, elections, and campaigns, voting behavior, Congress, Presidency, bureaucracy, and judiciary. Meets state law requirement.

**Credit Hours:** 3

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**POL\_SC 1400: International Relations**

Contemporary international affairs including family of nations, control of national foreign policies, competition and cooperation in legal, political, economic, social fields.

**Credit Hours:** 3

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**POL\_SC 1704: Introduction to Black Politics**

(same as BL\_STU 1704). This course is oriented toward the development of concepts and theory in the study of black politics. The readings in the course are divided into political science categories such as ideology, electoral participation, movement politics and public policy. In addition, major periods in black political history are examined in the light of the behavioral and theoretical concerns prominent in political science. Black Politics seeks an increased understanding of Black Diaspora history as a group and the various political effects of the history of slavery and racism; and (2) studies Black Diaspora struggles for racial justice, civil rights, political equality, and fundamental respect in the face of both explicit and structural or systematic racism.

**Credit Hours:** 3

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**POL\_SC 2004: Topics in Political Science - Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

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**POL\_SC 2100: State Government**

Government and politics at the state level, with emphasis on Missouri. Meets state law constitutional requirement.

**Credit Hours:** 3

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**POL\_SC 2200: The Judicial Process**

Analysis of roles played by American judges and courts in democratic policy formation.

**Credit Hours:** 3

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**POL\_SC 2250: Missouri Politics**

This course examines the government and politics of the state of Missouri. We will study the Missouri Constitution, the structure and function of the Missouri state government, and the politics - partisan and otherwise - of the state of Missouri. We will consider public policy development and implementation and examine several areas of that public policy: health, public safety, education, resource management, and others.

**Credit Hours:** 3

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**POL\_SC 2293: Globalization, Identity and Citizenship**

(same as PEA\_ST 2293, GEOG 2293). This course examines the forces of globalization that are transforming our world, and explores the various responses -- psychological, social and political -- that people have been making over the past fiJy years. Part I examines globalization as an economic and geographical process, generating huge social consequences, with rapid growth, population movements, political change and a vast gap between global wealth and poverty. Part II focuses on the ways in which individuals are now seeking to find themselves in this globalizing world. Emphasis will be placed on the ways in which national iden]ty, faith, gender and sexuality are emerging as key loci around which contemporary people (especially young people) are trying to forge new social identities for themselves. The course will conclude by examining the recently emerging (and highly contested) concept of 'global citizenship'. Graded on A-F basis only.

**Credit Hours:** 3

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**POL\_SC 2293W: Globalization, Identity and Citizenship - Writing Intensive**

(same as PEA\_ST 2293W, GEOG 2293W). This course examines the forces of globalization that are transforming our world, and explores the various responses -- psychological, social and political -- that people have been making over the past fiJy years. Part I examines globalization as an economic and geographical process, generating huge social consequences, with rapid growth, population movements, political change and a vast gap between global wealth and poverty. Part II focuses on the ways in which individuals are now seeking to find themselves in this globalizing world. Emphasis will be placed on the ways in which national iden]ty, faith, gender and sexuality are emerging as key loci around which contemporary people (especially young people) are trying to forge new social identities for themselves. The course will conclude by examining the recently emerging (and highly contested) concept of 'global citizenship'. Graded on A-F basis only.

**Credit Hours:** 3

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**POL\_SC 2410: The Politics of International Law**

This course provides an introduction to the development and evolution of international law. Using contemporary events and international relations theory, we explore the origins of international law, discuss why (or why not) states choose to comply, and consider important areas such as war, trade, environmental protection, and human rights to determine the importance of international law in the contemporary international system.

**Credit Hours:** 3

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**POL\_SC 2425: Race and the American Story**

(same as BL\_STU 2425, CNST\_DEM 2425). This course represents a collaboration between the University of Missouri's Department of Black Studies and the Kinder Institute on Constitutional Democracy. Building upon the existing Citizenship@Mizzou program, the course aims to carry forward the goals of the Citizenship program and to further solidify and magnify its impact on campus. In so doing, the course will also serve as a model for improving diversity education on campuses across the country and contribute to a more informed and unified national culture. The core syllabus will consist in readings that tell the story of the confrontation between American political principles and the practice of racial injustice throughout our history. Students will read and discuss the Declaration of Independence, the slavery clauses in the Constitution, the poetry of Phillis Wheatley, and the speeches of Frederick Douglass, Abraham Lincoln, and Martin Luther King, Jr., among others. They will achieve a greater understanding of how diversity relates to humanity, and will learn to dialogue productively and civilly with others who may not share their background or opinions.

**Credit Hours:** 3

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**POL\_SC 2445: American Constitutional Democracy**

(same as HIST 2445, CNST\_DEM 2445) This course offers an introduction to American constitutional democracy. On the one hand, this course will strive to set the development of America's constitutional democracy into its historical context and to explain it in relation to larger social, political, military, and economic events. A second emphasis is on the nature and character of the American democratic system. Graded on A-F basis only.

**Credit Hours:** 3

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**POL\_SC 2450: The Intellectual World of the American Founders**

(same as CNST\_DEM 2450). This course demonstrates that truly understanding the American constitutional and democratic traditions begins with acknowledging and studying how, in framing the Constitution and in imagining the new nation, the Founders drew on the work and cobbled together the ideas of thinkers from multiple eras and continents and, moreover, thinkers of vastly different political ideologies and disciplinary expertise.

**Credit Hours:** 3

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**POL\_SC 2450H: The Intellectual World of the American Founders - Honors**

(same as CNST\_DEM 2450H). This course demonstrates that truly understanding the American constitutional and democratic traditions begins with acknowledging and studying how, in framing the Constitution and in imagining the new nation, the Founders drew on the work and cobbled together the ideas of thinkers from multiple eras and continents and, moreover, thinkers of vastly different political ideologies and disciplinary expertise.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**POL\_SC 2455: Constitutional Debates**

(same as CNST\_DEM 2455). While we will make reference to the work of canonical political thinkers from the Western tradition during the semester--and while we will also, at times, take a broadly philosophical approach to describing certain of the Founders' theses on governance--

this is not a course in 'high theory.' Instead, our examination of the process of drafting and ratifying the United States Constitution will be more pragmatic in nature, focusing on the practical problems and questions concerning national governance that shaped the final design of the Constitution. At the same time, this description of the class as one that addresses the Constitution in terms of the practical problems that the Founders saw it solving drastically understates the complexity and contentiousness of the subject matter that we will be examining. Specifically, the readings for the course will allow us to identify the ways in which, and reasons for which, the Founders disagreed not only on how to solve the problems of governance that the nation faced in 1787 but, moreover, on what these problems actually were. With regard to this task of understanding the principles underlying the heated debates that arose during the drafting and ratification process, it should be noted that this is not a class in Framer-worship. While we will discuss why the Federalists ultimately 'won the day,' we will also devote significant attention to how the Anti-Federalists both profoundly influenced how we understand constitutional democracy in the United States and provided an intellectual lineage that still informs contemporary political debate. We will, that is, give each side their due. In addition, we will conclude the semester by considering the Constitution's post-ratification history, looking at a handful of Supreme Court decisions and constitutional amendments in order to think about some of the questions that the 1787 Constitution left unanswered and some of the problems that it left un-solved.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 2455H: Constitutional Debates - Honors**

(same as CNST\_DEM 2455H). While we will make reference to the work of canonical political thinkers from the Western tradition during the semester--and while we will also, at times, take a broadly philosophical approach to describing certain of the Founders' theses on governance--this is not a course in 'high theory'. Instead, our examination of the process of drafting and ratifying the United States Constitution will be more pragmatic in nature, focusing on the practical problems and questions concerning national governance that shaped the final design of the Constitution. At the same time, this description of the class as one that addresses the Constitution in terms of the practical problems that the Founders saw it solving drastically understates the complexity and contentiousness of the subject matter that we will be examining. Specifically, the readings for the course will allow us to identify the ways in which, and reasons for which, the Founders disagreed not only on how to solve the problems of governance that the nation faced in 1787 but, moreover, on what these problems actually were. With regard to this task of understanding the principles underlying the heated debates that arose during the drafting and ratification process, it should be noted that this is not a class in Framer-worship. While we will discuss why the Federalists ultimately 'won the day,' we will also devote significant attention to how the Anti-Federalists both profoundly influenced how we understand constitutional democracy in the United States and provided an intellectual lineage that still informs contemporary political debate. We will, that is, give each side their due. In addition, we will conclude the semester by considering the Constitution's post-ratification history, looking at a handful of Supreme Court decisions and constitutional amendments in order to think about some of the questions that the 1787 Constitution left unanswered and some of the problems that it left un-solved.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required; POL\_SC 1100

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**POL\_SC 2500: The Science of Politics**

This course provides an introduction to the Science of Politics. We will consider a variety of research methods, including historical case study research, field research, quantitative analysis, survey research, experimental techniques, and more. Whatever the research method, one of the central objectives of the course is for students to come away with a clear understanding of how to evaluate causal relationships in the political world. The course is also chock-full of real world applications, with the goal of using actual science to empower you in three ways. First, you will appreciate that the root of science is skepticism and logic, allowing you to make freer choices and to become a better problem solver. Second, in this course you will become a practiced consumer of social science, giving you substantial power to understand, evaluate, and utilize scientific knowledge, whether you choose to work in politics, journalism, industry, government, or elsewhere. Third, the course will provide you with actual research explaining why politicians seek and win elections, why countries go to war, why we follow our parents' political ideologies, why some countries are rich and others poor, and so much more of vital importance for our planet. To think scientifically, in short, is to develop understanding of humanity, seeing the invisible yet powerful forces that shape our lives. Graded on A-F basis only.

**Credit Hours:** 3

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**POL\_SC 2600: Canadian Politics and Government**

Introductory survey of Canada, including constitutional development, governmental institutions, political participation, and Canadians' political attitudes and behaviors.

**Credit Hours:** 3

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**POL\_SC 2700: Comparative Political Systems**

Analysis of major political systems selected from Europe, Asia, Africa, and Latin America, emphasizing basic concepts of comparative political study.

**Credit Hours:** 3

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**POL\_SC 2710: Politics and the Military**

Comparative study of post-cold war civil-military relations; military as an interest group, change agent, policy instrument and competitor of civilian politicians.

**Credit Hours:** 3

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**POL\_SC 2720: European Democracies**

This course provides an introduction to the institutions and issues in contemporary European political systems. It covers domestic institutions and policies as well as the developments of the European Union.

**Credit Hours:** 3

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**POL\_SC 2800: Liberty, Justice and the Common Good**

(same as CNST\_DEM 2800). Selected great political theorists and their contemporary relevance. How to think critically about political ideas and ideologies.

**Credit Hours:** 3

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**POL\_SC 2860: American Political Thought**

Examines major themes that shaped three centuries of American political thought, including slavery, religion, and the tension between unity and difference. Readings are drawn from primary sources (Jefferson, Adams, Mason, Tocqueville, Calhoun, Lincoln, Stowe, Baldwin) as well as contemporary analytic commentary on those sources (Bercovitch, Hartz, Wolin, Guinier, Morrison).

**Credit Hours:** 3

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**POL\_SC 3000: Introduction to Political Research**

This course is an introduction to the systematic analysis of political phenomenon. It examines the meaning of 'explanation' and 'causal reasoning.' and research strategies designed to make valid causal inferences. The course overview experimental design, measurement, hypothesis formulation and testing, and the display of information, using substantive examples from two or more fields of political science for illustrative purposes. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing; C- or higher in STAT 1200, STAT 1300, STAT 1400, STAT 2200, or STAT 2500 or C- or higher in MATH 1300, MATH 1400, or MATH 1500

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**POL\_SC 3000W: Introduction to Political Research - Writing Intensive**

This course is an introduction to the systematic analysis of political phenomenon. It examines the meaning of 'explanation' and 'causal reasoning.' and research strategies designed to make valid causal inferences. The course overview experimental design, measurement, hypothesis formulation and testing, and the display of information, using substantive examples from two or more fields of political science for illustrative purposes. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing; C- or higher in STAT 1200, STAT 1300, STAT 1400, STAT 2200, or STAT 2500 or C- or higher in MATH 1300, MATH 1400, or MATH 1500

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**POL\_SC 3164: Nation Building through a Barrel of a Gun**

(same as MIL\_SC 3164). This course was developed to provide students the opportunity to examine the dilemmas of military intervention, nation-building/peacekeeping operations and exit strategies. This course is designed to challenge students to think critically and arrive at their own conclusions about the use of military power to settle differences between nations, and use of military forces to conduct nation building.

**Credit Hours:** 3

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**POL\_SC 3165: 'Chasing Ghost', The History of Irregular Warfare**

(same as MIL\_SC 3165). This course explores the history of irregular warfare from the guerrilla perspective. The course examines the works of Mau Tse-Tung, Che Guevara, T.E. Lawrence and several other guerrilla leaders. You will analyze the evolution of irregular warfare through history and understand the complexities associated with the difficulties of countering and defeating irregular warfare. Graded on A-F basis only.

**Credit Hours:** 3

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**POL\_SC 4000: Introductory Statistics for Political Science**

Basic course in applied statistics and inference using extensive examples from voting behavior, congressional behavior, international relations and public policy. Topics included nonparametric measures, probability, and rudimentary hypothesis testing; computer applications with political data using SAS. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or MATH 1120 or equivalent, concurrent enrollment in POL\_SC 4010

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**POL\_SC 4004: Topics in Political Science - Social Science**

Organized study of selected topics. Subjects and earnable credit vary from semester to semester.

**Credit Hour:** 1-99

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**POL\_SC 4004W: Topics in Political Science - Social Science - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit vary from semester to semester

**Credit Hour:** 1-99

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**POL\_SC 4010: Computing Methods**

(cross-leveled with POL\_SC 7010). Develops computer-based skills with political science data. SAS, and other packages used in mainframe and PC environments. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** concurrent enrollment in POL\_SC 4000

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**POL\_SC 4100: Political Parties and Election Campaigns**

Development, organization, functions, activities of major and minor political parties; principles and procedures of managing campaigns; campaign finance; election administration.

**Credit Hours:** 3

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**POL\_SC 4110: Political Behavior**

Economic, psychological, and social dimensions of political behavior; participation, leadership and elites; political attitudes; voting behavior and decision-making processes.

**Credit Hours:** 3

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**POL\_SC 4120: Politics and the Media**

The role and importance of mass media in the political process, primarily the U. S. Constitutional protections of the press, politics of media control, political news and advertising, effects of information on election campaigns, political institutions, and policymaking.

**Credit Hours:** 3

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**POL\_SC 4120W: Politics and the Media - Writing Intensive**

The role and importance of mass media in the political process, primarily the U. S. Constitutional protections of the press, politics of media control, political news and advertising, effects of information on election campaigns, political institutions, and policymaking.

**Credit Hours:** 3

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**POL\_SC 4130: African-American Politics**

(same as BL\_STU 4130). Surveys political participation of African-Americans in American politics. Analyzes their public lives in the context of elections, behavior of political organizations, social movements, parties, and level of government.

**Credit Hours:** 3

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**POL\_SC 4131: Race and Politics**

This course provides a selective survey of the vast literature on race and politics in the contemporary United States. Our purpose is to understand the complex relationship between racial and ethnic identity and political outcomes in the United States. As such, we will explore broad political science concepts in the context of racial and ethnic groups. We will focus on African Americans and Latino/as in this course, but where appropriate, we will look to Asian Americans and Native Americans.

**Credit Hours:** 3

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**POL\_SC 4132: Race, Immigration, and Urban Politics**

The global world is increasingly an urban world: about half of humanity lives in cities and this trend is expected to continue apace. In the United States, over 80 percent of people live in metropolitan regions. Urban areas present enormously complex opportunities and challenges, from the perceived failure of urban public schools, to seemingly intractable racial inequalities, to the integration of a new wave of immigrants, to affordable housing, to efficient public transportation. On the other hand, cities have long been heralded as places of opportunity, spaces of economic development, entrepreneurship, and multiculturalism. Under what conditions are urban spaces socially just, diverse, and prosperous? Under what conditions do they become spaces contested by different interest groups? Cities are the canvas upon which many of the most pressing social issues of our day are being constructed. This course will give students an interdisciplinary understanding and analysis of these urban social problems, by bridging the literature on urban politics with that on urban geography. The complexity of urban issues calls for diverse perspectives in order to imagine creative responses. Approaching the urban experience from qualitative and quantitative perspectives will help students address structural as well as individual solutions to the problems urban residents face.

**Credit Hours:** 3

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**POL\_SC 4140: Congress and Legislative Policy**

Study of national and state legislative systems and legislative policy making, with emphasis on Congress.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4150: The American Presidency**

Evolution of the presidency; particular emphasis on constitutional and political roles played by chief executive in shaping public policy.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4150W: The American Presidency - Writing Intensive**

Evolution of the presidency; particular emphasis on constitutional and political roles played by chief executive in shaping public policy.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4160: Interest Groups**

Development, organization, functions, activities, internal politics of special interest groups such as business, labor, agricultural and public interest groups; lobbying and techniques for influencing public policy in the American political system.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4160W: Interest Groups - Writing Intensive**

Development, organization, functions, activities, internal politics of special interest groups such as business, labor, agricultural and public interest groups; lobbying and techniques for influencing public policy in the American political system.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4170: Politics of the American South**

This course focuses on the politics of the American South in the latter part of the 20th century and the early years of the current millennium. For undergraduate credit only.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4180: Politics and Hollywood**

This course examines the impact of entertainment media on politicians, the public, and politics in the United States. We will examine the worlds of film, television, and celebrity involvement in politics.

**Credit Hours:** 3

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**POL\_SC 4180W: Politics and Hollywood - Writing Intensive**

This course examines the impact of entertainment media on politicians, the public, and politics in the United States. We will examine the worlds of film, television, and celebrity involvement in politics.

**Credit Hours:** 3

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**POL\_SC 4190: Elections and Democracy in the United States**

This is a class on United States election processes and their relationship to democratic governance. By election processes I mean the rules and procedures under which elections are contested. These include franchise, balloting methods, vote aggregation rules, apportionment, districting and related subjects. The class does not engage public opinion, partisanship, voter choice and other subjects typically classified as political behaviors. Elections are a means to an end; that end is normatively defensible democratic governance. Consequently, we discuss these subjects in the context of American democratic thought and ideals. Election processes can either contribute towards our democratic goals and aspirations or detract from them. More precisely, different election methods privilege different democratic values. To understand whether United States elections work well or poorly one must understand the democratic ideals that have most deeply influenced the American experience. We study election processes from a historical development perspective informed by political thought. However, our assessment of United States elections is deeply informed by contemporary theory and empirical analysis.

**Credit Hours:** 3

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**POL\_SC 4200: The American Constitution**

Leading American constitutional principles as they have evolved through important decisions of the United States Supreme Court.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4200W: The American Constitution - Writing Intensive**

Leading American constitutional principles as they have evolved through important decisions of the United States Supreme Court.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4210: Constitutional Rights**

Survey of Supreme Court cases involving the Constitution's protections for life, liberty, and property and guarantee of equal protection of the law.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4210W: Constitutional Rights - Writing Intensive**

Survey of Supreme Court cases involving the Constitution's protections for life, liberty, and property and guarantee of equal protection of the law.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4220: The United States Supreme Court**

Role of Supreme Court in American system of government; particular attention given to reading biographies and writings of the Justices.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4230: Constitution and Civil Liberties**

Civil liberties in the American constitutional context emphasizing freedom of expression (religion, speech, press, assembly), rights of accused and right to privacy.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4310: Comparative State Politics**

Analyzes similarities and differences of state politics and the ways in which such politics are shaped by political and socioeconomic environments of the states.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4320: Public Policy**

Introduction to the study of public policy in the United States. Analyzes public policy choices at the national, state and local level and the variety of forces which serve to shape policy decisions.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4320W: Public Policy - Writing Intensive**

Introduction to the study of public policy in the United States. Analyzes public policy choices at the national, state and local level and the variety of forces which serve to shape policy decisions.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4370: Law, Policy, and Regulation**

Off in the quiet corners of the policy process, public servants distribute public benefits, write rules that have the force of law, adjudicate conflicts and selectively enforce the law. Frequently the government delegates these tasks to non-profit organizations. These public and quasi- public administrative organizations play, therefore, a critical role in the politics of who gets what, when and how - the essential question of public policy. Administrative organizations in the United States play this powerful role, however, within a constitutional democracy. This course focuses on policymaking through the administrative state and the relationship between the administrative state, democracy and the U.S. Constitution.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4380: Politics of Criminal Justice**

Course explores the political motivations for and the substantive consequences of state and federal criminal justice policy in the United States.

**Credit Hours:** 3

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**POL\_SC 4390: United States Health Politics and Policy**

This course deals with the politics and public policy of health in the United States. This topic is broader than you may think - when many Americans hear 'health policy,' they probably think first of the Affordable Care Act (Obamacare) and other policies dealing with health insurance. There is no doubt that these issues are important and deserve our attention, they are just the tip of the iceberg of how politics and policy affect the health of the US population. In addition to issues of health insurance coverage, this course will cover topics ranging from the quality of medical care, to socioeconomic disparities in health outcomes, to substance abuse and addition, to gender and reproductive health, to the question of what counts as a 'disease,' and more. All of these issues are deeply political, whether you may realize it or not, and all present public policy challenges. In addition to building your subject matter knowledge, this course will help you to develop critical thinking and argumentation skills about public policy issues. It will also give you experience in conceiving and drafting a policy memo, a common format of written communication in the policy world.

**Credit Hours:** 3

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**POL\_SC 4400: Theories of International Relations**

Surveys Theories of International Relations. Analyzes conceptions of decision-making, foreign policy behavior and international society. Prerequisites: junior standing

**Credit Hours:** 3

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**POL\_SC 4410: Politics and War**

(same as PEA\_ST 4410). Why do wars occur? The functions of force and uses of a threat of force. Problems of national security strategy and arms control.

**Credit Hours:** 3

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**POL\_SC 4411: Genocide, Terrorism and Civil War**

This course explores the conditions that lead to the initiation, escalation and termination of civil wars as well as the causes and targets of terrorism and the effects of genocide.

**Credit Hours:** 3

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**POL\_SC 4412: Strategy and Warfare**

Examines strategic theory, traditional forms of warfare (on land, sea, and in the air), as well as irregular warfare and terrorism. Additional topics include weapons of mass destruction, deterrence, and technology.

**Credit Hours:** 3

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**POL\_SC 4413: Politics of Cyber-Security**

This course is an introduction to the politics of cyber-security. It will discuss what cyber-security is, from both a technical and political standpoint; examine the importance of cybersecurity for global economic activity and national security; and discuss current technical, political, and ethical debates over cyber-security topics. The course will focus largely on cases and applications of cyber-security knowledge fro students in the social sciences, and will include guest lectures, either virtual or in-person, from leading national and state-level civilian and military practitioners on the topic. In order to understand the mechanics of cyber-security and the technical issues at stake, students will also take an online Security + training course, with guidance and discussion during the class and will leave with an entry-level certification for employment in the field. By the end of the semester, students will understand the technical basics and key political debates around major cyber-security topics; be familiar with a range of cases where cyber-security directly affected global commerce and international/national security; and be able to apply their knowledge to current events and professional environments.

**Credit Hours:** 3

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**POL\_SC 4415: Peacekeeping and Intervention**

This course will survey the causes and consequences of peacekeeping and intervention as well as assess the conditions that lead to successful and failed missions.

**Credit Hours:** 3

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**POL\_SC 4420: Politics of International Economic Relations**

Study of reciprocal interaction between global politics and economics. Includes politics of north/south relations, multinational non-state actors, arms transfers and dependency.

**Credit Hours:** 3

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**POL\_SC 4430: Global Human Rights**

Human rights violations are widespread. The majority of of the world's citizenry lives with inadequate civil and political and economic, social, and cultural rights, often with dire consequences on economic and human security. What caused this situation? And, moreover, what can be done



to fix it? This course focuses on the social scientific study of human rights. We will focus on scientific explanations of the rise of the human rights movement, political and economic explanations for human rights conditions, and the effects of advocacy efforts concerning human rights. After this class, you will have not only an understanding of the major players and factors influencing human rights, but a base understanding of the social scientific processes which govern human rights conditions and improvements. As such, this class is not a history class or a class on current events. Though current and historical events will be discussed, your grade will not depend on your rote memorization of these events. Instead, the focus will be on understanding the underlying interests of important actors towards human rights, the arenas in which these actors interact, and the rules which govern their interactions. This focus on the basic principles will provide you with a rich practical knowledge of human rights. At the conclusion of the course, you will be able to actively engage with the global human rights community.

**Credit Hours:** 3

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**POL\_SC 4440: International Organization**

Forms and functions of governmental (United Nations, European Union, NATO) and nongovernmental international organizations.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4540: American Foreign Policies**

Bases, formulation, evaluation of current American foreign policies.

**Credit Hours:** 3

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**POL\_SC 4540W: American Foreign Policies - Writing Intensive**

Bases, formulation, evaluation of current American foreign policies.

**Credit Hours:** 3

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**POL\_SC 4550: Environmental Conflict**

This course introduces advanced undergraduate students to the linkages between the environment and conflict. This includes the use of natural resources to fund rebellion, the relationship between human-induced environmental stress and political violence, and competition between states over resources. During the course students will develop a basic understanding of climate change science, conflict studies, and conflict management strategies employed by local, regional, and international actors.

**Credit Hours:** 3

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**POL\_SC 4600: Latin American Politics**

Development, present status of political institutions in South America; emphasizes current political problems.

**Credit Hours:** 3

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**POL\_SC 4610: European Political Systems**

Comparison of political cultures, institutions, and processes of Britain, France, West Germany, and selected smaller countries in Western Europe.

**Credit Hours:** 3

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**POL\_SC 4630: The Politics of Modern Europe**

The course is an introduction to the politics of modern Europe. Europe provides an ideal setting to explore the central concepts and debates of comparative politics in industrialized countries. The course introduces the wide variety of political institutions, political economics and cultures existing in contemporary Europe and probes the question how such discrepancies might affect political outcomes and the possibility to coordinate EU policy. Several central topics in comparative politics, including political parties, elections, the welfare state, civil society and corruption will be introduced with application to modern European democracies. Graded on A-F basis only.

**Credit Hours:** 3

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**POL\_SC 4640: African Politics**

(same as BL\_STU 4640). A general comparative course focusing on post-independent Africa. Theories and concepts related to decolonization, nationalism, democratization, and ethnicity; also institutional forms and organizations: political parties, parliaments, and executives.

**Credit Hours:** 3

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**POL\_SC 4660: Canada in North America**

This course focuses on the role of Canada in North America. The main topic areas include the evolution of Canada as a political system; political structures and processes; regionalism and social movements; political, economic and social connections with North America; and the future of Canada in North America.

**Credit Hours:** 3

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**POL\_SC 4670: The Political System of the European Union**

This course examines the politics, political actors, and institutions of the European Union from a comparative perspective. It questions whether we can view the EU as a federal democratic system similar to the U.S.

**Credit Hours:** 3

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**POL\_SC 4680: Chinese Politics and Foreign Policy**

This course is intended to introduce you to the history and analysis of Chinese politics and foreign policy since 1949. The course has two main goals. The first is that during the semester, you should learn the key historical events in Chinese political development and foreign policy. Second, you will examine these events and developments in light of major theories in comparative politics and international relations.

**Credit Hours:** 3

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**POL\_SC 4690: Korean Politics: North and South Korea**

(same as KOREAN 4690). This course is an introduction to the development of North and South Korea since 1945. By the end of the semester, students will 1) Know the key events and historical trends in the political development and foreign policy of the two Koreas 2) Be able to explain these developments using major theories in comparative politics and international relations We will focus on processes of continuity and change, both for the two political systems and for the everyday lives of individuals on both sides of the DMZ. We will explore the questions and topics covered in the course using historical, literary, and audiovisual materials.

**Credit Hours:** 3

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**POL\_SC 4695: Understanding Korea Through Film**

This course will familiarize students with major historical developments, substantive political issues, and theoretical debates in the study of Korea's twentieth-century history and politics. The course touches on issues such as the impact of colonialism, revolution, civil and international conflict, political economy and corruption, contemporary social issues, and authoritarian and democratic political development in both North and South Korea. The course pairs analytical and explanatory readings with weekly films - either documentary or non-documentary - to interrogate major social and political developments on the Korean peninsula since the start of the twentieth century.

**Credit Hours:** 3

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**POL\_SC 4700: America's Wars in Asia/War and Peace in Asia**

This course is an introduction to the causes and character of conflict in Asia, especially the conflicts that either have involved or could plausibly involve the United States of America. These conflicts often combine aspects of civil conflict with aspects of international politics, and one of the important themes of the course will be to look at Asia's conflicts through both of these lenses. In addition, we will examine America's foreign policy options and how it selected strategies to deal with these conflicts. By the end of the semester, students will 1) Be familiar with the key historical events and concepts related to conflict in East Asia 2) Be able to explain these developments using a range of major theories and conceptual lenses in comparative politics and international relations. The course will explore the questions and topics covered in the course using historical, literary, and audiovisual materials.

**Credit Hours:** 3

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**POL\_SC 4710: Terrorism: Religious, Ethnic and Ideological Politics**

Terrorism as political violence extending beyond the acts themselves. Examines major modern movements, e.g. Northern Ireland, Basques (Spain), Germany, Algeria, Arab-Israeli, Iran, India, Sri Lanka, Peru, Argentina, Uruguay.

**Credit Hours:** 3

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**POL\_SC 4720: Politics of Development**

(same as BL\_STU 4720). Comparative, interdisciplinary analysis of the politics of developing countries in Asia, Africa, and Latin America. Special attention given to the problems of political and socioeconomic development.

**Credit Hours:** 3

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**POL\_SC 4730: Women and Politics**

(same as WGST 4730). This course examines women's political participation and public policies towards women in countries around the world.

**Credit Hours:** 3

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**POL\_SC 4750: Power and Money**

This course provides an introduction to comparative political economy by focusing on the following questions. How and why do governments promote economic prosperity? Does democracy make people richer or poorer? Is it true that 'money is power'? Can poor countries enjoy a stable democracy?

**Credit Hours:** 3

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**POL\_SC 4770: Comparative Political Behavior**

Explores research questions related to cross-national differences and similarities in public opinion formation, political culture and values, voting behavior, and other forms of political participation. Violent forms of political participation are also considered. Graded on A-F basis only.

**Credit Hours:** 3

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**POL\_SC 4780: Dictatorship and Democracy**

Why did the Arab Spring happen? Will China survive or collapse? Did North Korea's new dictator Kim Jong Un really execute his old girlfriend? Throughout history, the majority of the world's regimes have been dictatorships rather than democracies. This course is an introduction to the causes and character of contemporary authoritarian and democratic regimes: how and why they are created, why they survive, why people resist dictatorship or don't, and why regimes survive or fall. We will use academic articles, news stories, and films to study dictatorship and democracy. You will come away from this course with an understanding of the major theoretical debates about dictatorship and democracy, and how these debates apply to important countries and issues in the world today.

**Credit Hours:** 3

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**POL\_SC 4790: The Age of Democratization?**

Democracy has become a global norm. After repeated waves of democratization, democracy has now reached all corners of the world and spread far beyond the affluent West. How can we understand transitions to democracy and democratic stability? What is the relationship between democracy and development and what can America and other Western powers do to promote democracy abroad? Although democracy has been on the rise in the last decades we have also seen new challenges emerge. Many countries have adopted democratic facades hiding the persistent stability of authoritarianism. We have also seen the rise of China and Russia in world politics, creating a powerful counterweight to the previously dominant liberal order. How will this change affect the prospects for democratization in the future? These and other questions will be debated in this course as students will be introduced to central question, theories, and findings in comparative democratization.

**Credit Hours:** 3

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**POL\_SC 4800: Classical Political Theory**

(same as AMS 4800, CNST\_DEM 4800; cross-leveled with AMS 7800). Great Greek, Roman, and Medieval political theorists on the relation of psychology, ethics, politics, and the best form of government.

**Credit Hours:** 3

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**POL\_SC 4810: Modern Political Theory**

(same as CNST\_DEM 4810). Great political theorists from Machiavelli through Marx on the nation state, capitalism, liberalism, conservatism, and Marxism.

**Credit Hours:** 3

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**POL\_SC 4820: Contemporary Political Theory**

Great contemporary thinkers on Western vs. Eastern Marxism, existentialism, critical theory, political theologies, postmodernism, feminism, environmentalist ideologies, biological approaches to politics.

**Credit Hours:** 3

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**POL\_SC 4830: Democracy in America (and Elsewhere)**

(same as CNST\_DEM 4830). This course focuses on the dynamics of democracy. We will explore various topics in the history, development, and practice of democracy through an examination of the writings of Alexis de Tocqueville, one of the most insightful and prescient observers of American political culture.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4840: Developing Dynamics of Democracy**

(same as POL\_SC 4840). This course examines developments in the theory and practice of democracy from the ancient Greeks to the present. Beginning with the origins of democracy in the Hellenic city states, we consider the transformation of democratic concepts in the classical liberal period, review the development of democratic institutions in the United States and Europe, examine the emergence of supra-national democratic institutions such as the European Union, and assess the future of democratization in the 21st century.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4850: Scots and the Making of America**

(same as CNST\_DEM 4850). This class is on the influence of the Scottish Enlightenment on the founding of the United States. The Scottish Enlightenment refers to uniquely Scottish advances in social, political, scientific and literary thought that transpired in the 18th and early 19th centuries. This line of thought, especially in its social and political dimensions, was especially influential in shaping the founding of the United States.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4850H: Scots and the Making of America - Honors**

This class is on the influence of the Scottish Enlightenment on the founding of the United States. The Scottish Enlightenment refers to uniquely Scottish advances in social, political, scientific and literary thought that transpired in the 18th and early 19th centuries. This line of thought, especially in its social and political dimensions, was especially influential in shaping the founding of the United States.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100, Honors eligibility required

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**POL\_SC 4900: Beltway History and Politics: American Constitutional Democracy in Theory and Practice**

(same as HIST 4900, CNST\_DEM 4900). This course is an experiential overview of American political history for students on the Kinder Forum's Washington program, showing how American constitutional democracy was developed and implemented right here on the Potomac, as much as possible in the actual places where the events occurred. Emphasis will be placed on interplay between constitutional theory and actual political

experience over time, and the tensions and institutional changes that emerged as Americans and their government coped with cataclysmic social changes, unparalleled economic development, and fearsome international challenges.

**Credit Hours:** 3

**Prerequisites:** This course is limited to students participating in the Kinder Scholars Washington D.C. Internship program

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**POL\_SC 4940: Political Science Internship**

Work experience in a public or private organization that is relevant to the political science major coordinated by a faculty member.

**Credit Hour:** 3-6

**Prerequisites:** junior standing with a 3.0 GPA; or senior standing with 2.67 GPA. Must be in good standing

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**POL\_SC 4975: Journal on Constitutional Democracy**

(same as HIST 4975, CNST\_DEM 4975). The journal is sponsored by the Kinder Institute on Constitutional Democracy and staffed by current former participants in the institute's undergraduate Society of Fellows program. Each volume of the journal is organized around a student-selected idea or era central to the historical development and philosophical foundations of constitutional democracy in the United States. Student-authored essays address this theme via arguments and historical overviews crafted from the close reading and analysis of primary source documents, with the exception being that participating in the journal will relate back to and advance students' study of American political thought and history.

**Credit Hour:** 1-3

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**POL\_SC 4985: Problems in Political Science**

Independent investigation to meet needs of the individual student.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**POL\_SC 4986: Special Readings in Political Science**

Independent readings selected in consultation with supervisory faculty member.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**POL\_SC 4996: Political Science Capstone, Honors**

Special readings, reports in the several fields of political science. For political science Honors students.

**Credit Hour:** 1-6

**Prerequisites:** senior standing. Honors eligibility required

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**POL\_SC 7000: Introductory Statistics for Political Science**

Basic course in applied statistics and inference using extensive examples from voting behavior, congressional behavior, international relations and public policy. Topics included nonparametric measures, probability, and rudimentary hypothesis testing; computer applications with political data using SAS.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or MATH 1120 or equivalent

**Corequisites:** POL\_SC 4010

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**POL\_SC 7010: Computing Methods**

(cross-leveled with POL\_SC 4010). Develops computer-based skills with political science data. SAS, and other packages used in mainframe and PC environments. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** concurrent enrollment in POL\_SC 4000

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**POL\_SC 7085: Problems in Political Science**

Individual study in one of the fields of Political Science.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**POL\_SC 7500: Insurgency and Counterinsurgency**

Why do insurgent movements emerge and end? How do they fight? How do governments and foreign armies respond? This course will address these questions from different perspectives and in different historical and geographic contexts. The course will examine theories and concepts of insurgency and counterinsurgency, as well as strategies and tactics of each. Graded on A-F basis only.

**Credit Hours:** 3

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**POL\_SC 7900: Topics in Strategic Studies**

Organized study of selected topics in Strategic Studies. Subjects vary from semester to semester. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

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**POL\_SC 8085: MA Research in Political Science--Non-Thesis**

Independent research not leading to a thesis. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**POL\_SC 8090: MA Research in Political Science--Thesis**

Independent research leading to thesis. Graded on S/U basis only.

**Credit Hour:** 1-99

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**POL\_SC 8550: Strategic Studies**

The purpose of this course is to analyze important theories regarding strategic studies. We will explore what makes the militaries of some states highly proficient fighting machines, whereas others seemingly cannot execute the simplest tasks. Beginning with an overview of military history to provide important background, the course covers topics explaining war outcomes and military effectiveness, such as military strategy, regime type, and civil-military relations. Additional topics may be considered. Graded on A-F basis only.

**Credit Hours:** 3

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**POL\_SC 9005: Professional Development in Political Science**

The purpose of this course is to familiarize doctoral students with the expectations of the discipline and requirements for success as a professional political scientist, in graduate training and afterward. It is designed to complement and contribute to but not directly overlap with other courses offered in the Department. Graded on S/U basis only

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**Credit Hour:** 1

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**POL\_SC 9010: Research Design and Analysis**

Research design, social measurement and statistical analysis for study of political phenomena.

**Credit Hours:** 3

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**POL\_SC 9030: Linear Models in Politics**

Linear and non-linear multivariate estimation techniques with applications to political science research.

**Credit Hours:** 3

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**POL\_SC 9040: Advanced Political Methodology**

Analytic strategies and statistical models applicable to social science research. Emphasis on modeling political phenomena. Topics vary, include linear and nonlinear models, multidimensional scaling.

**Credit Hours:** 3

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**POL\_SC 9050: Introduction to Formal Political Theory**

Formal and mathematical models of political institutions and behavior. Topics may include social choice, game theory, spatial models, coalition formation.

**Credit Hours:** 3

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**POL\_SC 9070: Research Design and Qualitative Methods**

Seminar on research design for qualitative research in political science. Topics include case-study, archival, multi-method, and field research and other qualitative methods.

**Credit Hours:** 3

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**POL\_SC 9085: Problems in Political Science**

For graduate students with necessary prerequisite courses. Topics in one of the fields of political science for individual study. Some sections may be offered either on A-F or S/U basis only.

**Credit Hour:** 1-99

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**POL\_SC 9090: Ph D Research in Political Science**

Independent research leading to thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**POL\_SC 9100: American Political Behavior**

Critical examination of literature on political behavior in the United States. Topics include voting and elections, public opinion, parties and interest groups, political psychology, communication, elites, and collective action.

**Credit Hours:** 3

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**POL\_SC 9120: Voting and Elections**

Research seminar on political participation, voter choice, campaigns, and elections, primarily in the United States. Covers theories, approaches and research on electoral behavior.

**Credit Hours:** 3

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**POL\_SC 9140: American Political Institutions**

Critical examination of literature on political institutions in the United States. Topics include Congress, the Presidency, courts, the bureaucracy, political organizations, federalism, and institutional dynamics.

**Credit Hours: 3**

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**POL\_SC 9145: American State Politics**

Research seminar on state government and politics in the U.S. Topics include state culture, mass politics, elections, state executives, legislatures, courts, and public policy.

**Credit Hours: 3**

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**POL\_SC 9150: Political Parties**

Research seminar on the organization and activities of political parties, primarily in the United States. Attention to historical development, nature of party change, functions, elites, membership, political finance, and policy formulation.

**Credit Hours: 3**

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**POL\_SC 9160: Interest Groups**

Research seminar on nonpartisan organizations seeking to influence the public policy agenda. Includes problems of collective action, mobilization and organization of interest groups, strategies and tactics, lobbying, political movements, theories and research.

**Credit Hours: 3**

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**POL\_SC 9170: Legislative Institutions**

Research seminar on the U.S. Congress and legislative institutions generally. Topics include the legislative process, policy change, committees, political parties, leadership, representation, and relations with other branches of government.

**Credit Hours: 3**

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**POL\_SC 9175: Evolution of American Legislatures, 1619 to the Present**

Examination of the organizational evolution of American legislatures from the colonial era to the present.

**Credit Hours: 3**

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**POL\_SC 9180: Executive Politics**

Research seminar on the U.S. Presidency, executive decision-making and influence. Topics include presidential leadership, historical development of the presidency, presidential power, agenda-setting, governors, mayors, and influences on opinion and other branches of government.

**Credit Hours: 3**

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**POL\_SC 9190: Research in American Politics**

Directed research into one or more specific aspects of American Politics, behavior, and institutions.

**Credit Hours: 3**

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**POL\_SC 9210: Civil Rights and Civil Liberties**

Research seminar on the U.S. Constitution, civil liberties, and civil rights. Topics include the First Amendment and freedom of expression and of belief, due process, the rights of the accused, privacy, equal protection, and constitutional interpretation. Graded on A-F basis only.

**Credit Hours: 3**

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**POL\_SC 9230: Public Law**

Research seminar on the judicial process in the United States.

**Credit Hours: 3**

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**POL\_SC 9240: Racial and Ethnic Politics**

Theories, institutional processes, and behaviors pertaining to social defined racial and ethnic groups. Topics include social dominance, representation, mobilization, public opinion, and the influence of racial and ethnic factors on the American political process.

**Credit Hours: 3**

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**POL\_SC 9310: Public Policy**

Covers the basic theory, approaches, problems and issues relating to the scope, development and implementation of public policy.

**Credit Hours: 3**

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**POL\_SC 9320: Administrative Politics**

Critical examination of literature relating to selected topics in public bureaucracies.

**Credit Hours: 3**

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**POL\_SC 9330: Research in Policy and Administration**

Contemporary research in public policy, bureaucratic politics, public management and administration.

**Credit Hours: 3**

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**POL\_SC 9400: Introduction to International Relations**

Analysis, evaluation of some basic theories which attempt to explain international affairs.

**Credit Hours: 3**

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**POL\_SC 9430: International Political Economy**

Theories of political economy and current problems such as North-South relations, international trade, monetary relations, aid regimes, and international divisions of labor.

**Credit Hours: 3**

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**POL\_SC 9440: Foreign Policy Analysis**

Research seminar assessing foreign policy decisions and outcomes with particular attention given to decision-making. Both theoretical and empirical methods for testing foreign policy are considered. Approaches include domestic politics, bureaucratic, and psychological models.

**Credit Hours: 3**

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**POL\_SC 9450: International Conflict**

This is an advanced seminar in international conflict. The range of material that might be included is vast, so an effort will be made to balance overall coverage with the need to look in more depth at some especially salient areas in the literature. The seminar unfolds in five parts.

**Credit Hours:** 3

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**POL\_SC 9460: Coercive Diplomacy**

Research seminar on how nations apply political and economic sanctions on other nations in order to compel or entice changes in foreign policy and/or government behavior. How threats (short of conflict) and incentives govern international relations.

**Credit Hours:** 3

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**POL\_SC 9470: Theories of Civil War**

Seminar on why groups may engage in violence against the state or other opposition groups. Topics include causes of civil wars, terrorism as a strategy of violence and possible solutions including third party security, partition, intervention, power sharing and treaty design. Graded on A-F basis only.

**Credit Hours:** 3

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**POL\_SC 9480: Human Security**

Seminar on cross-national civil, political, economic, social, and cultural rights. The determinants of human security issues and the efficacy and dynamics of efforts from intergovernmental organizations, foreign aid, peacekeeping, interventions, and treaties on human rights.

**Credit Hours:** 3

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**POL\_SC 9490: Selected Themes in International Relations**

Graduate seminar in International Relations. Variable content. May be repeated for credit.

**Credit Hours:** 3

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**POL\_SC 9550: Strategic Studies**

This graduate seminar analyzes important theories regarding strategic studies. The course explores topics such as war outcomes, military effectiveness, military history, military strategy, civil-military relations, counterinsurgency, military innovation, and air warfare. Graded on A-F basis only.

**Credit Hours:** 3

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**POL\_SC 9600: Introduction to Comparative Politics**

Study of theories and approaches to comparative politics in Europe, Asia and/or Latin America.

**Credit Hours:** 3

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**POL\_SC 9610: Latin American Politics**

Research seminar on politics and government in Central and South America. Topics include modernization and dependency theories, civil-military relations, economics adjustment, democratic transitions, and area and country studies.

**Credit Hours:** 3

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**POL\_SC 9645: China and Political Science Research**

This is a graduate-level seminar on Chinese politics and foreign policy since 1949 covering the key historical events in Chinese political development and foreign policy. These events and developments will be examined in light of major theories in and methodological approaches adopted by the subfields of comparative politics and international relations, with the goal of exploring the strengths and weaknesses of alternative perspectives. At the end of the course, students should be familiar with the key debates and questions in the study of Chinese politics and foreign policy, and have a better sense of how to research questions on these topics. The course is also intended to encourage a dialogue between the study of China and the broader fields of comparative politics and international relations. Thus by the end of the course, students should have a sense not only for how the study of Chinese politics and foreign policy applies broader CP/IR theories to explain key patterns and events in China, but also gain insight into the question of what China as a case (or cases) can contribute back to major theories and debates in these fields.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 9600

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**POL\_SC 9690: Democracy and Dictatorship**

Research seminar on comparative politics of authoritarian and democratic regimes. Topics include characteristics and durability of authoritarianism, political institutions under autocracy, tactics of rule, state-society relations, transition and breakdown of regimes.

**Credit Hours:** 3

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**POL\_SC 9700: Democratization**

Research seminar on the third wave of democratization. Classical and contemporary conceptions of democracy, measurement, theories, trends, and influences on democratization across the globe.

**Credit Hours:** 3

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**POL\_SC 9710: Comparative Political Economy**

Interdisciplinary, comparative analysis of political aspects of political economy, rural development, and related issues.

**Credit Hours:** 3

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**POL\_SC 9720: Comparative Political Institutions**

Research seminar on comparative political institutions. Debates in comparative politics on the influence of rules and institutions on political decisions in developed democracies. Topics include political parties, legislatures, governments, and electoral rules.

**Credit Hours:** 3

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**POL\_SC 9730: Comparative Elections and Voting Behavior**

This is a graduate level seminar in comparative political behavior. We will discuss a variety of topics dealing with comparative political behavior, such as the formation of partisan identification, public opinion formation, the decision to vote, organize and protest, and how foreign and domestic policy influence elections. The readings will introduce you to the various methodological techniques--including case studies, quantitative analysis, and agent-based modeling--used to test the empirical expectations of these theories. The goal of this course is to provide a solid foundation

upon which you can build for comprehensive examinations. Graded on A-F basis only.

**Credit Hours:** 3

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**POL\_SC 9790: Seminar in Comparative Politics**

Comparative study of selected aspects of political systems. Variable content. May be repeated for credit.

**Credit Hours:** 3

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**POL\_SC 9901: Topics in Political Science**

Organized study of selected topics. Subjects and earnable credit vary from semester to semester.

**Credit Hour:** 1-99

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**POL\_SC 9970: Independent Readings for Ph.D. Comprehensive Examinations**

Graded on S/U basis only.

**Credit Hour:** 1-9

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## Portuguese Courses

**PORT 1100: Elementary Portuguese I**

This is the first course in the three-part elementary Portuguese-language sequence. The focus is on building common vocabulary and learning basic verb tenses and syntax, as well as other grammar basics such as noun/adjective number and gender, adverbs, and preposition usage. Students gain practice with Brazilian Portuguese through written and oral homework assignments, and in-class structured conversation and discussion of texts, videos, music and additional cultural materials related to Brazilian and other Lusophone cultures. Audio and video recordings provide ample exposure to a variety of native speakers of Brazilian Portuguese, and to a lesser extent of European Portuguese.

**Credit Hours:** 4

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**PORT 1200: Elementary Portuguese II**

This is the second course in the three-part elementary Portuguese-language sequence. The focus is on increasing vocabulary (including common idiomatic expressions) and reviewing basic verb tenses and syntax. The course also includes further study of key grammatical concepts such as irregular and reflexive verbs, progressive and past tenses, the imperative, and pronoun usage. Students gain practice with Brazilian Portuguese through written and oral homework assignments, as well as in-class structured conversation and discussion of texts, videos, music and other cultural materials related to Brazilian and additional Lusophone cultures. Audio and video recordings provide ample exposure to a variety of native speakers of Brazilian Portuguese, and to a lesser extent of European Portuguese.

**Credit Hours:** 4

**Prerequisites:** Grade in the C range or better in PORT 1100 or its equivalent

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**PORT 2100: Elementary Portuguese III**

This is the third course in the three-part elementary Portuguese-language sequence. The focus is on a review of basic verb tenses and syntax, and an introduction to more advanced grammatical structures including

present, past and future subjunctive usages, as well as conditional, future and perfect verb forms. Students continue to build on their existing vocabulary base and to gain practice with Brazilian Portuguese through written and oral homework assignments, as well as in-class structured conversation and discussion of texts, videos, music and other cultural materials related to Brazilian and additional Lusophone cultures. Audio and video recordings provide ample exposure to a variety of native speakers of Brazilian Portuguese, and to a lesser extent of European Portuguese. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** grade in the C range or better in PORT 1200 or equivalent

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**PORT 2160: Intermediate Portuguese**

Review of grammar through Brazilian culture. Designed for students who have taken either PORT 2100 or PORT 4070 and wish to continue studying the language.

**Credit Hours:** 3

**Prerequisites:** Grade in the C range or better in PORT 2100 or equivalent

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**PORT 2310: Brazilian Civilization**

Survey of Brazilian history, arts and culture. Open to any student interested. No knowledge of Portuguese required.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PORT 3001: Topics in Portuguese-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing

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**PORT 3005: Topics in Portuguese-Humanities/Fine Arts**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May repeated for credit with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing

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**PORT 3160: Advanced Portuguese Composition and Conversation**  
Development of more sophisticated skills of written and oral expression.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in PORT 2160

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**PORT 3260: Cinema for Portuguese Conversation**

This course is for intermediate and advanced students of Portuguese and uses film as the basis for teaching vocabulary, strengthening oral and written skills, and presenting Brazilian culture. Graded on A-F basis only,

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in PORT 2160 or equivalent

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**PORT 3420: Survey of Brazilian Literature**

Masterpieces of Brazilian literature in translation from its origins to present.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PORT 3420H: Survey of Brazilian Literature - Honors**

Masterpieces of Brazilian literature in translation from its origins to present.

**Credit Hours:** 3

**Prerequisites:** sophomore standing; Honors eligibility required

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**PORT 3875: Brazilian Cinema**

(same as FILMS\_VS 3875). An introduction to Brazilian cinema, culture and society through the study of contemporary cinematic productions. Topics include: Hollywood perceptions of Brazil; re-definitions of national identity and history, representations of race and gender.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**PORT 3885: Twenty-First Century South American Cinema**

(same as FILMS\_VS 3885, SPAN 3885). Broad overview of the major national cinemas of the 21st century in South America. Approximately 14 feature films screened from Argentina, Brazil, Chile and other nations of the region. Instructor provides a thematic framework for films within the context of film theory, Latin American cinematic history and cultural studies. Course taught in English. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000 or ENGLSH 1000H

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**PORT 4070: Intensive Beginning Portuguese**

Designed for rapid acquisition of a reading knowledge of Portuguese. Cannot be taken to fulfill undergraduate language requirement.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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## Psychiatry Courses

**PSCHTY 6005: Psychiatry Clerkship**

Students see patients with psychiatric disorders in the outpatient clinics, in hospital settings and on consultation services.

**Credit Hours:** 6

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**PSCHTY 6015: Rural Psychiatry Clerkship**

Rural Psychiatry Clerkship

**Credit Hours:** 6

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**PSCHTY 6025: Springfield Psychiatry Clerkship**

Students see patients with psychiatric disorders in the outpatient clinics, in hospital settings and on consultation services.

**Credit Hours:** 8

**Prerequisites:** successful completion of the first two years of medical school

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**PSCHTY 6105: Remediation Psychiatry Clerkship**

Enrolled students are those who received an unsatisfactory grade in a Psychiatry Clerkship at any Mizzou Med location or site. This course gives the student an opportunity to rectify their deficiency.

**Credit Hours:** 6

**Prerequisites:** PSCHTY 6005 Psychiatry Clerkship, received unsatisfactory grade

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**PSCHTY 6363: ABS Psychiatry Research**

ABS Psychiatry Research

**Credit Hour:** 5-10

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**PSCHTY 6630: Narrative Med and the Meaningful Life**

The 4th year medical student will attend didactics and participate in discussions. They will complete suggested readings (short stories, poems and essays), assessments and writing assignments/projects. May be repeated for credit.

**Credit Hours:** 5

**Prerequisites:** 4th year medical student, all core clerkships

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**PSCHTY 6731: Psychiatry Rural Elective**

The 4th year medical student will participate in the evaluation of adult psychiatric patients and child psychiatric patients in a clinical setting.

**Credit Hours:** 5

**Prerequisites:** PSCHTY 6005; restricted to 4th year medical students

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**PSCHTY 6835: Psychiatry Outpatient Clinic**

Psychiatry Outpatient Clinic

**Credit Hours:** 5

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**PSCHTY 6836: Psychiatry Adult Inpatient Service**

Psychiatry Adult Inpatient Service

**Credit Hours:** 5

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**PSCHTY 6837: Psychosomatic Medicine**

Psychosomatic Medicine

**Credit Hours:** 5

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**PSCHTY 6838: Forensic Psychiatry**

Forensic Psychiatry

**Credit Hours:** 5

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**PSCHTY 6839: Child/Adolescent Psychiatry**

Child/Adolescent Psychiatry

**Credit Hours:** 5

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**PSCHTY 6840: Geriatric Psychiatry**

Geriatric Psychiatry

**Credit Hours:** 5

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**PSCHTY 6939: Two Week - Psychiatry Adult Inpatient Service**

The student will work as a member of an inpatient multidisciplinary team and participate in the evaluation and treatment of adults on an acute care inpatient psychiatry service at MUPC. Typical activities include following several patients, observing and conducting psychiatric evaluation, collecting collateral information, reviewing medical records, participation in staffings, rounds and therapeutic groups and documentation in the medical record.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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**PSCHTY 6940: Two Week - Child and Adolescent Psychiatry**

The student will work as a member of an inpatient multidisciplinary team and participate in the evaluation and treatment of children and adolescents on an acute care child inpatient psychiatry service at MUPC. Typical activities include following several patients, observing and conducting psychiatric evaluation, collecting collateral information, reviewing medical records, participation in staffings, rounds and therapeutic groups and documentation in the medical record.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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**PSCHTY 6941: Two Week - Psychiatry Consultation and Liaison**

Students will participate in the psychiatric consultation process for medical rehabilitation, medical and surgical inpatients. The types of patients seen present with a wide spectrum of psychiatric conditions such as depression, substance abuse, anxiety disorders, delirium, dementia, somatoform disorders, personality disorders, psychotic disorders and organic behavior/mood disorders. Typical duties include bedside evaluation in collaboration with attendings and residents, documentation and presentation of findings and recommendations and participation in rounds.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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## Psychology Courses

**PSYCH 1000: General Psychology**

Survey of theories, principles, and methods in the study of human behavior.

**Credit Hours:** 3

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**PSYCH 1000H: General Psychology - Honors**

Survey of theories, principles, and methods in the study of human behavior.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**PSYCH 1003H: Topics in Psychology - Honors - Behavioral Science**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course carries behavioral science distribution credit for non-psychology majors. Repeatable upon consent of department.

**Credit Hour:** 1-3

**Prerequisites:** Honors eligibility required. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 1003HW: Topics in Psychology - Behavioral Science - Honors/Writing Intensive**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course carries behavioral science distribution credit for non-psychology majors. Repeatable upon consent of department.

**Credit Hour:** 1-3

**Prerequisites:** Honors eligibility required. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 1030: Orientation to the Psychology Major**

This course is intended to help students choose the best major for themselves and to provide information on careers available to psychology majors.

**Credit Hour:** 1

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**PSYCH 2001: Topics in Psychology-General**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course may not be used toward behavioral science distribution credit. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** May be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 1000

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**PSYCH 2003: Topics in Psychology-Behavioral Science**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course carries behavioral science distribution credit for non-psychology majors. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** This course may be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 1000

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**PSYCH 2110: Learning, Memory, and Cognition**

Students will gain an understanding of the fundamental principles of learning, memory and cognition, and will be able to recognize important historical figures and their contributions. Students will also learn how the principles can be applied to their everyday lives.

**Credit Hours:** 3

**Prerequisites:** This course may be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 1000

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**PSYCH 2210: Mind, Brain, and Behavior**

Introduction to the structures and processes of the mind and the nervous system, including the psychobiology of eating, sleeping, emotion, stress and learning. No credit if taken after PSYCH 4210.

**Credit Hours:** 3

**Prerequisites:** This course may be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 1000

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**PSYCH 2220: Drugs and Behavior**

Basic principles of drug action on the nervous system; the effects of important psychoactive drugs; drug use and society.

**Credit Hours:** 3

**Prerequisites:** This course may be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 1000

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**PSYCH 2310: Social Psychology**

An introduction to how people's thoughts, feelings and behaviors are influenced by the actual or imagined thoughts, feelings and behaviors of others.

**Credit Hours:** 3

**Prerequisites:** This course may be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 1000

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**PSYCH 2320: Introduction to Personality**

Personality is the scientific study of individual differences (e.g., traits, motives, abilities). This course reviews historical theoretical perspectives as well as current research. Students will have an opportunity to learn about on their own motives and traits.

**Credit Hours:** 3

**Prerequisites:** This course may be restricted to undergraduate psychology majors during Early Registration

**Recommended:** PSYCH 1000

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**PSYCH 2410: Developmental Psychology**

Origins and development of child behavior, emphasizing basic physical, cognitive, affective and social processes, and theory and research rather than application or guidance. Cannot receive credit for more than one of the following: PSYCH 2410, H\_D\_FS 2420 or H\_D\_FS 3420 or ESC\_PS 2500.

**Credit Hours:** 3

**Prerequisites:** This course may be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 1000

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**PSYCH 2410H: Developmental Psychology - Honors**

Origins and development of child behavior, emphasizing basic physical, cognitive, affective and social processes, and theory and research rather than application or guidance. Cannot receive credit for more than one of the following: PSYCH 2410, H\_D\_FS 2420 or H\_D\_FS 3420 or ESC\_PS 2500.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required. This course may be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 1000

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**PSYCH 2510: Survey of Abnormal Psychology**

Basic survey of maladaptive human behavior and experience, including personality disorders, alcohol and drug abuse, anxiety and mood disorders, sexual dysfunctions, and thought disorders.

**Credit Hours:** 3

**Prerequisites:** This course may be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 1000

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**PSYCH 2520: Introduction to Addiction Science**

This class provides an overview of the scientific study of addiction, focusing on a range of theoretical models and their implications for prevention, intervention and treatment. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** PSYCH 1000

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**PSYCH 2810: Human Sexuality**

Survey of research on sexual behavior including sex norms, gender identity, sexual dysfunctions, sexual deviation, homosexuality, and legal aspects of sexual behavior. Attendance at small group discussions may be required at the option of the instructor.

**Credit Hours:** 3

**Prerequisites:** This course may be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 1000

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**PSYCH 2820: Minds, Brains, and Machines**

(same as LINGST 2820 and PHIL 2820). Cognitive science is a many-splendored thing. It draws on a variety of disciplines, including psychology, neuroscience, computer science, linguistics, anthropology, and philosophy. The purpose of this course is to introduce the central questions of cognitive science, the conceptual and empirical tools used to investigate those questions, and some of the answers that have emerged so far. After an initial overview of the foundations of the cognitive-scientific enterprise as a whole, we will see what particular sectors of it have to say about mental capacities such as language, categorization, reasoning, social cognition, and consciousness.

**Credit Hours:** 3

**Prerequisites:** sophomore standing required. May be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 1000

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**PSYCH 2830: Human-Companion Animal Interaction**

Exploration of historical and theoretical bases of human-companion animal interaction (HAI), the nature issues, and clinical applications of HAI. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** May be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 1000

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**PSYCH 2950: Special Problems in Psychology**

Research apprenticeship with a faculty member, assisting a faculty member in the development and execution of research. May be repeated to 6 hours maximum.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

**Recommended:** PSYCH 1000

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**PSYCH 3003: Topics in Psychology-Behavioral Science**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course carries behavioral science distribution credit for non-psychology majors. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3003H: Topics in Psychology-Behavioral Science - Honors**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course carries behavioral science distribution credit for non-psychology majors. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration. Honors eligibility required

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**PSYCH 3003W: Topics in Psychology-Behavioral Science - Writing Intensive**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course carries behavioral science distribution credit for non-psychology majors. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3010: Research Methods in Psychology I**

Introduction to scientific reasoning, assessing validity and reliability in research, and basic research methods.

**Credit Hours:** 3

**Prerequisites or Corequisites:** concurrent enrollment in STAT 1200 or a grade of C or better in STAT 1200 (or its equivalent)

**Prerequisites:** PSYCH 1000. This course is restricted to psychology majors with sophomore standing and above

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**PSYCH 3020: Research Methods in Psychology II**

Continuation of PSYCH 3010 and required for all further labs in psychology.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 with a grade of C- or better or exemption, and PSYCH 1000, and a grade of C or better in PSYCH 3010 and STAT 1200 or exemption. This course is restricted to junior and senior psychology majors

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**PSYCH 3110: Theories of Learning**

Discusses classical issues and theories in learning and conditioning, and considers them in contemporary form.

**Credit Hours:** 3

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**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3110W: Theories of Learning - Writing Intensive**

Discusses classical issues and theories in learning and conditioning, and considers them in contemporary form.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3130: Decisions, Values and Choice**

Survey of factors influencing choices and decisions. Topics include cause and effect decisions, values and ethical considerations, outcome likelihood, biases and heuristics, concept formation, self-control and impulsiveness, and social factors.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3130H: Decisions, Values and Choice - Honors**

Survey of factors influencing choices and decisions. Topics include cause and effect decisions, values and ethical considerations, outcome likelihood, biases and heuristics, concept formation, self-control and impulsiveness, and social factors.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. Honors eligibility required. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3140: Cognitive Psychology**

A survey of psychological theory and research on human cognition.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3150: Human Memory**

Surveys research on human memory, including basic laboratory studies with normal subjects as well as research on amnesia and other memory impairments, life-span memory development, and the cognitive neuroscience of memory.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3160: Perception and Thought**

Covers research on various aspects of mental life: language, problem-solving, decision-making, sensory perception.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3310: Intergroup Relations**

Provides an overview of the social psychological literature on stereotyping, prejudice, discrimination, and intergroup relations. Students

learn theoretical frameworks and research findings regarding the development and maintenance of intergroup conflict.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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#### **PSYCH 3350: Positive Psychology**

This course introduces students to the science of positive psychology, including its origin and the historical imbalances it addresses within the broader field of psychology. A wide variety of topics are covered, including happiness, materialism, purpose, flow, courage, humility, positive emotions, curiosity, mindfulness, savoring, gratitude, forgiveness, personal strengths, resilience, and compassion. Psychology majors cannot receive credit for both PSYCH 3350 and ESC\_PS 4200.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000, This course may be restricted to Undergraduate Psychology Majors during early registration

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#### **PSYCH 3370: The Science of Mindfulness**

To gain breadth and depth in understanding the empirical research on mindfulness and contemplative practices. To do well in the course, students must master the substantive content, psychological methodology, APA-style writing, peer-review, and presentation skills. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000 and a grade of C or better in PSYCH 3010. This course may be restricted to psychology majors through early registration

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#### **PSYCH 3370W: The Science of Mindfulness - Writing Intensive**

To gain breadth and depth in understanding the empirical research on mindfulness and contemplative practices. To do well in the course, students must master the substantive content, psychological methodology, APA-style writing, peer-review, and presentation skills. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000 and a grade of C or better in PSYCH 3010. This course may be restricted to psychology majors through early registration

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#### **PSYCH 3420: Cognitive Development in Childhood**

Theories and research on cognitive development in childhood.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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#### **PSYCH 3430: Social Development in Childhood**

Overview of children's social and emotional development (infancy-adolescence), includes changes in social domains, impact of social functioning on subsequent development, and influence of interpersonal contexts (e.g., family, peers, community) on children's development.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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#### **PSYCH 3430H: Social Development in Childhood - Honors**

Overview of children's social and emotional development (infancy-adolescence), includes changes in social domains, impact of social functioning on subsequent development, and influence of interpersonal contexts (e.g., family, peers, community) on children's development.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. Honors eligibility required. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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#### **PSYCH 3430W: Social Development in Childhood - Writing Intensive**

Overview of children's social and emotional development (infancy-adolescence), includes changes in social domains, impact of social functioning on subsequent development, and influence of interpersonal contexts (e.g., family, peers, community) on children's development.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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#### **PSYCH 3440: Women's Professional Development**

This class takes a lifespan developmental perspective in regards to understanding challenges in women's professional development. Topics include: perceptions and stereotypes of successful women, division of labor in families (housework versus paid work), motherhood and the work place, social policies for working parents, girls' and boys' interests in STEM professions, and gender and workplace economics (starting salaries, negotiation, the gender pay gap). Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to undergraduate psychology majors through early registration

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#### **PSYCH 3440H: Women's Professional Development - Honors**

This class takes a lifespan developmental perspective in regards to understanding challenges in women's professional development. Topics include: perceptions and stereotypes of successful women, division of labor in families (housework versus paid work), motherhood and the work place, social policies for working parents, girls' and boys' interests in STEM professions, and gender and workplace economics (starting salaries, negotiation, the gender pay gap). Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000; Honors eligibility required. This course may be restricted to undergraduate psychology majors through early registration

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#### **PSYCH 3510: Introduction to Clinical Psychology**

Comprehensive survey of the field's historical roots, research methods, concepts of abnormality, assessment and intervention methods; also specialties that constitute clinical psychology.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3510W: Introduction to Clinical Psychology - Writing Intensive**

Comprehensive survey of the field's historical roots, research methods, concepts of abnormality, assessment and intervention methods; also specialties that constitute clinical psychology.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3815: Cross-Cultural Psychology**

We will adopt a psychological approach to the study of the cross-cultural experience. We will spend our time investigating how culture affects and determines human, behavior, thoughts, emotions and interactions with others.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**PSYCH 3815H: Cross-Cultural Psychology - Honors**

We will adopt a psychological approach to the study of the cross-cultural experience. We will spend our time investigating how culture affects and determines human, behavior, thoughts, emotions and interactions with others.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000; Honors eligibility required

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**PSYCH 3825: Psychology at the Movies**

We will watch, discuss, and interpret films from a psychological-social perspective. Connections will be made between cinematic content and contemporary theory and research in psychology and diversity studies. The focus of this course will be on watching and discussing films, as well as on reading and writing about psychological aspects of film.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**PSYCH 3825H: Psychology at the Movies - Honors**

We will watch, discuss, and interpret films from a psychological-social perspective. Connections will be made between cinematic content and contemporary theory and research in psychology and diversity studies. The focus of this course will be on watching and discussing films, as well as on reading and writing about psychological aspects of film. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000; Honors eligibility required

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**PSYCH 3830: Health Psychology**

A hands-on approach to the study of health psychology including research on a topic of current relevance to the field.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3840: Individual Differences**

Surveys individual and group differences. Contributions of various factors to variations in behavior.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**PSYCH 3860: Law and Psychological Science**

This survey course examines the interactions of law and psychology across the justice system. Emphasis is placed on how psychological research does (and does not) inform important legal issues.

Requirements may include an in-class team debate of relevant controversy in law.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3870: Sleep and Sleep Disorders**

This course provides a critical review of the current research on both normal sleep and sleep disorders.

**Credit Hours:** 3

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**PSYCH 3880: African-American Psychology**

(Same as BL\_STU 3100 and ESC\_PS 3100). The research, theories and paradigms developed to understand the attitudes, behaviors and psychosocial realities of African-Americans are discussed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors through Early Registration

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**PSYCH 4001: Topics in Psychology-General**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course may not be used toward behavioral science distribution credit. Repeatable upon consent of department. Enrollment limited to students who have completed PSYCH 1000.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PSYCH 4003: Topics in Psychology-Behavioral Science**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course carries behavioral science distribution credit for non-psychology majors. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 4003W: Topics in Psychology-Behavioral Science - Writing Intensive**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course carries behavioral science distribution credit for non-psychology majors. Repeatable upon consent of department.

**Credit Hour:** 1-6

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 4010H: Topics in Psychology Capstone - Honors**

Students review, evaluate and conduct research on selected topics in psychology. The particular topic will vary by semester and instructor. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required, honors eligibility required

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**PSYCH 4010HW: Topics in Psychology Capstone - Honors/Writing Intensive**

Students review, evaluate and conduct research on selected topics in psychology. The particular topic will vary by semester and instructor. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required, honors eligibility required

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**PSYCH 4010W: Topics in Psychology Capstone - Writing Intensive**

Students review, evaluate and conduct research on selected topics in psychology. The particular topic will vary by semester and instructor. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required

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**PSYCH 4110: Perception**

(cross-leveled with PSYCH 7110). Data and contemporary theories of perception in all of the senses, with emphasis on visual and auditory perception.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 4210: Physiological Psychology**

An introduction to neuroscience with an overview of the relation between the brain and behavior. Topics include intercellular communication, drugs and reward, emotions and stress psych immunology, psychopathology, nervous system development and repair, perception, cognition, learning and memory.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 4220: Animal Behavior and Cognition**

The purpose of this course is to introduce the basic findings, concepts and principles of animal behavior, associative learning, memory and cognition.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 4240: Cognitive Neuroscience**

The neural basis of human information processing in memory, attention, perception, imagery, movement, and language.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 2210 and PSYCH 4210

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**PSYCH 4360: Social Cognition**

The overarching goal of this course is to provide an overview of current research and theory in social cognition. If there is a running theme to this course, it is in the use of 'top down' processes in how we construct an understanding of the world around us. That is, we use our past experiences and memories to interpret new experiences, people and behavior. This fact does not dictate whether that understanding is accurate or not. However, social psychologists have historically been interested in the ways that this process leads to errors or biases in a vast array of human endeavors. This perspective has had a strong impact on the trajectory of social cognition. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to undergraduate Psychology majors during early registration

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**PSYCH 4440: Sex Differences**

This course covers the evolution of sex differences and hormonal and environmental influences on their expressions in nonhuman species. These insights are used to understand human sex differences in mate choices, emotions, development, brain and cognition, and in modern societies.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 4520: Behavior Genetics**

(cross-leveled with PSYCH 7520). The study of genetic influences on behavioral traits such as mood, personality, intelligence, mental health, or activity level.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000; This course may be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** Grade of C or better in PSYCH 3010 and STAT 1200 or higher

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**PSYCH 4530: Research in Psychopathology**

Intensive survey and evaluation of the psychological literature on abnormal behavior, emphasizes experimental and explanatory approaches.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 4540: Emotional Disorders in Childhood and Adolescence**

Surveys disturbed behavioral development during childhood and adolescence, emphasizing factors that produce deviation from normal developmental patterns.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 2410

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**PSYCH 4560: Schizophrenia**

This course will examine one of the most severe, debilitating, and complex mental disorders. We will review the major symptoms and clinical features of schizophrenia, explore possible causes of Psychology disorder, and critically assess treatments for the disorder.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 4561: Psychosis and the Brain**

The goal of this course is to better understand the nature of psychosis that occurs in psychotic disorders such as Schizophrenia and in many other disorders/conditions. The course will take a translational approach to understanding psychosis, focusing on neural mechanisms and their role in behavior. The nature of psychotic symptoms in psychotic disorders, in non-psychotic disorders and in the general population will be examined. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**PSYCH 4570: Pediatric Neuropsychology**

introduction to the field of pediatric neuropsychology and the study of individuals with early brain dysfunction. Common central nervous system disorders of childhood (e.g. autism, ADHD, epilepsy) will be discussed.

**Credit Hours:** 3

**Prerequisites:** This course may be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 1000, PSYCH 2210 or PSYCH 4240

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**PSYCH 4580: Externalizing Spectrum Disorders**

The purpose of this course is to provide an overview of the symptoms, etiology, and treatment of psychiatric disorders that fall within the externalizing spectrum, including Attention-Deficit Hyperactivity Disorder, Oppositional Defiant Disorder, Conduct Disorder, Alcohol and other Substance Use Disorders, and Antisocial Personality Disorder. This course will attempt to provide an overview of key issues and topics related to the classification of psychiatric disorders and how research in this area has led to current conceptualizations of the externalizing spectrum. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 4830: Psychology of Women**

(same as WGST 4830). Overview of current theories and research relating to the psychology of women. Topics include gender stereotyping, psychological sex differences, achievement motivation in women, and women and mental health.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**PSYCH 4840: The History of Psychology**

(cross-leveled with PSYCH 7840). Historical foundations of contemporary psychology.

**Credit Hours:** 3

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**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 4940: Internship in Psychology**

Work experience in an organization that is relevant to the psychology major. Enrollment limited to students who are in good standing and have completed 9 credit hours in psychology. Intended for students with junior or senior standing.

**Credit Hour:** 3-6

**Prerequisites:** Instructor's consent required

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**PSYCH 4940W: Internship in Psychology - Writing Intensive**

Work experience in an organization that is relevant to the psychology major. Enrollment limited to students who are in good standing and have completed 9 credit hours in psychology. Intended for students with junior or senior standing.

**Credit Hour:** 3-6

**Prerequisites:** Instructor's consent required

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**PSYCH 4950: Special Problems in Psychology**

Independent investigation leading to a project or paper. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PSYCH 4960: Special Readings in Psychology**

Independent readings selected in consultation with supervisory faculty member. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PSYCH 4971: Developmental Psychology Capstone**

Introduces students to developmental research methods through relevant readings and by students conducting original research. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** consent required

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**PSYCH 4971W: Developmental Psychology Capstone - Writing Intensive**

Introduces students to developmental research methods through relevant readings and by students conducting original research. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** consent required

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**PSYCH 4972: Animal Learning Capstone**

Survey of principles of animal behavior and animal learning and cognition. The course includes laboratory projects on research in animal behavior and animal learning. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Department consent required

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**PSYCH 4972W: Animal Learning Capstone - Writing Intensive**

Survey of principles of animal behavior and animal learning and cognition. The course includes laboratory projects on research in animal behavior and animal learning. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** consent required

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**PSYCH 4973: Human Cognition Capstone**

Students review, evaluate and conduct research on various aspects of human cognition. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Department consent required

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**PSYCH 4973W: Human Cognition Capstone - Writing Intensive**

Students review, evaluate and conduct research on various aspects of human cognition. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** consent required

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**PSYCH 4974W: Psychology of Art Capstone - Writing Intensive**

Students will examine how the psychological processes of sensation and perception influence the experience of beauty - music, cuisine, movies, dance and other artistic endeavors. grade of C better in PSYCH 3020. This course is restricted to psychology majors with senior standing. Consent required.

**Credit Hours:** 3

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**PSYCH 4975: Social/Personality Capstone**

Experimental methods course emphasizing research in social psychology. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Consent required

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**PSYCH 4975W: Social/Personality Capstone - Writing Intensive**

Experimental methods course emphasizing research in social psychology. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Consent required

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**PSYCH 4976: Independent Research Capstone I**

Individual thesis on a topic selected with a faculty advisor. Student projects are carried out over the course of two semesters (with PSYCH 4977) and presented as posters in a spring conference. Weekly class discussions of student progress. For students who plan to pursue a PhD in Psychology or Neuroscience. Enrollment limited to psychology majors with senior standing who have taken PSYCH 3020.

**Credit Hours:** 3

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**Prerequisites:** Consent required

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**PSYCH 4976H: Honors Research Capstone I**

Individual thesis on a topic selected with a faculty advisor. Student projects are carried out over the course of two semesters (with PSYCH 4977H) and presented as posters in a spring conference. Weekly class discussions of student progress. For students who plan to pursue a PhD in Psychology or Neuroscience. Enrollment limited to psychology majors with senior standing, honors eligibility, a cumulative GPA of 3.5, who have taken PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Consent required

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**PSYCH 4976HW: Honors Research Capstone I - Honors/Writing Intensive**

Individual thesis on a topic selected with a faculty advisor. Student projects are carried out over the course of two semesters (with PSYCH 4977HW) and presented as posters in a spring conference. Weekly class discussions of student progress. For students who plan to pursue a PhD in Psychology or Neuroscience. Enrollment limited to psychology majors with senior standing, honors eligibility, a cumulative GPA of 3.5, who have taken PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Consent required

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**PSYCH 4976W: Independent Research Capstone I - Writing Intensive**

Individual thesis on a topic selected with a faculty advisor. Student projects are carried out over the course of two semesters (with PSYCH 4977W) and presented as posters in a spring conference. Weekly class discussions of student progress. For students who plan to pursue a PhD in Psychology or Neuroscience. Enrollment limited to psychology majors with senior standing who have taken PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Consent required

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**PSYCH 4977: Independent Research Capstone II**

Continuation of PSYCH 4976. Completion of research project, presentation of poster in a spring conference. Weekly class discussions of student progress. Enrollment limited to psychology majors with senior standing who have completed PSYCH 4976.

**Credit Hours:** 3

**Prerequisites:** Consent required

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**PSYCH 4977H: Honors Research Capstone II**

Continuation of PSYCH 4976H. Completion of research project, presentation of poster in a spring conference. Weekly class discussions of student progress. Enrollment limited to psychology majors with senior standing, honors eligibility, a cumulative GPA of 3.5, who have completed PSYCH 4976H.

**Credit Hours:** 3

**Prerequisites:** Consent required

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**PSYCH 4977HW: Honors Research Capstone II - Honors/Writing Intensive**

Continuation of PSYCH 4976HW. Completion of research project, presentation of poster in a spring conference. Weekly class discussions



of student progress. Enrollment limited to psychology majors with senior standing, honors eligibility, a cumulative GPA of 3.5, who have completed PSYCH 4976HW.

**Credit Hours:** 3

**Prerequisites:** Consent required. Honors Eligibility Required

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**PSYCH 4977W: Independent Research Capstone II - Writing Intensive**

Continuation of PSYCH 4976W. Completion of research project, presentation of poster in a spring conference. Weekly class discussions of student progress. Enrollment limited to psychology majors with senior standing who have completed PSYCH 4976W.

**Credit Hours:** 3

**Prerequisites:** Consent required

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**PSYCH 4979: Judgement and Decision Making Capstone**

This course examines the psychology of human judgement and decision-making. We will discuss major theories, methods and basic experimental findings and identify how those findings are being used to develop public policy or in applied settings.

**Credit Hours:** 3

**Prerequisites:** grade of C or better in PSYCH 2030; This course is restricted to psychology majors with senior standing. Consent required

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**PSYCH 4979W: Judgement and Decision Making Capstone - Writing Intensive**

This course examines the psychology of human judgement and decision-making. We will discuss major theories, methods and basic experimental findings and identify how those findings are being used to develop public policy or in applied settings.

**Credit Hours:** 3

**Prerequisites:** grade of C or better in PSYCH 2030; This course is restricted to psychology majors with senior standing. Consent required

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**PSYCH 4980: Human Relationships Capstone**

Students design a study, collect data, and describe their research on some aspect of human relationships. Emphasis on survey research techniques. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Department consent required

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**PSYCH 4980W: Human Relationships Capstone - Writing Intensive**

Students design a study, collect data, and describe their research on some aspect of human relationships. Emphasis on survey research techniques. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Department consent required

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**PSYCH 4981: Advanced Developmental Psychology Capstone I**

Students propose a study to be conducted with preschool children. The course teaches skills needed to develop research questions, develop a coding system, and write a research proposal that reviews past literature in a way that makes the case for the importance of the project. Graded

on A-F basis only. Enrollment limited to psychology majors with senior standing and a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Departmental consent required

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**PSYCH 4981W: Advanced Developmental Psychology Capstone I - Writing Intensive**

Students propose a study to be conducted with preschool children. The course teaches skills needed to develop research questions, develop a coding system, and write a research proposal that reviews past literature in a way that makes the case for the importance of the project. Graded on A-F basis only. Enrollment limited to psychology majors with senior standing and a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Departmental consent required

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**PSYCH 4982: Advanced Developmental Psychology II**

Students conduct a research project involving observations of preschool children. The course teaches skills needed to collect data, analyze data, and write a research report. These skills provide excellent preparation for graduate school in psychology or a related field. Graded on A-F basis only. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Departmental consent required

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**PSYCH 4982W: Advanced Developmental Psychology II - Writing Intensive**

Students conduct a research project involving observations of preschool children. The course teaches skills needed to collect data, analyze data, and write a research report. These skills provide excellent preparation for graduate school in psychology or a related field. Graded on A-F basis only. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Departmental consent required

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**PSYCH 4983W: Consumer Psychology Capstone - Writing Intensive**

This course examines numerous social and psychological issues related to the area of consumer psychology. The course begins by examining how media exposure influences consumption, prejudice in marketing and advertising, and the question of whether children should be targets of marketing strategies. The second section examines how consumption can be influenced by unconscious and automatic factors. The third section examines unhealthy forms of consumption and consumption's relationship to well being. The fourth section focuses on ethical and social responsibility issues like consumption's impact on the environment and the voluntary simplicity movement. The last section of the course is devoted to student presentations of term papers. Graded on A-F basis only. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Consent required

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**PSYCH 4984W: Promoting Social Justice, Diversity, and Inclusion Capstone - Writing Intensive**

This course is an advanced exploration of diversity and social justice in the United States and provides students with a framework for understanding specific forms and the interlocking systems of oppression; a process to explore how oppression affects our lives; a pedagogical framework for teaching and training about concepts of oppression and diversity; and an application of these ideologies and skills in community settings. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Department Consent required

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**PSYCH 4985: Health Psychology Capstone**

The objectives of this course are to understand the psychosocial processes that influence health and health care delivery. Topics to be examined are the psychophysiological and sociocultural bases of health and illness; pain and healing; adaptation to chronic illness; stress; personality and illness; death, dying, and grief; substance use; health-promoting behaviors; patient adherence; physician-patient communication; and using health care. Graded on A-F only. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Department consent required

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**PSYCH 4986: Perception and Action Capstone**

Together we will explore how the brain creates our conscious experience of, and controls our actions in, the world. A variety of weekly assignments will challenge you to improve your written communication skills. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Departmental consent required

---

**PSYCH 4986W: Perception and Action Capstone - Writing Intensive**

Together we will explore how the brain creates our conscious experience of, and controls our actions in, the world. A variety of weekly assignments will challenge you to improve your written communication skills. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Departmental consent required

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**PSYCH 4987: Cross-Cultural Psychology Capstone**

This course adopts a psychological approach to the study of the cross-cultural experience. It will investigate how culture affects and determines human behavior, thoughts, emotions, and interactions. Graded on A-F basis only. Enrollment is limited to senior Psychology majors who have completed PSYCH 1000; PSYCH 3020 with a grade of C or better.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**PSYCH 4987H: Cross-Cultural Psychology Capstone - Honors**

This course will adopt a psychological approach to the study of the cross-cultural experience. It will investigate how culture affects and determines human behavior, thoughts, emotions, and interactions with others. Students will be part of public scholarship and have opportunities for public presentations of projects. Graded on A-F basis only. Enrollment is limited to senior Psychology majors who have completed PSYCH 1000; PSYCH 3020 with a grade of C or better; honors eligibility required.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**PSYCH 4987W: Cross-Cultural Psychology Capstone - Writing Intensive**

This course adopts a psychological approach to the study of the cross-cultural experience. It will investigate how culture affects and determines human behavior, thoughts, emotions, and interactions. Graded on A-F basis only. Enrollment is limited to senior Psychology majors who have completed PSYCH 1000; PSYCH 3020 with a grade of C or better.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**PSYCH 4988: Medical Decision Making Capstone**

Students will learn how patients make decisions about their own healthcare and how doctors make diagnostic and treatment decisions for their patients. Enrollment is limited to senior Psychology majors who have completed PSYCH 1000; PSYCH 3020 with a grade of C or better. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Department Consent

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**PSYCH 4988W: Medical Decision Making Capstone - Writing Intensive**

Students will learn how patients make decisions about their own healthcare and how doctors make diagnostic and treatment decisions for their patients. Enrollment is limited to senior Psychology majors who have completed PSYCH 1000; PSYCH 3020 with a grade of C or better. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Department Consent

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**PSYCH 7085: Problems in Psychology**

Advanced studies to meet needs of individual student. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PSYCH 7110: Perception**

(cross-leveled with PSYCH 4110). Data and contemporary theories of perception in all of the senses, with emphasis on visual and auditory perception.

**Credit Hours:** 3

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**PSYCH 7520: Behavior Genetics**

(cross-leveled with PSYCH 4520). The study of genetic influences on behavioral traits such as mood, personality, intelligence, mental health, or activity level.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**PSYCH 7840: The History of Psychology**

(cross-leveled with PSYCH 4840). Historical foundations of contemporary psychology.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**PSYCH 8050: Research in Psychology - Non-Thesis**

Research in psychology not leading to thesis. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PSYCH 8085: Problems in Psychology**

Advanced studies to meet needs of individual student. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PSYCH 8090: Research in Psychology - Thesis**

Research in psychology leading to thesis. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PSYCH 8110: Cognitive Psychology**

Focuses on basic research on human perception, memory, attention, language, and thought.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 8210: Functional Neuroscience**

Basic techniques, data and theory in the neurosciences applied to the study of psychopathology, psychopharmacology, neural development, brain damage, memory and other areas of 'behavior.'

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 8410: Psychology of Development**

Principles, theories, research in normal human development.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 8420: Cognitive Development**

(same as H\_D\_FS 8420). An introduction to central theories and issues in the study of cognitive development in infancy and childhood. Emphasis is on major theoretical frameworks for studying cognitive development, and topics such as perception, memory, language, categorization, and reasoning.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 8440: Social and Emotional Development**

(same as H\_D\_FS 8440). There are two major objectives for this course. The first is a 'content' objective and involves familiarizing students with theory and research regarding social, emotional, and personality development in childhood and adolescence and also regarding the relationships in which such development takes place. The second objective is a 'process' objective and involves enhancing students skills at interpreting empirical research, identifying gaps in the literature, and identifying research strategies for addressing those gaps.

**Credit Hours:** 3

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**PSYCH 8510: Developmental Psychopathology**

Etiology, diagnosis, and treatment of disordered behavior from infancy through adolescence. Emphasizes contrasting theories and research issues.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 8520: Adult Psychopathology**

Problems of etiology, diagnosis, treatment in psychopathology. Considers theory, research, case histories.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 8610: Motivation**

Survey of historical and contemporary theories and models of human motivation. Major emphasis on different levels of motivational analysis.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 8620: Personality Psychology**

Graduate-level introduction to the field of personality psychology, including readings and discussion of both classic and contemporary works.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 8710: General Linear Models in Psychology I**

Principles of interval estimation and hypothesis testing, scalar and matrix forms of simple and multiple regression with continuous and categorical predictors, regression diagnostics.

**Credit Hours:** 4

**Prerequisites:** undergraduate course in statistics; concurrent enrollment in PSYCH 8730; instructor's consent

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**PSYCH 8720: General Linear Models in Psychology II**

Complex analysis of variance; experimental design.

**Credit Hours:** 4

**Prerequisites:** PSYCH 8710 or equivalent, concurrent enrollment in PSYCH 8730; instructor's consent

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**PSYCH 8730: Statistical Software Packages**

Computer implementation of data management and statistical analysis. Covers elementary computer operations, data entry and quality control, and computer implementation of statistical models covered in PSYCH 8710 and PSYCH 8720.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**PSYCH 8910: Responsible Conduct of Research**

This course exposes students to important concepts in the responsible conduct of research. Graded on A-F basis only.

**Credit Hour:** 1

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**PSYCH 8920: Social and Behavioral Sciences in Public Health**

(same as P\_HLTH 8920). This course will take both a theoretical and a practical approach to understanding health-related behavior and the field of public health. Students will gain an understanding of theory and empirical research in the social and behavioral sciences, as well as developing practical skills in critically evaluating research and in applying scientific evidence to address real world health concerns.

**Credit Hours:** 3

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**PSYCH 9001: Topics in Psychology-General**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent, departmental consent for repetition

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**PSYCH 9050: Research in Psychology - Non-Dissertation**

Research in Psychology not leading to dissertation. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PSYCH 9090: Research in Psychology - Dissertation**

Research in Psychology leading to dissertation. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PSYCH 9110: Studies in Experimental Psychology**

Critical consideration of selected research in neuroscience and cognitive psychology.

**Credit Hours:** 3

**Prerequisites:** PSYCH 4972 or PSYCH 4973; departmental consent for repetition; instructor's consent

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**PSYCH 9120: Studies in Physiological Psychology**

Weekly seminars given by local and regional cognitive psychologists and cognitive neuroscientists. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** PSYCH 7210, departmental consent for repetition, and instructor's consent

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**PSYCH 9140: Conditioning and Learning: Theory and Application**

Basic principles of operant and Pavlovian learning, motivation, extinction, inhibition, avoidance, etc., and their application to human behavior and its modification.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9150: Human Learning and Memory**

Current theory and research in the area of human learning and memory will be investigated. A major component of the course will involve the critical review of existing literature in this area.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9210: Psychopharmacology**

Basic principles of drug action on the nervous system, the theory and clinical use of the various psychotherapeutic drugs, drug abuse and its treatment.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9220: Clinical Neuropsychology Seminar**

In this course students will analyze published cases in the neuropsychology literature. By studying how behavioral and mental processes break down, the supposition is that one can infer how intact processes must have been constructed, and how a brain supports them.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**PSYCH 9230: Seminar on fMRI**

Fundamentals of MRI and its application to brain imaging, including experimental design, analysis and contemporary issues. During the lab component, students will use FSL and other software to analyze fMRI data and will design and implement their own fMRI experiments.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9240: Advanced Neural Systems**

The course provides in-depth coverage of the neurophysiology, neuroanatomy, and function of the brain. Course lectures and discussions cover the brain and its systems in a 'bottom-up' sequence starting with basic sensory pathways and concluding with higher cognitive functions. The course also includes hands-on laboratory sessions, which include dissection component. Graded on A-F basis only.

**Credit Hours:** 3

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**PSYCH 9310: Theories of Social Psychology**

Intensive review of classic and contemporary concepts and theories of social psychology; emphasizes readings from primary sources. PhD candidates only. Required for all PhD candidates in social psychology.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9320: Social Psychology Methodology**

Advanced study of experimental methods in social psychological research.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9330: Field Research Methods**

Advanced course in research methods and designs commonly used in field settings; theoretical, ethical, and pragmatic issues that arise in field settings are considered; emphasis is on learning and skill acquisition through a series of hands-on assignments.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9350: Studies in Social Psychology**

Critical coverage of selected research and theory in social psychology.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent, departmental consent for repetition

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**PSYCH 9360: Seminar in Social Psychology**

Intensive review of concepts and theories of social psychology; emphasizes readings from primary sources. Ph.D. candidates only. Required for all Ph.D. candidates in social psychology program. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**PSYCH 9365: Positive Psychology**

This seminar will discuss and critique modern research in positive psychology. Each chapter of the textbook provides overviews of positive psychology research topics at various levels of analysis, while providing suggestions for further research. Graded on A-F basis only.

**Credit Hours:** 3

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**PSYCH 9440: Studies in Developmental Psychology**

Covers contemporary research and professional topics in developmental psychology. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PSYCH 9460: Studies in Evolution and Behavior**

Reading and discussion of classic and contemporary works in evolution.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**PSYCH 9470: Women's Professional Development**

This class takes a lifespan developmental perspective in regards to understanding challenges in women's professional development. Topics include: perceptions and stereotypes of successful women, division of labor in families (housework versus paid work), motherhood and the work place, social policies for working parents, girls' and boys' interests in STEM professions, and gender and workplace economics (starting salaries, negotiation, the gender pay gap). Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor Consent Required

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**PSYCH 9510: Studies in Clinical Psychology**

Contemporary research and theory for advanced graduate students in clinical psychology. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent, departmental consent for repetition

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**PSYCH 9515: Orientations in Psychotherapy**

The introductory psychotherapy course for students in the clinical psychology doctoral program. The focus of the course is on development of knowledge and skills in the following four areas: (1) Theory and practice of contemporary (brief) psychotherapy; (2) Basic interviewing skills; (3) Psychotherapy research and empirically supported treatments; and (4) The role and impact of managed care in contemporary psychotherapy.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9520: Psychometrics**

Introduction to concepts and issues essential to psychological assessment including psychometrics, test construction, controversies in psychological testing, behavioral assessment, and structured interviewing.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9525: Orientations to Clinical Assessment**

Topics include psychometric principles, intelligence testing, objective and projective personality testing and behavioral assessment.

**Credit Hours:** 3

**Prerequisites:** PSYCH 9520 and instructor's consent

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**PSYCH 9530: Clinical Child Assessment**

Introduction to clinical instruments, techniques and problems in the psychological assessment of children.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9540: Ethical and Professional Issues II**

Legal issues, state and national codes, ethical decision-making, dangerousness, ethical clinical treatment issues, mandated reporting, and ethics in specialized clinical settings. This course is the second in a sequence for clinical psychology doctoral students.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9545: Clinical Practicum**

Intensive supervised training in use and interpretation of psychological techniques and in psychotherapy. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent and professional liability insurance

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**PSYCH 9550: Clinical Intervention with Children**

Introduction to theory, research and practice in the area of behavior change with children and adolescents.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9560: Family and Group Process**

Theory, intervention, and research in the areas of family and group dynamics. Emphasis on family therapy approaches.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9575: Clinical Research Methods**

Focus on research design with emphasis on active critique of methodological challenges (e.g., subject selection, control groups, multimodal measures, and treatment issues), includes lecture and active review or research.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9585: Introduction to Alcohol Studies**

Intensive seminar on alcohol research primarily intended for alcohol research training fellows. Covers a range of topics of interest to psychologist, including pharmacology, research methods, genetics, diagnosis, expectancies, and treatment.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9710: Multivariate Statistics in Psychology**

Multivariate statistical methods, including multivariate analysis of variance, discriminant analysis, principal component analysis, and elements of matrix algebra, as applied to problems in psychology.

**Credit Hours:** 3

**Prerequisites:** PSYCH 8710 and PSYCH 8720; instructor's consent

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**PSYCH 9715: Multilevel Modeling**

Introduction to random coefficient multilevel modeling of clustered data. Topics include two- and three-level models, estimation techniques, computing options, model fitting issues, advanced model applications, and growth modeling.

**Credit Hours:** 3

**Prerequisites:** instructor's consent, a graduate course in regression analysis

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**PSYCH 9720: Latent Variable Models in Statistical Analysis**

Covers Matrix Algebra fundamentals, Factor Rotation, Communality Estimation techniques, High Order and Dynamic Factor Models, Path Analysis, Use of computer programs.

**Credit Hours:** 3

**Prerequisites:** instructor's consent and PSYCH 8720

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**PSYCH 9735: Psychological Process Models**

Examines mathematical and statistical models of cognition and perception. Emphasis on modeling basics such as estimation, hypothesis testing, and assessment of fit.

**Credit Hours:** 3

**Prerequisites:** PSYCH 8710 and PSYCH 8720 or instructor's consent

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**PSYCH 9750: Advanced Structural Equation Modeling**

Growth Mixture Models, Dynamic Factor models, and nonlinear structural models.

**Credit Hours:** 3

**Prerequisites:** PSYCH 8710 or departmental consent

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**PSYCH 9755: Quantitative Psychology Seminar**

Quantitative Psychology Topics Seminar. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** departmental consent required

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**PSYCH 9760: Categorical Data Analysis**

This course will provide an applied introduction to the most important methods for analyzing categorical data. Topics include; logistic regression modeling Poisson regression modeling, multinomial sampling, and classic analysis of contingency tables.

**Credit Hours:** 3

**Prerequisites:** PSYCH 8710 and PSYCH 8720; instructor's consent

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**PSYCH 9765: Cluster Analysis and Network Analysis**

The course covers traditional and modern clustering techniques (hierarchical, partitioning, and mixture modeling), both from an algorithmic and modeling perspective. Several types of data types are explored, including traditional two-mode data sets and network structures.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**PSYCH 9780: Item Response Theory I**

Introduction to item response theory, including classical test theory, popular item response models, model estimation, software considerations, and application. Graded on A-F basis only.

**Credit Hours:** 3

**Corequisites:** PSYCH 8710

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**PSYCH 9910: Teaching of Psychology Practicum**

Focuses on development and enhancement of teaching skills for graduate students in psychology who are primary instructors of undergraduate psychology courses. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PSYCH 9920: Advanced History of Psychology**

Advanced course in history of psychology designed to show how general philosophical models of mind and behavior have been linked to doctrines of mental health and pathology and to theories of social behavior.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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## Public Affairs Courses

### **PUB\_AF 1000: Principles of Public Policy Administration**

This course introduces students to the basics of public administration and policy implementation. It focuses on what happens after public policy is passed. Students will learn how actors within and outside of government influence the administrative aspects of public policy, what motivates and influences the decision making of the individuals within the administrative state, and how non-government organizations are often tasked with administering public services. By the end of the course, students will be able to understand what makes for successful or unsuccessful implementation of public policy by public (and non-government) organizations. Graded on A-F basis only.

**Credit Hours:** 3

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### **PUB\_AF 4001: Topics in Public Affairs**

Selected topics in public affairs.

**Credit Hours:** 3

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### **PUB\_AF 4175: Early Childhood Policy**

(cross-leveled with PUB\_AF 7175). This course explores early childhood development issues and their impacts on policy formation. We will study a range of family situations in the United States and other countries (e.g., maternal employment and job policies, divorce, child abuse and neglect) that may be of concern for child policy analysts and policy makers. Additionally, we will examine the effects of different early childhood programs in the United States and other countries using both qualitative and quantitative criteria. This course is applied in focus; as such, by the end of the semester, students should expect to understand policy analysis and the trade-offs of implementing policy choices, as well as be able to apply analytical skills for early childhood and family policies. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** undergraduate junior or senior level; instructor consent

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### **PUB\_AF 4340: Regional and Economic Development Policy**

(cross-leveled with PUB\_AF 7340). Presents an overview of historical perspectives and current practice in regional development policy. Topics include the major theories of economic development in the U.S., major trends affecting local economic development, local strategies for economic development, analyzing data from secondary sources, and federal strategies for economic development and regional collaboration. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Senior standing, instructor consent

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### **PUB\_AF 4540: Local Government Management**

(cross-leveled with PUB\_AF 7540). Organization and division of service responsibility within local governments. Problems of managing delivery of services with special emphasis upon program implementation, productivity, planning, responsiveness. Graded on A-F basis only.

**Credit Hours:** 3

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### **PUB\_AF 4700: Social Entrepreneurship**

(cross-leveled with PUB\_AF 7700). This course will help illustrate social entrepreneurship in a broad sense and understand how it differs from entrepreneurship as understood in the private sector, social innovation and social enterprise. Graded on A-F basis only.

**Credit Hours:** 3

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### **PUB\_AF 7001: Topics in Public Affairs**

Select current topics in public affairs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** consent required

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### **PUB\_AF 7175: Early Childhood Policy**

(cross-leveled with PUB\_AF 4175). This course provides an understanding of early childhood development issues and their impact on policy formation. Will study different family situations in the US and other countries (e.g. maternal employment and job policies, divorce, child abuse and neglect) that may be a concern for child policy makers and analysis. In addition we are going to examine the effects of different early childhood programs in the US and other countries around the world. Also, US federal regulations that have an impact on child policy, such as the National Health Policy and Welfare reform will be examined. Will use both qualitative and quantitative criteria to analyze these policies. This course is applied in focus, so by the end of the semester students should be able to understand policy analysis and the trade-offs of implementing policy choices, as well as being able to develop analytical skills for early childhood and family policies in their work. Graded on A-F basis only.

**Credit Hours:** 3

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### **PUB\_AF 7330: Scientific and Technological Aspects Terrorism and Counter Terrorism**

(same as NU\_ENG 7330). Terrorism has been a familiar tool of political conflict, and it has assumed greater importance during the past twenty years. This subject has been treated by political scientists in various forms, but the scientific and technological aspects of different forms of terrorism cannot be found in a single place. It is important for persons who propose counter measures to understand the basics of different types of terrorism such as for instance the nature of chemical agents, their properties such as toxicity, etc. in order to build better defense systems.

**Credit Hours:** 3

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### **PUB\_AF 7340: Regional and Economic Development Policy**

(cross-leveled with PUB\_AF 4340). Presents an overview of historical perspectives and current practice in regional development policy. Topics include the major theories of economic development in the U.S., major trends affecting local economic development, local strategies for economic development, analyzing data from secondary sources, and federal strategies for economic development and regional collaboration. Graded on A-F basis only.

**Credit Hours:** 3

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### **PUB\_AF 7540: Local Government Management**

(cross-leveled with PUB\_AF 4540). Organization and division of service responsibility within local governments. Problems of managing delivery

of services with special emphasis upon program implementation, productivity, planning, responsiveness. Graded on A-F basis.

**Credit Hours:** 3

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**PUB\_AF 7700: Social Entrepreneurship**

(cross-leveled with PUB\_AF 4700). This course will help illustrate social entrepreneurship in a broad sense and understand how it differs from entrepreneurship as understood in the private sector, social innovation and social enterprise. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 7810: Comparative and Global Governance**

This course examines governance and the policy process at the international. Course topics include differences in political regimes, the structure and powers of institutions and the effect on quality of governance, roles of multi-national and non-governmental organizations in coordinating efforts to promote peace and security, human rights, education, health, and economic development. The course also examines the situations within the world's poorest countries and how the international community act to improve the lives of citizens. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8001: Topics in Public Affairs**

Select current topics in public affairs.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PUB\_AF 8085: Problems in Public Affairs**

Intensive study of an area of public affairs related to the student's special interest.

**Credit Hour:** 1-99

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**PUB\_AF 8110: Introduction to Public and Nonprofit Management**

This course introduces students to the field of public and nonprofit management. It examines the histories of public and nonprofit management in the US and provides students with the knowledge of some subfields. Graded on A-F only.

**Credit Hours:** 3

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**PUB\_AF 8150: Collaborative Governance**

Political, economic, and social context of government and public service; examines theories and models of collaborative governance and implications for policy-making, public management, and public service delivery. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8160: Organizational Dynamics and Leadership**

Focuses on understanding human action in administrative situations and on developing personal capacities for effective action in varied and difficult organizational situations. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8170: Public Policy Processes and Strategies**

Processes through which public demands are generated, converted into public policy, and implemented. Examines the intersection of politics, policy, and management as well as the diverse strategies and tools of public action. Graded on A-F basis.

**Credit Hours:** 3

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**PUB\_AF 8171: Environmental Policy**

This course is an introduction to U.S. environmental policy, focusing on important political institutions and political actors. The course provides a survey of the primary laws, regulations, and policies that comprise pollution control and natural resource management policy.

**Credit Hours:** 3

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**PUB\_AF 8174: Social Policy**

This seminar will examine the nature and extent of poverty in the U.S., its causes and consequences, and the antipoverty effects of existing and proposed government programs and policies.

**Credit Hours:** 3

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**PUB\_AF 8177: Energy Economics**

The course examines economic theory and empirical analyses of global energy supply and demand. It examines the role of non-renewable and renewable energy in the economy and trends in energy production and consumption. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Principles of Economics, Instructor's permission

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**PUB\_AF 8178: Sustainable Energy Policy**

This course examines the concept of sustainability as it applies to energy production and consumption, and explores policy options for achieving sustainable energy use.

**Credit Hours:** 3

**Prerequisites:** PUB\_AF 8177

**Recommended:** Principles of Economics, Instructor's permission

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**PUB\_AF 8180: Research Methods and Inquiry in Public Affairs I**

Introduction to research methods for graduate students in public affairs. Topics include measurement, quantitative description, problem definition, the policy research process, and basic analytical tools commonly applied in public affairs. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8181: Research Methods and Inquiry in Public Affairs II**

Advanced topics and applications in research methods for public affairs. Topics include: multivariate analysis and other advanced quantitative techniques; evaluation of policy research products.

**Credit Hours:** 3

**Prerequisites:** PUB\_AF 8180 or permission of instructor

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**PUB\_AF 8185: Research Methods and Inquiry in Public Affairs - Mid Career**

Applications in research methods for graduate students in public affairs mid-career program. Topics include: measurement; quantitative



description; problem definition; the policy research processes; basic analytical tools commonly applied in public affairs; multivariate analysis and other advanced quantitative techniques; evaluation of policy research products. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PUB\_AF 8190: Economic Analysis for Public Affairs**

Application of tools of economic analysis to understand and interpret the behavior of government, consumers and producers. Sources of economic inefficiency, including market failures and limitations, and policy solutions. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8195: Economic Analysis for Public Policy - Mid Career**

Application of tools of economic analysis to understand and interpret the behavior of government, consumers and producers. Sources of economic inefficiency, including market failures and limitations, and policy solutions.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PUB\_AF 8210: Public Service and Democracy**

This course examines some of the challenges of public service in a liberal democracy. It addresses basic questions about the design of institutions through which public power is exercised and about the ethical and administrative obligations of people who work within those institutions. The aim of the course is to provide students with tools for thinking about such questions, and practice addressing them. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8211: MPA Capstone (Applied Project)**

Application of concepts and methods of public affairs to actual policy or management problems. Diagnosis of problem or decision situation, collection of relevant data, development of alternative solutions, recommendations of proposed course of action.

**Credit Hours:** 3

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**PUB\_AF 8280: Public Affairs Internship**

Gives students an opportunity to gain experience in government operations by providing supervised work with an agency at the local, state, or federal level of government or in nonprofit agencies. Graded on A-F basis.

**Credit Hours:** 3

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**PUB\_AF 8282: Practicum in Public Affairs**

Supervised field experience in an approved community, public agency, or nonprofit organizations. Opportunity for observation and participation under the guidance of a qualified advisor. Formal study of advanced theories and techniques is integrated into the student's experience. Graded on A-F basis only.

**Credit Hour:** 3-6

**Prerequisites:** advanced standing and instructor's consent required

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**PUB\_AF 8320: Spatial Analysis for Public Affairs**

Examines theoretical and empirical issues related to the spatial analysis of economic activity and local public issues. Major topics include the role of the public sector, the economics of public services, social accounting matrices, input-output analysis, econometric models of regional economies, and geographic information systems. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8350: Regional Development Issues and Analysis**

(same as AAE 8350). Examines theories of regional growth and development and methods for analysis with applications to current policy issues. Topics include firm location, new economic geography and agglomeration theory, clusters, human capital, migration, social capital, tax and development incentives, and sustainable regional development. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECONOM 7351 or PUB\_AF 8190 or equivalent

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**PUB\_AF 8420: Public Program Evaluation**

Covers implementation and outcome evaluation models, research design strategies, and data collection methods used to assess the effectiveness of public programs and means of their improvement. Graded on A/F basis only.

**Credit Hours:** 3

**Prerequisites:** PUB\_AF 8181 or equivalent

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**PUB\_AF 8430: Public Policy Analysis**

Uses economic logic and statistical techniques to design, analyze and evaluate public policy. Applies social choice theory, cost/benefit analysis, forecasting, regression analysis, trend analysis, time series methods, and other analytic techniques to policy decision. Graded on A-F basis.

**Credit Hours:** 3

**Prerequisites:** PUB\_AF 8181 and PUB\_AF 8190 or equivalent, or permission of instructor

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**PUB\_AF 8510: Public Budgeting and Taxation**

Intensive study of the institutions, processes, politics, and social and economic impact of public taxation and expenditures.

**Credit Hours:** 3

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**PUB\_AF 8520: Human Resources Management and Development in Public and Nonprofit Sector**

Examines the political, economic, and legal context of the personnel function, as well as the technical aspects of the personnel administrator's job. Stresses the dynamics of bureaucratic organizations. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8530: Strategic Management of Public Service Organizations: People, Information and Money**

Presents the rationale for strategic planning, and techniques and processes to develop and implement strategic planning in the public sector. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8610: Group Dynamics and Conflict Resolution**

Focuses on the study of group psychology in the context of communities and organizations. It provides a specific examination of the emergence and resolution of conflict. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8620: Organizational Analysis and Change**

Investigates processes and methodologies of organizational diagnosis, intervention strategies, and the role of a change agent. Graded on A-F basis.

**Credit Hours:** 3

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**PUB\_AF 8630: Organizational Change in a Community and Global Context**

Examines changing organizations in their task environments, which include communities and the global economy. The phenomenon of ambiguous boundaries between public and private as well as nonprofit sectors will be investigated as these profound changes impact organizational behavior. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8710: The Nonprofit and Voluntary Sector**

Provides an overview of the history, function, size, scope, development, and management of the nonprofit sector. Historical, political, economic, and social perspectives are used to examine the meaning of voluntarism, charity, philanthropy, and the nonprofit sector. Graded on A-F basis.

**Credit Hours:** 3

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**PUB\_AF 8720: Budgeting and Financial Management in the Nonprofit Sector**

Nature and environment of public and nonprofit financial administration. Principles of accountability for management of public and nonprofit funds; management and investment of cash balances; special problems related to long- and short-term debt. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8830: Grant Writing I**

Provides students with knowledge regarding the process of seeking grant funding. Students will work in small groups to complete a letter proposal. They will experience the peer review process both as applicant and reviewer. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8831: Grant Writing II**

Provides students with knowledge regarding the process of seeking grant funding. Students will work in small groups to complete a full-blown state or federal grant proposal. They will experience the peer review process both as applicant and reviewer. The course will cover a variety of funding sources and a range of funding types to provide students with an information base for preparing future grant applications.

**Credit Hours:** 3

**Prerequisites:** PUB\_AF 8830

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**PUB\_AF 8832: Sponsor Relationships**

Provides students with knowledge of the landscape and culture of grant seeking with an emphasis on understanding how private and public sector sponsors are in many ways, significantly different enterprises. Students will gain an understanding of the pivotal role relationships play in grant seeking and gain an appreciation of the particularities and rigors of both public and private grant seeking.

**Credit Hours:** 3

**Prerequisites:** Proposed Grant Writing 2 course

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**PUB\_AF 8833: Grant Award Management**

Provides students with knowledge regarding the process and policies entailed in managing grant awards. Course content includes federal OMB circulars, basic human resource issues, project management strategies, reporting obligations, and project close-out.

**Credit Hours:** 3

**Prerequisites:** Proposed Grant Writing 2 course

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**PUB\_AF 8850: Policies and Institutions of the European Union**

Policies and Institutions of the European Union

**Credit Hours:** 3

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**PUB\_AF 8860: International Comparative Rural Policy**

(same as AAE 8860, NAT\_R 8860). Compares the rural policy objectives and implementation strategies of various countries, and assesses these policies in terms of economic, social, environmental outcomes and their implications for international relations. Includes 2-weeks of study Abroad. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PUB\_AF 8864: Administrative Law**

(same as LAW 5310). Administrative Law is concerned with the process government agencies use to make decisions. As such it develops the requirements for establishing rules and policies. It also covers the means by which agencies enforce regulations and statutory provisions, and the means for securing judicial review of rules and enforcement actions. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 9000: Directed Individual Study**

Supervised readings and research in area of doctoral specialization. Student must submit formal written proposal to doctoral supervising faculty member prior to registration. May be repeated up to 6 hours.

**Credit Hours:** 3

**Prerequisites:** PhD standing or permission of instructor

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**PUB\_AF 9090: Dissertation**

Independent research for Ph.D. dissertation. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** PhD standing or permission of instructor

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**PUB\_AF 9150: Governance and Public Affairs**

Examines theories of governance, the role of the state and other social institutions. Other topics include administrative reform, the new public management, and the emergence of the multi-sector public service. International comparative dimensions emphasized. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PUB\_AF 8150, PhD standing or permission of professor

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**PUB\_AF 9160: Organization Studies in Public Affairs**

Examines theories of public and nonprofit organizations, including classical and contemporary perspectives in organization science; individual and group behavior; leadership, power and influence; organization design and structure; and organizational culture. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PhD standing or permission of instructor

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**PUB\_AF 9170: Policy Theory**

This seminar examines theories on the policy process, institutions, and delegation of power that influence public policy. Topics covered may include agenda setting, policy design, implementation, legislative decision-making, state political institutions, and federalism. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PhD standing or permission of instructor

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**PUB\_AF 9180: Advanced Research Methods for Public Affairs I**

Focuses on multiple regression analysis, the implications and treatment of serial correlation, heteroskedasticity, multicollinearity, specification error, and measurement error. Students estimate models, use diagnostic information, and interpret and present findings for public affairs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PUB\_AF 8180 or equivalent, PhD standing or permission of instructor

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**PUB\_AF 9181: Advanced Research Methods for Public Affairs II**

The seminar examines statistical modeling tools for limited dependent variables and complex data situations, such as time-series cross-sectional data, clustered observations, and multilevel data. Other topics include simultaneous equation models and instrument variable in public affairs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PUB\_AF 9180 or equivalent, PhD standing or permission of instructor

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**PUB\_AF 9182: Logics of Inquiry in Public Affairs**

This course examines the philosophical foundations of social inquiry public affairs. Topics include investigation of epistemological and methodological issues in development and use of social research, and exploration of the theoretical underpinnings of multiple paradigms in public affairs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PhD standing or permission of instructor

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**PUB\_AF 9183: Public Affairs Research and Professional Development Seminar**

Research and professional development through participation in research seminars, colloquia, academic conferences, lectures, and professional workshops. Students required to register every spring semester in residence. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** PhD standing or permission of instructor

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**PUB\_AF 9185: Supervised Research**

Research experience directed by major professor designed to prepare doctoral students for independent scholarship in area of doctoral specialization.

**Credit Hours:** 3

**Prerequisites:** PUB\_AF 8150, PhD standing or permission of instructor

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**PUB\_AF 9446: Advanced Empirical Methods**

(same as ECONOM 9446). Empirical and modeling techniques for evaluation of microeconomic policy questions. Graded A-F only.

**Credit Hours:** 3

**Prerequisites:** Instructors consent or PUB\_AF 8181, PUB\_AF 9180, and PUB\_AF 9181

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**PUB\_AF 9447: Topics in Microeconomic Policy Analysis**

(same as ECONOM 9447). Applies the methods and techniques of microeconomics and to specific timely policy questions. Taught by applied-microeconomics faculty and focuses on current topics in labor economics, public economics, the economics of education, health economics, and other applied areas of microeconomics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

**Recommended:** PUB\_AF 8181, PUB\_AF 9180 and PUB\_AF 9181

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## Public Health Courses

**P\_HLTH 1000: Introduction to Public Health**

Acquaints students with the Public Health profession including educational preparation, public health careers, current issues, trends, and research.

**Credit Hour:** 1

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**P\_HLTH 2050: Gender and Public Health**

Addresses issues of gender and public health in the US and abroad. Considers how race, class, gender, sexuality, and geopolitical context may impact health. May focus on specific health issues. May be repeated for credit (up to 6 hours) with different semester themes.

**Credit Hours:** 3

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**P\_HLTH 2200: Introduction to Public Health and Health Promotion**

Public Health is the science and practice of protecting and improving the health of communities through education, promotion of healthy lifestyles, and research for disease and injury prevention. It is an exciting, dynamic, interactive, and collaborative field, which encompasses many disciplines.

P\_HLTH 2200 focuses on the basic tenets of public health, and the basic structures of the US public health system. We will concentrate on the core domains of public health, which include epidemiology, biostatistics, behavioral science/health education, environmental science, disaster preparedness, and health policy. In this course, you will be challenged to consider the complex web of factors that determine and affect health status. Graded on A-F basis only.

**Credit Hours:** 3

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**P\_HLTH 3300: Public Health Principles, Practice, and Education** (same as HLTH\_SCI 3300). Public Health is the science and practice of protecting and improving the health of communities through education, promotion of healthy lifestyles, and research for disease and injury prevention. This course focuses on the basic structures of the Public Health system in the U.S. and provides an introduction to the factors that influence and shape that system. Among others, factors include socioeconomic, financing, politics and global issues. Students in this course will be challenged to consider the complex web of factors affecting the health of communities. The course will explore: health needs assessments, examining relationships among behavioral, environmental and genetic factors that enhance or compromise health, examining factors that influence the learning process, and examining factors that enhance or compromise the process of health education. Graded on an A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Public Health Majors during pre-registration

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**P\_HLTH 3310: Social and Behavioral Health Theory and Practice** (same as HLTH\_SCI 3310). Social and Behavioral Health (SBH) is the core discipline of public health that focuses on the factors that influence individuals' and communities health actions and decisions. This course will take both a theoretical and a practical approach to understanding SBH. Students will gain an understanding of theory and develop practical skills to apply theories to real world health issues. Readings, assignments, and discussions will focus largely on ways to understand and change health behaviors and various individual, relational, community, and social-level influences on health. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Public Health Majors during pre-registration

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**P\_HLTH 3400: Global Public Health and Health Care Systems** (same as HLTH\_SCI 3400, PEA\_ST 3401). An introduction to public health in a global context, with an emphasis on understanding how disparities in socioeconomic status, differences in political and national health care systems and the work of international organizations impact health in communities around the world. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Public Health Majors during Pre-Registration

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**P\_HLTH 3450: Introduction to Epidemiology** (same as HLTH\_SCI 3450). Epidemiology is the basic science of Public Health, focusing on the study of distribution and determinants of health-related states and events. The purpose of this course is to gain a basic understand of Epidemiology principles and methods and how to use these as a framework in assessing and addressing population health issues. Employing a mix of lecture, discussion, and assignments,

students will explore the epidemiological investigation process, the etiology of disease, disability, and death, how to identify population subgroups with increased risk of disease, disability, and death and how to contribute to the development and evaluation of public health programs and services that improve the health of subgroups at risk and the general population. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Acceptance into the Public Health Program or by Department Consent

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**P\_HLTH 3460: Introduction to Public Health and Emergency Preparedness**

Introduces public health emergency preparedness procedures, including procedures for natural and technological disasters; terrorism; emerging threats; and methods to address these from planning and response perspectives. Includes domestic and international public health emergency contexts, and integrates knowledge and skills learned from other courses within the Health in Crisis: Human Rights, Disaster Preparedness and Humanitarian Assistance. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Public Health Science Majors during preregistration

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**P\_HLTH 3560: Public Health and Environmental Justice**

This course is designed to give students an overview of the connection between environmental justice and public health work. Students will use current and past events as a foundation for learning about environmental health disparities faced by minorities and indigenous communities. Looking through the lens of public health, students will tackle difficult topics such as social justice, environmental racism, and climate change as it relates to minority and indigenous communities. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Public Health Science Majors during preregistration

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**P\_HLTH 3600: Health Promotion Programs I: Assessment and Planning**

(same as HLTH\_SCI 3600). Health promotion planning is the development and implementation of a well-researched and tailored intervention to increase the health status of an individual and population. This course will provide a comprehensive introduction to health promotion planning and assessment by integrating a solid theoretical foundation of the discipline with hands-on experience in assessing needs, assets and capacity for health education, health education and project planning, funding, intervention development, implementation of health education projects, and evaluation. Special attention placed on implementing health education and promotion programs that are tailored to the particular population in need as well as specialized for the appropriate setting be it school, work, health care clinic, or the community. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to public health majors

**Corequisites:** P\_HLTH 3610

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**P\_HLTH 3610: Health Promotion Programs II: Implementation, Evaluation, and Communication**

(same as HLTH\_SCI 3610). This course builds on topics covered in Health Promotion Programs I: Assessment and Planning. It will provide a comprehensive introduction to the implementation, evaluation and communication required for successful health promotion programs by integrating a solid theoretical foundation of the discipline with hands-on experience in the implementation of health promotion program, developing an evaluation and communication strategies for successful health education and health promotion programs in a variety of community-based settings. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to public health majors

**Corequisites:** P\_HLTH 3600

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**P\_HLTH 3660: Chronic Disease and Public Health Approaches**

The epidemiology of major chronic diseases of high income countries will be reviewed including heart disease, cancer, stroke, diabetes, neurological diseases, and selected other conditions. In addition students will examine emerging non-communicable disease epidemics in low-and middle-income countries. Methodologic issues related to the study of these diseases, disease surveillance and strategies for prevention will also be covered. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Public Health Science Majors during preregistration

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**P\_HLTH 3760: Infectious Disease and Public Health Approaches**

In this course students will be able to define the basic concepts of Infectious Disease Epidemiology and Identify past, present, and future infectious disease threats. Students will describe the basic methods of Infectious Disease Epidemiology and identify host factors, infectious agents, and transmission factors. By the end of the course students will be able to discuss and identify basic approaches to control and prevention of infectious disease. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Public Health Science Majors during preregistration

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**P\_HLTH 3860: Autism Spectrum Disorder and Public Health**

This class is designed to help students think critically about the identification and treatment of autism spectrum disorder (ASD) in the United States. Students will explore current research and debates surrounding the definition, prevention and treatment of ASD in the United States. In addition to learning about the presentation and treatment of ASD, they will also be introduced to concepts in public health, psychology, psychiatry, and health services research. We will also discuss the history of our beliefs about ASD and how these beliefs have influenced policy, systems, services and treatment over the last century. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Public Health Science Majors during preregistration

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**P\_HLTH 3900W: Introduction to The Research Process and Evidence Base - Writing Intensive**

(same as HLTH\_SCI 3900W). This course provides an introduction to the basic quantitative and qualitative research techniques used in public health, health education and promotion, and the health professions. Conducting research, making medical decisions based on research findings, and using and interpreting research and evidence in practice settings all represent potential outcomes for students selecting a career in public health or the health professions. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to public health majors

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**P\_HLTH 3960: Public Health, Drugs and Policy**

This course is a tool to provide basic understanding of the role of legal and illegal drugs of abuse on people and the addictive processes. Using this information, the major focus will be to understand the problems and opportunities for treatment and prevention relevant to current and past policy issues. The public health implications of several Missouri and national policy decisions in treatment and prevention will be a major focus. An additional major focus will be on legal drugs of abuse - alcohol, tobacco and caffeine - which cause most of the mortality and morbidity due to drug use. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Public Health Science Majors during preregistration

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**P\_HLTH 3965: Strategies for Effective Peer Education in Public Health**

(same as WGST 3960, HLTH\_SCI 3965). Course designed to promote effective presentation skills on a variety of health topics, specifically sexual health. Students will engage in experiential practice and skill building surrounding cultural competency, difficult discourses, discussion facilitation and behavior management. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Instructor's consent

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**P\_HLTH 4001: Topics in Public Health**

Organized study of selected topics. Subjects will vary from semester to semester. Graded on A-F basis only.

**Credit Hour:** 1-6

**Prerequisites:** Restricted to Public Health Science Majors during preregistration

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**P\_HLTH 4002: Public Health Study Abroad**

This course is designed for students to explore various public health issues through the global lens of study abroad. Public health is a diverse career field that touches every aspect of life and connects a global community through the mission of serving the public good. Public health issues are intertwined and complicated by culture, governments, and environmental systems. Each study abroad trip will uniquely address issues specific to the country of origin. Graded on A-F basis only.

**Credit Hour:** 1-6

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**P\_HLTH 4085: Problems in Public Health**

Individual study, topic/problem varies by instructor. Graded on A-F basis only.

**Credit Hour:** 1-6

**Prerequisites:** Instructor's Consent

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**P\_HLTH 4300: Health Care in the United States**

(same as HLTH\_SCI 4300). Overview of financing, structure, and outcomes in the U.S. health care system. Contemporary health care issues, policy, and politics will be addressed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing; Restricted to Public Health Majors during pre-registration

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**P\_HLTH 4350: Principles of Environmental Health for Public Health**

This course is an introduction to Environmental Health as it relates to Public Health. Students will learn about the effects of environmental factors on a population's health and identify the connections between human health, animal health, and ecosystem health. Students will explore the role governments play in environmental health and identify the how globalization affects global burdens of disease. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Public Health Science Majors during preregistration

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**P\_HLTH 4485: Ethics in Public Health**

This course provides an overview of the basis for ethics in public health. Ethical concepts, theories, and approaches that apply to public health practice will be presented. Specific topics include paternalism, confidentiality, informed consent, justice, and resource allocation. Ethical issues in the public health arena will be explored; with an emphasis on the social determinants of health and APHA's 'health in all policies' approach. Legal and policy factors will also be considered related to ethical decision-making. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Public Health Science Majors during preregistration

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**P\_HLTH 4500: Health Care Management**

(same as HLTH\_SCI 4500). Examines various management concepts as they relate to the unique environment of health care. Concepts include planning, decision making, budgeting, staffing, organizing, and motivating for working with individuals or teams. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Public Health majors

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**P\_HLTH 4900: Seminar in Health Education**

(same as HLTH\_SCI 4900; cross-leveled with P\_HLTH 7900). This course provides students pursuing careers in health education/promotion and public health with the opportunity to synthesize their relevant coursework and prepare for the Certified Health Education Specialist (CHES) examination. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Open to public health students during preregistration

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**P\_HLTH 4960: Qualitative Approaches to Understanding Public Health Problems**

This course will define and describe the use of qualitative approaches to explore and solve public health problems. It will also provide opportunity for collecting, analyzing and working with qualitative data from a variety of data collection methods and using multiple analysis approaches. Discussion of analyzing photograph and video data will also provide students with insights on how best to analyze these types of data. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Public Health Science Majors during preregistration

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**P\_HLTH 4970: Public Health Capstone: Digital Storytelling**

One of the primary tasks of the public health professional is to translate scientific evidence into sound programs and policies. To do this successfully, the public health practitioner must understand how to weigh and interpret evidence and how to communicate the meaning of that evidence to a variety of stakeholders, including policy makers and community members. This capstone will focus on the practical and ethical challenges inherent in public health practice through a focus on communication and storytelling. Students will choose a public health topic and conduct a literature review, conduct interviews with key stakeholders, develop a story proposal and a completed digital story that reflects current evidence and diverse viewpoints. In addition, through exercises, readings and reflection papers, they will explore their own relationship to the issue of choice, explore unfamiliar points of view on the topic and grapple with the ethical challenges of advocacy and representation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Public Health Science Majors during preregistration

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**P\_HLTH 4975: Public Health Capstone: Emerging Issues in Public Health**

In this capstone course, students will apply what they have learned throughout the program to generate solutions for an emerging issue in public health (e.g. opioids). The course is taught using Open Educational Resources (OER) and is based on current resources and materials. Research (i.e. epidemiology), practice, interventions, policy, and evaluation will be addressed with readings, reports, articles, films, and podcasts. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Public Health Science Majors during preregistration

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**P\_HLTH 7001: Topics in Public Health**

Selected topics of interest related to Public Health.

**Credit Hours:** 3

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**P\_HLTH 7150: Principles of Public Health**

This course provides an overview of public health, including concentration areas of public health systems, epidemiology, social and behavioral determinants of health, environmental health, and public health policy. Case studies from local, state, national and international public health issues are incorporated into each segment, culminating in a discussion of the future of public health.

**Credit Hours:** 3

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**P\_HLTH 7160: Interdisciplinary Perspectives in Global Health**

This course is designed for those interested in health issues from a global perspective. It explores contemporary issues, problems, and controversies in global health through an interdisciplinary perspective. This course will follow a lecture and case study discussion format. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Department consent required

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**P\_HLTH 7751: Psychosocial Function and Older Adults**

(same as ARCHST 7650, F\_C\_MD 7751, HMI 7751, H\_D\_FS 7751, NURSE 7751, P\_HLTH 7751 and SOC\_WK 7751). This course takes an Interdisciplinary approach to understanding the psychosocial function of older adults and explores approaches to alleviate disabling conditions that interfere with psychosocial function and quality of life in old age. Graded on A-F basis only.

**Credit Hours:** 3

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**P\_HLTH 7800: Public Health Campaign Successes and Failures**

Explains public health campaigns from assessing needs to planning and implementing interventions, as well as taking lessons learned from previous public health campaigns to create strategies that increase the likelihood of success and reduce the chance of failure. Graded on A-F basis only.

**Credit Hours:** 3

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**P\_HLTH 7850: Mental Health Policy**

This course is an introductory survey of the principles and practice of mental health policy, beginning with its early history and continuing to the present day. Topics will include the nature of mental illness, its incidence and prevalence, mental health stigma, policy concerns related to mental health finance, the process of policy making, involvement of mental health care consumers in the policy process, and mental health in health policy reform. The needs of special populations including the homeless, persons in the criminal justice system, ethnic/minority groups, persons living in rural areas and veterans will be examined as well as needs specific to children and the elderly. Students are also expected to understand mental health policy considerations related to current health care reform and ethical issues in the practice of mental health policy. Graded on A-F basis only.

**Credit Hours:** 3

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**P\_HLTH 7900: Seminar in Health Education**

(cross-leveled with HLTH\_SCI 4900, P\_HLTH 4900). This course provides students pursuing careers in health education/promotion and public health with the opportunity to synthesize their relevant coursework and prepare for the Certified Health Education Specialist (CHES) examination. Graded on S/U basis only.

**Credit Hour:** 1

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**P\_HLTH 7952: Research Methods in Public Health**

This course is designed to introduce students to the process of research as a sequence of events, systematically organized to further knowledge.

A scientific and conceptual stance to knowledge development is emphasized, along with the importance of the empirical approach in establishing relationships between theories, concepts, and behavior phenomena. May be repeated for credit.

**Credit Hours:** 3

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**P\_HLTH 7960: Qualitative Approaches to Understanding Public Health Problems**

(cross-leveled with P\_HLTH 4960). This course will define and describe the use of qualitative approaches to explore and solve public health problems. It will also provide opportunity for collecting, analyzing and working with qualitative data from a variety of data collection methods and using multiple analysis approaches. Discussion of analyzing photograph and video data will also provide students with insights on how best to analyze these types of data. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Public Health Majors during preregistration

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**P\_HLTH 8001: Topics in Public Health**

Selected topics of interest related to Public Health.

**Credit Hour:** 1-3

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**P\_HLTH 8085: Problems in Public Health**

Guided readings, intensive study of an area in Public Health related to special interest of student or an area in which the student needs to strengthen.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent. May be repeated for credit

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**P\_HLTH 8090: Masters Thesis Research**

Leads to preparation of masters thesis. May only be repeated for credit for six hours. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** P\_HLTH 8980. Instructor's consent required

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**P\_HLTH 8120: Applied Epidemiology in Community Assessment**

The purpose of this course is to enable students to gain skills and abilities in assessing population groups and determining their priority public health problems. Students will consider a variety of strategies for empowering and mobilizing populations in collaborative public health efforts. Communication skills are key to the community assessment and intervention process, particularly in translating epidemiological data to lay audiences, and advocating for action. Students will be challenged to communicate public health issues effectively both on-line and in writing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** P\_HLTH 7952

**Prerequisites:** P\_HLTH 8420, Graduate level Statistics (STAT 7020 or STAT 7410)

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**P\_HLTH 8150: Human Health and the Environment**

This graduate level course will address threats to public health related to environmental factors including biological, physical and chemical factors. Subjects will include environmental contamination and remediation, zoonotic disease food and water quality. This course will include recorded

lectures with optional synchronous participation. Lectures will be recorded live and students will have the option to virtually attend live lecture, but this will not be required. Lecture recordings are archived for students to view at their convenience. Graded on A-F basis only.

**Credit Hours:** 3

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**P\_HLTH 8251: Immigrant Health**

Public health professions have considerable interest in understanding the unique health concerns of immigrants, in order to prevent disease, promote health, and prolong life in this specific population and in the population as a whole. This course will be based on readings in the peer-reviewed literature, discussion in a seminar format, community visits and observations/interviews, and guest speakers on topics of importance when considering issues of public health particular to immigrant communities. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**P\_HLTH 8260: Emergency Preparedness**

An overview of current national guidance and basic assessment of the current health care system level of readiness focusing on the critical role of the health care system for community, regional, state, and nationally based emergency preparedness efforts. Graded on A-F basis only.

**Credit Hours:** 3

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**P\_HLTH 8270: Storytelling in Public Health and Public Policy**

Storytelling for public health and public policy offers students an opportunity to become familiar with the literature and theoretical frameworks underlying the use of narrative and digital storytelling in public health and policy advocacy and public health interventions focused on behavior change. Students will review case studies of effective narrative communication and practice elements of effective storytelling in a variety of print and digital platforms. Graded on A-F basis only.

**Credit Hours:** 3

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**P\_HLTH 8300: Health Care in the United States**

(same as PUB\_AF 8172). Overview of financing, structure, and outcomes in the U.S. health care system. Contemporary health care issues, policy, and politics will be addressed. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

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**P\_HLTH 8400: Clinical Veterinary Regulatory Medicine and Public Health**

(same as V\_M\_S 8400). The goal of this course is to familiarize the student with clinical aspects of veterinary public health/regulatory medicine. Must be enrolled in MPH (veterinary public health concentration) or DVM curriculum.

**Credit Hours:** 2

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**P\_HLTH 8420: Principles of Epidemiology**

This course is intended to provide a general introduction to the course epidemiological concepts and methods as grounded in the essential services of public health. The focus of the course is on developing

critical thinking skills and providing a foundation in applied epidemiologic competencies. May be repeated for credit. Graded on A-F only.

**Credit Hours:** 3

**Prerequisites:** graduate level statistics; instructor's consent

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**P\_HLTH 8470: GIS for Public Health**

The purpose of this course is to understand the capacity and limitations of geographic information system (GIS) in public health. The guiding principle of developing the course is the practical aspects of using GIS while understanding the basic science behind mapping. The course is based on a weekly format of brief narrated lectures, readings and assignments similar to what you would have in a classroom. Graded on A-F basis only.

**Credit Hours:** 3

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**P\_HLTH 8620: Emerging Zoonoses Diseases**

This course will enhance student understanding of epidemiology and ecology as it relates to emerging and established zoonotic diseases. Risk factors for the emergence of and mechanisms for control and prevention of zoonotic diseases will be discussed. Course will involve individual and group assignments, use of discussion board, and several blackboard collaborate sessions. Blackboard collaborate sessions (time is TBA) will be held throughout the semester as an introduction to course modules and for help sessions. Students must have audio capability (microphone and speakers) for the course. Built in microphones and speakers work nicely, an inexpensive headset helps screen out background noise. If your computer does not have a built in microphone, an inexpensive one can be purchased at an electronics/computer store. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** P\_HLTH 8420 or V\_PBio 8455 and P\_HLTH 8150

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**P\_HLTH 8625: Data Analysis for Health Researchers**

The goal of this course is to introduce students to the systematic approach to data analysis, statistical computing, correct interpretation and presentation of results. Note that mathematical equations or their derivations forms are not emphasized. However, candidates taking this course are required to have a basic understanding of the epidemiologic and statistical principles and data analysis. The course is not expected to convert you into an expert data analyst within 16 weeks but upon completing the course, you will have acquired skills needed to analyze and interpret cohort, case-control and cross-sectional studies by cross tabulations, stratification, and regression. In addition, you will be able to build and interpret findings from complex multivariable models after controlling for confounding. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** P\_HLTH 8420 or V\_PBio 8455, STAT 7020

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**P\_HLTH 8675: Strategic Health Communication**

Funding for public health is at historic lows, meaning to create change more must be done with less. One of the best ways to facilitate change is through strategic health communication. By making messages easy to understand, developing campaigns to create behavior, attitude and/or belief change, and understanding how to utilize the concepts of social marketing, public health professionals can break away from the old way of doing business to make a difference in our society. Graded on A-F basis only.



**Credit Hours:** 3

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**P\_HLTH 8767: Epidemiology of Vaccine-Preventable Diseases**

This course is designed to provide a basic overview of epidemiology by exploring issues regarding various vaccine-preventable diseases (VPDs) and immunization program policies. Participants will learn about VPDs, while gaining skills in epidemiology, the science of public health. Graded on A-F basis only.

**Credit Hours:** 3

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**P\_HLTH 8920: Social and Behavioral Sciences in Public Health**

(same as PSYCH 8920). This course will take both a theoretical and a practical approach to understanding health-related behavior and the field of public health. Students will gain an understanding of theory and empirical research in the social and behavioral sciences, as well as developing practical skills in critically evaluating research and in applying scientific evidence to address real world health concerns.

**Credit Hours:** 3

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**P\_HLTH 8953: Evaluating Global Public Health Programs**

This course is designed to prepare students to evaluate global public health programs, preferably in developing countries. Students will identify a global public health issue, find one or more global health intervention or prevention programs, evaluate the programs using principles of evaluation research methods, and suggest implications for global public health promotion. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** P\_HLTH 7952 or P\_HLTH 8420

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**P\_HLTH 8970: Public Health Capstone**

As an integrating experience, the Public Health Capstone will allow students to articulate and share what they have learned in coursework and to supplement previous learning by exploring areas of knowledge the students identify as most relevant to their readiness for professional practice. It will enable students to test theoretical knowledge against real life practical experiences, and to integrate and refine basic and advanced concepts, values, and methods acquired during the professional education.

**Credit Hours:** 3

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**P\_HLTH 8971: Veterinary Public Health Capstone**

This capstone experience provides a unique set of opportunities and responsibilities. It is generally scheduled after completion of at least 2 semesters of the MPH curriculum and is designed to serve as a capstone experience integrating previous coursework and experiences. Exceptions to the requirement of completion of 2 semesters of MPH coursework will be granted for students who have completed or concurrent degree. Examples of relevant preparatory coursework will include epidemiology and veterinary public health. As an integrating experience, the capstone will require students to apply knowledge in an independent manner, integrate knowledge into cohesive production, and communication the results of this experience.

**Credit Hour:** 1-99

**Prerequisites:** completion of at least 2 semester of MPH curriculum

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**P\_HLTH 8980: Public Health Internship**

The field experience, or internship, is an opportunity for the student to test many of the theories, concepts, and information about public health learned during the first year and translate them into practice. Using the internship site as the 'organizational laboratory,' the student begins to develop the necessary professional skill sets for becoming a successful public health professional. The current knowledge, skills, abilities, and experiences will continue to develop and grow as each student becomes a life-long learner and practitioner of public health. Graded on S/U basis only.

**Credit Hour:** 1-99

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## Radiologic Sciences Courses

**RA\_SCI 3110: Radiography Procedures I**

This course is an introduction to basic radiographic positioning and procedures. Specific radiographic procedures of the chest, upper extremity, shoulder girdle, pelvis and lower extremity are taught.

**Credit Hours:** 2

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 3120: Fundamentals of Radiography**

Orientation to radiology department, ethics, psychodynamics of patient care, medical legal considerations and radiation safety procedures.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 3130: Basic Radiographic Skills**

Radiographic film processing techniques, intensifying screens and sensitometry will be discussed. The x-ray tube, x-ray production and some of the factors which affect the quantity and quality of the x-ray beam as well as the x-ray image will also be introduced.

**Credit Hours:** 2

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 3140: Principles in Radiographic Exposure I**

Theory and principles of X-ray technique; correlation of factors with application.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 3150: Radiologic Pharmacology**

Pharmacological principles, biopharmaceutics, pharmacokinetics, pharmacodynamics, drug classifications, drug names, administration routes, and infection prevention and control will be covered. Attention will be given to contrast agents relative to radiographic imaging. Ethical and legal implications will be explored.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 3160: Radiologic Physics**

Fundamental physics of electricity and radiant energy; principles of generation of electromagnetic radiation and applicable equipment; and principles of digital image capture, display and storage.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 3170: Imaging Modalities**

The study of radiographic and fluoroscopic equipment with attention to automatic exposure devices, image intensification, and imaging detectors. Consideration will be given to equipment in such modalities as computed tomography, magnetic resonance imaging, ultrasound, nuclear medicine and radiation therapy.

**Credit Hours:** 2

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 3180: Radiography Procedures II**

Instruction in radiographic procedures of the upper and lower gastrointestinal system, urinary system, bony thorax, vertebral column, and cranium.

**Credit Hours:** 2

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 3190: Radiography Procedures III**

Instructions in advanced radiographic imaging techniques with emphasis in trauma radiography, vascular studies and other specialty radiographic procedures.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 3941: Clinical Education I**

First in a five-part series focusing on the application and evaluation of radiography in the clinical setting. Supervised clinical experience emphasizing radiographic procedures of the chest, abdomen, and extremities.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 3942: Clinical Education II**

Second in a five-part series focusing on the application and evaluation of radiography in the clinical setting. Supervised clinical experience emphasizing the development of technical skills and procedural knowledge of routine radiographic procedures,

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 4085: Problems in Medical Imaging**

Supervise investigation in an aspect of medical imaging science usually culminating in a written report.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**RA\_SCI 4110: Sectional Anatomy**

(same as DMU 4312; cross-leveled with RA\_SCI 7110, DMU 7312). A study of human anatomy using the sectional approach; anatomical structures will be related to modern medical imaging techniques. Graded on an A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**RA\_SCI 4140: Magnetic Resonance Imaging: Physics and Procedures**

(cross-leveled with RA\_SCI 7140). Magnetic Resonance imaging fundamentals, applications, instrumentation, physical principles. Basic imaging concepts including positioning, scanning protocols, contrast imaging, anatomy review, and pathological considerations. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites:** Acceptance into Radiologic Sciences

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**RA\_SCI 4150: Computed Tomography: Physics and Procedures**

(cross-leveled with RA\_SCI 7150). Computed tomography imaging fundamentals, applications, instrumentation, physical principles. Applied concepts regarding patient care and CT imaging procedures. Graded on an A-F basis only.

**Credit Hours:** 5

**Prerequisites:** Acceptance into Radiologic Sciences

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**RA\_SCI 4303: Radiation Safety**

(same as NU\_ENG 4303). Types and origins of radiation; radiation detection and measurement; radiation interactions; shielding; dose calculations; federal, state and local regulations; and procedures for safe uses of radiation. Laboratory experiments in radiation measurements and protection.

**Credit Hours:** 3

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**RA\_SCI 4943: Clinical Education III**

Third in a five-part series focusing on the application and evaluation of radiography in the clinical setting. Supervised clinical experience emphasizing the transition to self-directed practice of routine radiographic procedures and the development of technical skills and procedural knowledge of more advanced radiographic procedures.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Science, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 4944: Clinical Education IV**

Fourth in a five-part series focusing on the application and evaluation of radiography in the clinical setting. Supervised clinical experience emphasizing self-directed clinical practice and the development of technical skills and procedural knowledge of more advanced radiographic procedures and modalities.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 4944W: Clinical Education IV - Writing Intensified**

Fourth in a five-part series focusing on the application and evaluation of radiography in the clinical setting. Supervised clinical experience emphasizing self-directed clinical practice and the development of technical skills and procedural knowledge of more advanced radiographic procedures and modalities.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 4945: Clinical Education V**

Final clinical course. Supervised clinical experience emphasizing self-directed performance of complex radiographic procedures, continued competency in routine diagnostic radiography and the investigation of advanced modalities, while transitioning to reflective, critical, and strategic professional practice.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Sciences students only

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**RA\_SCI 4946: Advanced Medical Imaging Externship**

(cross-leveled with RA\_SCI 7946). Supervised clinical experience in a medical imaging specialty with emphasis on patient care and technical practice.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required. Certification in a primary area of imaging. An affiliation agreement between the University of Missouri Radiologic Sciences Program and the clinical facility. Satisfactory completion of all Clinical Screening Requirements

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**RA\_SCI 4947: Radiography Overview**

A comprehensive overview of all aspects of diagnostic radiology with emphasis on procedures, technique, radiation protection, positioning, radiographic anatomy and patient care.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program

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**RA\_SCI 4980: Imaging Pathology**

Etiology and processes of disease. Emphasis on pathology of body systems and the manifestation of pathology through imaging.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program

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**RA\_SCI 4980W: Imaging Pathology - Writing Intensive**

Etiology and processes of disease. Emphasis on pathology of body systems and the manifestation of pathology through imaging.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program

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**RA\_SCI 7110: Sectional Anatomy**

(same as DMU 7312; cross-leveled with RA\_SCI 4110, DMU 4312). A study of human anatomy using the sectional approach; anatomical structures will be related to modern medical imaging techniques. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor consent required

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**RA\_SCI 7140: Magnetic Resonance Imaging: Physics and Procedures**

(cross-leveled with RA\_SCI 4140). Magnetic Resonance imaging fundamentals, applications, instrumentation, physical principles. Basic imaging concepts including positioning, scanning protocols, contrast imaging, anatomy review, and pathological considerations. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites:** Instructor consent

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**RA\_SCI 7150: Computed Tomography: Physics and Procedures**

(cross-leveled with RA\_SCI 4150). Computed tomography (CT) imaging fundamentals, applications, instrumentation, physical principles. Applied concepts regarding patient care and CT imaging procedures. Graded on an A-F basis only.

**Credit Hours:** 5

**Prerequisites:** Instructor's consent required

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**RA\_SCI 7946: Advanced Medical Imaging Externship**

(cross-leveled with RA\_SCI 4946). Supervised clinical experience in a medical imaging specialty with emphasis on patient care and technical practice.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required. Certification in a primary area of imaging. An affiliation agreement between the University of Missouri Radiologic Sciences Program and the clinical facility. Satisfactory completion of all Clinical Screening Requirements

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## Radiology Courses

**RADIOL 4328: Introductory Radiation Biology**

(same as BIO\_SC 4328, NU\_ENG 4328, V\_M\_S 7328). Concepts of ionizing radiations, their actions on matter through effects on simple chemical systems, biological molecules, cell, organisms, man.

**Credit Hours:** 3

**Prerequisites:** junior standing Sciences/Engineering; one course in Biological Sciences and Physics/Chemistry; or instructor's consent

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**RADIOL 6044: SCC Radiation Oncology Elective**

Students will enhance their knowledge, skills, and attitudes about patient-centered care through active participation in direct patient care activities while under the supervision of a faculty preceptor. Students will integrate previously acquired knowledge and concepts and apply them to the care and management of patients. During the elective, students will be expected to work-up patients, perform physical exams, and present cases to faculty. Students will also be exposed to treatment planning, simulations, and treatment deliveries throughout the rotation. At the end

of the elective, students will be expected to give a 10-minute presentation on a topic of their choosing.

**Credit Hours:** 5

**Prerequisites:** Successful completion of the first two years of medical school

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**RADIOL 6373: ABS Radiology Research**

ABS Radiology Research

**Credit Hour:** 5-10

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**RADIOL 6645: Radiology**

Goals/Objectives: General survey of all subspecialties of radiology.

Evaluations: Written evaluations performed by both faculty and residents.

**Credit Hours:** 5

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**RADIOL 6646: SCC Radiology Elective**

Students on this elective rotate through the various areas of radiology, spending time in each of the following subspecialties: musculoskeletal, ultrasound/mammography, chest/body imaging, neuroradiology (CT/MRI), pediatric imaging, and/or Interventional Radiology. Students participate in workstation rounds. Information is presented using a variety of evidence-based resources and online modules, including case conferences, daily mini-lectures, and case review websites.

**Credit Hours:** 5

**Prerequisites:** Successful completion of the first two years of medical school; faculty approval

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**RADIOL 6650: Advanced Radiology**

Advanced Radiology

**Credit Hours:** 5

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**RADIOL 6745: Radiology - Rural**

Radiology - Rural

**Credit Hours:** 5

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**RADIOL 6931: Introduction to Radiology**

This two week elective will provide students with exposure to chest and body imaging (1 week per area). They will participate in 2-3 didactic sessions focused on the basics of radiology and imaging that is important to all fields of medicine, as well as video lectures one day a week along with the upperclassmen that are doing their 4 week elective at that time. Videos present a case based learning plan involving common emergent situations that may be encountered during their clinical training.

**Credit Hours:** 2

**Prerequisites:** successful completion of the first two years of medical school

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**RADIOL 6952: SCC Radiation Oncology 2 week elective**

This course is intended as an introductory experience in the field of Radiation Oncology. Students will enhance their knowledge, skills, and attitudes about patient-centered care through active participation in direct patient care activities while under the supervision of a faculty preceptor. Students will integrate previously acquired knowledge and concepts and apply them to the care and management of patients. During the clerkship,

students will be expected to work-up patients, perform physical exams, and present cases to faculty. Students will also be exposed to treatment planning, simulations, and treatment deliveries throughout the rotation.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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**RADIOL 6961: Radiation Oncology-2-Week Elective**

This will be an introduction of radiation oncology including the basics of radiation physics, radiation biology, and treatment planning. Each student will be asked to attend multidisciplinary tumor conference. They will participate in evaluation and management of patients with cancer. This will include seeing consults, participating in treatment planning, seeing patients who are on treatment, and follow-up of patients. Special procedures include radiation oncology three-dimensional treatment planning, INRT, stereotactic radiosurgery and stereotactic body radiation therapy, and brachytherapy.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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**RADIOL 6962: SCC Introduction to Radiology**

This two week elective will provide students with exposure to Chest, Body Imaging, Neuroradiology and Pediatric Imaging. Information is presented in a variety of evidence-based resources and online modules, including daily discussion and case review.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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## Reading (Intensive English Program) Courses

**IEPR \_0001: Reading I**

Students will develop the reading skills and vocabulary required to comprehend short, simple texts on general interest topics. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required

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**IEPR \_0002: Reading II**

Students will develop the reading skills and vocabulary required to comprehend short, predictable texts on general interest topics. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required

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**IEPR \_0030: Reading for Academic Purposes III**

Students will develop the reading skills and vocabulary required to comprehend pre-academic and adapted academic texts. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required

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**IEPR\_0040: Reading for Academic Purposes IV**

Students will develop the reading skills and vocabulary required to comprehend adapted university-level texts. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required

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**IEPR\_0050: Reading for Academic Purposes V**

Students will develop the reading skills and vocabulary required to comprehend and analyze university-level texts. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required; concurrent enrollment in IEPW\_0050 Writing for Academic Purposes required

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## Religious Studies Courses

**REL\_ST 1100: Introduction to Religion**

Engages students in reflection on the religious questions that human existence poses, and introduces them to conceptual tools for understanding and evaluating answers which have emerged in human history.

**Credit Hours:** 3

**Prerequisites:** Sections are restricted to Freshmen and Sophomores only or Juniors and Seniors only

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**REL\_ST 1100H: Introduction to Religion - Honors**

Engages students in reflection on the religious questions that human existence poses, and introduces them to conceptual tools for understanding and evaluating answers which have emerged in human history.

**Credit Hours:** 3

**Prerequisites:** Sections are restricted to Freshman and Sophomores only and Juniors and Seniors only. Honors eligibility required

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**REL\_ST 1500: Religion and Culture**

The study of religion as expressed in art, literature, music, dance, drama, architecture.

**Credit Hours:** 3

**Prerequisites:** Restricted to Freshmen and Sophomores only

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**REL\_ST 2005: Topics in Religious Studies-Humanities**

Organized study of selected topics which vary by semester and are announced at time of registration.

**Credit Hour:** 1-3

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**REL\_ST 2100: Indigenous Religions**

(same as ANTHRO 2100). Explores the central aspects of religious life in indigenous communities. Focusing on specific groups, it considers individual and group identity, the meaning of the sacred, and the impact of foreign domination.

**Credit Hours:** 3

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**REL\_ST 2100H: Indigenous Religions - Honors**

(same as ANTHRO 2100H). Explores the central aspects of religious life in indigenous communities. Focusing on specific native communities, it considers individual and group identity and the meaning of the sacred.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**REL\_ST 2110: Global Religions**

This course explores approaches to the academic study of religion and introduces students to a variety of global religious traditions through the study of their myths, rituals, beliefs, and practices.

**Credit Hours:** 3

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**REL\_ST 2110H: Religions of the World - Honors**

Explores the differing ways in which Asian and Western religions interpret life and reality. Includes study of Hinduism, Buddhism, Chinese and Japanese religions, Judaism, Christianity, and Islam.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**REL\_ST 2220: Death and Dying in the Western World**

Death is a topic most Americans wish to avoid. Once we were very familiar with it since people before the mid-19th c. usually died at home, their bodies mourned at home, and then buried either in a designated public space or on their property (especially in the South). Today, most people die in hospitals or medical-oriented institutions (like nursing homes). Because death is so hidden (even disguised) most of us have never seen a dead body except in film or on television and those bodies are often a result of an exceptionally gruesome, yet highly staged death. Hidden death in everyday life has led to the fact that most Americans are unfamiliar with death and even outright afraid of it. People unconsciously treat death, the process of dying, and grief as a sort of infectious disease. However, death surrounds us both personally and collectively and this means that the living and the dead do not exist (and have never existed) in completely separate realms. This class explores how death has historically been approached in the Western world and familiarizes us with different types of death (natural death, death by execution, death from illness, and death by murder). Using a religious studies and American studies approach we will examine overarching themes of grief, loss, mourning, and even anger in association with death and dying.

**Credit Hours:** 3

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**REL\_ST 2230: Religion and Popular Culture in the U.S.**

Explores intersections of religion and popular culture and methods for analysis.

**Credit Hours:** 3

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**REL\_ST 2240: Harry Potter, Magic, and Religion**

This course explores religious themes in J.K. Rowling's Harry Potter series. Topics include ancient Greek, Roman, Celtic, and Norse mythological themes, the relationship between religion and magic, and reactions to the books among various religious groups.

**Credit Hours:** 3

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**REL\_ST 2240H: Harry Potter, Magic, and Religion - Honors**

This course explores religious themes in J.K. Rowling's Harry Potter series. Topics include ancient Greek, Roman, Celtic, and Norse mythological themes, the relationship between religion and magic, and reactions to the books among various religious groups. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**REL\_ST 2260: Gods, Dwarves, and Dragons: Introduction to Old Norse Mythology**

This course is an introduction to the pre-Christian religion and mythology of Northern Europe. Topics covered include Old Norse society, gender roles, and values. Main deities and mythological figures are explored through images and texts. Graded on A-F basis only.

**Credit Hours:** 2

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**REL\_ST 2270: Religion and Literature**

This course explores religious themes such as myth, rituals and rites, sacred power, transcendence, salvation, and pilgrimage in secular literature. Selections in English, include novels and short stories from a variety of cultures and religious traditions.

**Credit Hours:** 3

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**REL\_ST 2310: Religions of China and Japan**

Introduction to the religions of East Asia, focusing on both popular beliefs and institutionalized religion. Topics include: Buddhist, Confucian, and Daoist traditions of China; Buddhism and Shinto in Japan; self-cultivation practices; spirit mediumship; ritual; cosmology; religion and society; religion and the state.

**Credit Hours:** 3

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**REL\_ST 2310H: Religions of China and Japan - Honors**

Introduction to the religions of East Asia, focusing on both popular beliefs and institutionalized religion. Topics include: Buddhist, Confucian, and Daoist traditions of China; Buddhism and Shinto in Japan; self-cultivation practices; spirit mediumship; ritual; cosmology; religion and society; religion and the state.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**REL\_ST 2500H: Introduction to the Old Testament/Hebrew Bible and its World - Honors**

An introduction to the literature of the Hebrew Bible in its Ancient Near Eastern cultural context. Students are exposed to the art, archaeology, literature, and histories of the great civilizations of the ANE and their impact on Israelite history and the formation of the Hebrew Bible. Emphasis is placed on the development and changes in Israelite theology in response to historical circumstances over the centuries that witnessed the Hebrew Bible's composition, compilation, and canonization.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**REL\_ST 2610: Medieval Christianity**

(same as HIST 2610). History of Christian practices and teachings from the 5th-15th centuries, including Byzantine and Western Christianity Themes such as the influence of the Islamic world on Christianity, popular and elite formulations of theology and ritual activities.

**Credit Hours:** 3

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**REL\_ST 2610H: Medieval Christianity - Honors**

History of Christian practices and teachings from the 5th-15th centuries, including Byzantine and Western Christianity Themes such as the influence of the Islamic world on Christianity, popular and elite formulations of theology and ritual activities.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**REL\_ST 2630: History of Christian Traditions**

(same as HIST 2630). An overview of the origins and development of Christianities from the first century of the Common Era to the present day. Topic will include competing Christian theologies, colonialism, conversion narratives, globalization, religious violence, and heresy. May be repeated for credit.

**Credit Hours:** 3

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**REL\_ST 2700: Islam**

Examines the historical development of Islamic traditions, noting the manner in which various sects & factions understand religion, humanity and God.

**Credit Hours:** 3

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**REL\_ST 2850: Religious History of the Middle East I**

An introduction to the early history and development of religion in the Middle East. The course begins with the religious traditions of ancient Egypt, Anatolia, and Mesopotamia; describes how these traditions shaped the subsequent development of Judaism, Christianity, and Islam; and concludes with the transformation of the religious landscape following the Islamic conquests. In addition to mapping out these historical linkages, the course will focus on using the category of religion as a unique method in the study of social and political history. Graded on A-F basis only.

**Credit Hours:** 3

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**REL\_ST 2860: Religious History of the Middle East II**

This course is a historical introduction to the religions of the pre-modern and modern Middle East. It follows the histories of Judaism, Christianity, and Islam from the defeat of the Mongol army in Palestine in 1260 to the present day. In particular it focuses on the social, political, and economic interactions of the Jewish, Christian, and Muslim populations, and the role religion has (and has not) played in the formation and development of the modern Middle East. Graded on A-F basis only.

**Credit Hours:** 3

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**REL\_ST 2900: Contemporary Religious Thought**

Explores issues within contemporary Christian theology that cut across denominational lines such as: the nature and existence of God; secularization, relativism, and humanism; the authority of the Bible;

attitudes toward other religions; the moral integrity of Christianity; and the purpose of human existence.

**Credit Hours:** 3

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**REL\_ST 2910: Religion and Contemporary Social Issues**

Study of the social ethics of Jewish and Christian theologians and movements of the 19th and 20th centuries and an examination of selected social problems in light of these systems.

**Credit Hours:** 3

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**REL\_ST 2930: Religion and Psychological Perspectives**

Examines how religion is understood from various psychological perspectives, and how psychological theories reflect religious presuppositions about the nature and purpose of human life.

**Credit Hours:** 3

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**REL\_ST 2939: Religion and Human Sexuality**

Examines attitudes within the Christian tradition toward sexuality, with particular reference to the alternatives of patriarchy and feminism, especially as they consider issues such as the meaning of bodilyness, masturbation, pornography, prostitution, homosexuality and sexual pluralism.

**Credit Hours:** 3

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**REL\_ST 2940: African Religions**

(same as BL\_STU 2940). This course will serve as an introduction to various forms of religiosity in sub-Saharan Africa. Greater emphasis will be devoted to the indigenous religious traditions of the continent, but we will also examine Christianity and Islam as they are practiced on the continent. The aim of this class is to help students to better understand various aspects of African cultures by dismantling stereotypes and assumptions that have long characterized the study of religions in Africa. The readings and lectures are will be drawn from historical, anthropological, sociological, and literary sources. Graded on A-F basis only.

**Credit Hours:** 3

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**REL\_ST 2950: Directed Readings in Religious Studies**

Independent readings selected in consultation with supervisory faculty member. May not be repeated.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**REL\_ST 3000: History of Religion in America to the Civil War**

(same as HIST 3000). Surveys major American religious traditions, patterns, and themes from 1492 to the Civil War, especially the role of religion in American social, cultural, and political developments.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent

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**REL\_ST 3005: Topics in Religious Studies-Humanities**

Organized study of selected topics which vary by semester and are announced at time of registration.

**Credit Hours:** 3

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**REL\_ST 3020: Religion, Health, and Healing**

What does it mean to 'be healthy' and 'to heal' in different contexts? What sorts of medical, ritual, or religious expertise authorizes different sorts of healers and forms of healing? What conceptions of human bodies and their capabilities are assumed? These questions probe entanglements of religion, culture, and medicine in everyday life. This course focuses on ways in which these issues might inform, challenge, and enrich thinking about global health. We will examine moral and religious histories of the global health movement alongside pressing contemporary questions such as, how do disease epidemics shape religious practice? How does religious belief shape the reception of biomedical technologies? We will consider examples from a range of contexts and traditions. Topics include colonialism, medical missionaries, social gospel and public health, human rights, bioethics, and liberation theology. Throughout the course, we will discuss the relevance of socio-economics, race, gender, and sexuality. Graded on A-F basis only.

**Credit Hours:** 3

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**REL\_ST 3042: Sacred Humor: Tricksters, Clowns, and Contraries**

This class will explore the notion that humor plays an important role in conveying sacred meaning. To that end, we will need to adopt a fairly common vocabulary regarding the concepts 'humor' and 'sacred,' and will do so while exploring some of the key aspects of the sacred humor discourse, especially the 'trickster,' 'clown,' and 'contrary' motifs in mythic narrative.

**Credit Hours:** 3

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**REL\_ST 3100: Religious Literacy for the Public and Professions**

This course teaches students to engage and encounter religion in day-to-day life and in the professional workplace. Its primary goal is to examine religious diversity in private and professional contexts from a practical standpoint by examining a variety of case studies.

**Credit Hours:** 3

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**REL\_ST 3200: Hinduism**

(same as S\_A\_ST 3200). Origin and development of central themes of traditional Hinduism from earliest times to the modern period. Topics include: the Vedic tradition, rituals and practice, varieties of yoga, and meditation, Indian religious thought, and devotional Hinduism.

**Credit Hours:** 3

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**REL\_ST 3210: History of Religion in Post-Civil War America**

(same as HIST 3210). Surveys major American religious traditions, patterns, and themes from 1865 to the present, especially the role of religion in American social, cultural and political developments.

**Credit Hours:** 3

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**REL\_ST 3210H: History of Religion in Post-Civil War America - Honors**

Surveys major American religious traditions, patterns, and themes from 1865 to the present, especially the role of religion in American social, cultural and political developments. Prerequisites: Honors Eligibility Required.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent

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**REL\_ST 3220: Tibetan Buddhism**

This course explores the Buddhist tradition in Tibet, from its introduction in the 8th century to the present. Topics include the merger of Indian Buddhism with the local Bon religion, the relationship between Tibetan Buddhism and Mahayana Buddhism, the Tibetan Buddhist canon, lamas and tulkus, religion and material culture in Tibet, and the influence of Tibetan Buddhism in Central Asia. Graded on A-F basis only.

**Credit Hours:** 3

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**REL\_ST 3230: Buddhism and Environmental Ethics**

(same as S\_A\_ST 3230). Global environmental crisis is associated with rapidly expanding human population. Buddhist teachings about the interdependent aspects of existence and interrelatedness of all life may provide critical insights for how humanity can achieve balance and reciprocity with nature.

**Credit Hours:** 3

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**REL\_ST 3240: Buddhism of South and Southeast Asia**

(same as S\_A\_ST 3240). Examines the origins of Buddhism in India, the narratives of the life of the Buddha, the development of early Buddhist schools, the extension of Buddhism into Central and Southeast Asia, and the current practice of Buddhism in South and Southeast Asia.

**Credit Hours:** 3

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**REL\_ST 3250: Buddhism in East Asia**

This course will trace the transmission of Buddhism from the Indian subcontinent to China, and from there to Korea and Japan. We will examine the historical development of East Asian forms of Buddhism, deal with key issues of Buddhist thought and practice, and look at the role of Buddhism in modern East Asian societies.

**Credit Hours:** 3

**Prerequisites:** REL\_ST 2110, REL\_ST 2310 or REL\_ST 3200, or instructor's consent

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**REL\_ST 3260: Hindu Goddesses**

(same as S\_A\_ST 3261). This course examines the vast range of Hindu Goddesses and their worship in South Asia. It includes information about goddess origins, mythology, symbolism, and attendant ritual practices. In order to approach this topic, background information about the history of Hinduism, major religious narratives, devotional practices, and iconographic representations of the divine are discussed. The course introduces the approaches of various scholars to Hindu Goddess worship within the context of religion, social relations, and gender roles, and explores ways in which South Asian women experience and negotiate feminine power in contemporary socio-cultural contexts.

**Credit Hours:** 3

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**REL\_ST 3270: Yoga and Meditation in the Modern World**

(same as S\_A\_ST 3270). This course explores the practice of Yoga and meditation, both as an ancient tradition of India and as an example of the globalization of religion. It will examine how the ancient Hindu religious tradition of Yoga was reinvented against the backdrop of India's colonial experience. Then it will look at a variety of emerging and transforming varieties of Hindu inspired yoga and meditation that spread globally in

the context of increasing transnational interaction. To better appreciate both the traditional and the modern aspects of yoga and meditation, a secular meditation practice is included as an instructional and experiential component of this class.

**Credit Hours:** 4

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**REL\_ST 3350: Monsters in Western Religion and Folklore**

This course focuses on monsters found in Western cultures and more specifically how monsters are instantiated and put to use in contexts of popular culture. Theoretical and methodological approaches to the material are drawn from both Religious Studies and Folkloristics. Graded on A-F basis only.

**Credit Hours:** 3

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**REL\_ST 3350W: Monsters in Western Religion and Folklore - Writing Intensive**

This course focuses on monsters found in Western cultures and more specifically how monsters are instantiated and put to use in contexts of popular culture. Theoretical and methodological approaches to the material are drawn from both Religious Studies and Folkloristics. Graded on A-F basis only.

**Credit Hours:** 3

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**REL\_ST 3360: Cults and New Religious Movements**

While religious traditions constantly change, and new religions emerge in every historical time period, the new religious movements of the past century (many of which are often referred to negatively as 'cults') present a particular challenge to contemporary cultures and societies. We will begin with a theoretical overview of new religious movements (NRMs) and will proceed gradually to discuss in detail the religion of the Peoples Temple and its charismatic leader and founder, Jim Jones. Recommended: An introductory course in any of the following disciplines/area studies: Religious Studies, Psychology, Communication Studies (emphasis on Media and Society/Media Theory); or Sociology.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing

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**REL\_ST 3380: Native American Religions**

(same as ANTHRO 3380). Investigation of religious lives of the native peoples of the Americas through cultural contact with modernity. Perspectives based on historical, anthropological and native texts.

**Credit Hours:** 3

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**REL\_ST 3445: The Body in Western Christianity**

This course is a survey of Western Christian Perspectives of the human body ranging from the Early Church Fathers to trends in contemporary American culture.

**Credit Hours:** 3

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**REL\_ST 3445W: The Body in Western Christianity - Writing Intensive**

This course is a survey of Western Christian Perspectives of the human body ranging from the Early Church Fathers to trends in contemporary American culture.

**Credit Hours:** 3



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**REL\_ST 3451: Religion in Science Fiction**

Investigation of religious themes in science fiction novels, short stories and films. Themes include the nature of the sacred, the limits of human knowledge, understanding and experiencing transcendence, revelation and apocalypse.

**Credit Hours: 3**

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**REL\_ST 3451W: Religion in Science Fiction - Writing Intensive**

Investigation of religious themes in science fiction novels, short stories and films. Themes include the nature of the sacred, the limits of human knowledge, understanding and experiencing transcendence, revelation and apocalypse.

**Credit Hours: 3**

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**REL\_ST 3455: Robots and Religion: Reflection on Self, Soul, and Humanity**

This course explores ancient and modern texts about robots, androids, and other artificial and virtual humans in order to analyze cultural and religious notions of what it means to be human. Course readings include ancient Indian, Tibetan, and Chinese robot stories in translation, medieval Jewish legends about golems, as well as contemporary Western science fiction

**Credit Hours: 3**

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**REL\_ST 3500: Judaism in the Time of Jesus**

This course is an introduction to the origin and development of Judaism from the time of the destruction of the first Jerusalem temple (587 BCE) to the Bar Kochba revolt (132-135 CE).

**Credit Hours: 3**

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**REL\_ST 3550: Introduction to the Qur'an**

This course is meant to introduce students with little or no background to the history, content, and interpretive traditions of the Qur'an. Given the text's unfamiliarity to most non-Muslim readers, students will spend the first half of the semester learning to navigate and read the Qur'an. Students then spend the second half of the semester examining what Muslims have said about and done with the Qur'an, with an emphasis on the diversity of voices - both past and present - engaged with the text. Graded on A-F basis only.

**Credit Hours: 3**

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**REL\_ST 3610: Angry Theologians**

This course examines how intense debates and furious prose helped define many of modern Christianity's most widely agreed upon tenets of faith. Through close readings of theological treatises laced with profanity, insults, and outrage, we shall explore how central Christian theological convictions about baptism, the nature of Jesus, gender roles, sin, salvation, and other topics were constructed through argumentation and compromise. Though some theological disputes were settled politely through votes at church councils, even these peaceable compromises often emerged through a spate of insults and red-faced polemic. We shall read and discuss some of the most colorful--and enduringly influential--cases of theology developing through brash confrontation, from the Luther Insult Generator to the fiercely angry articulations of Christian theology in contemporary America. Students will learn to understand the

logic and purpose behind these vehement arguments in their historical context and practice evaluating competing claims about complex issues such as the Trinity, the path to salvation, and sin. Graded on A-F basis only.

**Credit Hours: 3**

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**REL\_ST 3610W: Angry Theologians - Writing Intensive**

This course examines how intense debates and furious prose helped define many of modern Christianity's most widely agreed upon tenets of faith. Through close readings of theological treatises laced with profanity, insults, and outrage, we shall explore how central Christian theological convictions about baptism, the nature of Jesus, gender roles, sin, salvation, and other topics were constructed through argumentation and compromise. Though some theological disputes were settled politely through votes at church councils, even these peaceable compromises often emerged through a spate of insults and red-faced polemic. We shall read and discuss some of the most colorful--and enduringly influential--cases of theology developing through brash confrontation, from the Luther Insult Generator to the fiercely angry articulations of Christian theology in contemporary America. Students will learn to understand the logic and purpose behind these vehement arguments in their historical context and practice evaluating competing claims about complex issues such as the Trinity, the path to salvation, and sin. Graded on A-F basis only.

**Credit Hours: 3**

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**REL\_ST 3619: Religion and Race in the U.S.**

This course explores intersections of race and religion in the United States. Areas explored in this course include but are not limited to: the role of religious institutions in the construction of race and racialization; the complex relationships between race, religion, and U.S. law, as well as historical and contemporary theologies of race. Graded on A-F basis only.

**Credit Hours: 3**

**Recommended:** REL\_ST 1100, REL\_ST 2110

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**REL\_ST 3710: Reality of God**

Will explore the meaning of 'the loss of God' (Tillich) and various modern and contemporary attempts to reaffirm the reality of God.

**Credit Hours: 3**

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**REL\_ST 3740: Religion and Film**

Addresses issues of interpretation and analysis in the convergence of religion and film. Addresses three areas under this broad rubric: 1) film representations of established religions; 2) film and the construction of social values; 3) film as contemporary 'myth'. Treating films as social texts, we will ask what such representations of ourselves to ourselves suggest about culture in general.

**Credit Hours: 3**

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**REL\_ST 3760: Geography of the World's Religions**

(same as GEOG 3760). Explores the significance of place in the origin, diffusion, distribution and practice of religions, emphasizing imprints of religion on the cultural landscape and connections between culture, politics, economics, and religion.

**Credit Hours: 3**

**Prerequisites:** 1000/2000 level Geography course; junior standing or instructor's consent

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**REL\_ST 3760W: Geography of the World's Religions - Writing Intensive**

(same as GEOG 3760). Explores the significance of place in the origin, diffusion, distribution and practice of religions, emphasizing imprints of religion on the cultural landscape and connections between culture, politics, economics, and religion.

**Credit Hours:** 3

**Prerequisites:** 1000/2000 level Geography course; junior standing or instructor's consent

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**REL\_ST 3840: Religion and Criminal Justice**

This course helps students become more familiar with a religious, sociological, and American studies approach toward understanding the complicated relationship between religion and the U.S. prison system. It addresses the influence of religion on the development of the justice system in the United States and enables students to understand how this influence extends into the present day. Unit one centers on understanding religion and familiarizing ourselves with certain components of the criminal justice system. Unit two examines the direct relationship between the two institutions, and Unit three is an exploration specifically of religion and capital punishment (the death penalty). Throughout this class we will also explore via the podcast 'Serial', as well as other sources both fictional and nonfictional that give students the opportunity to contemplate complex concepts frequently taken for granted such as criminality, justice, punishment, and of course - guilt and innocence. Recommended: Introductory courses in one or more of the following disciplines: Sociology, Religious Studies, Psychology, Philosophy, Interdisciplinary Studies, and Political Science.

**Credit Hours:** 3

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**REL\_ST 3900: Islam and the Myth of Religious Violence**

This course explores the widespread claim that Islam is an inherently violent religion. After an overview of the history of Islam, and an introduction to the concepts of myth, religion, and violence, we examine systematically the historical, social, political, and religious contexts of a series of case studies. These case studies will underscore the nature of religious language and motivation within specific contexts, exposing students to a much more complex picture of the means and ends of so-called religious violence. No prior knowledge of Islam is required. Graded on A-F basis only.

**Credit Hours:** 3

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**REL\_ST 3990: Majors Seminar**

In this seminar religious studies majors will be encouraged to form a community of inquiry focused on the subject of religion and public life. Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites:** Religious Studies majors in their junior year

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**REL\_ST 4001: Topics in Religious Studies-General**

Organized study of selected topics which vary by semester and are announced at time of registration.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**REL\_ST 4005: Topics in Religious Studies-General**

Organized study of selected topics which vary by semester and are announced at time of registration.

**Credit Hours:** 3

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**REL\_ST 4100: Advanced Theories and Methods**

(cross-leveled with REL\_ST 7100). The course investigates the history of the modern academic study of religion, closely exploring influential theories and methods that have shaped scholarly perspective. May include approaches such as structuralism, phenomenology, Durkheimian and Weberian sociology, Marxism, feminism, thick description, psychoanalysis, and others.

**Credit Hours:** 3

**Prerequisites:** Restricted to Religious Studies majors and MA students

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**REL\_ST 4100W: Advanced Theories and Methods - Writing Intensive**

(cross-leveled with REL\_ST 7100). The course investigates the history of the modern academic study of religion, closely exploring influential theories and methods that have shaped scholarly perspective. May include approaches such as structuralism, phenomenology, Durkheimian and Weberian sociology, Marxism, feminism, thick description, psychoanalysis, and others.

**Credit Hours:** 3

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**REL\_ST 4110: Religious Myth and Ritual**

(cross-leveled with REL\_ST 7110). This course will unpack theoretical and methodological issues surrounding the study of embodied religious practice and the nature of religious narrative using myths and rituals from around the world's religious traditions.

**Credit Hours:** 3

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**REL\_ST 4130: Haunting and Healing: The Supernatural in American Culture**

This course explores instances, stories, and representations of haunting in the United States. We apply a variety of theoretical and methodological approaches to illuminate the diversity of meanings, functions, and contexts of supernatural beings in American popular and folk cultures.

**Credit Hours:** 3

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**REL\_ST 4150: Religion, Spirituality, and the Brain**

(cross-leveled with REL\_ST 7150). Explores neuropsychology of religion, spirituality, transcendence, and mystical experience. Covers development in neuroscience about how the brain works in a variety of religious and spiritual contexts, including prayer, meditation, and altered states of consciousness.

**Credit Hours:** 3

**Prerequisites:** Restricted to juniors and seniors only

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**REL\_ST 4210: African-American Religion**

(same as BL\_STU 4210). Historical and thematic examination of African American religious traditions and practices. Addresses intersections of religious expression with race, identity, culture, and society.

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**Credit Hours:** 3

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**REL\_ST 4280: Archaeology of Religion**

(same as ANTHRO 4280; cross-leveled with REL\_ST 7280, ANTHRO 7280 ). This course examines how anthropologists conceptualize religious behavior, and how archaeologists use material remains to examine past religious behavior, rituals, religious practitioners, cosmological constructs, worldview and ideology in the Americas.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2020 and/or REL\_ST 2100

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**REL\_ST 4287: Empire: Intellectual History, Literature, and Society**

(same as PEA\_ST 4287; cross-leveled with REL\_ST 7287, PEA\_ST 7287). Intellectuals and writers passionately debated the wisdom of colonies, free trade, and war as economies became increasingly global over the centuries. The proponents, critics, and interpreters of Empire will offer us rich examples of themes and theories in the culture of specific nations and eras. Intellectual life will be studied in the context of developments in social inequality, the culture of classes, media of communication, education, identities, transnational governance, and the nation-state. The course will be offered with different national and historical foci under different instructors, and may be repeated for credit with different instructors. Counts as the capstone experience for Peace Studies and is open to majors of other disciplines.

**Credit Hours:** 3

**Prerequisites:** junior standing, senior standing preferred

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**REL\_ST 4320: Introduction to Daoism**

An introduction to the Daoist religious tradition, beginning with its background in earlier forms of philosophy, ritual, and belief. We will follow the development of the various Daoist schools and movements over the centuries and examine key aspects of their belief and practice, both historical and contemporary.

**Credit Hours:** 3

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**REL\_ST 4380: Anthropological Theories of Religion**

(same as ANTHRO 4380; cross-leveled with REL\_ST 7380, ANTHRO 7380). Course provides a critical evaluation of anthropological explanations of various forms of traditional religious behavior such as magic, shamanism, divination, ritual, mythology, and witchcraft. The anthropological explanations examined range from nineteenth century classics to the current approaches of today.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2030, ANTHRO 2100 or REL\_ST 2100, or instructor's consent

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**REL\_ST 4400: The Catholic Intellectual Tradition**

(cross-level with REL\_ST 7110). Students will read the great thinkers of the Catholic church such as Augustine, Abelard, Bernard of Clairvaux, Aquinas, Bonaventure, Nicholas of Cusa, Pascal, Newman, Maritain, Rahner, Johnson, Tracy. The theme examined may vary from year to year.

**Credit Hours:** 3

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**REL\_ST 4400H: The Catholic Intellectual Tradition - Honors**

(cross-level with REL\_ST 7110). Students will read the great thinkers of the Catholic church such as Augustine, Abelard, Bernard of Clairvaux, Aquinas, Bonaventure, Nicholas of Cusa, Pascal, Newman, Maritain, Rahner, Johnson, Tracy. The theme examined may vary from year to year.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**REL\_ST 4500: Greek and Roman Religion**

(same as AMS 4500; cross-leveled with REL\_ST 7500). Survey of religious development among the Greeks and Romans.

**Credit Hours:** 3

**Recommended:** AMS 1060 and junior standing

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**REL\_ST 4535: Monastic Worlds**

(same as MDVL\_REN 4535; cross-leveled with REL\_ST 7535, MDVL\_REN 7535). Monastic Worlds is an experiential learning course designed to serve as a Humanities Field School in medieval and early modern studies. It will be taught by faculty from UMKC and UMC through the Intercampus Course Sharing initiative. The class introduces students to humanities research methodology and the religious history and culture of premodern Europe and the contemporary Midwest by using the monastic communities as a focal point to learn about musicology, history, art history, literature, and religion. Following two weeks of online course modules, students will travel to the Benedictine communities of Conception Abbey in Conception, Missouri and Mount Saint Scholastica's in Atchison, Kansas, for additional face-to-face classes and research projects. On-site, students will participate in communal living and attend face-to-face classes on the historical and cultural worlds of medieval and early modern Europe. They will practice ethnography through observation of and participation in communal life of prayer, study, book production, and labor. Students will also have the opportunity to work with the manuscripts and rare books owned by these communities and visit the largest reliquary collection in North America, housed at the nearby Benedictine community of the Sisters of Perpetual Adoration in Clyde, MO. This course has an associated fee. Contact teaching faculty for this year's fee details. Graded on A-F basis only.

**Credit Hours:** 3

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**REL\_ST 4630: Sanskrit I**

(same as S\_A\_ST 4630). This intensive course will cover the essentials of Sanskrit grammar in one semester and prepare students for further readings in Hindu and Buddhist Literature.

**Credit Hours:** 3

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**REL\_ST 4640: Sanskrit II**

(same as S\_A\_ST 4640; cross-leveled with REL\_ST 7640). This course is intended as a 'sampler' of Sanskrit literature. We will read Sanskrit tests in the original. The objectives of the course are 1) Expanding the students' knowledge of the Sanskrit language, 2) To acquaint the students with a broad range of textual genres in Sanskrit literature, and 3) To acquaint the students with some central ideas of Hindu and Buddhist philosophy.

**Credit Hours:** 3

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**REL\_ST 4704: Religion and Black Freedom**

(same as BL\_STU 4704). In this course, we will explore the role of religion in the shaping of the African diaspora in the Americas through discussions of the readings. We will focus on the use of religion to pursue emancipation from enslavement and the concept of full freedom. Research and theories from mainly history, religious studies, and literature will be used to examine some of the ways in which black people have improved their condition through religion. The main objective of this course is to study the connections between religion and the fashioning of black resistance to slavery and systems of domination after slavery.

**Credit Hours:** 3

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**REL\_ST 4750: Women, Religion and Culture**

(same as WGST 4750; cross-leveled with REL\_ST 7750, WGST 7750). An advanced study of the role of women in religion, focusing on the methods of determining the significance of gender in religious life, sacred texts, symbols, rituals and/or beliefs. Traditions studied include Christianity, Islam, contemporary pagan communities, and Native American traditions.

**Credit Hours:** 3

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**REL\_ST 4960: Directed Readings in Religious Studies**

Independent readings selected in consultation with supervisory faculty member. May be repeated up to 6 hrs.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**REL\_ST 4990: Senior Seminar in Religious Studies**

A seminar in which Religious Studies majors use methods of understanding and comparing religions by focusing on times and places of significant contact among peoples of different religions.

**Credit Hours:** 3

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**REL\_ST 7001: Topics in Religious Studies-General**

Organized study of selected topics which vary by semester and are announced at time of registration.

**Credit Hours:** 3

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**REL\_ST 7005: Topics in Religious Studies - General**

Organized study of selected topics which vary by semester and are announced at time of registration.

**Credit Hours:** 3

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**REL\_ST 7100: Advanced Theories and Methods**

(cross-leveled with REL\_ST 4100). The course investigates the history of the modern academic study of religion, closely exploring influential theories and methods that have shaped scholarly perspective. May include approaches such as structuralism, phenomenology, Durkheimian and Weberian sociology, Marxism, feminism, thick description, psychoanalysis, and others.

**Credit Hours:** 3

**Prerequisites:** Restricted to Religious Studies major or minor or instructor's consent

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**REL\_ST 7110: Religious Myth and Ritual**

(cross-leveled with REL\_ST 4110). Comparative analysis of religious mythologies and symbolism as well as the ritual systems associated with those mythologies.

**Credit Hours:** 3

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**REL\_ST 7150: Religion, Spirituality, and the Brain**

(cross-leveled with REL\_ST 4150). Explores neuropsychology of religion, spirituality, transcendence, and mystical experience. Covers development in neuroscience about how the brain works in a variety of religious and spiritual contexts, including prayer, meditation, and altered states of consciousness.

**Credit Hours:** 3

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**REL\_ST 7280: Archaeology of Religion**

(same as ANTHRO 7280; cross-leveled with REL\_ST 4280, ANTHRO 4280). This course examines how anthropologists conceptualize religious behavior, and how archaeologists use material remains to examine past religious behavior, rituals, religious practitioners, cosmological constructs, worldview and ideology in the Americas.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2020 and/or REL\_ST 2100

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**REL\_ST 7287: Empire: Intellectual History, Literature, and Society**

(same as PEA\_ST 7287; cross-leveled with REL\_ST 4287, PEA\_ST 4287). Intellectuals and writers passionately debated the wisdom of colonies, free trade, and war as economies became increasingly global over the centuries. The proponents, critics, and interpreters of Empire will offer us rich examples of themes and theories in the culture of specific nations and eras. Intellectual life will be studied in the context of developments in social inequality, the culture of classes, media of communication, education, identities, transnational governance, and the nation-state. The course will be offered with different national and historical foci under different instructors, and may be repeated for credit with different instructors. Counts as the capstone experience for Peace Studies and is open to majors of other disciplines.

**Credit Hours:** 3

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**REL\_ST 7380: Anthropological Theory of Religions**

(same as ANTHRO 7380; cross-leveled with REL\_ST 4380, ANTHRO 4380). Course provides a critical evaluation of anthropological explanations of various forms of traditional religious behavior such as magic, shamanism, divination, ritual, mythology and witchcraft. The anthropological explanations examined range from nineteenth century classics to the current approaches of today.

**Credit Hours:** 3

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**REL\_ST 7500: Greek and Roman Religion**

(cross-leveled with REL\_ST 4500, AMS 4500). Survey of religious development among the Greeks and Romans.

**Credit Hours:** 3

**Recommended:** AMS 1060 and junior standing

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**REL\_ST 7510: The Catholic Intellectual Tradition**

(cross-leveled with REL\_ST 4400), Students will read the great thinkers of the Catholic church such as Augustine, Abelard, Bernard of Clairvaux, Aquinas, Bonaventure, Nicholas of Cusa, Pascal, Newman, Maritain, Rahner, Johnson, Tracy. The theme examined may vary from year to year.

**Credit Hours:** 3

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**REL\_ST 7535: Monastic Worlds**

(same as MDVL\_REN 7535; cross-leveled with MDVL\_REN 4535, REL\_ST 4535). Monastic Worlds is an experiential learning course designed to serve as a Humanities Field School in medieval and early modern studies. It will be taught by faculty from UMKC and UMC through the Intercampus Course Sharing initiative. The class introduces students to humanities research methodology and the religious history and culture of premodern Europe and the contemporary Midwest by using the monastic communities as a focal point to learn about musicology, history, art history, literature, and religion. Following two weeks of online course modules, students will travel to the Benedictine communities of Conception Abbey in Conception, Missouri and Mount Saint Scholastica's in Atchison, Kansas, for additional face-to-face classes and research projects. On-site, students will participate in communal living and attend face-to-face classes on the historical and cultural worlds of medieval and early modern Europe. They will practice ethnography through observation of and participation in communal life of prayer, study, book production, and labor. Students will also have the opportunity to work with the manuscripts and rare books owned by these communities and visit the largest reliquary collection in North America, housed at the nearby Benedictine community of the Sisters of Perpetual Adoration in Clyde, MO. This course has an associated fee. Contact teaching faculty for this year's fee details. Graded on A-F basis only.

**Credit Hours:** 3

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**REL\_ST 7630: Sanskrit I**

(same as S\_A\_ST 7630). This intensive course will cover the essentials of Sanskrit grammar in one semester and prepare students for further readings in Hindu and Buddhist literature.

**Credit Hours:** 3

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**REL\_ST 7640: Sanskrit II**

(same as S\_A\_ST 7640). This course is intended as a "sampler" of Sanskrit literature. We will read Sanskrit texts in the original. The objectives of the course are 1) Expanding the students' knowledge of the Sanskrit language, 2) To acquaint the students with a broad range of textual genres in Sanskrit literature, and 3) To acquaint the students with some central ideas of Hindu and Buddhist philosophy.

**Credit Hours:** 3

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**REL\_ST 7720: Introduction to Daoism**

An introduction to the Daoist religious tradition, beginning with its background in earlier forms of philosophy, ritual, and belief. We will follow the development of the various Daoist schools and movements over the centuries and examine key aspects of their belief and practice, both historical and contemporary.

**Credit Hours:** 3

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**REL\_ST 7750: Women, Religion and Culture**

(same as WGST 7750; cross-leveled with REL\_ST 7750, WGST 7750). An advanced study of the role of women in religion, focusing on the methods of determining the significance of gender in religious life, sacred texts, symbols, rituals and/or beliefs. Traditions studied include Christianity, Islam, contemporary pagan communities, and Native American traditions.

**Credit Hours:** 3

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**REL\_ST 7990: Independent Readings in Religious Studies**

Independent readings and research selected in consultation with supervisory faculty.

**Credit Hours:** 3

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**REL\_ST 8005: Topics in Religious Studies-Humanities**

Organized study of selected topics which vary by semester and are announced at time of registration.

**Credit Hours:** 3

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**REL\_ST 8090: Research and Thesis in Religious Studies**

Research and writing for master's thesis. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** Instructor's consent

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**REL\_ST 8200: Religious Texts and Interpretation: The Veda**

(same as S\_A\_ST 7200). This course examines the Veda, the foundational scripture of Hinduism. It includes close study of Vedic texts and rituals and the influence, interpretation, and application of the Veda in the later Hinduism.

**Credit Hours:** 3

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**REL\_ST 8210: Indian Buddhism**

This course examines the role of sacred texts in the Theravada and Mayayana Buddhist traditions. The course will emphasize canon formation and ideas about sacred texts in Buddhist traditions.

**Credit Hours:** 3

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**REL\_ST 8700: Seminar in Folklore**

(same as ANTHRO 8157 and ENGLSH 8700). Focus on the roots of folklore scholarship and methodology and their evolution in modern approaches to the study of oral, traditional verbal genres and their performance in natural folk groups.

**Credit Hours:** 3

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## Respiratory Therapy Courses

**RS\_THR 1000: Introduction to Respiratory Therapy**

Introductory course to assist students acquiring information about the respiratory therapy profession. Students observe therapists in hospitals and participate in lectures on credentialing, program requirements, placement and future trends in the profession. Graded on S/U basis only.

**Credit Hour:** 1

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**RS\_THR 3000: Fundamentals of Respiratory Care**

Orientation to the profession. Focus on professional attributes of communication, teamwork, licensure and safety.

**Credit Hour:** 1

**Prerequisites:** acceptance into respiratory therapy major

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**RS\_THR 3220: Equipment and Therapeutics**

History, organization of respiratory therapy. Theory, application of gas laws. Equipment for invasive and non-invasive pulmonary assessment, therapeutic aerosol and humidity, gas delivery, airway management. Techniques for infection control, lung expansion, bronchial hygiene. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to students in the Respiratory Therapy Program

**Corequisites:** RS\_THR 3240

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**RS\_THR 3240: Assessment and Therapeutics Lab**

Evidence-based application of assessment techniques and therapeutic management of cardiopulmonary disorders. Course content includes equipment and skills associated with physical examination, blood gas analysis, chest imaging, oxygen and aerosolized pharmaceutical delivery, airway clearance therapy, lung expansion, and airway management. Emphasis placed on competency development for clinical application. Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** RS\_THR 3220, RS\_THR 3941

**Prerequisites:** Restricted to students admitted into the Respiratory Therapy Program

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**RS\_THR 3290: Cardiopulmonary Pharmacology**

To provide the student with specific knowledge of the pharmacologic strategies in treating cardiopulmonary disorders. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** restricted to students in the respiratory therapy program

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**RS\_THR 3420: Principles of Mechanical Ventilation**

Continuation of RS\_THR 3220. Emphasis on the principles of mechanical ventilation, including physiologic and clinical application.

**Credit Hours:** 3

**Prerequisites:** RS\_THR 3220, RS\_THR 3941 and RS\_THR 4040

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**RS\_THR 3420W: Principles of Mechanical Ventilation - Writing Intensive**

Continuation of RS\_THR 3220. Emphasis on the principles of mechanical ventilation, including physiologic and clinical application.

**Credit Hours:** 3

**Prerequisites:** RS\_THR 3220, RS\_THR 3941 and RS\_THR 4040

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**RS\_THR 3440: Mechanical Ventilation Lab**

Application of mechanical ventilation emphasizing acute care: pressure, volume, and oscillatory ventilation of adults. Pediatrics, and infants. Related graphical, laboratory, and hemodynamic analysis; therapeutic intervention. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** RS\_THR 3220, RS\_THR 3941, RS\_THR 4040

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**RS\_THR 3941: Clinical Practice I**

To be taken concurrently with RS\_THR 3220 for which it serves as an extension of the laboratory time and an opportunity for structured clinical experience exposures.

**Credit Hours:** 2

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**RS\_THR 3942: Clinical Practice II**

To be taken concurrently with RS\_THR 3420, for which it serves as an extension of the laboratory time, and an opportunity for structured clinical experience exposures.

**Credit Hours:** 4

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**RS\_THR 3943: Clinical Practice III**

Continuation of supervised clinical experience from RS\_THR 3942. Graded on A-F basis only.

**Credit Hours:** 2

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**RS\_THR 4020: Perinatal/Neonatal Respiratory Care**

Evaluation and management of perinatal/neonatal pulmonary, medical and surgical conditions which require respiratory care. Emphasis on resuscitation, pathophysiology, evaluation, blood gas and x-ray interpretation, treatment and mechanical ventilation.

**Credit Hours:** 3

**Prerequisites:** RS\_THR 4040; Respiratory Therapy students only

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**RS\_THR 4040: Respiratory Pathophysiology**

Clinical pulmonary disease, organized around the gross structural components of the lung, airways, alveoli and pulmonary vasculature. Impact of disease on normal structure function; clinical, roentgenographic, and physiologic manifestations are described.

**Credit Hours:** 5

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**RS\_THR 4085: Problems in Respiratory Therapy**

Independent work on special problems related to cardiopulmonary health. Course not offered for graduate credit. Some sections of the course may be graded on either A-F or S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**RS\_THR 4220: Community and Patient Education I**

Design and implement materials for educational presentations for a given patient population. Graded on A-F basis only.

**Credit Hour:** 1

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**RS\_THR 4240: Pulmonary Rehabilitation**

Focus is on an interdisciplinary approach to pulmonary rehabilitation and home care of the adult cardiopulmonary patient. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**RS\_THR 4420: Pediatric Respiratory Care**

Evaluation and management of pulmonary, medical and surgical pediatric conditions requiring respiratory care. Emphasis on pediatric resuscitation, pathophysiology, treatment and prevention of respiratory conditions, mechanical ventilation, lab interpretation.

**Credit Hours:** 3

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**RS\_THR 4440: Organization and Administration**

(same as RA\_SCI 4440 and CDS 4440). Examines design and operation of allied health service departments and educational programs, including facilities, personnel procedures, record systems, ethics, medical-legal aspects, interdepartmental relations and curriculum development.

**Credit Hours:** 3

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**RS\_THR 4460: Evidence-Based Medicine in Respiratory Care**

This course is intended to facilitate the development of the student's ability to obtain and integrate patient assessment information and key findings and to formulate clinical decisions in respiratory therapy practice as well as use an evidence-based medicine approach to define respiratory clinical practice.

**Credit Hours:** 3

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**RS\_THR 4460W: Evidence-Based Medicine in Respiratory Care - Writing Intensive**

This course is intended to facilitate the development of the student's ability to obtain and integrate patient assessment information and key findings and to formulate clinical decisions in respiratory therapy practice as well as use an evidence-based medicine approach to define respiratory clinical practice.

**Credit Hours:** 3

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**RS\_THR 4620: Pulmonary Function Technologies**

This course will provide the student with a specific knowledge of the testing procedures and equipment for pulmonary function technology. The student will learn to interpret pulmonary function tests and perform quality assurance within the pulmonary function laboratory.

**Credit Hours:** 2

**Prerequisites:** restricted to Respiratory Therapy students only

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**RS\_THR 4640: Teaching Practicum**

Structured and supervised experience identifying student characteristics, methods for teaching, improving assessment, current development and instructional design.

**Credit Hours:** 3

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**RS\_THR 4660: Advanced Mechanical Ventilation Theory**

Exploration of advanced disease management via specific disease processes as well as concepts and modes of mechanical ventilation. Emphasis will be placed on mode selection for various disease and how new modes of mechanical ventilation impact disease management.

**Credit Hours:** 3

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**RS\_THR 4720: Advanced Pulmonary Function Technology**

This course will focus on the respiratory therapist's role in diagnostic testing. Topics include pulmonary function tests, exercise tests, and metabolic studies. In addition the course briefly addresses polysomnography, pulmonary rehabilitation, and home care. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to Respiratory Therapy students only

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**RS\_THR 4820: Adult Critical Care**

This course will focus on the respiratory therapist's role in the adult critical care environment. Topics include airway management, mechanical ventilation, general adult critical care and functioning as a vital member of the critical care team.

**Credit Hours:** 3

**Prerequisites:** restricted to Respiratory Therapy students only

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**RS\_THR 4860: Neonatal and Pediatric Critical Care**

This course will facilitate the evaluation and management of pulmonary, medical and surgical neonatal and pediatric conditions requiring respiratory care. There will be an emphasis on neonatal and pediatric resuscitation, pathophysiology, blood gas and x-ray interpretation, treatment and prevention of respiratory conditions, mechanical ventilation, and laboratory interpretation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Respiratory therapy degree advancement students only

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**RS\_THR 4930: Current Issues in Respiratory Care**

(cross-leveled with RS\_THR 7930). Identification and analysis of current issues in Respiratory Care with practice implications. Emphasis given to identification and evaluation of nontraditional information sources (e.g., social networking, internet). Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** HLTH\_SCI 3900 or instructor consent

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**RS\_THR 4940: Clinical Practice IV**

Structured and supervised clinical experience and case conferences regarding bioterrorism response and emergency/disaster planning.

**Credit Hours:** 5

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**RS\_THR 4973: Clinical Practice V**

An extension of the supervised practicum begun in RS\_THR 4940. Emphasis in adult critical care and special procedures including bronchoscopies, cardiac catheterization and chest tube placement.

**Credit Hours:** 4

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**RS\_THR 4983: Clinical Practice VI**

An extension of the supervised practicum begun in RS\_THR 4940. Emphasis in perinatal and pediatric critical care including pediatric pulmonary function testing and airway management.

**Credit Hours:** 4

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**RS\_THR 4990: Respiratory Therapy Capstone**

Integration of literature, knowledge of previous coursework and clinical experience.

**Credit Hours:** 2

**Prerequisites:** Respiratory Therapy Majors Only

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**RS\_THR 4993: Clinical Practice VII**

An extension of the supervised practicum begun in RS\_THR 4940. Emphasis in rehabilitation and home care, inservice education, and management. Students will participate in on-going research projects and community service activities.

**Credit Hours:** 5

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**RS\_THR 7930: Current Issues in Respiratory Care**

(cross-leveled with RS\_THR 4930). Identification and analysis of current issues in Respiratory Care with practice implications. Emphasis given to identification and evaluation of nontraditional information sources (e.g., social networking, internet).

**Credit Hours:** 3

**Prerequisites:** CDS 4955 or HLTH\_SCI 3900 or Instructor consent

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## Romance Languages Courses

**RM\_LAN 2200: Introduction to Catalan Language and Culture**

This is an introductory course to Catalan language and culture. Previous knowledge of another Romance language might be beneficial. Students will learn basic Catalan expressions, vocabulary and grammatical structures. Furthermore, students will begin to familiarize themselves with elements of Catalan culture.

**Credit Hours:** 3

**Recommended:** Some knowledge of a Romance language desirable

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**RM\_LAN 2310: Literature of the African Diaspora**

(same as BL\_STU 2310). A postcolonial analysis of selected literary texts interpreting the African diaspora in the Americas. Exemplary texts from the Caribbean (English, French, Spanish), South America and the United States are discussed in comparative perspective. No knowledge of Spanish required.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**RM\_LAN 2820: Trends in World Cinema**

(same as FILMS\_VS 2820 and GERMAN 2820). This course is a historical overview of the major trends in international cinema. It focuses on the intersection of aesthetics, industry, and ideological and social concerns in cinematic production.

**Credit Hours:** 3

**Prerequisites:** sophomore standing, ENGLSH 1800 or FILMS\_VS 1800

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**RM\_LAN 3200: Catalan Culture and Identity**

Students in this course are not expected to have previous exposure to Catalan instruction. If they do, it will enhance their learning experience. Knowledge of another Romance language might be beneficial as well. This is a course focused on Catalan culture and identity. Students will learn about the history of the language, the language policies in Spain

and Europe, Catalan literature, cinema, music, and food. Students will read different materials in English for the most part. Course is taught in English.

**Credit Hours:** 3

**Prerequisites:** sophomore standing required

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**RM\_LAN 4310: Literature of the African Diaspora**

A study, in English translation, of writings by authors of African descent in the Americas.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**RM\_LAN 8085: Problems in Romance Languages**

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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## Rural Sociology Courses

**RU\_SOC 1000: Rural Sociology**

Introduction to basic concepts and principles of sociology with a focus on rural populations and places. The course explores interconnections between rural/urban and local global economies and cultures. Students are exposed to the rich diversity of rural society, social changes underway, and to current social issues. (Students may not earn credit for both RU\_SOC 1000 and SOCIOL 1000).

**Credit Hours:** 3

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**RU\_SOC 1104: Topics in Rural Sociology - Social Science**

Organized study of selected topics. Subjects and earnable credit vary from semester to semester. May be repeated.

**Credit Hour:** 1-3

**Recommended:** RU\_SOC 1000 or SOCIOL 1000

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**RU\_SOC 1120: Population and the Environment**

(same as SOCIOL 1120 and PEA\_ST 1120). Changes in the structure and characteristics of population groups and their relationship to both human and non-human aspects of the biophysical environment.

**Credit Hours:** 3

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**RU\_SOC 1150: The Amish Community**

(same as PEA\_ST 1150). Examines historical antecedents and contemporary culture and social structure of the Amish. Topics include cultural symbols, life ceremonies, the family, counter-cultural pressures, stresses, social change.

**Credit Hours:** 3

**Recommended:** RU\_SOC 1000 SOCIOL 1000 or ANTHRO 1000

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**RU\_SOC 1150W: The Amish Community - Writing Intensive**

(same as PEA\_ST 1150). Examines historical antecedents and contemporary culture and social structure of the Amish. Topics include cultural symbols, life ceremonies, the family, counter-cultural pressures, stresses, social change.

**Credit Hours:** 3

**Recommended:** RU\_SOC 1000 SOCIOL 1000 or ANTHRO 1000



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**RU\_SOC 2203W: Topics in Rural Sociology - Behavioral Science - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit vary from semester to semester. May be repeated.

**Credit Hour:** 1-3

**Recommended:** RU\_SOC 1000 or SOCIOL 1000

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**RU\_SOC 2289: Towns in Missouri and the Midwest: Voices and Inequalities**

(same as PEA\_ST 2289, GEOG 2289). Focusing on towns and communities and their regional history and cultural traditions. Examines the issues and concerns of small-town America in the context of recent hardships and adverse economic trends. Examples of topics covered include case studies of communities such as Marceline, Missouri (Walt Disney's boyhood home), race and the immigration of non-whites in to rural areas; gender roles in small communities, the role of religion in small-town identity formation, and other current issues faced by 'middle America.' The responsiveness of government, large corporations, and institutions to the problems of diverse communities will be critically examined, with a multidisciplinary approach that draws on key theories and works in the disciplines of sociology, rural sociology, community development, and geography.

**Credit Hours:** 3

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**RU\_SOC 3010: Leadership in Today's World**

(same as AG\_ED\_LD 3010). Critically examines the leaders and leadership surrounding the greatest challenges to society today and in the future, while developing awareness and understanding of global and local issues in agriculture, democracy, civil society, business, and the environment. Course also focuses on fostering civil discourse and enhancing engagement. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** RU\_SOC 1000 or SOCIOL 1000

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**RU\_SOC 3010H: Leadership in Today's World - Honors**

(same as AG\_ED\_LD 3010H). Critically examines the leaders and leadership surrounding the greatest challenges to society today and in the future, while developing awareness and understanding of global and local issues in agriculture, democracy, civil society, business, and the environment. Course also focuses on fostering civil discourse and enhancing engagement. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** RU\_SOC 1000 or SOCIOL 1000

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**RU\_SOC 3085: Problems in Rural Sociology**

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**RU\_SOC 3100: Recent Theories in Sociology**

(same as SOCIOL 3100). Introduction to major theoretical positions and issues in contemporary American sociology. Logical and intellectual structure of major theoretical schools: functionalism, conflict, exchange, symbolic interaction, phenomenological-ethnomethodological theories.

**Credit Hours:** 3

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**Recommended:** SOCIOL 2200

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**RU\_SOC 3235: Global Perspectives and Realities**

Designed for students who have or wish to study, live or work outside of their home country. Presents sociological perspectives on globalization and intercultural communication as well as the steps needed to prepare for a valuable and safe experience abroad.

**Credit Hours:** 3

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**RU\_SOC 3235W: Global Perspectives and Realities - Writing Intensive**

Designed for students who have or wish to study, live or work outside of their home country. Presents sociological perspectives on globalization and intercultural communication as well as the steps needed to prepare for a valuable and safe experience abroad.

**Credit Hours:** 3

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**RU\_SOC 3304: Topics in Rural Sociology - Social Science**

Organized study of selected topics. Subjects and earnable credit vary from semester to semester. May be repeated.

**Credit Hour:** 2-3

**Recommended:** 6 hours Rural Sociology or Sociology, or junior standing

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**RU\_SOC 3310: Society, Agriculture and Natural Resources**

Explore the human dimensions of agriculture and natural resources through an overview of key areas in natural resource social science. Diverse conceptual approaches and empirical research topics related to society-natural resource interactions are included.

**Credit Hours:** 3

**Recommended:** junior standing or instructor's consent

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**RU\_SOC 3325: Sociology of Food and Nutrition**

This class explores individual food choices and larger social forces. Topics include: world hunger, food and the environment; food choices and culture, class and personal identity; the effects of social stigmas, advertising trends, and government regulations on body image; new social movements for sustainable food systems.

**Credit Hours:** 3

**Recommended:** ENGLSH 1000 and junior or senior standing or instructor's permission

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**RU\_SOC 3325W: Sociology of Food and Nutrition - Writing Intensive**

This class explores individual food choices and larger social forces. Topics include: world hunger, food and the environment; food choices and culture, class and personal identity; the effects of social stigmas, advertising trends, and government regulations on body image; new social movements for sustainable food systems.

**Credit Hours:** 3

**Recommended:** ENGLSH 1000 and junior or senior standing or instructor's permission

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**RU\_SOC 3950: Social Research I**

(same as SOCIOL 3950). Introduction to principles of methodology; theory and research; survey of basic research designs and perspectives;

preparation for understanding and conducting social research. Required for Sociology majors.

**Credit Hours:** 3

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**RU\_SOC 3950W: Social Research I - Writing Intensive**

(same as SOCIOL 3950W). Introduction to principles of methodology; theory and research; survey of basic research designs and perspectives; preparation for understanding and conducting social research. Required for Sociology majors.

**Credit Hours:** 3

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**RU\_SOC 4301: Topics in Rural Sociology**

Current and new topics not currently offered in applied and/or theoretical areas in Rural Sociology. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** RU\_SOC 1000 or SOCIOL 1000 or equivalent

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**RU\_SOC 4315: Social Demography**

(same as SOCIOL 4315; cross-leveled with SOCIOL 7315 and RU\_SOC 7315).

**Credit Hours:** 3

**Recommended:** RU\_SOC 1000 or SOCIOL 1000 and junior standing

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**RU\_SOC 4325: American Community Studies**

(cross-leveled with RU\_SOC 7325). An introduction to the study of American communities. The course starts with community theories and then focuses on a wide variety of historic and contemporary community studies such as Plainville, Middletown, Sidewalk and others. Seminar format.

**Credit Hours:** 3

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**RU\_SOC 4335: Social Change and Development**

(same as SOCIOL 4335; cross-leveled with SOCIOL 7335, RU\_SOC 7335). Nature of social change and development. Emphasizes sociological theories of social change and development contrasting them with approaches from the disciplines.

**Credit Hours:** 3

**Recommended:** RU\_SOC 1000 or SOCIOL 1000 and junior standing

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**RU\_SOC 4335H: Social Change and Development - Honors**

(same as SOCIOL 4335; cross-leveled with SOCIOL 7335, RU\_SOC 7335). Nature of social change and development. Emphasizes sociological theories of social change and development contrasting them with approaches from the disciplines.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** RU\_SOC 1000 or SOCIOL 1000 and junior standing

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**RU\_SOC 4341: Building Communities from the Grassroots**

(same as PEA\_ST 4341; cross-leveled with RU\_SOC 7341). Introduction and application of basic community development concepts, methods and practical skills for involving and empowering local citizens and leaders effectively in community-based efforts regardless of the issue.

**Credit Hours:** 3

**Recommended:** instructor's consent

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**RU\_SOC 4342: Empowering Communities for the Future**

(cross-leveled with RU\_SOC 7342). Focuses on the professional practice and applications of community-based development including participatory action research, community economic development, organizational development, use of technology, citizen education and integration of practice. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** instructor's consent

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**RU\_SOC 4343: Creating Capacity for Dynamic Communities**

(cross-leveled with RU\_SOC 7343). Addresses community and citizen power; large group intervention processes for change; facilitating small group process; community organizing; community sustainability, dealing with poverty and disenfranchisement; community conflict resolution; ethics; and integration into practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**RU\_SOC 4370: Environmental Sociology**

(same as SOCIOL 4370; cross-leveled with SOCIOL 7370, RU\_SOC 7370). An interdisciplinary examination of domestic and international environmental issues focusing on social, cultural, and policy dimensions. Perspectives of the social sciences and humanities are included.

**Credit Hours:** 3

**Recommended:** junior standing

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**RU\_SOC 7120: Social Statistics**

(same as SOCIOL 7120; cross-leveled with RU\_SOC 4120, SOCIOL 4120). Descriptive statistics and bivariate quantitative analysis techniques commonly used by social scientists. Includes coverage of parametric and non-parametric methods. Introduction to computer analysis.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 2950

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**RU\_SOC 7315: Social Demography**

(same as SOCIOL 7315; cross-leveled with RU\_SOC 4315, SOCIOL 4315).

**Credit Hours:** 3

**Prerequisites:** RU\_SOC 1000 or SOCIOL 1000

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**RU\_SOC 7325: American Community Studies**

(cross-leveled with RU\_SOC 4325). An introduction to the study of American communities. The course starts with community theories and then focuses on a wide variety of historic and contemporary community studies such as Plainville, Middletown, Sidewalk and others. Seminar format.

**Credit Hours:** 3

---

**RU\_SOC 7335: Social Change and Development**

(same as SOCIOL 7335; cross-leveled with SOCIOL 4335, RU\_SOC 4335). Nature of social change and development. Emphasizes sociological theories of social change and development contrasting them with approaches from other disciplines.

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**Credit Hours:** 3

**Prerequisites:** RU\_SOC 1000 or SOCIOL 1000

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**RU\_SOC 7341: Building Communities from the Grassroots**

(cross-leveled with RU\_SOC 4341). Introduction and application of basic community development concepts, methods and practical skills for involving and empowering local citizens and leaders effectively in community-based efforts regardless of the issue.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**RU\_SOC 7342: Empowering Communities for the Future**

(cross-leveled with RU\_SOC 7342). Focuses on the professional practice and applications of community-based development including participatory action research, community economic development, organizational development, use of technology, citizen education and integration of practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**RU\_SOC 7343: Creating Capacity for Dynamic Communities**

(cross-leveled with RU\_SOC 4343). Addresses community and citizen power; large group intervention processes for change; facilitating small group process; community organizing; community sustainability, dealing with poverty and disenfranchisement; community conflict resolution; ethics; and integration into practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**RU\_SOC 7370: Environmental Sociology**

(same as SOCIOL 7370; cross-leveled with SOCIOL 4370, RU\_SOC 4370). An interdisciplinary examination of domestic and international environmental issues focusing on social, cultural, and policy dimensions. Perspectives of the social sciences and humanities are included.

**Credit Hours:** 3

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**RU\_SOC 7446: Community Social Structure**

(same as SOCIOL 7446). A comparative study of communities in different nations and in urban and rural areas. A primary focus of the course will be on social change in communities in response to changing economic, political, social, cultural, and ecological factors.

**Credit Hours:** 3

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**RU\_SOC 8085: Problems in Rural Sociology**

Research for student capable of semi-independent work.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**RU\_SOC 8090: Research in Rural Sociology**

Research leading to thesis or dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**RU\_SOC 8130: Advanced Social Statistics**

(same as SOCIOL 8130). Introduction to multivariate analysis for social scientists. Emphasis on non-experimental applications of analysis of variance and correlation-regression. Computer applications emphasized.

**Credit Hours:** 3

**Prerequisites:** RU\_SOC 4120 or equivalent

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**RU\_SOC 8287: Seminar on Sustainable Development**

(same as SOCIOL 8287). An interdisciplinary examination of sustainable development focusing on social, economic, cultural and environmental dimensions of development. International and domestic issues and approaches to sustainable development are included.

**Credit Hours:** 3

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**RU\_SOC 8435: Political Ecology**

Political ecology is an analytical approach to environment and natural resource issues at local, regional and global scales, emphasizing political, economic, cultural, social and historical factors and their relationship to ecological trends and processes. Seminar format. Graded on A-F basis only.

**Credit Hours:** 3

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**RU\_SOC 8436: Community, Natural Resources and Sustainability**

A graduate seminar on conceptual and methodological (mixed methods) approaches to natural resource sustainability issues at the human community level. Focuses on theoretical, methodological, and empirical topics related to the interactions between community, natural resources and sustainability. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** RU\_SOC 3310

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**RU\_SOC 8444: Agriculture, Food and Community**

Introduces key debates in the sociology of food and agriculture. Includes research on the structure and history of the agriculture system and its impacts on farmers, communities and the natural environment.

**Credit Hours:** 3

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**RU\_SOC 8447: Seminar on Contemporary Issues in Rural Sociology**

Seminar on Contemporary Issues in Rural Sociology

**Credit Hour:** 1-99

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**RU\_SOC 8448: Society and Ecosystems Research Seminar**

(same as AAE 8448 and NAT\_R 8448). This seminar, capstone for the Graduate Certificate Program in Society and Ecosystems, exposes students to interdisciplinary research on interactions between social, economic and ecological systems.

**Credit Hours:** 3

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**RU\_SOC 8450: Research in Rural Sociology**

Research not expected to terminate in thesis or dissertation.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**RU\_SOC 8510: Research Methods and Design**

(same as AG\_ED\_LD 8510, AAE 8510). This course will give students a foundational understanding of quantitative research methods and design in the social and behavioral sciences. The main objective is to help students identify and formulate their own research questions and develop and implement a process for answering them. Students will examine the nature of the research process, explore the connection between theory and empirical research, identify viable research topics, critique published research, learn how to structure good arguments, understand the structure of research papers and proposals, plan and manage research activities, and become familiar with research ethics. Graded on A-F basis only.

**Credit Hours:** 3

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**RU\_SOC 8540: Methods of Qualitative Research**

(same as AG\_ED\_LD 8540). Overview of philosophies, approaches toward, design, data collection, analysis and reporting of qualitative research.

**Credit Hours:** 3

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**RU\_SOC 8610: Economic and Sociological Approaches to Collective Action**

(same as AAE 8610). This course identifies analytical and methodological tools, including rational choice and social capital, to deal with practical problems of collective action in: agricultural cooperatives, rural community development, political interest groups and other mutuals.

**Credit Hours:** 3

**Prerequisites:** AAE 7972

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**RU\_SOC 9090: Research in Rural Sociology**

Research leading to thesis or dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**RU\_SOC 9287: Seminar in Qualitative Methods in Sociology**

(same as SOCIOL 9287). Examination of various qualitative methods of research, including problem-formulation, access and interpretation of data, theory-generation, and preparation of research reports.

**Credit Hours:** 3

**Prerequisites:** RU\_SOC 8510 or instructor's consent

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**RU\_SOC 9437: Synthesis of Theory and Method in Sociology**

The purpose of the course is to provide the student with a critical understanding of the basic theoretical paradigms employed in the development of research projects in sociology. The course is designed for graduate students.

**Credit Hours:** 3

**Prerequisites:** RU\_SOC 4130 and RU\_SOC 8510, or instructor's consent

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**RU\_SOC 9480: Community Survey Research**

(same as SOCIOL 9987). This course applies social science survey research methods to the unique kinds of problems that arise in the study of whole communities.

**Credit Hours:** 3

**Prerequisites:** RU\_SOC 8510 or equivalent

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**RU\_SOC 9510: Data Collection, Analysis and Interpretation**

(same as AG\_ED\_LD 9510). A quantitative methods course in measurement, data collection and analysis related to social and behavioral science research. An applied approach is taken on instrumentation and analyzing data using descriptive and inferential statistics. Practical skills in data manipulation using SPSS are developed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AG\_ED\_LD 8510 or RU\_SOC 8510 or instructor's consent

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**Russian Courses****RUSS 1100: Elementary Russian I**

Five hours of classroom instruction, with one hour lab work weekly. For beginners with no prior knowledge of Russian.

**Credit Hours:** 6

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**RUSS 1200: Elementary Russian II**

Five hours of classroom instruction, with one hour lab work weekly.

**Credit Hours:** 6

**Prerequisites:** C- or better in RUSS 1100 or equivalent. or instructor consent

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**RUSS 2001: Undergraduate Topics in Russian-General**

Organized study of selected topics. Subjects and credits may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

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**RUSS 2005: Undergraduate Topics in Russian-Humanities**

Organized study of selected topics. Subjects and credits may vary from semester to semester. May be repeated for credit with departmental consent. No language credit.

**Credit Hour:** 1-3

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**RUSS 2100: Classics and Iconoclasts: An Introduction to Russian Literature**

Designed to introduce students to some of the major genres, issues, and approaches in the study of Russian literature. Begins with the most classic of Russian authors, the so-called 'father of Russian literature' Aleksandr Pushkin, then moves on to two 'classics' from the 19th century (Gogol, Chekhov) and two 'iconoclasts' from the first part of the 20th (Mayakovsky, Kharms). Covers a range of genres, including poetry, short story, and drama, as well as letters, essays and manifestoes. Course reading list includes secondary essays that both shed light on specific texts/authors as well as provide models for critical and theoretical approaches to literature, with an emphasis on Russian Formalism. Readings and discussions in English; no knowledge of Russian language or literature required.

**Credit Hours:** 3

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**RUSS 2100W: Classics and Iconoclasts: An Introduction to Russian Literature - Writing Intensive**

Designed to introduce students to some of the major genres, issues, and approaches in the study of Russian literature. Begins with the most classic of Russian authors, the so-called 'father of Russian literature' Aleksandr Pushkin, then moves on to two 'classics' from the 19th century (Gogol, Chekhov) and two 'iconoclasts' from the first part of the 20th (Mayakovsky, Kharms). Covers a range of genres, including poetry, short story, and drama, as well as letters, essays and manifestoes. Course reading list includes secondary essays that both shed light on specific texts/authors as well as provide models for critical and theoretical approaches to literature, with an emphasis on Russian Formalism. Readings and discussions in English; no knowledge of Russian language or literature required.

**Credit Hours:** 3

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**RUSS 2130: Second-Year Russian I**

Students will solidify their command of Russian grammar and begin developing their reading skills.

**Credit Hours:** 4

**Prerequisites:** RUSS 1200, equivalent, or instructor's consent

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**RUSS 2160: Second-Year Russian II**

Continuation of RUSS 2130.

**Credit Hours:** 4

**Prerequisites:** RUSS 2130 or equivalent, or instructor's consent

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**RUSS 2310: Between Heaven and Earth: Russian Civilization**

Survey of Russian culture from the Christianization of the Slavic peoples to late imperial period. No foreign language credit.

**Credit Hours:** 3

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**RUSS 2310W: Between Heaven and Earth: Russian Civilization - Writing Intensive**

Survey of Russian culture from the Christianization of the Slavic peoples to late imperial period. No foreign language credit.

**Credit Hours:** 3

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**RUSS 2320: The Arts of Survival: Civilization in Soviet Times**

Historical, social, and artistic topics. No foreign language credit.

**Credit Hours:** 3

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**RUSS 2320W: The Arts of Survival: Civilization in Soviet Times - Writing Intensive**

Historical, social, and artistic topics. No foreign language credit.

**Credit Hours:** 3

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**RUSS 2340: Icons and Revolutions: Russia from its Beginnings to Today**

A survey of Russian culture and history from the pre-Christian era to the present. Topics will include politics, religion, philosophy, literature, music, and visual art. Classes and readings in English; no prior courses in Russian required. Graded on A-F basis only.

**Credit Hours:** 3

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**RUSS 2340W: Icons and Revolutions: Russia from its Beginnings to Today - Writing Intensive**

A survey of Russian culture and history from the pre-Christian era to the present. Topics will include politics, religion, philosophy, literature, music, and visual art. Classes and readings in English; no prior courses in Russian required. Graded on A-F basis only.

**Credit Hours:** 3

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**RUSS 2865: The Art of Soviet and Russian Cinema**

(same as FILMS\_VS 2865), Topics (e.g. Distorted Picture: Post-War Cinema in the Soviet State, Cinema in the Soviet Times and Beyond, etc.) announced at time of registration. Only 6 hours may be taken towards major.

**Credit Hours:** 3

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**RUSS 2865W: The Art of Soviet and Russian Cinema - Writing Intensive**

(same as FILMS\_VS 2865). Topics (e.g. Distorted Picture: Post-War Cinema in the Soviet State, Cinema in the Soviet Times and Beyond, etc.) announced at time of registration. Only 6 hours may be taken towards major.

**Credit Hours:** 3

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**RUSS 3001: Topics in Russian-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing

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**RUSS 3005: Topics in Russian-Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing

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**RUSS 3005W: Topics in Russian-Humanities - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing

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**RUSS 3130: Intermediate Russian**

Normally taken as 5th semester of Russian language sequence.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or higher in RUSS 2160 or RUSS 3160 or instructor's consent

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**RUSS 3160: Intermediate Conversation and Composition**

Further develops oral command of Russian as well as listening comprehension and some letter writing skills.

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**Credit Hours:** 3

**Prerequisites:** Grade of C- or higher in RUSS 2160 or RUSS 3130 or instructor's consent

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**RUSS 3380: Sinners, Saints, and Madmen: 19th Century Russian Literature**

Introduction to foundational periods (Sentimentalism, Romanticism, Realism and its decline), narratives, and authors of 19th century Russian literary tradition. Traces development of the 'Russian' short story and novel forms, as well as the all-important 'Petersburg' theme.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or instructor's consent

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**RUSS 3380W: Sinners, Saints, and Madmen: 19th Century Russian Literature - Writing Intensive**

Introduction to foundational periods (Sentimentalism, Romanticism, Realism and its decline), narratives, and authors of 19th century Russian literary tradition. Traces development of the 'Russian' short story and novel forms, as well as the all-important 'Petersburg' theme.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000; sophomore standing or instructor's consent

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**RUSS 3390: True Fictions: Russian Prose since 1900**

Survey of Russian prose fiction of the twentieth and early twenty-first century. During this time Russia experienced a series of drastic changes in society and culture, and as often happens the artists responded more rapidly and insightfully than anyone else. This was a time of radical experimentation with the very nature of literature, and we will read and examine some of the fascinating results. Course gives a short history of Russian prose fiction after 1900, offers a theory of analytical reading of imaginative prose, and hones the skills of intelligent writing about evaluative reading. Readings, lecture and discussion in English; no previous knowledge of Russian literature is assumed.

**Credit Hours:** 3

**Prerequisites:** sophomore standing, or instructor's consent

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**RUSS 3390W: True Fictions: Russian Prose since 1900 - Writing Intensive**

Survey of Russian prose fiction of the twentieth and early twenty-first century. During this time Russia experienced a series of drastic changes in society and culture, and as often happens the artists responded more rapidly and insightfully than anyone else. This was a time of radical experimentation with the very nature of literature, and we will read and examine some of the fascinating results. Course gives a short history of Russian prose fiction after 1900, offers a theory of analytical reading of imaginative prose, and hones the skills of intelligent writing about evaluative reading. Readings, lecture and discussion in English; no previous knowledge of Russian literature is assumed.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and sophomore standing, or instructor's consent

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**RUSS 3630: Russian Classics I**

Reading and discussion of selected works by major Russian writers of the nineteenth century. Course conducted in Russian. May be taken before or after RUSS 3640.

**Credit Hours:** 3

**Prerequisites:** RUSS 3130 or RUSS 3160 or instructor's consent

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**RUSS 3640: Russian Classics II**

Reading and discussion of selected works by major Russian writers of the twentieth century. Course conducted in Russian. May be taken before or after RUSS 3630.

**Credit Hours:** 3

**Prerequisites:** RUSS 3130 or RUSS 3160 or instructor's consent

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**RUSS 3890: Russian and Soviet Cinema**

(same as FILMS\_VS 3890). Survey and analysis of selected Soviet films. Emphasis on film-making as a form of art. English or subtitled. Second screenings by arr. Some films may run over 2 hrs. No foreign language credit.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or instructor's consent

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**RUSS 4001: Topics in Russian-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-9

**Prerequisites:** instructor's consent

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**RUSS 4005: Topics in Russian-Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent. Prerequisites: instructor's consent,

**Credit Hour:** 1-3

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**RUSS 4005H: Topics in Russian-Humanities - Honors**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1

**Prerequisites:** instructor's consent; Honors eligibility required

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**RUSS 4005W: Topics in Russian-Humanities - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent. Prerequisites: instructor's consent,

**Credit Hour:** 1-3

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**RUSS 4160: Advanced Russian Conversation**

Advanced syntax, idiomatic constructions, and vocabulary building.

**Credit Hours:** 3

**Prerequisites:** RUSS 3130 or RUSS 3160 or instructor's consent

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**RUSS 4350: Special Readings in Russian**

Special Readings in Slavic literature or linguistics.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**RUSS 4420: Russian Poetry**

(cross-leveled with RUSS 7420). Survey of readings in Russian poetry from its beginnings to present.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**RUSS 4430: Russian Drama**

(cross-leveled with RUSS 7430). Selected readings in and discussions of major Russian plays of the nineteenth and twentieth century.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**RUSS 4430W: Russian Drama - Writing Intensive**

(cross-leveled with RUSS 7430). Selected readings in and discussions of major Russian plays of the nineteenth and twentieth century.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**RUSS 4435: Russian Prose**

(cross-leveled with RUSS 7435). Explores the development of prose writing in modern Russian letters, paying special attention to native generic designations. Considers dual imagery of realist/naturalist and romantic/fantastic approaches. Studies diverse examples: rasskaz (story), the povest' (tale), the novella, novel essay early 19th c. through 20th c. Considers ways in which literature can itself stand as a philosophical form.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**RUSS 4440: The Russian Novel**

(cross-leveled with RUSS 7440). Selected readings and seminar discussion of major novelists of the 19th and 20th centuries.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**RUSS 4550: Nabokov's Russian Fiction**

(cross-leveled with RUSS 7550). Systematic analysis of Vladimir Nabokov's fiction, both novels and short stories. Emphasis on the artistic properties of prose. Lectures and class discussion in English. Readings in Russian (English translations for undergraduate students).

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**RUSS 4820: Blogging the World: The Web in Cultural Context**

(same as GERMAN 4820. FRENCH 4820). Innovative interdisciplinary course addresses issues of access to international news and specific cultural context working in cross-disciplinary teams. Students in journalism, foreign language, international studies, political science and various other disciplines track cultural developments and information on

no-US Web sites, blogs and digital social networks along with exploring various historical forms of communication that preceded the digital era of the Web. Students analyze the potential and limitations/ effects of blogs and the web in specific contemporary cultural contexts and as part of the broader historical evolution of the web. The course is taught in English. The goal of this course is two-fold; students learn the particulars of web blogging, explore various features of the contemporary social network landscape while focusing on the concept of culture, in particular the cultures of Europe and the US. Questions asked are: what is culture? What is common or popular right now in other cultures? And how do new social networks amplify or alter certain features or culture across national and international contests?

**Credit Hours:** 3

**Prerequisites:** sophomore standing required

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**RUSS 4820W: Blogging the World: The Web in Cultural Context - Writing Intensive**

(same as GERMAN 4820, FRENCH 4820). Innovative interdisciplinary course addresses issues of access to international news and specific cultural context working in cross-disciplinary teams. Students in journalism, foreign language, international studies, political science and various other disciplines track cultural developments and information on no-US Web sites, blogs and digital social networks along with exploring various historical forms of communication that preceded the digital era of the Web. Students analyze the potential and limitations/ effects of blogs and the web in specific contemporary cultural contexts and as part of the broader historical evolution of the web. The course is taught in English. The goal of this course is two-fold; students learn the particulars of web blogging, explore various features of the contemporary social network landscape while focusing on the concept of culture, in particular the cultures of Europe and the US. Questions asked are: what is culture? What is common or popular right now in other cultures? And how do new social networks amplify or alter certain features or culture across national and international contests?

**Credit Hours:** 3

**Prerequisites:** sophomore standing required

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**RUSS 4840: Totalitarianism and Culture**

(same as GERMAN 4840; cross-leveled with GERMAN 7840, RUSS 7840). In this course, we will explore the politics and poetics of totalitarian culture by examining the paintings, music, sculptures, buildings, and films produced under the rule of these regimes. In the process, we will learn how Nazi and Soviet culture producers made carefully calibrated appeals to their respective mass audiences, drawing upon the German and Russian cultural traditions - and on scientific rhetorics of cultural history and racial destiny - in crafting their utopian visions of worlds transformed, wrongs righted, and societies perfected.

**Credit Hours:** 3

**Recommended:** Junior standing or above; students taking this course for WI should have taken a 2000- or 3000-level WI course before beginning this class

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**RUSS 4840H: Totalitarianism and Culture - Honors**

(same as GERMAN 4840W; cross-leveled with GERMAN 7840, RUSS 7840). In this course, we will explore the politics and poetics of totalitarian culture by examining the paintings, music, sculptures, buildings, and films produced under the rule of these regimes. In the process, we will learn how Nazi and Soviet culture producers made carefully calibrated appeals

to their respective mass audiences, drawing upon the German and Russian cultural traditions - and on scientific rhetorics of cultural history and racial destiny - in crafting their utopian visions of worlds transformed, wrongs righted, and societies perfected.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** Junior standing or above; students taking this course for WI should have taken a 2000- or 3000-level WI course before beginning this class

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**RUSS 4840HW: Totalitarianism and Culture - Honors/Writing Intensive**

(same as GERMAN 4840HW; cross-leveled with GERMAN 7840, RUSS 7840). In this course, we will explore the politics and poetics of totalitarian culture by examining the paintings, music, sculptures, buildings, and films produced under the rule of these regimes. In the process, we will learn how Nazi and Soviet culture producers made carefully calibrated appeals to their respective mass audiences, drawing upon the German and Russian cultural traditions - and on scientific rhetorics of cultural history and racial destiny - in crafting their utopian visions of worlds transformed, wrongs righted, and societies perfected.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** Junior standing or above; students taking this course for WI should have taken a 2000- or 3000-level WI course before beginning this class

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**RUSS 4840W: Totalitarianism and Culture - Writing Intensive**

(same as GERMAN 4840; cross-leveled with GERMAN 7840, RUSS 7840). In this course, we will explore the politics and poetics of totalitarian culture by examining the paintings, music, sculptures, buildings, and films produced under the rule of these regimes. In the process, we will learn how Nazi and Soviet culture producers made carefully calibrated appeals to their respective mass audiences, drawing upon the German and Russian cultural traditions - and on scientific rhetorics of cultural history and racial destiny - in crafting their utopian visions of worlds transformed, wrongs righted, and societies perfected.

**Credit Hours:** 3

**Recommended:** Junior standing or above; students taking this course for WI should have taken a 2000- or 3000-level WI course before beginning this class

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**RUSS 4850: Revolution and Media in a Global Perspective**

(same as GERMAN 4850; cross-leveled with RUSS 7850, GERMAN 7850). This course offers a historical and global survey of the rise of modern revolution, from France to Haiti to Russia to the Black Power movement and beyond. Drawing on media studies and cultural studies, we will explore how revolutions are tied up in specific medial environments. This entails asking how media spread revolution, whether in print and visual culture, in the broadcast media of the twentieth century, or in the digital landscapes of the twenty-first century, and how revolutions can be understood themselves as media events. In the process students will develop a critical vocabulary for discussing the role of media in political and cultural revolution and counter-revolution in a global perspective. Graded on A-F basis only.

**Credit Hours:** 3

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**RUSS 4850H: Revolution and Media in a Global Perspective - Honors** (same as GERMAN 4850; cross-leveled with RUSS 7850, GERMAN 7850). This course offers a historical and global survey of the rise of modern revolution, from France to Haiti to Russia to the Black Power movement and beyond. Drawing on media studies and cultural studies, we will explore how revolutions are tied up in specific medial environments. This entails asking how media spread revolution, whether in print and visual culture, in the broadcast media of the twentieth century, or in the digital landscapes of the twenty-first century, and how revolutions can be understood themselves as media events. In the process students will develop a critical vocabulary for discussing the role of media in political and cultural revolution and counter-revolution in a global perspective. Graded on A-F basis only. Prerequisites: Honors eligibility required

**Credit Hours:** 3

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**RUSS 4850W: Revolution and Media in a Global Perspective - Writing Intensive**

(same as GERMAN 4850W; cross-leveled with RUSS 7850, GERMAN 7850). This course offers a historical and global survey of the rise of modern revolution, from France to Haiti to Russia to the Black Power movement and beyond. Drawing on media studies and cultural studies, we will explore how revolutions are tied up in specific medial environments. This entails asking how media spread revolution, whether in print and visual culture, in the broadcast media of the twentieth century, or in the digital landscapes of the twenty-first century, and how revolutions can be understood themselves as media events. In the process students will develop a critical vocabulary for discussing the role of media in political and cultural revolution and counter-revolution in a global perspective. Graded on A-F basis only.

**Credit Hours:** 3

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**RUSS 7085: Problems in Russian and Slavonic Studies**

Special problems in Slavic literature or linguistics.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**RUSS 7087: Seminar in Russian**

Course content varies.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**RUSS 7105: Topics in 19th Century Russian Literature-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**RUSS 7205: Topics in 20th Century Russian Literature**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**RUSS 7350: Special Readings in Russian**



**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**RUSS 7420: Russian Poetry**

(cross-leveled with RUSS 4420). Survey of readings in Russian poetry from its beginnings to present.

**Credit Hours:** 3

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**RUSS 7430: Russian Drama**

(cross-leveled with RUSS 4430). Selected readings in and discussions of major Russian plays of the nineteenth and twentieth century.

**Credit Hours:** 3

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**RUSS 7435: Russian Prose**

(cross-leveled with RUSS 4435). Explores the development of prose writing in modern Russian letters, paying special attention to native generic designations. Considers dual imagery of realist/naturalist and romantic/fantastic approaches. Studies diverse examples: rasskaz (story), the povest' (tale), the novella, novel essay, early 19th c. through 20th c. Considers ways in which literature can itself stand as a philosophical form.

**Credit Hours:** 3

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**RUSS 7550: Nabokov's Russian Fiction**

(cross-leveled with RUSS 4550). Systematic analysis of Vladimir Nabokov's fiction, both novels and short stories. Emphasis on the artistic properties of prose. Lectures and class discussion in English. Readings in Russian.

**Credit Hours:** 3

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**RUSS 7730: Internship in Russian**

Supervised introduction to the methodology of the teaching of elementary Russian; conducted in a classroom environment.

**Credit Hours:** 3

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**RUSS 7840: Totalitarianism and Culture**

(same as GERMAN 7840; cross-leveled with GERMAN 4840, RUSS 4840). In this course, we will explore the politics and poetics of totalitarian culture by examining the paintings, music, sculptures, buildings, and films produced under the rule of these regimes. In the process, we will learn how Nazi and Soviet culture producers made carefully calibrated appeals to their respective mass audiences, drawing upon the German and Russian cultural traditions - and on scientific rhetorics of cultural history and racial destiny - in crafting their utopian visions of worlds transformed, wrongs righted, and societies perfected.

**Credit Hours:** 3

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**RUSS 7850: Revolution and Media in a Global Perspective**

(same as GERMAN 7850; cross-leveled with RUSS 4850, GERMAN 4850). This course offers a historical and global survey of the rise of modern revolution, from France to Haiti to Russia to the Black Power movement and beyond. Drawing on media studies and cultural studies, we will explore how revolutions are tied up in specific medial environments. This entails asking how media spread revolution, whether in print and visual culture, in the broadcast media of the twentieth

century, or in the digital landscapes of the twenty-first century, and how revolutions can be understood themselves as media events. In the process students will develop a critical vocabulary for discussing the role of media in political and cultural revolution and counter-revolution in a global perspective. Graded on A-F basis only.

**Credit Hours:** 3

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**RUSS 8050: Research in Russian**

Translations or creative work not leading to thesis.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**RUSS 8085: Problems in Russian and Slavonic Studies**

Special problems in Slavic literature or linguistics.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**RUSS 8090: Thesis Research in Russian**

Independent research leading to a Master's thesis. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**RUSS 8220: Russian Intellectual History and Critical Theory I**

Survey of Russian literary and cultural criticism of the 18th and 19th centuries. Course texts will include representative critical essays as well as selected literary texts. May be taken before or after RUSS 8230.

**Credit Hours:** 3

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**RUSS 8305: Topics in Slavic Linguistics**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**RUSS 8405: Topics in Slavic Literatures**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**RUSS 8510: The Art and Life of Pushkin**

Gives a conceptual thematic overview of Alexander Pushkin's lyrical poetry, as well as some dramatic work and prose. Special attention paid to the parallel development of his artistic and religious beliefs. Poetry read in Russian; prose and dramatic poems in Russian and English.

**Credit Hours:** 3

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**RUSS 8650: Old Church Slavonic**

Designed to familiarize student with the phonological system, inflectional morphology and most important literature of the oldest recorded Slavic language. Comparisons of OCS to modern Slavic languages.

**Credit Hours:** 3

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## Service Learning Courses

### SRV\_LRN 1090: Independent Study-Service Learning

Students participate in community service activities, attend regular meetings, conduct research, submit four journals, a short bibliography and a research paper on their service in the community

**Credit Hour:** 1-3

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### SRV\_LRN 1090H: Independent Study-Service Learning - Honors

Students participate in community service activities, attend regular meetings, conduct research, submit four journals, a short bibliography and a research paper on their service in the community.

**Credit Hour:** 1-3

**Prerequisites:** Honors eligibility required

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### SRV\_LRN 2021: MU Community Engagement Project

The MU Community Engagement Project offers students the opportunity to engage in academically-based community services; project sections include tutoring and mentoring, public health policy and outreach, international services, and community development.

**Credit Hour:** 2-3

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### SRV\_LRN 2021H: MU Community Engagement Project - Honors

The MU Community Engagement Project offers students the opportunity to engage in academically-based community services; project sections include tutoring and mentoring, public health policy and outreach, international services, and community development.

**Credit Hour:** 2-3

**Prerequisites:** Honors eligibility required

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### SRV\_LRN 2021HW: MU Community Engagement Project - Honors/ Writing Intensive

The MU Community Engagement Project offers students the opportunity to engage in academically-based community services; project sections include tutoring and mentoring, public health policy and outreach, international services, and community development.

**Credit Hour:** 2-3

**Prerequisites:** Honors eligibility required

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### SRV\_LRN 2021W: MU Community Engagement Project - Writing Intensive

The MU Community Engagement Project offers students the opportunity to engage in academically-based community services; project sections include tutoring and mentoring, public health policy and outreach, international services, and community development.

**Credit Hour:** 2-3

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### SRV\_LRN 3028: Civic Leaders Internship

Students in any major may enroll in 3-6 credit hour internships with state government offices and agencies.

**Credit Hour:** 3-6

**Prerequisites:** consent and application required

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### SRV\_LRN 3028H: Civic Leaders Internship - Honors

Students in any major may enroll in 3-6 credit hour internships with state government offices and agencies.

**Credit Hour:** 3-6

**Prerequisites:** consent and application required. Honors eligibility required

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### SRV\_LRN 3028HW: Civic Leaders Internship - Honors/Writing Intensive

Students in any major may enroll in 3-6 credit hour internships with state government offices and agencies.

**Credit Hour:** 3-6

**Prerequisites:** consent and application required. Honors eligibility required

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### SRV\_LRN 3028W: Civic Leaders Internship - Writing Intensive

Students in any major may enroll in 3-6 credit hour internships with state government offices and agencies.

**Credit Hour:** 3-6

**Prerequisites:** consent and application required

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## Social Work Courses

### SOC\_WK 1110: Introduction to the Social Work Major

Students examine their interest in social work and other human service professions; learn of career possibilities in their interest area; and develop an educational plan to reach their goal.

**Credit Hour:** 1

**Prerequisites:** freshman or sophomore standing

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### SOC\_WK 1115: Social Welfare and Social Work

Survey course that examines the history and development of social welfare in the United States and the profession of social work, as well as contemporary issues.

**Credit Hours:** 3

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### SOC\_WK 1200: Criminal Justice

This course provides an introduction to the history and development of criminal justice in our country and includes policing and law enforcement, and the adjudication and court process as well as the terminology associated with each system. Theories on crime, prison, community corrections and reentry discussions for both juvenile and adult systems will be addressed. Emphasis will be placed on an overview to the major sociological and psychological perspectives on variations from normative individual and group behaviors prevalent in the U.S. society while providing a strengths perspective in which to understand them. Finally, this course will evaluate the delicate balance between community interest and personal freedom that criminal justice decision-making requires.

**Credit Hours:** 3

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### SOC\_WK 2000: Exploration in Social and Economic Justice

(same as PEA\_ST 2000). This course explores issues of fairness and equality in economic, political and social systems, and applies social justice principles to major social problems. Course may be repeated two times for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**SOC\_WK 2000W: Exploration in Social and Economic Justice - Writing Intensive**

(same as PEA\_ST 2000). This course explores issues of fairness and equality in economic, political and social systems, and applies social justice principles to major social problems. Course may be repeated two times for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**SOC\_WK 2220: Human Behavior in the Social Environment**

The first of two required courses providing an introduction to selected theories, multidisciplinary knowledge, and perspectives into human development and behavior. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000 or sophomore standing

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**SOC\_WK 2220W: Human Behavior in the Social Environment - Writing Intensive**

The first of two required courses providing an introduction to selected theories, multidisciplinary knowledge, and perspectives into human development and behavior. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000 or sophomore standing

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**SOC\_WK 3101: Topics in Social Work**

Special and emerging topics in social work and social welfare. Subject, content and credit varies depending on available faculty and student interest. For undergraduate and graduate students.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent required

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**SOC\_WK 3101W: Topics in Social Work - Writing Intensive**

Special and emerging topics in social work and social welfare. Subject, content and credit varies depending on available faculty and student interest. For undergraduate and graduate students.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent required

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**SOC\_WK 3320: Understanding Personality in a Social Context**

Introduces students to diverse personality theories and examines background, key concepts, motivation, structure, development dynamics and applications of each theory in a social context. Required of all undergraduate social work majors.

**Credit Hours:** 3

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**SOC\_WK 3350: Problems in Social Work**

Research and independent study projects offered on a tutorial basis to undergraduate social work students.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent required

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**SOC\_WK 4101: Topics in Social Work**

Special and emerging topics in social work and social welfare. Subject, content and credit varies depending on available faculty and student interest. May be repeated for credit.

**Credit Hour:** 1-6

**Prerequisites:** departmental consent required

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**SOC\_WK 4310: Social Statistics**

Descriptive, analytic techniques applied to qualitative and quantitative social data. Math Reasoning Proficiency Course.

**Credit Hours:** 4

**Prerequisites:** sophomore standing required

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**SOC\_WK 4330: Addiction Treatment and Prevention**

(cross-leveled with SOC\_WK 7330). Provides knowledge generic to social work and other disciplines involved in substance abuse treatment. Integrated approach to problems of substance abuse and development of self-awareness are emphasized. Didactic and experiential methods employed.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**SOC\_WK 4370: Delinquency, Corrections and Social Treatment**

(cross-leveled with SOC\_WK 7370). Focuses on problems and causative factors in developing and maintaining delinquent and criminal behavior and attitudes: addressing critical and comparative understanding of social change strategies employed in this field.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**SOC\_WK 4390: Helping Strategies With Children and Adolescents**

(cross-leveled with SOC\_WK 7390). Theory and practice of work with children and adolescents. Focus on youth in transition, protective services and permanency planning, and special needs populations.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**SOC\_WK 4395: Death, Grief and Loss**

(cross-leveled with SOC\_WK 7395). This course is designed to provide an awareness of the impact of grief and loss whether as a result of a death or major life alteration. The perspective that grief exists in many contexts beyond death will be a focal point of the course. Theory associated with the process of dying, grief and grief resolution will be examined. Additionally, students will explore influencing factors such as life span development, religion, culture and personal responses to loss.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**SOC\_WK 4400: Domestic Violence**

(same as WGST 4400; cross-leveled with SOC\_WK 7400, WGST 7400). Covers history of the domestic violence movement, intimate partner violence theories and data, legislative and organizational policy issues, and intervention models for practice with individuals who have experienced domestic violence including co-occurring issues such as trauma.

**Credit Hours:** 3

**Prerequisites:** Junior or Senior standing required

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**SOC\_WK 4410: Law and Social Work Practice**

(cross-leveled with SOC\_WK 7410). This course explores the intersection of human services, law, and policy. It explores how law shapes services directed at children, families, women, and racial and sexual minorities. Students learn to work with legal professionals, prepare for proceedings, and avoid malpractice.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**SOC\_WK 4450: Professional Perspectives on Child Welfare Services in the 21st Century**

(cross-leveled with SOC\_WK 7450). This course examines the development and current state of child welfare services in America with an emphasis on the role of the public child welfare agency in delivery of those services. It is an overview course which addresses the relationship between practice issues in service delivery and administrative policy issues which enable and constrain service delivery activities. The overarching concepts of child safety, family stability, permanency for the child, and well-being of the child as a long-term outcome will be used to examine the five focal service delivery areas in child welfare; family support, preservation and reunification, child protection, foster placement, residential care, and adoptive services. This is a dual level BSW/MSW course and is an elective within the program's curricular structure. The differentiating objectives and assignments for the MSW members of the class are noted in the appropriate areas of the syllabus.

**Credit Hours:** 3

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**SOC\_WK 4480: Helping Strategies with Older Persons**

This course is designed to provide knowledge and skill development for work with older adults and their families. It offers an intensive examination of the concepts and skills needed for effective social work practice with these populations. In particular, sociological, psychological, political, and economic factors affecting older adults will be examined as they relate to intervention, programmatic, and policy responses. Special attention will be given to assessment and intervention from macro, mezzo, and micro perspectives. The interrelationship between the aging person, the family, and society is explored since these factors affect all levels of practice. Content in this course related to the social and economic mission of the School of Social Work.

**Credit Hours:** 3

**Prerequisites:** Junior standing

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**SOC\_WK 4710: Social Justice and Social Policy**

Based on the concepts of human need and social justice, a historical and analytical approach to social welfare policies and programs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** junior standing and departmental consent required

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**SOC\_WK 4711: Social Justice and Social Policy II**

Advanced course in the analysis of policies and programs relevant to social work and social welfare. Prepares students to understand and

conduct policy analysis of public, voluntary, and proprietary human service organizations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SOC\_WK 4710; Social Work Professional standing

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**SOC\_WK 4720: Variations in Human Behavior**

Basic concepts and principles regarding psychological/social dynamics of deviance; implications for social welfare policy and social interventions.

**Credit Hours:** 3

**Prerequisites:** junior standing and departmental consent required

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**SOC\_WK 4730: Introduction to Social Work Practice**

Introductory, generalist practice theory course promoting student's understanding of professional social work practice as holistic, identifiable, unique configuration of knowledge, values and skills. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Social Work Professional Standing and departmental consent required

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**SOC\_WK 4740: Introduction to Community and Organizational Processes**

Introduction to contextual framework of social work practice with particular emphasis on community and organization as social systems. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Social Work professional standing and departmental consent required

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**SOC\_WK 4750: Interaction Skills Workshop**

Generalist practice at individual, group and community levels. Group communication and social influence theories address generic and unique aspects of interaction across systems. Uses laboratory instruction. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Social Work Professional standing and departmental consent required

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**SOC\_WK 4760: Theory and Practice of Social Group Work**

Focuses on small group dynamics and models of group work practice suitable in all social work fields. Emphasizes practice theory and skills. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Social Work Professional standing

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**SOC\_WK 4770: Strategies of Direct Practice**

Examines social structures, processes, underlying assumptions/concepts of social change, client constellation, organizational arrangements, role relationships by which social workers define professional intervention.

**Credit Hours:** 3

**Prerequisites:** SOC\_WK 4730 and SOC\_WK 4750; third semester professional program standing; departmental consent required

**Corequisites:** SOC\_WK 4971 and SOC\_WK 4970

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**SOC\_WK 4770W: Strategies of Direct Practice - Writing Intensive**

Examines social structures, processes, underlying assumptions/concepts of social change, client constellation, organizational arrangements, role relationships by which social workers define professional intervention.

**Credit Hours:** 3

**Prerequisites:** SOC\_WK 4730 and SOC\_WK 4750; third semester professional program standing; departmental consent required

**Corequisites:** SOC\_WK 4971 and SOC\_WK 4970

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**SOC\_WK 4951: Research for Social Work Practice**

This course introduces social work research and its relevance to practice, emphasizing the School of Social Work's social justice mission. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Social Work Professional standing or consent required

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**SOC\_WK 4951W: Research for Social Work Practice - Writing Intensive**

This course introduces social work research and its relevance to practice, emphasizing the School of Social Work's social justice mission. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Social Work Professional standing or consent required

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**SOC\_WK 4952: Research Methods for Social Work**

Survey of research methods germane to the development of the knowledge base of social work practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Social Work Professional standing or consent required

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**SOC\_WK 4952W: Research Methods for Social Work - Writing Intensive**

Survey of research methods germane to the development of the knowledge base of social work practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Social Work Professional standing or consent required

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**SOC\_WK 4960: Special Readings in Social Work**

Extensive readings in selected area or intensive reading in a special field.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent required

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**SOC\_WK 4970: Senior Professional Seminar**

Integrative professional practice seminar for BSW students, focusing on the principles of generic social work and its application to direct practice in diverse fields, career planning and responsibilities. Enrollment is limited to students who have completed SOC\_WK 2220, SOC\_WK 4710, SOC\_WK 4730, SOC\_WK 4740, SOC\_WK 4750, SOC\_WK 4760, and SOC\_WK 4720; and currently enrolled in SOC\_WK 4770 and SOC\_WK 4971.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**SOC\_WK 4971: Undergraduate Field Practicum**

Supervised social work practice in a school-approved agency focusing on development of direct practice skills. Fall semester, three days per week. Graded on S/U basis only.

**Credit Hours:** 6

**Prerequisites:** senior standing; SOC\_WK 2220, SOC\_WK 4710, SOC\_WK 4730, SOC\_WK 4740, SOC\_WK 4750, SOC\_WK 4760, and SOC\_WK 4720; departmental consent required

**Corequisites:** SOC\_WK 4770 and SOC\_WK 4970

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**SOC\_WK 4971H: Advanced Study for Social Work Honors**

Individual study and research or practicum leading to Honors in Social Work. Enrollment is limited to students accepted into the Professional BSW Program and for Social Work Honors. Enrollment is limited to students who are Honors eligible, have an Social Work Honors application, completed SOC\_WK 2220 and completed or currently enrolled in SOC\_WK 4730, SOC\_WK 4740 and SOC\_WK 4750.

**Credit Hour:** 3-6

**Prerequisites:** Instructor's consent

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**SOC\_WK 7000: Professional Social Work Practice**

This course introduces the social work profession within a historical and contemporary context, provides an overview of key concepts, standards and regulations, and assists students in examining personal and professional values and ethics related to practice. Graded on an A-F basis only.

**Credit Hour:** 1

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**SOC\_WK 7001: Topics in Social Work**

Special and emerging topics in social work and social welfare. Subject, content, and credit varies depending on available faculty and student interest.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent required

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**SOC\_WK 7085: Problems in Social Work**

Intensive study of an area of social welfare related to special interest of student.

**Credit Hour:** 1-6

**Prerequisites:** departmental consent required

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**SOC\_WK 7220: Advanced Social Work Practice in Integrated Healthcare**

The course will introduce students to the essential practice skills needed to effectively address the challenges of integrating services, care, and support for persons with health, mental health, and substance use problems. Graded on A-F basis only.

**Credit Hours:** 3

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**SOC\_WK 7230: Integrative Behavioral Health Clinic**

This is an elective course devoted to assessment, intervention and research with under-served individuals, couples, groups and families. This course is facilitated as a skills-training laboratory. Intervention methods will be applied to client's coping with major life stressors and relational problems. Students should leave this course with increased

confidence in their ability to analyze patterns, assess, and intervene using diverse clinical methods. Graded on A-F basis only.

**Credit Hour:** 2-4

**Prerequisites:** Masters of Social Work students only

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**SOC\_WK 7320: Rural Human Services**

A study of the effect of rural and small community environments on the planning and delivery of social and health services. Emphasis on policy and program analyses relevant to rural issues and concerns.

**Credit Hours:** 3

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**SOC\_WK 7330: Addiction Treatment and Prevention**

(cross-leveled with SOC\_WK 4330). Provides knowledge generic to social work and other disciplines involved in substance abuse treatment. Integrated approach to problems of substance abuse and development of self-awareness are emphasized. Didactic and experiential methods employed.

**Credit Hours:** 3

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**SOC\_WK 7340: Military Culture**

An introduction to the branches of the military and related cultural issues. Examines the historical and contemporary complexities of military service and personal and professional values and ethics related to practice with military personnel, families, and veterans. Graded on A-F basis only.

**Credit Hours:** 3

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**SOC\_WK 7370: Delinquency, Corrections and Social Treatment**

(cross-leveled with SOC\_WK 4370). Focuses on problems and causative factors in developing and maintaining delinquent and criminal behavior and attitudes: addressing critical and comparative understanding of social change strategies employed in this field.

**Credit Hours:** 3

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**SOC\_WK 7390: Helping Strategies With Children and Adolescents**

(cross-leveled with SOC\_WK 4390). Theory and practice of work with children and adolescents. Focus on youth in transition, protective services and permanency planning, and special needs populations.

**Credit Hours:** 3

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**SOC\_WK 7395: Death, Grief and Loss**

(cross-leveled with SOC\_WK 4395). This course is designed to provide an awareness of the impact of grief and loss whether as a result of a death or major life alteration. The perspective that grief exists in many contexts beyond death will be a focal point of the course. Theory associated with the process of dying, grief and grief resolution will be examined. Additionally, students will explore influencing factors such as life span development, religion, culture and personal responses to loss.

**Credit Hours:** 3

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**SOC\_WK 7400: Domestic Violence**

(same as WGST 7400; cross-leveled with SOC\_WK 4400, WGST 4400). Covers history of the domestic violence movement, intimate partner violence theories and data, legislative and organizational policy issues, and intervention models for practice with individuals who have

experienced domestic violence including co-occurring issues such as trauma.

**Credit Hours:** 3

---

**SOC\_WK 7410: Law and Social Work Practice**

(cross-leveled with SOC\_WK 4410). This course explores the intersection of human services, law, and policy. It explores how law shapes services directed at children, families, women, and racial and sexual minorities. Students learn to work with legal professionals, prepare for proceedings, and avoid malpractice.

**Credit Hours:** 3

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**SOC\_WK 7450: Professional Perspectives on Child Welfare Services in the 21st Century**

(cross-leveled with SOC\_WK 4450). This course examines the development and current state of child welfare services in America with an emphasis on the role of the public child welfare agency in delivery of those services. It is an overview course which addresses the relationship between practice issues in service delivery and administrative policy issues which enable and constrain service delivery activities. The overarching concepts of child safety, family stability, permanency for the child, and well-being of the child as a long term outcome will be used to examine the five focal service delivery areas in child welfare; family support, preservation and reunification, child protection, foster placement, residential care, and adoptive services. This is a dual level BSW/MSW course and is an elective within either program's curricular structure. The differentiating objectives and assignments for the MSW members of the class are noted in the appropriate areas of the syllabus.

**Credit Hours:** 3

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**SOC\_WK 7470: Organizational Issues in Social Work Practices in Child Welfare**

Intensive seminar in meso-level practice in the field of child welfare. Examines communication theory, team building, and interorganizational dynamics as they affect professional practice in child welfare.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**SOC\_WK 7480: Helping Strategies with Older Persons**

Focus on interdisciplinary methods of assessment and intervention strategies designed to optimize healthy functioning for older persons and their families.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**SOC\_WK 7485: Military Social Work**

An overview of military culture, resilience, challenges, and behavioral health needs of military personnel and veterans. Content draws on theories and research relevant to this population. Graded on A-F basis only.

**Credit Hours:** 3

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**SOC\_WK 7490: Family Treatment**

Comparative study of theories and methods required for work with problems of family functioning. Both conjoint and subsystem approaches to family treatment are examined.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**SOC\_WK 7530: Contemporary Issues in Human Trafficking**

(cross-leveled with SOC\_WK 4530). This three hour course gives an overview of modern human trafficking typologies, issues, and responses. We will cover theories, policies, and intervention practices that drive our prevention and response for working with victims and survivors of this human rights abuse. Graded on A-F basis only.

**Credit Hours:** 3

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**SOC\_WK 7710: Social Policy and Service Delivery in Social Work**

Covers historic and contemporary issues in social welfare policy. Focuses on relationships among social problems, public policies, private actions, poverty, racism, sexism and social work practice/values. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** restricted to graduate Social Work majors

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**SOC\_WK 7720: Foundations of Human Behavior**

Substantive sources from behavioral sciences used in social work toward understanding the biosocial processes and constraints of human development.

**Credit Hours:** 3

**Prerequisites:** restricted to graduate Social Work majors

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**SOC\_WK 7730: Social Work Skills**

Introduces theory and application of strengths-based generalist practice. Develops knowledge, values, and techniques of professional social work practice at micro, mezzo, and macro levels, emphasizing assessment and interaction skills.

**Credit Hours:** 3

**Prerequisites:** graduate standing in social work; Foundation level course

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**SOC\_WK 7740: Large Group Theory**

Examination of social environment in which social work is practiced with particular emphasis on development of analytic framework for understanding formal organizations and communities.

**Credit Hour:** 2-3

**Prerequisites:** graduate standing in Social Work

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**SOC\_WK 7751: Psychosocial Function and Older Adults**

(same as ARCHST 7650, F\_C\_MD 7751, H\_D\_FS 7751, NURSE 7751, P\_HLTH 7751 and HMI 7751). This course takes an Interdisciplinary approach to understanding the psychosocial function of older adults and explores approaches to alleviate disabling conditions that interfere with psychosocial function and quality of life in old age. Graded on A-F basis only.

**Credit Hours:** 3

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**SOC\_WK 7760: Social Justice Seminar**

Provides integrative learning experience in social work practice in foundation level social work practice focusing on social and economic justice experiences in field practicum.

**Credit Hours:** 2

**Prerequisites:** restricted to graduate Social Work majors

**Corequisites:** SOC\_WK 7971

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**SOC\_WK 7770: Strategies of Clinical Social Work Intervention**

Strategies of social treatment with individuals and small groups applicable to practice in public and private social agency settings.

**Credit Hours:** 3

**Prerequisites:** graduate standing in social work; departmental consent required

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**SOC\_WK 7780: Fundamentals of Social Work Administration**

Basic managerial skills which social workers need for supervision, planning, staff development and administrative positions in social agencies; focus on individual management functions and skills associated with them.

**Credit Hours:** 3

**Prerequisites:** restricted to graduate Social Work majors

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**SOC\_WK 7820: DSM V and Psychopathology: A Social Work Perspective**

Examines psychopathology of human behavior within social work context, prevailing diagnostic models (Diagnostic and Statistical Manual of Mental Disorders V), and historically oppressive categorizations.

**Credit Hours:** 3

**Prerequisites:** Graduate standing in Social Work

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**SOC\_WK 7920: Advanced Foundations of Human Behavior for Administrators**

Examination of relevant theoretical and behavioral foundations in order that students can acquire the knowledge to function as a social work administrator.

**Credit Hours:** 3

**Prerequisites:** graduate Social Work majors

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**SOC\_WK 7952: Research Methods in Social Work**

Examines research methodology and design as applied to the study of social work techniques and problems. Emphasizes differential uses of scientific observation and techniques for developing knowledge and improving practice.

**Credit Hours:** 3

**Prerequisites:** Graduate Social Work Majors

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**SOC\_WK 7971: Graduate Field Practicum I**

Supervised social work practice in a school-approved agency providing a full range of interventive experiences. Graded on S/U basis only.

**Credit Hour:** 2-4

**Prerequisites:** admission to MSW program; SOC\_WK 7710, SOC\_WK 7720, SOC\_WK 7730, SOC\_WK 7740, SOC\_WK 7760. Departmental Consent Required

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**SOC\_WK 8010: Child Abuse and Neglect Assessment and Intervention**

In-depth exploration of identification of and interventions with abused/neglected children and their families. Examines roles for social work with both victims and perpetrators. Examines how environmental factors affect successful intervention.

**Credit Hours:** 3

**Prerequisites:** SOC\_WK 7770; instructor's consent for non MSW students

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**SOC\_WK 8020: Social Work in Schools**

The course focuses on the etiology and development of child and adolescent educational, social, emotional, and behavioral health disorders encountered, identified and treated in school settings. Educational disabilities and related policies and the interdisciplinary nature of school settings will be highlighted. Graded on A-F basis only.

**Credit Hours:** 3

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**SOC\_WK 8050: Resiliency and Solution-Focused Practice**

Focuses on brief therapy approaches to dealing with clinical problems in a time-efficient, clinically effective method. Various approaches to solution-oriented work based in resiliency theory are presented. Stresses client empowerment across the lifespan.

**Credit Hours:** 3

**Prerequisites:** Social Work [SOC\_WK] 7770; graduate level Social Work Majors only. Graded on A/F basis only

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**SOC\_WK 8060: Trauma Informed Practice and Intervention**

This clinical practice course focuses on evidence-based techniques for intervening with survivors of trauma. Content includes developmental theories on trauma and attachment, holistic and culturally aware assessment of post-traumatic stress disorder, the impact of trauma on the development of 'self', and evidence-based models for micro clinical practice. Resiliency, generational trauma, and trauma-informed agency are additional topics used to facilitate learning.

**Credit Hours:** 3

**Prerequisites:** SOC\_WK 7770; graduate level Social Work majors only

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**SOC\_WK 8070: Cognitive Behavioral Practice**

Focuses on the theory, concepts, and techniques of cognitive behavioral therapies, with a particular emphasis on clinical intervention methods that may be used by the social worker to address specific client needs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SOC\_WK 7770. Restricted to graduate Social Work majors

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**SOC\_WK 8080: Introduction to Dialectical Behavioral Therapy Practice**

This course is an introduction to the theory, concepts and practice of Dialectical Behavioral Therapy, an evidenced-based practice and form of cognitive-behavioral treatment. There will be an emphasis on application methods across settings that a social worker may use to work with clients with pervasive emotion dysregulation as well as other difficult to treat

clients where other forms of treatment have not been effective. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Graduate level Social Work majors only

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**SOC\_WK 8210: Disability Rights Advocacy**

Highlights historical views of disabilities in relationship to contemporary policies, programs and services. This cross-disability focus examines the shift in focus from cure, care, and treatment to participation, capabilities, adapting environments, and building community. Graded on A-F basis only.

**Credit Hours:** 3

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**SOC\_WK 8220: Integrated Health Policy and Services**

The course focuses on the role of social workers as social policy practitioners within an Integrated Behavioral Health environment. Strategies to influence policies and promote change in the interest of service consumer, agency, and society will be presented. Graded on A-F basis only.

**Credit Hours:** 3

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**SOC\_WK 8240: Social Policy for Older Adults**

Examines local, state, and federal social policies related to older adults highlighting challenges related to diverse and special needs. Students will explore and appraise needs, values, ageism, and human rights related to social policies for older adults.

**Credit Hours:** 3

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**SOC\_WK 8350: Management of a Social Agency**

Basic resource management and control techniques common to social agencies with emphasis on personnel management, information and data management, and fiscal management.

**Credit Hours:** 3

**Prerequisites:** restricted to Graduate Social Work majors

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**SOC\_WK 8952: Evaluative Research in Clinical Social Work Practice**

Develop ability to systematically evaluate effectiveness of interventive strategies designed to produce positive change in clients' environment and/or cognitive, affective and behavioral functioning.

**Credit Hours:** 3

**Prerequisites:** SOC\_WK 7952. Restricted to graduate Social Work majors

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**SOC\_WK 8953: Evaluative Research in Social Work**

Develop ability to design and implement appropriate evaluative research methods and strategies employed in social and human service delivery.

**Credit Hours:** 3

**Prerequisites:** SOC\_WK 7952. Restricted to graduate Social Work majors

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**SOC\_WK 8955: Independent Study in Social Work**

Intensive investigation of phenomena germane to area of concentration carried out with guidance of faculty. May include data collection; leads to a written report in publishable format.



**Credit Hour:** 1-6

**Prerequisites:** departmental consent required

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**SOC\_WK 8970: Professional Practice Seminar I**

Provides integrative learning experience in social work practice in an area of beginning specialization in autonomous social work practice.

**Credit Hours:** 3

**Prerequisites:** restricted to graduate Social Work majors

**Corequisites:** SOC\_WK 8971

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**SOC\_WK 8971: Graduate Field Practicum II**

Field instruction tailored to concentration interests, developing depth in clinical skills in direct service or in planning and administration. Graded on S/U basis only.

**Credit Hour:** 1-13

**Prerequisites:** Restricted to graduate Social Work majors. Completion of all required graduate coursework except SOC\_WK 8970

**Corequisites:** SOC\_WK 8970

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**SOC\_WK 9001: Topics in Social Work**

Special and emerging topics in social work and social welfare. Subject, content, and credit varies depending on available faculty and student interest. May be repeated for credit.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent required

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**SOC\_WK 9090: Research in Social Work**

Research in Social Work. Graded on S/U basis only.

**Credit Hour:** 1-12

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**SOC\_WK 9100: Knowledge Building I**

Advanced systemic review of theories requisite for study and implementation of practice and policy centered research in social welfare and development; emphasis placed on critical analysis of theories needed for research and study of integrated social development.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**SOC\_WK 9150: Statistical Concepts in the Social and Behavioral Sciences**

This course is designed to impart knowledge in the basic principles of statistics and data analysis for the social and behavioral sciences. Skills in data input, management, and analysis will be covered, including the construction of analytical tables, graphical analysis of data, use and interpretation of statistical tests, application of univariate and bivariate statistics, and ANOVA models to social work data as well as the use of software to analyze those data. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Basic college level math

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**SOC\_WK 9300: Research Methodology and Design Seminar**

Review of historical development of social welfare and social work research with emphasis on critical analysis of seminal studies; examination of 'state-of-the-art' social welfare and development initiatives, designs and methodology.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**SOC\_WK 9350: Advanced Quantitative and Qualitative Methods in Social Research**

The course provides an in-depth understanding of the use of both quantitative and qualitative methods. The curriculum emphasizes an integration of quantitative and qualitative approaches, methods, and data analysis. Computer application sessions are included. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SOC\_WK 9300 or permission of instructor

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**SOC\_WK 9400: Macro Social Theory**

(Same as NURSE 9400). Building on the foundation laid in SOC\_WK 9100, in depth examination of human development and social environment theories appropriate to scientific examination of social welfare practice with formal organizations, interorganizational combinations, communities and larger political entities.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**SOC\_WK 9500: Pro Seminar I**

Joint student-faculty exercise in intellectual discovery focusing on current and emerging issues in the field of social work and social development; emphasis on integration of multi-disciplinary perspectives. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** departmental consent required

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**SOC\_WK 9600: Professional Seminar II**

This second seminar focuses on topics related to long term professional success for doctoral students. The seminar covers topics on conference presentations, peer-reviewed publications, external funding, and academic job search process. Graded on S/U basis only.

**Credit Hour:** 1

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**SOC\_WK 9650: Pedagogical Methods in Social Work and Applied Professional Programs**

An in depth examination of the pedagogical issues, policies, and principles associated with teaching social work in higher education. Topics include the history and philosophy of social work education, instructional models and methods, assessing educational outcomes, and instructional improvement methods. Issues specific to social work include the need to differentiate teaching methods relative to direct practice, human services administration, community organization, policy practice, and program evaluation. Particular focus will be directed toward online education and its role in the 21st century. Graded on S/U basis only.

**Credit Hour:** 1

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**SOC\_WK 9700: Social Welfare Policy Seminar**

(Same as NURSE 9700). Critical examination of comparative models of social policy development; preparation of a professional social work policy analysis in the student's area of interest/specialization that is suitable for submission to an appropriate referred journal.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**SOC\_WK 9800: Research Application I**

Research practicum for Social Work doctoral students.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**SOC\_WK 9850: Research Application II**

Research Practicum. In most cases it will be a second research practicum but may also be a continuation of the research conducted in SOC\_WK 9800. Prerequisites: departmental consent required

**Credit Hour:** 1-3

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**SOC\_WK 9890: Dissertation Seminar**

This course will assist doctoral students in planning and writing the dissertation.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**SOC\_WK 9900: Doctoral Dissertation Research in Social Work**

Independently conducted research that includes concept development, data collection, statistical analysis and social policy implications prepared in a format suitable for publication. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** departmental consent required

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## Sociology Courses

**SOCIOL 1000: Introduction to Sociology**

Nature of organization and activities of human groupings-family, community, crowd, social class, etc.; structure, function of institutions; social influences shaping personality, behavior, social change. No credit for both SOCIOL 1000 and RU\_SOC 1000.

**Credit Hours:** 3

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**SOCIOL 1000H: Introduction to Sociology Honors**

Nature of organization and activities of human groupings-family, community, crowd, social class, etc.; structure, function of institutions; social influences shaping personality, behavior, social change. No credit for both SOCIOL 1000 and RU\_SOC 1000.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**SOCIOL 1010: Social Problems**

Introduces a sociological perspective on what constitutes social problems and their impact on individuals and societies. Emphasizes critical thinking skills. Topics covered may include poverty, inequalities of gender, race, class, religion, education, and political power, the environment and global conflicts among others.

**Credit Hours:** 3

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**SOCIOL 1120: Population and Ecology**

(same as RU\_SOC 1120 and PEA\_ST 1120). Changes in the structure and characteristics of population groups and their relationship to both human and non-human aspects of the biophysical environment.

**Credit Hours:** 3

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**SOCIOL 1360: The Female Experience: Body, Identity, Culture**

(same as WGST 1360). Study of the experience of being female in American culture. Course will focus on development of women's identities through such topics as: sexuality, reproduction, self-image, rape and health care.

**Credit Hours:** 3

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**SOCIOL 1650: Social Deviance**

Survey of approaches to the study of behaviors commonly regarded as deviant such as crime, sexual abuse, substance abuse, mental illness, etc.

**Credit Hours:** 3

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**SOCIOL 2103: Topics in Sociology-Behavioral Science**

Organized study of selected topics. Particular topics may vary from semester to semester. Departmental consent for repetition.

**Credit Hour:** 1-3

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**SOCIOL 2182: Critical Dialogues: Nonviolence in Peace/Democracy Movements**

(same as PEA\_ST 2182). History and theory of movements for peace, justice, and democracy. Development of violent and nonviolent tactics and factions in movements; relationship to state authority. Cases such as Gandhi's Independence, American Civil Rights, Arab Spring, and Occupy movements.

**Credit Hours:** 3

**Recommended:** PEA\_ST 1050

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**SOCIOL 2182W: Critical Dialogues: Nonviolence in Peace/Democracy Movements - Writing Intensive**

(same as PEA\_ST 2182W). History and theory of movements for peace, justice, and democracy. Development of violent and nonviolent tactics and factions in movements; relationship to state authority. Cases such as Gandhi's Independence, American Civil Rights, Arab Spring, and Occupy movements.

**Credit Hours:** 3

**Recommended:** PEA\_ST 1050

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**SOCIOL 2200: Social Inequalities**

(same as BL\_STU 2200). Survey of inequalities based upon criteria such as race, ethnicity, sex, age, religion and social class in contemporary societies. Focus on dynamics by which privilege and inequalities are structured.

**Credit Hours:** 3

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**SOCIOL 2210: The Black Americans**

(same as BL\_STU 2210). Analysis of history of blacks in the United States. Assessment of contemporary black community in terms of its institutions, styles of life, patterns of work and intergroup relations.

**Credit Hours:** 3

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**SOCIOL 2255: Youth, Islam, and Global Cultures**

(same as PEA\_ST 2255). Youth subcultures and the social issues and problems faced by youth, focusing on the Islamic world and Muslim immigrants, in the United States and elsewhere. Social and behavioral theories and concepts such as paths to modernization, Orientalism, post-colonialism, population movements, social construction, identity, and recognition will be illustrated.

**Credit Hours:** 3

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**SOCIOL 2280: Race, Democracy, and Violence in Cuba and Haiti**

(same as PEA\_ST 2280, GEOG 2280). A sociological approach to understand race/ethnicity, identity, citizenship, human rights, violence, and political and economic systems in the Caribbean. Comparisons of the culture, politics, and historical trajectories of Cuba and Haiti using Post-Colonial and Feminist theories. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 2280W: Race, Democracy, and Violence in Cuba and Haiti - Writing Intensive**

(same as PEA\_ST 2280, GEOG 2280). A sociological approach to understand race/ethnicity, identity, citizenship, human rights, violence, and political and economic systems in the Caribbean. Comparisons of the culture, politics, and historical trajectories of Cuba and Haiti using Post-Colonial and Feminist theories. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 2281: Nuclear Weapons: Environmental, Health and Social Effects**

(same as HLTH\_SCI 2200 and PEA\_ST 2200). Environmental consequences of the nuclear arms race, 'regional' nuclear war, and weapons testing for human health, agriculture, and society. Examining 'a world without nuclear weapons'; political dialogue on proliferation; Iran, North Korea, and nuclear weapons conventions. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 2281W: Nuclear Weapons: Environmental, Health and Social Effects - Writing Intensive**

(same as HLTH\_SCI 2200 and PEA\_ST 2200). Environmental consequences of the nuclear arms race, 'regional' nuclear war, and weapons testing for human health, agriculture, and society. Examining 'a world without nuclear weapons'; political dialogue on proliferation; Iran, North Korea, and nuclear weapons conventions. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 2285: Large Corporations, Economic Crisis, Social Responsibility**

(same as PEA\_ST 2285). Institutional power of the corporate CEO; ethical regulatory restraint. Historical contexts of economic crisis. Theories of justice, alternative concepts of justice in popular culture. Politics of policy issues in prosecution and criminalization of corporate behavior. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 2286: Technological Futures, National Security, and Civil Liberties**

(same as PEA\_ST 2286). Contemporary practices and future trends in data collection and mining by the NSA and by businesses. The interplay of government and corporate power, and possibilities of regulation and maintenance of privacy and civil liberties. The development of digital intellectual copyright and its consequences on patterns of dissemination of knowledge.

**Credit Hours:** 3

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**SOCIOL 2286W: Technological Futures, National Security, and Civil Liberties - Writing Intensive**

(same as PEA\_ST 2286). Contemporary practices and future trends in data collection and mining by the NSA and by businesses. The interplay of government and corporate power, and possibilities of regulation and maintenance of privacy and civil liberties. The development of digital intellectual copyright and its consequences on patterns of dissemination of knowledge.

**Credit Hours:** 3

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**SOCIOL 2300: Self and Society**

Analysis of the self in modern society. Topics covered include social interaction, social perception, language and learning, the sociology of emotions and the social construction of identity.

**Credit Hours:** 3

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**SOCIOL 2310: Culture and Mass Media**

Sociological study of modern folk, local, popular and mass cultural production and consumption; mass media, diffusion, change, differentiation.

**Credit Hours:** 3

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**SOCIOL 3000: Urban Sociology**

Urbanism as a world phenomenon; ecological, demographic characteristics of cities; organization of urban society including status systems, occupational structure, formal and informal associations, racial and cultural relations, forms of communication, housing, city planning.

**Credit Hours:** 3

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**SOCIOL 3100: Recent Theories in Sociology**

(same as RU\_SOC 3100). Introduction to major theoretical positions and issues in contemporary American sociology. Logical and intellectual structure of major theoretical schools: functionalism, conflict, exchange, symbolic interaction, phenomenological-ethnomethodological theories.

**Credit Hours:** 3

**Prerequisites:** Sociology majors only. Non-sociology majors may petition the instructor to add the course

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**SOCIOL 3200: Class, Status, and Power**

Study of the structure of wealth, poverty, prestige, and power. Concepts of social justice in political, economic and legal issues and policies. Provides student engagement in research.

**Credit Hours:** 3

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**SOCIOL 3210: Sociology of Globalization**

Globalization's origin and dynamics; the social and political effects of globalization: countervailing forces to economic globalization, in particular reassertions of 'traditional' identities, labor movements, new social movements, and the global democracy movement.

**Credit Hours:** 3

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**SOCIOL 3230: Education and Social Inequalities**

Examination of the ways in which inequalities are constructed, reproduced, maintained or transformed by and within educational institutions. Particular attention will be given to inequalities based on gender, race, and social class.

**Credit Hours:** 3

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**SOCIOL 3255: Youth in Today's World**

Study of what factors influence the development of youth in today's society. Examined are types of behavior such as mating, deviance and the role of schools, parents, TV and friendship groups.

**Credit Hours:** 3

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**SOCIOL 3300: Queer Theories/Identities**

(same as WGST 3300). Analysis of gay, lesbian, bisexual, transgender (GLBT) and queer identities in culture and society with an emphasis on the contributions of queer theory and other GLBT standpoint theories to sociology and the study of society.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 2200 or instructor's consent

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**SOCIOL 3300W: Queer Theories/Identities - Writing Intensive**

(same as WGST 3300). Analysis of gay, lesbian, bisexual, transgender (GLBT) and queer identities in culture and society with an emphasis on the contributions of queer theory and other GLBT standpoint theories to sociology and the study of society.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 2200 or instructor's consent

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**SOCIOL 3310: Social Psychology**

Survey of theories and research concerned with the ways in which individuals construct social situations and are affected by them. Topics covered include self-identities, social influence, personal relationships, prejudice and discrimination.

**Credit Hours:** 3

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**SOCIOL 3310W: Social Psychology - Writing Intensive**

Survey of theories and research concerned with the ways in which individuals construct social situations and are affected by them. Topics covered include self-identities, social influence, personal relationships, prejudice and discrimination.

**Credit Hours:** 3

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**SOCIOL 3320: Sociology of Gender**

(same as WGST 3320). Study of the ways in which femininities and masculinities are constructed in American society with particular attention to gender ideologies and the gendered nature of the social structure.

**Credit Hours:** 3

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**SOCIOL 3330: Environmental Justice**

(same as PEA\_ST 3330). Environmental justice refers to the ways in which the 'cost and benefits' of modern industrial society are distributed among social groups. This course is concerned with justice, not as an abstract concept, and inequality not in terms of numbers in a bank account. Social justice or inequality are lived, embodied experiences. An individual's likelihood of experiencing environmental harm is related to intersecting gender, race and class formations, among other things. Justice or inequality is not only embodied, it also happens in places--national and regional differences matter. In this course we will look at some of the extensive literature documenting the ways in which communities of color and poor communities are subject to disproportionate environmental risks. In addition, we will focus on gender as an important category in understanding environmental inequality.

**Credit Hours:** 3

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**SOCIOL 3400: Fake News and Media Politics**

(same as PEA\_ST 3400). In this course we study the political impact of the growing concentration of media ownership in the U.S. We develop critical thinking skills to identify 'fake news,' and types of media bias to compare U.S. media coverage of current issues with media in other parts of the world.

**Credit Hours:** 3

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**SOCIOL 3400W: Fake News and Media Politics - Writing Intensive**

(same as PEA\_ST 3400). In this course we study the political impact of the growing concentration of media ownership in the U.S. We develop critical thinking skills to identify 'fake news,' and types of media bias to compare U.S. media coverage of current issues with media in other parts of the world.

**Credit Hours:** 3

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**SOCIOL 3420: The Family**

Families, kin and households as interacting groups; roles, socialization, problems, structural change; family in relation to other social institutions; historical, cultural and class variations.

**Credit Hours:** 3

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**SOCIOL 3430: The Sociology of Sport**

The role of sport in modern society. Includes violence in sport; politics and economics of sport; male, female, and racial inequalities; and international comparisons of sport structures.

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**Credit Hours:** 3

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**SOCIOL 3440: Sociology of Health**

A survey of sociological thinking and research on health, health problems, health occupations and health services. How these are shaped by the society. Problems faced by individuals and the system. Potential solutions to problems.

**Credit Hours:** 3

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**SOCIOL 3450: The Sociology of Religion**

Sociology of religious experience, action, organization, movements and social change; contemporary trends, including mainline and new religions, civil religion, secularization.

**Credit Hours:** 3

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**SOCIOL 3460: Technology and Society**

In the last few decades science and technology have permeated our lives as never before. This has led to wide ranging intellectual debates and social movements in and around the issue of relationship between science, technology, and society. This course, which is organized on a lecture-seminar format, will critically investigate different aspects of the relationship between science, technology, and society. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 3460W: Technology and Society - Writing Intensive**

In the last few decades science and technology have permeated our lives as never before. This has led to wide ranging intellectual debates and social movements in and around the issue of relationship between science, technology, and society. This course, which is organized on a lecture-seminar format, will critically investigate different aspects of the relationship between science, technology, and society. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 3520: Collective Behavior**

(same as PEA\_ST 3520). Analysis of crowd behavior and related phenomena: rumors, disasters, fashions. Social responses to unclear, dangerous or unjust conditions. The dynamics of conflict, consensus and change.

**Credit Hours:** 3

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**SOCIOL 3520W: Collective Behavior - Writing Intensive**

(same as PEA\_ST 3520). Analysis of crowd behavior and related phenomena: rumors, disasters, fashions. Social responses to unclear, dangerous or unjust conditions. The dynamics of conflict, consensus and change.

**Credit Hours:** 3

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**SOCIOL 3522: New Media, Conflict and Control**

(same as PEA\_ST 3522). This course will explore the increasing role of new media tools in conflict and surveillance. Examples from recent conflicts will illustrate how citizens and regimes use new media to communicate, report, mobilize, monitor, and/or control. Students will utilize new media as they research instances of democracy and control.

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**Credit Hours:** 3

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**SOCIOL 3600: Criminology**

(same as PEA\_ST 3600). Sociology of law; constitutional, psychological, sociological theories of criminal behavior; process of criminal justice; treatment of corrections; control of crime.

**Credit Hours:** 3

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**SOCIOL 3700: Institutions and Society**

Institutions of societies with focus on institutional arrangements (economy, polity, media, education, religion); organizational structures; interorganizational networks; interrelations of institutional sectors.

**Credit Hours:** 3

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**SOCIOL 3710: The Sociology of Work**

Analysis of occupational, professional aspects of American society. Division of labor; occupational mobility; work and the self; collegueship and informal organizations of work.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 1000 or SOCIOL 1650

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**SOCIOL 3710W: Work in the 21st Century - Writing Intensive**

Analysis of occupational, professional aspects of American society. Division of labor; occupational mobility; work and the self; collegueship and informal organizations of work.

**Credit Hours:** 3

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**SOCIOL 3942: Service Learning in Sociology**

The service learning course combines an independent study with a faculty member with practical experience in a related non-profit or other worksite.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**SOCIOL 3950: Social Research I**

(same as RU\_SOC 3950). Introduction to principles of methodology; theory and research; survey of basic research designs and perspectives; preparation for understanding and conducting social research.

**Credit Hours:** 3

**Prerequisites:** Required for Sociology majors

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**SOCIOL 3950W: Social Research I - Writing Intensive**

(same as RU\_SOC 3950W). Introduction to principles of methodology; theory and research; survey of basic research designs and perspectives; preparation for understanding and conducting social research.

**Credit Hours:** 3

**Prerequisites:** Required for Sociology majors

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**SOCIOL 4104: Topics in Sociology-Social Science**

Organized study of selected topics. Particular topics may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hours:** 3

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**SOCIOL 4210: Aging and the Life Course**

Course will take a life course perspective on the sociological aspects of aging in contemporary American society. Begins with birth, then childhood, adolescence, emergent adulthood, middle life, old age, and death. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Junior standing or above

**Recommended:** At least three credits in Sociology prior to enrollment is preferred

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**SOCIOL 4220: Race and Ethnic Relations**

The experience of racial and ethnic minorities; inequality, assimilation, ethnic and racial conflict, accommodation.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**SOCIOL 4230: Women, Development, and Globalization**

(same as BL\_STU 4230 and WGST 4230 and PEA\_ST 4230; cross-leveled with BL\_STU 4230, WGST 4230 and SOCIOL 7230). Examines the history and structure of 'development' discourse and practices. Stresses the interconnections and impact on women globally. Reviews women's strategies in defining and instituting programs to improve quality of life in communities.

**Credit Hours:** 3

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**SOCIOL 4315: Social Demography**

(same as RU\_SOC 4315). General demographic theories; age, sex, and ethnic composition of population; fertility, mortality and migration as components of population change; social, economic and political implications of demographic trends.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 1000 or RU\_SOC 1000 and junior standing

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**SOCIOL 4320: Culture, Identity and Interaction**

Examines the interplay between culture, identity, and interaction as these intersect with issues of social inequality, social control, social change, and the everyday production of subjectivities.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 3310 graduate standing or instructor's consent

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**SOCIOL 4335: Social Change and Development**

(same as RU\_SOC 4335). Nature of social change and development. Emphasizes sociological theories of social change and development contrasting them with approaches from the disciplines.

**Credit Hours:** 3

**Prerequisites:** RU\_SOC 1000 or SOCIOL 1000 and junior standing

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**SOCIOL 4370: Environment and Society**

(same as RU\_SOC 4370). An interdisciplinary examination of domestic and international environmental issues focusing on social, cultural, and policy dimensions. Perspectives of the social sciences and humanities are included.

**Credit Hours:** 3

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**Prerequisites:** junior, senior or graduate standing

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**SOCIOL 4450: Research Practicum in Health, Place, and Community**

(cross-leveled with SOCIOL 7450). This course is a research practicum with a substantive focus on health, place, and community. The course combines lecture and field work outside the classroom. Students take part in real-world research projects with local organizations, government agencies, and/or businesses. Projects are based on the needs of participating organizations and will be conducted using a variety of research methodologies. Students will engage in data analysis, write research reports for community partners, and present findings as applicable. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 2950, SOCIOL 3950, or equivalent. Junior or senior standing

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**SOCIOL 4500: Sociology of Social Policy**

Sociological theories and methodologies focused on social policy; policy as process; contextual and critical policy analyses; assessing policy effects and consequences.

**Credit Hours:** 3

**Prerequisites:** senior standing

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**SOCIOL 4510: Social Movements and Conflicts**

Survey of approaches and research on social movements and social change. Historical and contemporary social movements in the U.S.; collective protest and violence; political revolutions. MA core course.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 3520, SOCIOL 3700, or SOCIOL 3320 or graduate standing

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**SOCIOL 4520: Political Sociology**

(same as PEA\_ST 4520). Social bases of power and politics, economic and political elites, the political economy of the advanced societies, sources of political conflict and change.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 3200, SOCIOL 3510, SOCIOL 3520, or SOCIOL 3700

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**SOCIOL 4545: Sociology of Immigration**

(cross-leveled with SOCIOL 7545). This course will cover both classic and contemporary research on immigration within US sociology. Major topics of concern will be how immigration intersects with issues of law, race and ethnicity, gender and sexuality, social mobility, education, employment, politics, urban studies, marriage and family, health, and social networks. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 4550: Gender and Human Rights in Cross Cultural Perspective**

(same as WGST 4550 and PEA\_ST 4550; cross-leveled with WGST 7550, SOCIOL 7550, PEA\_ST 7550). This course focuses on the global discourse on human rights and gender, emphasizing cross-cultural theories. Course includes the meaning of rights, Western and non-western perspectives, feminist contributions, important substantive debates, violations, policymaking and activism.

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**Credit Hours:** 3

**Prerequisites:** WGST 1120 or SOCIOL 2200; senior standing required

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**SOCIOL 4610: Society and Social Control**

(cross-leveled with SOCIOL 7610). The concept of social control is analyzed from both micro and macro theoretical perspectives. Focus is on patterns of social domination.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 3700 or SOCIOL 3710

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**SOCIOL 4620: Drugs and Society**

Course will examine the social, political, and economic aspects of legal and illegal drug use in American society. Issues include: theories of drug use, the social correlates of drug use, the war on drugs and policy alternatives, and the rise of the pharmaceuticals industry. Graded on A/F basis only

**Credit Hours:** 3

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**SOCIOL 4630: Sociology of Mental Health**

Course examines the social aspects of mental health and illness. Topics include: stress and mental health, medicalization of behavior, stigma and labeling, mental health care systems, social correlates of mental health (such as gender, childhood, work status, and social support).

**Credit Hours:** 3

**Recommended:** 1000 level sociology course or 1000 level Psychology course

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**SOCIOL 4940: Internship in Sociology**

Professional experience under faculty supervision. Project must be arranged by student and faculty member prior to registration.

**Credit Hour:** 1-9

**Prerequisites:** junior standing and instructor's consent

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**SOCIOL 4950: Research in Sociology**

Students gain research experience by assisting a faculty member with a research project in sociology. Enrollment is limited to Sociology majors with Junior standing. Repeatable upon consent of the department.

**Credit Hours:** 3

**Prerequisites:** Instructor consent

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**SOCIOL 4960: Special Readings in Sociology**

Extensive reading in selected area or special field.

**Credit Hour:** 1-99

**Prerequisites:** 12 hours Sociology and departmental consent

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**SOCIOL 4970: Senior Seminar**

Integrates perspectives, methods, substantive foci of undergraduate courses. Analysis of sociology as a discipline and profession. Discussion of opportunities for graduate study, employment.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 2950 and SOCIOL 3100 and senior sociology major

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**SOCIOL 4970W: Senior Seminar - Writing Intensive**

Integrates perspectives, methods, substantive foci of undergraduate courses. Analysis of sociology as a discipline and profession. Discussion of opportunities for graduate study, employment.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 2950 and SOCIOL 3100 and senior sociology major

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**SOCIOL 4995: Honors in Sociology**

Intensive work in a selected field within sociology, including readings and research. Repeatable up to 6 hours with departmental consent.

**Credit Hours:** 3

**Prerequisites:** for honors candidates; SOCIOL 2950 and SOCIOL 3100

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**SOCIOL 7004: Topics in Sociology-Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated with departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** junior standing and instructor's consent

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**SOCIOL 7085: Problems in Sociology**

Directed research not leading to thesis or dissertation.

**Credit Hour:** 1-99

**Prerequisites:** 12 hours Sociology and departmental consent

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**SOCIOL 7110: Feminist Research and Criticism**

(same as WGST 7110). Examination of both feminist critiques of traditional social research and recent, feminist-oriented research that attempts to answer these criticisms.

**Credit Hours:** 3

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**SOCIOL 7120: Social Statistics**

(same as RU\_SOC 7120). Descriptive statistics and bivariate quantitative analysis techniques commonly used by social scientists. Includes coverage of parametric and non-parametric methods. Introduction to computer analysis.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 2950

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**SOCIOL 7200: Social Inequalities**

Examination of theories and research concerned with inequalities based on social class, gender, and race-ethnicity. M.A. core course for sociology students.

**Credit Hours:** 3

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**SOCIOL 7230: Women, Development and Globalization**

(same as WGST 7230 and BL\_STU 7230; cross-leveled with BL\_STU 4230, PEA\_ST 4230, SOCIOL 4230, WGST 4230). Examines the history and structure of 'development' discourse and practices. Stresses the interconnections and impact on women globally. Reviews women's strategies in defining and instituting programs to improve quality of life in communities.

**Credit Hours:** 3

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**SOCIOL 7315: Social Demography**

(same as RU\_SOC 7315). General demographic theories; age, sex, and ethnic composition of population; fertility, mortality and migration as components of population change; social, economic and political implications of demographic trends.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 1000 or RU\_SOC 1000

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**SOCIOL 7320: Culture, Identity and Interaction**

Examines the interplay between culture, identity, and interaction as these intersect with issues of social inequality, social control, social change, and the everyday production of subjectives.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 3310

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**SOCIOL 7335: Social Change and Development**

(same as RU\_SOC 7335). Nature of social change and development. Emphasizes sociological theories of social change and development contrasting them with approaches from the disciplines.

**Credit Hours:** 3

**Prerequisites:** RU\_SOC 1000 or SOCIOL 1000

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**SOCIOL 7340: Self, Language, and Social Life**

Examines the interplay between self, language, and social life. Particular attention is paid to how the everyday construction of inner lives relates to diverse social worlds. The effects of situational and institutional conditions as they shape identity and social interactions are important considerations.

**Credit Hours:** 3

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**SOCIOL 7370: Environment and Society**

(same as RU\_SOC 7370). An interdisciplinary examination of domestic and international environmental issues focusing on social, cultural, and policy dimensions. Perspectives of the social sciences and humanities are included.

**Credit Hours:** 3

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**SOCIOL 7410: Sociology of Education**

(same as ED\_LPA 7458; cross-leveled with SOCIOL 4410). Contexts, structures and processes of schooling; effects on class, race, ethnicity and gender; social change, educational policy, and organizational dynamics; higher education and the economy.

**Credit Hours:** 3

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**SOCIOL 7450: Research Practicum in Health, Place, and Community**

(cross-leveled with SOCIOL 4450). This course is a research practicum with a substantive focus on health, place, and community. The course combines lecture and field work outside the classroom. Students take part in real-world research projects with local organizations, government agencies, and/or businesses. Projects are based on the needs of participating organizations and will be conducted using a variety of research methodologies. Students will engage in data analysis, write research reports for community partners, and present findings as applicable. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 2950, SOCIOL 3950, or equivalent

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**SOCIOL 7500: Sociology of Social Policy**

Sociological theories and methodologies focused on social policy; policy as process; contextual and critical policy analyses; assessing policy effects and consequences.

**Credit Hours:** 3

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**SOCIOL 7510: Social Movements and Conflicts**

Survey of approaches and research on social movements and social change. Historical and contemporary social movements in the U.S.; collective protest and violence; political revolutions.

**Credit Hours:** 3

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**SOCIOL 7520: Political Sociology: Power and Inequalities**

Focus on Power Relations, Inequalities, and Institutions. The intersections of power with the inequalities of race, ethnicity, gender, place, and economic class in global context. Application to issues of public policy and democratic decision-making and culture. Graduate students from other departments are welcome to enroll through MyZou.

**Credit Hours:** 3

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**SOCIOL 7545: Sociology of Immigration**

(cross-leveled with SOCIOL 4545). This course will cover both classic and contemporary research on immigration within US sociology. Major topics of concern will be how immigration intersects with issues of law, race and ethnicity, gender and sexuality, social mobility, education, employment, politics, urban studies, marriage and family, health, and social networks. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 7550: Gender and Human Rights in Cross Cultural Perspective**

(same as PEA\_ST 7550 and WGST 7550; cross-leveled with WGST 4550, SOCIOL 4550, PEA\_ST 4550).. Focuses on the global discourse on human rights and gender, emphasizing cross-cultural theories. Course includes the meaning of human rights, western and non-western perspectives, feminist contributions, important substantive debates, violations, policymaking and activism.

**Credit Hours:** 3

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**SOCIOL 7610: Society and Social Control**

(cross-leveled with SOCIOL 4610). The concept of social control is analyzed from both micro and macro theoretical perspectives. Focus is on patterns of social domination.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 3700 or SOCIOL 3710

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**SOCIOL 7960: Special Readings in Sociology for the Graduate Level**

Extensive reading in selected area or special field. Graded on A-F basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent



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**SOCIOL 8086: Teaching Sociology**

This graduate seminar will cover current issues in higher education, building a teaching portfolio, the daily work of teaching, and work/life balance in academia. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 8087: Critical Race Theory**

Critical examination of key sociological theories of race, racialization, and racism in contemporary society.

**Credit Hours:** 3

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**SOCIOL 8100: Theoretical Thinking in Sociology**

Close analysis of the texts of classical and contemporary social theory. Key concepts will be elaborated in the context of intellectual history, and will be applied to deepening the theoretical significance of an empirical research question on the student's emerging agenda. Required for all entering graduate students in Sociology.

**Credit Hours:** 3

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**SOCIOL 8110: Research in Sociology**

Research not expected to terminate in thesis or dissertation.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**SOCIOL 8120: The Logic of Social Research**

Meta-theoretical and conceptual issues at the core of design decision making, questionnaire construction, qualitative field techniques, interviewing, scaling, panel analysis, computer applications to qualitative data; experimental, survey and case study designs, ethics. Required for Ph.D. students.

**Credit Hours:** 3

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**SOCIOL 8130: Advanced Social Statistics**

(same as RU\_SOC 8130). Introduction to multivariate analysis for social scientists. Emphasis on non-experimental applications of analysis of variance and correlation-regression. Computer applications emphasized.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 7120 or equivalent

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**SOCIOL 8140: Seminar in Population Health**

Graduate Seminar on the social distribution of morbidity and mortality. Covers major theoretical perspectives and the state of empirical evidence regarding several individuals and contextual explanations of health disparities. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor permission

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**SOCIOL 8187: Seminar on Interview Theory and Technique**

The seminar has three goals: First is the consideration of literature dealing with recent theoretical formulations of the interview. This will provide a basis, second, for critically examining a number of popular interview guidebooks. The third goal is to offer the opportunity to put

theory and technique into practice by analyzing selected interview material.

**Credit Hours:** 3

**Prerequisites:** doctoral standing

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**SOCIOL 8250: Media and Power in Comparative Perspective Seminar**

This course traces the historical development of U.S. and selected international media systems. We analyze and debate the relationship of differing media systems to political power, popular culture, and the facilitation or inhibition of democratic practices. Students do comparative analyses of international media institutions and related analyzes of media content.

**Credit Hours:** 3

**Prerequisites:** undergraduate seniors may enroll with instructor's consent

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**SOCIOL 8277: Race, Ethnicity, and Transnational Inequalities**

(same as BL\_STU 8277). This graduate seminar examines the global contest of our radicalized modern world system. How do people develop and give meaning to race/ethnicity in different regions? Focus on the construction of bodies Creole identities, gender, sexualities, citizenships and immigration. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 8387: Seminar on Narrative and Identity**

**Credit Hours:** 3

**Prerequisites:** graduate standing required; instructor's consent required

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**SOCIOL 8435: Graduate Seminar in Medicine, Technology, and Globalization**

In the last two hundred years medicine and technology have transformed our day-to-day living as never before. They have permeated our social and personal imagination, our epistemological bearing, disciplinary practices, and not to forget national and global agendas. A key aspect of such transformations, which we are going to investigate in this course, has been the intertwining of medicine and technology in a variety of ways, resulting in wide ranging impact - from the emergence of medical gaze, transformation of healthcare practices, to present day transnationalization and globalization of medical practices. This course would utilize recent theoretical developments to interrogate different interrelated facets of medicine, technology, and globalization. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 8687: Seminar in Criminology and Deviant Behavior**

Survey of empirical research and sociological theory in criminology and deviant behavior. May be repeated once with instructor's consent.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 3600

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**SOCIOL 9090: Research**

Advanced work leading to thesis or dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** consent of major advisor

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**SOCIOL 9187: Seminar in Sociological Theory I**

Traces development of sociological theory from the 'generation of 1890' through the 1940s, including the work of Durkheim, Weber, Parsons and others.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 8100 or equivalent

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**SOCIOL 9287: Seminar in Qualitative Methods in Sociology**

(same as RU\_SOC 9287). Examination of various qualitative methods of research, including problem-formulation, access and interpretation of data, theory-generation, and preparation of research reports.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 8120 and instructor's consent

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**SOCIOL 9288: Ethnographic Fieldwork**

History of sociological ethnography, the analysis of key ethnographic texts, forms of ethnographic fieldwork, and recent debates related to representational practices. Applications to participant observation, field interviewing, and strategies of discourse analysis in various social settings.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 9287, instructor's consent

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**SOCIOL 9350: Graduate Seminar in Environmental Discourses**

This seminar explores human cultural interactions with nature: how we understand ourselves in relation to space, how we interact with and learn about nature, and how we use nature. Readings will include exemplary texts from sociology, geography and anthropology, science studies and cultural studies. Graduate Standing required.

**Credit Hours:** 3

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**SOCIOL 9487: Seminar in Sociological Theory II**

Theoretical developments in sociology in Europe and United States since 1950. Recent formulations, controversies.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 8100 or equivalent

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**SOCIOL 9525: Culture, Difference, and Inequality**

This course is an examination of exemplary, interdisciplinary texts employing a variety of cultural approaches to understanding difference and inequality. In this seminar, we will think about what is gained from various cultural approaches to difference and inequality, how such approaches can be achieved methodologically, and how students can apply such approaches to their own research. The main focus of the course is on cultural studies and poststructural feminist studies, but readings will also be included from intersectionality studies, affect studies, critical race studies and cultural sociology.

**Credit Hours:** 3

**Prerequisites:** restricted to Sociology graduate students or instructor permission

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**SOCIOL 9687: Topical Seminar in Historical Sociology**

Methodological approaches to sociological explanation of historical phenomena; related sociological theories of historical development, including Weberian, Marxist and other perspectives applied to a topical historical problem.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 8100 or equivalent

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**SOCIOL 9777: Graduate Seminar in Body and Society**

The course is organized around three major themes - body as a site of personal and political experience; the social body, emphasizing the relationship between society, culture, and individuals; and the body as a site and instrument of politics. Readings assigned for the course are aimed at critical engagement with the 'body: within and across these themes. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 9887: Seminar in Sociology of Gender**

Analysis of recent research in which gender is a major focus. This research is chosen to exemplify a variety of theoretical perspectives, research strategies, and substantive topics.

**Credit Hours:** 3

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**SOCIOL 9920: Independent Readings in Preparation for Comprehensive Examinations**

Independent readings for PhD comprehensives. Open only to PhD candidates who have passed qualifying examinations.

**Credit Hour:** 1-6

**Prerequisites:** consent of major advisor

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## Soil Science Courses

**SOIL 2100: Introduction to Soils**

(same as PLNT\_S 2100). Introduction to soil sciences with emphasis placed on physical, biological, and chemical properties and application to land use, plant growth and environmental problems.

**Credit Hours:** 3

**Recommended:** 3 hours of Chemistry

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**SOIL 2106: Soil Science Laboratory**

Laboratory application of fundamental soil science concepts.

**Credit Hours:** 2

**Corequisites:** SOIL 2100

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**SOIL 3001: Topics in Soil Science**

Organized study of selected topics in soil science.

**Credit Hour:** 1-99

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**SOIL 3085: Problems in Soil Science**

Special individualized research projects or readings in soil science.

**Credit Hour:** 1-99

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**SOIL 3290: Soils and the Environment**

(same as ENV\_SC 3290). Addresses the role of soils and soil properties on environmental pollution and management. Emphasis will be placed on carbon, nitrogen, phosphorus, and sulfur transformations and transport in natural and disturbed ecosystems and soil management practices and technology to prevent or remediate environmental pollution.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100 and ENGLSH 1000

**Recommended:** 3 hours of chemistry

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**SOIL 3290W: Soils and the Environment - Writing Intensive**

(same as ENV\_SC 3290W). Addresses the role of soils and soil properties on environmental pollution and management. Emphasis will be placed on carbon, nitrogen, phosphorus, and sulfur transformations and transport in natural and disturbed ecosystems and soil management practices and technology to prevent or remediate environmental pollution.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100 and ENGLSH 1000

**Recommended:** 3 hours of chemistry

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**SOIL 4085: Problems in Soil Science**

Special individualized non-thesis research projects or readings in soil science.

**Credit Hour:** 1-99

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**SOIL 4305: Environmental Soil Physics**

(same as ENV\_SC 4305; cross-leveled with ENV\_SC 7305, SOIL 7305). Study of soil physical properties and processes important in solving environmental problems. Topics include soil solids, water content and energy, and transport of water, solutes, gas and heat.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100

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**SOIL 4306: Environmental Soil Physics Laboratory**

(same as ENV\_SC 4306; cross-leveled with ENV\_SC 7306, SOIL 7306). Introduction to the methodology and equipment for measurement of soil physical properties and processes.

**Credit Hours:** 2

**Prerequisites or Corequisites:** SOIL 4305

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**SOIL 4308: Soil Conservation**

(cross-leveled with SOIL 7308). Conservation of soil with respect to topsoil, soil productivity, and fertility.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100

**Recommended:** AG\_S\_M 4420

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**SOIL 4312: Environmental Soil Microbiology**

(same as ENV\_SC 4312; cross-leveled with SOIL 7312, ENV\_SC 7312). Microbiology/ecology of life in the soil ecosystem. Emphasis is placed on the role of microbes in nutrient cycling, microbial pesticide/xenobiotic transformation bioremediation, etc.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100

**Recommended:** general microbiology

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**SOIL 4313: Soil Fertility and Plant Nutrition**

(same as PLNT\_S 4313; cross-leveled with SOIL 7313, PLNT\_S 4313). Explanation of principles of delivery of plant nutrients to plants, discussion of the role of each essential nutrient in crop plants and introduction to the management of soil amendments.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100 or instructor's consent

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**SOIL 4318: Environmental Soil Chemistry**

(same as ENV\_SC 4318 and GEOL 4318; cross-leveled with ENV\_SC 7318, GEOL 4318, SOIL 7318). Study of chemical constituents and processes occurring in soils. Topics include soil minerals, and weathering processes, organic matter, solution chemistry, oxidation-reduction reactions and adsorption processes.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100 or GEOL 2400, CHEM 1320 and CHEM 1330; junior standing or instructor's consent

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**SOIL 4320: Genesis of Soil Landscapes**

(cross-leveled with SOIL 7320). The co-evolution of soil landscapes. The role of water in the accumulation of parent materials and development of soil horizons. Factors and processes of soil genesis. Distribution of soil in their natural settings.

**Credit Hours:** 4

**Recommended:** introductory soil science or introductory geology course

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**SOIL 4360: Precision Agriculture Science and Technology**

(same as AG\_S\_M 4360, PLNT\_S 4360; cross-leveled with SOIL 7360, AG\_S\_M 7360, PLNT\_S 7360). Precision agriculture is an information-based approach to farming whereby variability is managed to optimize crop production and reduce environmental pollution. This course provides an overview of precision agriculture technologies (like GIS, GPS, remote sensing), mapping methods, and case studies illustrating decisions and management.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2100 or SOIL 2100, or PLNT\_S 2110; MATH 1100; AG\_S\_M 1040

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**SOIL 4940: Soil Science Internship**

Supervised professional experience with an approved public or private organization. Course may be repeated for credit. Graded on S/U basis only.

**Credit Hour:** 1-12

**Prerequisites:** Soil and Atmospheric Sciences majors only, instructor's consent

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**SOIL 7001: Topics in Soil Science**

Organized study of selected topics in soil science. Intended for graduate students.

**Credit Hour:** 1-99

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**SOIL 7085: Problems in Soil Science**

Special individualized non-thesis research projects or readings in soil science.

**Credit Hour:** 1-99

**Prerequisites:** graduate standing

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**SOIL 7305: Environmental Soil Physics**

(same as ENV\_SC 7305; cross-leveled with SOIL 4305, ENV\_SC 4305).

Study of soil physical properties and processes important in solving environmental problems. Topics include soil solids, water content and energy, and transport of water, solutes, gas and heat.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100, PHYSCS 1210 or equivalent

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**SOIL 7306: Environmental Soil Physics Laboratory**

(same as ENV\_SC 7306; cross-leveled with ENV\_SC 4306, SOIL 4306).

Introduction to the methodology and equipment for measurement of soil physical properties and processes.

**Credit Hours:** 2

**Prerequisites or Corequisites:** SOIL 4305

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**SOIL 7308: Soil Conservation**

(cross-leveled with SOIL 4308). Conservation of soil with respect to topsoil, soil productivity, and fertility.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100

**Recommended:** AG\_S\_M 4420

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**SOIL 7312: Environmental Soil Microbiology**

(same as ENV\_SC 7312; SOIL 4312, ENV\_SC 4312). Microbiology/ecology of life in the soil ecosystem. Emphasis is placed on the role of microbes in nutrient cycling, microbial pesticide/xenobiotic transformations bioremediation, etc.

**Credit Hours:** 3

**Prerequisites:** general microbiology, SOIL 2100, or instructor's consent

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**SOIL 7313: Soil Fertility and Plant Nutrition**

(same as PLNT\_S 7313; cross\_leveled with SOIL 4313, PLNT\_S 4313). Explanation of principles of delivery of plant nutrients to plants, discussion of the role of each essential nutrient in crop plants and introduction to the management of soil amendments.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100 or instructor's consent

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**SOIL 7314: Soil Fertility and Plant Nutrition Laboratory**

(same as PLNT\_S 7314; cross\_leveled with SOIL 4314, PLNT\_S 4314).

The application of elementary analytical procedures to the evaluation of the nutrient status of soils and crop plants.

**Credit Hours:** 2

**Prerequisites or Corequisites:** SOIL 7313

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**SOIL 7320: Genesis of Soil Landscape**

(cross-leveled with SOIL 4320). The co-evolution of soil landscapes. The role of water in the accumulation of parent materials and development of soil horizons. Factors and processes of soil genesis. Distribution of soil in their natural settings.

**Credit Hours:** 4

**Prerequisites:** introductory soil science or introductory geology or permission of instructor

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**SOIL 7360: Precision Agriculture Science and Technology**

(same as AG\_S\_M 7360 and PLNT\_S 7360; cross-leveled with SOIL 4360, AG\_S\_M 4360, PLNT\_S 7360). Precision agriculture is an information-based approach to farming whereby variability is managed to optimize crop production and reduce environmental pollution. This course provides an overview of precision agriculture technologies (like GIS, GPS, remote sensing), mapping methods, and case studies illustrating decisions and management.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2100 or SOIL 2100, or PLNT\_S 2110; MATH 1100; AG\_S\_M 1040

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**SOIL 8001: Topics in Soil Science**

Organized study of selected topics in soil science. Intended for graduate students.

**Credit Hour:** 1-99

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**SOIL 8085: Problems in Soil Science**

Special individualized non-thesis research projects or readings in soil science.

**Credit Hour:** 1-99

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**SOIL 8090: Masters Research in Soil Science**

Original investigations in soil science for presentation in a thesis. Graded on S/U basis only.

**Credit Hour:** 1-10

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**SOIL 8400: Solute Transport in the Vadose Zone**

(same as ENV\_SC 8400). Transport of water and solutes in geomedia with emphasis on development of the equations of flow. Evaluation of analytical and numerical solutions to equations describing transport phenomena.

**Credit Hours:** 3

**Prerequisites:** ENV\_SC 7305 or SOIL 7305

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**SOIL 8500: Chemistry of the Vadose Zone**

(same as ENV\_SC 8500). Chemical reactions occurring in geomedia with emphasis on understanding molecular scale processes occurring at the solid-water interface, aqueous geochemistry, and soil organic matter.

**Credit Hours:** 3

**Prerequisites:** SOIL 7318 or GEOL 7300 or instructor's consent

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**SOIL 9085: Problems in Soil Science**

Special individualized non-thesis research projects or readings in soil science.

**Credit Hour:** 1-99

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**SOIL 9087: Seminar in Soil Science**

In-depth development of advanced aspects of soil science through reviews of results of research in progress and current scientific publications.

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**Credit Hour:** 1

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**SOIL 9090: Doctoral Research in Soil Science**

Original investigations in soil science for presentation in a dissertation. Graded on S/U basis only.

**Credit Hour:** 1-10

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**SOIL 9422: Pedology**

Three one-hour lectures. Detailed study of processes of soil horizonization and current topics in soil genesis including quantitative assessment of spatial and temporal variability and application of GIS in landuse planning.

**Credit Hours:** 3

**Prerequisites:** SOIL 7320, one statistics course beyond ANOVA

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## South Asia Studies Courses

**S\_A\_ST 1152: Asian Humanities**

(same as REL\_ST 1820, HIST 1820 and ARH\_VS 1230). This course is an introduction to the literature and visual arts of Asia through selected master works. It focuses principally on India and China and investigates the distinctive features of their cultures.

**Credit Hours:** 3

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**S\_A\_ST 1861: History of Modern India**

(same as HIST 1861). This course surveys the history of the South Asian subcontinent from the early seventeenth through the twentieth century. Emphasis will be placed on cultural and social history, religion, arts and literature, imperialism and colonialism, and the sources used for the study of modern civilizations. Students will develop a basic knowledge and vocabulary necessary to pursue additional South Asian courses.

**Credit Hours:** 3

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**S\_A\_ST 2100: Philosophy: East and West**

(same as PHIL 2100). Compares the interpretation and role of philosophical concepts such as experience, reason permanence, change, immortality, soul, God, etc., in Indian, Chinese and European traditions.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**S\_A\_ST 3200: Hinduism**

(same as REL\_ST 3200). Origin and development of central themes of traditional Hinduism from earliest times to the modern period. Topics include: the Vedic tradition, rituals and practice, varieties of yoga and meditation, Indian religious thought and devotional Hinduism.

**Credit Hours:** 3

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**S\_A\_ST 3230: Buddhism and Environmental Ethics**

(same as REL\_ST 3230). Global environmental crisis is associated with rapidly expanding human population. Buddhist teachings about the interdependent aspects of existence and interrelatedness of all life may provide critical insights for how humanity can achieve balance and reciprocity with nature.

**Credit Hours:** 3

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**S\_A\_ST 3240: Buddhism of South and Southeast Asia**

(same as REL\_ST 3240). Examines the origins of Buddhism in India, the narratives of the life of the Buddha, the development of early Buddhist schools, the extension of Buddhism into Central and Southeast Asia, and the current practice of Buddhism in south and Southeast Asia.

**Credit Hours:** 3

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**S\_A\_ST 3261: Hindu Goddesses**

(same as REL\_ST 3260). This course examines the vast range of Hindu Goddesses and their worship in South Asia. It includes information about goddess origins, mythology, symbolism, and attendant ritual practices. In order to approach this topic, background information about the history of Hinduism, major religious narratives, devotional practices, and iconographic representations of the divine are discussed. The course introduces the approaches of various scholars to Hindu Goddess worship within the context of religion, social relations, and gender roles, and explores ways in which South Asian women experience and negotiate feminine power in contemporary socio-cultural contexts.

**Credit Hours:** 3

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**S\_A\_ST 3270: Yoga and Meditation in the Modern World**

(same as REL\_ST 3270). This course explores the practice of Yoga and meditation, both as an ancient tradition of India and as an example of the globalization of religion. It will examine how the ancient Hindu religious tradition of Yoga was reinvented against the backdrop of India's colonial experience. Then it will look at a variety of emerging and transforming varieties of Hindu inspired yoga and meditation that spread globally in the context of increasing transnational interaction. To better appreciate both the traditional and the modern aspects of yoga and meditation, a secular meditation practice is included as an instructional and experiential component of this class.

**Credit Hours:** 4

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**S\_A\_ST 3490: Indian Cinema**

(same as ANTHRO 3490, FILMS\_VS 3490, ARH\_VS 3790). Indian Cinema provides an overview of the key genres and themes of Indian film, including Bollywood, art cinema/parallel cinema, Indian regional cinemas, and diasporan cinema. The course combines film studies, anthropological, historical, and visual culture analyses to provide a holistic view of Indian culture and society through cinema.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or higher

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**S\_A\_ST 4630: Sanskrit I**

(same as REL\_ST 4630; cross-leveled with S\_A\_ST 7630, REL\_ST 7630). This intensive course will cover the essentials of Sanskrit grammar in one semester and prepare students for further readings in Hindu and Buddhist Literature.

**Credit Hours:** 3

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**S\_A\_ST 4790: Culture and Society in South Asia**

(same as ANTHRO 4790; cross-leveled with S\_A\_ST 7790, ANTHRO 7790). Survey of the cultures, social organizations, and lived experience of people from across the Indian subcontinent. Major topics include caste,

kinship, gender, religion, village life, urbanization, public culture, popular culture, social change, and the South Asian diaspora.

**Credit Hours:** 3

**Recommended:** junior standing

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**S\_A\_ST 4800: Asian Philosophy**

(same as PHIL 4800). This course traces the origins of Indian and Chinese philosophical world views. Included are the major ideas in Hindu, Jaina, and Buddhist thought in India, and Taoism and Confucianism in China. Emphasis is placed on the diverse, assimilative, and pragmatic nature of Indian thought and its impact on contemporary Asian philosophy.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and one course in Philosophy; or instructor's consent

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**S\_A\_ST 4850: Traversing the Muslim World**

(same as HIST 4850). The traveler's tale formed an important part of the medieval world's system of knowledge. The writing intensive discussion-based course examines a wide array of the most influential travelers in Muslim lands such as Ibn Fadlan, Ibn Buttuta, Benjamin of Tudela and Marco Polo.

**Credit Hours:** 3

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**S\_A\_ST 4850W: Traversing the Muslim World - Writing Intensive**

(same as HIST 4850). The traveler's tale formed an important part of the medieval world's system of knowledge. The writing intensive discussion-based course examines a wide array of the most influential travelers in Muslim lands such as Ibn Fadlan, Ibn Buttuta, Benjamin of Tudela and Marco Polo.

**Credit Hours:** 3

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**S\_A\_ST 7630: Sanskrit I**

(same as REL\_ST 7630; cross-leveled with S\_A\_ST 4630, REL\_ST 4630). This course is intended as a "sampler" of Sanskrit literature. We will read Sanskrit texts in the original. The objectives of the course are 1) Expanding the students' knowledge of the Sanskrit language, 2) To acquaint the students with a broad range of textual genres in Sanskrit literature, and 3) To acquaint the students with some central ideas of Hindu and Buddhist philosophy.

**Credit Hours:** 3

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## Spanish Courses

**SPAN 1100: Elementary Spanish I**

An introductory course for students who wish to begin their study of Spanish. It teaches the four skills - listening, speaking, reading, and writing. The class meets four days a week (with the exception of the online section, which taught completely online). Class time is used to integrate new structures and vocabulary into spoken and written language.

**Credit Hours:** 4

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**SPAN 1100H: Elementary Spanish I - Honors**

This designated honors section of Elementary Spanish will challenge students to explore more deeply the currently existing thematic units of the SPAN 1100 curriculum. Students will participate in group discussions, creative projects, independent study and use of authentic written and aural material from primary sources. Honors Spanish 1100 will integrate cultural events outside the classroom such as movies, guest lectures, art exhibits, seminars or concerts as available. Once a semester, Honors Spanish 1100 will meet with Honors SPAN 1200H and SPAN 2100H as a cohort group for further intellectual exchange and enrichment. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Honors eligibility required

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**SPAN 1200: Elementary Spanish II**

The second course of the beginning sequence in the continuation of SPAN 1100. It places equal emphasis on the four skills; listening, speaking, reading, and writing. Students who have prior knowledge of Spanish are encouraged to take this course.

**Credit Hours:** 4

**Recommended:** Grade in the C range or better in SPAN 1100 or equivalent course

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**SPAN 1200H: Elementary Spanish II - Honors**

This course, designed for students who have taken SPAN 1100 or an equivalent course and enrolled in the Honors College, offers an introduction to the Spanish language and the many cultures in encompasses. Your course work will allow you to develop all four language skills: reading, speaking, listening and writing along with the cultural background necessary to help you to communicate effectively in Spanish. With the honors designation section, the course will allow students to access greater challenges in the existing thematic units in the curriculum through group discussion, creative projects and authentic situations. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Honors eligibility required

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**SPAN 2005: Undergraduate Topics in Spanish-Humanities/Fine Arts**

Organized study of selected topics. Subjects may vary from semester to semester. May be repeated with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** SPAN 1200 with a grade of C or better

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**SPAN 2100: Elementary Spanish III**

A multi-skill course following SPAN 1200, centering on cultural/ literary readings, and including a grammar review, practice in the spoken language, as well as some practice in written expression.

**Credit Hours:** 4

**Recommended:** grade in the C range or better in SPAN 1200, or equivalent course

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**SPAN 2100H: Elementary Spanish III - Honors**

A multi-skill course following SPAN 1200, centering on cultural/literary readings, and including a grammar review, practice in the spoken language, as well as some practice in written expression. The course seeks to improve student's fluency in Spanish and to expose them to

the many cultures it encompasses. This course will integrate cultural events outside the classroom as well such as movies, guest lectures, art exhibits, seminars or concerts as available. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Honors eligibility required

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**SPAN 2160: Intermediate Spanish Composition and Conversation**

This course is designed specifically to strengthen overall writing skills and to develop further conversational ability with equal emphasis on both of these aspects. Classwork will involve written compositions and oral presentations.

**Credit Hours:** 3

**Prerequisites:** SPAN 2100 or equivalent

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**SPAN 2160H: Intermediate Spanish Composition and Conversation - Honors**

This class is fundamentally different from other 2160 classes in that it focuses on the application and refinement of grammatical concepts through the introduction of new vocabulary and cultural topics. In this course it is assumed that students have mastered the vocabulary and grammatical concepts taught in the elementary levels. Throughout the semester students enrolling in Spanish 2160 for Honors credit will write a series of essays on current and past events, as well as literary analysis utilizing the grammar and material learned in learned in class. The goal is to strengthen their communicative and written skills while allowing them to be creative and engage in research.

**Credit Hours:** 3

**Prerequisites:** SPAN 2100 or equivalent from any other institution. Honors eligibility required

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**SPAN 2320: Literature of Spanish Civil War**

(same as PEA\_ST 2320). Study of the Spanish Civil War: History, Politics, Literature. May not be included in the area of concentration in Spanish.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**SPAN 2330: Latin American Civilization**

Survey of Latin American history, arts and culture. Open to any student interested. No knowledge of Spanish required. May not be included in area of concentration in Spanish.

**Credit Hours:** 3

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**SPAN 2340: Hispanic Minority Literature**

This course studies the literature of Hispanic minorities in the United States: Chicanos (Mexican American), Mainland Puerto Ricans, and Cuban exile writers. It explores the question of minority versus majority literatures and the creation of a Hispanic minority discourse. No knowledge of Spanish required.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**SPAN 3005: Topics in Spanish-Humanities/Fine Arts**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing

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**SPAN 3150: Advanced Spanish Conversation**

Course puts into practice the linguistic skills learned at intermediate levels. It develops and increases the capacity for comprehension and oral expression in the language. Focus is on practice of certain syntactic structures and idiomatic expressions, and on acquisition of new vocabulary.

**Credit Hours:** 3

**Prerequisites:** SPAN 2160 or equivalent

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**SPAN 3150H: Advanced Spanish Conversation - Honors**

Course puts into practice the linguistic skills learned at intermediate levels. It develops and increases the capacity for comprehension and oral expression in the language. Focus is on practice of certain syntactic structures and idiomatic expressions, and on acquisition of new vocabulary.

**Credit Hours:** 3

**Prerequisites:** SPAN 2160 or equivalent. Honors Eligibility required

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**SPAN 3160: Advanced Spanish Composition**

Course emphasizes writing at an advanced level, with a certain degree of sophistication about varied subjects and using different techniques of composition. Classwork consists mainly of the discussion of both the ideas and techniques used in different textual forms.

**Credit Hours:** 3

**Prerequisites:** SPAN 2160 or equivalent

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**SPAN 3170: Conversational Spanish Practice**

Study Abroad Conversational Spanish course for students who have already completed SPAN 3150, but want more practice. Does not count for majors/minors. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SPAN 3150 and instructor's consent

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**SPAN 3280: Commercial Spanish**

Business terminology and forms. Translate and compose business letters and documents for advertising and promotion, trade and commerce, imports and exports, money and banking.

**Credit Hours:** 3

**Prerequisites:** SPAN 2160 or equivalent

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**SPAN 3420: Introduction to Hispanic Literature I**

Selected prose fiction and nonfiction prose of Spain and Spanish America.

**Credit Hours:** 3

**Prerequisites:** SPAN 3160 or equivalent

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**SPAN 3420W: Introduction to Hispanic Literature I - Writing Intensive**

Selected prose fiction and nonfiction prose of Spain and Spanish America.

**Credit Hours:** 3

**Prerequisites:** SPAN 3160 or equivalent

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**SPAN 3430: Introduction to Hispanic Literature II**

Selected plays and poetry of Spain and Spanish America.

**Credit Hours:** 3

**Prerequisites:** SPAN 3160 or equivalent

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**SPAN 3430H: Introduction to Hispanic Literature II - Honors**

Selected plays and poetry of Spain and Spanish America.

**Credit Hours:** 3

**Prerequisites:** SPAN 3160 or equivalent. Honors eligibility required

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**SPAN 3430W: Introduction to Hispanic Literature II - Writing Intensive**

Selected plays and poetry of Spain and Spanish America.

**Credit Hours:** 3

**Prerequisites:** SPAN 3160 or equivalent

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**SPAN 3710: Survey of Minority and Creole Languages of the U.S. and the Caribbean**

(same as FRENCH 3710 and LINGST 3710). Analysis of the state of the minority languages of the U.S. and the Creole languages of the Caribbean with particular attention to the social status of these languages and speakers' attitudes toward them in the context of ethnic, culture and national identity (taught in Eng.).

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**SPAN 3721: Spanish Phonetics**

(same as LINGST 3721). Introductory course to the study of Spanish phonological, phonetic and spelling systems, practice of pronunciation, phonetic transcriptions, and introduction to the variation of Spanish pronunciation in the Hispanic world. The course is conducted in Spanish.

**Credit Hours:** 3

**Prerequisites:** SPAN 2160 or equivalent

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**SPAN 3885: Twenty-First Century South American Cinema**

(same as FILMS\_VS 3885, PORT 3885). Broad overview of the major national cinemas of the 21st century in South America. Approximately 14 feature films screened from Argentina, Brazil, Chile and other nations of the region. Instructor provides a thematic framework for films within the context of film theory, Latin American cinematic history and cultural studies. Course taught in English. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 or ENGLISH 1000H

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**SPAN 4004: Topics in Spanish-Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** junior standing

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**SPAN 4070: Intensive Beginning Spanish**

Designed for rapid acquisition of a reading knowledge of Spanish. Cannot be taken to fulfill undergraduate language requirement.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**SPAN 4120: Foreign Language Teaching Methodology**

(same as FRENCH 4120, LATIN 4121; cross-leveled with FRENCH 7120, SPAN 7120). Theory and techniques of current foreign language methodology and their application in the classroom. Presentation of instructional projects, classroom observations, and strategies for classroom management. May not be used towards Arts and Science major.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**SPAN 4130: Stylistics**

(cross-leveled with SPAN 7130). Advanced composition class. Discussion of complex grammatical structures necessary for formal writing as well as orthographic rules in Spanish. Examination of stylistic devices and structures beyond sentence level, in order to learn to organize discourse level production.

**Credit Hours:** 3

**Recommended:** SPAN 3420 and SPAN 3430

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**SPAN 4130W: Stylistics - Writing Intensive**

(cross-leveled with SPAN 7130). Advanced composition class. Discussion of complex grammatical structures necessary for formal writing as well as orthographic rules in Spanish. Examination of stylistic devices and structures beyond sentence level, in order to learn to organize discourse level production.

**Credit Hours:** 3

**Recommended:** SPAN 3420 and SPAN 3430

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**SPAN 4420: Golden Age Poetry**

(cross-leveled with SPAN 7420). Poetry of the principal Spanish poets of the 16th and 17th centuries and of literary criticism devoted to it. Special emphasis is placed on the works of Garcilaso de la Vega, Fray Luis de Leon, among others. Short papers and explications are generally required.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4422: Spanish Theatre in the Golden Age**

(cross-leveled with SPAN 7422). Dramatists to be studied include Lope de Vega, Calderon, Ruiz de Alarcon, Tirso de Molina, Guillen de Castro, Velez de Guevara, and some of Cervantes' theatre.

**Credit Hours:** 3



**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4423: Don Quijote**

(cross-leveled with SPAN 7423). In this course students read the two parts of Don Quijote in the original Spanish. Analysis and class discussion highlight elements of literary interest. Neo-positivist methodology, factual background, formalist considerations and psychoanalytic approaches are used in this course.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4460: Advanced Contemporary Culture of Spanish America**

(cross-leveled with SPAN 7460). A study of Spanish-American culture and civilization through selected readings in history and literature, and the use of visual media. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SPAN 3150 and SPAN 3160

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**SPAN 4461: Advanced Spanish Civilization**

(cross-leveled with SPAN 7461). A survey of Spanish culture and Spanish history from the Middle Ages to the present with special emphasis on contemporary culture. Students will be provided with knowledge of chronology, geography and contemporary issues from readings of journals, novels and Internet news.

**Credit Hours:** 3

**Prerequisites:** SPAN 3150 and SPAN 3160

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**SPAN 4470: Survey of Spanish American Literature I**

(cross-leveled with SPAN 7470). This is an introductory course in Spanish American literature. The reading material in prose and verse is studied in chronological order from the early 16th to the early 20th century. Readings include selections from 22 major Spanish American authors.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4471: Survey of Spanish American Literature II**

(cross-leveled with SPAN 7471). Survey of contemporary Latin American literature from approximately 1910 to the present. Close analysis and reading of representative major texts of Latin American literature. Students read complete selections and short excerpts from a standard anthology, and three complete novels.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4480: Mexican Literature**

(cross-leveled with SPAN 7480). Analysis of selected poetry, prose, and drama of contemporary Mexico. Course examines the writings of major and minor figures from several critical perspectives. Works by Agustin, Aviles, Fabila, Carballido, Castellanos, Fuentes, Paz, and others are read.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4490: Hispanic Oral Traditions**

(cross-leveled with SPAN 7490). This course proposes to examine the Hispanic Oral Tradition through a study of romances and related genres, the corrido, decima and folktale.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4530: The Spanish American Theatre**

(cross-leveled with SPAN 7530). Intended as an overview of a vital genre in contemporary Spanish American studies, this survey introduces dramatists whose works are the focus of increasing attention from international specialists. The works of Emilio Carballido, Egon Wolff, Griselda Gambaro and Osvald Dragun, among others are discussed.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4540: Afro-Hispanic Literature**

(cross-leveled with SPAN 7540). A study of prose, poetry, and drama, in Spanish, written by authors of African descent in the Americas.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4711: History of the Spanish Language**

(same as LINGST 4711; cross-leveled with SPAN 7711). ). Diachronic analysis of phonological, morphological, and syntactical systems of Spanish, from Vulgar Latin to contemporary dialects.

**Credit Hours:** 3

**Prerequisites:** Completion with a passing grade of any Linguistics course at the 3000 level or above or instructor's consent

**Recommended:** SPAN 3420 and SPAN 3430

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**SPAN 4721: Structure of Modern Spanish**

(same as LINGST 4721; cross-leveled with SPAN 7721). Synchronic analysis of phonology, morphology and syntax of spoken Spanish dialects.

**Credit Hours:** 3

**Prerequisites:** four 3000-level courses in Spanish

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**SPAN 4722: Spanish Across the Continents**

(same as LINGST 4722; cross-leveled with SPAN 7722). This course focuses on the effects of migratory movements on language change, considering the Spanish spoken in Latin America, Puerto Rico, Spain and the USA. The class sharpens awareness and recognition of the linguistic diversity of the Spanish-speaking regions of the world. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** four 3000-level courses in Spanish

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**SPAN 4722W: Spanish Across the Continents - Writing Intensive**

(same as LINGST 4722; cross-leveled with SPAN 7722). This course focuses on the effects of migratory movements on language change, considering the Spanish spoken in Latin America, Puerto Rico, Spain and the USA. The class sharpens awareness and recognition of the linguistic diversity of the Spanish-speaking regions of the world. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** four 3000-level courses in Spanish

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**SPAN 4723: Language and Society: Spanish in the U.S.**

(same as LINGST 4723; cross-leveled with SPAN 7723). This class surveys linguistic and social issues pertaining to Spanish in the U.S. (past, present and future). Topics include bilingualism, code switching (a.k.a. Spanglish), first language attrition, linguistic identity, and the role of Spanish in education, services and media. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** four 3000-level courses in Spanish

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**SPAN 4960: Special Readings in Spanish**

Independent study through readings, conferences, reports.

**Credit Hour:** 1-3

**Prerequisites:** SPAN 3420 and SPAN 3430 and departmental consent

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**SPAN 4980: Special Themes in Spanish**

Subject varies according to instructor. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4993: The Capstone Experience in Spanish**

This course is required of all majors. Topics vary but all courses synthesize and review essential components of the major: speaking, writing, reading in Spanish, and the ability to think critically and analytically.

**Credit Hours:** 3

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**SPAN 7004: Topics in Spanish-Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-99

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**SPAN 7120: Foreign Language Teaching Methodology**

(same as FRENCH 7120; cross-leveled with FRENCH 4120, SPAN 4120 and LATIN 4121). Theory and techniques of current foreign language methodology and their application in the classroom. Presentation of instructional projects, classroom observations, and strategies for classroom management. May not be used towards Arts and Science major.

**Credit Hours:** 3

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**SPAN 7130: Stylistics**

(cross-leveled with SPAN 4130). Advanced composition class. Discussion of complex grammatical structures necessary for formal writing as well as orthographic rules in Spanish. Examination of stylistic devices and structures beyond sentence level, in order to learn to organize discourse level production.

**Credit Hours:** 3

**Recommended:** SPAN 3420 and SPAN 3430

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**SPAN 7420: Golden Age Poetry**

(cross-leveled with SPAN 4420). Poetry of the principal Spanish poets of the 16th and 17th centuries and of literary criticism devoted to it. Special emphasis is placed on the works of Garcilaso de la Vega, Fray Luis de Leon, among others. Short papers and explications are generally required.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 7422: Spanish Theatre in the Golden Age**

(cross-leveled with SPAN 4422). Dramatists to be studied include Lope de Vega, Calderon, Ruiz de Alarcon, Tirso de Molina, Guillen de Castro, Velez de Guevara, and some of Cervantes' theatre.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 7423: Don Quijote**

(cross-leveled with SPAN 4423). In this course students read the two parts of Don Quijote in the original Spanish. Analysis and class discussion highlight elements of literary interest. Neo-positivist methodology, factual background, formalist considerations and psychoanalytic approaches are used in this course.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 7460: Advanced Contemporary Culture of Spanish America**

(cross-leveled with SPAN 4460). A study of Spanish-American culture and civilization through selected readings in history and literature, and the use of visual media. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SPAN 3150 and SPAN 3160

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**SPAN 7470: Survey of Spanish American Literature I**

(cross-leveled with SPAN 4470). This is a course in Spanish American literature. The reading material in prose and verse is studied in chronological order from the early 16th to the early 20th century. Readings include selections from 22 major Spanish American authors.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 7471: Survey of Spanish American Literature II**

(cross-leveled with SPAN 4471). Survey of contemporary Latin American literature from approximately 1910 to the present. Close analysis and reading of representative major texts of Latin American literature. Students read complete selections and short excerpts from a standard anthology, and three complete novels.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 7480: Mexican Literature**

(cross-leveled with SPAN 4480). Analysis of selected poetry, prose, and drama of contemporary Mexico. Course examines the writings of major and minor figures from several critical perspectives. Works by Agustin, Aviles, Fabila, Carballido, Castellanos, Fuentes, Paz, and others are read.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 7490: Hispanic Oral Traditions**

(cross-leveled with SPAN 4490). This course proposes to examine the Hispanic Oral Tradition through a study of romances and related genres, the corrido, decima and folktale.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 7530: The Spanish American Theatre**

(cross-leveled with SPAN 4530). Intended as an overview of a vital genre in contemporary Spanish American studies, this survey introduces dramatists whose works are the focus of increasing attention from international specialists. The works of Emilio Carballido, Egon Wolff, Griselda Gambaro and Osvald Dragun, among others are discussed.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 7540: Afro-Hispanic Literature**

(cross-leveled with SPAN 4540). A study of prose, poetry, and drama, in Spanish, written by authors of African descent in the Americas.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 7711: History of the Spanish Language**

(same as LINGST 7711; cross-leveled with SPAN 4711, LINGST 4711). Diachronic analysis of phonology, morphology, and syntax from Vulgar Latin to modern period.

**Credit Hours:** 3

**Prerequisites:** Completion with a passing grade of any Linguistics course at the 3000 level or above or instructor's consent

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**SPAN 7721: Structure of Modern Spanish**

(same as LINGST 7721; cross-leveled with LINGST 4721, SPAN 4721). Synchronic analysis of phonology, morphology and syntax of spoken Spanish dialects.

**Credit Hours:** 3

**Prerequisites:** four 3000-level courses in Spanish

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**SPAN 7722: Spanish Across the Continents**

(cross-leveled with LINGST 4722, SPAN 4722). This course focuses on the effects of migratory movements on language change, considering the Spanish spoken in Latin America, Puerto Rico, Spain and the USA. The class sharpens awareness and recognition of the linguistic diversity of the Spanish-speaking regions of the world. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** four 3000-level courses in Spanish

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**SPAN 7723: Language and Society: Spanish in the US**

(cross-leveled with LINGST 4723, SPAN 4723). This class surveys linguistic and social issues pertaining to Spanish in the US (past, present and future). Topics include bilingualism, code switching (a.k.a. Spanglish), first language attrition, linguistic identity, and the role of Spanish in education, services and media. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** four 3000-level courses in Spanish

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**SPAN 7960: Special Readings in Spanish**

Independent study through readings, conferences, reports.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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**SPAN 7980: Special Themes in Spanish**

Subject varies according to instructor.

**Credit Hours:** 3

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**SPAN 7993: The Capstone Experience in Spanish**

Topics vary but all courses synthesize and review essential components of the major: speaking, writing, reading in Spanish, and the ability to think critically and analytically.

**Credit Hours:** 3

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**SPAN 8080: Readings in Spanish**

Independent readings in preparation for MA or MALT comprehensive examination in Spanish. Graded on A-F basis only.

**Credit Hour:** 1-99

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**SPAN 8085: Problems in Spanish**

Problems in Spanish.

**Credit Hour:** 1-99

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**SPAN 8087: Seminar in Spanish**

Subject varies according to instructor.

**Credit Hour:** 2-3

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**SPAN 8090: Research in Spanish**

Leads to preparation of MA or MALT thesis. Graded on S/U basis only.

**Credit Hour:** 1-99

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**SPAN 8120: Bilingualism and Language Contact**

(same as FRENCH 8120 and LINGST 8120). Global analysis of the study of Bilingualism from a combined sociocultural, sociolinguistic and psycholinguistic perspective based on current research and examination of various phenomena of language contact (taught in English).

**Credit Hours:** 3

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**SPAN 8412: Studies in Spanish Literature of the Medieval Period**

Studies in Spanish Literature of the Medieval Period.

**Credit Hours:** 3

**Recommended:** SPAN 8460

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**SPAN 8416: Studies in Spanish Literature in the Golden Age**

Studies in Spanish Literature in the Golden Age

**Credit Hours:** 3

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**SPAN 8420: Studies in Twentieth-Century Spanish Literature**

Studies in Twentieth-Century Spanish Literature

**Credit Hours:** 3

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**SPAN 8427: Studies in Colonial Spanish American Literature**

Analysis of seminal literary and "Historical" texts interpreting the Encounter, Conquest and Colonization of Spanish America.

**Credit Hours:** 3

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**SPAN 8433: Studies in Latin American Literature**

Studies in Latin American Literature

**Credit Hours:** 3

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**SPAN 8460: Old Spanish--Phonology, Morphology and Syntax**

**Credit Hours:** 3

**Prerequisites:** knowledge of Latin, to be demonstrated by passing departmental written examination or by completing LATIN 7110 with grade of B or better

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**SPAN 9080: Readings in Spanish**

Independent readings in preparation for Ph.D. comprehensive examination in Spanish.

**Credit Hour:** 3-6

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**SPAN 9090: Research in Spanish**

Leads to preparation of PhD dissertation in Spanish. Graded on S/U basis only.

**Credit Hour:** 1-99

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## Special Education Courses

**SPC\_ED 1100: Orientation: Special Education**

This course familiarizes and orients students with MU resources, College of Education programs and expectations and career options, emphasizing Special Education. Graded on S/U basis only.

**Credit Hour:** 1

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**SPC\_ED 3100: Applied Behavior Analysis and Autism**

Students will learn the behavioral principles and techniques currently employed to help children with autism acquire functional language, appropriate social behavior, and general academic and living skills as well as decrease problematic behaviors. The objectives of this course are to: 1) To identify and describe key features of applied behavior analysis (ABA), particularly as it applies to intervention for children with autism. 2) To identify and describe key issues in curricular design, program development, and evidence-based interventions in autism. 3) To become familiar with key outcome research in behavioral interventions for children with autism. 4) To become familiar with key research on language, social skills, self-help skills, and problem behavior reduction as these areas relate to the behavioral treatment of autism. Graded on A-F basis only.

**Credit Hours:** 3

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**SPC\_ED 3600: Research and Practice in Applied Behavior Analysis**

Students will learn about the principles and procedures of applied behavior analysis through weekly reading assignments, discussions, and presentations. Student will gain experience applying this knowledge to improve behavior in a practical setting. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 3100

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**SPC\_ED 4020: Teaching the Exceptional Learner**

Teaching the Exceptional Learner addresses topics in the foundations of pedagogy for students with disabilities in inclusive settings, including the roles and responsibilities of the general educator and related service personnel with respect to special education law and policy, behavior management, universal design for learning, and evidence-based practices. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Progression into Phase II

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**SPC\_ED 4300: Introduction to Special Education**

Introductory overview of the field of special education; historical developments, characteristics of special populations, and compliance with state and federal regulations.

**Credit Hours:** 3

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**SPC\_ED 4310: Behavioral and Classroom Management**

(cross-leveled with SPC\_ED 7310). Study of classroom management and applied behavior analysis strategies. Focus on teacher as decision-maker in the design, implementation, evaluation of individual and group management programs. Graded on A-F basis only.

**Credit Hours:** 3

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**SPC\_ED 4320: Assessment and Evaluation in Special Education**

(cross-leveled with SPC\_ED 7320). Procedures and instruments used in the assessment of individual with disabilities, including standardized and non-standardized measures of intellectual ability, academic achievement, oral language, social/emotional behaviors, career/vocational needs.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 4300

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**SPC\_ED 4325: Language Development of Exceptional Students**

(cross-leveled with SPC\_ED 7325). Study of language and communication issues and disorders in special education; normal and atypical language development; language assessment and intervention models and programs.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 4300

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**SPC\_ED 4330: Collaboration and Consultation in Special Education**

(cross-leveled with SPC\_ED 4330). Study of communication, problem-solving, collaboration strategies. Application of strategies to work with exceptional students, their families, other professional members of interdisciplinary, interagency teams.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 4300

---

**SPC\_ED 4370: Literacy in Special Education**

(cross-leveled with SPC\_ED 7370). Addresses specific literacy needs of students who are at-risk or have special needs with a focus on assessment and instruction in general education classrooms.

**Credit Hours:** 3

**Prerequisites or Corequisites:** SPC\_ED 4300

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**SPC\_ED 4371: Literacy in Special Education II**

(cross-leveled with SPC\_ED 7371). Advanced study in literacy methods and research for students with disabilities. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 4370 or SPC\_ED 7370

---

**SPC\_ED 4375: Cross Categorical Special Education**

(cross-leveled with SPC\_ED 4371). Study of characteristics of students with cross categorical disabilities and other pertinent issues including inclusion, assessment, and evaluation practices.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**SPC\_ED 4380: Methods in Cross-Categorical Special Education**

(cross-leveled with SPC\_ED 7380). This course is designed to provide students with research-based instructional and behavior management methods for use with student with cross-categorical disabilities.

**Credit Hour:** 3-4

**Prerequisites:** SPC\_ED 4375 and SPC\_ED 4940

**Recommended:** Admittance to Phase II

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**SPC\_ED 4380W: Methods in Cross-Categorical Special Education - Writing Intensive**

(cross-leveled with SPC\_ED 7380). This course is designed to provide students with research-based instructional and behavior management methods for use with student with cross-categorical disabilities.

**Credit Hour:** 3-4

**Prerequisites:** SPC\_ED 4375 and SPC\_ED 4940

**Recommended:** Admittance to Phase II

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**SPC\_ED 4390: Methods in Vocational Education for the Disabled and Disadvantaged**

(same as LTC\_V 4770). Study of legislation, interagency cooperation, curriculum, transition, evaluation/grading role of support personnel. For educators, counselors and administrators working in vocational settings with special needs students and students with disabilities.

**Credit Hour:** 2-3

**Prerequisites:** SPC\_ED 4300

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**SPC\_ED 4401: Topics in Special Education**

In-depth study of certain developments, findings, trends and issues in one or more areas of special education.

**Credit Hours:** 3

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**SPC\_ED 4500: Science and Social Studies for Struggling Learners**

(cross-leveled with SPC\_ED 7500). This course will focus on the study of diagnostic and instructional techniques for the teaching of science and social studies. In this course, students will study the characteristics of students who struggle in science and social studies. Students will develop a knowledge base of effective practices for assessment and teaching strategies in science and social studies. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Admitted to Phase II in Special Education

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**SPC\_ED 4600: Diagnosis and Remediation of Learning Problems in Math - Middle**

(cross-leveled with SPC\_ED 7600). The study of diagnostic and remedial instructional techniques for the teaching of mathematics. Emphasis is placed on alternative teaching methods and strategies. Graded on A-F basis only.

**Credit Hours:** 3

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**SPC\_ED 4940: Cross-Categorical Special Education: Practicum I**

Involvement in meaningful field-based activities that extend and/or apply content information from SPC\_ED 4375.

**Credit Hour:** 1-4

**Prerequisites or Corequisites:** SPC\_ED 4375

**Recommended:** Admittance to Phase II

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**SPC\_ED 4941: Practicum in Cross-Categorical II**

(cross-leveled with SPC\_ED 7941). The purpose of this course is to provide students with experience in applying the content of Special Education 4380 (i.e. assessment and intervention strategies for use with students with cross categorical disabilities). This course may be repeated for credit.

**Credit Hour:** 2-3

**Prerequisites or Corequisites:** SPC\_ED 4380

**Prerequisites:** SPC\_ED 4375 and SPC\_ED 4940

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**SPC\_ED 4972: Capstone Seminar and Portfolio in Special Education**

Students in final student teaching internship will meet weekly to examine and compare their internship experiences. Analysis, synthesis, evaluation and problem solving are the focus of the examination of various aspects of pedagogy and experience. Additionally, students will develop and submit for scoring their State mandated certification portfolio.

**Credit Hour:** 1

**Prerequisites:** SPC\_ED 4981

**Recommended:** Enrollment in final semester of student teaching internship

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**SPC\_ED 4981: Internship in Special Education**

(cross-leveled with SPC\_ED 7981). This field experience provides preservice interns a semester-long public school experience where they simultaneously engage in a unique combination of observation and teaching. Through observation, conferencing, reading, discussion, demonstration, and participation, the preservice intern will synthesize the course concepts of the Senior Year On-Site Program (SYOSP). Graded on A-F basis only.

**Credit Hour:** 4-10

**Prerequisites:** ED\_LPA 4060  
**Recommended:** Admittance to Phase II

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**SPC\_ED 7020: Teaching the Exceptional Learner**

Teaching the Exceptional Learner addresses topics in the foundations of pedagogy for students with disabilities in inclusive settings, including the roles and responsibilities of the general educator and related service personnel with respect to special education law and policy, behavior management, universal design for learning, and evidence-based practices. Graded on A-F basis only.

**Credit Hours:** 3  
**Recommended:** Progression into Phase II

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**SPC\_ED 7300: Introduction to Special Education**

Introductory overview of the field of special education; historical developments, characteristics of special populations, and compliance with state and federal regulations.

**Credit Hours:** 3

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**SPC\_ED 7310: Behavioral and Classroom Management**

(cross-leveled with SPC\_ED 4310). Study of classroom management and applied behavior analysis strategies. Focus on teacher as decision-maker in the design, implementation, evaluation of individual and group management programs. Graded on A-F basis only.

**Credit Hours:** 3

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**SPC\_ED 7320: Assessment and Evaluation in Special Education**

(cross-leveled with SPC\_ED 4320). Procedures and instruments used in the assessment of individual with disabilities, including standardized and non-standardized measures of intellectual ability, academic achievement, oral language, social/emotional behaviors, career/vocational needs.

**Credit Hours:** 3  
**Prerequisites:** SPC\_ED 4300

---

**SPC\_ED 7325: Language Development of Exceptional Students**

(cross-leveled with SPC\_ED 7325). Study of language and communication issues and disorders in special education; normal and atypical language development; language assessment and intervention models and programs.

**Credit Hours:** 3  
**Prerequisites:** SPC\_ED 4300

---

**SPC\_ED 7330: Collaboration and Consultation in Special Education**

(cross-leveled with SPC\_ED 4330). Study of communication, problem-solving, collaboration strategies. Application of strategies to work with exceptional students, their families, other professional members of interdisciplinary, interagency teams.

**Credit Hours:** 3  
**Prerequisites:** SPC\_ED 4300

---

**SPC\_ED 7370: Literacy in Special Education**

(cross-leveled with SPC\_ED 4370). Addresses specific literacy needs of students who are at-risk or have special needs with a focus on assessment and instruction in general education classrooms.

**Credit Hours:** 3  
**Prerequisites or Corequisites:** SPC\_ED 4300

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**SPC\_ED 7371: Literacy in Special Education II**

(cross-leveled with SPC\_ED 4371). Advanced study in literacy methods and research for students with disabilities. Graded A-F only.

**Credit Hours:** 3  
**Prerequisites:** SPC\_ED 4370 or SPC\_ED 7370

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**SPC\_ED 7375: Cross Categorical Special Education**

(cross-leveled with SPC\_ED 4375). Study of characteristics of students with cross categorical disabilities and other pertinent issues including inclusion, assessment, and evaluation practices.

**Credit Hours:** 3  
**Prerequisites:** professional standing in Phase II

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**SPC\_ED 7380: Methods in Cross-Categorical Special Education**

This course is designed to provide students with research-based instructional and behavior management methods for use with student with cross-categorical disabilities.

**Credit Hours:** 4  
**Prerequisites:** professional standing in Phase II, SPC\_ED 4375, SPC\_ED 4940

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**SPC\_ED 7390: Methods in Vocational Education for the Disabled & Disadvantaged**

(same as LTC\_V 7770). Study of legislation, interagency cooperation, curriculum, transition, evaluation/grading role of support personnel. For educators, counselors and administrators working in vocational settings with special needs students and students with disabilities.

**Credit Hour:** 2-3  
**Prerequisites:** SPC\_ED 4300

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**SPC\_ED 7500: Science and Social Studies for Struggling Learners**

(cross-leveled with SPC\_ED 4500). This course will focus on the study of diagnostic and instructional techniques for the teaching of science and social studies. In this course, students will study the characteristics of students who struggle in science and social studies. Students with develop a knowledge base of effective practices for assessment and teaching strategies in science and social studies. Graded on A-F basis only.

**Credit Hours:** 3

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**SPC\_ED 7600: Diagnosis and Remediation of Learning Problems in Math-Middle**

(cross-leveled with SPC\_ED 4600). The study of diagnostic and remedial instructional techniques for the teaching of mathematics. Emphasis is placed on alternative teaching methods and strategies. Graded on A-F basis only.

**Credit Hours:** 3

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**SPC\_ED 7940: Cross-Categorical Special Education: Practicum I**

Involvement in meaningful field-based activities that extend and/or apply content information from SPC\_ED 4375.

**Credit Hours:** 3

**Prerequisites or Corequisites:** SPC\_ED 4375, professional standing in Phase II

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**SPC\_ED 7941: Practicum in Cross-Categorical II**

(cross-leveled with SPC\_ED 4941). The purpose of this course is to provide students with experience in applying the content of Special Education 4380 (i.e. assessment and intervention strategies for use with students with cross categorical disabilities). This course may be repeated for credit.

**Credit Hour:** 2-3

**Prerequisites or Corequisites:** SPC\_ED 4380

**Prerequisites:** SPC\_ED 4375 and SPC\_ED 4940

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**SPC\_ED 7981: Internship in Special Education**

(cross-leveled with SPC\_ED 4981). This field experience provides preservice interns a semester-long public school experience where they simultaneously engage in a unique combination of observation and teaching. Through observation, conferencing, reading, discussion, demonstration, and participation, the preservice intern will synthesize the course concepts of the Senior Year On-Site Program (SYOSP). Graded on A-F basis only.

**Credit Hour:** 4-10

**Prerequisites:** ED\_LPA 7060; Admittance to the College of Education

**Recommended:** Admittance into Phase II

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**SPC\_ED 8085: Problems in Special Education**

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**SPC\_ED 8090: Masters Project Research Hours**

Restricted to students enrolled in the graduate program. Graded S/U only.

**Credit Hour:** 1-3

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**SPC\_ED 8100: Concepts and Principles in Behavior Analysis**

This course will provide an overview of both classic and contemporary theory and research on nonhuman and human learning. We will focus on a behavior-analytic conceptualization of learning and the underlying research on basic processes and operations that result in learning. The readings and class discussions will provide you with a strong foundation in the psychology of learning from a behavioral orientation, with particular emphasis on the relation between biological and environmental contributions to selection of behavior. To effectively produce socially significant behavior change among members of clinical populations, we must approach the task with a thorough understanding of these basic principles - we cannot stray from our principles.

**Credit Hours:** 3

**Prerequisites or Corequisites:** Admission to the Master's Program in Applied Behavior Analysis or Graduate Certificate program in Applied Behavior Analysis. Others need to contact faculty individually

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**SPC\_ED 8210: Using Assessment to Guide Instruction**

This course is designed to present information on the evaluation of individual student skills and the effects of instruction on those skills. Graded on A-F basis only.

**Credit Hours:** 3

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**SPC\_ED 8250: Developmental Processes in Autism and Neurodevelopmental Disorders**

This graduate level course will focus on understanding autism and other neurodevelopmental disorders from within a developmental framework. An understanding of typical development is essential in order to recognize when developmental problems arise. By the same token, developmental disorders can elucidate the complexity of development among typically functioning children. The course will compare and contrast typical and atypical development across major developmental domains. We will begin with an overview of the field and foundational concepts, and will then move to an examination of key developmental domains and selected neurodevelopmental disorders (as examples of atypical development in each domain). Throughout the course, students will be encouraged to relate concepts and empirical findings to their respective professional interests. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Recommended for students in the Applied Behavior Analysis master's and graduate certificate program

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**SPC\_ED 8300: Students with Behavioral Disorders**

Study of characteristics of students with behavioral disorders as they relate to best practices for assessment, instruction, and intervention.

**Credit Hours:** 4

**Prerequisites:** SPC\_ED 4300 and instructor's consent

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**SPC\_ED 8305: Ethics in Applied Behavior Analysis**

This graduate level course provides the student with an in-depth coverage of ethics and professional behavior in applied behavior analysis. This course will help the student become prepared to sit for the Behavior Analyst Certification Board exam. This course primarily emphasizes Content Area #1 (Ethical Considerations) but also Content Areas #4, 5, and 8 (Behavioral Assessment, Experimental Evaluation of Interventions, and Selecting Intervention Outcomes and Strategies) of the Behavior Analysis Task List - Fourth Edition. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Student must be enrolled in the Graduate Certificate in ABA or Master's in ABA program

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**SPC\_ED 8310: Students With Learning Disabilities**

Study of characteristics of students with learning disabilities as they relate to best practices for assessment, instruction, and intervention.

**Credit Hours:** 4

**Prerequisites:** SPC\_ED 4300 and instructor's consent

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**SPC\_ED 8330: Advanced Teaching Mathematics in Special Education**

This course will focus on the advanced study of diagnostic and remedial instructional techniques for the teaching of mathematics. In this course, students will study the characteristics of students who struggle in mathematics. Students will develop a knowledge base of effective practices for assessment and teaching strategies in mathematics. Graded on A-F basis only.

**Credit Hours:** 3

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**SPC\_ED 8340: Advanced Studies in Developmental Disabilities**

Current theories and practices and their historic roots through examination of empirical and descriptive literature.

**Credit Hours:** 3

**Prerequisites:** admission to graduate study and instructor's consent

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**SPC\_ED 8350: Research with Exceptional Children**

Explores significant, historical, and current research in special education. Emphasizes the application of research, methodology, and findings relative to problems facing the practitioner.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**SPC\_ED 8353: Advanced Studies: Single Subject Design**

The course is for advanced graduate students in special education, psychology, related fields and includes behavioral measurement, single subject research designs, data analysis methods, critical analysis and evaluation of single subject research and research proposal. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**SPC\_ED 8355: Grant Writing**

Preparation of research, demonstration, training, or other grant proposals meeting the criteria for competitive funding by a federal agency; review and evaluation of proposals.

**Credit Hours:** 3

**Prerequisites:** admission to graduate study and instructor's consent

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**SPC\_ED 8360: Special Education Administration**

Principles, protective safeguards, and general practices associated with the organization and administration of special education; legal foundations for special education; selection, training, and supervision of personnel.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**SPC\_ED 8365: Research Design in Special Education**

Overview of professional writing and intermediate research applications with a focus on knowledge and skills needed for higher level doctoral work in statistics and research design.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 4170 or equivalent, SPC\_ED 8350 or equivalent, and instructor's consent

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**SPC\_ED 8370: Foundations I: History, Law and Policy in Special Education**

The changing concept of disability will be viewed from the perspectives of history, legal issues, and policy traced from early Greek and European periods through contemporary times.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**SPC\_ED 8375: Foundations II: Pedagogical Theories in Special Education**

A study of theories of teaching as they apply to special education with emphases on empirically based practices, historical trends, current theories, and the relationship between theories of learning and teaching.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**SPC\_ED 8380: Nature and Needs of Gifted and Talented Students**

A conceptual and empirical examination for educational personnel of student identification procedures, special populations, programming issues, research topics and teacher competencies.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**SPC\_ED 8385: Individualized Assessment and Intervention**

This course builds upon the basic principles of learning and applied behavior analysis presented during previous courses in the Behavior Analysis core. The course will offer advanced coverage of the functional assessment of problem behaviors. In particular, there will be a strong emphasis in the functional analysis of problem behaviors. Additionally, this course will focus on how identification of function guides treatment development (i.e., function-based treatments). Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 8100

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**SPC\_ED 8387: Seminar in Special Education**

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**SPC\_ED 8391: Curriculum Methods for Gifted and Talented Students**

A theoretical examination for educational personnel of specific instructional approaches including structure of intellect, enrichment triad, empirical research, and creative problem solving.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 8380 or instructor's consent

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**SPC\_ED 8405: Assessment and Evaluation in Gifted Education**

Seminar focuses on practices for identifying students for gifted education programs, evaluation models applicable to school programs and strategies for grading and evaluation of gifted students.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 8380 or instructor's consent

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**SPC\_ED 8406: Differentiating Instruction: Reaching Gifted, Typical and Struggling Learners**

Explores various instructional approaches to help meet the learning needs of a range of learners from gifted through struggling and at-risk students. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Introduction to Special Education; instructor's consent

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**SPC\_ED 8410: Administration and Supervision of Gifted Education Programs**

This course focuses on developing a working knowledge of issues and competencies, policies and evaluation in the administration of gifted education programs. Rational, goals, and design for gifted education programming will be addressed. Current research and best practices in program design and administration will be examined. Assessment, communication with all stakeholders, advocacy and professional development will be addressed. Graded on A-F basis only.

**Credit Hours:** 3

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**SPC\_ED 8440: Advanced Behavior Management: Applied Behavior Analysis**

This course will provide graduate students with advanced theory and knowledge in behavior management. Emphasis will be placed on understanding and using the principles of applied behavior analysis.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 4310 and instructor's consent

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**SPC\_ED 8450: Verbal Behavior**

This course will provide an introduction to a behavior analytic approach to the study of language (i.e., verbal behavior). The course will have two related focuses: (a) the theoretical underpinnings of a functional approach to language and (b) a review of the testing and application of the theory of verbal behavior in research and practice. During the first half of the semester, we will read and discuss Skinner's analysis of verbal behavior (VB). During the second half of the semester we will survey the literature base supporting a behavior analytic approach to language and will also discuss the application of verbal behavior analysis to practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 8100

**Recommended:** HLTHPSYC 8200

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**SPC\_ED 8455: Advanced Studies in Behavioral Disorders**

Contemporary issues a historical perspective; theoretical perspectives or models which guide research, policy, and intervention approaches.

**Credit Hours:** 3

**Prerequisites:** admission to graduate study and instructor's consent

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**SPC\_ED 8460: Survey of Applied Behavior Analysis**

This course builds upon the basic principles of learning and applied behavior analysis presented during previous courses in the Behavior Analysis core. The course will offer coverage of the many different applications of behavior analysis (e.g., behavioral medicine, behavioral gerontology, substance abuse, organizational behavior management, etc.). Finally, this class will cover topics related to professional development. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 8100 OR HLTHPSYC 8200

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**SPC\_ED 8475: Advanced Studies in Learning Disabilities**

Major current issues, trends, and controversies in learning disabilities; theories, research, and practices in learning disabilities.

**Credit Hours:** 3

**Prerequisites:** admission to graduate study and instructor's consent

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**SPC\_ED 8485: Introduction and Methods of Early Intervention**

This course will enhance individual knowledge and skills necessary to design, implement, and evaluate research-based strategies and practices in home and center-based programs for infants and toddlers with disabilities, consistent with the philosophical and legal requirements of IDEA Part C.

**Credit Hours:** 3

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**SPC\_ED 8490: Assessment in Early Childhood Special Education**

Procedures and instruments used in assessment of children with special needs, including screening, diagnosis, interpretation of diagnostic findings, and application to instructional plans.

**Credit Hours:** 3

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**SPC\_ED 8495: Introduction and Methods of Early Childhood Special Education**

This course will enhance individual knowledge and skills necessary to design, implement, and evaluate research-based strategies and practices in community or public school integrated programs for preschools with disabilities, consistent with the philosophical and legal requirements of IDEA Part B Section 619.

**Credit Hour:** 2-3

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**SPC\_ED 8500: Systems Level Behavior Analysis**

This course will offer an introduction to the application of behavior analytic concepts and principles to problems of human behavior at the systems level. Students will learn the basics of modifying behavior at the systems level, which includes clinical settings. Class assignments will help the students learn to apply the concepts discussed in class to their own work environment. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 8100

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**SPC\_ED 8520: Meeting the Needs of all Learners**

The purpose of this course is to provide information on current research and methodology on teaching students who are struggling or who have disabilities. Open only to teaching fellows. Graded on A-F basis only.

**Credit Hours:** 3

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**SPC\_ED 8601: Introduction to Autism**

This course provides an introduction of children youth with autism spectrum disorders. Topics include: historical and theoretical foundations, diagnostic and assessment approaches, and characteristics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Introduction to Special Education; instructor's consent

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**SPC\_ED 8602: Methods of Instruction for Students with Autism**

Overview of interventions for individuals with autism spectrum disorders and strategies needed for teaching. Best practices and promising practices will be presented. Course graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 8601, instructor's consent required

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**SPC\_ED 8603: Social Competency for Students with Autism**

Course provides a framework for addressing social competence deficits experienced by students with autism. Course graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 8601, instructor's consent required

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**SPC\_ED 8604: High Functioning Students with Autism**

The course is designed to increase understanding and ability to support individuals on the Autism Spectrum who have average to above average intelligence. Course graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**SPC\_ED 8605: Young Children with Autism**

Current research on characteristics, diagnosis, and intervention for very young children with autism. Strategies for support children and their families. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**SPC\_ED 8606: Assessment in Autism, Special Education**

This course covers procedures and instruments used in assessment of school-aged children with autism, including screening, diagnosis, interpretation of assessment findings, and application to instructional plans. Graded on A-F only.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 7300

**Corequisites:** SPC\_ED 8601

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**SPC\_ED 8700: Evidence Based Methods and Critical Inquiry in Cross Categorical Disabilities**

This course provides students with research-based instructional and behavioral management methods for use with students with cross-categorical disabilities. In addition to creating a more detailed knowledge of strategies related to the instructional needs of children, youth, and adults with learning disabilities, emotional and behavioral disorders, and intellectual disabilities, students will learn to apply critical inquiry skills in evaluating the evidence base for specific interventions as well as how best to implement techniques and support schools in the adopting these interventions. Graded on A-F basis only.

**Credit Hours:** 4

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**SPC\_ED 8800: Practicum in Applied Behavior Analysis**

The Practicum in Applied Behavior Analysis provides practical training in ABA. Graduate students will participate in an intensive practicum that focuses on developing well-rounded training in ABA. Students will work hands on with children at the MU Thompson Center for Autism and Neurodevelopmental Disorders. By the completion of the practicum, students will be well versed in the development of skill building programs as well as behavioral reduction programs that focus on function-based interventions (e.g., functional analyses). Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** Students must be enrolled in the Graduate Certificate in ABA or Masters of Science in ABA programs

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**SPC\_ED 8900: Capstone in Applied Behavior Analysis**

The capstone will consist of a clinical question or direct replication of previous research, which will serve as a demonstration of the student's knowledge of applied behavior analysis. The expectation is that the thesis will add to our current clinical knowledge in ABA. Graded on S/U basis only.

**Credit Hour:** 1-9

**Prerequisites:** Graduate student in the M.S. program in Applied Behavior Analysis

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**SPC\_ED 8940: Practicum: Students with Behavioral Disorders**

Graduate field experience in educational setting for students with behavioral disorders. Application of competencies from SPC\_ED 8300.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**SPC\_ED 8943: Practicum in Special Education**

Provides graduate practicum experience relevant to the education of exceptional students.

**Credit Hour:** 1-10

**Prerequisites:** SPC\_ED 4300 and instructor's consent

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**SPC\_ED 8946: Practicum: Gifted Education**

Provides graduate field experience in the area of gifted education.

**Credit Hours:** 3

**Prerequisites:** instructor or advisor's consent

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**SPC\_ED 8947: Practicum: Early Childhood Special Education**

Graduate field experience in an approved setting for young children with special needs. May be repeated.

**Credit Hour:** 1-10

**Prerequisites:** instructor's consent

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**SPC\_ED 9090: Research in Special Education**

Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**SPC\_ED 9387: Professional Seminar in Special Education**

Designed to provide overview of Special Education, COE program requirements, and general graduate student expectations. Students STRONGLY encouraged to take course first semester in graduate program. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** acceptance into a master's degree program

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**SPC\_ED 9940: Internship: College Teaching in Special Education**

Individually guided and supervised college teaching experiences. Competency based activities using portfolio assessment methods. May be taken more than once. Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**SPC\_ED 9941: Internship: Special Education Research**

Individually guided research internship with doctoral advisor and/or faculty mentor(s). Opportunity to develop research competencies either on individual or collaborative projects. May be taken more than once. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**SPC\_ED 9942: Internship: Professional Practice in Special Education**

Individually guided internship in the public schools and/or agencies serving students with special needs or exceptionalities. Focus on professional practices, administrative practices, and/or evaluation practices. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**Special Topics (Intensive English Program) Courses**

**IEPS\_0001: Level I Guided Reading and Vocabulary**

Students will increase reading fluency and vocabulary in beginning-level texts while developing independence and an appreciation of reading. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required

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**Speech, Language, and Hearing Sciences Courses**

**SLHS 1000: Introduction to Communication Science and Disorders**

Nature of communication and its development; types of speech, language and hearing disorders; professional preparation, settings, and work of speech-language pathologists and audiologists. Course graded on S/U basis only.

**Credit Hour:** 1

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**SLHS 1060: Human Language**

(same as ANTHRO 1060, LINGST 1060 and ENGLSH 1060). General introduction to various aspects of linguistic study. Elementary analysis of language data with some attention to application of linguistic study to other disciplines.

**Credit Hours:** 3

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**SLHS 1100: American Sign Language I**

Introduction to American Sign Language (ASL). Development of basic expressive and receptive skills in ASL, the manual alphabet, numbers, and signed vocabulary. Includes an overview of ASL syntax and grammar. Course graded on A-F basis only.

**Credit Hours:** 5

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**SLHS 1200: American Sign Language II**

This course is designed to increase students' understanding of American Sign Language. Students will increase their sign vocabulary, expressive and receptive skills, an understanding of ASL syntax and grammar. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites:** SLHS 1100 or equivalent

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**SLHS 2120: Survey of Communication Disorders**

Systematic survey of the disorders of speech, language and hearing.

**Credit Hours:** 3

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**SLHS 2150: American Sign Language III**

This course expands on vocabulary and signing skills developed in ASL II. Includes review of ASL grammar and extensive discussions of ASL linguistic structure and Deaf culture. Class is conducted entirely in ASL. Course graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SLHS 1200 with minimum grade of C or instructor's consent

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**SLHS 3010: American Phonetics**

(same as LINGST 3010). Analysis of production and acoustics of the sounds of speech with an emphasis on American English; practice in broad and narrow transcription using the International Phonetic Alphabet.

**Credit Hours:** 3

**Prerequisites:** Restricted to Communication Science and Disorders majors only

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**SLHS 3020: Normal Language Development**

Language development in children and changes in language processing during normal aging. Cognition and language; language learning processes; language sample analysis; relationship between spoken and written language.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorders majors only

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**SLHS 3020W: Normal Language Development - Writing Intensive**

Language development in children and changes in language processing during normal aging. Cognition and language; language learning processes; language sample analysis; relationship between spoken and written language.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorders majors only

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**SLHS 3050: Signed English and Communication Development**

This course covers research, theory, and methods of using sign language to assist the communication of the Deaf, individuals with disabilities, and hearing learners. Use of sign language to improve literacy and classroom management also will be targeted. No prior experience with any sign language and/or sign system is required. Development of a basic vocabulary in Signed English will be included in this course.

**Credit Hours:** 3

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**SLHS 3210: Anatomy and Physiology of the Speech Mechanism**

(same as LINGST 3210). Introduction to anatomical and functional aspects of the speech mechanism.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorders majors only

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**SLHS 3220: Speech Acoustics**

(same as LINGST 3220). An introduction to the acoustic aspects of speech as they relate to the respiratory, phonatory, resonatory, and articulatory systems.

**Credit Hours:** 2

**Prerequisites:** Communication Science and Disorders majors only or instructor's consent

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**SLHS 3230: Hearing Science**

Introduction to the nature of sound and its measurement; anatomy and physiology of the auditory and vestibular systems; psychoacoustic methods and phenomena.

**Credit Hours:** 3

**Prerequisites:** Restricted to Communication Science and Disorders majors only

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**SLHS 3950: Research Methods in Speech and Language Sciences**

This course is designed to help students gain an understanding of how research in the discipline of speech and language sciences is conducted and how to differentiate between good-quality and poor-quality research design. We will explore the importance of the scientific method in conducting rigorous research. The course will enable students to explore the different types of research conducted within the discipline and will prepare students for an introductory experience in a research lab. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing

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**SLHS 4001: Topics in Speech, Language and Hearing Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated with program consent.

**Credit Hour:** 1-99

**Prerequisites:** junior standing and instructor's consent

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**SLHS 4020: Language Disorders in Children**

Overview of language disorders from early childhood through adolescence. Includes language disorders as primary disability and as secondary to other disabilities. Introduction to assessment and intervention.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorders majors only

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**SLHS 4020W: Language Disorders in Children - Writing Intensive**

Overview of language disorders from early childhood through adolescence. Includes language disorders as primary disability and as secondary to other disabilities. Introduction to assessment and intervention.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorder majors only

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**SLHS 4030: Language Disorders of Adults**

Introduction to acquired adult language disorders. Review of neuroanatomy/physiology, etiology and symptomatology, with introduction to assessment and treatment procedures.

**Credit Hours:** 2

**Prerequisites:** Communication Science and Disorders majors only

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**SLHS 4210: Fluency Disorders**

Introduction to the nature, assessment, and treatment of fluency disorders. Emphasis on developmental stuttering.

**Credit Hours:** 2

**Prerequisites:** Communication Science and Disorders majors only

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**SLHS 4220: Voice Disorders**

Introduction to voice disorders in children and adults. Includes overview of perceptual and instrumental assessment procedures and selected treatment approaches.

**Credit Hour:** 1

**Prerequisites:** Communication Science and Disorders majors only

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**SLHS 4320: Disorders of Phonology and Articulation**

Overview of disorders of use and production of speech sounds with an emphasis on developmental disorders. Introduction to assessment and treatment.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorders majors only

---

**SLHS 4330: Introduction to Audiology**

Principles and techniques of audiological testing; etiologies of hearing impairment; current technologies in rehabilitation.

**Credit Hours:** 3

**Prerequisites:** SLHS 3230; Communication Science and Disorders majors only or instructor's consent

---

**SLHS 4340: Aural Rehabilitation**

(cross-leveled with SLHS 7340). Identification, evaluation, and management of problems associated with hearing impairment in both children and adults. Includes issues related to speech/language development, communication, education, and social factors.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorders majors only

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**SLHS 4340W: Aural Rehabilitation-Writing Intensive**

(cross-leveled with SLHS 7340). Identification, evaluation, and management of problems associated with hearing impairment in both children and adults. Includes issues related to speech/language development, communication, education, and social factors.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorders majors only

---

**SLHS 4430: Neurophysiology for Speech, Language, and Hearing**

(cross-leveled with SLHS 7430). Principles of basic neurophysiology, emphasizing correlation of structure and function of the nervous system.

**Credit Hours:** 3

**Prerequisites:** Communications Science and Disorders majors only

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**SLHS 4830: Individual Differences in Language Processing**

(cross-leveled with SLHS 7830). Examination of the normal variations exhibited across individuals in the acquisition, use, and representation of language. Also considered are individual differences seen in second language learning, the aging process, and language disorders.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**SLHS 4840: Language and Development in Infancy**

(cross-leveled with SLHS 7840). Overview of theory and research on the foundations and development of language in infancy (0 to 2 years), with an emphasis on relevant, interrelated areas of development, individual differences, early recognition of delay, and assessment.

**Credit Hours:** 3

**Prerequisites:** senior standing required. Instructor's consent required

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**SLHS 4850: Bilingualism**

(cross-leveled with SLHS 7850). This course is intended to establish an understanding of bilingual language processing and of the consequences of bilingualism on cognition. The course begins by reviewing the individual differences that modulate language processing in monolinguals and the factors that predict good second language learning outcomes in adults. This sets up the stage of an in-depth discussion of the ways in which second language proficiency changes the dynamics of language production and comprehension, as well as the cognitive performance across the lifespan. Students will be introduced to theories and models of bilingual language processing and will learn to evaluate evidence for and against the bilingual advantage and the benefits of bilingualism in healthy aging and recovery from acquired language deficits, such as aphasia. Students will also learn to identify patterns of language performance that distinguish bilinguals from monolinguals and from individuals with language disorders. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Junior or Senior standing

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**SLHS 4900: Clinical Observation in Communication Disorders**

Directed clinical observations designed to prepare the student for clinical practicum. Required for professional certification. Graded on a S/U basis only.

**Credit Hours:** 2

**Prerequisites:** Communication Science and Disorders majors only

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**SLHS 4945: Clinical Apprenticeship in Communication Disorders**

Supervised observation and clinical experience in speech-language pathology or audiology for undergraduates.

**Credit Hour:** 1-3

**Prerequisites:** senior standing and departmental consent.  
Communication Science and Disorders majors only

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**SLHS 4950: Research Apprenticeship**

Research apprenticeship with a faculty member, assisting in the development and execution of research in communication processes and disorders. May be repeated to 9 hrs. maximum.

**Credit Hour:** 1-9

**Prerequisites:** instructor's consent

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**SLHS 4960: Directed Reading in Communication Science and Disorders**

Independent reading; reports.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**SLHS 4990: Honors Thesis**

Individual honors thesis on a topic selected with a faculty advisor. Requires planning, conducting, and writing up a research project under the guidance of a faculty member. Successful completion of thesis and maintenance of 3.3 GPA, leads to degree with departmental honors. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Senior standing; 3.3 GPA; 3.5 GPA in Communication Science and Disorders courses; instructor's consent. Restricted to Communication Science and Disorders students only

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**SLHS 7001: Topics in Speech, Language and Hearing Science**

Study of selected topics in speech pathology/audiology. Topic and credit may vary from semester to semester. May be repeated for credit with instructor and departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**SLHS 7085: Problems in Speech, Language and Hearing Science**

Individual study not leading to thesis or dissertation.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**SLHS 7340: Aural Rehabilitation**

(cross-leveled with SLHS 4340). Identification, evaluation, and management of problems associated with hearing impairment in both children and adults. Includes issues related to speech/language development, communication, education, and social factors.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorders majors only

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**SLHS 7430: Neurophysiology for Speech, Language, and Hearing**

(cross-leveled with SLHS 4430). Principles of basic neurophysiology, emphasizing correlation of structure and function of the nervous system.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorders majors or instructor's consent

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**SLHS 7840: Language and Development in Infancy**

(cross-leveled with SLHS 4840). Overview of theory and research on the foundations and development of language in infancy (0 to 2 years), with an emphasis on relevant, interrelated areas of development, individual differences, early recognition of delay, and assessment.

**Credit Hours:** 3

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**SLHS 7850: Bilingualism**

(cross-leveled with SLHS 4850). This course is intended to establish an understanding of bilingual language processing and of the consequences of bilingualism on cognition. The course begins by reviewing the individual differences that modulate language processing in monolinguals and the factors that predict good second language learning outcomes in adults. This sets up the stage of an in-depth discussion of the ways in which second language proficiency changes the dynamics of language production and comprehension, as well as the cognitive performance across the lifespan. Students will be introduced to theories and models of bilingual language processing and will learn to evaluate evidence for and against the bilingual advantage and the benefits of bilingualism in healthy aging and recovery from acquired language deficits, such as aphasia. Students will also learn to identify patterns of language performance that distinguish bilinguals from monolinguals and from individuals with language disorders. Graded on A-F basis only.

**Credit Hours:** 3

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**SLHS 8001: Topics in Speech, Language and Hearing Science**

Study of selected topics in speech pathology/audiology. Topic and credit may vary from semester to semester. May be repeated for credit with instructor and departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent, instructor's

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**SLHS 8020: Developmental Language Disorders**

Nature, etiology, assessment and management of childhood language disorders.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorders students only

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**SLHS 8030: Acquired Language Disorders**

Etiology, symptomatology, assessment and rehabilitation of acquired neurogenic communication disorders in aphasia, traumatic brain injury, and dementia.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorders students only

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**SLHS 8050: Research in Speech, Language and Hearing Science**

Independent research leading to a report but not to a thesis or dissertation.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**SLHS 8085: Problems in Speech, Language and Hearing Science**

Individual study not leading to thesis or dissertation.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**SLHS 8090: Research in Speech, Language and Hearing Science**

Research leading to thesis or dissertation.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent. Graded on a S/U basis only

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**SLHS 8200: Motor Speech Disorders**

Etiology, symptomatology, epidemiology, and prognosis of motor speech disorders resulting from acquired neurological damage. Emphasis on clinical assessment and rehabilitation procedures. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorders students only

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**SLHS 8210: Disorders of Fluency**

Identification and remediation of fluency disorders in children and adults.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorders students only

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**SLHS 8225: Voice Science and Voice Disorders**

Diagnosis and management of communicative disorders resulting from pathologies or misuse of the phonatory system. Includes experience with pertinent laboratory instrumentation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** restricted to MHS CSD students; or with instructor's consent

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**SLHS 8230: Dysphagia**

Etiology, symptomatology, and epidemiology of acquired and developmental swallowing disorders (dysphagia). Emphasis on instrumental and non-instrumental methods for assessing and treating dysphagia.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorders students only

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**SLHS 8240: Cleft Palate/Craniofacial Disorders**

Nature, causes, diagnosis, and treatment of disorders of communication associated with congenital orofacial anomalies. Emphasis on cleft palate.

**Credit Hour:** 1

**Prerequisites:** Communication Science and Disorders students only

---

**SLHS 8250: Clinical Methods in Speech-Language Pathology**

An introduction to clinical procedures and evidence-based intervention methods relating to speech and language disorders. Topics include session design, data collection, measurement of progress, reporting of clinical results, and various treatment options. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorders students only

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**SLHS 8260: Diagnosis in Speech-Language Pathology**

General principles of diagnosis; specific diagnostic tools and procedures for various speech and language disorders.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorders students only

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**SLHS 8300: Neurological Bases of Speech and Language**

Structure and function of the human brain and nervous system including general organization, cranial nerves, basal ganglia, cerebellum, and descending motor pathways as related to the field of speech language pathology. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Communication Science and Disorders students only

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**SLHS 8320: Speech Sound Disorders**

Principles of clinical assessment and treatment for speech sound disorders in children. Includes foundations in research on early speech sound acquisition, organic and developmental disorders, and treatment efficacy. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Communication Science and Disorders students only

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**SLHS 8420: Reading and Language Disabilities in School-Age Children**

Theories, research, and practice in reading development and disorders. Assessment and remediation of reading disabilities related to language disorders of various etiologies including developmental language disorders and head injury.

**Credit Hours:** 2

**Prerequisites:** SLHS 4020 or SLHS 8020

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**SLHS 8430: Augmentative and Alternative Communication**

Students will learn the principles of AAC assessment, methods of intervention, and types of technology available for individuals unable to communicate fully through speech. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Communication Science and Disorders students only

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**SLHS 8500: Issues in Professional Practice**

Organizational, inter-professional, economic, legal, and ethical aspects of delivering speech, language, and hearing services. Graded on A/F basis only.

**Credit Hours:** 2

**Prerequisites:** Communication Science and Disorders students only

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**SLHS 8600: Clinical Language Analysis**

This course provides a theoretical framework for understanding the morphology, semantics, syntax, and pragmatics of English as well as practice in the analysis of typical and atypical language samples. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Communication Science and Disorders students only

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**SLHS 8935: Clinical Practice in Audiology**

Supervised practice in hearing screening, hearing conservation, and aural re/habilitation. May be repeated for credit. Graded on S/U basis only.

**Credit Hour:** 1

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**SLHS 8945: Clinical Practice in Speech-Language Pathology**

Supervised clinical practice in speech pathology for graduate students. May be repeated for credit.

**Credit Hour:** 1-10

**Prerequisites:** Communication Science and Disorders students only

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**SLHS 8960: Directed Reading in Speech, Language and Hearing Science**

Independent reading; reports.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**SLHS 9050: Research in Speech, Language and Hearing Science**

Independent research leading to a report but not to a thesis or dissertation.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**SLHS 9090: Research in Speech, Language and Hearing Science**

Research leading to thesis or dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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## Statistics Courses

**STAT 1006: Topics in Statistics-Mathematical Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Repeatable with departmental consent.

**Credit Hour:** 1-5

**Prerequisites:** Instructor's consent

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**STAT 1200: Introductory Statistical Reasoning**

Statistical concepts for critically evaluation quantitative information. Descriptive statistics, probability, estimation, hypothesis testing, correlation and regression. Students may not receive credit if they have received or are concurrently receiving credit for a higher numbered course offered by the Statistics Department. Math Reasoning Proficiency Course. Mathematical Sciences distribution course (requirement terms prior to fall 2019).

**Credit Hours:** 3

**Prerequisites:** C- or higher in MATH \_0110 or MyMathTest Intermediate Algebra score of 70% or higher

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**STAT 1300: Elementary Statistics**

Collection, presentation of data; averages; dispersion; introduction to statistical inference, correlation and regression. Students may not receive credit if they have received or are concurrently receiving credit for another course offered by the Statistics Department. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** grade in C - or higher in MATH 1100 or MATH 1120 or MATH 1160 or MATH 1180 or exemption from college algebra by examination

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**STAT 1300H: Elementary Statistics - Honors**

Collection, presentation of data; averages; dispersion; introduction to statistical inference, correlation and regression. Students may not receive credit if they have received or are concurrently receiving credit for another course offered by the Statistics Department. Math Reasoning Proficiency course.

**Credit Hours:** 3

**Prerequisites:** grade of C-or higher in MATH 1100 or MATH 1120 or MATH 1160 or MATH 1180 or exemption from college algebra by examination. Honors eligibility required

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**STAT 1400: Elementary Statistics for Life Sciences**

Designed for students studying agriculture and other life sciences. Descriptive statistics, probability, estimation, hypothesis testing, correlation and regression. Students may not receive credit if they have received or are concurrently receiving credit for another course offered by the Statistics Department. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** grade in C- or higher in MATH 1050 or MATH 1100 or MATH 1120 or MATH 1160 or MATH 1180 or exemption from college algebra by examination

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**STAT 2006: Topics in Statistics-Mathematical Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Repeatable with departmental consent.

**Credit Hour:** 1-5

**Prerequisites:** Instructor's consent

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**STAT 2200: Introductory Statistical Methods**

Designed to upgrade the curriculum of STAT 1200 or STAT 1300 or STAT 1400 to the level of STAT 2500. Students may not receive credit for STAT 2200 if they have completed a course from the Department of Statistics numbered 2500 or higher. Math Reasoning Proficiency Course.

**Credit Hour:** 1

**Prerequisites:** grade in C- or higher in STAT 1200 or STAT 1300 or STAT 1400

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**STAT 2500: Introduction to Probability and Statistics I**

Designed primarily for students in College of Business. Descriptive statistics, probability, random variables, sampling distributions, estimation, confidence intervals, hypothesis tests. Math Reasoning Proficiency course.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in MATH 1300 or MATH 1400 or MATH 1500

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**STAT 2530: Statistical Methods in Natural Resources**

Statistical methods, with emphasis on applications to natural resources and including computer exercises. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** a college-level computing course and a grade in the C range or better in MATH 1100, MATH 1120, MATH 1160, or MATH 1180

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**STAT 3006: Topics in Statistics-Mathematical Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Repeatable with departmental consent.

**Credit Hour:** 1-5

**Prerequisites:** Consent of instructor required

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**STAT 3500: Introduction to Probability and Statistics II**

Continuation of STAT 2500. Coverage of additional topics including: Regression; model building; ANOVA; nonparametric methods; use of a statistical computer package.

**Credit Hours:** 3

**Prerequisites:** grade in the C - or higher in STAT 2200 or STAT 2500 or STAT 2530, or STAT 4710 or concurrent enrollment in STAT 2200

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**STAT 4006: Topics in Statistics-Mathematical**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Repeatable with departmental consent.

**Credit Hour:** 1-5

**Prerequisites:** Consent of instructor required

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**STAT 4050: Connecting Statistics to Middle and Secondary Schools**

(cross-leveled with STAT 7050). Primarily for middle and secondary mathematics education majors. Uses standards-based curricular materials to demonstrate connections between college-level statistics and content taught in middle and secondary schools. No credit toward a graduate degree in statistics.

**Credit Hours:** 3

**Prerequisites:** STAT 1200 or STAT 1300 or STAT 1400 or STAT 2500 or STAT 4710 or ESC\_PS 4170 or MATH 2320

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**STAT 4085: Problems in Statistics for Undergraduates**

Independent investigations. Reports on approved topics.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**STAT 4110: Statistical Software and Data Analysis**

(cross-leveled with STAT 7110). Programming with major statistical packages emphasizing data management techniques and statistical analysis for regression, analysis of variance, categorical data, descriptive statistics, non-parametric analyses, and other selected topics.

**Credit Hours:** 3

**Prerequisites:** STAT 3500 or STAT 7070 or STAT 4710 or STAT 7710 or STAT 4760 or STAT 7760

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**STAT 4150: Applied Categorical Data Analysis**

(cross-leveled with STAT 7150). The study of statistical models and methods used in analyzing categorical data. The use of computing is emphasized and calculus is not required. No credit for students who have previously completed STAT 4830. No credit toward a graduate degree in statistics.

**Credit Hours:** 3

**Prerequisites:** STAT 3500 or STAT 7070 or STAT 4710 or STAT 7710 or STAT 4760 or STAT 7760

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**STAT 4210: Applied Nonparametric Methods**

(cross-leveled with STAT 7210). Statistical methods when the functional form of the population is unknown. Applications emphasized. Comparisons with parametric procedures. Goodness of-fit, chi-square, comparison of several populations, measures of correlation.

**Credit Hours:** 3



**Prerequisites:** STAT 3500 or STAT 7070 or STAT 4710 or STAT 7710 or STAT 4760 or STAT 7760

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**STAT 4310: Sampling Techniques**

Theory of probability sampling designs. Unrestricted random sampling. Stratified sampling. Cluster sampling. Multistage or subsampling. Ratio estimates. Regression estimates. Double sampling.

**Credit Hours:** 3

**Prerequisites:** STAT 3500 or STAT 7070 or STAT 4710 or STAT 7710 or STAT 4760 or STAT 7760

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**STAT 4330: Methods in Sports Analytics I**

(cross-leveled with STAT 7330). Introductory course on collecting, processing, visualizing, and analyzing data in sports. Technologies used in data collection and processing will be explored, along with methods for measuring and comparing individual and team performance.

**Credit Hours:** 3

**Prerequisites:** Any one of STAT 3500, STAT 7020, STAT 7070, STAT 4710/7710, STAT 4760/7760, or instructor's consent

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**STAT 4340: Methods in Sports Analytics II**

(cross-leveled with STAT 7340). Advanced course in methods for analyzing individual and team based performance in sports and the use of data to drive strategy and tactics. Emphasis will be put on analytical methods to improve skills and optimize the performance of athletes.

**Credit Hours:** 3

**Prerequisites:** Both STAT 4330/7330 and STAT 4510/7510

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**STAT 4410: Biostatistics and Clinical Trials**

(cross-leveled with STAT 7410). Study of statistical techniques for the design and analysis of clinical trials, laboratory studies and epidemiology. Topics include randomization, power and sample size calculation, sequential monitoring, carcinogenicity bioassay and case-cohort designs. Prerequisites: any of the following: STAT 3500, STAT 7070, STAT 4710, STAT 7710, STAT 4760, STAT 7760, or instructor's consent.

**Credit Hours:** 3

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**STAT 4420: Applied Survival Analysis**

(cross-leveled with STAT 7420). Parametric models; Kaplan-Meier estimator; nonparametric estimation of survival and cumulative hazard functions; log-rank test; Cox model; Stratified Cox model; additive hazards model partial likelihood; regression diagnostics; multivariate survival data.

**Credit Hours:** 3

**Prerequisites:** STAT 3500 or STAT 7070 or STAT 4710 or STAT 7710 or STAT 4760 or STAT 7760

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**STAT 4510: Applied Statistical Models I**

(cross-leveled with STAT 7510). Introduction to applied statistical models including regression and ANOVA, logistic regression, discriminant analysis, tree-based methods, semi-parametric regression, support vector machines, and unsupervised learning through principal component and clustering. No credit toward a graduate degree in statistics. Prerequisites: Any one of: STAT 3500 or STAT 7070 or STAT 4710 or STAT 7710 or STAT 4760 or STAT 7760.

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**Credit Hours:** 3

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**STAT 4520: Applied Statistical Models II**

(cross-leveled with STAT 7520). Advanced course in applied statistical modeling focusing on extensions of the linear model. Topics include generalized linear models, such as logistic and Poisson regression. Random effects models will also be introduced, with emphasis on linear and generalized linear mixed models, repeated measures, and longitudinal data. These methods will extend to general models for dependent data, such as spatially-referenced data and time series. Lastly, nonlinear models through neural networks and deep learning will also be discussed.

**Credit Hours:** 3

**Prerequisites:** Stat 4510 or 7510 or instructor's consent

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**STAT 4540: Experimental Design**

(cross-leveled with STAT 7540). Examination and analysis of modern statistical techniques applicable to experimentation in social, physical or biological sciences.

**Credit Hours:** 3

**Prerequisites:** STAT 3500 or STAT 4510 or STAT 7510 or STAT 4530 or STAT 7530

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**STAT 4560: Applied Multivariate Data Analysis**

(cross-leveled with STAT 7560)/ Testing mean vectors; Discriminant analysis; Principal components; Factor analysis; Cluster analysis; Structural equation modeling; Graphics.

**Credit Hours:** 3

**Prerequisites:** STAT 3500, STAT 7070 STAT 4710 or STAT 7710 or STAT 4760 or STAT 7760 or instructor's consent. No credit towards a graduate degree in statistics

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**STAT 4580: Introduction to Statistical Methods for Customized Pricing**

(cross-leveled with STAT 7580). Introduction to basic concepts of and statistical methods used in customized pricing. Focuses on applying statistical methods to real customized pricing problems. Students will gain an understanding of customized pricing and some hands on experience with SAS Enterprise Miner.

**Credit Hours:** 3

**Prerequisites:** STAT 3500 or STAT 4510 or STAT 7510 or instructor's consent

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**STAT 4610: Applied Spatial Statistics**

(cross-leveled with STAT 7610). Introduction to spatial random processes, spatial point patterns, kriging, simultaneous and conditional autoregression, and spatial data analysis.

**Credit Hours:** 3

**Prerequisites:** STAT 4510 or instructor's consent

**Recommended:** basic knowledge of calculus and matrices

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**STAT 4640: Introduction to Bayesian Data Analysis**

(cross-leveled with STAT 7640). Bayes formulas, choices of prior, empirical Bayesian methods, hierarchical Bayesian methods, statistical computation, Bayesian estimation, model selection, predictive analysis, applications, Bayesian software.

**Credit Hours:** 3

**Prerequisites:** STAT 3500 or STAT 4510 or STAT 7510

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**STAT 4710: Introduction to Mathematical Statistics**

(same as MATH 4315; cross-leveled with STAT 7710, MATH 7315). Introduction to theory of probability and statistics using concepts and methods of calculus. No credit for Math 4315.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

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**STAT 4750: Introduction to Probability Theory**

(same as MATH 4320; cross-leveled with STAT 7750, MATH 7320). Probability spaces; random variables and their distributions; repeated trials; probability limit theorems.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

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**STAT 4760: Statistical Inference**

(same as MATH 4520; cross-leveled with STAT 7760, MATH 7520). Sampling; point estimation; sampling distribution; tests of hypotheses; regression and linear hypotheses.

**Credit Hours:** 3

**Prerequisites:** STAT 4750 or STAT 7750

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**STAT 4830: Categorical Data Analysis**

(cross-leveled with STAT 7830). Discrete distributions, frequency data, multinomial data, chi-square and likelihood ratio tests, logistic regression, log linear models, rates, relative risks, random effects, case studies.

**Credit Hours:** 3

**Prerequisites:** STAT 4710 or STAT 7710 or STAT 4760 or STAT 7760

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**STAT 4850: Introduction to Stochastic Processes**

(cross-leveled with STAT 7850). Study of random processes selected from: Markov chains, birth and death processes, random walks, Poisson processes, renewal theory, Brownian motion, Gaussian processes, white noise, spectral analysis, applications such as queuing theory, sequential tests.

**Credit Hours:** 3

**Prerequisites:** STAT 4750 or STAT 7750

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**STAT 4870: Time Series Analysis**

(cross-leveled with STAT 7870). A study of univariate and multivariate time series models and techniques for their analyses. Emphasis is on methodology rather than theory. Examples are drawn from a variety of areas including business, economics and soil science.

**Credit Hours:** 3

**Prerequisites:** STAT 4710 or STAT 7710 or STAT 4760 or STAT 7760

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**STAT 4970: Junior/Senior Seminar**

A capstone course required of and open only to junior or senior statistics majors. Students will participate in statistical consulting, attend colloquia, and review articles in professional journals. Writing of reports will be emphasized.

**Credit Hours:** 3

**Prerequisites:** Statistics major with Junior or Senior class standing or instructor's consent

**Recommended:** 12 completed hours of statistics courses with grade of C or better; STAT 4110

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**STAT 4970W: Junior/Senior Seminar - Writing Intensive**

A capstone course required of and open only to junior or senior statistics majors. Students will participate in statistical consulting, attend colloquia, and review articles in professional journals. Writing of reports will be emphasized.

**Credit Hours:** 3

**Prerequisites:** Statistics major with Junior or Senior class standing or instructor's consent

**Recommended:** 12 completed hours of statistics courses with grade of C or better; STAT 4110

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**STAT 4999: Departmental Honors in Statistics**

Special work for Honors candidates in statistics. May be repeated for credit.

**Credit Hour:** 1-3

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**STAT 7006: Topics in Statistics-Mathematics**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Repeatable with departmental consent.

**Credit Hour:** 1-5

**Prerequisites:** instructor's consent

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**STAT 7020: Statistical Methods in the Health Sciences**

Basic inference methods, both parametric and non-parametric, appropriate for answering questions arising in health sciences research. Computer exercises involving data from real experiments from health science area.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or MATH 1120 and instructor's consent

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**STAT 7050: Connecting Statistics to Middle and Secondary Schools**

(cross-leveled with STAT 4050). Primarily for middle and secondary mathematics education majors. Uses standards-based curricular materials to demonstrate connections between college-level statistics and content taught in middle and secondary schools. No credit toward a graduate degree in statistics.

**Credit Hours:** 3

**Prerequisites:** an introductory course in statistics or MATH 2320 or instructor's consent

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**STAT 7070: Statistical Methods for Research**

Designed for graduate students who have no previous training in statistics. Topics include descriptive statistics, probability distributions, estimation, hypothesis testing, regression, and ANOVA. No credit toward a degree in statistics.

**Credit Hours:** 3

**Prerequisites:** either MATH 1100 or MATH 1120

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**STAT 7085: Problems in Statistics for Non-majors**

Approved reading and study, independent investigations, and reports on approved topics.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**STAT 7110: Statistical Software and Data Analysis**

(cross-leveled with STAT 4110). Programming with major statistical packages emphasizing data management techniques and statistical analysis for regression, analysis of variance, categorical data, descriptive statistics, non-parametric analyses, and other selected topics.

**Credit Hours:** 3

**Prerequisites:** STAT 3500, STAT 7070, STAT 4710 or STAT 7710, STAT 4760 or STAT 7760, or instructor's consent

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**STAT 7150: Applied Categorical Data Analysis**

(cross-leveled with STAT 4150). The study of statistical models and methods used in analyzing categorical data. The use of computing is emphasized and calculus is not required. No credit for students who have previously completed STAT 4830. No credit toward a graduate degree in statistics.

**Credit Hours:** 3

**Prerequisites:** STAT 3500, STAT 7070, STAT 4710 or STAT 7710, or STAT 4760 or STAT 7760 or instructor's consent

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**STAT 7210: Applied Nonparametric Methods**

(cross-leveled with STAT 4210). Statistical methods when the functional form of the population is unknown. Applications emphasized. Comparisons with parametric procedures. Goodness of-fit, chi-square, comparison of several populations, measures of correlation.

**Credit Hours:** 3

**Prerequisites:** STAT 3500, STAT 7070, STAT 4710 or STAT 7710, STAT 4760 or STAT 7760, or instructor's consent

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**STAT 7310: Sampling Techniques**

Theory of probability sampling designs. Unrestricted random sampling. Stratified sampling. Cluster sampling. Multistage or subsampling. Ratio estimates. Regression estimates. Double sampling.

**Credit Hours:** 3

**Prerequisites:** STAT 3500, STAT 7070, STAT 4710 or STAT 7710, STAT 4760 or STAT 7760, or instructor's consent

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**STAT 7330: Methods in Sports Analytics I**

(cross-leveled with STAT 4330). Introductory course on collecting, processing, visualizing, and analyzing data in sports. Technologies used in data collection and processing will be explored, along with methods for measuring and comparing individual and team performance.

**Credit Hours:** 3

**Prerequisites:** Any one of STAT 3500, STAT 7020, STAT 7070, STAT 4710/7710, STAT 4760/7760, or instructor's consent

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**STAT 7340: Methods in Sports Analytics II**

(cross-leveled with STAT 4340). Advanced course in methods for analyzing individual and team based performance in sports and the use

of data to drive strategy and tactics. Emphasis will be put on analytical methods to improve skills and optimize the performance of athletes.

**Credit Hours:** 3

**Prerequisites:** Both STAT 4330 or STAT 7330 and STAT 4510 or STAT 7510

---

**STAT 7410: Biostatistics and Clinical Trials**

(cross-leveled with STAT 4410). Study of statistical techniques for the design and analysis of clinical trials, laboratory studies and epidemiology. Topics include randomization, power and sample size calculation, sequential monitoring, carcinogenicity bioassay and case-cohort designs. Prerequisites: any of the following: STAT 3500, STAT 7070, STAT 4710, STAT 7710, STAT 4760, STAT 7760, or instructor's consent.

**Credit Hours:** 3

---

**STAT 7420: Applied Survival Analysis**

(cross-leveled with STAT 4420). Parametric models; Kaplan-Meier estimator; nonparametric estimation of survival and cumulative hazard functions; log-rank test; Cox model; Stratified Cox model; additive hazards model partial likelihood; regression diagnostics; multivariate survival data.

**Credit Hours:** 3

**Prerequisites:** STAT 3500, STAT 7070, STAT 4710 or STAT 7710 or STAT 4760 or STAT 7760 or instructor's consent

---

**STAT 7510: Applied Statistical Models I**

(cross-leveled with STAT 4510). Introduction to applied statistical models including regression and ANOVA, logistic regression, discriminant analysis, tree-based methods, semi-parametric regression, support vector machines, and unsupervised learning through principal component and clustering. No credit toward a graduate degree in statistics..

Prerequisites: Any one of: STAT 3500 or STAT 7070 or STAT 4710 or STAT 7710 or STAT 4760 or STAT 7760.

**Credit Hours:** 3

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**STAT 7520: Applied Statistical Models II**

(cross-leveled with STAT 4520). Advanced course in applied statistical modeling focusing on extensions of the linear model. Topics include generalized linear models, such as logistic and Poisson regression. Random effects models will also be introduced, with emphasis on linear and generalized linear mixed models, repeated measures, and longitudinal data. These methods will extend to general models for dependent data, such as spatially-referenced data and time series. Lastly, nonlinear models through neural networks and deep learning will also be discussed.

**Credit Hours:** 3

**Prerequisites:** STAT 4510 or STAT 7510 or instructor's consent

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**STAT 7530: Analysis of Variance**

Study of analysis of variance and related modeling techniques for cases with fixed, random, and mixed effects. Exposure to designs other than completely randomized designs including factorial arrangements, repeated measures, nested, and unequal sample size designs.

**Credit Hours:** 3

**Prerequisites:** STAT 3500, STAT 7070, STAT 4710 or STAT 7710, STAT 4760 or STAT 7760, or instructor's consent

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**STAT 7540: Experimental Design**

(cross-leveled with STAT 4540). Examination and analysis of modern statistical techniques applicable to experimentation in social, physical or biological sciences.

**Credit Hours:** 3

**Prerequisites:** STAT 3500 or STAT 4510 or STAT 7510 or STAT 4530 or STAT 7530 or instructor's consent

---

**STAT 7560: Applied Multivariate Data Analysis**

(cross-leveled with STAT 4560). Testing mean vectors; discriminant analysis; principal components; factor analysis; cluster analysis; structural equation modeling; graphics.

**Credit Hours:** 3

**Prerequisites:** STAT 3500, STAT 7070, STAT 4710 or STAT 7710 or STAT 4760 or STAT 7760. No credit toward a graduate degree in statistics

---

**STAT 7580: Introduction to Statistical Methods for Customized Pricing**

(cross-leveled with STAT 4580). Introduction to basic concepts of and statistical methods used in customized pricing. Focuses on applying statistical methods to real customized pricing problems. Students will gain an understanding of customized pricing and some hands on experience with SAS Enterprise minor.

**Credit Hours:** 3

**Prerequisites:** STAT 3500 or STAT 4510 or STAT 7510 or instructor's consent

---

**STAT 7610: Applied Spatial Statistics**

(cross-leveled with STAT 4610). Introduction to spatial random processes, spatial point patterns, kriging, simultaneous and conditional autoregression, and spatial data analysis.

**Credit Hours:** 3

**Prerequisites:** STAT 4510 or STAT 7510 or instructor's consent

**Recommended:** Basic knowledge of calculus and matrices

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**STAT 7640: Introduction to Bayesian Data Analysis**

(cross-leveled with STAT 4640). Bayes formulas, choices of prior, empirical Bayesian methods, hierarchical Bayesian methods, statistical computation, Bayesian estimation, model selection, predictive analysis, applications, Bayesian software.

**Credit Hours:** 3

**Prerequisites:** STAT 3500 or STAT 4510 or STAT 7510 or instructor's consent

---

**STAT 7710: Introduction to Mathematical Statistics**

(same as MATH 7315; cross-leveled with STAT 4410, MATH 4315). Introduction to theory of probability and statistics using concepts and methods of calculus.

**Credit Hours:** 3

**Prerequisites:** MATH 2300 or instructor's consent. No credit MATH 7315

---

**STAT 7750: Introduction to Probability Theory**

(same as MATH 7320; cross-leveled with STAT 4750, MATH 4320). Probability spaces; random variables and their distributions; repeated trials; probability limit theorems.

**Credit Hours:** 3

**Prerequisites:** MATH 2300 or instructor's consent

---

**STAT 7760: Statistical Inference**

(same as MATH 7520; cross-leveled with STAT 4760, MATH 4520). Sampling; point estimation; sampling distribution; tests of hypotheses; regression and linear hypotheses.

**Credit Hours:** 3

**Prerequisites:** STAT 4750 or STAT 7750 or instructor's consent

---

**STAT 7830: Categorical Data Analysis**

(cross-leveled with STAT 4830). Discrete distributions, frequency data, multinomial data, chi-square and likelihood ratio tests, logistic regression, log linear models, rates, relative risks, random effects, case studies.

**Credit Hours:** 3

**Prerequisites:** STAT 4710 or STAT 7710 or instructor's consent

---

**STAT 7850: Introduction to Stochastic Processes**

(cross-leveled with STAT 4850). Study of random processes selected from: Markov chains, birth and death processes, random walks, Poisson processes, renewal theory, Brownian motion, Gaussian processes, white noise, spectral analysis, applications such as queuing theory, sequential tests.

**Credit Hours:** 3

**Prerequisites:** STAT 4750 or STAT 7750 or instructor's consent

---

**STAT 7870: Time Series Analysis**

(cross-leveled with STAT 4870). A study of univariate and multivariate time series models and techniques for their analyses. Emphasis is on methodology rather than theory. Examples are drawn from a variety of areas including business, economics and soil science.

**Credit Hours:** 3

**Prerequisites:** STAT 7710 or STAT 7760 or instructor's consent

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**STAT 8085: Problems in Statistics for Majors - Masters**

Approved reading and study, independent investigations, and reports on approved topics.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**STAT 8090: Master's Thesis Research in Statistics**

Graded on a S/U basis only.

**Credit Hour:** 1-99

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**STAT 8100: Special Topics in Statistics**

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**STAT 8310: Data Analysis I**

Applications of linear models including regression (simple and multiple, subset selection, regression diagnostics), analysis of variance (fixed, random and mixed effects, contrasts, multiple comparisons) and analysis of covariance; alternative nonparametric methods.

**Credit Hours:** 3

**Prerequisites:** STAT 4710 or STAT 7710 or STAT 4760 or STAT 7760 or instructor's consent

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**STAT 8320: Data Analysis II**

Advanced applications including analysis of designs (e.g. repeated measures, hierarchical models, missing data), multivariate analysis (Hotelling's T<sup>2</sup>, MANOVA, discriminant analysis, principal components, factor analysis), nonlinear regression, generalized linear models, categorical data analysis.

**Credit Hours:** 3

**Prerequisites:** STAT 8310 or instructor's consent

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**STAT 8330: Data Analysis III**

An introduction to data analysis techniques associated with supervised and unsupervised statistical learning. Resampling methods, model selection, regularization, generalized additive models, trees, support vector machines, clustering, nonlinear dimension reduction.

**Credit Hours:** 3

**Prerequisites:** STAT 8320

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**STAT 8370: Statistical Consulting**

Participation in statistical consulting under faculty supervision. Formulation of statistical problems. Planning of surveys and experiments. Statistical computing. Data analysis. Interpretation of results in statistical practice.

**Credit Hours:** 3

**Prerequisites:** STAT 4760 or STAT 7760 and STAT 8320 or instructor's consent

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**STAT 8410: Statistical Theory of Bioinformatics**

Study of statistical theory and methods underpinning bioinformatics. Topics include statistical theory used in biotechnologies such as gene sequencing, gene alignments, microarrays, phylogenetic trees, evolutionary models, proteomics and imaging.

**Credit Hours:** 3

**Prerequisites:** STAT 4760 or STAT 7760

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**STAT 8640: Bayesian Analysis I**

Bayes' theorem, subjective probability, non-informative priors, conjugate prior, asymptotic properties, model selection, computation, hierarchical models, hypothesis testing, inference, predication, applications.

**Credit Hours:** 3

**Prerequisites:** STAT 4760 or STAT 7760 and MATH 4140 or MATH 7140 or instructor's consent

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**STAT 8710: Intermediate Mathematical Statistics I**

Sample spaces, probability and conditional probability, independence, random variables, expectation, distribution theory, sampling distributions, laws of large numbers and asymptotic theory, order statistics.

**Credit Hours:** 3

**Prerequisites:** STAT 4760 or STAT 7760 or instructor's consent

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**STAT 8720: Intermediate Mathematical Statistics II**

Further development of estimation theory, including sufficiency, minimum variance principles and Bayesian estimation. Tests of hypotheses, including uniformly most powerful and likelihood ratio tests.

**Credit Hours:** 3

**Prerequisites:** STAT 8710 or instructor's consent

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**STAT 9085: Problems in Statistics for Majors - PhD**

Approved reading and study, independent investigations, and reports on approved topics.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**STAT 9090: Doctoral Dissertation Research in Statistics**

Graded on a S/U basis only.

**Credit Hour:** 1-99

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**STAT 9100: Recent Developments in Statistics**

The content of the course which varies from semester to semester, will be the study of some statistical theories or methodologies which are currently under development, such as bootstrapping, missing data, non-parametric regression, statistical computing, etc.

**Credit Hours:** 3

**Prerequisites:** STAT 4760 or STAT 7760 and instructor's consent

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**STAT 9250: Statistical Computation and Simulation**

Random number generation, acceptance/rejection methods; Monte Carlo; Laplace approximation; the EM algorithm; importance sampling; Markov chain Monte Carlo; Metropolis-Hasting algorithm; Gibbs sampling, marginal likelihood.

**Credit Hours:** 3

**Prerequisites:** STAT 4760 or STAT 7760 or instructor's consent

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**STAT 9310: Theory of Linear Models**

Theory of multiple regression and analysis of variance including matrix representation of linear models, estimation, testing hypotheses, model building, contrasts, multiple comparisons and fixed and random effects.

**Credit Hours:** 3

**Prerequisites:** STAT 4760 or STAT 7760 and MATH 4140 or MATH 7140, and instructor's consent

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**STAT 9370: Multivariate Analysis**

Distribution of sample correlation coefficients. Derivation of generalized T-squared and Wishart distributions. Distribution of certain characteristic roots, vectors. Test of hypotheses about covariance matrices and mean vectors. Discriminant analysis.

**Credit Hours:** 3

**Prerequisites:** STAT 4760 or STAT 7760 and MATH 4140 or MATH 7140 or instructor's consent

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**STAT 9410: Survival Analysis**

Statistical failure models, Kaplan-Meier estimator, Log-rank test, Cox's regression model, Multivariate failure time data analysis, Counting process approaches.

**Credit Hours:** 3

**Prerequisites:** STAT 4760 or STAT 7760 or instructor's consent

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**STAT 9530: Data Mining and Machine Learning Methods**

Approaches to estimating unspecified relationships and findings unexpected patterns in high dimensional data. Computationally intensive methods including splines, classifications, tree-based and bagging methods, support vector machines.

**Credit Hours:** 3

**Prerequisites:** STAT 4110 or STAT 7110, STAT 4760 or STAT 7760 and STAT 8320 or instructor's consent

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**STAT 9640: Bayesian Analysis II**

Likelihood principle, decision theory, asymptotic properties, advanced topics in Bayesian analysis at the instructor's discretion.

**Credit Hours:** 3

**Prerequisites:** STAT 8640 and STAT 9710 or instructor's consent

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**STAT 9710: Advanced Mathematical Statistics I**

Advanced study of mathematical statistics appropriate for PhD students in statistics. Elements of probability theory, principles of data reduction, point and interval estimation, methods of finding estimators and their properties, hypothesis testing, methods of finding test functions and their properties. Decision theoretic, classical and Bayesian perspectives.

**Credit Hours:** 3

**Prerequisites:** STAT 8720 or instructor's consent

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**STAT 9720: Advanced Mathematical Statistics II**

Continuation of STAT 9710. Topics include distribution theory and convergence, laws of large numbers, central limit theorems, efficiency, large sample theory, and elements of advanced probability.

**Credit Hours:** 3

**Prerequisites:** STAT 9710 or instructor's consent

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**STAT 9810: Advanced Probability**

(same as MATH 8480). Measure theoretic probability theory. Characteristic functions; conditional probability and expectation; sums of independent random variables including strong law of large numbers and central limit problem.

**Credit Hours:** 3

**Prerequisites:** STAT 4750 STAT 7750 or MATH 4700 or MATH 7700 or instructor's consent

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**STAT 9820: Stochastic Processes**

(same as MATH 8680). Markov processes, martingales, orthogonal sequences, processes with independent and orthogonal increments, stationarity, linear prediction.

**Credit Hours:** 3

**Prerequisites:** STAT 9810 or instructor's consent

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**Student Success Center Courses****SSC 1020: University Freshmen Seminar**

(same as INTDSC 1020). To maximize student's potential to achieve academic success and to adjust responsibly to the individual and interpersonal challenges presented by collegiate life. Attainment of an appropriate balance between personal freedom and social responsibility underlies all seminar activities.

**Credit Hour:** 1

**Prerequisites:** Restricted to first time college student. No credit for students who have earned credit for AFNR 1115, INTDSC 1001, IS\_LT 1110, ED\_LPA 3100 or an equivalent first-year orientation course at another institution. Credit restrictions that apply to orientation classes apply to this course. Students are not allowed to be enrolled in SSC 1020 and SSC 1150 in the same semester

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**SSC 1150: College Success Seminar**

This course is designed to create a positive new student experience by connecting students with the Mizzou campus community and the academic resources essential to their success. Students' strengths will be assessed and used to assist each student in the development and implementation of an individualized and strategic approach to successfully navigating their way through collegiate life. Individual course sections may be restricted to specific majors or groups.

**Credit Hours:** 2

**Prerequisites:** Freshmen or sophomore standing required

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**SSC 1151: Academic Success Seminar**

Academic recovery strategies will be explored and implemented throughout the course. Students will learn to assess their academic situations, develop a plan of action, apply new strategies for success, and activate their success plan throughout all aspects of their collegiate career. Campus academic resources will be identified to meet students' specific needs. Each student will create an individual plan of action in order to recover academically and stay on the path toward success and graduation. Individual course sections may be restricted to specific majors or groups.

**Credit Hours:** 2

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**SSC 1155: Mindfulness and Academic Recovery**

This class includes instruction in mindfulness practices with a special emphasis on how these skills can positively help manage stress associated with work, school, family, relationships, finances and health concerns. The class is practically oriented and teaches breathing strategies, body awareness practices, mindful communication skills, and a variety of positive psychology practices designed to change the way we use our thoughts and emotions for greater personal and academic success. Graded on an A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Instructor consent required

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**SSC 1500: Disney Internship**

Internship: Experiential learning as a 'cast member' of the Walt Disney World College Program. Students work for a semester at the Walt Disney World resort and have the option of taking Disney Classes. Graded on S/U basis only.

**Credit Hours:** 0

**Prerequisites:** instructor's consent; departmental signature

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### **SSC 2100: Career Explorations**

Contribution of career development theory to choice of career and/or major. Exploration of personal and social determinants of career choice. Class consists of lecture, laboratory experiences, and use of facilities at the Career Planning and Placement Center.

**Credit Hour:** 1-3

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### **SSC 3100: Advanced Disney Internship**

Advanced Internship: Experiential learning opportunity with the Walt Disney World College Program. Students work for a semester at the Walt Disney World resort and have the option of taking Disney classes. This is a second internship that is more field-specific and carries with it more responsibilities. Graded on S/U basis only.

**Credit Hours:** 0

**Prerequisites:** instructor's consent, departmental signature

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## **Surgery Courses**

### **SURGRY 6006: Surgery Clerkship**

Emphasis is placed on the diagnosis and treatment of disorders requiring surgical intervention. Each student has a faculty mentor-advisor, attends faculty discussion sessions that cover objectives in the required textbooks and takes call under the supervision of surgical residents. Students are assigned patients from all surgical specialties, participate in preoperative examinations and evaluations, assist during surgical procedures and follow the postoperative management process.

**Credit Hours:** 8

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### **SURGRY 6016: Rural Surgery Clerkship**

Rural Surgery Clerkship

**Credit Hours:** 8

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### **SURGRY 6026: Springfield Surgery Clerkship**

Emphasis is placed on the diagnosis and treatment of disorders requiring surgical intervention. Students are assigned patients from all surgical specialties, participate in preoperative examinations and evaluations, assist during surgical procedures and follow the postoperative management process.

**Credit Hours:** 8

**Prerequisites:** successful completion of the first two years of medical school

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### **SURGRY 6038: SCC Surgical Oncology**

The surgical oncology student will function as a 'junior house officer' and be actively involved in the diagnosis, treatment and management of patients with cancer both Gynecologic and Head and Neck Cancers. The student will work in the clinics, participate in ward rounds, and be a full member of the surgical oncology team in and out of the operating room. The student will attend cancer conferences and will be given reading assignments in order to broaden his/her data base. The two course directors will collaborate on the student schedule in order to provide approximately half of the time in each specialty.

**Credit Hours:** 5

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**Prerequisites:** Successful completion of 5 of the 7 core clerkships. One of the 5 must be the Surgery Clerkship. SURGRY 6006, 6016, 6026, or 6106

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### **SURGRY 6039: SCC Vascular Surgery Selective**

The 4th year vascular surgery student will function similar to a 'junior house officer' and be actively involved in the diagnosis and management of vascular disorders. They will work in the clinics, participate in ward rounds, teaching conferences, and will be a full member of the vascular team in and out of the operating room.

**Credit Hours:** 5

**Prerequisites:** Fourth Year Medical Student. Successful completion of 5 of the 7 core clerkships. One of the 5 must be the Surgery Clerkship. SURGRY 6006, 6016, 6026, or 6106

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### **SURGRY 6042: SCC Pediatric Surgery Selective**

The pediatric surgery student will work as part of the team providing hands on clinical care in inpatient, outpatient, and emergent settings. Students will participate in rounds, clinic, and the operating room. The student will do one approximately 10 minute presentation on a mutually agreed upon topic.

**Credit Hours:** 5

**Prerequisites:** Successful completion of the first two years of medical school. Successful completion of 5 of the 7 core clerkships. One of the 5 must be the Surgery Clerkship

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### **SURGRY 6046: SCC Plastic Surgery Selective**

The plastic surgery student will participate in all sub-specialty areas of plastic surgery including hand and microsurgery, head and neck cancer surgery, congenital deformities, burns, facial trauma, and major reconstruction, as well as cosmetic surgery. The student will be expected to perform at the level of a 'junior house officer' on the Plastic Surgery team.

**Credit Hours:** 5

**Prerequisites:** Successful completion of 5 of the 7 clerkships. One of the 5 must be the Surgery Clerkship. This course requires prior approval by the Springfield faculty before final registration

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### **SURGRY 6054: Springfield Cardiothoracic Surgery Selective 4-wk**

The fourth-year cardiothoracic surgery student will work as an extern on the surgical service. They will participate in rounds, clinics, operative arena, and the diagnostic laboratory. Management of complex cardiothoracic/thoracic pathology with a team approach will be defined. Students will participate both in an inpatient setting as well as an outpatient clinic with opportunities for educating patients regarding risk-factor modification in the prevention of cardiopulmonary disease.

**Credit Hours:** 5

**Prerequisites:** Successful completion of 5 of the 7 core clerkships. One of the 5 must be the Surgery Clerkship

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### **SURGRY 6106: Remediation Surgery Clerkship**

Enrolled students are those who received an unsatisfactory grade in a Surgery Clerkship at any Mizzou Med location or site. This course gives the student an opportunity to rectify their deficiency.

**Credit Hours:** 8

**Prerequisites:** SURGRY 6006 Surgery Clerkship, received unsatisfactory grade

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**SURGRY 6126: Remediation Springfield Surgery Clerkship**

Emphasis is placed on the diagnosis and treatment of disorders requiring surgical intervention. Students are assigned patients from all surgical specialties, participate in preoperative examinations and evaluations, assist during surgical procedures and follow the postoperative management process.

**Credit Hours:** 8

**Prerequisites:** successful completion of the first two years of medical school

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**SURGRY 6383: ABS Surgery Research**

ABS Surgery Research

**Credit Hour:** 5-10

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**SURGRY 6655: Surgical Off-Site Elective**

Surgical Off-Site Elective

**Credit Hours:** 5

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**SURGRY 6658: Burn Unit**

Burn Unit

**Credit Hours:** 5

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**SURGRY 6661: Surgery Research Elective**

Surgery Research Elective

**Credit Hours:** 5

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**SURGRY 6688: Orthopaedic Surgery Reserach Elective**

Student will identify interest in surgical clinical research and other topical areas of orthopaedic surgery. The research will define concepts relevant to the practice of orthopaedic surgery. The student will engage in self-directed learning and evaluation of new information.

**Credit Hours:** 5

**Prerequisites:** SURGRY 6006; level M4

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**SURGRY 6926: Ambulatory Otolaryngology**

The student will recognize all subspecialty areas included on this rotation: facial trauma, otology/neurotology, head and neck surgical oncology, facial plastic surgery, sinus surgery, pediatric ENT, laryngology and allergy. The student will be exposed to a broad spectrum of patients (adult and pediatric) in both procedural and clinical settings. Students will demonstrate improved technical skills during the 2 week rotation.

**Credit Hours:** 2

**Prerequisites:** successful completion of the first two years of medical school

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**SURGRY 6942: SCC Urology Two Week Elective**

Students will work under the supervision of a faculty preceptor at the Springfield Clinical Campus. Students will see patients in the outpatient clinic and/or inpatient hospital setting, perform a history and physical exam, and develop a patient-centered assessment and plan. They will discuss their findings, assessment and plan with the faculty preceptor

and see the patient together. The student will complete oral patient presentations and document patient encounters in the medical record as directed by the faculty preceptor. Students will gain significant exposure to the Urologic operating room environment and procedural treatments, including open, laparoscopic, robotic, and endoscopic procedures.

**Credit Hours:** 2

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**SURGRY 6944: SCC Vascular Surgery 2-week**

This course is intended as an introduction to the specialty of vascular surgery. The vascular surgery student will be actively involved in the diagnosis and management of vascular disorders. They will work in the clinics, participate in ward rounds, teaching conferences, and will be a full member of the vascular team in and out of the operating room.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the Surgery Clerkship

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**SURGRY 6945: SCC Pediatric Surgery 2WK Elective**

This course is intended as an introduction to the specialty for the novice clinical student. The pediatric surgery student will work as part of the team providing hands on clinical care in inpatient, outpatient, and emergent settings. Students will participate in rounds, clinic, and the operating room.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school. Must have completed Surgery clerkship

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**SURGRY 6946: Pediatric Orthopaedic Surgery 2WK**

The course is meant to be an introductory experience to Orthopedic Surgery with specific exposure to pediatric orthopaedics. The student will be actively involved in clinic, in-patient care, and the operating room. The student will learn the basic presentation, evaluation, and management of adult patients with common pediatric orthopedic problems, such as fractures, scoliosis, and neuromuscular disease.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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**SURGRY 6947: Orthopaedic Sports Medicine 2WK**

The course is meant to be an introductory experience to Orthopedic Surgery with specific exposure to operative sports medicine. The student will be actively involved in clinic, in-patient care, and the operating room. The student will learn the basic presentation, evaluation, and management of adult patients with common orthopedic sports injuries, such as knee ligament instability, meniscal tears, and rotator cuff pathology.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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**SURGRY 6948: Orthopaedic Surgery - Spine 2WK**

The course is meant to be an introductory experience to Orthopedic Surgery with specific exposure to spine. The student will be actively involved in clinic, in-patient care, and the operating room. The student will learn the basic presentation, evaluation, and management of adult patients with common orthopedic problems, such as spinal stenosis and herniated disc.



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**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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**SURGRY 6949: Orthopaedic Surgery - Adult Reconstruction 2WK**

The course is meant to be an introductory experience to Orthopedic Surgery with specific exposure to adult reconstruction. The student will be actively involved in clinic, in-patient care, and the operating room. The student will learn the basic presentation, evaluation, and management of adult patients with common orthopedic problems, such as hip and knee arthritis.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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**SURGRY 6950: Orthopaedic Surgery - Hand Surgery 2 WK**

The course is meant to be an introductory experience to Orthopedic Surgery with specific exposure to hand surgery. The student will be actively involved in clinic, in-patient care, and the operating room. The student will learn the basic presentation, evaluation, and management of adult patients with common hand problems, such as carpal tunnel, fractures, tendon injuries, and trigger fingers.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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**SURGRY 6954: SCC Plastic Surgery 2-week**

The plastic surgery student will have an introductory exposure to the subspecialty areas of plastic surgery including hand and microsurgery, head and neck cancer surgery, congenital deformities, burns, facial trauma, and major reconstruction, as well as cosmetic surgery. Students will integrate knowledge, reasoning, and clinical skills in providing plastic surgery patient-centered care. Students will obtain ambulatory and inpatient care exposure by participating in the evaluations, consultations, and care of patients in the clinics and on the wards. Students will acquire 'hands on' operative experience and opportunity to learn, practice, and hone suturing techniques and to assist on many surgical procedures.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school. This course requires approval by the Springfield faculty prior to final registration

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**SURGRY 6955: Ambulatory ENT/Urology**

**Goals/Objectives:** This elective will offer students an exposure to ambulatory care in urology and otolaryngology. Students will see a broad range of patients and numerous outpatient procedures. Students will have close supervision during this experience. Both services have a combined outpatient population of 24,000 visits per year. Students will be exposed to numerous situations they would face in a primary care office. Clinic is offered five days per week by each service. Observation in the O.R. is available and attendance at teaching conferences is required. There will be a written exam given at the completion of the 2 weeks of ENT.

**Credit Hours:** 5

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**SURGRY 6957: Cardiothoracic Surgery**

Cardiothoracic Surgery

**Credit Hours:** 5

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**SURGRY 6958: Surgical off-Site Selective**

Surgical off-Site Selective

**Credit Hours:** 5

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**SURGRY 6959: General Surgery Externship**

**Goals/Objectives:** 1. Provide the student with ability to function as a first year general surgery house officer with close supervision and one-on-one instruction. 2. Become familiar with pre-operative, operative, and post-operative care of general surgical patients. 3. Become familiar with the graded responsibility structure necessary to ethically conduct post-graduate surgical residency training. 4. Develop bedside patient care skills. 5. Develop reading and clinical research skills necessary for contemporary surgical care.

**Credit Hours:** 5

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**SURGRY 6971: Surgical Critical Care**

The Surgical Critical Care student will acquire a broad exposure to assessment and management of critically ill and injured patients. The student will participate in daily rounds and patient care with the Surgical Critical Care service. Students will become an active member of the multidisciplinary ICU team and remain under the close supervision of Acute Care Surgery Faculty and Residents. Participation with the members of the multidisciplinary critical care team creates an excellent practical learning environment, while didactic conferences/case presentations compliment the experience.

**Credit Hours:** 5

**Prerequisites:** Surgery Clerkship

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**SURGRY 6972: Surgical Oncology**

Surgical Oncology

**Credit Hours:** 5

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**SURGRY 6973: Head and Neck Surgical Oncology**

Head and Neck Surgical Oncology

**Credit Hours:** 5

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**SURGRY 6974: Otolaryngology**

**Goals/Objectives:** The Otolaryngology student rotation offers learning through participation in daily care of patients, case discussion in conferences, and didactic conferences. All subspecialty areas are included on this rotation, including facial trauma, otology, neurotology, head and neck surgical oncology, facial reconstruction, sinus surgery, pediatric ENT and allergy. Significant outpatient experience is provided and the extent of operating room participation to the student's needs and preferences. The student sees a full spectrum of patients (adult and pediatric) at the University and the VA. The student sees and learns about a variety of outpatient problems during the outpatient segment of this rotation. A wide variety of surgical procedures are observed in the operating room. The residents and faculty encourage an individually tailored learning experience for the student. Supplemental texts and other

teaching aids are encouraged. Clinical research projects are available for interested and committed students.

**Credit Hours:** 5

**Prerequisites:** Surgery Clerkship

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#### **SURGRY 6975: Pediatric Surgery**

Goals/Objectives: To gain a working knowledge of a) diagnosis, b) preoperative care, c) surgery, and d) postoperative care of the 1) congenital 2) traumatic 3) oncologic and 4) common surgical conditions affecting infants and children. This rotation is designed for the student planning a career that includes the care of infants and children.

**CURRICULUM:** Attendance on daily rounds and participation in pediatric surgery clinic are mandatory. The student should also be present in radiology for all inpatient and outpatient contrast studies on surgical patients and consults. Operating room exposure can be individualized; the student is expected to be present, but not necessarily scrubbed, for the key portion of each case. Pediatric Surgical texts can be found in the Medical Library under RD 137, in the Pediatric or Surgery libraries, in the bookstore. Rowe - Essentials of Pediatric Surgery, Holder - Pediatric Surgery, Welch - Pediatric Surgery (4th ed.), Coran - Surgery of the Neonate.

**Credit Hours:** 5

**Prerequisites:** Surgery Clerkship

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#### **SURGRY 6976: Plastic Surgery**

Goals/Objectives: The plastic surgery student rotation is considered 'hands on' experience for the student rotating in the division of plastic surgery. This is a busy rotation with good opportunity for clinical exposure. The patient population includes all subspecialty areas of plastic surgery including hand and microsurgery, head and neck cancer surgery, congenital deformities, burns, facial trauma, and major reconstruction, as well as cosmetic surgery. On this rotation, the student is expected to have an in-depth opportunity to learn, practice, and hone surgical suturing techniques and to first or second assist on many major surgical procedures. The graphic specialty of plastic surgery is best appreciated by participation and observation and there will be ample opportunity for this. In addition to the ward and major operating room duties, the student will obtain ambulatory patient care exposure by participating in the clinics, in the evaluation of new patients, and the after care of surgery patients. In addition, a significant percentage of the surgery is done as an outpatient and the student should have the opportunity to gain appreciation of the nuances of surgery done in the ambulatory environment. Incumbent to these considerations are exposure and appreciation of cost containment in plastic surgical procedures.

**Credit Hours:** 5

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#### **SURGRY 6977: Acute Care Surgery**

Students will participate in patient care, gather pertinent patient data, and develop plans of care for the patients on the surgery service. Case presentations will be given to the surgical team each day. Night and weekend call should be expected.

**Credit Hours:** 5

**Prerequisites:** Surgery and Internal Medicine Clerkship

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#### **SURGRY 6979: Vascular Surgery**

Vascular Surgery

**Credit Hours:** 5

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#### **SURGRY 6980: Urology**

The goal of the rotation is to provide a comprehensive urologic experience for those students who may be interested in Urology as a career as well as those students who simply want a more in-depth experience before pursuing another specialty. At the conclusion of the rotation, the student will be able to competently manage common urologic conditions such as hematuria, incontinence, and erectile dysfunction and recognize those patients who need referral to a specialist. To accomplish this, emphasis is placed on the management of both outpatients and inpatients. Active participation in the operating room is expected and the student will assist in a wide variety of urologic procedures. Students will also participate in outpatient procedures such as cystoscopy and vasectomy. Basically, the student will function as an extern on the University Urologic Service with appropriate patient care responsibilities.

**Credit Hours:** 5

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#### **SURGRY 6981: Orthopaedic Surgery Sub-Internship**

Goals/Objectives: Rotation for students actively interested (more aggressive) students in orthopaedics as a career. Emphasis will be placed on surgical indications, operative technique and post-operative care of orthopaedic patients. The student will be assigned by Ortho faculty to two different orthopaedic teams (sports medicine, foot and ankle, total joint, general, pediatrics, trauma, and hand) for two weeks at a time. Each student would be given an extensive reading schedule, a list of topics to be covered, given a written or oral examination including both services emphasized at the end of block. Brief oral presentation, to the residency or service on which they are working, on orthopaedic subject of choice pertaining to Ortho service/residency assigned. **CURRICULUM:** The student will spend two weeks on two different university teams during this rotation. The student will be expected to participate in all aspects of the orthopaedics services they are assigned. This will include outpatient clinics, elective and emergent OR time, routine day-to-day care of patients on the orthopaedic service, and consultations. The student will take four nights of call with the Ortho residents assigned to service. The student will be evaluated by the attending and residents on the two services to which they have been assigned.

**Credit Hours:** 5

**Prerequisites:** Surgery Clerkship

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#### **SURGRY 6982: Introduction to Orthopaedic Surgery**

Goals/Objectives: Rotations for students interested in a career in primary care. The student will learn physical diagnosis and outpatient as well as surgical treatment of common orthopedic conditions. Each student will be given a list of topics that will be covered, a reading list to which the student would be obligated to read and given a short written and/or oral examination of the musculoskeletal system emphasized. Brief oral presentation, to the residency or service on which they are working, on an orthopedic subject of choice pertaining to Ortho service/residency assigned. The student will be assigned for the four weeks by Ortho Faculty to a preceptor from one of the following areas: sports medicine, foot and ankle, total joint, general, pediatrics, trauma or hand. **CURRICULUM:** The student on this rotation will be expected to learn to diagnose and manage commonly seen orthopedic conditions in the assigned orthopedic area. The student will participate in outpatient clinics, OR cases, rounds and conferences. The student will take two

call nights with the Ortho Resident assigned to service. Basic techniques of splinting and cast application will be learned by sessions with the orthopedic cast technician.

**Credit Hours:** 5

**Prerequisites:** Surgery Clerkship

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#### **SURGRY 6985: Neurosurgery A**

**Goals/Objectives:** This course will provide the conscientious student an opportunity to acquire the following: 1. The ability to perform comprehensive neurological evaluation of the patient including both history taking and physical examination. This will entail a review of basic neuroanatomy and neurophysiology and a correlation of that information with the requirements of clinical medicine. 2. A basic understanding of neurosurgical diseases and their evaluation and management. Of particular importance will be the emphasis placed upon the initial evaluation of patients with central and peripheral nervous system trauma and neoplasms, cerebrovascular disease, congenital diseases of the nervous system, pain problems, diseases of the spine and lumbar discs. **CURRICULUM:** In order to direct the objectives of this course, students will be exposed to the following: 1. Individualized teaching sessions with the faculty. 2. Combined conferences with neurology, neuroradiology and neuropathology. 3. Outpatient clinics at the UMHSC and EFCC (Ellis Fischel). 4. The inpatient services of neurosurgery at UMHSC. 5. The operating room at UMHSC. **Evaluations:** The progress of the student will be evaluated through personal interaction with the faculty and residents and through an oral examination at the end of the course.

**Credit Hours:** 5

**Prerequisites:** Surgery Clerkship

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#### **SURGRY 6989: Pediatric Neurosurgery**

**Goals/Objectives:** To provide interested students the opportunity to acquire exposure and knowledge in the field of pediatric neurosurgery. This elective will allow the student to learn about clinical entities such as craniofacial anomalies, hydrocephalus, neuroendoscopy, congenital and central nervous system anomalies, and trauma of the CNS. The student becomes part of a team and closely interacts with the attending physician, neurosurgery residents, and clinical nurse specialist. **CURRICULUM:** 1. Daily inpatient rounds. 2. Individualized teaching with faculty. 3. Clinics: Chiari and Pediatric Neurosurgery. 4. Conferences: Neurosurgery Grand Rounds, Neuro-radiology, Neuro-pathology, Neuroscience. **Prerequisites:** Surgery Clerkship

**Credit Hours:** 5

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#### **SURGRY 6991: Longitudinal Neurosciences Selective**

The fourth year ambulatory longitudinal rotation in neurosciences follows neurosurgical patients from admission in the NSICU, through their operative encounter, and then on to their neuro-rehabilitation. The student will work as part of the multi-disciplinary team providing hands-on care in the inpatient, intensive care, and neuro-rehabilitative settings. The student is assigned selected hospitalized neurosurgical patients during their first two weeks of the rotation. The student will participate in the planned or emergent operative care of these selected patients. Once these patients are transferred to the inpatient and rehabilitative setting, the student will follow them through their recovery and rehabilitation. Student time will be spent equivalently across the different patient locations with emphasis placed on continuity of care. Faculty members in both Neurological Surgery and Physical Medicine and Rehabilitation will supervise this experience.

**Credit Hours:** 5

**Prerequisites:** Successful completion of five of the seven core clerkships with two of the five being the Neurology Clerkship and the Surgery Clerkship

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### **Textile And Apparel Management Courses**

#### **T\_A\_M 1200: Basic Concepts of Apparel Design and Production**

Introduction to design techniques, coordination of fabric with design, selection of support materials, and basic understanding of garment assembly operations.

**Credit Hours:** 3

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#### **T\_A\_M 1300: Softgoods Retailing**

Surveys merchandising and retailing principles with specific applications to the softgoods industry.

**Credit Hours:** 3

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#### **T\_A\_M 2100: Introduction to Digital Presentation Techniques**

This class explores Adobe Creative Suite as a tool for presentation techniques, and Excel for merchandising applications, within the field of fashion merchandising and design. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** T\_A\_M 1300

**Prerequisites:** Restricted to TAM majors during early registration

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#### **T\_A\_M 2120: Professional Seminar**

Exploration of issues in professional activity/success including: evaluating opportunities, oral and written communication for presenting oneself, the articulation of professional/private life, and professional ethics.

**Credit Hour:** 1

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#### **T\_A\_M 2200: Science of Textiles**

Fundamental concepts of textiles. Chemical composition, molecular arrangement, and physical structure of natural and manufactured fibers. Yarn and fabric manufacturing and various finishing techniques. Impacts of such characteristics and techniques on function, performance, and quality. Laboratory course. Graded on A-F basis only.

**Credit Hours:** 3

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#### **T\_A\_M 2280: Apparel Production**

Introduction to sewn products industry applications in which students assemble sample garments and products on industrial equipment. Order of operations is emphasized and industry specific software is introduced. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites or Corequisites:** T\_A\_M 1200 and T\_A\_M 2200

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#### **T\_A\_M 2300: Retail Finance and Merchandise Control**

Emphasizes assortment and financial planning utilizing computer applications in the retail environment. Math Reasoning Proficiency Course.

**Credit Hours:** 3

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**Prerequisites:** T\_A\_M 1300 or MRKTNG 3000; MATH 1100 with a C- or above

**Recommended:** computer familiarity

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**T\_A\_M 2380: Integrated Apparel Design and Production I**

A beginning apparel product development course integrating pattern-making, apparel assembly decision-making and materials selection. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or above in T\_A\_M 2280 or instructor's consent

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**T\_A\_M 2400: Global Consumers**

This course uses consumer behavior and cultural frameworks, integrated with critical and creative thinking processes to develop global perspective that is sensitive to diverse consumers' needs and preferences for products and services in the global marketplace. Graded on A-F basis only.

**Credit Hours:** 3

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**T\_A\_M 2480: Apparel and Textile Presentation Techniques**

Apparel and textile presentation processes. Introduction to a range of traditional and innovative presentation techniques using various media. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** T\_A\_M 2280

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**T\_A\_M 2500: Social Appearance in Time and Space**

An investigation of the motives and meanings that individuals negotiate through the use of dress in presenting themselves as players in complex social contexts. The emphasis is on cross-cultural, historical, and contemporary settings.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**T\_A\_M 2500W: Social Appearance in Time and Space - Writing Intensive**

An investigation of the motives and meanings that individuals negotiate through the use of dress in presenting themselves as players in complex social contexts. The emphasis is on cross-cultural, historical, and contemporary settings.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**T\_A\_M 2520: History of Western Dress**

Surveys the history of Western dress from prehistory through the 18th Century.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**T\_A\_M 2520W: History of Western Dress - Writing Intensive**

Surveys the history of Western dress from prehistory through the 18th Century.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**T\_A\_M 2580: Digital Textile and Apparel Applications**

Use of computer aided design technology to create designs for textiles and apparel. Includes portfolio development. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** C- or above in T\_A\_M 2480 or instructor's consent

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**T\_A\_M 3010: Think Global: Fundamentals of Globalization and Digital Technologies**

(same as GERMAN 3510, PEA\_ST 3510, JOURN 3510, DST\_VS 3510). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

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**T\_A\_M 3010H: Think Global: Fundamentals of Globalization and Digital Technologies - Honors**

(same as GERMAN 3510H, JOURN 3510H, PEA\_ST 3510H, DST\_VS 3510H). This interdepartmental course serves as the introductory seminar for students pursuing the Certificate of Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required. Restricted to non-Journalism students. Journalism students should enroll in Journalism sides of this course

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**T\_A\_M 3010HW: Think Global: Fundamentals of Globalization and Digital Technologies - Honors/Writing Intensive**

(same as GERMAN 3510HW, JOURN 3510HW, PEA\_ST 3510HW, DST\_VS 3510HW). This interdepartmental course serves as the introductory seminar for students pursuing the Certificate of Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required. Restricted to non-Journalism students. Journalism students should enroll in Journalism sides of this course

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**T\_A\_M 3010W: Think Global: Fundamentals of Globalization and Digital Technologies - Writing Intensive**

(same as GERMAN 3510W, PEA\_ST 3510W, JOURN 3510W, DST\_VS 3510W). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

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**T\_A\_M 3200: Softgoods Quality Evaluation**

Examination and evaluation of fabric and apparel structures with emphasis on principles of advanced textile performance and quality analysis. Includes end-use characteristics; price/quality relationships; textile and apparel product standards and specifications; and standard test methods to evaluate comfort, performance, and function of sewn products. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** T\_A\_M 2200

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**T\_A\_M 3300: Retail and Merchandising Analysis**

This course provides an opportunity to apply the concepts of merchandise planning, financial control, and promotions to real life buying situations. It will employ a problem-based learning approach. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** T\_A\_M 2300

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**T\_A\_M 3380: Integrated Apparel Design and Production II**

An intermediate apparel product development course integrating pattern-making, apparel assembly decision-making and materials selection. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or above in T\_A\_M 2380 or instructor's consent

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**T\_A\_M 3480: Technical Design**

Technical product development for the global sewn products industry. Graded on A-F only basis.

**Credit Hours:** 3

**Prerequisites or Corequisites:** T\_A\_M 3200

**Prerequisites:** C- or above in T\_A\_M 3380

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**T\_A\_M 3520: 19th and 20th Century Western Dress**

A study of nineteenth and twentieth century Western dress as influenced by time, place, and culture. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000. Restricted to Textile and Apparel Management majors only

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**T\_A\_M 3520W: 19th and 20th Century Western Dress - Writing Intensive**

A study of nineteenth and twentieth century Western dress as influenced by time, place, and culture. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000. Restricted to Textile and Apparel Management majors only

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**T\_A\_M 3700: Omnichannel Retailing in the Digital World**

Assessing the integration of various retail channels and developing omnichannel strategies. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** T\_A\_M 1300

**Recommended:** junior standing

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**T\_A\_M 3800: Retail Entrepreneurship**

This course covers the fundamental principles and practices of retail entrepreneurship. Students will learn how to identify opportunities, analyze the competitive marketplace, and propose new retail entrepreneurial business ventures for both online and offline environments. Graded on A-F basis only.

**Credit Hours:** 3

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**T\_A\_M 4001: Topics in Textiles and Apparel Management**

Selected current topics in field of interest.

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent

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**T\_A\_M 4085: Problems in Textiles and Apparel Management**

Selected current problems in field of interest.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**T\_A\_M 4087: Seminar in Textiles and Apparel Management**

Reports and discussion of recent work in area of concentration.

**Credit Hour:** 1-3

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**T\_A\_M 4110: Global Sourcing**

(cross-leveled with T\_A\_M 7110). Global sourcing refers to how and where manufactured goods or components will be procured. In today's global softgoods industry, sourcing has become a major competitive strategy for both manufacturers and retailers. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** junior standing

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**T\_A\_M 4300: Softgoods Brand Management and Promotion**

(cross-leveled with T\_A\_M 7300). This course addresses how to build, measure, and manage brands specifically in the softgoods industry. It also covers the strategic implications of developing brand equity toward increasing customer loyalty.

**Credit Hours:** 3

**Recommended:** junior standing

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**T\_A\_M 4400: The Clothing/Textile Consumer: Data Analytics**

Analyzes the effects of economic, social and marketing factors on the consumption process in the age of big data.

**Credit Hours:** 3

**Prerequisites:** T\_A\_M 1300 or MRKTNG 3000

**Recommended:** 3 hours of statistics

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**T\_A\_M 4480: Creativity and Problem Solving**

Exploration of the creative process and sources of inspiration. Emphasis on research, design development for a variety of markets. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** T\_A\_M 3380

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**T\_A\_M 4549: International Experiential Learning in Textiles and Apparel**

International experience of textile and apparel management, including visitation of foreign industries, government agencies, and cultural/historical sites. Destination may vary. Course may be repeated up to 3 times. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent; Minimum GPA of 2.5

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**T\_A\_M 4600: Digital Merchandising**

(cross-leveled with T\_A\_M 7600). A comprehensive overview of the quickly evolving world of digital merchandising across all electronic channels, with an emphasis on textiles and apparel. Students will explore the architecture and functionality of websites, mobile apps, and social media, and the successful techniques being utilized to optimize sales and profits. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** T\_A\_M 3700

**Prerequisites:** T\_A\_M 2300

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**T\_A\_M 4810: Case Studies in an Inter/Multicultural World**

(same as GERMAN 4810, PEA\_ST 4810, DST 4805). This inter-departmental course examines the ways in which people across the globe are affected every day by an unprecedented array of linkages that defy geographic and political boundaries. Also serves as one of the seminars for the certificate in Digital Global Studies. Graded on A-F basis only.

**Credit Hours:** 3

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**T\_A\_M 4949: Field Training in Textiles and Apparel Management**

Practical aspects of internship experience coordinated with the university curriculum. Available for various areas of emphasis. Students may have up to 3 hours for any one internship experience and with a total maximum of 6 hours.

**Credit Hour:** 1-3

**Prerequisites:** 2.5 GPA, T\_A\_M 2120, instructor's consent, and necessary prerequisite for area of emphasis

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**T\_A\_M 4960: Readings in Textiles and Apparel Management**

Selected current readings in field of interest.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**T\_A\_M 4980: Apparel Production Management**

Integration of consumer, trend and aesthetic research to develop and produce a competitive apparel product line using a multifunctional team approach. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites or Corequisites:** T\_A\_M 3480 or T\_A\_M 4480

**Prerequisites:** C- or above in T\_A\_M 3380; T\_A\_M 2120

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**T\_A\_M 4990: Retail Marketing and Merchandising**

(cross-leveled with T\_A\_M 7990). Analytical management techniques appropriate for evaluation of retailing productivity. Emphasis on the use

of these techniques and others in the development of a comprehensive retail marketing strategy.

**Credit Hours:** 3

**Prerequisites or Corequisites:** T\_A\_M 2300, ACCTCY 2036 or ACCTCY 2026 or ACCTCY 2010, MRKTNG 3000

**Prerequisites:** T\_A\_M 2120

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**T\_A\_M 4998: Experiential Learning in Textiles and Apparel**

This course is designed to provide students with hands-on-experiences in the softgood industry. The purpose is to link classroom learning to business cultural centers, museums, workshops, and /or service learning opportunities achieved through experiential study. Additional field study fees might be applicable, depending on experience. May be repeated for credit. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent and minimum GPA of 2.5

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**T\_A\_M 7001: Topics in Clothing and Textiles**

Selected current topics in field of interest.

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent

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**T\_A\_M 7085: Problems in Clothing and Textiles**

Selected current readings in field of interest.

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent

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**T\_A\_M 7087: Seminar in Clothing and Textiles**

Reports and discussion of recent work in area of concentration.

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent

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**T\_A\_M 7110: Global Sourcing**

Global sourcing refers to how and where manufactured goods or components will be procured. In today's global softgoods industry, sourcing has become a major competitive strategy for both manufacturers and retailers.

**Credit Hours:** 3

**Prerequisites:** T\_A\_M 3110 or T\_A\_M 9100

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**T\_A\_M 7300: Branding**

(cross-leveled with T\_A\_M 4300). This course addresses how to build, measure, and manage brands specifically in the softgoods industry. It also covers the strategic implications of developing brand equity toward increasing customer loyalty.

**Credit Hours:** 3

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**T\_A\_M 7980: Softgoods Product Development**

Integration of consumer, trend and aesthetic research to develop and produce a competitive apparel product line using a multi-functional team approach.

**Credit Hours:** 3

**Prerequisites or Corequisites:** T\_A\_M 3480 or T\_A\_M 4480

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**T\_A\_M 7990: Retail Marketing and Merchandising**

(cross-leveled with T\_A\_M 4990). Analytical management techniques appropriate for evaluation of retailing productivity. Emphasis on the use of these techniques and others in the development of a comprehensive retail marketing strategy.

**Credit Hours:** 3

**Prerequisites or Corequisites:** T\_A\_M 2300, ACCTCY 2036 or ACCTCY 2026 or ACCTCY 2010, MRKTNG 3000

**Prerequisites:** T\_A\_M 2120

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**T\_A\_M 7999: Experiential Learning in Textiles and Apparel**

Investigation of the complex interaction of manufacturing, marketing, and merchandising in the apparel industry, achieved through instructional and experiential study. Includes international or domestic study trip. Graded on A-F basis only.

**Credit Hour:** 1-3

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**T\_A\_M 8000: Readings in Textiles and Apparel Management**

Readings in recent research material in textiles and/or clothing.

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent

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**T\_A\_M 8001: Topics in Clothing and Textiles**

Selected current topics in field of interest.

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent

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**T\_A\_M 8085: Problems in Textiles and Apparel Management**

Selected current readings in field of interest.

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent

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**T\_A\_M 8087: Seminar in Clothing and Textiles**

Reports and discussion of recent work in area of concentration.

**Credit Hour:** 1

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**T\_A\_M 8090: Research in Clothing and Textiles**

Independent research leading to a thesis. Report required. Graded on S/U basis only.

**Credit Hour:** 1-12

**Prerequisites:** Instructor's consent

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**T\_A\_M 8130: Supply Chain Management in the Global Softgoods Industry**

This course examines supply chain management strategies to gain a competitive advantages in the global softgoods industry.

**Credit Hours:** 3

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**T\_A\_M 8190: Survey of Research in Textile and Apparel Management**

A survey of current research in textiles and apparel management. Underlying theory, research design and empirical techniques will be analyzed and critiqued.

**Credit Hours:** 3

**Prerequisites:** hours in Statistics and 3 hours in Research Methods

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**T\_A\_M 8960: Readings in Clothing and Textiles**

Readings in recent research material in textiles and/or clothing.

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent

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**T\_A\_M 9001: Topics in Clothing and Textiles**

Selected current topics in field of interest.

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent

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**T\_A\_M 9085: Problems in Textiles and Apparel Management**

Selected current readings in field of interest.

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent

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**T\_A\_M 9087: Seminar in Clothing and Textiles**

Reports and discussion of recent work in area of concentration.

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent

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**T\_A\_M 9090: Research in Textiles and Apparel Management**

Independent research leading to dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-20

**Prerequisites:** Instructor's consent

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**T\_A\_M 9190: Theory Development and Evaluation in Textile and Apparel Research**

This class examines and analyzes extant theories in textiles and apparel research in systemic manner to be able to construct new theories. Graded on A-F basis only.

**Credit Hours:** 3

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**T\_A\_M 9960: Readings in Clothing and Textiles**

Readings in recent research material in textiles and/or clothing.

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent

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## Theatre Courses

**THEATR 1100: Theatre NOW: From the Greeks to Hamilton**

Examines the form and meaning of theatre in civilizations of the West from the ancient Greeks to modern times.

**Credit Hours:** 3

**Recommended:** Freshman or Sophomore standing

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**THEATR 1250: World Theatre Workshop**

(same as BL\_STU 1250). Provides a diverse ensemble of student performers, writers, and technicians with an intensive immersion in

the process of theatrical production through the public presentation of dramatic literature that focuses on global issues of ethnicity and culture.

**Credit Hours:** 2

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**THEATR 1320: Beginning Scenic Construction**

This course examines, through theory and practice, the art and science of technical theatre. Students explore the methods, equipment, and materials used in executing scenery, properties, and lighting designs for the stage, and participate in the backstage operation of a theatrical production.

**Credit Hours:** 3

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**THEATR 1340: Beginning Costume Construction**

This course examines, through theory and practice, the art and science of costume technology in the theatre. Students explore the methods, equipment, and materials used in executing costume designs for the stage, and participate in the backstage operation of a theatrical production.

**Credit Hours:** 3

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**THEATR 1360: Stage Makeup**

Character analysis, facial anatomy, color for stage and television makeup. Practice in application.

**Credit Hour:** 1

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**THEATR 1400: Acting for Non-Majors**

Basic theory and practice of acting for the non theatre major.

**Credit Hours:** 3

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**THEATR 1420: Stage Movement for the Actor**

Basic work in the techniques that comprise movement training for the actor.

**Credit Hours:** 3

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**THEATR 1720: African-American Theatre History**

(same as BL\_STU 1720). A historical and critical analysis of the evolution of African American cultural performance in the American theatre and entertainment industry.

**Credit Hours:** 3

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**THEATR 2005: Topics in Theatre - Humanities**

Organized study of selected topics. Subject and credit may vary from semester to semester. May be repeated with department consent. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**THEATR 2200: Introduction to Performance Studies**

This course focuses on the writing of adaptations for the stage through performance. Students develop skills in critical reading, writing, listening, speaking and analysis of performance as they study oral and literary texts, autobiography and narratives.

**Credit Hours:** 3

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**THEATR 2220: Immersive Theatre**

(same as DST\_VS 2820). This class introduces the student to the basic principles of immersive theatre and immersive storytelling. Students learn about the history, practice, theory, and critical issues related to immersive theatre and immersive storytelling, including performance art, environmental theatre, happenings, interactive theatre, site specific performance, installation art, video art, projection art, multimedia, intermediality, mediatization, 3D video, 360 video, augmented reality, virtual reality, and mixed reality. Projects provide opportunities for experiences in immersive theatre and immersive storytelling.

**Credit Hours:** 3

**Recommended:** DST\_VS 1880

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**THEATR 2300: Production Workshop I**

Work backstage in support of university theatre productions. Scenery, lighting, costumes, properties or other responsibilities. May be repeated. Graded on a S/U basis only.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**THEATR 2330: Stage Management**

Study of the role of the theatre stage manager. Practice in becoming effective in planning and stage managing theatre productions. Graded on A/F basis only.

**Credit Hours:** 3

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**THEATR 2360: Stagecraft**

Fundamentals of properties and scenic construction stressing terminology and practical production experience.

**Credit Hours:** 3

**Prerequisites:** THEATR 1320

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**THEATR 2410: Performance Workshop**

Credit for performance in University Theatre Production. Must audition and be cast to receive credit. May be repeated. Graded on S/U basis only.

**Credit Hour:** 1

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**THEATR 2510: Introduction to Theatre Design**

Design principles and elements as they relate to theatre performance. Use of drawing and creative 3-dimensional exercises to develop design concepts.

**Credit Hours:** 3

**Recommended:** to students interested in directing, playwriting, and design for the theatre

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**THEATR 2710: Introduction to Theatre History**

Survey of major periods emphasizing the produced play in its historical context.

**Credit Hours:** 3

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**THEATR 2800: Principles of Script Analysis**

Methodologies of script analysis for theatrical purposes. Extensive writing will be required.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**THEATR 2800W: Principles of Script Analysis - Writing Intensive**

Methodologies of script analysis for theatrical purposes. Extensive writing will be required.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**THEATR 2810: Script Analysis for Theatre Majors**

Advanced methodologies of script analysis. Critical analysis of scripts for theatre, film, and performance, including the analysis of plots, characters, themes, and language. Students in this class view performances and read scripts, then analyze the connections between the scripts and performances through extensive writing exercises.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

**Recommended:** Intended for Theatre Majors

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**THEATR 2920: Beginning Playwriting**

(same as ENGLSH 2560). Study and practice of playwriting fundamentals; emphasizes the one-act play.

**Credit Hours:** 3

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**THEATR 3005: Topics in Theatre - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated with departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

**Recommended:** Junior Standing

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**THEATR 3100: Summer Repertory Theatre**

Participation in production of Summer Repertory Theatre. May be repeated.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**THEATR 3200: Performance of Literature**

(same as ENGLSH 3570 and COMMUN 3570). Analysis and oral interpretation of literary works. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** sophomore standing

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**THEATR 3230: Vocal Performance Technique**

This course develops the ability to use the voice as a creative and expressive instrument through a comprehensive study of speech and voice dynamics which include the exploration of proper breathing, relaxation, tonal placement, and non-regional articulation.

**Credit Hours:** 3

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**THEATR 3300: Production Workshop II**

Credit earned in a technical project in support of a University Theatre production. Scenery, costumes, properties, or other responsibilities. May be repeated to total of 3 hours. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**THEATR 3310: Costume Crafts**

To develop the skills and techniques needed in executing costume crafts, including millinery, corsetry, painting and dyeing, and embellishment.

**Credit Hours:** 3

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**THEATR 3320: Theatrical Patternmaking**

Patternmaking for the theatre. Basic knowledge of sewing required.

**Credit Hours:** 3

**Prerequisites:** THEATR 1340 or T\_A\_M 1200

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**THEATR 3330: Advanced Costume Construction**

Learn advanced techniques in theatrical costuming through lecture, demonstration and practical application.

**Credit Hours:** 3

**Prerequisites:** THEATR 1340 and instructor's consent

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**THEATR 3340: Scene Painting**

Studio practice in techniques of painting scenery for the Theatre.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**THEATR 3420: Acting I**

Basic theory, practice of acting, stage movement.

**Credit Hours:** 3

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**THEATR 3430: Acting II**

Script analysis, character and role development in modern and contemporary non-realistic theatrical forms. Rehearsal and presentation of scenes, based on contemporary dramatic and performance theory.

**Credit Hours:** 3

**Recommended:** THEATR 2800

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**THEATR 3440: Acting for the Camera**

This class introduces the student to the basic principles of acting for the camera, including solo and group performance, script analysis, character analysis, timing, vocal and movement techniques. Students learn concepts that differentiate screen acting from stage acting. Students learn about the history, practice, theory, and critical issues related to acting for the camera in the contexts of film, television, and digital media. Students learn about concepts such as cinematography, design, video and sound recording, directing, and editing. Students learn about genres, including comedy, drama, and documentary. Projects give the students experience acting on camera.

**Credit Hours:** 3

**Recommended:** THEATR 1400 or THEATR 3420

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**THEATR 3450: Acting for Animation and Motion Capture**

This class introduces the student to the basic principles of acting for animation and motion capture including solo and group performance, script analysis, character analysis, timing, vocal and movement techniques. Students learn about the history, practice, theory, and critical issues related to acting for animation and motion capture in the contexts of film, television, digital media, video games, and virtual reality. Students learn about basic elements of production in animation and motion capture including scripts, storyboarding, layouts, rehearsals, and recording. Students learn about genres of acting for animation and motion capture, including comedy, drama, documentary, cartoons, and anime. Projects provide opportunities for experiences in acting for animation and motion capture.

**Credit Hours:** 3

**Recommended:** THEATR 1400 or THEATR 3420

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**THEATR 3460: Voiceover**

This class introduces the student to the basic principles of voiceover acting, including solo and group performance, script analysis, character analysis, and vocal techniques. Students learn about the history, practice, theory, and critical issues related to voiceover acting in the contexts of film, television, digital media, animation, video games, and virtual reality. Students learn about basic elements of sound production that affect voice acting such as acoustics, microphones, engineering, and sound editing. Students learn about basic genres of voice acting, including commercials, radio broadcasts, long-form narration, video games, animation, and interviews. Projects give the students experience in voice acting.

**Credit Hours:** 3

**Recommended:** THEATR 1400 or THEATR 3420

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**THEATR 3530: Computer Graphics in Theatre Design**

The use of graphics and CAD software to create theatre designs. The course will progress from 2D CAD drafting to 3D image rendering.

**Credit Hours:** 3

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**THEATR 3540: Advanced Stage Makeup**

Advanced practical experience in stage makeup techniques. Projects might include: mask making, ventilation, advanced character applications. Practice in application. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** THEATR 1360 and instructor's consent

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**THEATR 3550: Sound Design**

Beginning sound design for the theatre. Units include basics of researching, recording, and augmenting sound for the use in a theatrical production.

**Credit Hours:** 3

**Prerequisites:** THEATR 1320 and instructor's consent

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**THEATR 3560: Scene Design**

Theory/practice of scenic design for the theatre with emphasis on the evolutionary process of design from concept to reality.

**Credit Hours:** 3

**Prerequisites:** THEATR 2510

**Recommended:** THEATR 3530

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**THEATR 3600: Theatrical Directing**

Theory and practice of play directing, script selection, casting, play analysis, rehearsal and performance.

**Credit Hours:** 3

**Prerequisites:** THEATR 2800 and instructor's consent

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**THEATR 3600W: Theatrical Directing - Writing Intensive**

Theory and practice of play directing, script selection, casting, play analysis, rehearsal and performance.

**Credit Hours:** 3

**Prerequisites:** THEATR 2800 and instructor's consent

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**THEATR 3700: World Dramatic Literature**

(same as ENGLSH 3170). Survey of world drama from Greeks to present, focusing on structure, theory and performance.

**Credit Hours:** 3

**Recommended:** THEATR 2710 and THEATR 2800

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**THEATR 3700W: World Dramatic Literature - Writing Intensive**

(same as ENGLSH 3170). Survey of world drama from Greeks to present, focusing on structure, theory and performance.

**Credit Hours:** 3

**Recommended:** THEATR 2710 and THEATR 2800

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**THEATR 3750: New American Theatre**

Survey of drama of the most recent decade as it documents contemporary mores and amplifies cultural themes.

**Credit Hours:** 3

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**THEATR 3770: The Theatre Experience: From Page to Stage and Screen**

Stimulates critical thinking about theatrical performance, its relationship to the society of which it is a part, and its past and present significance as an art form, a cultural resource, a social institution, and a commercial enterprise.

**Credit Hours:** 3

**Prerequisites:** Journalism Majors only

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**THEATR 3920: Intermediate Playwriting**

(same as ENGLSH 3560). Intermediate study of the writing process as applied to theatre, leading to the creation of a full-length play to be considered for production.

**Credit Hours:** 3

**Prerequisites:** THEATR 2920 or ENGLSH 2560

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**THEATR 3920W: Intermediate Playwriting -**

(same as ENGLSH 3560W). Intermediate study of the writing process as applied to theatre, leading to the creation of a full-length play to be considered for production.

**Credit Hours:** 3

**Prerequisites:** THEATR 2920 or ENGLSH 2560

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**THEATR 3930: Screenwriting for Television and Film**

(same as FILMS\_VS 3930). Fundamentals of storytelling utilizing tools and structure used by television and film.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**THEATR 4005: Topics in Theatre - Humanities**

Organized study of selected topics. Topic and credit may vary semester to semester. May be repeated with department consent.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**THEATR 4220: Acting III**

(cross-leveled with THEATR 7220). Period acting styles. Special projects in interpretation, rehearsal, creation of roles.

**Credit Hours:** 3

**Prerequisites:** THEATR 3420 or THEATR 3430

**Recommended:** THEATR 2800

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**THEATR 4240: Theory and Practice of Theatre of the Oppressed**

(same as PEA\_ST 4240; cross-leveled with THEATR 7240, PEA\_ST 7240). Theory and practice of Augusto Boal's liberatory interactive theatre process, including application of techniques of specific social issues.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**THEATR 4280: Digital Media and Performance**

(cross-leveled with THEATR 7280). This course introduces students to the history and practice of the combination of live actors and digital media within the context of theatre and performance. Students learn about developments in the history of this topic as well as significant individuals, groups of artists, and theorists who have contributed to the field. Theories of performance are utilized as a way to understand subjects such as the development of computers and the Internet, the impact of technology and social media on society, virtual reality, telematics, robotics, and video games. Students create their own performances that combine live performances with digital media elements, and learn basic approaches to using computer software that is employed in creating these types of performances.

**Credit Hours:** 3

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**THEATR 4290: Virtual Reality and Performance**

(cross-leveled with THEATR 7290). This course introduces students to topics related to theatre and performance in the context of virtual reality. Students learn about developments in the history, theory, and critical analysis of this topic, and study significant writers, artists, and theorists who have contributed to the field. Students learn about principles related to performance and virtual reality such as dramatic structure, immersion, agency, transformation, acting, audience, and design. Projects provide opportunities for experiences in virtual reality and performance.

**Credit Hours:** 3

**Recommended:** THEATR 4280

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**THEATR 4300: Digital Humanities and the Arts**

(cross-leveled with THEATR 7300). This course introduces students to the concepts related to of digital humanities and the arts, with an emphasis on literature, visual art, music, theatre, dance, performance art, and film. Students learn about developments in the history, theory, and critical analysis of this topic, and study significant writers, artists, and theorists who have contributed to the field. Digital humanities methodologies are utilized as a way to understand subjects such as the development of computers and the Internet, the impact of technology on social practices, and the development of the arts in relation to evolving computer technologies. Students develop skills used in the practice of digital scholarship and creative work.

**Credit Hours:** 3

**Recommended:** THEATR 4280

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**THEATR 4460: Musical Theatre Performance**

A practical study for the actor of theatrical songs through character analysis, lyric interpretation and movement. A performance course.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**THEATR 4530: Stage Lighting Design**

Theory and practice of lighting for theatre production.

**Credit Hours:** 3

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**THEATR 4570: Theatrical Costume Design**

Basic practice in costume rendering using charcoal, crayon, ink, watercolor and other media. Costume history, both theatrical and general, will be surveyed. Basic problems of theatre design will be considered.

**Credit Hours:** 3

**Prerequisites:** THEATR 1320 or THEATR 1340

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**THEATR 4600: Advanced Directing**

(cross-leveled with THEATR 7600). Advanced principles of theatrical directing; emphasizes stylistic variations. May be repeated once.

**Credit Hours:** 3

**Prerequisites:** THEATR 3600 and instructor's consent

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**THEATR 4650: Introduction to Dramaturgy**

The course focuses on the practice of dramaturgy and the various functions currently performed by the artist/scholar identified as 'dramaturg' including research, dramatic criticism/interpretation, new play development, marketing and educational outreach, and textual adaptation.

**Credit Hours:** 3

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**THEATR 4720: American Musicals**

(same as MUS\_H\_LI 4376). Historical survey of the development of the 20th-Century American Musical in Theatre and Film.

**Credit Hours:** 3

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**THEATR 4820: Studies in Dramatic Literature**

(cross-leveled with THEATR 7820). Advanced survey of major movements, periods, writers. Repeatable to a maximum of 6 hours with instructor's consent.

**Credit Hours:** 3

**Recommended:** Senior standing

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**THEATR 4820W: Studies in Dramatic Literature - Writing Intensive**

(cross-leveled with THEATR 7820). Advanced survey of major movements, periods, writers. Repeatable to a maximum of 6 hours with instructor's consent.

**Credit Hours:** 3

**Recommended:** Senior standing

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**THEATR 4920: Advanced Playwriting: Problems**

(same as ENGLISH 4560; cross-leveled with THEATR 7920 and ENGLISH 7560). Advanced study of the writing process as applied to theatre, including theory and practice of special playwriting problems and techniques.

**Credit Hours:** 3

**Prerequisites:** THEATR 3920 or ENGLISH 3560

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**THEATR 4920W: Advanced Playwriting: Problems - Writing Intensive**

(same as ENGLISH 4560; cross-leveled with THEATR 7920 and ENGLISH 7560). Advanced study of the writing process as applied to theatre, including theory and practice of special playwriting problems and techniques.

**Credit Hours:** 3

**Prerequisites:** THEATR 3920 or ENGLISH 3560

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**THEATR 4930: Adaptation of Literature for the Stage**

(same as ENGLISH 4570; cross-leveled with THEATR 7930 and ENGLISH 7570). This upper-division course will explore adaptation principles and practices with a variety of forms of literature that were not originally written for the stage.

**Credit Hours:** 3

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**THEATR 4935: Adaptation of Literature for Film**

(same as FILMS\_VS 4935 and ENGLISH 4935; cross-leveled with THEATR 7935, ENGLISH 7580 and FILMS\_VS 7935). This upper-division course will explore adaptation principles and practices with a variety of forms for literature that were not originally written for film.

**Credit Hours:** 3

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**THEATR 4938: Advanced Screenwriting: Styles**

(same as ENGLISH 4938; cross-leveled with THEATR 7938, ENGLISH 7938). To develop advanced skills of screenwriting through a focus on a non-realistic, non-linear dramatic writing styles in development of a full-length screenplay. Areas of study will include techniques of magic realism, symbolism, expressionism, absurdism, surrealism/dada, mythic/fantasy, musicals, political docudrama, and science fiction.

**Credit Hours:** 3

**Prerequisites:** THEATR 2920 or ENGLISH 2560

**Recommended:** THEATR 3930

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**THEATR 4938W: Advanced Screenwriting: Styles - Writing Intensive**

(same as ENGLISH 4938; cross-leveled with THEATR 7938, ENGLISH 7938). To develop advanced skills of screenwriting through a focus on a non-realistic, non-linear dramatic writing styles in development of a full-length screenplay. Areas of study will include techniques of magic realism, symbolism, expressionism, absurdism, surrealism/dada, mythic/fantasy, musicals, political docudrama, and science fiction.

**Credit Hours:** 3

**Prerequisites:** THEATR 2920 or ENGLISH 2560

**Recommended:** THEATR 3930

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**THEATR 4940: Internship in Theatre**

Internship: Experimental learning as an actor, designer, technician, publicist/manager, or dramaturg with an approved theatre company. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** departmental consent

**Recommended:** junior or senior standing

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**THEATR 4960: Directed Readings in Theatre**

Independent reading, reports.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**THEATR 4990: Capstone in Theatre**

Theatre experiences and knowledge gained by students are connected through compilation of resume and portfolio. Student will meet with faculty jury to discuss his/her body of theatrical work. Required for senior theatre students. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**THEATR 7005: Topics**

Organized study of selected topics. Topic and credit may vary semester to semester. May be repeated with department consent.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**THEATR 7220: Acting III**

(cross-leveled with THEATR 7220). Period acting styles. Special projects in interpretation, rehearsal, creation of roles.

**Credit Hours:** 3

**Prerequisites:** THEATR 2800 and THEATR 3420 or THEATR 3430

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**THEATR 7240: Theory and Practice of Theatre of the Oppressed**

(same as PEA\_ST 7240; cross-leveled with PEA\_ST 4240; THEATR 4240). Theory and practice of Augusto Boal's liberatory interactive theatre process, including application of techniques of specific social issues.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**THEATR 7280: Digital Media and Performance**

(cross-leveled with THEATR 4280). This course introduces students to the history and practice of the combination of live actors and digital media within the context of theatre and performance. Students learn about developments in the history of this topic as well as significant individuals, groups of artists, and theorists who have contributed to the field. Theories of performance are utilized as a way to understand subjects such as the development of computers and the Internet, the impact of technology and social media on society, virtual reality, telematics, robotics, and video games. Students create their own performances that combine live performances with digital media elements, and learn basic approaches to using computer software that is employed in creating these types of performances.

**Credit Hours:** 3

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**THEATR 7290: Virtual Reality and Performance**

(cross-leveled with THEATR 4290). This course introduces students to topics related to theatre and performance in the context of virtual reality. Students learn about developments in the history, theory, and critical analysis of this topic, and study significant writers, artists, and theorists who have contributed to the field. Students learn about principles related to performance and virtual reality such as dramatic structure, immersion, agency, transformation, acting, audience, and design. Projects provide opportunities for experiences in virtual reality and performance.

**Credit Hours:** 3

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**THEATR 7300: Digital Humanities and the Arts**

(cross-leveled with THEATR 4300). This course introduces students to the concepts related to of digital humanities and the arts, with an emphasis on literature, visual art, music, theatre, dance, performance art, and film. Students learn about developments in the history, theory, and critical analysis of this topic, and study significant writers, artists, and theorists who have contributed to the field. Digital humanities methodologies are utilized as a way to understand subjects such as the development of computers and the Internet, the impact of technology on social practices, and the development of the arts in relation to evolving computer technologies. Students develop skills used in the practice of digital scholarship and creative work.

**Credit Hours:** 3

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**THEATR 7600: Advanced Directing**

(cross-leveled with THEATR 4600). Advanced principles of theatrical directing; emphasizes stylistic variations. May be repeated once.

**Credit Hours:** 3

**Prerequisites:** THEATR 3600 and instructor's consent

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**THEATR 7820: Studies in Dramatic Literature**

Advanced survey of major movements, periods, writers. Repeatable to a maximum of 6 hours with instructor's consent.

**Credit Hours:** 3

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**THEATR 7920: Advanced Playwriting: Problems**

(same as ENGLSH 7560; cross-leveled with THEATR 4920 and ENGLSH 4560). Advanced study of the writing process as applied to theatre, including theory and practice of special playwriting problems and techniques.

**Credit Hours:** 3

**Prerequisites:** THEATR 3920 or ENGLSH 3560

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**THEATR 7938: Advanced Screenwriting: Styles**

(same as ENGLSH 7938; cross-leveled with THEATR 4938, ENGLSH 4938). To develop advanced skills of screenwriting through a focus on a non-realistic dramatic writing technique in the development of a full-length screenplay. Areas of study will include techniques of magic realism, symbolism, expressionism, absurdism, surrealism/dada, mythic/fantasy, musicals, political docudrama, and science fiction.

**Credit Hours:** 3

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**THEATR 7950: Introduction to Dramaturgy**

This course focuses on the practice of dramaturgy and the various functions currently performed by the artist/scholar identified as 'dramaturg' including research, dramatic criticism/interpretation, new play development, marketing and educational outreach, and textual adaptation. Graded on A-F basis only.

**Credit Hours:** 3

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**THEATR 7960: Directed Readings in Theatre**

Independent reading, reports.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**THEATR 8005: Topics in Theatre**

Organized study of selected topics. Topic and credit may vary from semester to semester. May be repeated with department consent.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**THEATR 8090: Research in Theatre**

Independent research of advanced nature leading to report. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**THEATR 8100: Theatre Scholarship**

History, goals, and techniques of academic writing in theatre including research, types of studies, primary materials, interpretation, writing techniques, and publication.

**Credit Hours:** 3

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**THEATR 8200: Performance Ethnography**

This graduate seminar will explore intersections of the fields of ethnography and performance: both studies of ethnographic research conducted within a performance paradigm and the performance of ethnographic research. The class will explore major critical and theoretical issues about ethnography and performance, including the conflation and differences between the forms of ethnographic texts and traditional performance scripts, questions about what constitutes performance ethnography as a genre, the construction and deconstruction of identities and communities inherent in performance ethnography, strategies for creating and critiquing the performance of ethnographic research, ethical questions related to representation

and the performance of ethnographic research, writing performance ethnography, and the staging of texts based on ethnographic research.

**Credit Hours:** 3

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**THEATR 8385: Problems in Theatre**

Individual study/project not leading to thesis or dissertation.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**THEATR 8610: Classical Theatre**

This graduate seminar will explore this history, theory, and criticism of classical and neoclassical performance texts and plays. The class will balance the study of the historical context of the period with the exploration of works by major theorists and critics with readings of dramatic literature as a vehicle for discussing how theoretical and critical issues are applied to the history of classical theatre in performance.

**Credit Hours:** 3

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**THEATR 8620: Contemporary Theatre**

This graduate seminar will explore this history, theory, and criticism of contemporary performance texts and plays. The class will balance the study of the historical context of the period with the exploration of works by major theorists and critics with readings of dramatic literature as a vehicle for discussing how theoretical and critical issues are applied to the history of contemporary theatre in performance.

**Credit Hours:** 3

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**THEATR 8630: Performance Studies**

This graduate seminar will explore topics related to performance studies. The class will balance the exploration of works by major theorists and critics with readings of various performance texts as a vehicle for discussing how theoretical and critical issues are applied to theatre and performance.

**Credit Hours:** 3

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**THEATR 8787: Seminar in Theatre History**

Selected problems in theatre history. May be repeated.

**Credit Hours:** 3

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**THEATR 8820: Graduate Seminar in Dramatic Literature**

This is a course that explores the influence of major playwrights and playwriting in society--specific playwrights and their works are determined by the course professor.

**Credit Hours:** 3

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**THEATR 8887: Seminar in Dramatic Theory and Criticism**

Selected topics in dramatic theory and criticism. May be repeated.

**Credit Hours:** 3

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**THEATR 8987: Graduate Seminar in Playwriting**

(same as ENGLSH 8560). Seminar in theory, practice, and pedagogy of playwriting, students prepare a mid-term in playwriting theory, a full-length play, a research paper, and a syllabus and lesson plans for an undergraduate playwriting course.

**Credit Hours:** 3

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**THEATR 9090: Research in Theatre**

Research leading to thesis or dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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## Veterinary Biomedical Science Courses

**V\_BSCI 5011: Veterinary Anatomy**

In-depth study of the structure of the horse, ox, sheep, goat, pig and avian species. (Instructional periods 3 and 4).

**Credit Hours:** 3

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**V\_BSCI 5012: Veterinary Anatomy with Laboratory**

Continuation of V\_BSCI 5011. In-depth study of the structure of the horse, ox, sheep, goat, pig and avian species. (Instructional periods 3 and 4).

**Credit Hours:** 3

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**V\_BSCI 5020: Developmental Anatomy**

Provides a comprehensive and rational interpretation of the intricate mechanisms of normal development to better understanding the complex anatomy of the adult. A substantial portion will be dedicated to commonly encountered congenital abnormalities for each major organ system.

**Credit Hours:** 0.5

**Prerequisites:** 1st year Veterinary students

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**V\_BSCI 5021: Developmental Anatomy**

Provides a comprehensive and rational interpretation of the intricate mechanisms of normal development to better understanding the complex anatomy of the adult. A substantial portion will be dedicated to commonly encountered congenital abnormalities for each major organ system.

**Credit Hours:** 0.5

**Prerequisites:** 1st year Veterinary students

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**V\_BSCI 5051: Veterinary Gastrointestinal**

Continuation of V\_BSCI 5504. Physiology of the gastrointestinal tract, exocrine pancreas and liver. Lecture and lab designed to emphasize principles important to the practice of veterinary medicine.

**Credit Hours:** 2

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**V\_BSCI 5052: Veterinary Endocrinology and Reproductive Physiology**

Continuation of Veterinary Biomedical Science 5051. Comparative endocrinology and reproductive biology.

**Credit Hours:** 2

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**V\_BSCI 5100: Veterinary Neuroscience**

A laboratory and lecture-based course emphasizing the applied anatomy and physiology of the nervous system of domestic animals.

**Credit Hours:** 2

**Prerequisites:** first year Veterinary students

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**V\_BSCI 5500: Veterinary Anatomy with Laboratory**

Correlative study of the anatomy of domestic and laboratory animals in which the developmental and gross anatomy are integrated. A segment is devoted to neuroanatomy. Dissection includes the dog, cat and common laboratory animals. (Instructional periods 1 and 2).

**Credit Hours:** 4

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**V\_BSCI 5502: Veterinary Microscopic Anatomy with Laboratory**

A study of microscopic anatomy including cytology, histology of basic tissues and microscopic anatomy of cardiovascular, urinary, respiratory systems and the special senses and integument. (Instructional periods 1 and 2).

**Credit Hours:** 3

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**V\_BSCI 5503: Veterinary Microscopic Anatomy**

Particular attention to digestive systems, endocrine organs and reproductive systems. (Instructional period 3).

**Credit Hours:** 2

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**V\_BSCI 5504: Veterinary Physiology**

This course is designed to provide an opportunity and motivation for the student to acquire an understanding of the physiological principles on which rational therapy in medical practice is based. Topics include: Cellular Neurophysiology, Muscle, Cardiovascular, Renal and Respiratory Physiology. The course also encourages the student to apply these principles in solving problems so that it becomes habitual for him or her to think in terms of 'mechanisms of action' as he or she approaches a problem in disturbed physiology.

**Credit Hours:** 5

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**V\_BSCI 5506: Veterinary Molecular and Cellular Biology**

(same as V\_BSCI 7333) A comprehensive course overviewing molecular and biochemical issues of cell function especially as related to medicine and the underlying molecular causes of disease.

**Credit Hours:** 4

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**V\_BSCI 5507: Veterinary Pharmacology with Laboratory**

General principles of pharmacy, pharmacokinetics, and pharmacodynamics, with emphasis on drugs affecting the central and autonomic nervous system, cardiovascular and hematologic systems.

**Credit Hours:** 3

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**V\_BSCI 5508: Veterinary Pharmacology**

Continuation of V\_BSCI 5507. Antiseptics, autotoxins, hemostatics and anticoagulants, fluid and electrolytes, reproductive, endocrine, and gastrointestinal drugs.

**Credit Hours:** 2

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**V\_BSCI 5509: Veterinary Toxicology**

(Same as V\_BSCI 8509) Local and various systemic clinical responses of domestic animals to foreign chemicals including metals, pesticides, water-and food-borne agents, biotoxins, industrial and plant toxins. The

principles, mechanism(s) of action, diagnosis, prevention and treatment of chemical intoxications are also presented.

**Credit Hours:** 3

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**V\_BSCI 7333: Veterinary Cell Biology**

(same as V\_BSCI 5506). Course material stresses cell biology as related to animal health and medical issues. A comprehensive course overviewing molecular and biochemical issues of cell function especially as related to medicine and the underlying molecular causes of disease.

**Credit Hours:** 4

**Prerequisites:** instructor's consent

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**V\_BSCI 8085: Problems in Veterinary Biomedical Science**

Selected problems and/or topics for advanced study in special areas to meet needs of individual students.

**Credit Hour:** 1-99

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**V\_BSCI 8090: Research in Veterinary Biomedical Science**

Open to graduate students with requisite preparation. Research expected to be presented as a thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**V\_BSCI 8100: Veterinary Neuroscience**

A laboratory and lecture based course emphasizing the applied anatomy and physiology of the nervous system of domestic animals.

**Credit Hours:** 2

**Prerequisites:** Restricted to first year veterinary students or graduate students

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**V\_BSCI 8200: Multidisciplinary Approaches to Biomedical Sciences**

The goal of this course is to aid the student in developing a multidisciplinary philosophy to problem solving in biomedical research. Methods used in molecular, biochemical, cellular, tissue, organ, and whole animal studies will be emphasized.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**V\_BSCI 8410: Seminar in Veterinary Biomedical Science**

Presentation and discussion of investigations and topics in veterinary anatomy-physiology or related fields, by qualified students, instructors, and guests.

**Credit Hour:** 1

**Prerequisites:** departmental consent

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**V\_BSCI 8420: Veterinary Physiology**

This course is designed to provide an opportunity and motivation for the student to acquire an understanding of the physiological principles on which rational therapy in medical practice is based. Topics include: Cellular Neurophysiology, Muscle, Cardiovascular, Renal and Respiratory Physiology. The course also encourages the student to apply these principles in solving problems so that it becomes habitual for him or her to think in terms of 'mechanisms of action' as he or she approaches a problem in disturbed physiology.

**Credit Hours:** 5

**Prerequisites:** BIOCHM 4270 and BIOCHM 4272

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**V\_BSCI 8421: Veterinary Physiology**

Continuation of V\_BSCI 8420. Physiology of the gastrointestinal tract, exocrine pancreas, liver, endocrine system and reproduction.

**Credit Hours:** 4

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**V\_BSCI 8509: Veterinary Toxicology**

(Same as V\_BSCI 5509) Local and various systemic clinical responses of domestic animals to foreign chemicals including metals, pesticides, water-and food-borne agents, biotoxins, industrial and plant toxins. The principles, mechanism(s) of action, diagnosis, prevention and treatment of chemical intoxications are also presented. Graded A-F only.

**Credit Hours:** 3

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**V\_BSCI 9090: Research in Veterinary Biomedical Sciences**

Research in Veterinary Biomedical Sciences. Graded on S/U basis only.

**Credit Hour:** 1-99

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**V\_BSCI 9425: Microvascular Circulatory Function**

(same as MPP 9434). An in-depth study of microcirculatory structure and function in various tissues with emphasis on recent developments in the understanding of the mechanisms involved in nutrient supply, edema formation, lymphatic function and fluid balance.

**Credit Hours:** 3

**Prerequisites:** V\_BSCI 8420 and V\_BSCI 8422 or Mammalian Physiology or equivalent

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**V\_BSCI 9435: Molecular Exercise Biology**

(same as MPP 9435). Integrated adaptations of adipose tissue, blood vessels, bone, brain, heart, immune, liver, microbiome, and skeletal muscle to physical training during life. Lifecourse emphasis will be placed upon the role of physical activity during growth and aging in increasing and decreasing, respectively, cardiovascular fitness and strength fitness. The roles of the level of cardiovascular and strength fitness in slowing the onset of chronic diseases and death will be one outcome of the curriculum. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Introductory physiology and molecular biology

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**V\_BSCI 9462: Hormone Action**

(same as BIOCHM 9462). A lecture course with weekly assigned readings. Topics will include: a description of selected polypeptide, steroid and other hormones and their biological effects; receptors; second messengers; protein phosphorylation in hormone mediation; growth factors; cellular oncogenes.

**Credit Hours:** 2

**Prerequisites:** BIOCHM 7272

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**V\_BSCI 9467: Neural Cardiorespiratory Control**

(same as MPP 9437). Course objectives include developing a general understanding of CNS mechanisms in the regulation of the cardiovascular and respiratory system, including autonomic, neurohumoral and body fluid homeostatic mechanisms, gaining knowledge of the major advances and topics in the field and becoming familiar with some of the methods

used to study CNS cardiorespiratory regulation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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## Veterinary Medicine And Surgery Courses

**V\_M\_S 6001: Topics in Veterinary Medicine**

Current topics, infrequently-taught courses, or new courses not yet designated by a permanent course number. Some sections may be graded A-F only or S/U only. Course instructor consent prior to enrollment is required.

**Credit Hour:** 0.5-6

**Prerequisites:** Restricted to Veterinary Medicine students

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**V\_M\_S 6002: Veterinary Raptor Medicine**

This multiple-block course is designed to introduce veterinary students to wildlife rehabilitation practices through lectures, laboratories, hands-on rehabilitation, and release of wild birds of prey. Professional veterinary students organize this course with oversight by the course directors. Graded on S/U basis only.

**Credit Hours:** 0.5

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**V\_M\_S 6005: Clinical Skills**

A hands -on laboratory class to provide experience with handling and examining Horses, Cattle, Small ruminants and Camelid species, Cats and Dogs for veterinary students.

**Credit Hours:** 0.5

**Prerequisites:** first year veterinary students. Graded on S/U basis only

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**V\_M\_S 6006: Clinical Skills**

A hands -on laboratory class to provide experience with handling and examining Horses, Cattle, Small ruminants and Camelid species, Cats and Dogs for veterinary students. Graded on S/U basis only.

**Credit Hours:** 0.5

**Prerequisites:** first year veterinary students

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**V\_M\_S 6007: Healer's Art: Awakening the Heart of Medicine**

The Healer's Art is set-up as a 15-hour elective course for VM1 and VM2 students. The 15 contact hours are achieved across 5 evening sessions. Each three-hour session is divided into a large-group and small-group experience. The course addresses the hidden crisis in veterinary medicine - the growing loss of meaning and commitment experienced by veterinarians under the stresses of today's world. The curriculum is process-based and enables the formation of a community of open dialogue between students and faculty. The tools used in the course include faculty sharing from personal experience, generous listening and open discussion in the small group setting, experiential learning, and reflection exercises. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** VM1 and VM2

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**V\_M\_S 6010: Evaluated Veterinary Preceptorship**

This required co-op style course provides the student with practical exposure and experience in nonacademic veterinary medicine. Duration of 2-6 weeks. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** VM-3 standing

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**V\_M\_S 6020: Veterinary Radiology with Laboratory**

Introduces through lectures and demonstrations the principles of radiographic examination and interpretation of disease processes of domestic animals. Instructional period 8.

**Credit Hours:** 2

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**V\_M\_S 6030: Veterinary Anesthesiology with Laboratory**

Basic principles of anesthesiology for any species of domestic and exotic animals. Instructional period 9.

**Credit Hours:** 2

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**V\_M\_S 6040: Companion Animal Medicine with Laboratory**

Covers basic principles of veterinary internal medicine and selected subdisciplines. Instructional period 9.

**Credit Hours:** 4

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**V\_M\_S 6050: Small Animal Medicine**

Didactic presentations regarding pathophysiology, diagnosis and therapeutic management of organ system diseases in small animals.

**Credit Hours:** 2.5

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**V\_M\_S 6060: Small Animal Surgery with Laboratory**

Basic principles including suture materials, suture patterns, operative techniques, wound healing, and body system approach to soft tissue surgery conditions.

**Credit Hours:** 2

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**V\_M\_S 6071: Small Animal Surgery**

Continuation of V\_M\_S 6060 lectures, focusing primarily on orthopedics.

**Credit Hours:** 2

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**V\_M\_S 6072: Optional Surgery and Anesthesia Laboratory**

Designed to teach entry-level surgical and anesthesia skills using models, live animals, and cadavers. This laboratory is offered as a substitute to V\_M\_S 6073 for students who wish to gain anesthesia and surgical experience with live tissues. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** V\_M\_S 6060

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**V\_M\_S 6073: Fundamental Surgery Laboratory**

Designed to teach entry-level surgical skills using models and cadavers. Canine cadavers will be substituted for pigs in the first two celiotomy laboratories. Students will not anesthetize pigs but will observe clinical anesthesia by following one clinical case from start to finish. Graded on S/U basis only.

**Credit Hour:** 1

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**Prerequisites:** complete V\_M\_S 6060

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**V\_M\_S 6081: Food Animal Medicine and Surgery**

Covers the important diseases of cattle, goats, sheep, camelids, and swine recognition, management and prevention of diseases are stressed.

**Credit Hours:** 2.5

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**V\_M\_S 6082: Food Animal Medicine and Surgery**

Continuation of V\_M\_S 6081. Covers the important diseases of cattle, goats, sheep, camelids, and swine recognition, management and prevention of diseases are stressed.

**Credit Hours:** 2

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**V\_M\_S 6090: Small Animal Emergency and Critical Care with Laboratory**

Basic principles of emergency and critical care of companion animals, and body system approach to emergency and critical care.

**Credit Hour:** 1

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**V\_M\_S 6100: Evaluation of Animal Disease Monitoring and Surveillance Pro**

(cross-leveled with V\_M\_S 8100). This course will allow students to articulate and share what they have learned in coursework and to supplement previous learning by exploring additional areas of knowledge relevant to their readiness for professional practice. It will enable students to test theoretical knowledge against real life practical experiences, and to integrate and refine basic and advanced concepts, values, and methods acquired during the professional education. Graded on A-f only.

**Credit Hours:** 2

**Prerequisites:** second year standing in the DVM program, enrollment in the dual degree MPH program, or consent of instructor

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**V\_M\_S 6110: Theriogenology**

Reproductive function, estrous cycle manipulation, and breeding of individual domestic animals and herds. Pathogenesis, diagnosis and management (medical and surgical) of common reproductive disorders.

**Credit Hours:** 3

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**V\_M\_S 6120: Veterinary Ophthalmology**

Covers examination, diagnostic procedures and treatment of important eye diseases of domestic animals.

**Credit Hour:** 1

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**V\_M\_S 6130: Fundamentals of Veterinary Business Management**

To realistically present to the second-year veterinary student a basic explanation of the essential need for strong base of knowledge pertaining to business and management in order to be successful in the veterinary profession.

**Credit Hour:** 1

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**V\_M\_S 6140: Nutrition with Laboratory**

Nutrition of companion and food producing animals and nutritional principles important to veterinary medicine. Subjects presented include feeding of animals for maintenance of healthy conditions during all

life stages, evaluation of foods and supplements, and methods of diet formulation and evaluation.

**Credit Hour:** 1.5

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**V\_M\_S 6151: Equine Medicine and Surgery**

Covers the fundamentals of diseases of the equine species. Case Management approaches are utilized to provide examples of disease conditions.

**Credit Hours:** 2

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**V\_M\_S 6152: Equine Medicine and Surgery**

Continuation of V\_M\_S 6151. Covers the fundamentals of diseases of the equine species. Case Management approaches are utilized to provide examples of disease conditions.

**Credit Hour:** 1.5

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**V\_M\_S 6400: Food Animal Medicine and Surgery I**

Clinical Rotation. Technical, diagnostic and therapeutic procedures common to the practice of large animal medicine and surgery. Experience in the operation of a large animal hospital and farm outpatient practice.

**Credit Hours:** 6

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**V\_M\_S 6411: Small Animal Internal Medicine**

Clinical rotation in small animal internal medicine for veterinary degree students. Students will obtain history and conduct physical examination of client-owned dogs and cats. After reviewing findings with faculty, they will perform diagnostic tests and carry out treatments. Graded on A-F basis only. May be repeated for credit.

**Credit Hour:** 1-99

**Prerequisites:** the entire pre-clinical curriculum of the CVM must be completed before taking this course; that is, students must have successfully completed the DVM curriculum through instructional period 12. Restricted to students in years 3 and 4 of the DVM curriculum

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**V\_M\_S 6412: Small Animal Community Practice**

Clinical rotation in small animal general medicine and surgery for veterinary degree students. Students will obtain history and conduct physical examination of client-owned dogs and cats. After reviewing findings with faculty, they will perform diagnostic tests and carry out treatments. The entire course may not be repeated for credit but smaller sections may with approval.

**Credit Hour:** 1-99

**Prerequisites:** the entire pre-clinical curriculum of the CVM must be completed before taking this course; students must have successfully completed the DVM curriculum through instructional period 12. Restricted to students in years 3 and 4 of the DVM curriculum

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**V\_M\_S 6413: Small Animal Behavior and Dermatology**

The Small Animal Behavior and Dermatology Rotation is designed to give students experience in the evaluation and management of dogs and cats with behavioral problems and to provide students with hands-on experience in the evaluation, diagnosis and management of dermatology cases. During the rotation the student will develop skills in history taking, behavioral evaluations, dermatology examinations and diagnostic

procedures and in the management of behavioral and dermatology cases. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to third- and fourth-year Veterinary Medicine students

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**V\_M\_S 6420: Equine Medicine and Surgery I**

Clinical rotation. Technical, diagnostic and therapeutic procedures common to equine practice. Emphasis on fundamental principles.

**Credit Hours:** 6

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**V\_M\_S 6432: Small Animal Soft Tissue Surgery**

Clinical rotation. Diagnostic procedures and surgical techniques applicable to companion animal soft tissue surgery. Practical experience in the operation of a small animal soft tissue surgical practice.

**Credit Hours:** 2

**Prerequisites:** completion of Vet Med years 1 and 2 and specifically V\_M\_S 6072 or V\_M\_S 6073

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**V\_M\_S 6434: Small Animal Orthopedic Surgery**

Clinical rotation. Diagnostic procedures and surgical techniques applicable to companion animal orthopedic surgery. Practical experience in the operation of a small animal orthopedic surgical practice. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** completion of Veterinary Medicine years 1 and 2

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**V\_M\_S 6436: Veterinary Neurology/Neurosurgery**

Clinical rotation. A hands-on applied clinical rotation to provide experience in examination and diagnosis of domestic animals with neurologic disease.

**Credit Hours:** 2

**Prerequisites:** completion of preclinical curriculum of Veterinary Medicine years 1 and 2. Restricted to VM3 and VM4 students

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**V\_M\_S 6441: Clinical Radiology I**

Clinical rotation. Fundamentals of radiology: indications for use, techniques, pathophysiologic alterations, interpretation of results, patient aftercare, protective measures against radiation hazards.

**Credit Hours:** 3

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**V\_M\_S 6442: Clinical Anesthesiology I**

Clinical rotation. Fundamentals of anesthesiology: indications for use techniques, pathophysiologic alterations, and interpretations of results, patient aftercare.

**Credit Hours:** 3

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**V\_M\_S 6450: Theriogenology I**

Clinical rotation. Practical experience in reproductive techniques, obstetrics, breeding soundness and herd reproductive problems.

**Credit Hours:** 2

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**V\_M\_S 6460: Clinical Ophthalmology I**

Clinical rotation. Practical application in problem solving and medical and surgical management of eye conditions of domestic animals.

**Credit Hours:** 2

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**V\_M\_S 6490: Small Animal Specialty Medicine I**

Clinical rotation in small animal oncology. Taught in the clinical setting using animals presented to the VMTH for evaluation and treatment of oncologic diseases.

**Credit Hours:** 2

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**V\_M\_S 6700: Food Animal Medicine and Surgery II Elective**

Additional food animal experience located off-site or on-site under special circumstances.

**Credit Hour:** 2-6

**Prerequisites:** V\_M\_S 6400. Consent required

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**V\_M\_S 6710: Small Animal Medicine II Elective**

Clinical rotation offered to VM3 and VM4 students. Opportunity for concentrated study and experience in medical areas. Enrollment subject to approval of course coordinator.

**Credit Hour:** 2-6

**Prerequisites:** The entire pre-clinical curriculum of the CVM must be completed before taking this course

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**V\_M\_S 6711: Small Animal Internal Medicine Elective Clinical or Research Rotation**

Clinical rotation in SAIM to focus on either clinical diagnostics and therapy, or research relevant to clinically important issues of pet animals.

**Credit Hours:** 2

**Prerequisites:** Veterinary curriculum up until the clinical rotations; must be VM3 or VM4 students

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**V\_M\_S 6712: Private Practice Small Animal Internal Medicine Elective**

Clinical rotation. Improve critical thinking skills in disease diagnosis and management for internal medicine of dogs and cats. Clinical rotation off-site at Associated Veterinary Specialists. Teaching by cases seen by AVS clinician on duty. Student participation determined by supervising clinician.

**Credit Hours:** 2

**Prerequisites:** All required VM1 and VM2 courses. VM3 or VM4 standing required

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**V\_M\_S 6713: Shelter Medicine Elective at the Humane Society of Missouri**

Comprehensive shelter medicine rotation at Humane Society of Missouri.

**Credit Hour:** 2-6

**Prerequisites:** Restricted to VM3 and VM4 students

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**V\_M\_S 6714: Shelter Medicine Clinical Elective**

The shelter medicine clinical elective provides the veterinary student with a diverse training experience in shelter medicine accompanied by

exposure to the critical aspects of animal sheltering. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to Veterinary Medicine students

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**V\_M\_S 6720: Equine Medicine and Surgery II Elective**

Clinical rotation. Continuation of V\_M\_S 6420. Open to VM3 and VM4 students, subject to approval of course coordinator. Opportunity for concentration in specific area of interest.

**Credit Hour:** 2-6

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**V\_M\_S 6732: Small Animal Soft Tissue Surgery II Elective**

Clinical rotation. Opportunity for concentrated study and advanced soft tissue surgical experience.

**Credit Hours:** 2

**Prerequisites:** V\_M\_S 6432 and completion of year VM1 and VM2

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**V\_M\_S 6734: Small Animal Orthopedic Surgery II Elective**

Clinical rotation. Opportunity for concentrated study and advanced orthopedic surgical experience.

**Credit Hours:** 2

**Prerequisites:** completion of VM years 1 and 2

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**V\_M\_S 6736: Veterinary Neurology/ Neurosurgery-Elective**

A hands-on applied clinical rotation to provide experience in examination and diagnosis of domestic animals with neurologic disease.

**Credit Hours:** 2

**Prerequisites:** completion of preclinical curriculum of Veterinary Medicine years 1 and 2. Restricted to VM3 and VM4 students

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**V\_M\_S 6741: Clinical Radiology II Elective**

Clinical rotation. Continuation of V\_M\_S 6441.

**Credit Hour:** 1-99

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**V\_M\_S 6742: Clinical Anesthesiology II Elective**

Clinical rotation. Continuations of V\_M\_S 6442. This course will focus on anesthetizing and monitoring the more challenging anesthetic cases during rotation. Required projects include a review paper on a relevant topic of choice, a written case report and assistance in research activities.

**Credit Hour:** 1-99

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**V\_M\_S 6743: Radiology - Special Imaging Elective**

Introduction to special imaging modalities including ultrasound, computed tomography, magnetic resonance and nuclear scintigraphy with emphasis towards small animal patients. A major part of the course will be devoted to recognition and interpretation of abdominal ultrasound. Graded on A-F basis only. Prerequisites: V\_M\_S 6020; VM III and VM IV

**Credit Hour:** 2-3

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**V\_M\_S 6750: Theriogenology II Elective**

Continuation of V\_M\_S 6450. Opportunity for concentrated study and experience. An elective, subject to approval of course coordinator and faculty member(s) who supervise student's work.

**Credit Hour:** 1-99

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**V\_M\_S 6751: External Food Animal Service and Theriogenology Teaching Program**

Additional options for off-site clinical training in Theriogenology and Food Supply Veterinary Medicine beyond the core curriculum.

**Credit Hour:** 1-99

**Prerequisites:** V\_M\_S 6081, V\_M\_S 6082, V\_M\_S 6110, and VM3 or VM4 students

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**V\_M\_S 6760: Small Animal Nutrition**

Clinical rotation designed to allow students to gain hands-on experience with canine and feline nutrition.

**Credit Hours:** 2

**Prerequisites:** V\_M\_S 6140. Restricted to VM3 or VM4

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**V\_M\_S 6800: Clinical Ophthalmology II Elective**

Clinical rotation offered to VM 3 and VM 4 students. Opportunity for concentrated study and experience. Subject to approval of course coordinator and faculty member(s) who supervise student's work.

**Credit Hour:** 1-99

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**V\_M\_S 6810: Cardiology II Elective**

Cardiology course consists of a three-week clinical rotation in the small animal clinic. Duties include primary care receiving and patient care with clinical case work-up. Additional responsibilities include attendance at clinical rounds and participating in related clinical activities.

**Credit Hour:** 1-99

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**V\_M\_S 6820: Small Animal Emergency and Critical Care**

Clinical rotation offered to VM 3 and VM 4 students. Opportunity for concentrated study and experience in small animal emergency and critical care.

**Credit Hour:** 1-99

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**V\_M\_S 6821: Small Animal Emergency Critical Care Elective**

Clinical rotation providing focused experience in care management and issues pertinent to small animal emergency and critical care. Graded on A-F basis only. May be repeated for credit.

**Credit Hour:** 2-6

**Prerequisites:** Restricted to levels VM 3 or VM 4

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**V\_M\_S 6830: Food Animal Production Medicine**

Clinical rotation will focus primarily on beef, dairy, and swine with emphasis on preventive medicine by looking at the herd incorporating spreadsheet and the date base application analysis. The course participants will visit various operations and write reports to the producer, which will enhance their farms.

**Credit Hour:** 1-99

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**V\_M\_S 6850: Clinical Oncology**

Clinical rotation in small animal oncology. Taught in the clinical setting using animals presented to the VMTH for evaluation and treatment of oncologic diseases.

**Credit Hour:** 1-99

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**V\_M\_S 6920: Equine Techniques Elective**

This course provides an opportunity for equine oriented veterinary students wishing to enhance their understanding of the clinical techniques used in equine veterinary medicine and gain hands on practical experience in selected clinical techniques. It is offered as a 2 credit, 2 week elective clinical rotation.

**Credit Hours:** 2

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**V\_M\_S 6986: Advanced Clinical Neurology and Neurosurgery**

This is a supplement to neurology taught in the small animal course to improve preparedness for clinical practice. Topics include neurolocalization techniques, electrodiagnostic and CT/MR interpretation, wider exposure to differential diagnosis, and neurosurgical principals.

**Credit Hour:** 1

**Prerequisites:** Passing grade in V\_M\_S 6040

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**V\_M\_S 6987: Problem-Based Learning Clinic Preparation**

This course is designed to prepare the VM 3 student about to enter clinics for a systematic approach to a clinical case. Emphasis will be placed on developing focused problem and differential lists, and logical choices of diagnostic tests. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** VM 3 level

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**V\_M\_S 6988: Small Animal Clinical Nutrition**

Application of nutritional principles to prevention and management of common diseases of dogs and cats. Including review of nutrients, commercial and home diets, and basic pathophysiology of nutritional aspects of disorders seen in companion animal practice.

**Credit Hour:** 1

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**V\_M\_S 6989: Advanced Oncology of Animals**

Expanded discussion of veterinary oncology topics not covered in the oncology section V\_M\_S 6050. Important for veterinary students who intend to enter private or academic practice and manage oncology cases, specific tumor types, diagnostic tools, and treatment modalities.

**Credit Hour:** 1

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**V\_M\_S 6990: Zoological Medicine**

Interested students of Zoological Medicine would significantly broaden their understanding of this discipline and increase the likelihood they could enter zoological veterinary practice or a zoological veterinary medical residency. Graded on A-F basis only

**Credit Hours:** 2

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**V\_M\_S 6991: Advanced Equine Lameness with Laboratory**

Learn to recognized forelimb and hind limb lameness through diagnostic techniques for localization of lameness. Gain practical experience in limb support for sever musculoskeletal injuries. One surgical laboratory using equine cadaver limbs to illustrate and practice common distal limb surgeries.

**Credit Hour:** 1

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**V\_M\_S 6993: Advanced Veterinary Anesthesia**

Advanced Veterinary Anesthesia

**Credit Hour:** 1

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**V\_M\_S 6994: Advanced Techniques in Small Animal Surgery with Laboratory**

Course designed for students who want exposure to small animal surgical techniques above and beyond the experience gained from the basic surgical training in V\_M\_S.

**Credit Hour:** 1

**Prerequisites:** V\_M\_S 6072; limited enrollment

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**V\_M\_S 6995: Clinical Cardiology**

Students will utilize a combination of lectures, hands on laboratories, and problem based clinical correlates covering cardiovascular physical examination, radiographic and electrocardiographic interpretation, and the pathophysiology and management of congenital and acquired cardiac diseases.

**Credit Hour:** 1

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**V\_M\_S 6996: Advanced Dermatology**

This is a lecture course that will supplement and expand upon the canine and feline dermatology principles covered in the general pathology and small animal medicine courses. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** V\_M\_S 6050

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**V\_M\_S 6997: Food Animal Diagnostic Exercises**

Discussion based course designed to integrate and review didactic coursework to increase knowledge of livestock diseases. A list of appropriate differential diagnoses will be generated for each problem.

**Credit Hour:** 1

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**V\_M\_S 6998: Small Animal Behavioral Medicine**

Small Animal Behavioral Medicine

**Credit Hour:** 1

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**V\_M\_S 6999: Food Animal Surgery Laboratory**

Routine food animal surgical procedures laboratory.

**Credit Hour:** 1

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**V\_M\_S 7301: Topics in Veterinary Medicine and Surgery**

Organized study of select topics.

**Credit Hour:** 1-99

**Prerequisites:** junior standing and instructor's consent

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**V\_M\_S 7320: Fundamentals of Small Animal Emergency and Critical Care**

(cross-leveled with BIOMED 4320). This course will provide students with the knowledge and skills to assist in a small animal medical emergency and critical care facility.

**Credit Hours:** 3

**Prerequisites:** a bachelor's degree in biological science or veterinary technology, or DVM degree, or instructor's consent

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**V\_M\_S 7328: Introductory Radiation Biology**

(same as RADIOL 7328, NU\_ENG 7328, BIO\_SC 7328).

**Credit Hours:** 3

**Prerequisites:** junior standing Sciences/Engineering; one course in biological sciences and physics/chemistry; or instructor's consent

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**V\_M\_S 7355: Advanced Techniques in Radiology**

Special application to domestic animals.

**Credit Hour:** 1-99

**Prerequisites:** D.V.M

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**V\_M\_S 7510: Equine Clinical Anatomy: Forelimbs**

Basic Foundation in selected aspects of equine clinical anatomy for veterinary technicians, pre-veterinary students, and other students wishing to enhance their understanding of anatomical structure of the horse's forelimbs.

**Credit Hour:** 1

**Prerequisites:** A bachelor's degree in a biological science or veterinary technology, or DVM degree, or instructor's consent

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**V\_M\_S 8021: Neurology Journal Review**

Weekly journal review and seminar on current topics in veterinary neurology, related clinical disciplines and basic neurosciences. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** DVM degree

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**V\_M\_S 8022: Internal Medicine Clinicopathologic Conference**

Advanced discussion of small animal medicine cases with an emphasis on pathophysiology and clinicopathologic findings. Graded on S/U basis only.

**Credit Hour:** 1

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**V\_M\_S 8023: Internal Medicine Journal Review**

Resident led review of the current veterinary internal medicine literature. Graded on S/U basis only.

**Credit Hour:** 1

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**V\_M\_S 8024: Medicine-Surgery-Pathology Conference**

This is a case-based course in which clinical and pathological findings of interesting cases from the VMTH are presented by those who treated and interpreted the case. Dogs, cats, cows, horses, and small ruminants are included with occasional non-traditional species. Graded on S/U basis only.

**Credit Hour:** 1

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**V\_M\_S 8025: Equine Medicine Journal Review**

Aid Residents in preparing for board certification in ACVIM and ACVS. Articles pertaining to current equine veterinary literature are reviewed on a weekly basis. Participants select, distribute articles to group prior to

meeting, then present short review with a discussion following. Graded on S/U basis only.

**Credit Hour:** 1

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**V\_M\_S 8026: Surgery Journal Review**

Resident led review of the current veterinary surgical peer-reviewed literature. Graded on S/U basis only.

**Credit Hour:** 1

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**V\_M\_S 8027: Food Animal Medicine Journal Review**

Critical review of the scientific literature with a focus on ACVIM board preparation. May also be used as a forum for information exchanged relevant to ACVIM board preparation. Graded on S/U basis only.

**Credit Hour:** 1

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**V\_M\_S 8028: Cardiovascular Medicine Journal Review**

Resident led review of the current veterinary cardiovascular medicine literature. Graded on S/U basis only.

**Credit Hour:** 1

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**V\_M\_S 8029: Emergency and Critical Care Journal Review**

This course will concentrate on review of emergency and critical care literature. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** DVM degree

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**V\_M\_S 8030: Seminars in Vet. Med. & Surgery: Ophthalmology Pathology Seminar**

Review of clinical cases presented in two formats: histopathology slides and kodachrome slides. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** DVM degree or equivalent and acceptance into an ophthalmology residency program

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**V\_M\_S 8031: Sem. in Vet. Med & Surgery: Ophthalmology Seminar & Journal Review**

Weekly journal review and seminar on current topics in veterinary ophthalmology, review of pertinent literature in human ophthalmology, and review of ophthalmic texts. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** DVM or equivalent degree and acceptance into the ophthalmology residency program

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**V\_M\_S 8032: Seminars in Veterinary Anesthesiology**

A journal review will focus on advances in veterinary anesthesiology, pharmacology, and physiology. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** DVM and graduate school enrollment or instructor's consent

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**V\_M\_S 8033: Seminars in Clinical Sciences-Equine Surgery Journal Review**

Journal review will focus on advances in equine surgery and will consist of a review of recent manuscripts pertaining to equine surgery in current

journals and review of pertinent book chapters. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** DVM degree and instructor's consent

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**V\_M\_S 8034: Seminars in Veterinary Radiology**

This journal review will focus on advances in veterinary radiology, ultrasound and alternate imaging. Current and past literature will be reviewed weekly and will be chosen by the class coordinator. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** DVM and graduate school enrollment or instructor's consent

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**V\_M\_S 8036: Advanced Physiology of the Dog and Cat**

To understand advanced medical physiology: cell physiology, muscle function, cardiac and circulatory physiology, renal function, distribution of fluid in the body, functions of red and white blood cells, mechanisms of hemostasis, resistance to infection and pulmonary physiology. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Instructor's consent

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**V\_M\_S 8040: Advanced Small Animal Clinical Nutrition**

Advanced study of veterinary clinical nutrition in the dog and cat. Includes review of applied biochemistry, nutrients, and feeding principles along with pathophysiology and nutritional management of common diseases. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Introductory Veterinary Nutrition

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**V\_M\_S 8090: Research in Veterinary Medicine and Surgery (Thesis)**

Thesis research. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**V\_M\_S 8100: Evaluation of Animal Disease Monitoring and Surveillance Programs**

This course will allow students to articulate and share what they have learned in coursework and to supplement previous learning by exploring additional areas of knowledge relevant to their readiness for professional practice. It will enable students to test theoretical knowledge against real life practical experiences, and to integrate and refine basic and advanced concepts, values, and methods acquired during the professional education. Graded on A-F basis only.

**Credit Hours:** 2

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**V\_M\_S 8401: Topics in Veterinary Clinical Sciences**

Current topics, infrequently-taught courses, or new courses not yet designated by a permanent course number. Some sections may be graded A-F only or S/U only.

**Credit Hour:** 1-3

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**V\_M\_S 8402: Seminar in Veterinary Clinical Sciences**

Graduate seminars and conferences with a focus on current literature within a specialty area. Graded on S/U basis only.

**Credit Hour:** 1

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**V\_M\_S 8405: Comparative Respiratory Pathophysiology**

A consideration of clinical pathophysiology of the respiratory system relative to diseases of the thorax and clinical anesthesiology.

**Credit Hour:** 1

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**V\_M\_S 8406: Topics in Veterinary Medicine and Surgery**

Current topics, infrequently taught courses, or new courses not yet designated by a permanent course number.

**Credit Hour:** 1-99

**Prerequisites:** must be a DVM or be enrolled in the Veterinary curriculum; instructor's consent

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**V\_M\_S 8410: Veterinary Medicine and Surgery Research Seminar**

Current research in veterinary medicine and surgery. Literature reviews and presentation or original graduate student research. Graded on S/U basis only.

**Credit Hour:** 1

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**V\_M\_S 8411: Clinical Veterinary Endocrinology**

A 2-hour course for post-DMV graduate students. It will focus on clinically relevant physiology, pathophysiology, and diagnostic evaluation of hormone systems.

**Credit Hours:** 2

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**V\_M\_S 8413: Equine Internal Medicine**

The purpose of the course is to aid in the preparation of the Resident for board certification in the American College of Veterinary Internal Medicine-LAIM. Current concepts in the pathophysiology, diagnosis and management of medical disorders of horses.

**Credit Hours:** 2

**Prerequisites:** DVM degree or equivalent

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**V\_M\_S 8415: Advanced Veterinary Neurology**

Basic neuroscience as it relates to clinical neurology and the pathophysiology of diseases of the brain, spinal cord, peripheral nerve and muscle in domestic animals. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** DVM degree

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**V\_M\_S 8417: Advanced Veterinary Internal Medicine - Clinical Oncology**

Provides graduate students in the clinical and basic sciences alike with a working knowledge of the biological mechanisms of cancer development and progression and the related approaches to cancer prevention and therapy. It is assumed that students will have a strong background in biology as a foundation for discussion.

**Credit Hours:** 2

**Prerequisites:** DVM or equivalent degree recommended

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**V\_M\_S 8418: Advanced Veterinary Internal Medicine: Food Animal Medicine**

Current concepts in the pathophysiology, diagnosis and management of medical disorders, diseases of the limbs, and infectious diseases of cattle and food producing animals.

**Credit Hours:** 2

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**V\_M\_S 8419: Advanced Topics in Cancer Biology and Clinical Oncology**

This course will provide students with a knowledge base in cancer cell biology that may be applied to the practice of clinical oncology. Monthly clinically-oriented seminars by invited speakers will be preceded by a weekly in-depth review of the basic science related to the seminar topic.

**Credit Hours:** 2

**Recommended:** MD or DVM

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**V\_M\_S 8421: Advanced Veterinary Surgery: Small Animal Surgery**

Current concepts in the pathophysiology, diagnosis and management of surgical disease of the dog and the cat. Includes laboratories of advanced surgical techniques.

**Credit Hour:** 2-4

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**V\_M\_S 8423: Comparative Arthrology**

Lectures and discussion covering anatomy, physiology, biomechanics, pathophysiology, and clinical aspects of mammalian diarthrodial joints.

**Credit Hours:** 3

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**V\_M\_S 8425: Advanced Veterinary Surgery: Equine Surgery**

Current concepts in the pathophysiology, diagnosis and management of surgical disorders of the horse. Taught yearly as sections A, B, C. Repeatable to a maximum of 10 credit hours (individual sections may be taken once).

**Credit Hour:** 2-4

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**V\_M\_S 8426: Advanced Veterinary Surgery - Ophthalmic Surgery**

Surgery labs consisting of 2-4 hours of surgical instruction per week. Graded on A-F basis only.

**Credit Hour:** 2-4

**Prerequisites:** DVM or equivalent degree and acceptance into the ophthalmology residency program

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**V\_M\_S 8431: Research Methods and Data Analysis**

A consideration of research methods, data analysis, and practical approaches to analyzing data sets derived from veterinary and biomedical studies.

**Credit Hours:** 2

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**V\_M\_S 8432: Applied Statistics and Informatics**

Educate students in the practical application of statistics and information research tools. Students will learn about application of statistical modeling to biomedical research. They will be trained to use statistical software programs and then use those skills to analyze data sets. Additionally, students will learn about the use of informatics systems for researching scientific questions, data searching, and data dissemination. At the end

of the course successful students should be able to develop and perform statistical analyses appropriate for most basic research study designs. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** DVM or equivalent degree and enrollment in a veterinary residency program unless an exception is approved by the course coordinator

**Recommended:** Successful completion of a general statistics course is highly recommended prior to taking this course

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**V\_M\_S 8435: Veterinary Clinical Sciences: Clinical Immunology**

Advanced concepts in veterinary immunology and immunopathology.

**Credit Hours:** 2

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**V\_M\_S 8437: Advanced Topics in Veterinary Medicine (Nuclear Medicine)**

An in-depth review of veterinary nuclear medicine. Includes the physics of nuclear medicine, common imaging techniques, common radiopharmaceuticals, radiopharmaceutical kinetic evaluation and some common physiological applications.

**Credit Hour:** 1

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**V\_M\_S 8439: Advanced Veterinary Ultrasonography**

Advanced concepts in veterinary ultrasonography; including ultrasound and Doppler physics, instrumentation, examination methodology, and interpretation of studies.

**Credit Hour:** 2-3

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**V\_M\_S 8440: Adv Veterinary Clinical Sciences: Advanced Clinical Ophthalmology**

Case-based discussion course. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** DVM or equivalent degree and acceptance into the ophthalmology residency program

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**V\_M\_S 8445: Veterinary Critical Care and Emergency Medicine**

Advanced study of veterinary critical care and emergency medicine and surgery focusing on current research and literature as well as clinical application.

**Credit Hour:** 2-3

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**V\_M\_S 8450: Research in Veterinary Medicine and Surgery (non-thesis)**

Non-Thesis research.

**Credit Hour:** 1-99

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**V\_M\_S 8485: Problems in Veterinary Clinical Sciences**

Supervised individuals studies arranged with a faculty member and approved by the advisory committee. Some sections may be graded A-F only or S/U only.

**Credit Hour:** 1-3

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**V\_M\_S 8487: Nuclear Medicine**

Principles of radiation detection instrumentation, monitoring radiological safety and diagnostic procedures used on veterinary nuclear medicine.

**Credit Hours:** 3

**Prerequisites:** one year College Physics, D.V.M. degree, and departmental consent

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**V\_M\_S 8488: Radiation Therapy**

Intermediate level course to review basic and advanced concepts in radiation biology, radiation physics, and clinical application of ionizing radiation for the treatment of cancer Teletherapy, brachytherapy and radiation oncology are covered.

**Credit Hours:** 3

**Prerequisites:** A basic course in radiation physics/dosimetry, radiation biology and medical oncology. One year college physics, DVM degree and departmental consent

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**V\_M\_S 8489: Veterinary Radiographic Physics**

In depth review of the fundamental principles of radiographic physics, with an emphasis on preparation for the American college of Veterinary Radiology board examination. Graded on an S/U basis only.

**Credit Hour:** 1

**Prerequisites:** DVM and graduate school enrollment or instructor's consent

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**V\_M\_S 8640: Biological Radiochemistry**

(same as CHEM 8640). Covers the interaction of radiation with biological material. Aspects of radiation physics, chemistry, and biology are discussed, along with the use of radiation in imaging and therapy. Graded on A-F basis only.

**Credit Hours:** 3

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## Veterinary Pathobiology Courses

**V\_PBio 2001: Fundamentals of Microbiology**

This course, which is designed for microbiology or life sciences majors, provides an overview of the classification, structure, metabolism, genetics, and isolation and identification of the principal groups of bacteria. Additional topics to be covered include an introduction to viruses, protozoa, and fungi, the nature of infectious diseases, and the immune response. The course includes both lecture and laboratory.

The laboratory component of the course is intended to provide students with a broad background in microbiology laboratory practice and theory. Students will learn fundamentals of light microscopy, bacterial culture techniques, and methods to isolate and identify microorganisms. Other laboratory testing platforms, such as PCR and ELISA, will be covered. The laboratory will meet for two hours, twice a week. Graded on A-F basis only.

**Credit Hours:** 5

**Recommended:** BIO\_SC 1500 or equivalent

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**V\_PBio 2950: Undergraduate Research in Microbiology**

Research for students in which independent research is less than 50% of total. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** Departmental consent



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**V\_PBio 3345: Fundamentals of Parasitology**

This course will provide a basic understanding of protozoan and metazoan parasites as well as the vectors that transmit these parasites. Special emphasis will be placed on those parasites and vectors of major medical/veterinary consequence throughout the world. Because parasites cause significant morbidity and mortality throughout the world, the main focus of lectures will be on the biology and epidemiology of parasitic diseases and on the parasite-host association. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1030 or BIO\_SC 1500 or consent of instructor

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**V\_PBio 3551: Introduction to Immunology I**

Comprehensive introduction to the basic principles of immunology. The course is designed for undergraduates majoring in biology, biochemistry or health professions. Introduction to cells and organs of the immune system, innate and adaptive immunity, development, activation and effector functions of lymphocytes, hypersensitivity, host response to infection and vaccination, autoimmunity and tumor immunology. Introduction to Immunology 1. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** BIO\_SC 2200 and BIO\_SC 2300

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**V\_PBio 3554: Introduction to Virology**

Comprehensive introduction to the basic principles of virology. The course is designed for undergraduates majoring in biology, biochemistry, or health professions. The course covers general virology including the molecular structure of viruses, the multiplication strategies of the major virus families, and viral latency, persistence, and oncology. The major families of the bacterial, plant, and animal viruses are discussed. Human viruses and infectious diseases are emphasized. Viral immunology, viral defenses, viral vaccines and antiviral compounds will also be addressed. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** BIO\_SC 3750, BIO\_SC 2300

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**V\_PBio 3557: Microbial Pathogenesis I**

This course is the first of two courses that examine the relationships between microbes and their hosts that lead to human disease. Emphasis is placed on bacterial and fungal infection, and the basic mechanisms of pathogenesis that lead to disease. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200, BIO\_SC 3750, or consent of instructor

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**V\_PBio 3558: Microbial Pathogenesis II**

This course is the second of two courses that examine the relationships between pathogens and their hosts that lead to human disease. Emphasis is placed on viral and parasite infection and the basic properties of pathogenesis. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3750, V\_PBio 3554, or consent of instructor

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**V\_PBio 3560: Microbial Physiology**

The course will focus on introducing the basic principles of the functions and activities of microorganisms and we will discuss on the normal cellular mechanisms associated with growth, metabolism, reproduction

and survival. The course will cover our understanding and knowledge about the way in which a living microorganism functions including all physical and chemical processes. We will also focus on anatomy i.e., physical characteristics, growth and living, metabolism, chemical processes and control functions and functional entities. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** A course in microbiology or biochemistry or permission of the instructor

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**V\_PBio 3600: Bacterial Genetics and Genomics**

This course will provide undergraduate students with an understanding of bacterial genes, genomes and genetic systems that will serve as both a 'stand-alone' course as well as one that synergizes with courses taken by students pursuing degrees in Microbiology, Biochemistry, Biological Sciences, Food Science, Animal Sciences, Health Professions or students interested in the 'One Health' paradigm. The course covers diverse aspects of bacterial genetics and genomics, beginning with asking 'what is a gene?' through understanding how this genetic information is stored and processed into biological function in a highly regulated manner. The course will also familiarize students with the discoveries that have powered the field of molecular biology (e.g. cloning, DNA sequencing and CRISPR-mediated gene editing) to current cutting-edge research that is driving advances at the interface of microbial science and engineering, as well as microbiomes. Knowledge gained by completion of this course will be of value to those interested in basic microbiology, bacterial pathogenesis, environmental and food microbiology. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** V\_PBio 2001 or BIO\_SC 3750 or equivalent

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**V\_PBio 3650: Applied Microbiology and Biotechnology**

Introduction to the basic principles of molecular microbiology in relation to the industrial applicability. The course will focus on microorganisms commonly used in industrial microbiology and biotechnology with an emphasis on the biological and molecular basis of productivity. We will also focus on nutrition of industrial organisms and metabolic pathways for the biosynthesis of industrial microbiology products such as engineered or designer proteins, antibiotics and products of medical importance. Manipulation of the genome of industrial organisms will be discussed in the context of making beneficial products. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** BIO\_SC 3750 or V\_PBio 2001 or a course in microbiology

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**V\_PBio 3658: Public Health Microbiology**

Epidemiology of transmissible diseases including pathogenic characteristics of the infectious organism, modes of transmission, mechanism of infection, diagnostic aids, effective treatments, immunizing procedures, and methods of preventing infection. Subjects covered will include emerging infectious diseases, vector borne diseases, control of infectious human disease, water and food borne disease, zoonotic diseases, sexually transmitted diseases and antibiotic resistance. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1500 or equivalent

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**V\_PBio 3700: Medical and Veterinary Entomology**

Ecology and systematics of arthropods that affect the health of animals and people, including insect and tick vectors of pathogens causing tropical and temperate diseases such as African sleeping sickness, anaplasmosis, babesiosis, bartonellosis, Chagas' disease, chikungunya, dengue, ehrlichiosis, filariasis and heartworm disease, leishmaniasis, Lyme disease, malaria, mosquito-borne encephalitis, plague, rickettsiosis, theileriosis, tick-borne encephalitis and yellow fever. Emphasis will be placed on arthropod identification and effects of arthropods and arthropod-borne pathogens on vertebrate hosts. Graded on A-F basis only. Prerequisites: Completion of 60 credit hours and one of the following: BIO\_SC 1500 or equivalent, or consent of instructor.

**Credit Hours:** 4

**Recommended:** V\_PBio 3345 or PLNT\_S 3710

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**V\_PBio 4787: Historical, Societal and Ethical Topics in Medicine and Biomedical Research**

(cross-leveled with V\_PBio 7787). Advances in medicine, genetics, reproduction and technologies underpinning biomedical research can have profound implications not only scientifically but in terms of societal and ethical impact. Using several historical events such as the establishment of the first immortal cell line, the Tuskegee syphilis study, the eugenics movement in the United States and the cloning of Dolly the sheep as starting points, we will explore the historical, societal and ethical context and issues surrounding these events and relate them to current ethical and moral questions that have been generated by recent scientific and medical progress. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** B or better in BIO\_SC 2300 and BIO\_SC 2200

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**V\_PBio 4950: Advanced Undergraduate Research in Microbiology**

Research credit for students doing an independent microbiology research project under the guidance of a faculty member. Project must be arranged by student and faculty member prior to registration. May be repeated to a maximum of 6 hours. Student may choose the S/U grading option only if not using course to fulfill microbiology degree capstone and/or honors program requirements.

**Credit Hour:** 1-3

**Prerequisites:** Departmental consent

**Recommended:** Overall GPA of at least 2.75; 20 hours of Microbiology/Biological Sciences and/or Chemistry

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**V\_PBio 4970: Capstone Undergraduate Research in Microbiology**

Capstone research course for students doing an independent microbiology research project under the guidance of a faculty member. Project must be arranged by student and faculty member prior to registration. Includes presentation of the research as an oral presentation or poster at a scientific meeting OR writing up the research project in a scientific journal article format. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** 3 credit hours of V\_PBio 4950

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**V\_PBio 4980: Capstone Senior Seminar**

Readings and critical evaluation of selected problems and theories in microbiology. Integrates perspectives, methods, and topics from undergraduate courses. Requires written and oral presentations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Microbiology major, senior standing, or instructor's consent

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**V\_PBio 5511: Veterinary Immunology**

(same as V\_PBio 8451). Basic immunology techniques. Topics include innate and adaptive immunity, development of the immune system, induction and expression of the immune response, structure and function of antibodies, antigen-antibody reactions, the major histocompatibility complex, aspects of immunology in disease.

**Credit Hour:** 1.5

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**V\_PBio 5512: Veterinary Immunology**

(same as V\_PBio 8451). Continuation of V\_PBio 5511.

**Credit Hour:** 1.5

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**V\_PBio 5552: Veterinary Bacteriology with Laboratory**

Classification and properties of pathogenic bacteria and fungi of animals; relationship to public health; considers pathogenesis, immunology of infection. Instructional period 5.

**Credit Hours:** 3

**Prerequisites:** enrollment in the College of Veterinary Medicine

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**V\_PBio 5553: Veterinary Bacteriology II**

Continuation of V\_PBio 5552. Instructional period 6.

**Credit Hours:** 2.5

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**V\_PBio 5554: Veterinary Virology**

(same as V\_PBio 8454). Classification and properties of viruses. Considers the etiologic, pathologic and immunologic aspects of viral diseases of animals. Instructional periods 6 and 7.

**Credit Hours:** 2.5

**Prerequisites:** enrollment in the College of Veterinary Medicine

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**V\_PBio 5555: Epidemiology and Biostatistics with Laboratory**

(same as V\_PBio 8455). This course introduces students to methods of determining the influence of disease on populations and how this information is applied to individual animals. Biostatistics and evidence based medicine are also discussed in this course. The knowledge gained in this course is applied to reading professional literature during the course. Instructional period 4.

**Credit Hours:** 2

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**V\_PBio 5557: Veterinary Parasitology with Laboratory**

(same as V\_PBio 8457). Parasites and parasitic diseases of ruminants, horses, swine, dogs, cats, poultry and other animals. Includes classification, morphology, and bionomics of protozoa, helminths, and arthropods. Instructional period 6.

**Credit Hours:** 3

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**V\_PBio 5558: Veterinary Public Health**

(same as V\_PBio 8458). In this course students are introduced to the wide range of veterinary involvement in maintaining and assuring human health, nationally and globally. Topics discussed include: agencies

such as USDA, FDA, CDC, food safety and meat inspection, veterinary responsibility in identifying diseases, legal issues of drug use, and zoonotic diseases. Instructional period 7.

**Credit Hours:** 2

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**V\_PBio 5575: Veterinary Pathology with Laboratory**

General Pathology. Tissue reactions to various disease agents in domestic animals. Instructional period 5.

**Credit Hours:** 3

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**V\_PBio 5576: Veterinary Systemic and Special Pathology with Laboratories**

Special and systemic pathology. Tissue reactions to disease in special systems in domestic animals. Instructional period 6.

**Credit Hours:** 3

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**V\_PBio 5577: Veterinary Systemic and Special Pathology II with**

Follows the general pathology and continues the systemic pathology taught in V\_PBio 5576. The course, consisting of daily lectures and weekly laboratories, covers disease, mainly in domestic animals, of the following systems or organs: cardiovascular, respiratory, lymphoid, cutaneous, mammary, ophthalmic, and otic. Instructional period 7.

**Credit Hours:** 3

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**V\_PBio 5578: Veterinary Clinical Pathology with Laboratory**

Physiologic basis, interpretation and clinical application of laboratory assays in hematology, chemistry, cytology, and urinalysis, utilization of laboratory methods to define pathological states and to diagnose disorders of domestic animals. Instructional period 8.

**Credit Hours:** 3

**Prerequisites:** enrollment in College of Veterinary Medicine

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**V\_PBio 5579: Veterinary Genomics**

Study of genomes, an organism's entire set of the genetic information. Used for detection of pathogen genomes, and markers for mutation causing inherited disease. Instructional period 5.

**Credit Hour:** 1

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**V\_PBio 5601: Animals in Emergencies & Basic Emergency Response Training for Vet Students**

This course will enable veterinary and graduate students to understand their role in society during disasters and credential as responders. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Students must be enrolled in the College of Veterinary Medicine and pursuing a DVM degree or be a student pursuing an MPH degree. Instructor consent required for non-veterinary graduate students seeking MPH degrees

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**V\_PBio 5991: Introduction to Avian Medicine**

Introduction to Avian Medicine

**Credit Hour:** 1

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**V\_PBio 5995: Foundations in Veterinary Research and Discovery**

This course will introduce veterinary students to concepts of research including hypothesis development, experimental design, data interpretation, grantsmanship, responsible conduct of research, biomedical research careers and presentation and publication methods.

**Credit Hours:** 2

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**V\_PBio 6010: Laboratory Animal Medicine**

Principles of Veterinary Medicine applied to laboratory animals as pets and in research. Husbandry, handling and clinical techniques, diseases, and use as disease models are discussed. Instructional period 8.

**Credit Hour:** 1.5

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**V\_PBio 6647: Diagnostic Pathology and Special Species Medicine**

Application of laboratory techniques used to diagnose disease by macroscopic, microscopic, biochemical, microbiologic, and toxicologic findings. Case method of teaching. Domestic avian species and laboratory animals included. Six times yearly.

**Credit Hours:** 8

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**V\_PBio 6676: Laboratory Animal Medicine and Management Elective**

Elective offered 3rd- and 4th-year students, subject to approval of course coordinator and supervising faculty. Concentrated study/experience in laboratory animal disease(s)/colony management. Available to veterinarians as a continuing education program.

**Credit Hour:** 2-6

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**V\_PBio 6678: Epidemiology and Community Health**

Elective covering advanced aspects of epidemiology and community health. Emphasizes problem solving and is designed to meet needs of the individual student. Instructional period arranged.

**Credit Hour:** 2-6

**Prerequisites:** V\_PBio 5558 or instructor's consent

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**V\_PBio 6679: Diagnostic Pathology and Special Species Medicine**

Third- and fourth-year students. Elective. Approval of coordinator and supervisory staff. Continuation of V\_PBio 6647 with more depth. Available to D.V.M.'s as part of continuing education program.

**Credit Hour:** 2-6

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**V\_PBio 6684: Research Techniques in Veterinary Pathobiology**

Research Techniques in Veterinary Pathobiology

**Credit Hour:** 1-6

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**V\_PBio 7110: Veterinary Cytology**

(cross-leveled with BIOMED 4110). This course of Veterinary Cytology is designed to hone the skills of the practicing Veterinary Technician, Veterinary Student, or Veterinarian and assumes some basic knowledge of microscope usage and normal hematology. The review of normal cells will be minimal and emphasis will be placed on findings associated with inflammatory and neoplastic diseases. The graduate level course will include discussion of ancillary tests, special stains and treatment

alternatives. The focus will be on canine and feline diseases but some common equine and bovine disease.

**Credit Hours:** 2

**Prerequisites:** DVM or equivalent degree or instructor's consent

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**V\_PBio 7120: Principles of Toxicology**

(cross-leveled with BIOMED 4120). This course will provide an introduction to the general principles of toxicology, including the history and scope of the field; risk assessment and management; mechanisms of toxicology; the disposition of toxicants; non-target organ-directed toxicity; toxic responses of specific target organs; and various toxicological application, such as environmental toxicology.

**Credit Hours:** 3

**Prerequisites:** BS in Biology, Biochemistry, or equivalent, or permission of instructor

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**V\_PBio 7210: Animal Issues in Disasters**

(cross-leveled BIOMED 4210). Animal Issues in Disasters describes the various aspects of responding to disasters that involve animals. Government involvement, legal requirements, effects on the human-animal bond, preparation for disasters of different kinds, and impacts on animal-related businesses will be discussed.

**Credit Hour:** 1

**Prerequisites:** a bachelor's degree in a biological science or veterinary technology, or DVM degree, or instructor's consent

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**V\_PBio 7787: Historical, Societal and Ethical Topics in Medicine and Biomedical Research**

(cross-leveled with V\_PBio 4787). Advances in medicine, genetics, reproduction and technologies underpinning biomedical research can have profound implications not only scientifically but in terms of societal and ethical impact. Using several historical events such as the establishment of the first immortal cell line, the Tuskegee syphilis study, the eugenics movement in the United States and the cloning of Dolly the sheep as starting points, we will explore the historical, societal and ethical context and issues surrounding these events and relate them to current ethical and moral questions that have been generated by recent scientific and medical progress. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Consent of Instructor

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**V\_PBio 8090: Thesis Research in Veterinary Pathobiology**

Open to graduate students with requisite preparation. Research on specific animal diseases, prevention and treatment. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**V\_PBio 8401: Topics in Veterinary Pathobiology**

Courses with lectures in various topics in veterinary pathobiology will be given on a trial basis, depending on faculty expertise and student demand. Credit hours are usually 1 or 3. Specialized topics will be covered.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**V\_PBio 8402: Evidenced Based Medicine - Application from Literature Review**

This course is designed to teach students how to assess best current evidence in their primary area of study and apply it to their ongoing research and to patient-based delivery of care. Students are instructed in all aspects of medical literature review and complete weekly assignments to demonstrate their learning. The assignments and discussions with the instructor(s) include determination of appropriate application of the knowledge gained.

**Credit Hours:** 3

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**V\_PBio 8410: Seminar in Veterinary Pathobiology**

Discussion of current research methods in veterinary pathobiology.

**Credit Hour:** 1

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**V\_PBio 8431: Research Methods and Data Analysis**

Specific assignments on diagnostic methods including surgical pathology, necropsies, toxicology.

**Credit Hour:** 2-4

**Prerequisites:** departmental consent

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**V\_PBio 8432: Advanced Histopathology**

Advanced microscopic study of pathological tissues.

**Credit Hours:** 5

**Prerequisites:** departmental consent

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**V\_PBio 8434: Advanced Clinical Pathology**

Lecture/tutorial teaching; pathogenesis of clinical laboratory abnormalities in the common domesticated species. Emphasis is placed on mechanisms of disease and pathophysiology of the changes seen in each organ system.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**V\_PBio 8435: Advanced Microscopy in Veterinary Clinical Pathology**

Recognition and pathogenesis of abnormalities found via microscopic analysis of blood smears or cytology.

**Credit Hour:** 1

**Prerequisites:** V\_PBio 5578 and departmental consent; DVM or current enrollment in veterinary curriculum

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**V\_PBio 8436: Pathogenic Mechanisms in Veterinary Pathobiology**

This course will include disease mechanisms, described at the cellular and molecular level, which result in tissue morphologic (gross and microscopic) and clinical abnormalities. Examples of discussion topics include soluble mediators of inflammatory processes, host-agent interactions, and host defense mechanisms.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**V\_PBio 8445: Vectors and Vector-borne Diseases**

This course will focus on arthropod vectors (insects and ticks) and the medically important pathogens / diseases that they transmit, including

arboviruses, bacteria, protozoa and nematodes. An emphasis will be on the interactions between the vectors and disease-causing pathogens. Topics include: introductions to systematics, anatomy, physiology, life cycles, and ecology of vectors and classification and biology of the pathogens responsible for such diseases as dengue, yellow fever, malaria, leishmaniasis, lymphatic filariasis, etc. The focus will be not only on specific pathogen-vector interactions but also on big picture topics / discussions of vector competence, insecticide resistance, vector control (including genetically modified insects) and other current issues in vector biology research. Students will learn how these important vector-borne diseases are transmitted, how they are spread and introduced into new regions, and what control strategies exist or are currently under development. Students will realize what impact vector-borne diseases have on global human and animal health as well as develop and hone critical thinking skills.

**Credit Hours:** 3

**Prerequisites:** Graduate standing in the Life Sciences

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**V\_PBIO 8448: Molecular Methods in Nucleic Acids**

The course will focus on the most recent developments in technology related to eukaryotic and prokaryotic molecular biology and as analysis a manipulation of nucleic acids and their application to define structure, function and biosynthesis of macromolecules.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**V\_PBIO 8450: Non-Thesis Research in Veterinary Pathobiology**

Research not expected to terminate in dissertation.

**Credit Hour:** 1-99

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**V\_PBIO 8451: Introduction to Immunology**

(same as V\_PBIO 5511 and V\_PBIO 5512). Fundamentals of immunology as applied to domestic animals.

**Credit Hours:** 3

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**V\_PBIO 8452: Cell and Molecular Electron Microscopy**

Lecture class that describes the use of electron microscopy (transmission and scanning) in biomedical research. Students receive hands-on experience by completing a laboratory project.

**Credit Hours:** 4

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**V\_PBIO 8454: Domestic Animal Virology**

(cross-leveled with V\_PBIO 5554). Classification and properties of viruses. Considers the etiologic, pathologic and immunologic aspects of viral diseases of animals. Instructional periods 6.

**Credit Hours:** 2.5

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**V\_PBIO 8455: Epidemiology and Biostatistics**

Graduate level introduction to veterinary epidemiology and bio-statistics.

**Credit Hour:** 2-3

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**V\_PBIO 8457: Animal Parasitology**

(same as V\_PBIO 5557).

**Credit Hour:** 3-5

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**V\_PBIO 8458: Veterinary Public Health**

(same as V\_PBIO 5558).

**Credit Hours:** 2

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**V\_PBIO 8552: Veterinary Pathogenic Bacteriology and Mycology I**

This course deals with the bacterial pathogens of animals emphasizing the pathogenesis and pathology of the diseases, diagnostic problems, appropriate treatments and prevention measures. Course graded A-F only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**V\_PBIO 8553: Veterinary Pathogenic Bacteriology and Mycology II**

This course deals with the bacterial pathogens of animals emphasizing the pathogenesis and pathology of the diseases, diagnostic procedures, appropriate treatments and prevention measures. Graded on A-F basis only.

**Credit Hours:** 2.5

**Prerequisites:** V\_PBIO 5552 or V\_PBIO 8552 and instructor's consent

---

**V\_PBIO 8601: Animals in Emergencies & Basic Emergency Response Training for Vet Students**

This course will enable veterinary and graduate students to understand their role in society during disasters and credential as responders. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Students must be enrolled in the College of Veterinary Medicine and pursuing a DVM degree or be a student pursuing an MPH degree. Instructor consent required for non-veterinary graduate students seeking MPH degrees

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**V\_PBIO 8641: Introduction to Research Ethics**

This course provides students with a brief overview of many of the ethical issues that confront today's scientist. It is important that scientist think about and develop their abilities to make well-reasoned responses to ethical problems.

**Credit Hour:** 1

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**V\_PBIO 9090: Area Veterinary Pathobiology Dissertation Research**

Dissertation Research for PhD students. May be repeated for credit. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** departmental consent

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**Women's and Gender Studies Courses**

**WGST 1004: Topics in Women's and Gender Studies-Social Science**

Organized study of selected topics in women's and gender studies. Subjects and earnable credit may vary from semester to semester. Repeatable up to 6 hours.

**Credit Hour:** 1-3

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**WGST 1005: Topics in Women's and Gender Studies-Humanities**

Organized study of selected topics in women's and gender studies. Subjects may vary from semester to semester. Repeatable up to 6 hours.

**Credit Hours:** 3

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**WGST 1120: Introduction to Women's and Gender Studies**

Introduction to the basic issues of Western feminist thought through a study of classical and contemporary sources. Course will consider images, conditions, activities and visions of women as they vary historically and socially.

**Credit Hours:** 3

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**WGST 1360: The Female Experience: Body, Identity, and Culture**

(same as SOCIOL 1360). Study of the experience of being female in American Culture. Course will focus on development of women's identities through such topics as: sexuality, reproduction, self-image, rape and health care.

**Credit Hours:** 3

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**WGST 1500: The Black Woman in America**

(same as BL\_STU 1500). Review and critique of a variety of materials about Black women from slavery to the social and philosophical impact of the Black woman's struggle on all women.

**Credit Hours:** 3

**Recommended:** sophomore standing

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**WGST 2003: Topics in Women's and Gender Studies-Behavioral**

Organized study of selected topics in women's and gender studies. Subjects may vary from semester to semester. Repeatable up to 6 hours.

**Credit Hours:** 3

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**WGST 2005: Topics in Women's and Gender Studies-Humanities**

Organized study of selected topics in women's and gender studies. Subjects may vary from semester to semester. Repeatable up to 6 hours.

**Credit Hours:** 3

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**WGST 2010: Understanding Intersectionality**

Explores historical and contemporary dimensions of social inequality in gender, race, class, and sexuality. Uses an interdisciplinary lens and feminist analysis to analyze the social, cultural, political and economic experiences of individuals and communities.

**Credit Hours:** 3

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**WGST 2020: Feminist Theory**

Introduces central themes and problems in feminist thought, including consciousness-raising, motherhood, class, race, sexuality, nationalism, and transnational feminism.

**Credit Hours:** 3

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**WGST 2040: Perspectives on Empowerment**

Women's Empowerment is a popular catch phrase in culture, politics and research. This course explores the meaning of empowerment, the ways empowerment is practiced in organizations and in the everyday lives of girls and women, and the challenges in empowering girls and women in

contemporary society. May be repeated for credit (up to 6 credits) with different semester themes.

**Credit Hours:** 3

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**WGST 2050: Gender and Public Health**

Addresses issues of gender and public health in the US and abroad. Considers how race, class, gender, sexuality, and geopolitical context may impact health. May focus on specific health issues. May be repeated for credit (up to 6 hours) with different semester themes.

**Credit Hours:** 3

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**WGST 2080: Perspectives on Sexual and Gender Diversity**

This interdisciplinary, cross-cultural course investigates modern constructions of sexed and gendered bodies, paying particular attention to those systems of gender-based oppression that suppress multiple gender identities and expressions. May be repeated for credit with different semester themes.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**WGST 2180: Introduction to Women's Literature**

(same as ENGLISH 2180). A study of traditional and non-traditional literature written by women from the perspective of feminist themes-love, power, work, family and other relations. No more than six hours may be taken in the Introduction to Women's Literature series.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**WGST 2180W: Introduction to Women's Literature - Writing Intensive**

(same as ENGLISH 2180W). A study of traditional and non-traditional literature written by women from the perspective of feminist themes-love, power, work, family and other relations. No more than six hours may be taken in the Introduction to Women's Literature series.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**WGST 2189W: Introduction to Women's Literature, 1890 to Present-Writing Intensive**

(same as ENGLISH 2189W). See WGST 2180 for course description.

**Credit Hours:** 3

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**WGST 2200H: British Women Writers - Honors**

Study of works by important British women writers. We also consider the development of women's writing and the contribution of women writers to literature and to larger societal debates. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** honors eligibility required

**Recommended:** sophomore standing

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**WGST 2250: Gender, Race, Class and Sexuality in the Americas**

Introduction to the formation of identities in the Americas. Some areas covered are immigration, transnational identity, pop culture, literary expression, body image, spirituality, racism/sexism, assimilation,

acculturation, and activism. May be repeated for credit (up to 6 credits) with different semester themes.

**Credit Hours:** 3

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**WGST 2250W: Gender, Race, Class and Sexuality in the Americas - Writing Intensive**

Introduction to the formation of identities in the Americas. Some areas covered are immigration, transnational identity, pop culture, literary expression, body image, spirituality, racism/sexism, assimilation, acculturation, and activism. May be repeated for credit (up to 6 credits) with different semester themes.

**Credit Hours:** 3

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**WGST 2260: Perspectives on Mass Media: Constructions of Gender, Race and Sexuality**

Examines constructions of gender, race, class and sexuality in the US media in the twentieth and twenty first centuries. Emphasis placed on media's coverage and uses of various socially constructed identities. May be repeated for credit with different semester themes.

**Credit Hours:** 3

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**WGST 2340: Gender and Popular Culture**

Explores issues in popular culture in the 20th and 21st centuries with respect to feminism, gender, sexuality, race, class, and ability. Areas of study may include television, movies, music, advertisements, magazines, fiction, newspapers, the internet, and social media. May be repeated for credit (up to 6 credits) with different semester themes.

**Credit Hours:** 3

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**WGST 2400: Social History of U.S. Women**

(same as HIST 2400). This course, the social history of US women, offers a general overview of US women, beginning with the colonial period up to the present day.

**Credit Hours:** 3

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**WGST 2410: African American Women in History**

(same as HIST 2410 and BL\_STU 2410). Covers major issues affecting black women since their introduction into English-speaking North America to the present.

**Credit Hours:** 3

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**WGST 2500: Philosophy and Gender**

(same as PHIL 2500). A critical examination of central ideas and themes in feminist philosophical thought. Topics may include: sex, marriage, parenthood, reproduction, body image, pornography, prostitution.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**WGST 2960: Sexual Health Education and Advocacy**

Students will critically investigate sexuality and reproductive health within a cultural context including religious, political, social justice, familial, and societal influences. Through assigned readings, reflection, small group activities and discussion, students will increase their awareness of sexual

health issues, enhance self awareness, and learn how to effectively educate their peers surrounding issues of sexual health.

**Credit Hours:** 3

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**WGST 3003: Topics in Women's and Gender Studies-Behavioral Sciences**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable up to 6 hours.

**Credit Hours:** 3

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**WGST 3004: Topics in Women's and Gender Studies-Social Sciences**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable up to 6 hours.

**Credit Hours:** 3

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**WGST 3005: Topics in Women's and Gender Studies-Humanities**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable up to 6 hours.

**Credit Hours:** 3

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**WGST 3005H: Topics in Women's and Gender Studies-Humanities - Honors**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable up to 6 hours.

**Credit Hours:** 3

**Prerequisites:** honors eligibility required

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**WGST 3080: Sexuality and Gender Theory**

(same as ENGLISH 3080). Examination of major theoretical approaches and debates in the study of gender and sexuality, with particular attention to the intersection of culture, representation, and identity. May be repeated to 6 hours with departments consent.

**Credit Hours:** 3

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**WGST 3150: Themes in Gender and Work**

This is an interdisciplinary course on gender and work. The course addresses topics such as contemporary and historical feminist debates about gender and work; problems of gender inequality at the workplace; historical context of contemporary patterns of gender inequality at work; and how gender intersects with race, class, sexuality and other social categories to shape people's work lives.

**Credit Hours:** 3

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**WGST 3180: Historical Survey of Women Writers**

(same as ENGLISH 3180). A study of writing by women from the Middle Ages to the present.

**Credit Hours:** 3

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**WGST 3180W: Historical Survey of Women Writers - Writing Intensive**

(same as ENGLSH 3180). A study of writing by women from the Middle Ages to the present.

**Credit Hours:** 3

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**WGST 3220: U.S. Women's Political History, 1880-Present**

(same as HIST 3220). This course explores American women's engagement with American politics (broadly defined) over the course of the twentieth century. It addresses issues of political identity, organization, ideology, and division.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**WGST 3230: Themes in Sexual Politics**

Explores transnational politics of sex/sexuality, examines the theoretical, historical, analytical, and socio-cultural context of race, gender and sexuality. Students learn and apply a transdisciplinary approach and analyze shifts in the field of sexuality studies. May be repeated for credit with different themes.

**Credit Hours:** 3

**Prerequisites:** WGST 1120

**Recommended:** sophomore standing

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**WGST 3260: Gender, Law and Justice**

Course addresses issues related to gender, law and the justice system in the U.S. and /or globally. Topics may include history of women's rights in the U.S.; contemporary issues in law and justice such as incarceration, human trafficking, and gay marriage; and the ways race, class, sexuality and citizenship shape experiences of justice. May be repeated for credit (up to 6 credits) with different semester themes.

**Credit Hours:** 3

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**WGST 3270: Themes in Masculinities**

Explores how male experiences are shaped by gender expectations and social context, with emphasis on challenges and privileges associated with negotiating masculine gender role expectations. Evaluates the impact of gender, especially in American popular culture, on diverse men and their families. Studies how gender interacts with sexuality, race, religion, ethnicity, socioeconomic status, and non-binary gender expressions. Course may be repeated for credit (up to 6 hours) with a different semester theme.

**Credit Hours:** 3

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**WGST 3300: Queer Theories/Identities**

(same as SOCIOL 3300). Analysis of gay, lesbian, bisexual, transgender (GLBT) and queer identities in culture and society with an emphasis on the contributions of queer theory and other GLBT standpoint theories to sociology and the study of society.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 2200 or instructor's consent

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**WGST 3300W: Queer Theories/Identities - Writing Intensive**

(same as SOCIOL 3300). Analysis of gay, lesbian, bisexual, transgender (GLBT) and queer identities in culture and society with an emphasis on

the contributions of queer theory and other GLBT standpoint theories to sociology and the study of society.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 2200 or instructor's consent

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**WGST 3320: Sociology of Gender**

(same as SOCIOL 3320). Study of the ways in which femininities and masculinities are constructed in American society with particular attention to gender ideologies and the gendered nature of the social structure.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 1000 or SOCIOL 1360

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**WGST 3370: Gender and Religion**

Students acquire a basic knowledge and understanding of gender in religious communities including the construction of women's/men's religious identities, their gender relations, societal roles and status. Themes may explore how the organizational structures of religion can be a vehicle of oppression and a place for justice and autonomy; may explore the representation and practices of specific religions; or may address the intersections of gender, class, race, geopolitics, and religion. May be repeated for credit (up to 6 credits) with a different semester theme.

**Credit Hours:** 3

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**WGST 3450W: Feminist Methodologies - Writing Intensive**

This course is an opportunity to explore the difference that feminism makes in doing research. Students can begin to identify the research tools and strategies suited to questions they want to pursue.

**Credit Hours:** 3

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**WGST 3480: Themes in Sexuality and Literature**

Examines sexuality and representations of sexuality in literature. The specific topic will be announced at the time of registration. May be repeated for credit with different semester themes.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**WGST 3560: Gender and Immigration**

Explores current controversies in immigration in various locations. The course will cover a number of topics including nationalism and citizenship, national identity, identity and fluidity, social inequality and others. May be repeated for credit (up to 6 credits) with different semester themes.

**Credit Hours:** 3

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**WGST 3570: European Women in the 19th Century**

(same as HIST 3570). Examines the history of European women from 1750 to 1900. The course focuses on how industrialization, the French Revolution and nation-formation changed women's role in the family, workplace and the state. Grading: exams, papers and discussions.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**WGST 3650: Themes in Feminism**

Course may cover historical and contemporary understandings of feminism, feminist movements in the U.S. and globally, and key debates in feminism. May be repeated for credit (up to 6 credits) with different semester themes.

**Credit Hours:** 3

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**WGST 3650H: Themes in Feminism - Honors**

Course may cover historical and contemporary understandings of feminism, feminist movements in the U.S. and globally, and key debates in feminism. May be repeated for credit (up to 6 credits) with different semester themes.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**WGST 3670: Gender and Globalization**

Introduces transnational feminist theories, considers the practices and material circumstances related to globalization, and explores how class, gender, place/nation, (dis) ability, sexuality and colonial practices complicate our understanding of globalization. May be repeated for credit (up to 6 credits) with different semester themes.

**Credit Hours:** 3

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**WGST 3850: Gender and the Politics of Representation**

Examines the gendered politics of representation by analyzing film, literature, popular media, and/or other popular cultural texts. May be repeated for credit (up to 6 credits) with different semester themes.

**Credit Hours:** 3

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**WGST 3960: Strategies for Effective Peer Education**

(same as HLTH\_SCI 3965, P\_HLTH 3960). Course designed to promote effective presentation skills on a variety of health topics, specifically sexual health. Students will engage in experiential practice and skill building surrounding cultural competency, difficult discourses, discussion facilitation and behavior management. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** WGST 2960

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**WGST 4001: Topics in Women's and Gender Studies-General**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable up to 6 hours.

**Credit Hours:** 3

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**WGST 4003: Topics in Women's and Gender Studies-Behavioral Sciences**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable up to 6 hours.

**Credit Hours:** 3

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**WGST 4005: Topics in Women's and Gender Studies-Humanities**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable up to 6 hours.

**Credit Hours:** 3

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**WGST 4020: Studies in Feminist Thought**

(same as BL\_STU 4020; cross-leveled with WGST 7020). Examines recent problems and critical debates within feminist theory. May be repeated for credit (up to 6 credits) with different semester themes.

**Credit Hours:** 3

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**WGST 4110: Feminist Research and Criticism**

(same as SOCIOL 4110; cross-leveled with WGST 7110, SOCIOL 7110) Examination of both feminist critique of traditional social research and recent, feminist-oriented research that attempts to answer these criticisms.

**Credit Hours:** 3

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**WGST 4115: Relationship and Sexual Violence Prevention: Intersections of Social Justice**

This course explores the nature and dynamics of power-based personal violence under a social justice framework. Students will learn about the anti-violence movement, increase understanding of oppression and how it relates to sexual assault, and acquire facilitation skills necessary to provide presentations on various related topics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**WGST 4120: Gender and the Arts**

(same as VS\_ARH 4120; cross-level with WGST 7120, VS\_ARH 4120). Exploration of the relationship between the visual arts and constructions of gender and sexuality in selected eras.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**WGST 4181: Themes in Literature by Women**

(same as ENGLSH 4181 and BL\_STU 4181). Examines works by a number of women writers with particular attention to their sociopolitical context. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**WGST 4188: Major Women Writers, 1789-1890**

(same as ENGLSH 4188). See WGST 4180 for course description.

**Credit Hours:** 3

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**WGST 4188W: Major Women Writers, 1789-1890 - Writing Intensive**

(same as ENGLSH 4188). See WGST 4180 for course description.

**Credit Hours:** 3

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**WGST 4189: Major Women Writers, 1890-Present**

(same as ENGLSH 4189). See WGST 4180 for course description.

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**Credit Hours:** 3

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**WGST 4230: Women, Development, and Globalization**

(same as SOCIOL 4230, BL\_STU 4230 and PEA\_ST 4230; cross-leveled with SOCIOL 7230, BL\_STU 7230, WGST 7230). Examines the history and structure of 'development' discourse and practices. Stresses the interconnections and impact on women globally. Reviews women's strategies in defining and instituting programs to improve quality of life in communities.

**Credit Hours:** 3

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**WGST 4310: Adoption, Child Welfare and the Family, 1850-Present**

(same as HIST 4310; cross-leveled with WGST 7310, HIST 7310). This interdisciplinary U.S. history course will address topics such as: changing legal and social meaning of adoption since 1850; historical connections between adoption and poverty, family, gender race, sexuality, class, fertility, identity; and more recent issues such as transnational adoption.

**Credit Hours:** 3

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**WGST 4350: Gender and the Environment**

(cross-leveled with WGST 7350). Explores how gendered social relations affect the relationship between human beings, non-human nature, and the environment. Also examines how historically, the human relationship with nature has been governed by a dualism of culture and nature that enables both an ideology of technical control and the objectification of the environment and people. Draws from ecological feminism, the environmental justice movement, feminist science studies, materialist feminism, and feminist dystopian fiction.

**Credit Hours:** 3

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**WGST 4370: Anthropology of Gender**

(same as ANTHRO 4370; cross-leveled with ANTHRO 7370, WGST 7370). The Anthropology of Gender introduces the student to the variation in the relationships between male and females; and between men, women, and other genders from around the world. The different approaches to understanding and modeling gender are discussed, as are specific case-studies from many different cultures.

**Credit Hours:** 3

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**WGST 4400: Contemporary Issues in Domestic Violence**

(same as SOC\_WK 4400; cross-leveled with SOC\_WK 7400, WGST 7400). Covers history of the domestic violence movement, intimate partner violence theories and data, legislative and organizational policy issues, and intervention models for practice with individuals who have experienced domestic violence including co-occurring issues such as trauma. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Junior or Senior standing required

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**WGST 4420: Gender, Culture, and Politics**

Examines ethical issues, social policies and politics, and cultural practices affecting women in specific national and global contexts. May be repeated for credit (up to 6 credits) with different semester themes.

**Credit Hours:** 3

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**WGST 4480: Major African Diaspora Women Writers**

(same as BL\_STU 4480 and ENGLSH 4480). Study of selected Africana Diaspora women writers, focusing on texts originally in English. Repeatable with department's consent. Maximum of 6 hours for WGST 4180 and WGST 4480.

**Credit Hours:** 3

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**WGST 4488: Major African Diaspora Women Writers, 1789 to 1890**

(same as BL\_STU 4488, ENGLSH 4488). See WGST 4480 for course description.

**Credit Hours:** 3

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**WGST 4489: Major African Diaspora Women Writers, 1890 to Present**

(same as BL\_STU 4489, ENGLSH 4489; cross-leveled with ENGLSH 7489, BL\_STU 7489, WGST 7489). See WGST 4480 for course description.

**Credit Hours:** 3

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**WGST 4489W: Major African Diaspora Women Writers, 1890 to Present - Writing Intensive**

(same as BL\_STU 4489W, ENGLSH 4489W; cross-leveled with ENGLSH 7489, BL\_STU 7489, WGST 7489). See WGST 4480 for course description.

**Credit Hours:** 3

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**WGST 4550: Gender and Human Rights in Cross Cultural Perspective**

(same as SOCIOL 4550 and PEA\_ST 4550; cross-leveled with WGST 7550, SOCIOL 7550, PEA\_ST 7550). This course focuses on the global discourse on human rights and gender, emphasizing cross-cultural theories. Course includes the meaning of rights, Western and nonwestern perspectives, feminist contributions, important substantive debates, violations, policymaking and activism.

**Credit Hours:** 3

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**WGST 4600: Women and Health**

A survey of international and domestic women's health issues; considers historical antecedents and specific effects of socio-cultural variables and economic development on women's health in developing and developed nations. May be repeated for credit (up to 6 credits) with different semester themes.

**Credit Hours:** 3

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**WGST 4640: Gender and Performance**

Examines the relationship among gender, race, class, and/or sexuality, and performance. Course materials may include theatre performance, visual art, literacy context, theoretical essays, films, and popular culture. May be repeated for credit (up to 6 credits) with different semester themes.

**Credit Hours:** 3

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**WGST 4660: Gender, War, and Migration: Europe, 1914 to the Present**

(same as HIST 4660; cross-leveled with HIST 7660, WGST 7660). Scholars have long recognized the fundamental ways that war and migration marked the lives of European women and men in the 20th century, and yet, rarely have they focused on the interrelations between mobilities, violence and gender. This class explores how war and mass migrations inscribed new gendered, racial and class hierarchies into the European landscape, and created new kinds of political and social divides. The total wars of World War I and World War II, requiring the participation of civilians and soldiers, erasing lines separating the home front from the battlefield, forcing millions to flee their homes, and drawing men and women from the colonies into the war effort reshaped notions of gender, work, family, nation and citizenship within Europe. The subsequent wars of decolonization and post war migrations, followed by the conflicts that erupted at the end of the Cold War challenged the postwar gender ideals underpinning the European welfare state and the European Union, and fueled the rise of contemporary xenophobic and racist populist movements. Course materials will include historical monographs, articles, memoirs and films.

**Credit Hours:** 3

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**WGST 4716: Women and the Media**

(same as JOURN 4716; cross-leveled with WGST 7716, JOURN 7716). Focus on portrayal of women in American mass media. Other goals: historical perspective on women as journalists; exposure to issues usually not covered by mass media; research and writing skills.

**Credit Hours:** 3

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**WGST 4730: Women and Politics**

(same as POL\_SC 4730). This course examines women's political participation and public policies towards women in countries around the world.

**Credit Hours:** 3

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**WGST 4750: Women, Religion and Culture**

(same as REL\_ST 4750; cross-leveled with REL\_ST 7750, WGST 7750). An advanced study of the role of women in religion, focusing on the methods of determining the significance of gender in religious life, sacred texts, symbols, rituals and/or beliefs. Traditions studied include Christianity, Islam, contemporary pagan communities, and Native American traditions.

**Credit Hours:** 3

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**WGST 4780: Women's Folklore and Feminist Theory**

(same as ENGLISH 4780; cross-leveled with ENGLISH 7780, WGST 7780). Examines folklore and artistic expression of women in relations to feminist theory and in multicultural contexts. Includes verbal genres (narrative/song) as well as material genres (quilting/arts).

**Credit Hours:** 3

**Recommended:** junior standing

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**WGST 4873: Women's and Gender Studies Abroad - Behavioral Science**

This interdisciplinary study abroad course provides students the opportunity to study women's issues in the globe, to study in a foreign

culture and augment their global competencies across the Women's and Gender Studies curriculum and extend a global perspective to their study and/or career development.

**Credit Hours:** 3

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**WGST 4874: Women's and Gender Studies Abroad - Social Science**

This interdisciplinary study abroad course provides students the opportunity to study women's issues in the globe, to study in a foreign culture and augment their global competencies across the Women's and Gender Studies curriculum and extend a global perspective to their study and/or career development.

**Credit Hours:** 3

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**WGST 4875: Women's and Gender Studies Abroad - Humanities**

This interdisciplinary study abroad course provides students the opportunity to study women's issues in the globe, to study in a foreign culture and augment their global competencies across the Women's and Gender Studies curriculum and extend a global perspective to their study and/or career development.

**Credit Hours:** 3

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**WGST 4940: Internship in Women's and Gender Studies**

Directed professional experience in WGST approved agency or organization. This course can be taken in place of WGST 4990 to meet BA degree requirements. Graded on S/U basis only.

**Credit Hours:** 3

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**WGST 4965: Special Readings in Women's and Gender Studies**

Independent readings in women's and gender studies for highly qualified and motivated students. Topic selected in consultation with supervisory faculty member.

**Credit Hour:** 1-6

**Prerequisites:** Instructor Consent

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**WGST 4990: Research Seminar in Women's and Gender Studies**

Advanced seminar in Women's and Gender Studies. Topics and form of the class varies according to instructor, but all courses are designed to deepen a student's understanding of the discipline's theories and methods. Can be substituted for WGST 4940.

**Credit Hours:** 3

**Recommended:** Previous WGST courses are strongly recommended

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**WGST 7001: Topics in Women's and Gender Studies-General**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable for credit (up to 6 credits).

**Credit Hours:** 3

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**WGST 7003: Topics in Women's and Gender Studies-Behavioral Studies**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable for credit (up to 6 credits).

**Credit Hours:** 3

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**WGST 7020: Studies in Feminist Thought**

(same as BL\_STU 7020; cross-leveled with WGST 4020, BL\_STU 4020). Examines recent problems and critical debates within feminist theory.

**Credit Hours:** 3

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**WGST 7110: Feminist Research and Criticism**

(same as SOCIOL 7110; cross-leveled with WGST 4110, SOCIOL 4110). Examination of both feminist critique of traditional social research and recent, feminist-oriented research that attempts to answer these criticisms.

**Credit Hours:** 3

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**WGST 7188: Major Women Writers, 1789-1890**

(same as ENGLISH 7188). See WGST 7180 for course description.

**Credit Hours:** 3

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**WGST 7230: Women, Development, and Globalization**

(same as SOCIOL 7230, BL\_STU 7230; cross-leveled with WGST 4230, BL\_STU 4230, SOCIOL 4230, PEA\_ST 4230). Examines the history and structure of 'development' discourse and practices. Stresses the interconnections and impact on women globally. Reviews women's strategies in defining and instituting programs to improve quality of life in communities.

**Credit Hours:** 3

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**WGST 7370: Anthropology of Gender**

(same as ANTHRO 7370; cross-leveled with WGST 4370, ANTHRO 4370). The Anthropology of Gender Introduces the student to the variation in the relationships between males and females; and between men, women, and other genders from around the world. The different approaches to understanding and modeling gender are discussed, as are specific case-studies from many different cultures.

**Credit Hours:** 3

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**WGST 7400: Contemporary Issues in Domestic Violence**

(same as SOC\_WK 7400; cross-leveled with WGST 4400, SOC\_WK 4400). Covers history of the domestic violence movement, intimate partner violence theories and data, legislative and organizational policy issues, and intervention models for practice with individuals who have experienced domestic violence including co-occurring issues such as trauma. Graded on A-F basis only.

**Credit Hours:** 3

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**WGST 7420: Studies in Gender, Culture, and Politics**

(cross-leveled with WGST 4420). Examines ethical issues, social policies and politics, and cultural practices affecting women in specific national and global contexts.

**Credit Hours:** 3

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**WGST 7480: Major African Diaspora Women Writers**

(same as BL\_STU 7480 and ENGLISH 7480). Study of selected African Diaspora women writers, focusing on texts originally in English.

Repeatable with department's consent. Maximum of 6 hours for WGST 7180 and WGST 7480.

**Credit Hours:** 3

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**WGST 7550: Gender and Human Rights in Cross Cultural Perspective**

(same as SOCIOL 7550 and PEA\_ST 7550; cross-leveled with WGST 4550, SOCIOL 4550, PEA\_ST 4550). Focuses on the global discourse on human rights and gender, emphasizing cross-cultural theories. Course includes the meaning of human rights, western and nonwestern perspectives, feminist contributions, important substantive debates, violations, policymaking and activism.

**Credit Hours:** 3

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**WGST 7660: Gender, War, and Migration: Europe, 1914 to the Present**

(same as HIST 7660; cross-leveled with WGST 4660, HIST 4660). Scholars have long recognized the fundamental ways that war and migration marked the lives of European women and men in the 20th century, and yet, rarely have they focused on the interrelations between mobilities, violence and gender. This class explores how war and mass migrations inscribed new gendered, racial and class hierarchies into the European landscape, and created new kinds of political and social divides. The total wars of World War I and World War II, requiring the participation of civilians and soldiers, erasing lines separating the home front from the battlefield, forcing millions to flee their homes, and drawing men and women from the colonies into the war effort reshaped notions of gender, work, family, nation and citizenship within Europe. The subsequent wars of decolonization and post war migrations, followed by the conflicts that erupted at the end of the Cold War challenged the postwar gender ideals underpinning the European welfare state and the European Union, and fueled the rise of contemporary xenophobic and racist populist movements. Course materials will include historical monographs, articles, memoirs and films.

**Credit Hours:** 3

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**WGST 7716: Women and the Media**

(same as JOURN 7716; cross-leveled with WGST 4716, JOURN 4716). Focus on portrayal of women in American mass media. Other goals: historical perspective on women as journalists; exposure to issues usually not covered by mass media; research and writing skills.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**WGST 7750: Women, Religion and Culture**

(same as REL\_ST 7750; cross-leveled with WGST 4750, REL\_ST 4750). An advanced study of the role of women in religion, focusing on the methods of determining the significance of gender in religious life, sacred texts, symbols, rituals and/or beliefs. Traditions studied include Christianity, Islam, contemporary pagan communities, and Native American traditions.

**Credit Hours:** 3

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**WGST 7780: Women's Folklore and Feminist Theory**

(same as ENGLISH 7780; cross-leveled with ENGLISH 4780, WGST 4780). Examines folklore and artistic expression of women in relations

to feminist theory and in multicultural contexts. Includes verbal genres (narrative/song) as well as material genres (quilting/arts).

**Credit Hours:** 3

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**WGST 7875: Women's and Gender Studies Abroad - Humanities**

This interdisciplinary study abroad course provides students the opportunity to study women's issues in the globe, to study in a foreign culture and augment their global competencies across the Women's and Gender Studies curriculum and extend a global perspective to their study and/or career development.

**Credit Hours:** 3

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**WGST 8004: Topics in Women's and Gender Studies-Social Science**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable for credit (up to 6 credits).

**Credit Hours:** 3

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**WGST 8005: Topics in Women's and Gender Studies-Humanities**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable (up to 6 credits).

**Credit Hours:** 3

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**WGST 8020: Graduate Feminist Theory**

This course will explore the texts and contexts of feminist theories including women of color socialist/Marxist feminism, queer theory, postmodern feminism, and feminist postcolonial theory.

**Credit Hours:** 3

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**WGST 8040: Seminar: Problems and Issues in Feminist Scholarship**

This course is a broad based exploration of a range of current feminist scholarship, both multidisciplinary and interdisciplinary. Issues of identity and difference, community and change are explored through the complicating lenses of race and sexuality.

**Credit Hours:** 3

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**WGST 8060: New Directions in Feminist Theory**

Offers an in-depth exploration of a recent direction in feminist theory. Students will learn a specific feminist approach to scholarship. Theory explored will change based on the semester and professor teaching the course.

**Credit Hours:** 3

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**WGST 8965: Problems in Women's and Gender Studies**

Directed individual study on selected topics for qualified graduate students. Plan of study subject to approval by supervising faculty.

**Credit Hour:** 1-6

**Prerequisites:** Instructor consent

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**WGST 9440: Race, Gender, Ethnicity in Higher Education**

(same as ED\_LPA 9440). Historical relationships of race, gender, and ethnic issues in United States higher education. Issues include: theory

and research of curriculum and teaching, diversity within the academy, and leadership, governance, and policy.

**Credit Hours:** 3

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## Writing (Intensive English Program) Courses

**IEPW \_0001: Grammar with Writing I**

(same as IEPG \_0001: Grammar with Writing 1). Students will learn to recognize and use basic grammatical structures. Students will use these structures to produce basic sentences and short paragraphs on topics from daily life. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required

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**IEPW \_0002: Writing II**

Students will develop their writing skills with a focus on paragraphs and attention to sentence structure and English mechanics. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required

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**IEPW \_0030: Writing for Academic Purposes III**

Students will improve their paragraph-writing skills and develop the writing skills required to produce short essays. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required

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**IEPW \_0040: Writing for Academic Purposes IV**

Students will develop the writing and critical thinking skills required to produce academic essays. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required

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**IEPW \_0050: Writing for Academic Purposes V**

Using university-level texts, students will build the writing skills required to produce well-developed academic papers and become more proficient at writing for different audiences in a variety of formal and informal contexts. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required; concurrent enrollment in IEPR \_0050 Reading for Academic Purposes required

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## Accountancy (ACCTCY)

**ACCTCY 2010: Introduction to Accounting**

Introduction to accounting for non-business majors. Emphasis on introducing students to business operations, as well as preparing and using management information and financial accounting information for

business decisions (does not count as either ACCTCY 2036 or ACCTCY 2037).

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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#### **ACCTCY 2026: Accounting I**

An introduction to the field of accounting, this course covers the fundamentals of financial accounting. Business students at UMC must have advisor's approval. Credit may not be earned for both ACCTCY 2026 and ACCTCY 2036.

**Credit Hours:** 3

**Prerequisites:** Sophomore Standing

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#### **ACCTCY 2027: Accounting II**

This course covers the fundamentals of managerial accounting and additional topics in financial accounting. Business students at UMC must have advisor's approval. Credit may not be earned for both ACCTCY 2027 and ACCTCY 2037. Course only offered through Mizzou Online (self paced).

**Credit Hours:** 3

**Prerequisites:** ACCTCY 2026, ACCTCY 2036 or ACCTCY 2136H

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#### **ACCTCY 2036: Accounting I**

First part of two-part course focusing on the nature and use of managerial and financial accounting information for decision making in various business settings. Emphasizes use of accounting information by internal and external users. This course covers the fundamentals of financial accounting.

**Credit Hours:** 3

**Prerequisites:** Completion of 28 credit hours. May be restricted to lower-level business and lower-level accountancy students during early registration

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#### **ACCTCY 2037: Accounting II**

Second part of two-part course focusing on the nature and use of managerial and financial accounting information for decision making in various business settings. Emphasizes use of accounting information by internal and external users. This course covers the fundamentals of managerial accounting.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 2026, ACCTCY 2036 or ACCTCY 2136H

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#### **ACCTCY 2136H: Honors Accounting I**

First part of two-part course focusing on the nature and use of managerial and financial accounting information for decision making in various business settings. Emphasizes use of accounting information by internal and external users.

**Credit Hours:** 3

**Prerequisites:** sophomore standing in Accounting or Business, 3.3 or higher GPA. Honors eligibility required

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#### **ACCTCY 2137H: Honors Accounting II**

Continuation of Accountancy 2136H.

**Credit Hours:** 3

**Prerequisites:** C or better ACCTCY 2136H. Honors eligibility required

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#### **ACCTCY 2258: Computer-Based Data Systems**

Introduces the computer as a tool in the efficient operation of a business. Skills developed in the course include electronic information retrieval, information analysis using a spreadsheet, what-if analysis macro development, and information presentation. In addition, computer components, data storage, networks, and information technology are discussed.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing

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#### **ACCTCY 3326: Financial Accounting Theory and Practice I**

Institutional structure, conceptual framework, and reporting standards and practices of financial accounting, with special emphasis on accounting for assets.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 2037 or ACCTCY 2137H or ACCTCY 2027. Restricted to Accountancy Majors

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#### **ACCTCY 3328: Accounting Information Systems**

Introduction to accounting information systems (AIS). General AIS concepts. Transaction processing systems and accounting cycles. Alternative platforms for computerized transaction processing. Database management and data modeling. Control concepts and design.

**Credit Hours:** 3

**Prerequisites:** Restricted to Accountancy Majors

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#### **ACCTCY 3346: Financial Accounting Theory and Practice II**

Continuation of Accountancy 3326, with special emphasis on income recognition and accounting for liabilities and ownership equity.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 3326. Restricted to Accountancy Majors

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#### **ACCTCY 3347: Cost and Managerial Accounting**

Activity based and traditional job order and process cost systems for service, merchandising, and multinational manufacturing companies; Cost accounting techniques and procedures for financial reporting by multinational companies. Strategic focus to management accounting measurement and reporting. Standard costs and variances, capital budgeting.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 2037 or ACCTCY 2137H or ACCTCY 2027. Restricted to Accountancy Majors

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#### **ACCTCY 4000: Accountancy Professional Speakers and Symposia**

(cross-leveled with ACCTCY 7000). This non-credit course, recommended for all accountancy majors, will provide exposure to issues in the accounting profession through professional speaker series and symposia. Components will include the Dawdy Speaker Series, Orin Ethics Symposium, and Symposia delivered by accounting firms and/or professional accounting organizations. This will be a non-credit, non-billed, no hours course.

**Credit Hours:** 0

**Prerequisites:** Accountancy Majors

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**ACCTCY 4301: Topics in Accounting**

Independent investigations, reports on approved topics.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ACCTCY 4353: Introduction to Taxation**

(cross-leveled with ACCTCY 7353). Introduction to the structure and conceptual foundation of the U.S. federal income tax system for individual taxpayers. Topics include income recognition, deductions, property transactions, trusts, and family wealth planning. This course also introduces students to legal tax research and preparation of individual income tax returns.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 2037 or ACCTCY 2137H or ACCTCY 2027. Restricted to accountancy majors only

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**ACCTCY 4356: Financial Accounting Concepts**

(cross-leveled with ACCTCY 7356). Current issues in the financial reporting of business corporations to external parties.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 2037 or ACCTCY 2137H or ACCTCY 2027 or ACCTCY 7310. Not open to accountancy majors

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**ACCTCY 4365: Governmental Accounting and Budgeting**

(cross-leveled with ACCTCY 7365). Introduction to government and not-for-profit accounting. Concepts and principles of fund accounting, budgeting, auditing, and financial reporting in government and not-for-profit entities.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 3326. Restricted to Accountancy Majors

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**ACCTCY 4384: Auditing Theory and Practice I**

(cross-leveled with ACCTCY 7384). Introduction to the auditing profession, assurance function, and generally accepted standards for conducting audits.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 3328 and ACCTCY 3346. Restricted to Accountancy Majors

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**ACCTCY 4940: Professional Accounting Internship**

(cross-leveled with ACCTCY 7940). Provides full-time professional accounting work experience of at least eight weeks duration. Graded on S/U basis only.

**Credit Hour:** 3-6

**Prerequisites:** Accountancy Majors only and 105 credit hours completed and ACCTCY 3326 and ACCTCY 3328 and ACCTCY 3346 and ACCTCY 3347 and ACCTCY 4353, and GPA of 3.0 or higher

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**ACCTCY 7000: Accountancy Professional Speakers and Symposia**

(cross-leveled with ACCTCY 4000). This non-credit course, recommended for all accountancy majors, will provide exposure to issues in the accounting profession through professional speaker series and symposia. Components will include the Dawdy Speaker Series, Orin Ethics Symposium, and Symposia delivered by accounting firms and/

or professional accounting organizations. This will be a non-credit, non-billed, no hours course. Graded on S/U basis only.

**Credit Hours:** 0

**Prerequisites:** Accountancy Majors

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**ACCTCY 7310: Accounting for Managers**

Introduction to understanding how accounting information is used to help make informed decisions in various business settings. Includes an introduction to basic financial and management accounting concepts and procedures.

**Credit Hours:** 3

**Prerequisites:** MBA or MSPA candidate, or departmental consent

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**ACCTCY 7353: Introduction to Taxation**

(cross-leveled with ACCTCY 4353). Introduction to the structure and conceptual foundation of the U.S. federal income tax system for individual taxpayers. Topics include income recognition, deductions, property transactions, trusts, and family wealth planning. This course also introduces students to legal tax research and preparation of individual income tax returns.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 2037 or ACCTCY 2137H or ACCTCY 2027. Restricted to accountancy majors only

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**ACCTCY 7356: Financial Accounting Concepts**

(cross-leveled with ACCTCY 4356). Current issues in the financial reporting of business corporations to external parties. Not open to accountancy majors.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 2037 or ACCTCY 2137H or ACCTCY 2027 or ACCTCY 7310

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**ACCTCY 7365: Governmental Accounting and Budgeting**

(cross-leveled with ACCTCY 4365). Introduction to government and not-for-profit accounting. Concepts and principles of fund accounting, budgeting, auditing, and financial reporting in government and not-for-profit entities.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 3326. Restricted to Accountancy Majors

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**ACCTCY 7384: Auditing Theory and Practice I**

(cross-leveled with ACCTCY 4384). Introduction to the auditing profession, assurance function, and generally accepted standards for conducting audits.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 3328 and ACCTCY 3346. Restricted to Accountancy Majors

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**ACCTCY 7940: Professional Accounting Internship**

(cross-leveled with ACCTCY 4940). Provides full-time professional accounting work experience of at least eight weeks duration. Graded on S/U basis only.

**Credit Hour:** 3-6

**Prerequisites:** Completion of undergraduate portion of 150 hour program (or equivalent) and consent of Internship Coordinator

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**ACCTCY 8363: Multi-Jurisdictional Tax**

This course takes a practical approach to exploring multistate and international tax concepts by focusing on tax issues that can arise as a company expands from a single business location into a multinational corporation. Part 1 of this course focuses on the economic, political, and constitutional constraints imposed on state and local taxation, including the due process clause, the commerce clause and state uniformity and equality clauses. Part 2 of the course includes a survey of state and local tax laws, with a particular emphasis on the imposition of sales and use taxes and the allocation and apportionment of state income taxes. Part 3 of the course surveys principals of international taxation, including U.S. taxation of the foreign investments or activities of U.S. taxpayers (outbound) and U.S. taxation of the U.S. activity or investments of foreign taxpayers (inbound).

**Credit Hours:** 3

**Prerequisites:** ACCTCY 4353. Restricted to Accountancy Majors

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**ACCTCY 8373: Taxation of Corporations and Shareholders**

Life cycle of a corporation including formations, operations, distributions, and liquidations of corporations.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 4353 or ACCTCY 7353. Restricted to Accountancy Majors

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**ACCTCY 8393: Taxation of Trust, Gifts and Estates**

This course covers two main topics. Students are introduced to the construction, operation and income taxation of trusts. After this portion of the course students will learn about the gift tax consequences of completed exchanges. Finally, students will learn the basic rules regarding the estate tax. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 4353 or ACCTCY 7353. Restricted to Accountancy Majors

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**ACCTCY 8401: Topics in Accounting**

Independent investigations, reports on approved topics.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ACCTCY 8404: Internal Auditing**

This course covers the concepts, practices, and application of internal audit activities. The course will review the entire internal audit process including annual audit and engagement planning, fieldwork, reporting, and management communication. Other topics including internal controls, enterprise risk management, and key behavior skills will be discussed. The Professional Practices Framework and industry best practices will be incorporated throughout the semester. This course will prepare students for entry-level internal audit positions. Graded A-F only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 4384 or ACCTCY 7384. Restricted to Accountancy Majors

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**ACCTCY 8414: Audit of Internal Controls**

A combination of control theory, concept application, demonstration of actual practice, and student research to develop an understanding of the

concepts and practices used in the design, development or assurance of information systems (IS) controls. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 3328, and ACCTCY 4384 or ACCTCY 7384. Restricted to Accountancy Majors

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**ACCTCY 8419: International Accounting**

Introduction to accounting regulations and practices outside of the U.S., accounting regulations for foreign registrants on the NYSE and NASDAQ, international accounting standards and international management control issues. Review of cultural frameworks; transfer pricing methods and international accounting standards.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 3346 and ACCTCY 3347. Restricted to Accountancy Majors

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**ACCTCY 8423: Tax Research and Planning**

Applied tax research using print and electronic data bases; heuristic biases in tax judgments; responsibilities of professional tax practices.

**Credit Hours:** 3

**Prerequisites or Corequisites:** ACCTCY 8373

**Prerequisites:** Restricted to Accountancy Majors

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**ACCTCY 8424: Fraud Examination**

A study of the methods and techniques of fraud examination, particularly with regard to frauds perpetrated by the company against the public. The ethical and professional standards that underlie the accountant's responsibility for fraud detection and prevention are emphasized. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 4384 or ACCTCY 7384. Restricted to Accountancy Majors

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**ACCTCY 8428: Data Visualization and Data Mining**

Enterprise-wide view of data and transaction processing. Concepts and techniques of data visualization and data mining of business-critical data. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Accountancy Majors or with Department consent

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**ACCTCY 8433: Mergers and Acquisitions Taxation**

This course covers the basic taxation of mergers and acquisitions, both taxable and tax-free acquisitions; issues in merger and acquisition deal making, such as due diligence and understanding contract tax provisions; and an overview of securities regulations with respect to publicly traded companies. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** ACCTCY 8373

**Prerequisites:** ACCTCY 4353

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**ACCTCY 8436: Advanced Accounting**

Continuation of ACCTCY 3346. Addresses a series of special financial accounting topics including income taxes, pensions, leases, business



combinations, consolidated statements, and foreign currency translation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 3346. Restricted to Accountancy Majors

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**ACCTCY 8438: Forensic Accounting**

Coverage of forensic accounting processes and tools used in the detection and prevention of fraud against the company. Topics include skimming, cash larceny, check tampering, billing schemes and others. An emphasis of the course will be upon the use of computer aids. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 3328, ACCTCY 4384 or ACCTCY 7384. Restricted to Accountancy Majors

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**ACCTCY 8444: Advanced Audit**

The Advanced Auditing course helps students develop a better understanding of the audit environment and gives them the opportunity to gain hands-on experience planning for an audit engagement, performing test work, and completing an audit engagement. The course also addresses additional topics not covered in detail in the Audit Theory and Practice I course, including inventory observation, legal liability issues faced by auditors today, the regulatory environment, professional responsibilities of auditors, preparing appropriate documentation for audit engagements, providing required communications to clients, and performing Single Audits. The course is designed to encourage open discussions of cases and current issues and provide learning opportunities for the students. The class meetings and assignments are designed to improve the student's critical thinking skills, communication skills, and team-building skills. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 4384 or ACCTCY 7384. Restricted to Accountancy Majors

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**ACCTCY 8448: Emerging Issues in Accounting Information Systems**

Current developments in the implementation and use of accounting information systems. Topics may vary. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Accountancy Majors

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**ACCTCY 8450: Accounting and Strategic Business Analysis**

Capstone course in the Master of Accountancy program. Emphasis on case analysis to develop critical thinking and analytical skills in the use of accounting reports for broad-based business analysis. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 3346 or equivalent. Restricted to Accountancy Majors

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**ACCTCY 8453: Taxes and Business Strategies**

This class examines the role taxes in business decisions. The analysis involved considers 1) tax consequences of all parties to a transaction, 2) both explicit and implicit taxes, and 3) tax as well as non-tax costs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Accountancy Majors

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**ACCTCY 8456: Corporate Governance**

Corporate governance has taken on new prominence in light of the accounting scandals of the early 2000's (e.g., Enron) and the new regulatory regime of Sarbanes-Oxley. As a result, corporations, investors, auditors, and others are paying more attention to corporate governance. This course will familiarize students with corporate governance mechanisms and how they interact with financial reporting. This course should appeal to students pursuing careers in auditing, finance, management, as well as anyone seeking a deeper understanding of relations between financial reporting and corporate governance. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 8436. Restricted to Accountancy Majors

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**ACCTCY 8463: Partnership Taxation**

Formations, operations, distributions, and liquidations of partnerships. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 4353 or 7353

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**ACCTCY 9090: Research in Accounting**

Each student is under direction and guidance of an accountancy professor in writing a dissertation. Periodic seminars discuss research projects. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** doctoral candidacy and instructor's consent

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**ACCTCY 9401: Doctoral Research Problems in Accounting**

Independent investigations, reports on approved topics. Restricted to Doctoral level students only

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent and director's consent

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**ACCTCY 9444: Seminar in Auditing Research**

The economic role of auditing; the audit process; audit reports and the consequences of auditing on financial statements; new audit directions and perspectives.

**Credit Hours:** 3

**Prerequisites:** doctoral candidacy or instructor's consent

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**ACCTCY 9457: Quantitative Methods in Accounting**

Application of mathematics and statistics to managerial and financial accounting problems.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 3347, MATH 1300 and STAT 3500, or instructor's consent

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**ACCTCY 9460: Research Methods in Accounting**

Application of research methods to the investigation of current accounting issues. A research paper is required.

**Credit Hours:** 3

**Prerequisites:** doctoral candidacy or instructor's consent

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**ACCTCY 9466: Seminar in Financial Accounting Research**

Theory of financial accounting and regulated disclosure; empirical tests of financial accounting theory, with emphasis on the nature of the research question addressed, and the method used to address the research question.

**Credit Hours:** 3

**Prerequisites:** doctoral candidacy or instructor's consent

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**ACCTCY 9467: Seminar in Behavioral Accounting Research**

Critical review of the Behavioral accounting research literature with emphasis on issues and research methods.

**Credit Hours:** 3

**Prerequisites:** doctoral candidacy and instructor's consent

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## **Aerospace Studies (AERO)**

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**AERO 1100: Heritage and Values of the United States Air Force**

A survey course designed to introduce students to the United States Air Force and provides an overview of the basic characteristics, missions, and organization of the Air Force.. Applies communicative skills. Leadership lab.

**Credit Hours:** 2

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**AERO 1200: Heritage and Values of the United States Air Force**

Continues introducing students to the United States Air Force and provides an overview of the basic characteristics, missions, and organization of the Air Force. Applies communicative skills. Leadership lab.

**Credit Hours:** 2

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**AERO 2100: Team and Leadership Fundamentals**

A survey course that focuses on laying the foundation for teams and leadership. The topics include skills that will allow cadets to improve their leadership on a personal level and within a team. The courses will prepare cadets for their field training experience where they will be able to put the concepts learned into practice. The purpose is to instill a leadership mindset and to motivate sophomore students to transition from AFROTC cadet to AFROTC officer candidate. Applies communicative skills. Leadership lab.

**Credit Hours:** 2

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**AERO 2200: Team and Leadership Fundamentals**

Continues laying the foundation for teams and leadership. The topics include skills that will allow cadets to improve their leadership on a personal level and within a team. The courses will prepare cadets for their field training experience where they will be able to put the concepts learned into practice. The purpose is to instill a leadership mindset and to motivate sophomore students to transition from AFROTC cadet to AFROTC officer candidate. Applies communicative skills. Leadership lab.

**Credit Hours:** 2

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**AERO 3100: Leading People and Effective Communication**

Focuses on teaching cadets advanced skills and knowledge in management and leadership. Special emphasis is placed on enhancing

leadership skills and communication. Cadets have an opportunity to try out these leadership and management techniques in a supervised environment as juniors and seniors. Leadership lab.

**Credit Hours:** 3

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**AERO 3200: Leading People and Effective Communication**

Continues teaching cadets advanced skills and knowledge in management and leadership. Special emphasis is placed on enhancing leadership skills and communication. Cadets have an opportunity to try out these leadership and management techniques in a supervised environment as juniors and seniors. Leadership lab.

**Credit Hours:** 3

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**AERO 4100: National Security Affairs/Preparation for Active Duty**

Designed for college seniors and gives them the foundation to understand their role as military officers in American society. It is an overview of the complex social and political issues facing the military profession and requires a measure of sophistication commensurate with the senior college level. The final semester provides information that will prepare the cadets for Active Duty. Leadership lab.

**Credit Hours:** 3

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**AERO 4200: National Security Affairs/Preparation for Active Duty**

Designed for college seniors and gives them the foundation to understand their role as military officers in American society. It is an overview of the complex social and political issues facing the military profession and requires a measure of sophistication commensurate with the senior college level. The final semester provides information that will prepare the cadets for Active Duty. Leadership laboratory.

**Credit Hours:** 3

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## **Agribusiness Management (ABM)**

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**ABM 1010: Introduction to Agribusiness Management**

Introduction to Agribusiness Management, will provide students the opportunity to learn about business, agriculture, food, and the environment. Students will develop an understanding of how agriculture contributes to the U.S. economy and international markets. Agriculture is one of the fastest growing sectors in the U.S. economy and provides many great career opportunities nationwide. Students will learn about careers in agribusiness and food industry sales, commodity and food product marketing, entrepreneurial endeavors, farm management and production, financial management and analysis, human and public relations, policy and law and supply chain management.

**Credit Hours:** 3

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**ABM 1041: Applied Microeconomics**

Introduction to the microeconomic principles and their application to decision-making in agribusinesses. Consumer decision analysis, producer goals and optimization and the market environment where they meet and trade. Applications to current issues. Students who complete AG\_EC/ABM 1041 may not have credit for ECONOM 1014.

**Credit Hours:** 3

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**ABM 1042: Applied Macroeconomics**

Introduction to macroeconomic principles and their application to agriculture-food sector and natural resource issues. Using macroeconomic principles in decision making and in evaluating national and regional economic problems and issues. Students who complete ABM 1042 may not have credit for ECONOM 1015.

**Credit Hours:** 3

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**ABM 1200: Applied Computer Applications**

This course is an applied problem based learning opportunity for students to gain Excel spreadsheet related skills critical to careers in agriculture, food and natural resources. Students will learn intermediate and advanced spreadsheet skills essential for problem solving and decision making in these biologically influenced fields.

**Credit Hours:** 3

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**ABM 1230: Introduction to the Agricultural Policy Process**

This course is designed to help students recognize various aspects of agricultural policy and leadership. Students will learn about the food/agriculture/rural policy making process, the impact of those policies, and the role of leadership through discussions with recognized local, state, and national leaders in agriculture and policymaking. Graded on A-F basis only. Recommended Freshman preferred.

**Credit Hours:** 3

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**ABM 1230H: Introduction to the Agricultural Policy Process - Honors**

This course is designed to help students recognize various aspects of agricultural policy and leadership. Students will learn about the food/agriculture/rural policy making process, the impact of those policies, and the role of leadership through discussions with recognized local, state, and national leaders in agriculture and policymaking. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required. Recommended Freshman preferred

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**ABM 2050: For the Love of Food: Global Food System Debate**

This course is designed to develop students' understanding of the food system from farm to plate and the consumer's role in the global food system. Gaining a knowledge base on food system dynamics will allow students to better understand the societal and policy making processes behind food production. Each week we will discuss key topics and issues facing the food system today. This class will help students develop critical thinking skills to address challenges in the global food system.

**Credit Hours:** 3

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**ABM 2070W: Environmental Economics and Policy - Writing Intensive**

(same as ENV\_ST 2070). Examines current environmental and natural resource issues using a systems perspective and key economic concepts. Explores connections between the environment and the economy based on problems at the local, national, and international levels.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** ENGLISH 1000

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**ABM 2183: The Agricultural Marketing System**

Analysis of marketing systems that transforms agricultural products into food products. Examines functions and institutions in marketing and distributing food from both micro and macro perspectives.

**Credit Hours:** 3

**Prerequisites:** ABM 1041 or ECONOM 1014

**Recommended:** ABM 1042 or ECONOM 1015

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**ABM 2223: Agricultural Sales**

Principles of salesmanship in agricultural input and output markets; buyer motivations; time and territory management; communication models and techniques; planning and executing sales calls; after-sale service.

**Credit Hours:** 3

**Prerequisites:** ABM 1041 or ABM 1042 or ECONOM 1014 or ECONOM 1015 and sophomore standing

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**ABM 2225: Statistical Analysis**

Elementary statistical inference. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** MATH 1100

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**ABM 2294: Market Watch - Understanding and Using Commodity Markets**

This course is an introduction to commodity merchandising with a focus on the underlying fundamental market factors that determine commodity prices. In addition to monitoring market news, weather and supply/demand, students learn about cash, futures and options markets. Various merchandising tools are examined and how they can be applied to develop effective commodity merchandising strategies.

**Credit Hours:** 3

**Recommended:** Excel

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**ABM 2301: Topics in Agribusiness Management**

Initial offering of a course in a specific subject matter area related to Agribusiness Management. The course is offered when proposed by a faculty member in that area of expertise.

**Credit Hour:** 1-3

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**ABM 3150: International Agribusiness**

This course covers the primary factors that shape the business environment for food and agricultural firms conducting business across borders. The course examines how culture, institutions and public policy affect business operations and business strategies.

**Credit Hours:** 3

**Prerequisites:** ABM 2183

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**ABM 3224: New Products Marketing**

Learning experience to develop skills in marketing new agriculture products. To include market analysis, goals and objectives, action plan, financial evaluation and monitoring and measurement. In small groups, students will develop complete marketing plan for a new product.

**Credit Hours:** 3

**Prerequisites:** ABM 1041 or ECONOM 1014

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**ABM 3224W: New Products Marketing - Writing Intensive**

Learning experience to develop skills in marketing new agriculture products. To include market analysis, goals and objectives, action plan, financial evaluation and monitoring and measurement. In small groups, students will develop complete marketing plan for a new product.

**Credit Hours:** 3

**Prerequisites:** ABM 1041 or ECONOM 1014

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**ABM 3230: Agricultural and Rural Economic Policy**

Study and analysis of past and present government policies affecting agriculture and rural economy.

**Credit Hours:** 3

**Prerequisites:** ABM 1041 or ECONOM 1014 and ABM 1042 or ECONOM 1015

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**ABM 3241W: Ethical Issues in Agriculture - Writing Intensive**

The study of how economics, philosophy, and science inform on and impact important ethical problems in agriculture, such as the environment, biotechnology, animal welfare, farm structure, the role of agribusiness, development, sustainability, and agriculture-related public policy. Course may be repeated once for credit.

**Credit Hours:** 3

**Prerequisites:** ABM 1041 or ECONOM 1014 and junior standing

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**ABM 3256: Agribusiness and Biotechnology Law**

Legal concepts applicable to agribusiness and biotech firms. To include contracts, torts, product liability, warranties, corporate farming laws, UCC, corporations/partnerships/limited liability companies, labor laws, patent copyrights/trademark laws, international and ethical perspectives.

**Credit Hours:** 3

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**ABM 3260: General Farm Management**

Economics and management principles applied to planning and operating farm businesses. Includes enterprise combination, resource acquisition, water management, profit maximizing techniques and annual adjustments to changing conditions.

**Credit Hours:** 3

**Prerequisites:** ABM 1041 or ECONOM 1014

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**ABM 3271: International Agricultural Development**

Examines world food problem; analyzes its causes; economic and noneconomic policy alternatives for modernizing agriculture in less-developed countries.

**Credit Hours:** 3

**Prerequisites:** ABM 1041 or ECONOM 1014 and ABM 1042 or ECONOM 1015

**Recommended:** junior standing

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**ABM 3272: International Food Trade and Policy**

Examines food trade; develops economic analyses of trade impacts on domestic agricultural policies; examines international trade agreements; and interface of trade and environment.

**Credit Hours:** 3

**Prerequisites:** ABM 1041 or ECONOM 1014 and ABM 1042 or ECONOM 1015

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**ABM 3282: Agribusiness Finance**

Application of the concepts and methods of finance to the management of agribusiness firms, including cooperatives. Special attention is given to the working capital needs of agribusiness and to the specialized lending institutions in the agricultural economy.

**Credit Hours:** 3

**Prerequisites:** ABM 1041 or ECONOM 1014 and ACCTCY 2036 or ACCTCY 2026

**Recommended:** ACCTCY 2037 or ACCTCY 2027

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**ABM 3283: Fundamentals of Entrepreneurship**

Introduce students to entrepreneurial way of thinking. Entrepreneurship is a way of thinking about identifying/creating opportunities and transforming those opportunities into new businesses, new institutions, or solutions to problems. Students will participate in the process of formulating and evaluating solutions to problems and identifying and exploiting opportunities.

**Credit Hours:** 3

**Prerequisites:** ABM 1041 or ECONOM 1014 and ACCTCY 2036 or ACCTCY 2026. Restricted to Agricultural Economics and Agribusiness Management majors during early registration

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**ABM 3285: Problems in Agribusiness Management**

Supervised study in a specialized phase of agricultural economics. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ABM 3286: Economics of Managerial Decision Making**

Introduces tools and concepts from price theory, game theory, industrial organization and organizational economics, and applies them to managerial decision making activities for businesses in the agrifood system and for natural resource and environmental management.

**Credit Hours:** 3

**Prerequisites:** ABM 2123 and ABM 2183

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**ABM 3294: Agricultural Marketing and Procurement**

Content of course focuses on marketing issues in the agriculture supply chain. Topics covered include price discovery, basis, futures/options, contracting, logistics, and management decision making.

**Credit Hours:** 3

**Prerequisites:** ABM 2183

**Recommended:** ABM 2225 or STAT 2500

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**ABM 3295: Real Money: Speculative Trading for Beginners**

Familiarize students with the learning components of commodity future trading. Students learn through involvement by investing in a commodity pool and trading futures. Students apply both fundamental and technical analysis. Students taking this course are required to invest from \$200 to \$600 in \$200 increments. Students cannot lose more money than invested.

**Credit Hours:** 3

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**Recommended:** ABM 3294

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**ABM 3370: Transportation in the Global Supply Chain**

This course provides an overview of the transportation sector, including history, providers, users, government regulation, and the central role of transportation in supply chain management. The course covers the importance of domestic and global transportation, the operational aspects of the various transportation modes (rail, water, motor, air, and pipeline), the role of transportation intermediaries, the demand and supply of transportation, and the managerial aspects of transport in both the commercial and urban environment.

**Credit Hours:** 3

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**ABM 4223: Professional Solution Selling**

(cross-leveled with AAE 7223). This course will reinforce the sales education students gained in ABM 2223, Agricultural Sales. Class will focus on strategic and conceptual selling which are techniques geared toward complex B2B sales. In this course, we will discuss myriad career opportunities in the sales profession. Students will have the opportunity to interact with sales professionals.

**Credit Hours:** 3

**Prerequisites:** ABM 2223

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**ABM 4230: Understanding the Agricultural Policy Process**

The goal of this course is to prepare students for a career in agricultural policy and will build the skill set needed in the agricultural policy environment.

**Credit Hours:** 3

**Prerequisites:** ABM 3230

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**ABM 4240: Microeconomics Theory and Applications**

(cross-leveled with AAE 7240). This course extends the learning from principles of microeconomics for students of applied economics. The topics in this course prepare students for further study in finance, business management, policy analysis, economic development, and other applications of economic theory. The course stresses development of theoretical models of consumer choice, firm behavior, perfect and imperfect markets, and externalities, balanced by investigation of the assumptions behind these models. Applications of the models to management and policy issues will be assigned throughout the semester.

**Credit Hours:** 3

**Prerequisites:** MATH 1400 and ABM 1041 or ECONOM 1014

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**ABM 4251: Agricultural Prices**

(cross-leveled with AAE 7251). Variations in prices of agricultural products; underlying factors.

**Credit Hours:** 3

**Prerequisites:** ABM 2123 and ABM 2225 or STAT 2500

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**ABM 4295: Agricultural Risk Management**

(cross-leveled with AAE 7295). This class will examine the range of risks business face and explore ways of characterizing and evaluating those risks.

**Credit Hours:** 3

**Prerequisites:** ABM 2183 and ABM 2225 or STAT 2500

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**ABM 4301: Topics in Agribusiness Management**

Current and new topics not currently offered in applied and/or theoretical areas in Agribusiness Management.

**Credit Hour:** 1-6

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**ABM 4301H: Topics in Agribusiness Management - Honors**

Current and new topics not currently offered in applied and/or theoretical areas in Agribusiness Management. .

**Credit Hour:** 1-6

**Prerequisites:** honors eligibility required

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**ABM 4940: Internship Opportunities**

Combines study, observation, and employment in a public agency or private firm in marketing, farm management, or credit. Staff supervision and evaluation. Reports required.

**Credit Hour:** 1-3

**Recommended:** 75 hours completed

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**ABM 4962: Planning the Farm Business**

(cross-leveled with AAE 7962). Economic analysis and planning of the farm business and its organization. Applications of computerized management techniques to farm business including resource acquisition, tax management, enterprise analysis, and business analysis through farm records and budgets.

**Credit Hours:** 3

**Prerequisites:** ABM 3260

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**ABM 4971: Agribusiness Management Strategy**

(cross-leveled with AAE 7971). Analysis of industry forces in agriculture and food sector. Assessing risks and firms' capabilities. Development of firm's competitive strategy, including vertical integration, diversification, international business option, and financial planning and performance measurement.

**Credit Hours:** 3

**Prerequisites:** ABM 3282 or FINANC 3000 and ABM 3286 or MANGMT 3000

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**ABM 4971W: Agribusiness Management Strategy - Writing Intensive**

(cross-leveled with AAE 7971). Analysis of industry forces in agriculture and food sector. Assessing risks and firms' capabilities. Development of firm's competitive strategy, including vertical integration, diversification, international business option, and financial planning and performance measurement.

**Credit Hours:** 3

**Prerequisites:** ABM 3282 or FINANC 3000 and ABM 3286 or MANGMT 3000

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**ABM 4972: Agri-Food Business and Cooperative Management**

(cross-leveled with AAE 7972). Risk management in the global agrifood chain, including managing the unique uncertainties of biological production processes, global market analysis, and government intervention, of risk management tools and institutions unique to strategic decision making in agribusiness and cooperative firms.

**Credit Hours:** 3

**Prerequisites:** ABM 4971 and ABM 3286 or MANGMT 3000

**Recommended:** ABM 3256

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**ABM 4983W: Strategic Entrepreneurship in Agri-Food - Writing Intensive**

(cross-leveled with AAE 7983). Strategic entrepreneurship is the search for opportunities to generate income streams from innovation, development of new markets, and altering the rivalry positions in existing markets.

**Credit Hours:** 3

**Prerequisites:** ABM 3283 and ABM 3282 or FINANC 3000

**Recommended:** senior standing

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**ABM 4990W: Economic Analysis of Policy and Regulation - Writing Intensive**

(cross-leveled with AAE 7990). Apply economic concepts and tools to analyze the policy-making process and the implications of policy for individuals, firms, markets and society. Policy topics include, among other things, agricultural support programs, environmental policy, international trade, international development, and agribusiness regulation.

**Credit Hours:** 3

**Prerequisites:** ABM 4251

**Recommended:** ECONOM 4351

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## Agricultural & Applied Economics (AAE)

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**AAE 7223: Professional Solution Selling**

(cross-leveled with ABM 4223). This course will reinforce the sales education students gained in ABM 2223, Agricultural Sales. Class will focus on strategic and conceptual selling which are techniques geared toward complex B2B sales. In this course, we will discuss myriad career opportunities in the sales profession. Students will have the opportunity to interact with sales professionals.

**Credit Hours:** 3

**Prerequisites:** ABM 2223

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**AAE 7240: Microeconomics Theory and Applications**

(cross-leveled with ABM 4240). This course extends the learning from principles of microeconomics for students of applied economics. The topics in this course prepare students for further study in finance, business management, policy analysis, economic development, and other applications of economic theory. The course stresses development of theoretical models of consumer choice, firm behavior, perfect and imperfect markets, and externalities, balanced by investigation of the assumptions behind these models. Applications of the models to management and policy issues will be assigned throughout the semester.

**Credit Hours:** 3

**Prerequisites:** ABM 1041 or ECONOM 1014

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**AAE 7251: Agricultural Prices**

(cross-leveled with ABM 4251). Variations in prices of agricultural products; underlying factors.

**Credit Hours:** 3

**Prerequisites:** ABM 2123 and ABM 2225 or STAT 2500

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**AAE 7295: Agricultural Risk Management**

(cross-leveled with ABM 4295). This class will examine the range of risks businesses face and explore ways of characterizing and evaluating those risks.

**Credit Hours:** 3

**Prerequisites:** ABM 2183 and ABM 2225 or STAT 2500

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**AAE 7301: Topics in Agricultural and Applied Economics**

Current and new topics not currently offered in applied and/or theoretical areas in Agricultural and Applied Economics.

**Credit Hour:** 1-6

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**AAE 7400: Environmental Law, Policy, and Justice**

(same as ENV\_SC 7400; cross-leveled with ENV\_SC 4400). This course will examine the intersection of environmental law, policy, and justice. We will first cover the building blocks of U.S. environmental law, including common law and statutes such as the Clean Air Act and the Clean Water Act. We will then turn to international environmental policy issues such as climate change, marine pollution, and the hazardous waste trade. We will approach these laws and treaties through the lens of equity and environmental justice. The course will use a variety of teaching methods, including lecture and classroom discussion using cold calling and the Socratic Method. We will also have student presentations, guest speakers, a moot court, a negotiation simulation, and a field trip in the Columbia, Missouri area. Graded on A-F basis only.

**Credit Hours:** 3

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**AAE 7940: Internship Experiences in Agricultural and Applied Economics**

Combines study, observation, and employment in a public agency or private firm in marketing, farm management, or credit. Staff supervision and evaluation. Reports required. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** 2.5 GPA; 75 hours of course work and instructor's consent

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**AAE 7962: Planning the Farm Business**

(cross-leveled with ABM 4962). Economic analysis and planning of the farm business and its organization. Applications of computerized management techniques to farm business including resource acquisition, tax management, enterprise analysis, and business analysis through farm records and budgets.

**Credit Hours:** 3

**Prerequisites:** ABM 3260

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**AAE 7971: Agribusiness Management Strategy**

(cross-leveled with ABM 4971). Analysis of industry forces in agriculture and food sector. Assessing risks and firms capabilities. Development of firm's competitive strategy, including vertical integration, diversification, international business option, and financial planning and performance measurement.

**Credit Hours:** 3

**Prerequisites:** ABM 3282 or FINANC 3000 and ABM 3286 or MANGMT 3000

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**AAE 7972: Agri-Food Business and Cooperative Management**  
(cross-leveled with ABM 4972). Risk management in the global agrifood chain, including managing the unique uncertainties of biological production processes, global market analysis, and government intervention, of risk management tools and institutions unique to strategic decision making in agribusiness and cooperative firms.

**Credit Hours:** 3

**Prerequisites:** ABM 4971 and ABM 3286 or MANGMT 3000

**Recommended:** ABM 3256

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**AAE 7983: Strategic Entrepreneurship in Agri-Food**  
(cross-leveled with ABM 4983). Strategic entrepreneurship is the search for opportunities to generate income streams from innovation, development of new markets, and altering the rivalry positions in existing markets. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Graduate standing and one course at the level of intermediate microeconomics

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**AAE 7990: Economic Analysis of Policy and Regulation**  
(cross-leveled with ABM 4990). Apply economic concepts and tools to analyze the policy-making process and the implications of policy for individuals, firms, markets and society. Policy topics include, among other things, agricultural support programs, environmental policy, international trade, international development, and agribusiness regulation.

**Credit Hours:** 3

**Prerequisites:** ABM 4251

**Recommended:** ECONOM 4351

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**AAE 7995: Economics of Agricultural Production and Distribution**  
(cross-leveled with ABM 4995). Applies economic principles to agricultural production including price theory, linear programming and uncertainty.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 and ABM 2225 or STAT 2500

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**AAE 8001: Advanced Topics in Agricultural and Applied Economics**  
Analyzes economic logic problems. Current agricultural and applied economic problems.

**Credit Hours:** 3

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**AAE 8050: Economics of Institutions and Organizations**  
This course expands upon the fundamental principles of neo-classical economics by relaxing traditional behavioral and informational assumptions and by introducing the importance of transaction costs and institutions for economic analysis.

**Credit Hours:** 3

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**AAE 8060: Quantitative Tools for Decision Making and Performance Evaluation**

Firm decision making and evaluation are key concepts in business economics and management. This is an introductory course that focuses

on quantitative methods for modeling the decision process and evaluating the performance of Decision-Making Units (DMUs).

**Credit Hours:** 3

**Prerequisites:** STAT 4510

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**AAE 8085: Masters Problems in Agricultural and Applied Economics**  
Supervised study, research in specialized phases of agricultural and applied economics.

**Credit Hour:** 1-99

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**AAE 8090: Masters Thesis Research in Agricultural and Applied Economics**

Independent investigation of advanced nature, leading to dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-6

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**AAE 8265: Agricultural and Food Policy**

The course is designed to help students understand how agricultural and food policies are developed and how they can affect farmers, consumers, taxpayers and the environment. Topics include the policy process, farm subsidy programs, crop insurance, nutrition programs, trade agreements, food security, biofuel policies, promotion of organic and local foods and food safety. The primary focus will be U.S. policies, but policies in other countries will also be discussed. Students will develop analytical skills that will prepare them for careers in government, business or academia. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECONOM 7351 or equivalent

**Recommended:** AAE 9220, AAE 9230

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**AAE 8350: Regional Development Issues and Analysis**

(same as PUB\_AF 8350). Examines theories of regional growth and development and methods for analysis with applications to current policy issues. Topics include firm location, new economic geography and agglomeration theory, clusters, human capital, migration, social capital, tax and development incentives, and sustainable regional development.

**Credit Hours:** 3

**Prerequisites:** ECONOM 7351 or PUB\_AF 8190 or equivalent

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**AAE 8410: Natural Resource and Environmental Economics**

Contemporary natural resource/environmental problems; natural resource capacity, alternative economic theories, property rights, externalities, market failures, efficient use of exhaustible and renewable resources, and economics of environmental pollution.

**Credit Hours:** 3

**Prerequisites:** ECONOM 7351

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**AAE 8430: International Agricultural Development Policy**

An analytical review of economic policies directed toward stimulating agricultural development in the world's low income countries.

**Credit Hours:** 3

**Prerequisites:** ECONOM 7351 and ECONOM 7353

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**AAE 8450: Masters Non Thesis Research**

Independent investigation of advanced nature. Report required.

**Credit Hour:** 1-6

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**AAE 8510: Research Methods and Design**

(same as AG\_ED\_LD 8510, RU\_SOC 8510). This course will give students a foundational understanding of quantitative research methods and design in the social and behavioral sciences. The main objective is to help students identify and formulate their own research questions and develop and implement a process for answering them. Students will examine the nature of the research process, explore the connection between theory and empirical research, identify viable research topics, critique published research, learn how to structure good arguments, understand the structure of research papers and proposals, plan and manage research activities, and become familiar with research ethics. Graded on A-F basis only.

**Credit Hours:** 3

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**AAE 8520: Economics of Transaction and Contracting**

This course focuses on the economic incentives underlying transaction relationships and develops and implements a framework for analyzing contract documents governing various kinds of transactions.

**Credit Hours:** 3

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**AAE 8610: Economic and Sociological Approaches to Collective Action**

(same as RU\_SOC 8610). This course identifies analytical and methodological tools, including rational choice and social capital, to deal with practical problems of collective action in: agricultural cooperatives, rural community development, political interest groups and other mutuals.

**Credit Hours:** 3

**Prerequisites:** AAE 7972

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**AAE 8860: International Comparative Rural Policy**

(same as PUB\_AF 8860, NAT\_R 8860). Compares the rural policy objectives and implementation strategies of various countries, and assesses these policies in terms of economic, social, environmental outcomes and their implications for international relations. Includes 2-weeks of study Abroad. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AAE 9001: Advanced Topics in Economics II**

Analyzes economic logic problems. Current agricultural economic problems.

**Credit Hours:** 3

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**AAE 9040: Advanced Microeconomics Theory and Applications I**

First semester course that rigorously examines the microeconomic theory of producer and consumer behavior, combined with applications of the theoretical concepts to empirical economic research on agricultural, business, development, and environmental issues. Graded on A-F basis only.

**Credit Hours:** 3

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**Prerequisites:** ECONOM 7351 or instructors consent

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**AAE 9042: Advanced Microeconomics Theory and Applications II**

Second semester advanced micro theory covering choice under uncertainty, industry structure, game theory, information econ, and political economy of regulation. Includes applications of micro models to issues in agricultural, natural resource, and development sectors.

**Credit Hours:** 3

**Prerequisites:** AAE 9040

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**AAE 9085: Doctoral Problems in Agricultural and Applied Economics**

Supervised study, research in specialized phases of agricultural and applied economics.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AAE 9090: Doctoral Dissertation Research in Agricultural and Applied Economics**

Independent investigation of advanced nature, leading to dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**AAE 9220: Price and Market Analysis**

Applies economic theory and quantitative methods to analyze agricultural prices and markets. Examines problem formulation, estimation, and model evaluation applied to the concepts of demand, supply, and prices.

**Credit Hours:** 3

**Prerequisites:** ECONOM 8451 or ECONOM 8472; STAT 4510

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**AAE 9230: Welfare and Consumption Economics**

Introduces welfare economic principles; application to problems of resource allocation. Appraises economic policies, programs; consumers' choice; measurement of consumption; living standards; household decisions and markets relation.

**Credit Hours:** 3

**Prerequisites:** ECONOM 8451 or instructor's consent

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**AAE 9265: Food, Agricultural and Rural Policy**

Application of welfare economics theory to food, agricultural and rural development policy analysis. Historical perspective and economics analysis of contemporary issues in national and international policy and institutions.

**Credit Hours:** 3

**Prerequisites:** ECONOM 7351 and AAE 9230

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**AAE 9510: Organizational Economics I**

This course builds on transaction cost-based theories and tools to study the economic underpinnings of intra-firm organization, firm boundaries, and the structure of inter-firm transactions.

**Credit Hours:** 3

**Prerequisites:** AAE 8050

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**AAE 9520: Organizational Economics II**

Relationships of neoclassical and new institutional economics to designing organizational strategy and structure. Internal coordination and structure, organizational boundaries, inter-firm rivalry and cooperation, and competitiveness of food system organizations.

**Credit Hours:** 3

**Prerequisites:** AAE 8050

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## Agricultural Education and Leadership (AG\_ED\_LD)

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**AG\_ED\_LD 1000: Orientation to Agricultural Education and Leadership**

Overview of the discipline of agricultural education including: career opportunities, certification requirements, professional development, and current issues.

**Credit Hour:** 1

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**AG\_ED\_LD 2250: Introduction to Leadership**

Any student can learn to be a leader. Students will analyze their strengths and then develop their personalized leadership brand. Students will develop leadership skills for leading in home, work, and organizational contexts and will apply those skills in planning and implementing a personal leadership project.

**Credit Hours:** 3

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**AG\_ED\_LD 2260: Team and Organizational Leadership**

Principles and practices in planning, developing, conducting, and evaluating leadership programs for agricultural groups. The course focuses on helping students better understand themselves and others, improving group communications; becoming effective leaders and members of groups; improving leadership and personal development skills; assessing leadership situations, determining and administering appropriate leadership strategies, and evaluating results.

**Credit Hours:** 3

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**AG\_ED\_LD 2260W: Team and Organizational Leadership - Writing Intensive**

Principles and practices in planning, developing, conducting, and evaluating leadership programs for agricultural groups. The course focuses on helping students better understand themselves and others, improving group communications; becoming effective leaders and members of groups; improving leadership and personal development skills; assessing leadership situations, determining and administering appropriate leadership strategies, and evaluating results.

**Credit Hours:** 3

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**AG\_ED\_LD 2270: Leadership Development in Youth Organizations**

This course focuses on how to develop leadership in youth through participation in a youth organization. In particular, this course explores youth development, how to develop leadership through youth organizations and their activities, and organizational structures.

**Credit Hours:** 3

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**AG\_ED\_LD 2271: Early Field Experience**

This field experience is designed for students to explore the role of being a school-based agricultural educator. In particular, students will experience the total agricultural education program with a focus on youth organizations.

**Credit Hour:** 1

**Prerequisites:** AG\_ED\_LD 2270 or concurrent enrollment

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**AG\_ED\_LD 3010: Leadership in Today's World**

(same as RU\_SOC 3010). Critically examines the leaders and leadership surrounding the greatest challenges to society today and in the future, while developing awareness and understanding of global and local issues in agriculture, democracy, civil society, business, and the environment. Course also focuses on fostering civil discourse and enhancing engagement. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** RU\_SOC 1000, AG\_ED\_LD 2250, or AG\_ED\_LD 2260

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**AG\_ED\_LD 3010H: Leadership in Today's World - Honors**

(same as RU\_SOC 3010H). Critically examines the leaders and leadership surrounding the greatest challenges to society today and in the future, while developing awareness and understanding of global and local issues in agriculture, democracy, civil society, business, and the environment. Course also focuses on fostering civil discourse and enhancing engagement. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** RU\_SOC 1000, AG\_ED\_LD 2250, or AG\_ED\_LD 2260

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**AG\_ED\_LD 3085: Problems in Agricultural Education and Leadership**

Supervised and independent study of problems and issues in Agricultural Education and Leadership at the undergraduate level.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AG\_ED\_LD 3320: Metal Fabrication and Laboratory Management**

Application of metal fabrication skills, including cutting, bending, and welding, using a variety of processes. Operations of hand tools and power equipment used in project construction. Also includes laboratory management, instructional strategies, and assessment techniques related to secondary agriculture programs. Prerequisites: Agriculture Education Majors Only

**Credit Hours:** 3

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**AG\_ED\_LD 3776: Litton Leadership Scholars**

The Litton Leadership Scholars class focuses on developing students as leaders. Through leadership coursework, field-based mentorship and self-reflection, students will practice and develop exemplary leadership skills. Students will have an opportunity to spend time with industry leaders, expand their personal growth boundaries and develop their unique leadership style. Students will engage in an interview process to be selected for the Litton Leadership Scholars program. Graded on A-F basis only.

**Credit Hour:** 1-2

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**AG\_ED\_LD 4001: Topics in Agricultural Education and Leadership**

Courses on specialized topics offered on a trial basis until the course has been assigned a course number.

**Credit Hour:** 1-3

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**AG\_ED\_LD 4087: Internship Seminar in Agricultural Education and Leadership**

Seminar focused on the problems of practice and developing skills needed for a career in teaching agriculture at the secondary level. The core of the seminar is on coordinating experiential learning and leadership development activities, managing the complete program, and professional development.

**Credit Hours:** 3

**Corequisites:** AG\_ED\_LD 4995

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**AG\_ED\_LD 4240: Leading Organizational and Community Change**

(cross-leveled with AG\_ED\_LD 7240). This course provides the diagnostic and strategic foundations for students to enact leadership in organizational and community contexts. Designed for undergraduate students and graduate-level professionals alike, this course increases a student's capacity to lead with or without authority, and with or without a formal organizational or political position. The course is based heavily on Heifetz's Adaptive Leadership theory, which challenges individuals to think beyond individual, role-based leadership skills and behaviors when enacting change in systems, such as organizations and communities.

**Credit Hours:** 3

**Recommended:** AG\_ED\_LD 2250 and AG\_ED\_LD 2260

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**AG\_ED\_LD 4310: Intracurricular Program Management in Agricultural Education**

This course explores the philosophical foundations and current structures of secondary Agricultural Education Programs. Students will learn how to plan, supervise, and evaluate the intracurricular components within Agricultural Education programs.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**AG\_ED\_LD 4320: Methods of Teaching I**

(cross-leveled with AG\_ED\_LD 7320). Investigations into the teaching and learning process which including lesson planning, direct instruction methods, and assessment. Enrollment limited to students accepted into Phase II of the Teacher Development Program.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**AG\_ED\_LD 4321: Field Experience I**

A field-based experience that examines the integration of Supervised Agricultural Experience and Career Development Events into the secondary agriculture curriculum. Investigates the use of advisory committees and graduate follow-up data in curriculum planning. Graded on S/U basis only.

**Credit Hour:** 1

**Corequisites:** AG\_ED\_LD 4320

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**AG\_ED\_LD 4330: Methods of Teaching II**

(cross-leveled with AG\_ED\_LD 7330). Further investigations into the teaching and learning process which includes methods beyond direct instruction, classroom and behavior management, assessment, and curricular design. Enrollment limited to students accepted into Phase II of Teacher Development Program.

**Credit Hours:** 3

**Prerequisites:** AG\_ED\_LD 4320 or instructor's consent

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**AG\_ED\_LD 4331: Field Experience II**

A field-based experience that provides students with comprehensive experience directed toward learning, teaching, and assessment in secondary agriculture programs. Graded on S/U basis only.

**Credit Hour:** 1

**Corequisites:** AG\_ED\_LD 4330

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**AG\_ED\_LD 4340: Designing and Delivering Educational/Leadership Programs**

(cross-leveled with AG\_ED\_LD 7340). Overview of theory and practice in communicating and facilitating adult and youth training/leadership programs in communities and organizations. Including: communicating program design, methods of communicating for different contexts, marketing programs, and evaluating programs.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**AG\_ED\_LD 4340H: Designing and Delivering Educational/Leadership Programs - Honors**

(cross-leveled with AG\_ED\_LD 7340). Overview of theory and practice in communicating and facilitating adult and youth training/leadership programs in communities and organizations. Including: communicating program design, methods of communicating for different contexts, marketing programs, and evaluating programs.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required; junior standing or instructor's consent

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**AG\_ED\_LD 4993: Internship in Agricultural Education and Leadership**

Field-based learning experience that combines study, observation, and employment with an agricultural business, industry or government agency in the area of education, training, and development. Individual internship plans are developed by a student, faculty supervisor, and an industry cooperator.

**Credit Hour:** 1-4

**Prerequisites:** departmental consent

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**AG\_ED\_LD 4995: Student Teaching Internship in Agriculture**

A field-based learning experience that combines observation and practice in a secondary/adult agriculture program. The purpose of the internship is to provide an opportunity to apply teaching and learning concepts in a practical context.

**Credit Hour:** 1-12

**Prerequisites:** departmental consent

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**AG\_ED\_LD 7087: Internship Seminar in Agricultural Education and Leadership**

Seminar focused on the problems of practice and developing skills needed for a career in teaching agriculture at the secondary level. The core of the seminar is on coordinating experimental learning and leadership development activities, managing the complete program, and professional development.

**Credit Hours:** 3

**Corequisites:** AG\_ED\_LD 4995

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**AG\_ED\_LD 7240: Leading Organizational and Community Change**

(cross-leveled with AG\_ED\_LD 4240). This course provides the diagnostic and strategic foundations for students to enact leadership in organizational and community contexts. Designed for undergraduate students and graduate-level professionals alike, this course increases a student's capacity to lead with or without authority, and with or without a formal organizational or political position. The course is based heavily on Heifetz's Adaptive Leadership theory, which challenges individuals to think beyond individual, role-based leadership skills and behaviors when enacting change in systems, such as organizations and communities.

**Credit Hours:** 3

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**AG\_ED\_LD 7310: Intracurricular Program Management in Agricultural Education**

This course explores the philosophical foundations and current structures of secondary Agricultural Education Programs. Students will learn how to plan supervise and evaluate the intracurricular components within Agricultural Education Programs.

**Credit Hours:** 3

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**AG\_ED\_LD 7320: Methods of Teaching I**

(cross-leveled with AG\_ED\_LD 7320). Investigations into the teaching and learning process which includes lesson planning, direct instruction methods, and assessment.

**Credit Hours:** 3

**Prerequisites:** acceptance into the Teacher Certification option

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**AG\_ED\_LD 7330: Methods of Teaching II**

(cross-leveled with AG\_ED\_LD 4330) Further investigations into the teaching and learning process which includes methods beyond direct instruction, classroom and behavior management, assessment, and curricular design.

**Credit Hours:** 3

**Prerequisites:** acceptance into Teacher Certification option and AG\_ED\_LD 4320 or AG\_ED\_LD 7320

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**AG\_ED\_LD 7340: Designing and Delivering Educational/Leadership Programs**

(cross-leveled with AG\_ED\_LD 4340). Overview of theory and practice in communicating and facilitating adult and youth training/leadership programs in communities and organizations. Including: communicating program design, methods of communicating for different contexts, marketing programs, and evaluating programs.

**Credit Hours:** 3

**Prerequisites:** AG\_ED\_LD 2220 or equivalent

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**AG\_ED\_LD 7350: Inservice Course in Agricultural Education and Leadership**

Professional development course which focuses on enhancing the technical, administrative, or management skills of agricultural educators.

**Credit Hour:** 1-99

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**AG\_ED\_LD 8080: Creative Component in Agricultural Education and Leadership**

Independent original work that culminates in a scholarly project, document or presentation. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**AG\_ED\_LD 8085: Problems in Agricultural Education and Leadership**

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AG\_ED\_LD 8087: Seminar in Agricultural Education and Leadership**  
Seminar in Agricultural Education and Leadership.

**Credit Hour:** 1-99

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**AG\_ED\_LD 8090: Thesis Research in Agricultural Education and Leadership**

Independent research activities by a master's student that culminates in a thesis. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AG\_ED\_LD 8210: History and Leadership of the Land Grant University**

Historical overview of the evolution and development of land-grant colleges. Students examine early public mandates and evaluate education, research, public service developments and new initiatives needed for Land Grant universities to effectively serve society.

**Credit Hours:** 2

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**AG\_ED\_LD 8250: Leadership Theory and Application**

Survey of concepts, theories and practices of leadership, personal development and group dynamics. Exploration of leadership traits and models with a focus upon how they apply to Agricultural Education.

**Credit Hours:** 3

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**AG\_ED\_LD 8330: Advanced Methods of Teaching**

Explores the principles and psychological aspects of teaching and learning; teaching strategies, methods, and techniques; evaluating student learning; motivating students; and personal teacher behaviors that influence learning.

**Credit Hours:** 3

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**AG\_ED\_LD 8340: Student and Teacher Development in Agricultural Education and Leadership**

Examines planning and supervising career exploration, experiential learning, and leadership development activities of secondary agriculture students. The professional development of the secondary agriculture teacher is also examined.

**Credit Hours:** 3

**Prerequisites:** AG\_ED\_LD 4310 or equivalent

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**AG\_ED\_LD 8350: College Teaching of Agriculture, Food and Natural Resources**

A course designed to assist current or future college faculty who wish to improve their teaching skills. Topics include theories, principles and practices associated with effective teaching and learning in higher education.

**Credit Hours:** 3

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**AG\_ED\_LD 8351: Induction Year Teaching I**

Continuing education course for the professional development of first-year teachers of agriculture. The course focuses on the pedagogical knowledge, skills, and attitudes and managerial skills needed by beginning teachers of agriculture.

**Credit Hour:** 1-2

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**AG\_ED\_LD 8352: Induction Year Teaching II**

Continuing education course for the professional development of second-year teachers of agriculture. The course is a continuation of AG\_ED\_LD 8351 and focuses on the pedagogical knowledge, skills, and attitudes and managerial skills needed by beginning teachers of agriculture.

**Credit Hour:** 1-2

**Prerequisites:** AG\_ED\_LD 8351

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**AG\_ED\_LD 8410: Philosophical Foundations of Agricultural Education and Leadership**

Overview of the history and philosophical development of agricultural education and leadership as a discipline. Philosophers, policy makers, movements, trends, and legislation that has influenced agricultural education. Current issues and future trends impacting the field. Graded on A-F basis only.

**Credit Hour:** 1-3

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**AG\_ED\_LD 8430: Evaluation of Educational Programs**

(same as RU\_SOC 8430). Examines program evaluation concepts, principles, and models; and identifies major steps in planning, conducting, and reporting results of evaluation objects.

**Credit Hours:** 3

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**AG\_ED\_LD 8510: Research Methods and Design**

(same as RU\_SOC 8510, AAE 8510). This course will give students a foundational understanding of quantitative research methods and design in the social and behavioral sciences. The main objective is to help students identify and formulate their own research questions and develop and implement a process for answering them. Students will examine the nature of the research process, explore the connection between theory and empirical research, identify viable research topics,

critique published research, learn how to structure good arguments, understand the structure of research papers and proposals, plan and manage research activities, and become familiar with research ethics. Graded on A-F basis only.

**Credit Hours:** 3

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**AG\_ED\_LD 8530: Grant Proposal Writing**

Preparation of proposals designed to solicit grant funding to support teaching, research or outreach programs. Emphasis on proposal development, identifying funding sources, and proposal review processes.

**Credit Hours:** 2

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**AG\_ED\_LD 8540: Methods of Qualitative Research**

(same as RU\_SOC 8540). Overview of philosophies, approaches toward, design, data collection, analysis and reporting of qualitative research.

**Credit Hours:** 3

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**AG\_ED\_LD 8995: College Teaching Practicum**

Learning experience that combines the study, observation, and practice of teaching university-level courses in food, agriculture and/or natural resources under the supervision of teaching mentors. Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent and AG\_ED\_LD 8330 or AG\_ED\_LD 8350

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**AG\_ED\_LD 9090: Doctoral Research in Agricultural Education and Leadership**

Independent research activities by a doctoral student that culminates in a dissertation or other scholarly work. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AG\_ED\_LD 9410: Foundations and Practices of Teacher Education**

Foundations and practices of teacher preparation programs including student selection and advisement, licensure requirements, accreditation, curriculum, clinical and field experiences, supervision, evaluation and research.

**Credit Hours:** 3

**Prerequisites:** Doctoral student or instructor's consent

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**AG\_ED\_LD 9510: Data Collection, Analysis and Interpretation**

(same as RU\_SOC 9510). A quantitative methods course in measurement, data collection and analysis related to social and behavioral science research. An applied approach is taken on instrumentation and analyzing data using descriptive and inferential statistics. Practical skills in data manipulation using SPSS are developed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AG\_ED\_LD 8510 or RU\_SOC 8510 or instructor's consent

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## Agricultural Science Communications (AGSC\_COM)

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## Agricultural Systems Management (AG\_S\_M)

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### AG\_S\_M 1020: Introduction to Agricultural Systems Management

Introductory course that acquaints students with the general technical areas of Agricultural Systems Management. A systematic problem-solving approach is applied to problems derived from each of six technical areas within Agricultural Systems Management. The six areas in addition to agricultural safety include applied physical principles, internal combustion engines, surface water management, ohms law and electrical circuits, machinery systems and management, and grain and material handling.

**Credit Hours:** 3

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### AG\_S\_M 1040: Physical Principles for Agricultural Applications

Introductory survey course to help students: formulate problems; understand units/accuracy; learn basic definitions; understand simple machines, power transmission, fluid statics, electricity, heat-flow, and temperature/moisture relationships.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher

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### AG\_S\_M 2007: Topics in Agricultural Systems Management-Physical

Current and new technical developments in agricultural systems management.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

**Recommended:** 6 hours in AG\_S\_M or instructor's consent

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### AG\_S\_M 2199: Seminar in Professional Development

ASM faculty meet with and discuss what it means to be a professional in the field of Agricultural Systems Technology. In general, the course includes aspects of what it means to be a professional, to develop a resume, tips for interviewing, finding a job, and building one's career. A second major aspect of the course is to explore the field of Agricultural Systems Technology to gain a better understanding of various potential career paths available to students in Agricultural Systems Technology. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** ASM Freshman, Sophomores, Transfer students or instructor consent

**Recommended:** AG\_S\_M 1020

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### AG\_S\_M 2220: Agricultural/Industrial Structures

A building science course looking at construction materials, structural component selection, ventilation, moisture control and energy use. Math reasoning proficiency course.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher

**Recommended:** AG\_S\_M 1040

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### AG\_S\_M 2320: Internal Combustion Power

Basic internal combustion engine principles, mechanisms, combustion cycles, fuels, fuel injection, electrical systems, engine testing.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher

**Recommended:** AG\_S\_M 1040

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### AG\_S\_M 2340: Pesticide Application Equipment

Principles of pesticide application; sprayer hydraulics and spray atomization; calibration, mixing calculations and compatibility of tank mixes; personal and environmental protection; pesticide labels and regulations. Students earn their private applicators license.

**Credit Hours:** 3

**Recommended:** AS\_S\_M 1040. AS\_S\_M 1040. MATH 1100 or higher

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### AG\_S\_M 2345: Chemical Application Systems

Systems, components and operation practices used in the chemical application industry. Liquid and granular application systems and respective components will be studied along with procedures for minimizing drift, system calibration, recommended maintenance, and off-season storage procedures.

**Credit Hour:** 2-3

**Prerequisites:** MATH 1100 or higher

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### AG\_S\_M 2360: Fluid Power

Basic power hydraulic theory and application. Hydraulic systems, components and circuits are demonstrated using hydraulic trainers. Items demonstrated include hydraulic motors, cylinders, couplers, hoses and connectors.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher

**Recommended:** AG\_S\_M 1040

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### AG\_S\_M 3007: Topics in Agricultural Systems Management-Physical

Current and new technical developments in agricultural systems management.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

**Recommended:** 6 hours in AG\_S\_M or instructor's consent

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### AG\_S\_M 3350: Problems in Agricultural Systems Management

Supervised independent study at the undergraduate level.

**Credit Hour:** 1-5

**Prerequisites:** instructor's consent

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### AG\_S\_M 4020: Agricultural Safety and Health

(cross-leveled with AG\_S\_M 7020). Protecting agricultural workers and the general public in our age of technological and scientific advancement has become one of the most challenging and rewarding career fields. This online agricultural safety and health class will prepare you to respond to these needs, to analyze agricultural hazardous and rural public health situations, to develop and implement safety programs and apply governmental regulations associated with production agriculture. It

covers safety training strategies, safety management systems, workplace safety behaviors, safety standards and compliance, risk assessment and risk management, safety performance measurement, safety leadership, and safety and health program design amongst agricultural populations. Additionally, students will develop an understanding of how to develop a safety risk management plan for a farm or other agricultural related business.

**Credit Hours:** 3

**Prerequisites:** junior or senior standing or instructor's consent

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#### **AG\_S\_M 4025: Principles of Injury Prevention**

Basic foundations of injury causation and prevention in home, motor vehicle, public and work environments. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Junior or Senior standing or Instructor's consent required

**Recommended:** ENGLISH 1000, MATH 1100

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#### **AG\_S\_M 4030: Legal Aspects of Occupational Safety and Health**

A review of the common legal issues facing safety practitioners in the workplace. Includes OSHA, EPA and DOT regulations; workers' compensation, as well as common liability issues. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** junior or senior standing or instructor's consent

**Recommended:** ENGLISH 1000, MATH 1100

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#### **AG\_S\_M 4035: Occupational Safety Management**

Introduction to occupational safety and health administration and management. Focus on development and management of safety programs and obtaining employee involvement in occupational safety programs. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Junior or Senior standing or Instructor's consent

**Recommended:** ENGLISH 1000, MATH 1100

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#### **AG\_S\_M 4040: Fire Protection and Prevention**

An overview of the current problems and technology in the fields of fire protection and fire prevention, with emphasis on industrial needs, focusing on the individual with industrial safety responsibilities. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** junior or senior standing or instructor's consent

**Recommended:** ENGLISH 1000, MATH 1100

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#### **AG\_S\_M 4045: Occupational Safety**

Identifies safety and health risks in industrial work environments. Focus on how managers and supervisors meet their responsibilities for providing a safe workplace for their employees. Includes the identification and remediation of workplace hazards. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Junior or Senior standing or Instructor's consent

**Recommended:** ENGLISH 1000, MATH 1100

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#### **AG\_S\_M 4140: Electricity: Wiring and Equipment**

(cross-leveled with AG\_S\_M 7140). Home and agricultural electricity; emphasis on proper selection and use of electrical wiring materials and equipment. Topics such as power factor, electric motors, relays, magnetic controllers, programmable logic controllers, solar power, wind power and Basic electrical theory are discussed.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher

**Recommended:** AG\_S\_M 1040

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#### **AG\_S\_M 4150: Biorenewable Systems Technology**

Converting biorenewable resources into bioenergy and biobased products. Biorenewable concepts as they relate to drivers of change, feedstock production, processes, products, co-products, economics, transportation and logistics, and marketing.

**Credit Hours:** 3

**Prerequisites:** MATH 1100, CHEM 1100 and AG\_EC 1041

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#### **AG\_S\_M 4160: Internet of Things for Precision Agriculture Technology**

Introduction to basic concepts and applications of Internet of Things (IoT) technology in agriculture, and its impacts on farming and agricultural industry. Show-case of typical IoT systems used in farms, on farm equipment and in cloud. Hands on experience on essential IoT components, including hardware (wireless sensors, controllers, computers and network devices) and software.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or equivalent or higher, Junior or Senior Standing

**Recommended:** AG\_S\_M 4140, AG\_S\_M 1040, BIOL\_EN 4380

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#### **AG\_S\_M 4220: Material Handling and Conditioning**

(cross-leveled with AG\_S\_M 7220). Principles required for processing and handling food and feed materials; selection of machines; analysis and development of systems for processing and handling grain and bulk material.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher

**Recommended:** AG\_S\_M 1040

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#### **AG\_S\_M 4225: Preservation of Grain Quality**

Principles and management for grain quality preservation. Grain drying and grain storage. Psychrometrics. Fan and airflow. Grain handling methods and system planning. Grain quality measurement and end-use value analysis.

**Credit Hours:** 2

**Prerequisites:** MATH 1100. Recommended AG\_S\_M 1040 and

AG\_S\_M 4220

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#### **AG\_S\_M 4320: Agricultural Equipment and Machinery**

(cross-leveled with AG\_S\_M 7320). Operation of agricultural machinery. Selection and management of equipment.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher

**Recommended:** AG\_S\_M 1040

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**AG\_S\_M 4330: Principles for Food Processing**

(same as F\_S 4330; cross-leveled with AG\_S\_M 7330, F\_S 7330). Introduction to basic engineering concepts used to process raw materials. Principle topics include energy and material balance, fluid flow, heat transfer, refrigeration and freezing, and preservation.

**Credit Hours:** 3

**Prerequisites:** MATH 1100, AG\_S\_M 1040 or PHYSCS 1210

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**AG\_S\_M 4350: Problems in Agricultural Systems Management**

Supervised independent study at the undergraduate level.

**Credit Hour:** 1-5

**Prerequisites:** instructor's consent

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**AG\_S\_M 4360: Precision Agriculture Science and Technology**

(same as PLNT\_S 4360, SOIL 4360; cross-leveled with AG\_S\_M 7360, PLNT\_S 7360, SOIL 7360). Precision agriculture is an information-based approach to farming whereby variability is managed to optimize crop production and reduce environmental pollution. This course provides an overview of precision agriculture technologies (like GIS, GPS, remote sensing), mapping methods, and case studies illustrating decisions and management.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2100 or SOIL 2100, or PLNT\_S 2110; MATH 1100; AG\_S\_M 1040

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**AG\_S\_M 4365: Machinery Management Using Precision Agriculture Technology**

(cross-leveled with AG\_S\_M 7365). Planters, combines, fertilizer application equipment, and sprayer management along with GPS technologies are the focus of the course. One will learn how to manage these tools efficiently and accurately. Valuable precision agriculture management skills emphasized.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher

**Recommended:** AG\_S\_M 1040, and AG\_S\_M 4360 or PLNT\_S 4360 or SOIL 4360

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**AG\_S\_M 4366: Data Management and Analysis Using Precision Agriculture Technology**

(cross-leveled with AG\_S\_M 7366). Course begins with a section on how to minimize errors while collecting spatial datasets. Datasets may include yield data, soil chemical and physical properties with real-time sensors, and soil nutrient data from grids or management zones. The course then continues with a section regarding data analytical techniques such as interpolation. The second half of the course will focus on writing prescriptions based on actual data obtained from industry leader experts. This portion of the course will integrate industry experts as well as hardware/software tools. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher

**Recommended:** AG\_S\_M 1040, AG\_S\_M 4360, STAT 1200

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**AG\_S\_M 4368: Profit Strategies Using Precision Agriculture Technology**

(cross-leveled with AG\_S\_M 7368). Course begins with section on how Precision Agriculture Technology can be used to benefit a farm's financial sustainability. Discussion of various types of farm operations and currently available Precision Agriculture Technology that is already developed and in use will be examined. The course continues by considering cost factors that create barriers for farm operators to adopt Precision Agriculture. The second half of the course will focus on developing a plan to implement various technologies into an existing farm operation and draft a business plan for cost, equipment, and transition the farm into using the following types of technologies, GPS, GIS, VRA, RS, RTK and other types of tracking and monitoring systems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher

**Recommended:** AG\_S\_M 1040, AG\_S\_M 4360, STAT 1200

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**AG\_S\_M 4390: Optimization and Management of Food and Agricultural Systems**

(same as F\_S 4390; cross-leveled with F\_S 7390, AG\_S\_M 7390). This course is designed to introduce the student to the concept of layers and interacting systems within an operation and the analytical methods of modeling and simulation to make effective management decisions for optimal system design and function.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher

**Recommended:** AG\_S\_M 1040

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**AG\_S\_M 4420: Surface Water Management**

(cross-leveled with AG\_S\_M 7420). Topics include hydrology; soil erosion precautions; elementary surveying; selection and layout of ponds, terraces and water control structures.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher

**Recommended:** AG\_S\_M 1040

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**AG\_S\_M 4460: Irrigation and Drainage**

(cross-leveled with AG\_S\_M 7460). Soil, water, plant relationships. Selection and layout of irrigation and drainage systems.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher

**Recommended:** AG\_S\_M 1040

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**AG\_S\_M 4940: Agricultural Systems Management Internship**

Combines study, observation, and employment with industry or government agency in an area of Agricultural Systems Management. A special problem / learning experience is selected by internship company representative, faculty problem advisor and student. Written and oral reports evaluated by faculty.

**Credit Hour:** 2-5

**Prerequisites:** Instructor's consent

**Recommended:** Sophomore standing and minor or major in Agricultural Systems Management

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**AG\_S\_M 4970: Agricultural Systems Management - Capstone**

Capstone course required of Agricultural Systems Management majors.

Team project involving extensive use of the students education, oral presentations and comprehensive written reports are required. Class experiences include but may not be limited to system selection and comparison, replacement and operating cost calculations, life cycle costing, and business feasibility analysis.

**Credit Hours:** 3

**Prerequisites:** Senior Standing

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**AG\_S\_M 4970W: Agricultural Systems Management - Capstone - Writing Intensive**

Capstone course required of Agricultural Systems Management majors.

Team project involving extensive use of the students education, oral presentations and comprehensive written reports are required. Class experiences include but may not be limited to system selection and comparison, replacement and operating cost calculations, life cycle costing, and business feasibility analysis.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher, AG\_S\_M 1040 and Senior Standing

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**AG\_S\_M 7001: Topics in Agricultural Systems Management**

Initial offering of a course in a specific subject matter area related to Agricultural Systems Management. The course is offered when proposed by a faculty member in that area of expertise.

**Credit Hours:** 3

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**AG\_S\_M 7020: Agricultural Safety and Health**

(cross-leveled with AG\_S\_M 4020). Protecting agricultural workers and the general public in our age of technological and scientific advancement has become one of the most challenging and rewarding career fields. This online agricultural safety and health class will prepare you to respond to these needs, to analyze agricultural hazardous and rural public health situations, to develop and implement safety programs and apply governmental regulations associated with production agriculture. It covers safety training strategies, safety management systems, workplace safety behaviors, safety standards and compliance, risk assessment and risk management, safety performance measurement, safety leadership, and safety and health program design amongst agricultural populations. Additionally, students will develop an understanding of how to develop a safety risk management plan for a farm or other agricultural related business.

**Credit Hours:** 3

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**AG\_S\_M 7085: Problems in Agricultural Systems Management**

Supervised individual study at the graduate level.

**Credit Hour:** 1-99

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**AG\_S\_M 7140: Electricity: Wiring and Equipment**

(cross-leveled with AG\_S\_M 4140). Home and agricultural electricity; emphasis on proper selection and use of electrical wiring materials and equipment. Topics such as power factor, electric motors, relays, magnetic controllers, programmable logic controllers, solar power, wind power and Basic electrical theory are discussed.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher

**Recommended:** AG\_S\_M 1040

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**AG\_S\_M 7220: Material Handling and Conditioning**

(cross-leveled with AG\_S\_M 4220). Principles required for processing and handling food and feed materials; selection of machines; analysis and development of systems for processing and handling grain and bulk materials.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher

**Recommended:** AG\_S\_M 1040

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**AG\_S\_M 7320: Agricultural Equipment and Machinery**

(cross-leveled with AG\_S\_M 4320). Operation of agricultural machinery. Selection and management of equipment.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher

**Recommended:** AG\_S\_M 1040

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**AG\_S\_M 7360: Precision Agriculture Science and Technology**

(same as PLNT\_S 7360 and SOIL 7360; cross-leveled with AG\_S\_M 4360, PLNT\_S 7360, SOIL 7360). Precision agriculture is an information-based approach to farming whereby variability is managed to optimize crop production and reduce environmental pollution. This course provides an overview of precision agriculture technologies (like GIS, GPS, remote sensing), mapping methods, and case studies illustrating decisions and management.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2100 or SOIL 2100, or PLNT\_S 2110; MATH 1100; AG\_S\_M 1040

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**AG\_S\_M 7365: Machinery Management Using Precision Agriculture Technology**

(cross-leveled with AG\_S\_M 4365). This course focuses on agricultural equipment that is commonly used in conjunction with GPS technology. Planters, combines, fertilizer application equipment and sprayer application equipment are commonly equipped with GPS equipment to control and record operational parameters. These parameters focus around the equipments geographic location and can be recorded simultaneously with the volume of product applied and weather information (wind, temperature, humidity, etc.). GPS guidance is one of the main technologies to be studied throughout this course. The management of this equipment and the GPS technologies used to control and record this information is the focus of the course.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher

**Recommended:** AG\_S\_M 1040, and AG\_S\_M 4360 or PLNT\_S 4360 or SOIL 4360

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**AG\_S\_M 7366: Data Management and Analysis Using Precision Agriculture Technology**

(cross-leveled with AG\_S\_M 4366). Course begins with a section on how to minimize errors while collecting spatial datasets. Datasets may include yield data, soil chemical and physical properties with real-time sensors, and soil nutrient data from grids or management zones. The course then continues with a section regarding data analytical techniques



such as interpolation. The second half of the course will focus on writing prescriptions based on actual data obtained from industry leader experts. This portion of the course will integrate industry experts as well as hardware/software tools. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher

**Recommended:** AG\_S\_M 1040, AG\_S\_M 4360, STAT 1200

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**AG\_S\_M 7368: Profit Strategies Using Precision Agriculture Technology**

(cross-leveled with AG\_S\_M 4368). Course begins with section on how Precision Agriculture Technology can be used to benefit a farm's financial sustainability. Discussion of various types of farm operations and currently available Precision Agriculture Technology that is already developed and in use will be examined. The course continues by considering cost factors that create barriers for farm operators to adopt Precision Agriculture. The second half of the course will focus on developing a plan to implement various technologies into an existing farm operation and draft a business plan for cost, equipment, and transition the farm into using the following types of technologies, GPS, GIS, VRA, RS, RTK and other types of tracking and monitoring systems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher

**Recommended:** AG\_S\_M 1040, AG\_S\_M 4360, STAT 1200

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**AG\_S\_M 7370: In-Service Course Agriculture Systems Management-Farm Power and Machinery**

A. Farm Power and Machinery B. Farm Buildings and Conveniences C. Soil and Water Management D. Rural Electrification and Processing E. Agricultural Construction and Maintenance Basic principles relating to agricultural systems management. Applies principles and subject matter in successful classroom presentation at the high school level.

**Credit Hour:** 1-8

**Prerequisites:** 10 credits from Agricultural Systems Management courses; a B.S. degree in Agriculture or instructor's consent

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**AG\_S\_M 7390: Optimization and Management of Food and Agriculture Systems**

(same as F\_S 7390; cross-leveled with AG\_S\_M 4390, F\_S 4390). This course is designed to introduce the student to the concept of layers and interacting systems within an operation and the analytical methods of modeling and simulation to make effective management decisions for optimal system design and function.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher

**Recommended:** AG\_S\_M 1040

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**AG\_S\_M 7420: Surface Water Management**

(cross-leveled with AG\_S\_M 4420). Topics include hydrology; soil erosion precautions; elementary surveying; selection and layout of ponds, terraces and water control structures.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher

**Recommended:** AG\_S\_M 1040

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**AG\_S\_M 7440: Water Quality and Pollution Control**

(cross-leveled with AG\_S\_M 4440). Applies scientific principles to a variety of water quality problems arising from activities associated with nonpoint pollution, agricultural chemicals, land disposal of wastes, on-site sewage disposal and individual drinking water systems.

**Credit Hours:** 3

**Prerequisites:** MATH 1100

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**AG\_S\_M 7460: Irrigation and Drainage**

(cross-leveled with AG\_S\_M 4460). Soil, water, plant relationships. Selection and layout of irrigation and drainage systems.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher

**Recommended:** AG\_S\_M 1040

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**AG\_S\_M 8085: Problems in Agricultural Systems Management**

Supervised individual study at the graduate level.

**Credit Hours:** 3

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**AG\_S\_M 8090: Thesis Research in Agricultural Systems Management**

Independent investigation to be presented as a thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**AG\_S\_M 8340: Agricultural Mechanization Systems**

Review of current literature. Case study of mechanization systems. Computer analysis of management alternatives.

**Credit Hours:** 3

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**AG\_S\_M 8360: Internet of Things for Precision Agriculture Technology**

Wireless sensor network and communication technologies of precision agriculture systems (tractors, sprayers, combines, trucks, and field equipment) establishing real time cloud synchronization of data. Evaluation of big data (spatial, economics, environmental, imagery) and how statistical tools can be used to analyze this information.

**Credit Hours:** 3

**Prerequisites:** AG\_S\_M 4360, AG\_S\_M 7360

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**AG\_S\_M 9090: Thesis Research in Agricultural Systems Management**

Independent investigation to be presented as a thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

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## Agriculture, Food and Natural Resources (AFNR)

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**AFNR 1115: Foundations for College Success**

An investigation of principles and practices associated with academic success and the interpersonal challenges encountered in collegiate life. Learning preferences, time investment, study skills, degree requirements,

and personal development opportunities available in the College and across campus are explored. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Instructor's consent

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**AFNR 2115: College to Career: Strategies for Success**

Systematic approach to self-assessment, career research and exploration, goal-setting and implementation of a career development plan. Students will learn specific skills, research knowledge and lifelong career management techniques.

**Credit Hour:** 1

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**AFNR 2190: International Agriculture and Natural Resources**

This course is designed to provide students with an introduction into the agriculture/natural resources of the host country. Activities may include course work at an international institution, professional and personal development and special projects. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AFNR 2191: International Agriculture and Natural Resources - Humanities**

This course is designed to provide students with an introduction to valuing and appreciating the culture and philosophy entrenched in the host country's civilization through the examination of its arts, culture, language and history. May be repeated for credit. Selected sections of the course may be offered on A-F or S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** Instructor's consent

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**AFNR 2191W: International Agriculture and Natural Resources - Humanities - Writing Intensive**

This course is designed to provide students with an introduction to valuing and appreciating the culture and philosophy entrenched in the host country's civilization through the examination of its arts, culture, language and history. May be repeated for credit. Selected sections of the course may be offered on A-F or S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** Instructor's consent

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**AFNR 2192: International Agriculture/Natural Resources-Social Science**

This course is designed to provide students with an examination of the social sciences of the host country; including the sociology, psychology, economics, government, and history of the country; including the dynamics of urban and rural communities. May be repeated for credit. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**AFNR 2215: Introduction to the Theory and Practice of Sustainable Agriculture**

This experiential course provides an overview of the theoretical and practical principles of sustainable agriculture by exploring the holistic nature of sustainable agriculture, and analyzing agriculture systems based on their impact on the environment, economy and community.

**Credit Hours:** 3

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**AFNR 3215: Community Food Systems**

This course focuses on essential concepts in the research, implementation and understanding of food systems, with topics ranging from micro-level local, community and regional food systems to macro-level global trends in food production and distribution. Students examine the social, economic and health implications of conventional and alternative food systems as well as specific U.S. policies and programs relevant to our present food systems. Particular focus is on the growing proliferation of alternative marketing schemes, food sovereignty issues, and the relationships between community food systems, and contemporary health and nutritional issues.

**Credit Hours:** 3

**Recommended:** AFNR 2215

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**AFNR 3315: Advanced Practices in Sustainable Agriculture**

Course furthers students' understanding of sustainable production systems with an emphasis on stewarding natural resources (soil, water, biodiversity and energy) while maintaining and economically profitable enterprise that provides for a good quality of life.

**Credit Hours:** 3

**Recommended:** AFNR 2215; SOIL 2100

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**AFNR 4001: Topics in Agriculture-General**

Topics in Agriculture-General

**Credit Hour:** 1-99

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**AFNR 4972: Capstone Project in Agriculture, Food and Natural Resources**

A culminating learning experience focused on student's area of concentration that requires the application of knowledge and skills taught in the undergraduate curriculum. The capstone project comprises independent, original work culminating in a scholarly project, written document, and/or presentation. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

**Recommended:** junior or senior standing

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**AFNR 4993: Internship in Agriculture, Food and Natural Resources**

Field-based learning experience combining the study, observation, and employment with a business, organization, or governmental agency. The internship provides opportunities to apply skills, concepts and theories about agriculture, food and natural resources in a practical context. The student intern, internship supervisor, and university coordinator will develop an individualized internship plan. May be repeated for credit. Some sections may be graded on either an A-F or S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

**Recommended:** junior or senior standing

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**AFNR 7190: International Agriculture/Natural Resources**

This course is designed to provide students with an introduction into the agriculture/natural resources of the host country. Activities may include course work at an international institution, professional and personal development and special projects. Selected sections of the course may be offered on A-F or S/U basis only.

**Credit Hour:** 1-9

**Prerequisites:** advisor and instructor's consent

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## Ancient Mediterranean Studies (AMS)

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**AMS 1005: Undergraduate Topics in Ancient Mediterranean Studies - Humanities**

Special studies in Ancient Mediterranean Studies.

**Credit Hour:** 1

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**AMS 1050: Greek and Latin in English**

A survey of the influence of Greek and Latin upon English literary, scientific, technical, legal and medical vocabulary. Emphasis is upon building competency with complex English words while studying the cultural influence of the classical languages on modern vocabulary.

**Credit Hours:** 3

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**AMS 1060: Classical Mythology**

Myths of Greece and Rome in literature and art.

**Credit Hours:** 3

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**AMS 1060H: Classical Mythology - Honors**

Myths of Greece and Rome in literature and art.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**AMS 1060HW: Classical Mythology - Honors/Writing Intensive**

Myths of Greece and Rome in literature and art.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**AMS 1060W: Classical Mythology - Writing Intensive**

Myths of Greece and Rome in literature and art.

**Credit Hours:** 3

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**AMS 1105: Undergraduate Topics in Ancient Mediterranean Studies - Humanities**

Special studies in Ancient Mediterranean Studies.

**Credit Hours:** 3

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**AMS 1150: The Archaeology of Ancient Lives**

This course introduces the methods and goals of classical archaeology to explore how people lived in the Mediterranean region in the days of the ancient Egyptians, Greeks, Romans, and their neighbors. Along

the way we will study parts of our own contemporary human landscape in Columbia (and maybe learn to look at columns in some unexpected ways). Classes are a combination of lecture, group discussions, and activities. Graded on A-F basis only.

**Credit Hours:** 3

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**AMS 2005: Topics in Ancient Mediterranean Studies - Humanities**

Study of special topics in Ancient Mediterranean Studies.

**Credit Hour:** 1-3

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**AMS 2005H: Topics in Classical Humanities - Honors**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** Honors eligibility required

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**AMS 2050: Comparative History of Greece and Rome I**

This comparative survey explores the ancient Mediterranean world of Greece and Rome from the age of Homer to the eve of the crisis of the Roman Republic. Topics include the rise of the city-state in Greece and Italy, the formation of democratic and republican constitutions, Greek and Roman imperialism, the Persian and Hannibalic wars, women and the family, slavery and the economy, the formation and context of literary production, and architecture and the ancient city-scape.

**Credit Hours:** 3

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**AMS 2060: Comparative History of Greece and Rome II**

This comparative survey explores the ancient Mediterranean world of Greece and Rome from the crisis of the Roman Republic (1c BCE) to the eve of the post-Roman Mediterranean (6c CE). Topics include the collapse of the Roman Republic and transition to the Augustan principate, the administrative and economic foundations of the Pax Romana (1-2c CE), the vitality of Greek culture and literature under Roman rule, the imperial army, the family and slavery, Judaism and Christianity, and the transformation of the Roman world into its medieval and Byzantine successors.

**Credit Hours:** 3

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**AMS 2100: The Ancient Greeks**

This course offers a broad historical and cultural introduction to ancient Greek society. Emphasis is placed on acquainting students with the everyday lives of the men, women and children inhabiting this world and the social, political and technological realities that shaped their lives.

**Credit Hours:** 3

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**AMS 2100H: Greek Culture - Honors**

Survey of Greek life and thought. Principal developments in literature, the arts, politics, religion and philosophy, and their influence on Western civilization.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**AMS 2200: The Ancient Romans**

This course offers a broad historical and cultural introduction to ancient Roman society. Emphasis is placed on acquainting students with the everyday lives of the men, women and children inhabiting this world and the social, political and technological realities that shaped their lives.

**Credit Hours:** 3

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**AMS 2230: Introduction to the Arts of Islam**

Architecture, decorative arts and painting of the Muslim world from the seventh to the 19th century. The formation of Islamic art and its relationships with religion, philosophy and symbolism.

**Credit Hours:** 3

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**AMS 2230W: Introduction to the Arts of Islam - Writing Intensive**

Architecture, decorative arts and painting of the Muslim world from the seventh to the 19th century. The formation of Islamic art and its relationships with religion, philosophy and symbolism.

**Credit Hours:** 3

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**AMS 2300: Greek Classics in Translation**

Reading in translation and critical study of the most important literary works of the ancient Greek World.

**Credit Hours:** 3

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**AMS 2300H: Greek Classics in Translation - Honors**

Reading in translation and critical study of the most important literary works of the ancient Greek world.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**AMS 2400: Roman Classics in Translation**

Reading in translation and critical study of the most important literary works of the ancient Roman world.

**Credit Hours:** 3

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**AMS 2410: Ancient Technology**

Engineering, architecture, and military technology in the ancient world.

**Credit Hours:** 3

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**AMS 2450: The World of Pompeii**

An exploration of various facets of ancient urban and rural life in the Roman world through the exceptionally well-preserved archaeological remains found in and around Pompeii.

**Credit Hours:** 3

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**AMS 2450H: The World of Pompeii - Honors**

An exploration of various facets of ancient urban and rural life in the Roman world through the exceptionally well-preserved archaeological remains found in and around Pompeii.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**AMS 2500: The Origins of Music in the Ancient World**

Explores the use of music in the earliest historical societies, from the earliest evidence up to the fall of the Roman empire. Topics will include the history of musical instruments, the earliest scores, the development of music theory, the origins of melody, rhythm, and harmony, and the relationship between music, politics, and religion. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** AMS 1060; AMS 2100; AMS 2200

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**AMS 2600: Media and Communication in Ancient Greece and Rome**

An introduction to communications media in ancient Greece and Rome, from the invention of the alphabet to the fall of the Roman empire. Special attention will be paid to the material bases for communication, the social uses of information, and the relationship between communications technology and political power.

**Credit Hours:** 3

**Recommended:** AMS 1060

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**AMS 2700: Black Dionysus: Greek Drama in Africa and the African Diaspora**

In this course, we will focus on one aspect of the reception of Classical literature: the reuse, rewriting, and re-performing of Greek tragedies in Africa and the African diaspora in the 20th and 21st centuries. What accounts for the popularity of the Greek plays and stories among those who have every reason to reject European cultural models? Why do these ancient Greek tragedies still matter, and not only to people of European descent? Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** AMS 1060 or AMS 2100

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**AMS 2750: Achilles in Vietnam**

This class compares the depiction of warfare in Homer's Iliad with experiences of the U.S. combat soldier in Vietnam. By studying essential selections from Homer's epic alongside accounts of the Vietnam War from the soldiers who fought in it, students will gain an understanding of how the uniquely difficult circumstances of the Vietnam War were damaging to those who served in the front lines of this conflict. Students will also study the significance of race and class divisions in the conflict both at home and overseas and how the Vietnam War is portrayed in film, literature and television.

**Credit Hours:** 3

**Recommended:** AMS 1060

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**AMS 2750H: Achilles in Vietnam - Honors**

This class compares the depiction of warfare in Homer's Iliad with experiences of the U.S. combat soldier in Vietnam. By studying essential selections from Homer's epic alongside accounts of the Vietnam War from the soldiers who fought in it, students will gain an understanding of how the uniquely difficult circumstances of the Vietnam War were damaging to those who served in the front lines of this conflict. Students will also study the significance of race and class divisions in the conflict both at home and overseas and how the Vietnam War is portrayed in film, literature and television.

**Credit Hours:** 3

**Prerequisites:** Honors Eligibility required

**Recommended:** AMS 1060

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**AMS 2800: Sports and Spectacles in Greco-Roman Antiquity**

Investigates athletic display in ancient Greek and Roman culture, from its earliest representations in Greek literature to the massive spectacles of the Roman empire, with an emphasis on the intersections between sport and spectacle and other areas of ancient cultural life.

**Credit Hours:** 3

**Prerequisites:** AMS 1060 or instructor's consent required

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**AMS 2940: Service Learning in Classical Studies**

Students provide enrichment programming on the Ancient World at various Columbia Public School sites. Participants must be Classical Studies majors or minors. Graded on A/F basis only. Does not meet Arts and Science general education requirements.

**Credit Hour:** 1

**Prerequisites:** instructor's consent required

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**AMS 2950: Archaeological Methods**

Methods of excavating various types of sites; recording, preserving their materials.

**Credit Hour:** 2-6

**Prerequisites:** instructor's consent

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**AMS 3000: Foreigners and Dangerous Women in Greek and Latin Literature**

(same as PEA\_ST 3130). The study of how Greek and Roman writers depicted and reacted to other races and cultures, compared them with their own, and thereby revealed their own values and prejudices.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060

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**AMS 3000H: Foreigners and Dangerous Women in Greek and Latin Literature - Honors**

(same as PEA\_ST 3130). The study of how Greek and Roman writers depicted and reacted to other races and cultures, compared them with their own, and thereby revealed their own values and prejudices.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** CL\_HUM 1060

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**AMS 3000W: Foreigners and Dangerous Women in Greek and Latin Literature - Writing Intensive**

(same as PEA\_ST 3130). The study of how Greek and Roman writers depicted and reacted to other races and cultures, compared them with their own, and thereby revealed their own values and prejudices.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060

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**AMS 3005: Topics in Ancient Mediterranean Studies - Humanities**

Selected studies in various facets of Ancient Mediterranean Studies.

**Credit Hour:** 1-3

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**AMS 3005H: Topics in Classical Humanities - Honors**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** Honors eligibility required

**Recommended:** AMS 1060

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**AMS 3005W: Topics in Classical Humanities - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Recommended:** AMS 1060

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**AMS 3025: Ancient Western Philosophy**

(same as PHIL 3000). Philosophical thought on nature, knowledge, the gods, human life and society, from Thales to Augustine. Emphasis on Plato and Aristotle. The relevance of the ancients to contemporary life.

**Credit Hours:** 3

**Recommended:** AMS 1060

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**AMS 3050H: Philosophy Before Socrates - Honors**

A study of the origin of philosophical thinking in the Ancient Greek world. Topics to be explored include the nature of reality and our knowledge of it, the structure and constituents of the cosmos, human excellence and its relation to morality, political power, and happiness.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** AMS 1060

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**AMS 3100: The Age of Pericles**

A study of the literature and culture of the 5th and early 4th centuries B.C. in Athens. Authors will include Thucydides, Herodotus, Xenophon, Plato, Aristotle, the tragedians and Aristophanes.

**Credit Hours:** 3

**Recommended:** AMS 1060

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**AMS 3100H: The Age of Pericles - Honors**

A study of the literature and culture of the 5th and early 4th centuries B.C. in Athens. Authors will include Thucydides, Herodotus, Xenophon, Plato, Aristotle, the tragedians and Aristophanes.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** AMS 1060

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**AMS 3120: Art and Gender in Antiquity**

Comparative survey of Egypt, Greece, and Rome, focusing on gender construction and cultural perception through material resources.

**Credit Hours:** 3

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**AMS 3150: The Age of Augustus**

Study of the literature of the Age of Augustus; Vergil, Ovid, Horace, Livy, and Propertius.

**Credit Hours:** 3

**Recommended:** AMS 1060

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**AMS 3150H: The Age of Augustus - Honors**

Study of the literature of the Age of Augustus; Vergil, Ovid, Horace, Livy, and Propertius.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** AMS 1060

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**AMS 3210: Near Eastern and Egyptian Art and Archaeology**

General survey of material culture of the Near East and Egypt from the earliest times to the early Iron Age.

**Credit Hours:** 3

**Recommended:** VS\_ARH 1110 or equivalent

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**AMS 3225: Roman Comedy, Wit and Humor**

Study of works illustrating the comedy, wit and humor of the Romans: readings in comedies of Plautus and Terence, Catullus, Ovid's *Metamorphoses*, Petronius' *Satyricon*, Martial, Juvenal and Macrobius.

**Credit Hours:** 3

**Recommended:** AMS 1060

---

**AMS 3250: Greek and Roman Epic**

A study of the major representatives of the ancient epic genre. Readings will include Homer's *Iliad* and *Odyssey*, Apollonius' *Argonautica*, Vergil's *Aeneid*.

**Credit Hours:** 3

**Recommended:** AMS 1060

---

**AMS 3250H: Greek and Roman Epic - Honors**

A study of the major representatives of the ancient epic genre. Readings will include Homer's *Iliad* and *Odyssey*, Apollonius' *Argonautica*, Vergil's *Aeneid*.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** AMS 1060

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**AMS 3300: Greek Drama**

Reading and interpretation of Greek tragedies and comedies in translation.

**Credit Hours:** 3

**Recommended:** AMS 1060

---

**AMS 3310: Greek Art and Archaeology**

General survey of material culture in Greece from earliest times to the Hellenistic period.

**Credit Hours:** 3

**Recommended:** VS\_ARH 1110 or equivalent

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**AMS 3350: Advanced Mythology**

Interpretation of selected classical myths and their influence on later literature and art.

**Credit Hours:** 3

**Recommended:** AMS 1060

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**AMS 3350H: Advanced Mythology - Honors**

Interpretation of selected classical myths and their influence on later literature and art.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** AMS 1060

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**AMS 3400: Murder and Mayhem: Images of Justice in Classical Antiquity**

Ideas of justice from Homer through the early Roman Empire; personal vengeance, law courts and trials, philosophical attitudes, women and courts, techniques of persuasion.

**Credit Hours:** 3

**Recommended:** AMS 1060

---

**AMS 3400W: Murder and Mayhem: Images of Justice in Classical Antiquity - Writing Intensive**

Ideas of justice from Homer through the early Roman Empire; personal vengeance, law courts and trials, philosophical attitudes, women and courts, techniques of persuasion.

**Credit Hours:** 3

**Recommended:** AMS 1060

---

**AMS 3410: Roman Art and Archaeology**

General survey of material culture in the Roman world from earliest times through the 3rd century.

**Credit Hours:** 3

**Recommended:** VS\_ARH 1110 or equivalent

---

**AMS 3450: Greek and Roman Characters and Ideals**

Study of selected types of characters admired and imitated or hated and rejected in classical antiquity; heroes, philosophers, women.

**Credit Hours:** 3

**Recommended:** AMS 1060

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**AMS 3450H: Greek and Roman Characters and Ideals - Honors**

Study of selected types of characters admired and imitated or hated and rejected in classical antiquity; heroes, philosophers, women.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** AMS 1060

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**AMS 3510: Byzantine and Islamic Art and Archaeology**

General survey of the visual world of the Middle Ages in southwest Asia and the east Mediterranean, from late antiquity through the rise of the Ottoman empire.

**Credit Hours:** 3

**Recommended:** VS\_ARH 1110 or equivalent

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**AMS 3510W: Byzantine and Islamic Art and Archaeology - Writing Intensive**

General survey of the visual world of the Middle Ages in southwest Asia and the east Mediterranean, from late antiquity through the rise of the Ottoman empire.

**Credit Hours:** 3

**Recommended:** VS\_ARH 1110 or equivalent

---

**AMS 3520: Early Medieval Art and Archaeology**

An investigation of the arts of western Europe during the first millennium, when the unifying traditions of Rome were transformed by the diverse cultures of her Northern neighbors.

**Credit Hours:** 3

**Recommended:** VS\_ARH 1110 or equivalent

---

**AMS 3520W: Early Medieval Art and Archaeology - Writing Intensive**

An investigation of the arts of western Europe during the first millennium, when the unifying traditions of Rome were transformed by the diverse cultures of her Northern neighbors.

**Credit Hours:** 3

**Recommended:** VS\_ARH 1110 or equivalent

---

**AMS 3550: War and Democracy in Late 5th c. BCE Athens**

(same as PEA\_ST 3550). Explores the discourse on war and peace in Athenian texts and art that survives from the last quarter of the 5th century B.C.E. This was a period of relentless warfare: the Athenians were fighting the Spartans, Sparta's allies, unaligned cities and several of their own subject states.

**Credit Hours:** 3

**Recommended:** AMS 1060

---

**AMS 3600: The Ancient Novel**

Reading and analysis of Greek and Latin prose fiction: ideal and comic romance, fantasy, romantic biography; Hellenistic background.

**Credit Hours:** 3

**Recommended:** AMS 1060

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**AMS 3600H: The Ancient Novel - Honors**

Reading and analysis of Greek and Latin prose fiction: ideal and comic romance, fantasy, romantic biography; Hellenistic background.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** AMS 1060

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**AMS 3650: Paganism and Christianity**

A study of the transition from Paganism to Christianity in the Roman Empire, as seen by observers contemporary with the events.

**Credit Hours:** 3

**Recommended:** AMS 1060

---

**AMS 3650W: Paganism and Christianity - Writing Intensive**

A study of the transition from Paganism to Christianity in the Roman Empire, as seen by observers contemporary with the events.

**Credit Hours:** 3

**Recommended:** AMS 1060

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**AMS 3700: Women in the Ancient World**

Using classical literary texts as the central focus this course examines the role of women: the conflict inherent in their obligations and their identity in the context of these obligations.

**Credit Hours:** 3

**Recommended:** AMS 1060

---

**AMS 3750: Classics in a Cross-Cultural Context**

The goal of this course is to place classical literature in a multicultural context by studying Greek and Latin literary texts alongside verbal art from non-European as well as European cultures.

**Credit Hours:** 3

**Recommended:** AMS 1060

---

**AMS 3750H: Classics in a Cross-Cultural Context - Honors**

The goal of this course is to place classical literature in a multicultural context by studying Greek and Latin literary texts alongside verbal art from non-European as well as European cultures.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** AMS 1060

---

**AMS 3775: The Ancient World on Film**

(same as FILM\_S 3775) This course explores how classical antiquity has been represented in twentieth and twenty-first-century film, with particular emphasis on the ways in which ancient narratives and iconography have been appropriated by filmmakers to address contemporary cultural issues.

**Credit Hours:** 3

**Recommended:** Prior 2000 level coursework in Classical Humanities, Art History and Archaeology, or Film Studies

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**AMS 3775W: The Ancient World on Film - Writing Intensive**

(same as FILM\_S 3775). This course explores how classical antiquity has been represented in twentieth and twenty-first-century film, with particular emphasis on the ways in which ancient narratives and iconography have been appropriated by filmmakers to address contemporary cultural issues.

**Credit Hours:** 3

**Recommended:** CL\_HUM 1060

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**AMS 4005: Topics in Classical Humanities**

Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Recommended:** AMS 1060 and junior standing

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**AMS 4100: Greece: From the Bronze Age to the Byzantine Empire**

Study abroad in Greece, in conjunction with the MU International Center. Immersion in the physical and intellectual heritage of ancient Greece; emphasis on cross-disciplinary, on-site learning and the intersections among ancient, Byzantine, and modern Greece. Application required. Graded on A/F basis only.

**Credit Hours:** 6

**Recommended:** CL\_HUM 1060

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**AMS 4100H: Greece: From the Bronze Age to the Byzantine Empire - Honors**

Study abroad in Greece, in conjunction with the MU International Center. Immersion in the physical and intellectual heritage of ancient Greece; emphasis on cross-disciplinary, on-site learning and the intersections among ancient, Byzantine, and modern Greece. Participants chosen by instructor. Graded on A/F basis only. Application required.

**Credit Hours:** 6

**Prerequisites:** Honors eligibility required

**Recommended:** CL\_HUM 1060

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**AMS 4205: Topics in Classical Studies**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent for repetition.

**Credit Hour:** 1-99

**Recommended:** GREEK 2000 and LATIN 2000

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**AMS 4300: Introduction to Text Criticism and Paleography**

(cross-leveled with AMS 7300). Latin and/or Greek textual criticism and paleography, using manuscript facsimiles at the University library.

**Credit Hours:** 3

**Recommended:** GREEK 2000 and LATIN 2000

---

**AMS 4320: Archaeology of the Aegean Bronze Age**

(cross-leveled with AMS 7320). Analysis of the material culture of Greek prehistoric civilizations from 3000 to 1000 B.C.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AMS 4340: Greek Cities and Sanctuaries**

(cross-leveled with AMS 7340). Survey of the built environment in the Aegean and the Classical world from Neolithic through the Hellenistic period.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AMS 4350: Greek Pottery**

(cross-leveled with AMS 7350). Examination of pottery and vase painting with an emphasis on production, iconography, and social context.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AMS 4360: Greek Sculpture**

(cross-leveled with AMS 7360). Survey of sculptor's art in Aegean and Classical world from earliest times to Hellenistic period.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AMS 4400: Ancient Pastoral**

(cross-leveled with AMS 7400). Reading and interpretation of pastoral poetry and prose in Greek and Latin; emphasis on Theocritus, Virgil, and Longus.

**Credit Hours:** 3

**Recommended:** GREEK 4300 and LATIN 4300

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**AMS 4420: Minor Arts of Antiquity**

(cross-leveled with AMS 7420). Discussion of selected minor arts and crafts of the Greco-Roman world.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AMS 4440: Roman Architecture**

(cross-leveled with AMS 7440). The history of Roman architecture, origin and development of forms and techniques, major monuments in Rome and its provinces through the 3rd century after Christ.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AMS 4460: Roman Sculpture**

(cross-leveled with AMS 7460). The origins and development of sculpture in the Roman Republic and the Roman Empire.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AMS 4490: Late Antique Art and Archaeology**

(cross-leveled with AMS 7490). Exploration of the material culture of the Mediterranean world from the 3rd century to Iconoclasm.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AMS 4500: Greek and Roman Religion**

(same as REL\_ST 4500). Survey of religious development among the Greeks and Romans.

**Credit Hours:** 3

**Recommended:** AMS 1060 and junior standing

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**AMS 4500H: Greek and Roman Religion - Honors**

(same as REL\_ST 4500). Survey of religious development among the Greeks and Romans.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** AMS 1060 and junior standing

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**AMS 4510: Byzantine Art and Archaeology**

(cross-leveled with AMS 7510). Exploration of the material culture of the east Mediterranean between the 6th and 15th centuries.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AMS 4520: Art and Archaeology of Early Medieval Europe**

(cross-leveled with AMS 7520). Exploration of the material culture of western Europe from the 5th century to c. 1000.



**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AMS 4550: Literature and Culture of the Hellenistic Age**

(cross-leveled with AMS 7550). A survey of the literature and culture of the Hellenistic Age.

**Credit Hours:** 3

**Recommended:** AMS 1060 and junior standing

---

**AMS 4550H: Literature and Culture of the Hellenistic Age - Honors**

A survey of the literature and culture of the Hellenistic Age.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** AMS 1060 and junior standing

---

**AMS 4600: The Classical Tradition**

(cross-leveled with AMS 7600). Selected studies in continuity and influence of Greek and Roman culture on Middle Ages, Renaissance, and modern times.

**Credit Hours:** 3

**Recommended:** AMS 1060 and junior standing

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**AMS 4600H: The Classical Tradition - Honors**

(cross-leveled with AMS 7600). Selected studies in continuity and influence of Greek and Roman culture on Middle Ages, Renaissance, and modern times.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** AMS 1060 and junior standing

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**AMS 4600HW: The Classical Tradition - Honors/Writing Intensive**

(cross-leveled with AMS 7600). Selected studies in continuity and influence of Greek and Roman culture on Middle Ages, Renaissance, and modern times.

**Credit Hours:** 3

**Recommended:** AMS 1060 and junior standing

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**AMS 4600W: The Classical Tradition - Writing Intensive**

(cross-leveled with AMS 7600). Selected studies in continuity and influence of Greek and Roman culture on Middle Ages, Renaissance, and modern times.

**Credit Hours:** 3

**Recommended:** AMS1060 and junior standing

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**AMS 4650: The World of Late Antiquity**

(cross-leveled with AMS 7650). A survey of the literature, culture, and history of the late Roman and early Byzantine periods. Attention to Christianity's development and the transformation of the classical heritage.

**Credit Hours:** 3

**Recommended:** AMS 1060 and junior standing

---

**AMS 4650H: The World of Late Antiquity - Honors**

A survey of the literature, culture, and history of the late Roman and early Byzantine periods. Attention to Christianity's development and the transformation of the classical heritage.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** AMS 1060 and junior standing

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**AMS 4700: Advanced Study in the Teaching of the Classics**

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AMS 4770: Oral Tradition**

Study of verbal art from living oral traditions (e.g. Native American and African American) and important literary works with roots in oral tradition (e.g. the Bible, the Iliad and Odyssey, and Beowulf).

**Credit Hours:** 3

**Recommended:** AMS 1060 and junior standing

---

**AMS 4770H: Oral Tradition - Honors**

Study of verbal art from living oral traditions (e.g. Native American and African American) and important literary works with roots in oral tradition (e.g. the Bible, the Iliad and Odyssey, and Beowulf).

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** AMS 1060 and junior standing

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**AMS 4800: Political Thought in Classical and Christian Antiquity**

(same as POL\_SC 4800, CNST\_DEM 4800; cross-leveled with AMS 7800). Reading and discussion of Greek, Roman, and Early Christian treatises on politics and political life. Survey of the political institutions and procedures of the Greek city states and Roman Republic and Empire. Examination of contemporary Christian responses and adaptations.

**Credit Hours:** 3

**Recommended:** AMS 1060 and junior standing

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**AMS 4960: Special Readings in Ancient Mediterranean Studies**

Independent readings and research selected in consultation with supervisory faculty.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**AMS 4970: Capstone: Ancient Mediterranean Studies**

Students will write an expanded, guided research paper. The Capstone student will consult on a regular basis with the professor responsible for the course and will make an oral presentation of the paper in the course. Must be taken in conjunction with a 4000-level Art History and Archaeology course.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**AMS 4970H: Capstone in Ancient Mediterranean Studies - Honors**

Culminating course in the study of Greek and Roman literature and Classical culture. Required for Greek, Latin, and Classical Languages majors in first term of senior year. Recommended for double-majors.

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**Credit Hours:** 3

**Prerequisites:** instructor's consent. Honors eligibility required

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**AMS 4995H: Honors Proseminar in Classical Studies**

Limited to Honors undergraduates. To be taken in senior year. Integrated exploration of classical civilization. May repeat to 6 hours maximum.

**Credit Hour:** 3-6

**Prerequisites:** Honors eligibility required

**Recommended:** Senior standing

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**AMS 4996: Honors Proseminar I**

Research methods, bibliography, use and criticism of source material.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AMS 4996H: Honors Proseminar I**

Research methods, bibliography, use and criticism of source material.

**Credit Hours:** 3

**Prerequisites:** instructor's consent; Honors eligibility required

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**AMS 4999: Honors Reading and Research I**

Individual research projects in preparation of senior thesis.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AMS 7000: Introduction to Graduate Study in Classics**

Required of all first-year graduate students.

**Credit Hour:** 1

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**AMS 7005: Topics in Ancient Mediterranean Studies**

Special studies in Ancient Mediterranean Studies; covers subjects not included in regularly offered courses.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AMS 7100: History of the Greek and Latin Languages**

(same as LINGST 7130; cross-levelled with CLASS 4100, LINGST 4130). Evolution of classical languages and their relationship to each other.

**Credit Hours:** 3

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**AMS 7205: Topics in Classical Studies**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent for repetition.

**Credit Hour:** 1-99

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**AMS 7250: The Classical Avant-Garde**

This course offers in depth study of the uses made of classical culture by proponents of various avant-garde movements from the 1850s to the present. Combines interrogations of the history and practice of the avant-garde and the theory of classical reception with close reading of exemplary texts.

**Credit Hours:** 3

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**AMS 7300: Introduction to Text Criticism and Paleography**

(cross-leveled with AMS 4300). Latin and/or Greek textual criticism and paleography, using manuscript facsimiles at the University library.

**Credit Hours:** 3

**Prerequisites:** 2 years of Classical Languages or equivalent

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**AMS 7320: Archaeology of the Aegean Bronze Age**

(cross-leveled with AMS 4320). Analysis of the material culture of Greek prehistoric civilizations from 3000 to 1000 B.C.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AMS 7340: Greek Cities and Sanctuaries**

(cross-leveled with AMS 4340). Survey of the built environment in the Aegean and the Classical world from Neolithic through the Hellenistic period.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AMS 7350: Greek Pottery**

(cross-leveled with AMS 4350). Examination of pottery and vase painting with an emphasis on production, iconography, and social context.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AMS 7360: Greek Sculpture**

(cross-leveled with AMS 4360). Survey of sculptor's art in Aegean and Classical world from earliest times to Hellenistic period.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AMS 7420: Minor Arts of Antiquity**

(cross-leveled with AMS 4420). Discussion of selected minor arts and crafts of the Greco-Roman world.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AMS 7440: Roman Architecture**

(cross-leveled with AMS 4440). The history of Roman architecture, origin and development of forms and techniques, major monuments in Rome and its provinces through the 3rd century after Christ.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AMS 7460: Roman Sculpture**

(cross-leveled with AMS 4460). The origins and development of sculpture in the Roman Republic and the Roman Empire.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AMS 7490: Late Antique Art and Archaeology**

(cross-leveled with AMS 4490). Exploration of the material culture of the Mediterranean world from the 3rd century to Iconoclasm.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AMS 7510: Byzantine Art and Archaeology**

(cross-leveled with AMS 4510). Exploration of the material culture of the east Mediterranean between the 6th and 15th centuries.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AMS 7520: Art and Archaeology of Early Medieval Europe**

(cross-leveled with AMS 4520). Exploration of the material culture of western Europe from the 5th century to c. 1000.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AMS 7550: Literature and Culture of the Hellenistic Age**

(cross-leveled with AMS 4550). A survey of the literature and culture of the Hellenistic Age. Graded on A-F basis only.

**Credit Hours:** 3

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**AMS 7600: The Classical Tradition**

(cross-leveled with AMS 4600). Selected studies in continuity and influence of Greek and Roman culture on Middle Ages, Renaissance, and modern times. Graded on A-F basis only.

**Credit Hours:** 3

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**AMS 7650: The World of Late Antiquity**

(cross-leveled with AMS 4650). A survey of the literature, culture, and history of the late Roman and early Byzantine periods. Attention to Christianity's development and the transformation of the classical heritage.

**Credit Hours:** 3

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**AMS 7700: Advanced Study in the Teaching of the Classics**

**Credit Hours:** 3

**Prerequisites:** classroom teaching experience or chairman's consent

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**AMS 7800: Political Thought in Classical and Christian Antiquity**

(cross-leveled with POL\_SC 4800, AMS 4800, CNST\_DEM 4800). Reading and discussion of Greek, Roman, and Early Christian treatises on politics and political life. Survey of the political institutions and procedures of the Greek city states and Roman Republic and Empire. Examination of contemporary Christian responses and adaptations. Graded on A-F basis only.

**Credit Hours:** 3

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**AMS 7940: Archaeological Methods**

(cross-leveled with AMS 4940). Methods of excavating various types of sites; recording, preserving their materials.

**Credit Hour:** 2-6

**Prerequisites:** instructor's consent

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**AMS 7960: Special Readings in Classical Studies**

Readings in authors and texts not covered in other courses.

**Credit Hour:** 1-3

**Prerequisites:** graduate standing and classics/classical humanities; departmental consent; Greek--two years classical Greek or equivalent; Latin--two years Classical Latin or equivalent

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**AMS 8080: Readings for MA Thesis in Ancient Mediterranean Studies**

Reading, critical evaluation of literature of special fields of art history and/or archaeology.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AMS 8085: Directed Readings in Ancient Mediterranean Studies**

For graduate students to undertake special projects for graduate credit under the supervision of faculty.

**Credit Hours:** 3

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**AMS 8090: Master's Thesis Research and Thesis**

Individual research leading to preparation of the M.A. thesis Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AMS 8320: Seminar in Greek Art and Archaeology**

Special subjects of study assigned for individual research; discussion of reports by seminar members.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AMS 8420: Seminar in Roman Art and Archaeology**

Special subjects of study assigned for individual research; discussion of reports by seminar members.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AMS 8440: Ancient/Medieval Topography**

Descriptive and historical analysis of a selected city or site. Subject varies.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AMS 8490: Seminar in Late Antique Art and Archaeology**

Special subjects of study assigned for individual research; discussion of reports by seminar members.

**Credit Hours:** 3

**Prerequisites:** AMS 7490 or equivalent

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**AMS 9080: Readings for PhD Dissertation in Ancient Mediterranean Studies**

Reading, critical evaluation of literature of special fields of Ancient Mediterranean Studies.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AMS 9090: Doctoral Dissertation Research in Ancient Mediterranean Studies**

Individual research leading to preparation of the Ph.D. dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**AMS 9187: Seminar in Classical Mythology**

Intensive study of classical mythology in origin, development, meaning and influence.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AMS 9387: Seminar in Ancient Rhetoric and Oratory**

Seminar in Ancient Rhetoric and Oratory

**Credit Hours:** 3

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**AMS 9487: Seminar in Ancient Literary Criticism**

Principles and theories of ancient Greek and Latin literary criticism, as developed in significant works on the subject.

**Credit Hours:** 3

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**AMS 9587: Greco-Roman Didactic**

Critical and comparative study of Greek and Latin didactic poetry with emphasis on major authors from Hesiod through the Augustan Age.

**Credit Hour:** 3-6

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**AMS 9887: Seminar in the Age of the Antonines**

Seminar in the Age of the Antonines

**Credit Hour:** 3-6

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## Anesthesiology (ANESTH)

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**ANESTH 6057: Springfield Anesthesiology 4Wk**

The fourth-year anesthesia medical student will work as part of a team providing hands-on clinical services in an inpatient, outpatient, and consultative setting. Students will participate in daily morning conferences and mini- didactic sessions.

**Credit Hours:** 5

**Prerequisites:** Successful completion of 5 of 7 core clerkships, including Surgery clerkship

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**ANESTH 6203: ABS Anesthesiology Research**

ABS Anesthesiology Research

**Credit Hour:** 5-10

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**ANESTH 6205: ABS Anesthesiology Research and Review**

ABS Anesthesiology Research and Review

**Credit Hour:** 5-10

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**ANESTH 6400: Anesthesiology**

Goals/Objectives: The goals are providing students with opportunities to: 1. Understand the anesthetic state (e.g. the inability of a person to protect themselves from the environment; concomitant and common depression of other systems of the body other than the nervous system). 2. Learn how to think and react quickly and correctly in times of stress. 3. Develop knowledge and skill at maintaining artificial ventilation and circulation. 4. Develop technical skills (e.g. insertion of endotracheal tubes, intravenous catheters). 5. Understand the rationale behind the choice of an anesthetic agent or technique. 6. Learn the function of an anesthesiologist as a perioperative physician and pain consultant. 7. Learn about the specialty of anesthesiology as a possible future career. Notes: Curriculum: Direct participation in anesthetic evaluation and administration for surgical procedures is combined with close individual supervision. Attendance at weekly teaching conferences is expected. Each student will follow a patient pre, intra, and post operatively and write a case presentation. Interblock: First consideration given to students interested in anesthesia as a career choice; honors considered only with documentation of participation and completion of a research project related to anesthesia. Evaluations: Evaluations are compiled from daily encounter cards completed by anesthesia providers, a written paper that discusses one patient's anesthetic, and a 50 question written examination at the end of the rotation.

**Credit Hours:** 5

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**ANESTH 6927: Anesthesiology Two-Week**

Through daily participation, students will gain insight into the specialty of anesthesiology and will develop an appreciation for the integration of basic science knowledge (especially anatomy, physiology, and pharmacology) in the clinical care of patients.

**Credit Hours:** 2

**Prerequisites:** successful completion of the first two years of medical school

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## Animal Science (AN\_SCI)

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**AN\_SCI 1001: Topics in Animal Science**

Various courses offered on a preliminary basis to determine need for such offering prior to submission as a numbered course. Various topics, credit arranged. There may be prerequisites enforced depending on the topic.

**Credit Hour:** 1-4

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**AN\_SCI 1002: Topics in Animal Science- Lab**

Various courses offered on a preliminary basis to determine need for such offering prior to submission as a numbered course. Various topics, credit arranged. There may be prerequisites enforced depending on the topic.

**Credit Hour:** 1-4

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**AN\_SCI 1010: Orientation to Animal Sciences**

This course is designed to introduce students to the field of animal sciences, opportunities within this field, and an array of campus resources. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Restricted to Animal Sciences majors or consent required

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**AN\_SCI 1011: Introduction to Animal Sciences**

An introductory course for non animal sciences majors discussing the principles of animal sciences including the importance of animal agriculture, genetics, anatomy, physiology and nutrition.

**Credit Hours:** 4

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**AN\_SCI 1011H: Animal Science - Honors**

Principles of animal science including importance of animal agriculture, genetics, anatomy, physiology and nutrition.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**AN\_SCI 1012: Introduction to Captive Wild Animal Management**

(same as F\_W 1012). General introduction to housing, husbandry, behavior, genetics, nutrition, reproduction, animal health, and disease control of native and exotic species in zoological parks and other animal conservation facilities; emphasizes the role of captive animals in wildlife conservation. Graded on A-F basis only.

**Credit Hours:** 3

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**AN\_SCI 1013: Biotechnology in Animal Agriculture**

Concepts, discoveries, and applications of biotechnology ranging from the discovery of brewing and baking to animal cloning and genetic engineering are covered. Students will acquire a foundation to understand how biotechnology affects agriculture and our everyday lives. Graded on A-F basis only.

**Credit Hours:** 3

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**AN\_SCI 1164: Biology of Animal Production I**

This is an introductory course; a companion to Biology of Animal Production II. The overall intent of the courses is to provide an introduction to modern livestock production systems with emphasis on fundamental biological principles and their application in management of production animals. Key disciplines include genetics, nutrition, reproduction, physiology, health and behavior. This course is for non-Animal Sciences majors. No credit may be earned if taken after AN\_SCI 1165. Graded on A-F basis only.

**Credit Hours:** 3

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**AN\_SCI 1165: Biology of Animal Production I with Laboratory**

This is an introductory course; a companion to Biology of Animal Production II. The overall intent of the courses is to provide an introduction to modern livestock production systems with emphasis on fundamental biological principles and their application in management of production animals. Key disciplines include genetics, nutrition, reproduction, physiology, health and behavior. The laboratory section of the course will provide hands on experience with livestock. Only 1 credit may be earned if taken after AN\_SCI 1164. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** This course is restricted to Animal Sciences students or requires consent

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**AN\_SCI 1165H: Biology of Animal Production I with Laboratory - Honors**

This is an introductory course; a companion to Biology of Animal Production II. The overall intent of the courses is to provide an introduction to modern livestock production systems with emphasis on fundamental biological principles and their application in management of production animals. Key disciplines include genetics, nutrition, reproduction, physiology, health and behavior. The laboratory section of the course will provide hands on experience with livestock. Only 1 credit may be earned if taken after AN\_SCI 1164. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** This course is restricted to Animal Sciences students or requires consent. Honors eligibility required

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**AN\_SCI 1174: Biology of Animal Production II**

This is an introductory course; a companion to Biology of Animal Production I. The overall intent of the courses is to provide an introduction to modern livestock production systems with emphasis on fundamental biological principles and their application in management of production animals. Key disciplines include genetics, nutrition, reproduction, physiology, health and behavior. Graded on A-F basis only. This section is open to all majors. No credit may be earned if taken after AN\_SCI 1175.

**Credit Hours:** 3

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**AN\_SCI 1175: Biology of Animal Production II with Lab**

This is an introductory course; a companion to Biology of Animal Production I. The overall intent of the courses is to provide an introduction to modern livestock production systems with emphasis on fundamental biological principles and their application in management of production animals. Key disciplines include genetics, nutrition, reproduction, physiology, health and behavior. The laboratory section of the course will provide hands on experience with livestock. Only 1 credit may be earned if taken after AN\_SCI 1174. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** This course is restricted to Animal Sciences students or requires consent

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**AN\_SCI 1175H: Biology of Animal Production II with Lab - Honors**

This is an introductory course; a companion to Biology of Animal Production I. The overall intent of the courses is to provide an introduction to modern livestock production systems with emphasis on fundamental biological principles and their application in management of production animals. Key disciplines include genetics, nutrition, reproduction, physiology, health and behavior. The laboratory section of the course will provide hands on experience with livestock. Only 1 credit may be earned if taken after AN\_SCI 1174. Graded on A-F basis only. Honors eligibility required

**Credit Hours:** 4

**Prerequisites:** This course is restricted to Animal Sciences students or requires consent

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**AN\_SCI 2001: Topics in Animal Science**

Various courses offered on a preliminary basis to determine need for such offering prior to submission as a numbered course. Various topics, credit arranged. There may be prerequisites enforced depending on the topic.

**Credit Hour:** 1-4

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**AN\_SCI 2002: Topics in Animal Science- Lab**

Various courses offered on a preliminary basis to determine need for such offering prior to submission as a numbered course. Various topics, credit arranged. There may be prerequisites enforced depending on the topic.

**Credit Hour:** 1-4

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**AN\_SCI 2010: Careers in Animal Sciences**

This course is designed to explore the breadth and depth of careers in animal sciences. Students will develop a professional resume, practice interviewing skills, and assess the value of a job offer. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Restricted to Animal Sciences majors or consent required

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**AN\_SCI 2045: Equine Practicum**

Focus on learning hands-on equine skills through the care of horses at the university's equine facility. Experiential learning is emphasized. Skills include: how to identify the general health and well-being of horses, recognize early onset of illness or lameness, understand basic feeding, housing, and daily care, and demonstrate the ability to handle and feed horses in a safe manner. Monthly meetings, scheduled feed shifts, monthly journals, required skill assessments, and attendance at various educational activities are required. Feed shift scheduling is determined around individual availability and no equine or animal experience is required. To enroll, students should contact the instructor for an application. Graded on A-F basis only.

**Credit Hour:** 1-2

**Prerequisites:** Instructor consent required

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**AN\_SCI 2085: Problems in Animal Science**

Library and laboratory study of assigned problems in animal breeding, nutrition, physiology or production and management. Planning, conduction and reporting to be in consultation with instructor.

**Credit Hour:** 1-5

**Prerequisites:** instructor's consent

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**AN\_SCI 2090: Foal Training Practicum**

This class focuses on practical skills associated with training and handling of foals (horses less than 6 months of age). During this class, students will gain experience in behavior modification strategies for horses. Students will work alongside the instructor to teach foals basics of haltering, leading, desensitization and ground manners. Training techniques will focus on safe and non-traumatic methods of teaching horses. No equine or training experience is necessary! Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

**Recommended:** AN\_SCI 2045

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**AN\_SCI 2095: Equine Behavior and Training**

Students learn the psychology and ethology of equine behavior and how it relates to training. The use and proper fitting of equipment is taught and students learn to teach horses to perform the basic movements needed prior to advancing to specialized training. Cannot be taken at the same time as AN\_SCI 2195. Enrollment is limited to students who have completed AN\_SCI 1065, AN\_SCI 1001, or AN\_SCI 1175.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**AN\_SCI 2110: Global Animal Agriculture**

Animal Agriculture as influenced globally by political, religious cultural, economic and climatic factors.

**Credit Hours:** 2

**Prerequisites:** sophomore standing

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**AN\_SCI 2111: Sophomore Seminar: Societal Issues Facing Animal Agriculture**

Course designed to introduce students to key issues facing animal agriculture. Assignments focus on reading current publications associated with issues affecting the animal agriculture industry. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**AN\_SCI 2111W: Sophomore Seminar: Societal Issues Facing Animal Agriculture - Writing Intensive**

Course designed to introduce students to key issues facing animal agriculture. Assignments focus on reading current publications associated with issues affecting the animal agriculture industry. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**AN\_SCI 2112: Livestock and Literature**

The human fascination with animals is documented throughout history. The impact of domesticated animals, and the livestock industry, on the human condition has been the focus of numerous authors across diverse literary genres. The care we provide for animals reflects the value we place on life, and often how we view society. This course will explore these themes while using varied fictional and non-fictional texts written in the 20th century.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**AN\_SCI 2115: Livestock Judging**

Comparative judging and evaluation; various classes of farm animals; particular reference to utility. Reference reading; illustrated lectures.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required

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**AN\_SCI 2116: Animal Welfare Evaluation**

Comparative evaluation of 4 animal welfare scenarios related to farm, zoo, lab, and exotic species. Welfare decisions are based on data and modern scientific literature. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**AN\_SCI 2131: Dairy Products Evaluation**

(same as F\_S 2131) Sensory Evaluation and judging of dairy products.

**Credit Hours:** 2

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**AN\_SCI 2140: Companion Animals**

(same as BIOMED 2140). Companion animals form an important part of our society. They serve us, provide companionship and many become members of our families. This class focuses primarily on dogs, cats, and horses. Topics covered include: the pet industry, breeds, wellness, management, care, training, zoonotic diseases, evolution and domestication, toxicology, nutrition, reproduction, genetics, human animal interactions, companion animal enterprise, and biomedical research. Students may enroll in one of two sections: service learning section or traditional course section.

**Credit Hours:** 3

**Recommended:** sophomore standing

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**AN\_SCI 2146: Introduction to Animal Behavior**

Explore animal behavior in domestic, zoo, and wild animals through a scientific approach. This course will begin with traditional animal behavior theories and move into the application of animal behavior in modern situations. Students will finish this course with an understanding of the foundational concepts in animal behavior and be able to apply those concepts to the animals around them. Graded on A-F basis only.

**Credit Hours:** 3

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**AN\_SCI 2187: Introduction To Foaling**

This class focuses on practical skills associated with parturition and neonatal care of horses. Topics include identifying signs of impending parturition, creating action plans for problems during foaling, monitoring of benchmarks during the pre- and post-natal period, and assisting with neonatal care of foals. Students will gain hands on experience in each of these areas while assisting with foaling of mares at the Division of Animal Sciences Equine Teaching Facility. Enrollment is limited to students who have completed AN\_SCI 2045. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Instructor's Consent

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**AN\_SCI 2195: Equine Facility Management and Marketing**

Focuses on learning equine facility management through student care and management of the University's equine facility and breeding herd. Students also learn handling techniques for a wide variety of horses and gain experience in general equine facility maintenance. Students will be responsible for marketing horses sold in the annual MU online horse auction. Cannot be taken at the same time as AN\_SCI 2095. Enrollment is limited to students with Sophomore standing or higher. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**AN\_SCI 2214: Animal Products and Biotechnology**

This course is designed to explore the variety of products that humans derive from animals for nutrition, fiber, and health and includes a laboratory session that promotes the working knowledge of methods for measuring animal product quality. Students will also assess factors related to consumer demand that influence the value of animal products. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Restricted to Animal Sciences majors or instructor's consent

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**AN\_SCI 2244: Introduction to Comparative Anatomy with Lab**

Introduction into the vertebrate body structure and function, with an emphasis in the direct comparison between humans and non-human animals including but not limited to cattle, horses, swine, poultry, and rodents. Course topics include: cells and tissues, skeletal system, muscles and muscle tissue. This course will also touch on the cardiovascular system, the senses, respiratory system and animals as models of human disorders and diseases. Internet access required: lectures and portions of material will be online. On-campus laboratory meetings will allow students to explore various systems and gain experiential learning opportunities through manipulation, dissection, evaluation and use of Anatomy In Clay models to deepen the understanding of the material. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Freshmen or Sophomore standing

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**AN\_SCI 3001: Topics in Animal Science**

Various courses offered on a preliminary basis to determine need for such offering prior to submission as a numbered course. Various topics, credit arranged. There may be prerequisites enforced depending on the topic.

**Credit Hour:** 1-4

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**AN\_SCI 3002: Topics in Animal Science- Lab**

Various courses offered on a preliminary basis to determine need for such offering prior to submission as a numbered course. Various topics, credit arranged. There may be prerequisites enforced depending on the topic.

**Credit Hour:** 1-4

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**AN\_SCI 3010: Graduate Experience Program**

This course is designed to give undergraduates insight into the graduate student experience and to provide background knowledge in the various aspects of graduate level research as well as the application process for graduate school.

**Credit Hour:** 1

**Prerequisites:** Consent required

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**AN\_SCI 3085: Problems in Animal Science**

Current problems in animal breeding, nutrition, livestock production and management, meats. Assigned topics. In some cases student may undertake a project by outlining objectives, planning work, keeping records and summarizing results in written report. Some sections may be graded either on S/U or A-F basis only.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**AN\_SCI 3085W: Problems in Animal Science - Writing Intensive**

Current problems in animal breeding, nutrition, livestock production and management, meats. Assigned topics. In some cases student may undertake a project by outlining objectives, planning work, keeping records and summarizing results in written report. Some sections may be graded either on S/U or A-F basis only.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**AN\_SCI 3190: Study Abroad: International Meat, Dairy and Enology**

(same as F\_S 3190). This study abroad course introduces students to the meat, dairy and wine industries in Germany or in New Zealand (destinations are on a rotational basis). Students will visit small, medium and large-scale producers and learn about differences in comparisons to the US industries. May be repeated once for credit.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**AN\_SCI 3213: Genetics of Agricultural Plants and Animals**

(same as PLNT\_S 3213). Concepts of molecular, transmission, and population and quantitative genetics. Special emphasis given to breeding and biotechnological applications in plant and animal agriculture. Prerequisites: MATH 1100 or higher and one of the following: BIO\_SC 1100 or BIO\_SC 1200 or BIO\_SC 1500 or FW 1100.

**Credit Hours:** 3

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**AN\_SCI 3214: Principles of Meat Science**

(same as F\_S 3214). Study of the principles involved in the conversion of living animals to meat and by-products; efficient utilization of meat as a food.

**Credit Hours:** 3

**Recommended:** one course in Biology

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**AN\_SCI 3231: Principles of Dairy Foods Science**

(same as F\_S 3231). Technology, chemistry and microbiology related to milk and its transformation into fluid milk products, fermented dairy foods and spreads. (2 hours of lecture and two hours of laboratory per week.)

**Credit Hours:** 3

**Recommended:** One course in Chemistry or Biological Sciences

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**AN\_SCI 3242: Principles and Applications of Animal Nutrition**

Fundamentals of animal nutrition, including digestion, absorption, metabolism, and function of nutrients; nutrient and energy requirements; feedstuffs used in livestock and companion animal nutrition; and integration of these principles with nutrition-based calculations to make nutritional management decisions. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** MATH 1100 or higher, CHEM 1320 or higher, Sophomore standing or higher

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**AN\_SCI 3253: Physiology of Domestic Animals- All Majors**

Course covers basic concepts of physiology and anatomy in vertebrate animals.

**Credit Hours:** 4

**Prerequisites:** Sophomore standing or higher. 4 credit section is open to all majors

**Recommended:** BIO\_SC 1500 or F\_W 1100, CHEM 1320, and MATH 1100 are strongly recommended. Students would also benefit from prior completion of CHEM 1330, CHEM 2030 (or 2100), and/or BIO\_CHEM 3630

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**AN\_SCI 3254: Physiology of Domestic Animals**

Course covers basic concepts of physiology and anatomy in vertebrate animals.

**Credit Hours:** 5

**Prerequisites:** Sophomore standing or higher. 5 credit section (with lab) is restricted to Animal Sciences Majors Only

**Recommended:** BIO\_SC 1500 or F\_W 1100, CHEM 1320, and MATH 1100 are strongly recommended. Students would also benefit from prior completion of CHEM 1330, CHEM 2030 (or 2100), and/or BIO\_CHEM 3630

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**AN\_SCI 3254H: Physiology of Domestic Animals - Honors**

Course covers basic concepts of physiology and anatomy in vertebrate animals.

**Credit Hours:** 5

**Prerequisites:** BIO\_SC 1100 or BIO\_SC 1500 or F\_W 1100; CHEM 1320; Honors eligibility required. 5 credit section (with lab) is restricted to Animal Sciences majors

**Recommended:** CHEM 1330; CHEM 2030 or CHEM 2100

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**AN\_SCI 3264: Physiology of Domestic Animals II**

Advanced study of selected topics and systems in domestic animal physiology. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** AN\_SCI 3254 or BIO\_SCI 3700 or MPP 3202 or equivalent physiology course

**Recommended:** Foundational courses in biology and chemistry

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**AN\_SCI 3275: Meat Animal Evaluation**

Meat animal evaluation highlights the relationships and limitations that exist when evaluating market and breeding animals and develops an appreciation for carcass excellence as it relates to production, merchandising and consumption. Some travel time and commitments will be necessary.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**AN\_SCI 4001: Topics in Animal Science**

Various courses offered on a preliminary basis to determine need for such offering prior to submission as a numbered course. Various topics, credit arranged.

**Credit Hour:** 1-4

**Prerequisites:** instructor's consent

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**AN\_SCI 4001W: Topics in Animal Science - Writing Intensive**

Various courses offered on a preliminary basis to determine need for such offering prior to submission as a numbered course. Various topics, credit arranged.

**Credit Hour:** 1-4

**Prerequisites:** instructor's consent

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**AN\_SCI 4010: Pasture-Based Dairy Management**

(cross-leveled with AN\_SCI 7010). The objective of the class is to give a broad overview of pasture-based dairying and instill a confidence for students evaluating if this type of animal agriculture is an occupation they want to pursue after graduation. The class is taught by experts from various departments in CAFNR and covers elements of dairy and forage production needed to be successful. Materials from this class are also cross-species related where information can be used on other ruminant type operations. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** restricted to Junior and Seniors

**Recommended:** Background in dairy production, nutrition and reproductive physiology for Animal Science students or plant physiology and forage production for Plant Science students

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**AN\_SCI 4010W: Pasture-Based Dairy Management - Writing Intensive**

(cross-leveled with AN\_SCI 7010). The objective of the class is to give a broad overview of pasture-based dairying and instill a confidence for students evaluating if this type of animal agriculture is an occupation they want to pursue after graduation. The class is taught by experts from various departments in CAFNR and covers elements of dairy and forage production needed to be successful. Materials from this class are also cross-species related where information can be used on other ruminant type operations. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** restricted to Junior and Seniors

**Recommended:** Background in dairy production, nutrition and reproductive physiology for Animal Science students or plant physiology and forage production for Plant Science students

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**AN\_SCI 4011: Pasture Based Dairy Management Lab**

(cross-leveled with AN\_SCI 7011). This course is a hands-on experience class taught over 4 days during spring break. The objective of the class is to give a broad overview of pasture-based dairying and instill a confidence for students evaluating if this type of animal agriculture is an occupation they want to pursue after graduation. The class is taught by experts from various departments in CAFNR and covers elements of dairy and forage production needed to be successful. Students will have the opportunity to interact with successful pasture-based dairy producers in Missouri and apply their experience from AN\_SCI 4010 on real farm situations. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites or Corequisites:** AN\_SCI 4010

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**AN\_SCI 4012: Elements of Experimental Surgery**

(cross-leveled with AN\_SCI 7012). This course implements the basics of surgery techniques as well as the laws and regulations governing the privilege of using vertebrate animals in research. Consideration for

enrollment will be given first to graduate students. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Instructor's consent

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**AN\_SCI 4312: Monogastric Nutrition**

(same as NEP 4020; cross-leveled with AN\_SCI 7312 and NUTRIT 7020). Principles of nutrition, feed formulation and recent research in poultry feeding. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** AN\_SCI 3242

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**AN\_SCI 4314: Physiology of Reproduction**

(cross-leveled with AN\_SCI 7314). Principles of animal reproduction with emphasis on endocrine control of reproductive processes.

**Credit Hours:** 3

**Prerequisites or Corequisites:** AN\_SCI 3254 or MPP 3202 or BIO\_SC 3700

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**AN\_SCI 4314H: Physiology of Reproduction - Honors**

Principles of animal reproduction with emphasis on endocrine control of reproductive processes.

**Credit Hours:** 3

**Prerequisites or Corequisites:** AN\_SCI 3254 or MPP 3202 or BIO\_SC 3700. Honors eligibility required

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**AN\_SCI 4323: Applied Livestock Genetics**

(cross-leveled with AN\_SCI 7323). Genetic principles applied to improvement of farm animals. Covers selection, prediction of genetic merit and mating systems. Math Reasoning Proficiency Course.

**Credit Hours:** 2

**Prerequisites or Corequisites:** AN\_SCI 3213 or PLNT\_S 3213 or BIO\_SCI 2200 or F\_W 2500

**Prerequisites:** MATH 1100 or higher

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**AN\_SCI 4324: Genomics of Plants and Animals**

(cross-leveled with AN\_SCI 7324). Analysis of organisms at the level of the complete genome sequence. Covers genome sequencing, assembly and annotation, as well as functional, evolutionary and computational genomics.

**Credit Hours:** 2

**Prerequisites or Corequisites:** AN\_SCI 3213 or PLNT\_S 3213 or equivalent

**Prerequisites:** BIO\_SC 1010 and BIO\_SC 1020 or BIO\_SC 1500 or F\_W 1100; MATH 1100

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**AN\_SCI 4332: Ruminant Nutrition**

(cross-leveled with AN\_SCI 7332). Physiology, chemistry, microbiology and pathology of ruminants. Emphasizes the digestion, absorption, metabolism and utilization of nutrients.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 3001 or AN\_SCI 3212 or AN\_SCI 3242

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**AN\_SCI 4354: Physiology and Biochemistry of Muscle as Food**  
(same as F\_S 4354; cross-leveled with AN\_SCI 7354). Basic concepts in muscle growth and development of livestock evaluating the effects of environment, welfare, nutrition and genetics regarding muscle metabolism, physiology, and the ultimate condition of muscle as food.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 3254 or MPP 3202 or BIO\_SC 3700; AN\_SCI 2001 or AN\_SCI 2214 or AN\_SCI 2114 or AN\_SCI 3214 or F\_S 3214 or AN\_SCI 3231 or F\_S 3231

**Recommended:** Any Biochemistry or Organic Chemistry course

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**AN\_SCI 4384: Reproductive Management**

(cross-leveled with AN\_SCI 7384). Reproductive management of cattle, swine and sheep; estrous synchronization; artificial insemination; embryo development and transfer; assisted reproductive technologies. Enrollment is restricted to students with senior standing that have completed or are currently enrolled in AN\_SCI 4314.

**Credit Hours:** 3

**Prerequisites or Corequisites:** AN\_SCI 4314

**Prerequisites:** Instructor's consent

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**AN\_SCI 4385: Reproductive Management Laboratory**

(cross-leveled with AN\_SCI 7385). This laboratory is complementary to the reproductive management course (AN\_SCI 4384). The objective of this laboratory is to provide hands on experience with semen handling, artificial insemination, embryo manipulation, and pregnancy diagnosis.

**Credit Hour:** 1

**Prerequisites:** Instructor's consent

**Corequisites:** AN\_SCI 4384

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**AN\_SCI 4386: Equine Reproduction**

Focuses on reproductive management techniques and breeding in the horse. Topics include stallion collection and evaluation, artificial insemination, interpreting ultrasound images, teasing, parturition, and foal care. Graded on A-F basis only. Students will not receive credit if taken after AN\_SCI 4387.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 4314 and instructor's consent

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**AN\_SCI 4387: Equine Breeding Management**

Focuses on practical applications of reproductive management techniques and breeding in the horse. Topics include stallion collection and evaluation, artificial insemination, interpreting ultrasound images, teasing, parturition, and foal care. Students will gain hands-on experience in each of these areas. Students will receive 2 credits if taken after AN\_SCI 4386.

**Credit Hours:** 5

**Prerequisites:** AN\_SCI 4314 and instructor's consent

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**AN\_SCI 4436: Animal Welfare**

This course is a comprehensive assessment of animal welfare. Topics will cover livestock, lab, zoo, and companion animal welfare by considering their physiology, behavior, and affective state. The course begins with a description of the scientific and theoretical framework underlying welfare and moves throughout the semester by applying the science to different species. Students will be responsible for producing

an educational deliverable item during the semester which will assist students by building on their understanding of animal welfare and will reflect the learning objectives of this course. Graded on A-F basis only. Prerequisites: Students must have taken and passed with grade of C or better in: AN\_SCI 1011 or AN\_SCI 1165 or AN\_SCI 1175 or AN\_SCI 1012 or F\_W 1012 and AN\_SCI 3254 or MPP 3202 or BIO\_SC 3700 prior to the start of this course.

**Credit Hours:** 4

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**AN\_SCI 4437: Stress Physiology**

This online course will provide a general understanding of internal and external stress conditions that animals face throughout life. Since stress physiology can be expanded into many far-reaching and different areas, we will focus on specific topics that have a historical background and, at the same time, are pertinent in today's world. We will examine basic concepts of how stressors are received by the body and how it responds in both healthy and pathological situations. You will be able to relate many of the situations discussed in class to life events. In the end, you will acquire a better understanding of external, environmental and internal stressors and why we need some of them for normal growth and development. Finally, you will learn to apply concepts gained in this class to actual research presented in the scientific literature, and apply this ability to real-world scenarios in the future.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 3254, MPP 3202, or BIO\_SC 3700

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**AN\_SCI 4910: Senior Seminar in Captive Wild Animal Management**

(same as F\_W 4910). Investigates key issues in captive wild animal management, focusing on the role of animal caretakers in addressing the issues. Students are required to formulate informed opinions regarding these topics and communicate effectively about the subject matter. Graded A-F only.

**Credit Hour:** 1

**Prerequisites:** AN\_SCI 1012 or F\_W 1012 or instructor's consent; junior or senior standing

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**AN\_SCI 4940: Internship in Animal Science & Technology**

Off-campus training to develop technical skills and understanding of an area of animal science. Written reports required. Graded on an S/U basis only.

**Credit Hour:** 1-12

**Prerequisites:** instructor's consent

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**AN\_SCI 4950: Undergraduate Research in Animal Science**

Individually directed field or laboratory research culminating in a poster or oral presentation for upper-class students under faculty supervision.

**Credit Hour:** 1-3

**Prerequisites:** At least sophomore standing or instructor's consent

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**AN\_SCI 4973: Molecular and Cellular Techniques in Animal Science**

A directed research project that employs current molecular and cellular technologies. Students will generate experimental data, analyze the data and draft a research report in the format of a scientific paper.

**Credit Hours:** 4

**Prerequisites:** instructor's consent

**Recommended:** an introductory course in biology and a course in organic chemistry, at least junior standing

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**AN\_SCI 4975: Beef Production and Management**

(cross-leveled with AN\_SCI 7975). Systems of beef production: breeding, feeding, management of commercial and purebred beef cattle.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1165 or AN\_SCI 1001 or AN\_SCI 1065 and AN\_SCI 2165; AN\_SCI 3001 or AN\_SCI 3212 or AN\_SCI 3242; AN\_SCI 3254 or MPP 3202 or BIO\_SC 3700; AN\_SCI 3213

**Recommended:** AN\_SCI 4314

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**AN\_SCI 4975W: Beef Production and Management - Writing Intensive**

(cross-leveled with AN\_SCI 7975). Systems of beef production: breeding, feeding, management of commercial and purebred beef cattle. Recommended: AN\_SCI 4314

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1165 or AN\_SCI 1001 or AN\_SCI 1065 and AN\_SCI 2165; AN\_SCI 3001 or AN\_SCI 3212 or AN\_SCI 3242; AN\_SCI 3254 or MPP 3202 or BIO\_SC 3700; AN\_SCI 3213

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**AN\_SCI 4976: Dairy Production**

(cross-leveled with AN\_SCI 7976). Applied dairy science; emphasis on nutrition and management; herd health, labor-saving equipment, buildings, quality products, organization of dairy enterprise, business and economic aspects.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1065 and AN\_SCI 2165, or AN\_SCI 1065 and AN\_SCI 1001, or AN\_SCI 1065 and AN\_SCI 1165, or AN\_SCI 1165, or AN\_SCI 1001; AN\_SCI 3212 and AN\_SCI 3232, or AN\_SCI 3001, or AN\_SCI 3242; or instructor's consent

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**AN\_SCI 4976W: Dairy Production - Writing Intensive**

(cross-leveled with AN\_SCI 7976). Applied dairy science; emphasis on nutrition and management; herd health, labor-saving equipment, buildings, quality products, organization of dairy enterprise, business and economic aspects.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1065 and AN\_SCI 2165, or AN\_SCI 1065 and AN\_SCI 1001, or AN\_SCI 1065 and AN\_SCI 1165, or AN\_SCI 1165; AN\_SCI 3212 and AN\_SCI 3232, or AN\_SCI 3001, or AN\_SCI 3242; or instructor's consent

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**AN\_SCI 4977: Horse Production**

(cross-leveled with AN\_SCI 7977). Systems of horse production: breeding, feeding and management of horses.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1001 or AN\_SCI 1175 or AN\_SCI 1065 and AN\_SCI 2175; AN\_SCI 3001 or AN\_SCI 3212 or AN\_SCI 3242; or instructor's consent

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**AN\_SCI 4978: Swine Production**

(cross-leveled with AN\_SCI 7978). Systems of pork production: breeding, feeding, management of commercial and purebred swine.

**Credit Hours:** 3

**Prerequisites or Corequisites:** AN\_SCI 3212 or AN\_SCI 3242 or AN\_SCI 3001 or instructor's consent

**Prerequisites:** AN\_SCI 1065 and AN\_SCI 2175, or AN\_SCI 1065 and AN\_SCI 1001, or AN\_SCI 1065 and AN\_SCI 1175, or AN\_SCI 1001, or AN\_SCI 1175, or instructor's consent

**Recommended:** AN\_SCI 4314 and AN\_SCI 3213

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**AN\_SCI 4978W: Swine Production - Writing Intensive**

Systems of pork production: breeding, feeding, management of commercial and purebred swine.

**Credit Hours:** 3

**Prerequisites or Corequisites:** AN\_SCI 3212 or AN\_SCI 3242 or AN\_SCI 3001 or instructor's consent

**Prerequisites:** AN\_SCI 1065 and AN\_SCI 2175, or AN\_SCI 1065 and AN\_SCI 1001, or AN\_SCI 1065 and AN\_SCI 1175, or AN\_SCI 1001, or AN\_SCI 1175, or instructor's consent

**Recommended:** AN\_SCI 4314 and AN\_SCI 3213

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**AN\_SCI 4979: Poultry Production**

(cross-leveled with AN\_SCI 7979). Principles of housing systems, nutrition, management, business and production of commercial chickens and turkeys.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1001 or AN\_SCI 1175 or AN\_SCI 1065 and AN\_SCI 2175; AN\_SCI 3001 or AN\_SCI 3232 or AN\_SCI 3242; or instructor's consent

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**AN\_SCI 4979W: Poultry Production Writing Intensive**

(cross-leveled with AN\_SCI 7979). Principles of housing systems, nutrition, management, business and production of commercial chickens and turkeys.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1001 or AN\_SCI 1175 or AN\_SCI 1065 and AN\_SCI 2175; AN\_SCI 3001 or AN\_SCI 3232 or AN\_SCI 3242; or instructor's consent

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**AN\_SCI 7001: Topics in Animal Science**

Various courses offered on a preliminary basis to determine need for such offering prior to submission as a numbered course. Various topics, credit arranged.

**Credit Hour:** 1-4

**Prerequisites:** instructor's consent

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**AN\_SCI 7010: Pasture-Based Dairy Management**

(cross-leveled with AN\_SCI 4010). The objective of the class is to give a broad overview of pasture-based dairying and instill a confidence for students evaluating if this type of animal agriculture is an occupation they want to pursue after graduation. The class is taught by experts from various departments in CAFNR and covers elements of dairy and forage production needed to be successful. Materials from this class are also cross-species related where information can be used on other ruminant type operations. Graded on A-F basis only.

**Credit Hours:** 2

**Recommended:** Background in dairy production, nutrition and reproductive physiology for Animal Science students or plant physiology and forage production for Plant Science students

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**AN\_SCI 7011: Pasture Based Dairy Management Lab**

(cross-leveled with AN\_SCI 4011). This course is a hands-on experience class taught over 4 days during spring break. The objective of the class is to give a broad overview of pasture-based dairying and instill a confidence for students evaluating if this type of animal agriculture is an occupation they want to pursue after graduation. The class is taught by experts from various departments in CAFNR and covers elements of dairy and forage production needed to be successful. Students will have the opportunity to interact with successful pasture-based dairy producers in Missouri and apply their experience from AN\_SCI 7010 on real farm situations. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites or Corequisites:** AN\_SCI 7010

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**AN\_SCI 7012: Elements of Experimental Surgery**

(cross-leveled with AN\_SCI 4012). This course implements the basics of surgery techniques as well as the laws and regulations governing the privilege of using vertebrate animals in research. Consideration for enrollment will be given first to graduate students. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Instructor's consent

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**AN\_SCI 7312: Monogastric Nutrition**

(same as NUTRIT 7020, NEP 7020; cross-leveled with NEP 4020, AN\_SCI 4312). Principles of nutrition, feed formulation and recent research in poultry feeding. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** AN\_SCI 3242

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**AN\_SCI 7314: Physiology of Reproduction**

(cross-leveled with AN\_SCI 4314). Principles of animal reproduction with emphasis on endocrine control of reproductive processes.

**Credit Hours:** 3

**Prerequisites or Corequisites:** AN\_SCI 3254 or BIO\_SC 3700 or MPP 3202

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**AN\_SCI 7323: Applied Livestock Genetics**

(cross-leveled with AN\_SCI 4323). Genetic principles applied to improvement of farm animals. Covers selection, prediction of genetic merit and mating systems.

**Credit Hours:** 2

**Prerequisites or Corequisites:** AN\_SCI 3213 or PLNT\_S 3213 or BIO\_SC 2200 or F\_W 2500  
**Prerequisites:** MATH 1100

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**AN\_SCI 7324: Genomics of Plants and Animals**

(cross-leveled with AN\_SCI 4323). Analysis of organisms at the level of the complete genome sequence. Covers genome sequencing, assembly and annotation, as well as functional, evolutionary and computational genomics.

**Credit Hours:** 3

**Prerequisites or Corequisites:** AN\_SCI 3213 or PLNT\_S 3213 or equivalent

**Prerequisites:** BIO\_SC 1010 and BIO\_SC 1020 or BIO\_SC 1500 or F\_W 1100; MATH 1100

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**AN\_SCI 7332: Ruminant Nutrition**

(cross-leveled with AN\_SCI 4332). Physiology, chemistry, microbiology and pathology of ruminants. Emphasizes the digestion, absorption, metabolism and utilization of nutrients.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 3001 or AN\_SCI 3212 or AN\_SCI 3242

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**AN\_SCI 7344: Processing Muscle Foods**

(same as F\_S 7344; cross-leveled with AN\_SCI 4344, F\_S 4344).

Materials and technologies for the manufacture of muscle food products from red meats, poultry and seafood. Experience problem-solving through further processing of complex ingredients and develop skills by practicing operations in a pilot plant facility.

**Credit Hours:** 3

**Prerequisites:** one Chemistry course

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**AN\_SCI 7354: Physiology and Biochemistry of Muscle as Food**

(same as F\_S 7354; cross-leveled with AN\_SCI 4354, F\_S 4354). Basic concepts in muscle growth and development of livestock evaluating the effects of environment, welfare, nutrition and genetics regarding muscle metabolism, physiology, and the ultimate condition of muscle as food.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 3254 or MPP 3202 or BIO\_SC 3700; AN\_SCI 2001 or AN\_SCI 2214 or AN\_SCI 2114 or AN\_SCI 3214 or F\_S 3214 or AN\_SCI 3231 or F\_S 3231

**Recommended:** Any Biochemistry or Organic Chemistry course

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**AN\_SCI 7384: Reproductive Management**

(cross-leveled with AN\_SCI 4384). Reproductive management of cattle, swine and sheep; estrous synchronization; artificial insemination; embryo development and transfer; assisted reproductive technologies.

**Credit Hours:** 3

**Prerequisites or Corequisites:** AN\_SCI 7314

**Prerequisites:** Instructor's consent

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**AN\_SCI 7385: Reproductive Management Laboratory**

This laboratory course is to provide hands on experience with semen handling, artificial insemination, embryo manipulation and pregnancy diagnosis. Laboratory is complementary to the Reproductive Management course (AN\_SCI 7384).

**Credit Hour:** 1

**Corequisites:** AN\_SCI 7384

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**AN\_SCI 7975: Beef Production and Management**

(cross-leveled with AN\_SCI 4975). Systems of beef production: breeding, feeding, management of commercial and purebred beef cattle.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1165 or AN\_SCI 1001 or AN\_SCI 1065 and AN\_SCI 2165; AN\_SCI 3001 or AN\_SCI 3212 or AN\_SCI 3242; AN\_SCI 3254 or MPP 3202 or BIO\_SC 3700; AN\_SCI 3213

**Recommended:** AN\_SCI 4314

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#### **AN\_SCI 7976: Dairy Production**

(cross-leveled with AN\_SCI 4976). Applied dairy science; emphasis on nutrition and management; herd health, labor-saving equipment, buildings, quality products, organization of dairy enterprise, business and economic aspects.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1065 and AN\_SCI 2165, or AN\_SCI 1065 and AN\_SCI 1001, or AN\_SCI 1065 and AN\_SCI 1165, or AN\_SCI 1165; AN\_SCI 3212 and AN\_SCI 3232 or AN\_SCI 3001 or AN\_SCI 3242; or instructor's consent

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#### **AN\_SCI 7977: Horse Production**

(cross-leveled with AN\_SCI 4977). Systems of horse production: breeding, feeding and management of horses.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1001 or AN\_SCI 1175 or AN\_SCI 1065 and AN\_SCI 2175; AN\_SCI 3001 or AN\_SCI 3212 or AN\_SCI 3242; or instructor's consent

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#### **AN\_SCI 7978: Swine Production**

(same as AN\_SCI 4978; cross-leveled with AN\_SCI 4978). Systems of pork production: breeding, feeding, management of commercial and purebred swine.

**Credit Hours:** 3

**Prerequisites or Corequisites:** AN\_SCI 3212 or AN\_SCI 3242 or AN\_SCI 3001 or instructor's consent

**Prerequisites:** AN\_SCI 1065 and AN\_SCI 2175, or AN\_SCI 1065 and AN\_SCI 1001, or AN\_SCI 1065 and AN\_SCI 1175, or AN\_SCI 1001, or AN\_SCI 1175, or instructor's consent

**Recommended:** AN\_SCI 4314 and AN\_SCI 3213

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#### **AN\_SCI 7979: Poultry Production**

(cross-leveled with AN\_SCI 4979). Principles of housing systems, nutrition, management, business and production of commercial chickens and turkeys.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 1001 or AN\_SCI 1175 or AN\_SCI 1065 and AN\_SCI 2175; AN\_SCI 3001 or AN\_SCI 3232 or AN\_SCI 3242; or instructor's consent

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#### **AN\_SCI 8001: Topics in Animal Science**

Various courses offered on a preliminary basis to determine need for such offering prior to submission as a numbered course. Various topics, credit arranged.

**Credit Hour:** 1-4

**Prerequisites:** Instructor's consent

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#### **AN\_SCI 8085: Problems in Animal Science**

Advanced independent studies in fields not directly related to thesis or non-thesis degree research program. May be graded on S/U or A-F basis only.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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#### **AN\_SCI 8087: Seminar in Animal Science**

Critical consideration of research and other selected subjects in animal breeding, animal nutrition, reproductive physiology, growth and development and livestock production and management.

**Credit Hour:** 1

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#### **AN\_SCI 8090: Thesis Research in Animal Science**

Investigations in animal breeding, animal nutrition, reproduction physiology, growth and development livestock production and management. Graded on a S/U basis only.

**Credit Hour:** 1-99

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#### **AN\_SCI 8413: Reproductive Biology Seminar**

Presentation and discussion of selected topics from all phases of reproductive biology. Open to qualified students of graduate standing in the field of Reproductive Biology.

**Credit Hour:** 1

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#### **AN\_SCI 8414: Meat Quality**

(same as F\_S 8414). Discussion of factors affecting meat quality in beef, pork, lamb and poultry. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 3214 or equivalent

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#### **AN\_SCI 8415: Survey of Epigenetics**

This course will introduce graduate students to the basic concepts in epigenetics, including DNA methylation, histone modifications, epigenetic modifiers/transacting factors, non-coding RNAs, genomic imprinting, and dosage compensation. The course is designed to be a combination of lectures, paper discussions, and research talks by invited faculty speakers from across campus.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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#### **AN\_SCI 8420: Endocrinology**

Hormones of pituitary and endocrine glands; special reference to influence on growth, reproduction, milk secretion.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 7314 or equivalent

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#### **AN\_SCI 8424: Meat Investigations**

(same as F\_S 8424). Discussions of scientific literature and hands-on experimentation with research techniques customarily used in the field of meat science. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** F\_S 3214 /AN\_SCI 3214 or equivalent; instructor's consent

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#### **AN\_SCI 8430: Introduction to Bioinformatics Programming**

(same as PLNT\_S 8430). This course provides the basics of programming and database development to students in the life sciences

who have little prior programming experience. It covers Unix/Linux, Perl, MySQL, the relational database design process, and common data formats used in genome informatics. Students will learn how programming skills can enhance their ability to analyze large biological datasets, and will gain hands on experience with examples focused on genomics and bioinformatics. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Instructor's consent

**Recommended:** Undergraduate or graduate course in Genetics

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#### **AN\_SCI 8431: Nutritional Biochemistry of Lipids**

(Same as NEP 8310 and NUTRIT 8310). Current concepts in the nutritional regulations of lipid metabolism. Emphasis on integrating information and interpreting current research data.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 4270 and BIOCHM 4272

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#### **AN\_SCI 8434: Special Topics in Reproductive Biology**

The physiological, hormonal, cellular and molecular mechanisms regulating development and function of reproductive systems of mammals will be studied with an emphasis on domestic animals, rodents, and humans. Current theories will be evaluated and discussed using information from recent scientific publications. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** AN\_SCI 4314 or AN\_SCI 7314 or equivalent; AN\_SCI 8420; and courses in biochemistry and/or cell biology

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#### **AN\_SCI 8441: Statistical Applications in Agriculture**

Techniques of experimentation, with application to livestock production and management. Exercises in methods of planning, conducting, analyzing, evaluating and reporting research.

**Credit Hours:** 3

**Prerequisites:** STAT 4530/STAT 7530 or equivalent or instructor's consent

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#### **AN\_SCI 8442: Digestive Physiology and Metabolism**

The objective of this course is to provide graduate students in Animal Science and related areas with current knowledge in gastrointestinal physiology, including research methods used in nutrition and nutritional physiology. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** At least one (each) undergraduate or graduate-level nutrition, physiology (general), and biochemistry course; or instructor's consent

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#### **AN\_SCI 8633: Molecular and Network Evolution**

(same as BIO\_SC 8633). Evolution of biological macromolecules and networks, including sequence analysis algorithms and theory, phylogenetics, gene duplication, genome evolution, principles of biological networks. Development of computational skills emphasized.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required

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**AN\_SCI 8725: Science Outreach: Public Understanding of Science** (same as BIO\_SC 8725, PHYSCS 8350 and LTC 8725). Development of presentations to adult audiences on the science underlying issues of current interest. May be repeated for credit.

**Credit Hour:** 1-2

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#### **AN\_SCI 9001: Topics in Animal Science**

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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#### **AN\_SCI 9090: Dissertation Research in Animal Science**

Investigations in animal breeding, animal nutrition, livestock production and management. Dissertation required. Graded on a S/U basis only.

**Credit Hour:** 1-99

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#### **AN\_SCI 9423: Genetics of Populations**

Theoretical and practical examination of the forces that affect genetic variation at a population level.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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#### **AN\_SCI 9432: Ruminant Nutrition**

(same as NUTRIT 8320). Physiology, chemistry, microbiology, pathology of ruminants. Emphasizes digestion, absorption, metabolism, utilization of nutrients. Lecture, laboratory, assigned readings.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 4332/AN\_SCI 7332 or equivalent and BIOCHM 4270

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#### **AN\_SCI 9433: Gamete and Embryo Development**

A classical and molecular approach to spermatogenesis, oogenesis, fertilization and preimplantation development in the domestic species.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 4314/AN\_SCI 7314 or BIO\_SC 4984 or equivalent

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#### **AN\_SCI 9434: Gonadal Function**

(same as BIOMED 9434).

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 4314, biochemistry or cell biology and AN\_SCI 8420

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#### **AN\_SCI 9435: Placentation**

Provide students with current and in-depth information about the mechanisms involved in placental development and how the placenta (and placental products) influence maternal physiology - both locally at the placenta-uterine interface and systemically. All course topics will be covered in a comparative cross-species approach whenever possible. Emphasis will be placed on the most recent literature regarding the interactions taking place between the placenta and maternal system and how these interactions lead to the eventual birth of live young.

**Credit Hours:** 3

**Recommended:** It is preferred that students take AN\_SCI 9433 prior to this class, but this is not an absolute requirement

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**AN\_SCI 9442: Vitamins and Minerals**

Designed to provide students with an understanding of the chemical, metabolic, and functional role of vitamins and minerals in nutrition. While the primary focus will be on animals, comparative aspects to human nutrition will be discussed.

**Credit Hours:** 4

**Prerequisites:** AN\_SCI 3212, BIOCHM 4270 or equivalent

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## Anthropology (ANTHRO)

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**ANTHRO 1000: Introduction to Anthropology: Human Biology, Prehistory, and Culture**

General survey course in fields of anthropological concern: archaeology, cultural anthropology, biological anthropology, linguistics; emphasizes underlying concepts, principles. Examples from peoples of the world.

**Credit Hours:** 3

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**ANTHRO 1000H: Introduction to Anthropology: Human Biology, Prehistory, and Culture - Honors**

General survey course in fields of anthropological concern: archaeology, cultural anthropology, biological anthropology, linguistics; emphasizes underlying concepts, principles. Examples from peoples of the world.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**ANTHRO 1001: Topics in Anthropology - General**

Problems, topics, issues, or review of research in any areas of anthropology and/or experimental development of new content areas at a freshman level. Specific content will vary and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hour:** 1-3

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**ANTHRO 1002: Topics in Anthropology - Biological Sciences**

Problems, topics, issues, or review of research in any areas of anthropology and/or experimental development of new content areas at a freshman level. Specific content will vary and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hour:** 1-3

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**ANTHRO 1003: Topics in Anthropology - Behavioral**

Problems, topics, issues, or review of research in any areas of anthropology and/or experimental development of new content areas at a freshman level. Specific content will vary and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hour:** 1-3

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**ANTHRO 1006: Topics in Anthropology - Mathematical Sciences**

Problems, topics, issues, or review of research in any areas of anthropology and/or experimental development of new content areas at a freshman level. Specific content will vary and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hour:** 1-3

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**ANTHRO 1007: Topics in Anthropology - Physical Sciences**

Problems, topics, issues, or review of research in any areas of anthropology and/or experimental development of new content areas at a freshman level. Specific content will vary and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hour:** 1-3

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**ANTHRO 1060: Human Language**

(same as LINGST 1060, SLHS 1060 and ENGLSH 1060). General introduction to various aspects of linguistic study. Elementary analysis of language data with some attention to application of linguistic study to other disciplines.

**Credit Hours:** 3

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**ANTHRO 1150: Introduction to Folklore Genres**

(same as ENGLSH 1700). Course focus is on genres of folklore in both historic and contemporary contexts, as well as in people's daily lives. Genres include narrative, proverbs, oral poetry and rhyme, riddles, jokes, legends, epics, material culture and intangible expressive culture. Graded on A-F basis only.

**Credit Hours:** 3

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**ANTHRO 1200: Significant Discoveries of Archaeology**

Detailed consideration of approximately 20 archaeological discoveries and conclusions, from the field and the laboratory, which have been of surpassing importance for an understanding of human origins, behavior, culture and past experiences on earth.

**Credit Hours:** 3

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**ANTHRO 1300: Multiculturalism: An Introduction**

Examines contemporary multiculturalism (and its origins) globally; introduces key concepts; uses diverse, extended cross-cultural and American examples; and emphasizes complexity of cultures, practicality of issues, and change.

**Credit Hours:** 3

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**ANTHRO 1350: Deviance: A Cross-Cultural Perspective**

Cross-cultural studies of problem behavior with emphasis on violence, suicide, sexual misconduct, drug use and mental disorder.

**Credit Hours:** 3

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**ANTHRO 1500: Monkeys, Apes and Humans**

For those with little or no background in anthropology. Surveys the ecology and behavior of major nonhuman primate groups, and how these relate to the evolution of human behavior.

**Credit Hours:** 3

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**ANTHRO 1500W: Monkeys, Apes and Humans - Writing Intensive**

For those with little or no background in anthropology. Surveys the ecology and behavior of major nonhuman primate groups, and how these relate to the evolution of human behavior.

**Credit Hours:** 3

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**ANTHRO 2002: Topics in Anthropology-Biological Science**

Problems, topics, issues or review of research in any area of anthropology (including its relationships with other areas) and/or experimental development of new content areas at an undergraduate level. Specific content will vary and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hour:** 1-3

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**ANTHRO 2003: Topics in Anthropology - Behavioral**

Problems, topics, issues or review of research in any area of anthropology (including its relationships with other areas) and/or experimental development of new content areas at an undergraduate level. Specific content will vary and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hour:** 1-3

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**ANTHRO 2005: Topics in Anthropology - Humanities**

Problems, topics, issues or review of research in any area of anthropology (including its relationships with other areas) and/or experimental development of new content areas at an undergraduate level. Specific content will vary and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hour:** 1-3

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**ANTHRO 2006: Topics in Anthropology-Mathematical Science**

Problems, topics, issues or review of research in any area of anthropology (including its relationships with other areas) and/or experimental development of new content areas at an undergraduate level. Specific content will vary and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hour:** 1-3

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**ANTHRO 2007: Topics in Anthropology-Physical Science**

Problems, topics, issues or review of research in any area of anthropology (including its relationships with other areas) and/or experimental development of new content areas at an undergraduate level. Specific content will vary and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hour:** 1-3

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**ANTHRO 2020: Fundamentals of Archaeology with Laboratory**

Introduces the methodological and theoretical underpinnings of archaeology. The goals of archaeological research, and the techniques used to extract data from the archaeological record are discussed. The lab involves hands-on experience with archaeological materials. No credit for both ANTHRO 2020 and ANTHRO 2021.

**Credit Hours:** 4

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**ANTHRO 2021: Fundamentals of Archaeology**

Introduces the methodological and theoretical underpinnings of archaeology. The goals of archaeological research, and the techniques used to extract data from the archaeological record are discussed. No credit for both ANTHRO 2020 and ANTHRO 2021.

**Credit Hours:** 3

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**ANTHRO 2022: Fundamentals of Archaeology Lab**

Involves hands-on experience with archaeological materials. No credit given to students who have taken ANTHRO 2020.

**Credit Hour:** 1

**Prerequisites:** must have completed ANTHRO 2021

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**ANTHRO 2030: Cultural Anthropology**

Analysis of human cultures with emphasis on both constant and variable factors at different levels of social complexity; contact between cultures, and cultural influences on individual behavior.

**Credit Hours:** 3

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**ANTHRO 2030W: Cultural Anthropology - Writing Intensive**

Analysis of human cultures with emphasis on both constant and variable factors at different levels of social complexity; contact between cultures, and cultural influences on individual behavior.

**Credit Hours:** 3

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**ANTHRO 2050: Introduction to Biological Anthropology with Laboratory**

A survey of biological anthropology. Primary emphasis on the biological evidence for human evolution. Major topics include human paleontology, primate behavior and human variation. Three hours lecture and two hours lab. No credit for both ANTHRO 2050 and ANTHRO 2051. Math Reasoning Proficiency Course.

**Credit Hours:** 5

**Prerequisites:** MATH 1050, MATH 1100, or MATH 1160

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**ANTHRO 2051: Introduction to Biological Anthropology**

A survey of biological anthropology. Primary emphasis on the biological evidence for human evolution. Major topics include human paleontology, primate behavior and human variation. No credit for both ANTHRO 2050 and ANTHRO 2051.

**Credit Hours:** 3

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**ANTHRO 2052: Biological Anthropology Laboratory**

Laboratory exercises dealing with human genetics, non-human primates, the human fossil record, and human variation. Credit not given for students who have taken ANTHRO 2050. Math Reasoning Proficiency Course.

**Credit Hours:** 2

**Prerequisites:** ANTHRO 2051 (or equivalent) and MATH 1050, MATH 1100, or MATH 1160

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**ANTHRO 2100: Indigenous Religions**

(same as REL\_ST 2100). Explores the central aspects of religious life in indigenous communities. Focusing on specific native communities, it considers individual and group identity and the meaning of the sacred.

**Credit Hours:** 3

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**ANTHRO 2100H: Indigenous Religions - Honors**

(same as REL\_ST 2100H). Explores the central aspects of religious life in indigenous communities. Focusing on specific native communities, it considers individual and group identity and the meaning of the sacred.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**ANTHRO 2150: Introduction to Folklore Field Research**

(same as ENGLISH 2700). Course will focus on the specifics of how to identify, collect, preserve and document folklore within communities.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ANTHRO 2215: World Archaeology**

Major events in cultural evolution such as control of fire, invention of ceramic and metallurgical technologies, colonization of Australia and the Americas, development of agriculture, and emergence of complex sociopolitical organization are described in all regions of the world.

**Credit Hours:** 3

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**ANTHRO 2300: Anthropology of War**

Anthropological approaches to tribal and modern war; theories of war's origins; relation to ecology, economy, gender, belief systems, politics; transformation of tribal warfare by state expansion; peace.

**Credit Hours:** 3

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**ANTHRO 2340: Hunters and Gatherers**

Exploration of how different hunter-gatherer groups interact with their physical and social environment. Topics include food acquisition, allocation of labor, reproduction and family life, and deciding where to live and when to move.

**Credit Hours:** 3

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**ANTHRO 2500: Primate Anatomy and Evolution**

This course will explore why primates (and humans) are built the way they are, how they evolved, and what their anatomy tells us about their biology. We will cover basic primate anatomy and ecology, and then survey the fossil record of primate evolution.

**Credit Hours:** 3

**Recommended:** Sophomore standing

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**ANTHRO 2530: Human Evolution through Film and Literature**

This course will use recent films and novels as starting points to introduce students to concepts in human biology, history and evolution. Topics will range broadly from genetics and mutation to primatology to paleoanthropology and the human fossil record.

**Credit Hour:** 1-3

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**ANTHRO 2570: Parents and Offspring**

A comparative investigation of the evolution of parental behaviors and family interactions in humans and other primates.

**Credit Hours:** 3

**Recommended:** Sophomore standing

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**ANTHRO 2580: Evolution of Human Sexuality**

Biological and cultural aspects of human reproduction are examined from the perspective of evolutionary and ecological theory.

**Credit Hours:** 3

**Recommended:** Sophomore standing

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**ANTHRO 2580W: Evolution of Human Sexuality - Writing Intensive**

Biological and cultural aspects of human reproduction are examined from the perspective of evolutionary and ecological theory.

**Credit Hours:** 3

**Recommended:** Sophomore standing

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**ANTHRO 2800: Introduction to Field Methods in Archaeology**

Techniques of field research and laboratory analysis through field experience.

**Credit Hour:** 1-6

**Prerequisites:** ANTHRO 2020 or ANTHRO 2021 or instructor's consent

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**ANTHRO 2825: Analyzing Artifacts**

A brief introduction to the main methods used to analyze artifacts.

**Credit Hours:** 3

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**ANTHRO 2950: Research Skills in Anthropology**

Participation in faculty research activities. Course coordinator matches students with participating faculty. Three hours of research activities per week per credit hour. May be repeated to a maximum of nine hours.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ANTHRO 3001: Topics in Anthropology - General**

Problems, topics, issues, or review of research in any area of anthropology and/or experimental development of new content areas. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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**ANTHRO 3002: Topics in Anthropology-Biological Sciences**

Problems, topics, issues or review of research in any area of anthropology and/or experimental development of new content areas. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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**ANTHRO 3003: Topics in Anthropology - Behavioral Science**

Problems, topics, issues or review of research in any area of anthropology and/or experimental development of new content areas. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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**ANTHRO 3004: Topics in Anthropology - Social Science**

Problems, topics, issues or review of research in any area of anthropology and/or experimental development of new content areas. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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**ANTHRO 3005: Topics in Anthropology - Humanities**

Problems, topics, issues or review of research in any area of anthropology and/or experimental development of new content areas. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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**ANTHRO 3006: Topics in Anthropology-Mathematical Sciences**

Problems, topics, issues or review of research in any area of anthropology and/or experimental development of new content areas. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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**ANTHRO 3007: Topics in Anthropology-Physical Sciences**

Problems, topics, issues or review of research in any area of anthropology and/or experimental development of new content areas. May be repeated to a maximum of 9 hours.

**Credit Hours:** 3

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**ANTHRO 3150: American Folklore**

(same as ENGLSH 3700). Focus on regional and ethnic folklore; emphasis on analysis of folklore in context. Requirements include book reports and two analytical papers based on student field research. May be repeated for a maximum of six hours with department's consent.

**Credit Hours:** 3

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**ANTHRO 3340H: The Evolution of Human Nature - Honors**

(same as GN\_HON 3241H, ANTHRO 3340). We will investigate the topic of human nature, asking such questions as: What are we like? Why do we behave the way we do? Are we inherently selfish or social? Do we have a unitary 'self' or are we made up of many (and sometimes contradictory) selves? Is there a single 'human' nature or are there distinct 'male' and 'female' natures? Does human nature vary across cultures? Insights come from fields ranging from genetics to literature. The concept of 'human nature' is fiercely contested and debated both within and between academic disciplines. We will be focusing on the scientific study of human nature, seeking naturalistic explanations by formulating and testing hypotheses. In particular, we will use evolutionary theory to unify explanations from disparate disciplines like biology, psychology, and anthropology. In each class, we will discuss one specific topic like sex or violence and seek to make sense of it from both the proximate level (what triggers the behavior and how does it develop?) and the ultimate level (why and how did our evolutionary history imbue us with this capacity?). Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**ANTHRO 3340HW: The Evolution of Human Nature - Honors/Writing Intensive**

(same as ANTHRO 3340, ANTHRO 3340H GN\_HON 3241H). We will investigate the topic of human nature, asking such questions as: What are we like? Why do we behave the way we do? Are we inherently selfish or social? Do we have a unitary 'self' or are we made up of many (and sometimes contradictory) selves? Is there a single 'human' nature or are there distinct 'male' and 'female' natures? Does human nature vary across cultures? Insights come from fields ranging from genetics to literature. The concept of 'human nature' is fiercely contested and

debated both within and between academic disciplines. We will be focusing on the scientific study of human nature, seeking naturalistic explanations by formulating and testing hypotheses. In particular, we will use evolutionary theory to unify explanations from disparate disciplines like biology, psychology, and anthropology. In each class, we will discuss one specific topic like sex or violence and seek to make sense of it from both the proximate level (what triggers the behavior and how does it develop?) and the ultimate level (why and how did our evolutionary history imbue us with the capacity?). Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors Eligibility Required

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**ANTHRO 3380: Native American Religions**

(same as REL\_ST 3380). Investigation of religious lives of the native peoples of the Americas through cultural contact with modernity. Perspectives based on historical, anthropological and native texts.

**Credit Hours:** 3

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**ANTHRO 3470: Culture as Communication**

(same as COMMUN 3470, LINGST 3470). Study of the influence of culture on communication processes. Examines topics such as the impact of values, languages, and nonverbal behavior on intercultural interaction.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**ANTHRO 3490: Indian Cinema**

(same as S\_A\_ST 3490, FILM\_S 3490, VS\_ARH 3790). Indian Cinema provides an overview of the key genres and themes of Indian film, including Bollywood, art cinema/parallel cinema, Indian regional cinemas, and diasporan cinema. The course combines film studies, anthropological, historical, and visual culture analyses to provide a holistic view of Indian culture and society through cinema.

**Credit Hours:** 3

**Recommended:** Sophomore standing or higher

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**ANTHRO 3540: Human Biology and Life History**

A general survey of human biology, focusing on the development of the individual from infancy to adult and the biology of human populations.

**Credit Hours:** 3

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**ANTHRO 3560: Plagues and Peoples**

Overview of the ecology of human host-pathogen interactions and the influence of human culture on the transmission and spread of infectious diseases through time and in different environments.

**Credit Hours:** 3

**Recommended:** sophomore standing

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**ANTHRO 3560W: Plagues and Peoples - Writing Intensive**

Overview of the ecology of human host-pathogen interactions and the influence of human culture on the transmission and spread of infectious diseases through time and in different environments.

**Credit Hours:** 3

**Recommended:** sophomore standing

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**ANTHRO 3600: North American Indian Culture**

Comparative study of American Indians north of Mexico, emphasizes eastern United States.

**Credit Hours:** 3

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**ANTHRO 3780: Cultures of Southeast Asia**

Survey of peoples and cultures of Southeast Asia; topics include regional geography and prehistory, European colonialism, economic and social organization, religious practices, changing status of women, urban and rural poverty, and environmental transformations.

**Credit Hours:** 3

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**ANTHRO 4001: Topics in Anthropology-General**

Problems, topics, issues, or review of research; experimental development of new content areas. Specific content varies depending on needs of faculty or students and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hour:** 1-3

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**ANTHRO 4002: Topics in Anthropology - Biological Science**

Problems, topics, issues, or review of research; experimental development of new content areas. Specific content varies depending on needs of faculty or students and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hour:** 1-3

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**ANTHRO 4005: Topics in Anthropology - Humanities**

Problems, topics, issues, or review of research; experimental development of new content areas. Specific content varies depending on needs of faculty or students and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hour:** 1-3

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**ANTHRO 4006: Topics in Anthropology - Mathematical Science**

Problems, topics, issues, or review of research; experimental development of new content areas. Specific content varies depending on needs of faculty or students and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hour:** 1-3

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**ANTHRO 4007: Topics in Anthropology - Physical Science**

Problems, topics, issues, or review of research; experimental development of new content areas. Specific content varies depending on needs of faculty or students and will be announced in advance. May be repeated to a maximum of 9 hours.

**Credit Hour:** 1-3

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**ANTHRO 4150: Special Themes in Folklore**

(same as ENGLSH 4700; cross-leveled with ANTHRO 7150 and ENGLSH 7700). Intensive study in a selected area of folklore: folk narrative, folk song, myth, proverb, etc., folklore and literature, or the folklore of a particular group. May be repeated for a maximum of six hours with department's consent.

**Credit Hours:** 3

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**ANTHRO 4170: Oral Tradition**

(same as ENGLSH 4770; cross-leveled with ANTHRO 7170, ENGLSH 7770). Study of oral tradition from living cultures as well as literary works and mass media with roots in verbal art. Oral tradition is a form of human communication through which ideas, knowledge, art, and cultural material is received, preserved, and transmitted orally from one generation to another or from one person to another. May include such folklore genres as ballads, chants, folktales, jokes, legends, myths, proverbs, prose, or verses.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000 and sophomore standing

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**ANTHRO 4200: Environment and Archaeology**

(cross-leveled with ANTHRO 7200). Study of Quaternary environments and cultural systems. Focuses on North American records emphasizing climate and biologic components of regional ecosystems; regional environmental reconstruction.

**Credit Hours:** 3

**Recommended:** ANTHRO 2020 or ANTHRO 2021

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**ANTHRO 4240: History of Archaeology**

(cross-leveled with ANTHRO 7240). Growth of archaeology worldwide since AD 1700. Emphases include intellectual and theoretical developments, field and laboratory techniques, and major figures in the history of the discipline.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2020 or ANTHRO 2021 or instructor's consent

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**ANTHRO 4280: Archaeology of Religion**

(same as REL\_ST 4280; cross-leveled with ANTHRO 7280 and REL\_ST 7280). Examines how anthropologists conceptualize religious behavior, and how archaeologists use material remains to examine past religious behavior, rituals, religious practitioners, cosmogonical constructs, worldview and ideology in the Americas.

**Credit Hours:** 3

**Recommended:** ANTHRO 2020 or REL\_ST 2100

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**ANTHRO 4300: Comparative Social Organization**

(cross-leveled with ANTHRO 7300). Cross-cultural comparison, analysis of social structures. Role of kinship, age, sex, locality, economics, religion and other factors in determining relationships between individuals and groups cross-culturally.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2030

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**ANTHRO 4320: Ecological and Environmental Anthropology**

(cross-leveled with ANTHRO 7320). Cultural anthropological approaches to human-environment interaction; cultural adaptations to diverse environments; theoretical developments and current issues; cultural, social, and historical contexts of natural resource use.

**Credit Hours:** 3

**Recommended:** junior or senior standing

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**ANTHRO 4340: Cultural Evolution and Change**

(cross-leveled with ANTHRO 7340). Alternative hypotheses about the relationship between culture and evolution are evaluated in light of ethnographic evidence.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2030 or instructor's consent

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**ANTHRO 4350: Psychological Anthropology**

(cross-leveled with ANTHRO 4350). Examines cross-cultural approaches to the study of perception, cognition, and personality; methods for gathering and validating data; examples from non-Western societies.

**Credit Hours:** 3

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**ANTHRO 4360: Medical Anthropology**

(cross-leveled with ANTHRO 7360), Cross-cultural study of belief systems concerning health and illness, practices of diagnosis and treatment, and roles of patients and practitioners. Several non-Western health care systems are studied in detail.

**Credit Hours:** 3

**Recommended:** junior or senior standing

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**ANTHRO 4370: Anthropology of Gender**

(same as WGST 4370; cross-leveled with ANTHRO 7370 and WGST 7370). The Anthropology of Gender introduces the student to the variation in the relationships between male and females; and between men, women, and other genders from around the world. The different approaches to understanding and modeling gender are discussed, as are specific case-studies from many different cultures.

**Credit Hours:** 3

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**ANTHRO 4380: Anthropological Theories of Religion**

(same as REL\_ST 4380; cross-leveled with ANTHRO 7380 and REL\_ST 7380). Course provides a critical evaluation of anthropological explanations of various forms of traditional religious behavior such as magic, shamanism, divination, ritual, mythology, and witchcraft. The anthropological explanations examined range from nineteenth century classics to the current approaches of today.

**Credit Hours:** 3

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**ANTHRO 4385: Anthropology of Shamanism**

(cross-leveled with ANTHRO 7385). Shamans are considered to be intermediates between this world and the spiritual world because they possess the power to communicate with spiritual beings and seek such beings to ask for their help with a variety of tasks such as healing, killing enemies, and weather control. Shamans are also the earliest ritual practitioners. Ancient cave paintings depict men dressed in animal skins, holding objects resembling the rattles used by modern shamans among northern hunting peoples. The cave art also has entopic imagery that is seen in the shaman's mind during his shamanic rituals. In this course we will look at shamanism through time and in many cultures. We will also discuss the early accounts of shamanism by priests, explorers and adventurers, and how anthropology has come to understand and study this phenomenon. Particular topics to be discussed include biological explanations for shamanic trances and visions, mental health concerning shamans, gender issues, and how shamans fit in with societal development and complexity. Graded on A-F basis only.

**Credit Hours:** 3

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**ANTHRO 4412: Gender, Language, and Communication**

(same as COMMUN 4412 and LINGST 4412; cross-leveled with COMMUN 7412 and LINGST 7412). Relationship among gender, language, nonverbal communication, and culture.

**Credit Hours:** 3

**Prerequisites:** junior standing or departmental consent

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**ANTHRO 4420: Historical Linguistics**

(same as LINGST 4420, ENGLISH 4660; cross-leveled with ANTHRO 7420, LINGST 7420, ENGLISH 7660). Methods of tracing the history of languages by glottochronology, and by comparative and internal reconstructions; cultural and linguistic implications of such reconstructions and of areal linguistics.

**Credit Hours:** 3

**Recommended:** junior or senior standing

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**ANTHRO 4500: Human Origins**

(cross-leveled with ANTHRO 7500). History and theory in the study of human paleontology.

**Credit Hours:** 5

**Prerequisites:** ANTHRO 2050 or ANTHRO 2052 or instructor's consent

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**ANTHRO 4520: Functional Morphology of the Human Skeleton**

(cross-leveled with ANTHRO 7520). This course will explore human functional morphology in a broad sense, i.e. will investigate how the form of various bodily systems influences their function and vice versa. In addition, the course is explicitly evolutionary in perspective; after the basic anatomy and function of a specific bodily region is introduced, we will cover how this functional unit has changed over the course of human evolutionary history. Lastly, we will be using the knowledge gained in lecture and from the text to critically analyze examples of research in human functional morphology. Graded on A-F basis only.

**Credit Hours:** 3

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**ANTHRO 4540: Human Biological Variation**

(cross-leveled with ANTHRO 7540). Human biological variation both among and within living populations. Evolutionary, genetic, ecological, demographic and especially cultural factors which contribute to biological variation.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2050 or ANTHRO 2051 or BIO\_SC 1010

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**ANTHRO 4580: Evolutionary Medicine**

(cross-leveled with ANTHRO 7580). Principles of modern evolutionary theory are applied to medical problems. Topics include: function of symptoms (fever, nausea, etc.); strategies of pathogens; senescence; cancer; phylogenetic constraints; mental disorders. Ideas will be actively discussed in class.

**Credit Hours:** 3

**Recommended:** lower level course in Biology or Biological Anthropology, junior or senior standing

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**ANTHRO 4600: Ethnographic Studies of Selected Cultures**

(cross-leveled with ANTHRO 7600). Specific content varies with student interest, faculty availability. Will concentrate on peoples and cultures of one area such as East Asia, South Asia, Africa, North America, Mesoamerica, Oceania, Europe. Amplifies ethnographic knowledge gained in lower-level survey courses.

**Credit Hours:** 3

**Recommended:** junior standing

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**ANTHRO 4620: North American Archaeology**

(cross-leveled with ANTHRO 7620). Ancient peoples and development of American Indian culture.

**Credit Hours:** 3

**Recommended:** ANTHRO 2020 or ANTHRO 2021

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**ANTHRO 4640: Prehistory of the Greater Southwest**

(cross-leveled with ANTHRO 7640). The course will introduce students to the archaeology of aboriginal peoples of the American Southwest and northwestern Mexico. The emphasis will be on prehistoric culture development from the Paleoindians to the arrival of the Spanish. Ethnographic and modern peoples will be discussed as well.

**Credit Hours:** 3

**Recommended:** ANTHRO 2020 or ANTHRO 2021

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**ANTHRO 4650: Prehistory of Mesoamerica**

(cross-leveled with ANTHRO 7650). Archaeology and prehistory of Mesoamerica (Mexico and Northern Central America). Emphasis on archaeological evidence for development of human societies from late Pleistocene hunting bands to complex agricultural civilizations encountered by Europeans in 1500s.

**Credit Hours:** 3

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**ANTHRO 4680: Cultures and Peoples of the Amazon**

(cross-leveled with ANTHRO 7680). Ethnographic survey of indigenous Amazonian cultures.

**Credit Hours:** 3

**Recommended:** Junior standing required

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**ANTHRO 4700: Old World Prehistory**

(cross-leveled with ANTHRO 7700). Beginnings of culture in the Old World through the early Iron Age.

**Credit Hours:** 3

**Recommended:** ANTHRO 2020 or ANTHRO 2021

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**ANTHRO 4790: Culture and Society in South Asia**

(same as S\_A\_ST 4790; cross-leveled with ANTHRO 7790 and S\_A\_ST 7790). Survey of the cultures, social organizations, and lived experience of people from across the Indian subcontinent. Major topics include cast, kinship, gender, religion, village life, urbanization, public culture, popular culture, social change, and the South Asian diaspora.

**Credit Hours:** 3

**Recommended:** junior standing

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**ANTHRO 4800: Field Methods in Archaeology**

(cross-leveled with ANTHRO 7800). Techniques of archaeological excavation; field surveying, recording, care and interpretation of materials.

**Credit Hour:** 1-8

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**ANTHRO 4820: Zooarchaeology**

(cross-leveled with ANTHRO 7820). Survey of specialized techniques for archaeological faunal analysis, including zooarchaeological sampling, taphonomy, study of paleoecology, and recognition of domestication.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2020 or ANTHRO 2022 or instructor's consent

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**ANTHRO 4826: Stone Artifact Analysis**

(cross-leveled with ANTHRO 7826). Theory, methods, and techniques of studying lithic artifacts and deriving culturally meaningful interpretations. Emphasizes flaked artifacts. Includes physical examination, manufacture and experimentation with stone tools.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2020 or ANTHRO 2022 or instructor's consent

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**ANTHRO 4828: Archaeological Analysis of Ceramics**

(cross-leveled with ANTHRO 7828). To introduce students to the basic methods and concepts used in the archaeological analysis of pottery. By the end of the semester students will understand the various ways that pottery is created and how archaeologists can use ceramics to gain insights into everything from the organization of craft production to trade to symbolism.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2020 or ANTHRO 2022

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**ANTHRO 4830: Ethnographic Methods**

(cross-leveled ANTHRO 7830). Relation of problems to techniques; surveys techniques of gathering data; discusses their limitations and potentials.

**Credit Hours:** 3

**Recommended:** ANTHRO 2030

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**ANTHRO 4840: The Comparative Method in Anthropology**

(cross-leveled with ANTHRO 7840). Comparative methods provide common ground for uniting bio-cultural anthropologists, archaeologists, and evolutionary biologists together in the investigation of human variation across time and space. It is an exciting time for comparative anthropology with the emergence of a large number of open-access databases covering many realms of biological, cultural, and linguistic variation. This class addresses many research opportunities that are opened up by these large collaborative efforts. Objectives are to develop research questions of interest to students, compile comparative databases necessary to answer those questions, and learn tools and software relevant for running analyses. Graded on A-F basis only.

**Credit Hours:** 3

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**ANTHRO 4870: Field Methods in Linguistics**

(same as LINGST 4870, ENGLISH 4670; cross-leveled with ANTHRO 7870, LINGST 7870, ENGLISH 7670). Intensive training in collection and

analysis of data taken from a native speaker of a non-Indo-European language. May be repeated for credit.

**Credit Hours:** 4

**Prerequisites:** Contact the Linguistics advisor to request permission

**Recommended:** 9 hours of Linguistics

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**ANTHRO 4870W: Field Methods in Linguistics - Writing Intensive** (same as LINGST 4870, ENGLSH 4670; cross-leveled with ANTHRO 7870, LINGST 7870, ENGLSH 7670). Intensive training in collection and analysis of data taken from a native speaker of a non-Indo-European language. May be repeated for credit.

**Credit Hours:** 4

**Prerequisites:** Contact the Linguistics advisor to request permission

**Recommended:** 9 hours of Linguistics

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**ANTHRO 4880: Demographic Anthropology** (cross-leveled with ANTHRO 7880). The major topics considered in this course are basic demographic analysis, including life tables, models for population growth and stable population theory; fertility analysis; disease and fertility; disease in human populations; and paleodemography. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** MATH 1100

**Recommended:** junior or senior standing

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**ANTHRO 4885: Anthropological Genetics** (cross-leveled with ANTHRO 7885). Population genetics theory and methods applied to human and primate evolution and variation.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2050, or ANTHRO 2051 and ANTHRO 2052, or BIO\_SC 1500, or instructor's consent

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**ANTHRO 4890: Human Skeletal Identification and Analysis** (cross-leveled with ANTHRO 7890). Students interested in archaeology, physical anthropology, and law enforcement will learn human osteological methods of analysis applied to bioarchaeological problems and modern forensic techniques for personal identification.

**Credit Hours:** 5

**Prerequisites:** ANTHRO 2050 or ANTHRO 2052 or instructor's consent

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**ANTHRO 4950: Undergraduate Research in Anthropology** Advanced research approved by and under the direction of a departmental faculty member. Enrollment limited to Juniors and Seniors.

**Credit Hour:** 2-8

**Prerequisites:** instructor's consent

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**ANTHRO 4950H: Honors Research in Anthropology** Individual study and research leading to Honors in Anthropology. In consultation with instructor, student works on Honors Thesis. May be repeated for up to 6 credit hours. Enrollment is limited to Anthropology Majors with Junior Standing or higher, honors eligibility and a 3.5 GPA in Anthropology.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ANTHRO 4950HW: Undergraduate Research in Anthropology - Honors/Writing Intensive**

Advanced research approved by and under the direction of a departmental faculty member. Enrollment limited to Juniors and Seniors with Honors Eligibility.

**Credit Hour:** 2-8

**Prerequisites:** instructor's consent

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**ANTHRO 4960: Undergraduate Readings in Anthropology** Directed readings in ethnology, linguistics, archaeology, or physical anthropology not leading to thesis.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ANTHRO 4990: Capstone Seminar in Anthropology** Readings, discussions, and problems in the integration of the subfields of anthropology through theory and examples.

**Credit Hours:** 3

**Prerequisites:** Anthropology major and senior standing, or instructor's consent

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**ANTHRO 4990W: Capstone Seminar in Anthropology - Writing Intensive** Readings, discussions, and problems in the integration of the subfields of anthropology through theory and examples.

**Credit Hours:** 3

**Prerequisites:** Anthropology major and senior standing, or instructor's consent

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**ANTHRO 7001: Topics in Anthropology-General** Problems, topics, issues, or review of research; experimental development of new contact areas. Specific content varies depending on needs of faculty or students and will be announced in advance.

**Credit Hour:** 1-3

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**ANTHRO 7150: Special Themes in Folklore** (same as ENGLSH 7700; cross-leveled with ANTHRO 4150 and ENGLSH 4700). Intensive study in a selected area of folklore: folk narrative, folk song, myth, proverb, etc., folklore and literature, or the folklore of a particular group. May be repeated for a maximum of six hours. Instructor's consent for repetition.

**Credit Hours:** 3

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**ANTHRO 7170: Oral Tradition** (same as ENGLSH 7770; cross-leveled with ENGLSH 4770, ANTHRO 4170). Study of oral tradition from living cultures as well as literary works and mass media with roots in verbal art. Oral tradition is a form of human communication through which ideas, knowledge, art, and cultural material is received, preserved, and transmitted orally from one generation to another or from one person to another. May include such folklore genres as ballads, chants, folktales, jokes, legends, myths, proverbs, prose, or verses.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**ANTHRO 7200: Environment and Archaeology**

(cross-leveled with ANTHRO 4200). Study of quaternary environments and cultural systems. Focuses on North American records emphasizing climate and biologic components of regional ecosystems; regional environmental reconstruction.

**Credit Hours:** 3

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**ANTHRO 7240: History of Archaeology**

(cross-leveled with ANTHRO 4240). Growth of archaeology worldwide since AD 1700. Emphasis include intellectual and theoretical developments, field and laboratory techniques, and major figures in the history of the discipline.

**Credit Hours:** 3

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**ANTHRO 7280: Archaeology of Religion**

(Same as REL\_ST 7280; cross-leveled with ANTHRO 4280 and REL\_ST 4280) This course examines how anthropologists conceptualize religious behavior, and how archaeologists use material remains to examine past religious behavior, rituals, religious practitioners, cosmological constructs, worldview and ideology in the Americas.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2020 and/or REL\_ST 2100

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**ANTHRO 7300: Comparative Social Organization**

(cross-leveled with ANTHRO 4300). Cross-cultural comparison, analysis of social structures. Role of kinship, age, sex, locality, economics, religion and other factors in determining relationships between individuals and groups cross culturally.

**Credit Hours:** 3

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**ANTHRO 7340: Cultural Evolution and Change**

(cross-leveled with ANTHRO 4340). Alternative hypotheses about the relationship between culture and evolution are evaluated in light of ethnographic evidence.

**Credit Hours:** 3

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**ANTHRO 7350: Psychological Anthropology**

Examines cross-cultural approaches to the study of perception, cognition, and personality; methods for gathering and validating data; examples from non-Western societies.

**Credit Hours:** 3

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**ANTHRO 7360: Medical Anthropology**

(cross-leveled with ANTHRO 4360). Cross-cultural study of belief systems concerning health and illness, practices of diagnosis and treatment, and roles of patients and practitioners. Several non-Western health care systems are studied in detail.

**Credit Hours:** 3

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**ANTHRO 7370: Anthropology of Gender**

(same as WGST 7370; cross-leveled with ANTHRO 4370 and WGST 4370) The Anthropology of Gender Introduces the student to the

variation in the relationships between males and females; and between men, women, and other genders from around the world. The different approaches to understanding and modeling gender are discussed, as are specific case-studies from many different cultures.

**Credit Hours:** 3

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**ANTHRO 7380: Anthropological Theory of Religions**

(same as REL\_ST 7380; cross-leveled with ANTHRO 4380 and REL\_ST 4380). Course provides a critical evaluation of anthropological explanations of various forms of traditional religious behavior such as magic, shamanism, divination, ritual, mythology and witchcraft. The anthropological explanations examined range from nineteenth century classics to the current approaches of today.

**Credit Hours:** 3

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**ANTHRO 7385: Anthropology of Shamanism**

(cross-leveled with ANTHRO 4385). Shamans are considered to be intermediates between this world and the spiritual world because they possess the power to communicate with spiritual beings and seek such beings to ask for their help with a variety of tasks such as healing, killing enemies, and weather control. Shamans are also the earliest ritual practitioners. Ancient cave paintings depict men dressed in animal skins, holding objects resembling the rattles used by modern shamans among northern hunting peoples. The cave art also has entopic imagery that is seen in the shaman's mind during his shamanic rituals. In this course we will look at shamanism through time and in many cultures. We will also discuss the early accounts of shamanism by priests, explorers and adventurers, and how anthropology has come to understand and study this phenomenon. Particular topics to be discussed include biological explanations for shamanic trances and visions, mental health concerning shamans, gender issues, and how shamans fit in with societal development and complexity. Graded on A-F basis only.

**Credit Hours:** 3

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**ANTHRO 7420: Historical Linguistics**

(same as LINGST 7420, ENGLISH 7660; cross-leveled with ANTHRO 4420, LINGST 4420, ENGLISH 4660). Methods of tracing the history of languages by glottochronology, and by comparative and internal reconstructions; cultural and linguistic implications of such reconstructions and of areal linguistics.

**Credit Hours:** 3

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**ANTHRO 7500: Human Origins**

(cross-leveled with ANTHRO 4500). History and theory in the study of human paleontology.

**Credit Hours:** 5

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**ANTHRO 7520: Functional Morphology of the Human Skeleton**

(cross-leveled with ANTHRO 4520). This course will explore human functional morphology in a broad sense, i.e. will investigate how the form of various bodily systems influences their function and vice versa. In addition, the course is explicitly evolutionary in perspective; after the basic anatomy and function of a specific bodily region is introduced, we will cover how this functional unit has changed over the course of human evolutionary history. Lastly, we will be using the knowledge gained in

lecture and from the text to critically analyze examples of research in human functional morphology. Graded on A-F basis only.

**Credit Hours:** 3

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**ANTHRO 7540: Human Biological Variation**

(cross-leveled with ANTHRO 4540). Human biological variation both among and within living populations. Evolutionary, genetic, ecological, demographic and especially cultural factors which contribute to biological variation.

**Credit Hours:** 3

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**ANTHRO 7580: Evolutionary Medicine**

(cross-leveled with ANTHRO 4580). Principles of modern evolutionary theory are applied to medical problems. Topics include: function of symptoms (fever, nausea, etc.); strategies of pathogens; senescence; cancer; phylogenetic constraints; mental disorders. Ideas will be actively discussed in class.

**Credit Hours:** 3

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**ANTHRO 7600: Ethnographic Studies of Selected Cultures**

(cross-leveled with ANTHRO 4600). Specific content varies with student interest, faculty availability. Will concentrate on peoples and cultures of one area such as East Asia, South Asia, Africa, North America, Mesoamerica, Oceania, Europe. Amplifies ethnographic knowledge gained in lower-level survey courses.

**Credit Hours:** 3

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**ANTHRO 7620: North American Archaeology**

(cross-leveled with ANTHRO 4620). Ancient peoples and development of American Indian culture.

**Credit Hours:** 3

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**ANTHRO 7640: Prehistory of the Greater Southwest**

(cross-leveled with ANTHRO 4640). The course will introduce students to the archaeology of aboriginal peoples of the American southwest and northwestern Mexico. The emphasis will be on prehistoric culture development from the Paleoindians to the arrival of the Spanish. Ethnographic and modern peoples will be discussed as well.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2020 or ANTHRO 2021

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**ANTHRO 7650: Prehistory of Mesoamerica**

(cross-leveled with ANTHRO 4650). Covers the archaeology and prehistory of Mesoamerica (Mexico and Northern Central America). Emphasis on archaeological evidence for development of human societies from late Pleistocene hunting bands to complex agricultural civilizations encountered by Europeans in 1500s.

**Credit Hours:** 3

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**ANTHRO 7680: Cultures and Peoples of the Amazon**

(cross-leveled with ANTHRO 4680). Ethnographic survey of indigenous Amazonian cultures

**Credit Hours:** 3

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**ANTHRO 7700: Old World Prehistory**

(cross-leveled with ANTHRO 4700). Beginnings of culture in the old world through the early Iron Age.

**Credit Hours:** 3

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**ANTHRO 7790: Cultures and Society in South Asia**

(same as S\_A\_ST 7790; cross-leveled with ANTHRO 4790 and S\_A\_ST 4790). Survey of the cultures, social organizations, and lived experience of people from across the Indian subcontinent. Major topics include cast, kinship, gender, religion, village life, urbanization, public culture, popular culture, social change, and the South Asian Diaspora.

**Credit Hours:** 3

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**ANTHRO 7800: Field Methods in Archaeology**

Techniques of archaeological excavation; field surveying, recording, care and interpretation of materials.

**Credit Hour:** 1-8

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**ANTHRO 7820: Zooarchaeology**

(cross-leveled with ANTHRO 4820). Survey of specialized techniques for archaeological/faunal analysis, including zoo archaeological sampling, taphonomy study of paleoecology, and recognition of domestication.

**Credit Hours:** 3

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**ANTHRO 7826: Stone Artifact Analysis**

(cross-leveled with ANTHRO 4826). Theory, methods, and techniques of studying lithic artifacts and deriving culturally meaningful interpretations. Emphasizes flaked artifacts. Includes physical examination, manufacture and experimentation with stone tools.

**Credit Hours:** 3

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**ANTHRO 7828: Archaeological Analysis of Ceramics**

(cross-leveled with ANTHRO 4828). To introduce students to the basic methods and concepts used in the archaeological analysis of pottery. By the end of the semester students will understand the various ways that pottery is created and how archaeologists can use ceramics to gain insights into everything from the organization of craft production to trade to symbolism.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2020 and/or ANTHRO 2022

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**ANTHRO 7830: Ethnographic Methods**

(cross-leveled with ANTHRO 4830). Relation of problems to techniques; surveys techniques of gathering data; discusses their limitations and potentials.

**Credit Hours:** 3

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**ANTHRO 7840: The Comparative Method in Anthropology**

(cross-leveled with ANTHRO 4840). Comparative methods provide common ground for uniting bio-cultural anthropologists, archaeologists, and evolutionary biologists together in the investigation of human variation across time and space. It is an exciting time for comparative anthropology with the emergence of a large number of open-access databases covering many realms of biological, cultural, and linguistic



variation. This class addresses many research opportunities that are opened up by these large collaborative efforts. Objectives are to develop research questions of interest to students, compile comparative databases necessary to answer those questions, and learn tools and software relevant for running analyses. Graded on A-F basis only.

**Credit Hours:** 3

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**ANTHRO 7870: Field Methods in Linguistics**

(same as LINGST 7870 and ENGLSH 7670; cross-leveled with LINGST 4870 and ENGLSH 4670). Intensive training in collection and analysis of data taken from a native speaker of a non-Indo-European language. May be repeated for credit.

**Credit Hours:** 4

**Prerequisites:** instructor's consent

**Recommended:** 9 hours of linguistics

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**ANTHRO 7880: Demographic Anthropology**

(cross-leveled with ANTHRO 4880). The major topics considered in this course are basic demographic analysis, including life tables, models for population growth and stable population theory; fertility analysis; disease and fertility; disease in human populations; and paleodemography.

**Credit Hours:** 3

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**ANTHRO 7885: Anthropological Genetics**

(cross-leveled with ANTHRO 4885). Population genetic theory and methods applied to human and primate evolution and variation.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2050 and ANTHRO 2052 or BIO\_SC 1500

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**ANTHRO 7890: Human Skeletal Identification and Analysis**

(cross-leveled with ANTHRO 4890). Students interested in archaeology, physical anthropology, and law enforcement will learn human osteological methods of analysis applied to bioarchaeological problems and modern forensic techniques for personal identification.

**Credit Hours:** 5

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**ANTHRO 7950: Introduction to Post-Graduate Anthropology**

How to succeed in graduate school and profession, and who is MU Anthropology. Introduces skills for success in graduate school, describes attributes of a professional anthropologist and how to find a job. Handouts and readings supplement discussions. Graded on S/U basis only.

**Credit Hour:** 1

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**ANTHRO 7960: Graduate Readings in Anthropology**

Directed readings in ethnology, linguistics, archaeology, or physical anthropology not leading to thesis.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ANTHRO 7990: Non Thesis Research in Anthropology**

Original research not leading to the preparation of a thesis or dissertation.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ANTHRO 8010: History of Anthropology I**

Development of anthropological theories, methods, perspectives, major figures and contributions in cultural and linguistic subfields.

**Credit Hours:** 3

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**ANTHRO 8090: Masters Thesis Research in Anthropology**

Advanced work leading to thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** consent of major advisor

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**ANTHRO 8157: Seminar in Folklore**

(same as ENGLSH 8700 and REL\_ST 8700). Roots of folklore scholarship and methodology; their evolution in modern approaches to the study of oral, traditional, verbal genres; and their performance in natural folk groups. May repeat to twelve hours with departments consent.

**Credit Hours:** 3

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**ANTHRO 8187: Seminar in Ecological Adaptation**

Relationships and interactions between humans and their environments, with emphasis on the physical and cultural adaptations to environment. May be repeated to 9 hours maximum.

**Credit Hours:** 3

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**ANTHRO 8287: Seminar in Theory and Methods in Archaeology**

Application of theory and conceptual frameworks to archaeological studies drawn from both Old and New Worlds. May be repeated to 6 hours maximum.

**Credit Hours:** 3

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**ANTHRO 8357: Seminar in Psychological Anthropology**

Focuses on developments in psychological anthropology, cross-cultural psychology. Special attention on cognition, perception, socialization, personality assessment, psycho-cultural change, psycho-linguistics, psychometrics, within cross-cultural contexts. May be repeated to 6 hours maximum.

**Credit Hours:** 3

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**ANTHRO 8487: Seminar in Anthropological Linguistics**

(same as LINGST 8487). Topics: Ethnolinguistics, linguistic prehistory, pidgin and Creole languages, linguistic theories and cultural and cultural analysis. French structural anthropology. May be repeated for 9 hours maximum.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ANTHRO 8587: Seminar in Physical Anthropology**

Readings and discussion concerning current problems in human and nonhuman primate evolution, with emphasis on taxonomy, morphology, and behavior. May be repeated to 9 hours maximum.

**Credit Hours:** 3

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**ANTHRO 8687: Seminar in Cultural Dynamics**

Focuses on geographical, topical, and/or theoretical developments within cultural anthropology. May be repeated to 6 hours maximum.

**Credit Hours:** 3

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**ANTHRO 8888: Analyzing Anthropological Data I**

Provides students with the conceptual and analytic tools necessary to conduct and evaluate the analysis of anthropological data. Examples gleaned from archaeology, bioanthropology, ethnography, and linguistics will provide a broad perspective of the application and utility of the various methods discussed.

**Credit Hours:** 3

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**ANTHRO 8889: Analyzing Anthropological Data II**

This course introduces a variety of conceptual tools and advanced quantitative methods that anthropologists use to analyze their data. It includes an introduction of common software packages used to manipulate and analyze anthropological data.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 8888 or grad-level intro stats or instructor's consent

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**ANTHRO 8960: Graduate Readings in Anthropology**

Directed readings in ethnology, linguistics, archaeology, or physical anthropology not leading to thesis.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ANTHRO 8987: Grant Writing for Graduate Students**

Formal research project design with an emphasis on the development of a grant at the graduate level. May be repeated to 9 hours maximum.

**Credit Hours:** 3

**Prerequisites:** introductory course in statistics

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**ANTHRO 8990: Non Thesis Research in Anthropology**

Original research not leading to the preparation of a dissertation.

**Credit Hour:** 1-99

**Prerequisites:** consent of major advisor

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**ANTHRO 9090: Doctoral Dissertation Research in Anthropology**

Advanced work leading to dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** consent of major advisor

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## Arabic (ARABIC)

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**ARABIC 1100: Elementary Arabic I**

For beginners with no prior knowledge of Arabic. An elementary level course designed to facilitate student's acquisition of basic proficiency in communication within culturally significant contexts. Students learn Modern Standard Arabic language skills in an environment integrating interactive video and classroom instruction.

**Credit Hours:** 6

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**ARABIC 1200: Elementary Arabic II**

This course builds upon the foundation established in ARABIC 1100. Greater emphasis is placed on oral and written expression. Cultural issues are explored in an environment integrating interactive video and classroom instruction.

**Credit Hours:** 6

**Prerequisites:** C- or higher in ARABIC 1100, or instructor's permission

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**ARABIC 2005: Undergraduate Topics in Arabic - Humanities**

Organized study of selected topics. Subjects and credits may vary from semester to semester. May be repeated with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing or instructor's consent

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**ARABIC 2130: Intermediate Arabic**

Builds on students' knowledge of Elementary Arabic by investing in four language skills of listening, speaking, reading, and writing. Course is culturally oriented and considers various social, political, and religious forces to play in Arab world. Offers a unique blend of modern standards and colloquial Arabic. Enables students to develop listening comprehension, initiate and sustain conversations on daily-life topics, read texts on familiar topics, and write informal essays on topics, and write informal essays on topics connected to daily life.

**Credit Hours:** 3

**Prerequisites:** ARABIC 1200 or equivalent

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**ARABIC 2260: Intermediate Arabic II**

This course enables students at the intermediate proficiency level to further strengthen the four language skills: listening, speaking, reading, and writing in Modern Standard Arabic and to understand key aspects of the Arab world and the Arab culture. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ARABIC 2130 or equivalent

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**ARABIC 3160: Intermediate Arabic III**

This course enables students at the intermediate proficiency level to further strengthen the four language skills: Listening, speaking, reading, and writing in MODERN Standard Arabic and to understand key aspects of the Arab World. It expands communicative competence in Arabic and provides a good introduction to important aspects in Arabic Grammar. ORAL and written skills also be emphasized, besides expanding students vocabulary. It will also help students develop an understanding of the Arabic culture and its growing importance in the world, while providing contexts that reinforce the usefulness of the Arabic language in today's global economy. This course is conducted in Arabic.

**Credit Hours:** 3

**Prerequisites:** ARABIC 2260 or equivalent

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## Architectural Studies (ARCHST)

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**ARCHST 1005: Topics in Architectural Studies - Humanities**

Organized study of selected topics in architectural studies. Particular topic and earnable credit may vary by semester. May be repeated for credit up to 6 credit hours.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ARCHST 1100: Visual Design**

Design study as an introduction to basic design and visual composition with application to creating two- and three-dimensional abstract and /or functional design work. Studio exercises expressed through drawings and abstract models, using various media.

**Credit Hours:** 3

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**ARCHST 1200: Architectural Drafting and Working Drawings**

Beginning drafting including equipment and materials; lettering; floor plans, sections, elevations; orthographic and axonometric drawings; working drawings; and details.

**Credit Hours:** 3

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**ARCHST 1600: Fundamentals of Environmental Design**

Survey of the architectural environment emphasizing design fundamentals such as use, aesthetics, stability of structures and human relationships with places and time.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**ARCHST 1600W: Fundamentals of Environmental Design - Writing Intensive**

Survey of the architectural environment emphasizing design fundamentals such as use, aesthetics, stability of structures and human relationships with places and time.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**ARCHST 2005: Topics in Architectural Studies - Humanities**

Organized study of selected topics in architectural studies. Particular topic and earnable credit may vary by semester. May be repeated for credit up to 6 credit hours.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ARCHST 2085: Problems in Architectural Studies**

Supervised independent work.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARCHST 2100: Understanding Architecture and the American City**

Multifaceted introduction to the architectural and social roots of urban form in the U. S.: historic precedents from around the world; growth, decline and revival of cities; rise of suburbia; tradition and transformation in campus communities; continuing housing challenges; sustainable design and the future of urbanism. Explores a diverse range of opportunities to improve communities available to professionals and general public.

**Credit Hours:** 3

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**ARCHST 2210: Understanding Visualization for Animated Films**

Provides a critical overview of design and visualization techniques in animated film-making. Emphasizes the role of the built environment and spatial design features.

**Credit Hours:** 3

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**ARCHST 2220: Introduction to CAD**

Introduction to computer-aided drafting and design with AutoCad software. Emphasis will be placed on development of skills and problem solving related to the professions of environmental and interior design.

**Credit Hours:** 3

**Recommended:** ARCHST 1200

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**ARCHST 2230: Design Communication I**

A course introducing techniques and conventions of digitally-mediated graphic communication as aids in the design process.

**Credit Hours:** 3

**Prerequisites:** ARCHST 2220 and ARCHST 2811

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**ARCHST 2310: Building Systems**

Integrated building systems: structure, construction, technology, comfort; including voice-data communication, safety, floor, wall, ceiling, mechanical, electrical, and plumbing systems; and project estimating.

**Credit Hours:** 3

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**ARCHST 2315: Introduction to Building Systems Laboratory**

Building system renovations, materials, processes, finishes, and applications testing: furniture design, fabrication, finishing, lighting, concrete and masonry, wood and steel light framing construction, and mock-up fabrication and testing. All equipment training and safety is covered in this introductory course.

**Credit Hour:** 1

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**ARCHST 2316: Advanced Building Systems Lab**

Advanced exposure to building system renovations, materials, processes, finishes, and applications testing: furniture design, fabrication, finishing, lighting, concrete and masonry, wood and steel light framing construction, and mock-up fabrication and testing. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** ARCHST 2315

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**ARCHST 2323: Sustainable Building Design Fundamentals**

Environmental concerns addressed by green building design practices for consumers and owners of homes and businesses. Overview of how green buildings improve prospects for ecology, economy, social equity, and human health. Hands-on lab experiments reference national performance standards for decision making in sustainable building projects. Emphasis on energy and water use, sustainable sites, environmentally friendly building products, indoor air quality, and design for sustainable behaviors. Graded on A-F basis only.

**Credit Hours:** 3

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**ARCHST 2620: People, Places and Design**

Understanding human behavior and interaction with environments; the influence of architectural design on built places. Practical application for design.

**Credit Hours:** 3

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**ARCHST 2811: Studio I**

Application of basic design and composition to built form. Studio exercises in two and three dimensions using various media relating to usable spaces. Formation of design concept, development of form and space, and application in built environment.

**Credit Hours:** 4

**Prerequisites:** instructor's consent

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**ARCHST 3100: Color and Light**

The theory, application, and specification of color and light for interior and architectural design. Includes assigned lab exercises for color and light portfolio.

**Credit Hours:** 3

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**ARCHST 3182: Studio II**

Application of basic design principles to built forms and functional spaces. Identification and manipulation of elements of design, understanding spatial relationships between human body and spatial enclosures related to built forms. Spatial organization and familiarity with role of immediate context.

**Credit Hours:** 4

**Prerequisites:** ARCHST 2310 and ARCHST 2811

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**ARCHST 3230: Advanced Design Communication Using BIM**

Advanced course in techniques and conventions of computer aided design (CAD) and Building Information Modeling (BIM) for contemporary design process.

**Credit Hours:** 3

**Prerequisites:** ARCHST 2230

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**ARCHST 3600: Environmental Analysis**

Discover through analytical methods of primary organizational factors which operate in a building and reveal the preoccupations of designer. Analytical approach investigates design principles by means of dissection.

**Credit Hours:** 3

**Prerequisites:** ARCHST 2811

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**ARCHST 3600W: Environmental Analysis - Writing Intensive**

Discover through analytical methods of primary organizational factors which operate in a building and reveal the preoccupations of designer. Analytical approach investigates design principles by means of dissection.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and ARCHST 2811

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**ARCHST 3860: Human Factors Programming**

Design Programming for Human Factors using a Case Study.

**Credit Hours:** 3

**Recommended:** ARCHST 1600

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**ARCHST 3860W: Human Factors Programming - Writing Intensive**

Design Programming for Human Factors using a Case Study.

**Credit Hours:** 3

**Recommended:** ARCHST 1600

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**ARCHST 4001: Topics in Architectural Studies**

Selected current topics in field of interest.

**Credit Hour:** 1-99

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**ARCHST 4085: Problems in Architectural Studies**

Supervised independent work.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ARCHST 4085W: Problems in Architectural Studies - Writing Intensive**

Supervised independent work.

**Credit Hour:** 1-12

**Prerequisites:** instructor's consent

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**ARCHST 4320: Materials, Methods and Products**

Inherent qualities of materials used in the design of interior environments. Manufacturing, application, and installation methods. Focus on environmentally sensitive materials.

**Credit Hours:** 3

**Recommended:** ARCHST 2310

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**ARCHST 4323: Sustainable Technologies and Systems**

An in-depth study of ecologically-sensitive and energy-efficient strategies used in building and interiors. Prerequisites: MATH 1100 or equivalent or MATH 1160 or higher level of math: MATH 1400 or MATH 1500.

**Credit Hours:** 3

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**ARCHST 4325: Energy-Efficient Building Design**

Broad study of energy use and energy-efficient strategies for buildings. Course will cover the fundamentals of climate-based design, energy-efficient heating/cooling/daylighting strategies, alternative energy systems applicable to buildings, energy auditing/modeling/verification, applicable building energy codes, and high performance building technologies.

**Credit Hours:** 3

**Prerequisites:** MATH 1100

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**ARCHST 4333: Compliance and Specifications**

Application of laws, codes, regulations, standards in specifying for life safety, barrier-free and universal design, lighting, human factors, and contract documents.

**Credit Hours:** 3

**Prerequisites:** ARCHST 2220 and ARCHST 2811

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**ARCHST 4355: Recent Trends in Digital Media I**

Recent Trends in Digital Media I

**Credit Hour:** 1-99

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**ARCHST 4411: Study Abroad in Architectural History**

Discovery of historic architecture through on-site tour of timeless cities and places. May be repeated for credit.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ARCHST 4430: Guiding Design with Historic Preservation**

(cross-leveled with ARCHST 7430). Approaches to historic preservation; historic roots of architecture and interiors; regulations and design guidelines governing intervention; assessing significance of historic properties.

**Credit Hours:** 3

**Recommended:** American History or Government, or Art History

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**ARCHST 4435: History of the Designed Environment to 1750**

An in-depth study of the designed environment including interiors, architecture, art, and the decorative arts within the major historical periods and cultural context from prehistory to the Industrial Revolution.

**Credit Hours:** 3

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**ARCHST 4440: Design Precedents: Architecture, Interiors and Furniture since the Industrial Revolution**

(cross-leveled with ARCHST 7440). Analysis of historical exemplars of architecture, interiors and furniture design offering strategies for approaching contemporary design problems. Covers design precedents from industrial revolution to contemporary design.

**Credit Hours:** 3

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**ARCHST 4555: Recent Trends**

Upper-division students seeking additional knowledge in specific subject matter areas including digital media software.

**Credit Hour:** 1-99

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**ARCHST 4630: Shaping Human Settlements**

Review classic designs and designers, key concepts and enduring issues of community design within the overall framework of environmental design.

**Credit Hours:** 3

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**ARCHST 4700: Place-Making in Community Design**

Ideologies, case studies and participatory methods on place-making in community design. Use processes to design a place-making scheme in actual community project.

**Credit Hours:** 3

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**ARCHST 4710: Design Business Practices**

Analysis of basic professional, human, and business skills necessary for the successful design practice. Studio work in development of portfolio and self-marketing materials with refinement through critiques.

**Credit Hours:** 3

**Prerequisites or Corequisites:** ARCHST 4814 or ARCHST 4824

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**ARCHST 4760: Healthcare Facilities Design**

(cross-leveled with ARCHST 7760). Health care facilities design and planning course provides an in-depth investigation of best practice examples. Design and research methods include evidence-based design, simulation, and space syntax analysis leading to high-performance healthcare design. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** senior standing

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**ARCHST 4813: Interiors Studio III**

Spatial morphology, organization pattern, construction methods, materials, systems, and processes and integration with total design processes. Space planning and spatial manipulation in response to social, environmental, functional, and aesthetics specific to interiors.

**Credit Hours:** 4

**Prerequisites:** ARCHST 3182

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**ARCHST 4814: Interiors Studio IV**

Continuation of ARCHST 4813. Manipulation of form and space responding to programmatic functions and activities, and constraints imposed by structure, building materials, spatial enclosure, and related factors. Projects may involve designing single-function space to multiple-function layered spaces--both vertically and horizontally.

**Credit Hours:** 4

**Prerequisites:** ARCHST 4813

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**ARCHST 4815: Construction Documents and Building Information Modeling Studio**

Studio of how materials, systems, and assemblies reinforce and extend intentions of designers. Course teaches strategies and techniques for integration and coordination of the building components and details in construction documents and building information modeling.

**Credit Hours:** 4

**Prerequisites or Corequisites:** ARCHST 3230, ARCHST 4814 or ARCHST 4824, ARCHST 4860, ARCHST 4990

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**ARCHST 4823: Architectural Studio III**

Continuation of ARCHST 3182. Spatial morphology, organization pattern, construction methods, materials, systems, and processes and integration with total design process. Space planning and spatial manipulation in response to social, environmental, functional, and aesthetics specific to architecture.

**Credit Hours:** 4

**Prerequisites:** ARCHST 3182

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**ARCHST 4824: Architectural Studio IV**

Continuation of ARCHST 4823. Manipulation of form and space responding to programmatic functions and activities, and constraints imposed by structure, building materials, spatial enclosure, and related factors. Projects may involve designing single-function space to multiple-function layered spaces - both vertically and horizontally.

**Credit Hours:** 4

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**Prerequisites:** ARCHST 4823

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**ARCHST 4860: Programming for Thesis Design Studio**

Develop written comprehensive program for thesis design studio project.

**Credit Hour:** 1

**Prerequisites or Corequisites:** ARCHST 4814 or ARCHST 4824

**Prerequisites:** ARCHST 2620

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**ARCHST 4940: Internship in Environmental Design**

Field experience in design under professional and educational supervision. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ARCHST 4960: Readings in Architectural Studio**

Readings in recent research materials.

**Credit Hour:** 1-99

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**ARCHST 4961: Design Research and Service Design**

(cross-leveled with ARCHST 7961). Provides an overview of applied research methods for design and development of products, services and environments. Introduces human-centered approach to design research and Communication of research findings to informed design concepts.

**Credit Hours:** 3

**Recommended:** senior standing

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**ARCHST 4962: Information Visualization and Visual Analytics**

(cross-leveled with ARCHST 7962). Foundation for information visualization and deals with external representation and interactive manipulation of information, data or artifacts using digital tools to enhance communication, analytical reasoning and decision-making.

**Credit Hours:** 3

**Recommended:** senior standing

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**ARCHST 4963: Human Factors Research for Design**

(cross-leveled with ARCHST 7963). Investigate effect of people's physical psychological, social functions in environments of differing scales. Use research techniques of photo-interviewers, mapping, and user analysis to develop an appropriate program for redesign.

**Credit Hours:** 3

**Recommended:** ARCHST 3860

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**ARCHST 4964: Design Thinking and Creative Process**

(cross-leveled with ARCHST 7964). Analysis of how designers think, solve design problems, and engage in the creative process. Includes design methods, design cognition computations, and design protocol studies.

**Credit Hours:** 3

**Recommended:** ARCHST 4813 or ARCHST 4823

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**ARCHST 4990: Thesis Design Studio**

Comprehensive studio project as a synthesis of previous work in addressing a design problem defined in ARCHST 4860.

**Credit Hours:** 4

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**Prerequisites:** ARCHST 3230, ARCHST 4860, ARCHST 4814 or ARCHST 4824

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**ARCHST 7001: Topics in Environmental Design**

Selected current topics in field of interest.

**Credit Hour:** 1-99

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**ARCHST 7085: Problems in Environmental Design**

Supervised independent work.

**Credit Hour:** 1-99

**Prerequisites:** 3000-level course in field of problem and instructor's consent

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**ARCHST 7230: Computer Graphic Application for Design I**

Applications of computer graphics for design and art; includes visualization, animation and creative development. May repeat up to 12 credit hours maximum.

**Credit Hours:** 3

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**ARCHST 7232: Graduate Design Communication I**

Studio course in techniques and conventions of graphic communication as an aid in the design process of built forms.

**Credit Hours:** 3

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**ARCHST 7310: Graduate Building Systems**

Integrated building systems; structure construction, technology, comfort; including voice-communications, safety, floor, wall, ceiling, mechanical, electrical, and plumbing systems, project estimating and management.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or MATH 1120

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**ARCHST 7315: Graduate Systems Laboratory**

Experimental learning setting involving building construction systems, renovation, materials and finishes testing and experimentation. Focus on hands-on opportunities investigating building technology properties in detail. Laboratory 3 hrs/week.

**Credit Hour:** 1-9

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**ARCHST 7320: Materials, Methods and Products**

Inherent qualities of materials used in the design of interior environments. Manufacturing, application, and installation methods. Focus on environmentally sensitive materials.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or MATH 1120

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**ARCHST 7323: Sustainable Technologies and Systems**

An in-depth study of ecologically-sensitive and energy-efficient strategies used in buildings and interiors.

**Credit Hours:** 3

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**ARCHST 7325: Energy-Efficient Building Design**

This course is a broad study of energy use and energy-efficient strategies for buildings. The course will cover the fundamentals of climate-based

design, energy-efficient heating/cooling/daylighting strategies, alternative energy systems applicable to buildings, energy auditing/modeling/verification, applicable building energy codes, and high performance building technologies. Recommended for graduate students with undergraduate degrees and experience in engineering, architecture, and/or building science.

**Credit Hours:** 3

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**ARCHST 7333: Compliance and Specifications**

Application of laws, codes, regulations, standards in specifying for life safety, barrier-free and universal design, lighting, human factors, and contract documents.

**Credit Hours:** 3

**Prerequisites:** T\_A\_M 2100 and MATH 1100 or MATH 1120

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**ARCHST 7355: Recent Trends in Digital Media I**

Recent Trends in Digital Media I

**Credit Hour:** 2-4

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**ARCHST 7430: Guiding Design with Historic Preservation**

(cross-leveled with ARCHST 4430). Approaches to historic preservation; historic roots of architecture and interiors; regulations and design guidelines governing intervention; assessing significance of historic properties.

**Credit Hours:** 3

**Prerequisites:** American History or Government or Art History or instructor's consent

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**ARCHST 7440: Design Precedents: Architecture, Interiors and Furniture since the Industrial Revolution**

(cross-leveled with ARCHST 4440). Analysis of historical exemplars of architecture, interiors and furniture design offering strategies for approaching contemporary design problems. Covers design precedents from industrial revolution to contemporary design.

**Credit Hours:** 3

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**ARCHST 7555: Recent Trends in Environmental Design**

Upper-division students seeking additional knowledge in specific subject matter areas including digital media software.

**Credit Hour:** 1-99

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**ARCHST 7620: Environment and Behavior**

Evaluate relationships between human behavior and environmental design. Survey of environment and behavior theoretical foundations examining how these concepts translate into a more responsive theory of design.

**Credit Hours:** 3

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**ARCHST 7630: Shaping Human Settlements**

Review classic designs and designers, key concepts and enduring issues of community design within the overall framework of environmental design.

**Credit Hours:** 3

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**ARCHST 7650: Psychosocial Function and Older Adults**

(same as F\_C\_MD 7751, HMI 7751, H\_D\_FS 7751, NURSE 7751, P\_HLTH 7751 and SOC\_WK 7751). This course takes an Interdisciplinary approach to understanding the psychosocial function of older adults and explores approaches to alleviate disabling conditions that interfere with psychosocial function and quality of life in old age. Graded on A-F basis only.

**Credit Hours:** 3

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**ARCHST 7700: Place-Making in Community Design**

Ideologies, case studies and participatory methods on place-making in community design. Use processes to design a place-making scheme in actual community project.

**Credit Hours:** 3

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**ARCHST 7840: Graduate Design Studio**

Advanced graduate level design experience emphasizing project complexity, design skill refinement, and optional development of thesis project strategies.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARCHST 7940: Internship in Environmental Design**

Field experience in design under professional and educational supervision. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ARCHST 7960: Readings in Environmental Design**

Readings in recent research materials.

**Credit Hour:** 1-99

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**ARCHST 7961: Design Research and Service Design**

(cross-leveled with ARCHST 4961). Provides an overview of applied research methods for design and development of products, services and environments. Introduces human-centered approach to design research and communication of research findings to inform design concepts.

**Credit Hours:** 3

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**ARCHST 7962: Information Visualization and Visual Analytics**

(cross-leveled with ARCHST 4962). Foundation for information visualization and deals with external representation and interactive manipulation of information, data or artifacts using digital tools to enhance communication, analytical reasoning and decision-making.

**Credit Hours:** 3

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**ARCHST 7963: Human Factors Research for Design**

(cross-leveled with ARCHST 4963). Investigate effect of people's physical psychological, social functions in environments of differing scales. Use research techniques of photo-interviewers, mapping, and user analysis to develop an appropriate program for redesign.

**Credit Hours:** 3

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**ARCHST 7964: Design Thinking and Creative Process**

(cross-leveled with ARCHST 4964). Analysis of how designers think, solve design problems, and engage in the creative process. Includes design methods, design cognition and computations, and design protocol studies.

**Credit Hours:** 3

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**ARCHST 8001: Topics in Environmental Design**

Selected current topics in field of interest.

**Credit Hour:** 1-99

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**ARCHST 8050: Research Methods in Environmental Design**

A comparative study of quantitative and qualitative methods in environmental design with emphasis on research results and analyses. Lectures and seminar discussions.

**Credit Hours:** 3

**Prerequisites:** 12 hours advanced design

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**ARCHST 8085: Problems in Environmental Design**

**Credit Hour:** 1-99

**Prerequisites:** 4000-level course in field of problem and instructor's consent

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**ARCHST 8090: Master's Research in Environmental Design**

Independent research leading to a creative project. Graded on S/U basis only.

**Credit Hour:** 1-99

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**ARCHST 8230: Computer Graphic Application for Design II**

Creative computer graphic modeling, rendering and animation projects related to the academic background and interests of individual students. May be repeated to 6 hours maximum.

**Credit Hours:** 3

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**ARCHST 8600: Graduate Environmental Analysis**

Analysis of design principles and organizational factors operating in a building by means of dissection. Volumetric disposition, circulation pattern, axes, structural system, materials, purpose, and symbolism.

**Credit Hours:** 3

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**ARCHST 8630: Philosophy of Environmental Design Research**

Formal environmental design theory concerning historical precedents, current aesthetic trends, and design processes. Assignments investigate philosophical influences, architectonic vocabularies, and communication of idea and artifact. May be repeated up to 12 credit hours.

**Credit Hours:** 3

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**ARCHST 8633: Theoretical Perspectives of Design Computing**

Key theoretical ideas underlying the relationship between design and computing. Main research topics relevant to current discourse in design computing.

**Credit Hours:** 3

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**ARCHST 8820: Graduate Digital Design Studio**

Graduate level design experience emphasizing project complexity, design skill refinement, and use of digital media for design representation.

**Credit Hour:** 1-99

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**ARCHST 8830: Digital Design Studio II**

Advanced graduate level design experience emphasizing design, documentation, and representation using digital media. Optional development of graduate thesis project may be scheduled in this studio.

**Credit Hours:** 4

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**ARCHST 8840: Graduate Design Studio**

Advanced graduate level design experience emphasizing project complexity, design skill refinement, and optional development of thesis project strategies.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ARCHST 8850: Seminar in Environmental Design**

Reports, discussion of recent work in area of concentration.

**Credit Hour:** 1-4

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**ARCHST 8887: Environment and Behavior II**

Synthesis of environment and behavior themes in design research and application to professional practice. Research on socio-behavioral phenomena, user groups, places. Emphasis on integrated interactive character of elements.

**Credit Hours:** 3

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**ARCHST 8950: Qualitative Research Methods**

Explores qualitative research methods as foundation for subsequent study. Focuses on qualitative research of the built environment. Course may be repeated for credit.

**Credit Hours:** 3

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**ARCHST 8960: Readings in Environmental Design**

Readings in recent research materials.

**Credit Hour:** 1-99

**Prerequisites:** ARCHST 4960 or ARCHST 7960

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**ARCHST 8990: Thesis Project Proposal**

The formal opportunity to express the intent and scope of the thesis project.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**ARCHST 9085: Problems in Environmental Design**

**Credit Hour:** 1-99

**Prerequisites:** 4000-level course in field of problem and instructor's consent

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**ARCHST 9090: Doctoral Research in Environmental Design**

Independent research leading to thesis or dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**ARCHST 9555: Recent Trends in Environmental Design**

For students seeking additional knowledge and understanding in specific subject matter areas.

**Credit Hour:** 1-99

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**ARCHST 9990: Dissertation Proposal**

A formal dissertation proposal is written and presented to the dissertation committee for approval.

**Credit Hour:** 1-9

**Prerequisites:** instructor's consent

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**ARCHST 9995: Pilot Project for Dissertation**

Working with advisor, student proposes, conducts, and reports the findings from a pilot study germane to the dissertation topic in preparation for the dissertation research.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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## Art Ceramics - Visual Studies (ARTCE\_VS)

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**ARTCE\_VS 2100: Beginning Ceramics**

Exploration of ceramic art as an expressive, communicative medium. Study of ceramic design, technique and historic and contemporary models within the context of the creative process. Group critiques, slides, demonstrations. Expendable materials fee.

**Credit Hours:** 3

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**ARTCE\_VS 3100: Intermediate Ceramics**

Continuation of ARTCE\_VS 2100 with emphasis on wheel throwing and the vessel format. Further exploration of glazing and firing techniques. Group and individual critiques, demonstrations, slide lectures and visiting artists. Expendable materials fee.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARTCE\_VS 4100: Advanced Ceramics**

Individual directed exploration of ceramic form and concept. Includes advanced problems in firing, clay and glaze technology, forming and ornamentation. Payment of expendable materials fee required. May be repeated to 15 hours maximum.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARTCE\_VS 4110: Ceramics Sculpture**

Individual directed exploration of sculptural forms in ceramics. Includes advanced problems in firing, clay and glaze technology, forming and

ornamentation. Payment of expendable materials expense is required. May be repeated to 15 hours maximum.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**ARTCE\_VS 4185: Problems in Ceramics**

Problems in Ceramics.

**Credit Hour:** 1-3

**Prerequisites:** Instructor consent required

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**ARTCE\_VS 7100: Graduate Ceramics**

Advanced study of ceramic form, surface and concept with emphasis on directed development of individual work. Payment of expendable materials expense is required. May be repeated to 18 hours maximum.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required

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**ARTCE\_VS 7110: Graduate Ceramic Sculpture**

Directed development of individual work. Payment of expendable materials expense is required. May be repeated to 18 hours maximum.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required

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**ARTCE\_VS 7185: Problems in Ceramics**

Graduate level work in ceramics.

**Credit Hour:** 1-3

**Prerequisites:** ARTCE\_VS 7100 and ARTCE\_VS 7110 and instructor's consent required

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**ARTCE\_VS 8100: Graduate Ceramics II**

Continuation of ARTCE\_VS 7100. Repeatable to 15 hours.

**Credit Hours:** 3

**Prerequisites:** ARTCE\_VS 7100 or equivalent

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## Art Drawing - Visual Studies (ARTDR\_VS)

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**ARTDR\_VS 1050: Drawing: Materials and Methods**

This course focuses on the fundamentals of visual hierarchy, composition, and pictorial space in drawing. Emphasis on linear perspective and the language of light and shadow using black and white media (graphite, charcoal and/or conte crayon). Development of skills and concepts in drawing based on historical models, lectures, demonstrations and critiques. Expendable materials fee required.

**Credit Hours:** 3

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**ARTDR\_VS 1050H: Drawing: Materials and Methods - Honors**

This course focuses on the fundamentals of visual hierarchy, composition, and pictorial space in drawing. Emphasis on linear perspective and the language of light and shadow using black and white media (graphite, charcoal and/or conte crayon). Development of skills and concepts in drawing based on historical models, lectures, demonstrations and critiques. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**ARTDR\_VS 2210: Beginning Color Drawing**

Beginning Color Drawing is a second level drawing course that places emphasis on practice and materials with a focus on forming a basic understanding of how color works in practical application. Students will craft projects meant to orient them to the material action of colored pencils, chalk pastels, oil pastels, and other media. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ARTDR\_VS 1050

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**ARTDR\_VS 3200: Portrait Drawing**

Development of drawing techniques with an emphasis on the portrait. May be repeated to 15 hours maximum. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ARTDR\_VS 1050 and ARTDR\_VS 2210

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**ARTDR\_VS 3210: Intermediate Color Drawing**

Continuation of ARTDR\_VS 2210 with emphasis on design and organization. May be repeated to 9 hours maximum. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ARTDR\_VS 1050 and ARTDR\_VS 2210

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**ARTDR\_VS 3220: Anatomical Drawing**

Anatomical structure of human figure as it relates to art. Drawing from live model; emphasis on gross anatomy as defined by skeletal and muscular structure. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ARTDR\_VS 1050 and ARTDR\_VS 2210

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**ARTDR\_VS 3230: Beginning Illustration**

An introduction to visual problem solving from initial concept through final execution. Emphasis in drawing and painting skills and exploration of mixed media techniques including drawing from the model. Graded on A-F basis only. Expendable materials fee.

**Credit Hours:** 3

**Prerequisites:** ARTDR\_VS 1050 and ARTDR\_VS 2210

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**ARTDR\_VS 3240: The Graphic Novel**

This drawing course focuses on sequential narrative art and its relationship to the graphic novel. The term, 'graphic novel' represents a broad range of styles, formats and genres from simple comics to highly rendered illustrations. Lectures provide an introduction to some of the most highly respected works from the early twentieth century onward. Expendable materials fee required. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ARTDR\_VS 1050 and ARTDR\_VS 2210

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**ARTDR\_VS 4200: Drawing IV**

This course will provide an intensive experience in the development of a portfolio of artwork. Students will explore the connections between

their work and contemporary art. May be repeated 3 times. Expendable Materials Fee Required.

**Credit Hours:** 3

**Prerequisites:** ARTDR\_VS 1050, ARTDR\_VS 2200 and ARTDR\_VS 3200

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**ARTDR\_VS 4210: Advanced Color Drawing**

Continuation of ARTDR\_VS 3210 with emphasis on the expressive properties of color in figural compositions. Repeatable to 15 hours. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ARTDR\_VS 1050, ARTDR\_VS 2210 and ARTDR\_VS 3210

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**ARTDR\_VS 4220: Advanced Anatomical Drawing**

Continuation of ARTDR\_VS 3220 with and emphasis on formal analysis of the figure in drawing based on superficial and deep anatomical structure. May be repeated to 15 hour maximum. Expendable materials fee required.

**Credit Hours:** 3

**Recommended:** ARTDR\_VS 2210 and ARTDR\_VS 3200 before taking this class

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**ARTDR\_VS 4230: Advanced Illustration**

Further development of conceptual problem solving skills and technical proficiency through self generated assignments. Emphasis is placed on portfolio development by exploring sequential and narrative themes. Topics include contract, copyrights, and the art of freelancing. Students are advised to take the course a minimum of two times. May be repeated to 15 hours maximum. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ARTDR\_VS 1050 and ARTDR\_VS 2210

**Recommended:** ARTDR\_VS 3230

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**ARTDR\_VS 4285: Problems in Drawing**

Problems in Drawing.

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent required

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**ARTDR\_VS 7200: Graduate Drawing**

Drawing with emphasis on individual creative expression. May repeat to 18 hours maximum. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** graduate Art major

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**ARTDR\_VS 7285: Problems in Drawing**

**Credit Hour:** 1-3

**Prerequisites:** ARTDR\_VS 7200 and departmental consent

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**ARTDR\_VS 8200: Advanced Graduate Drawing**

Continuation of ARTDR\_VS. Repeatable to 15 hours.

**Credit Hours:** 3

**Prerequisites:** ARTDR\_VS 7200 or equivalent

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**ARTDR\_VS 8270: Graduate Drawing - Theory and Context**

Contextualizing artwork in culture, history, and theory, May be repeated to 18 hours for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Graduate Art Majors

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## Art Fibers - Visual Studies (ARTFI\_VS)

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**ARTFI\_VS 2300: Beginning Fibers**

Introduction to fibers emphasizing surface design (dyeing, textile printing), embroidery, papermaking and artists' books. Expendable materials fee required.

**Credit Hours:** 3

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**ARTFI\_VS 3300: Intermediate Fibers**

Continuation of ARTFI\_VS 2300 with emphasis on weaving, papermaking, and artists' books. Rigorous critical dialogue communicates social and political discourse intertwined to the Fibers discipline. Analog and digital technologies, global textile production, gender and sexuality, craftivism, community and sustainable making are topics explored and techniques taught inform visual communication for all art media. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ARTFI\_VS 2300

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**ARTFI\_VS 4300: Advanced Fibers**

Exploration of aesthetic concepts, development of creative research and instruction in advanced fiber techniques within medium selected by student. Expendable materials fee required. May repeat to 15 hours maximum.

**Credit Hours:** 3

**Prerequisites:** ARTFI\_VS 3300 or instructor approval

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**ARTFI\_VS 4385: Problems in Fibers**

Supervised research in creative fibers. Expendable materials fee required.

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent required

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**ARTFI\_VS 7300: Graduate Fibers**

Advanced technical and aesthetic study in medium of choice with emphasis on development of the individual student's ideas and goals. Expendable materials fee required. May repeat to 15 hours maximum.

**Credit Hours:** 3

**Prerequisites:** ARTFI\_VS 4300

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**ARTFI\_VS 7385: Problems in Fibers**

Graduate level work in fibers.

**Credit Hour:** 1-3

**Prerequisites:** ARTFI\_VS 7300 and departmental consent

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**ARTFI\_VS 8300: Graduate Fibers II**

Continuation of ART\_FIBR 7300. Repeatable to 15 hours.

**Credit Hours:** 3

**Prerequisites:** ARTFI\_VS 7300 or equivalent

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## Art Graphic Design - Visual Studies (ARTGD\_VS)

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**ARTGD\_VS 1400: Beginning Digital Imaging**

Class will cover the basic tools used in digital imaging software. A variety of different software may be offered. Course may be repeated for up to 3 hours with the consent of instructor. Graded on S/U basis only.

**Credit Hour:** 1

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**ARTGD\_VS 2400: Advanced Digital Imaging**

Class will cover the basic tools used in digital imaging software. A variety of different software may be offered. Course may be repeated for up to 3 hours with the consent of instructor. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** ARTGD\_VS 1400

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**ARTGD\_VS 2410: Graphic Design I**

Emphasis on developing a design language and vocabulary. Projects explore visual images in two-dimensional space, each one focusing on a specific set of relationships. Introduction to methodological and research practices for designers. Course concludes with portfolio review for admission to ARTGD\_VS2420 and further Graphic Design Courses. Payment of expendable materials fee is required.

**Credit Hours:** 3

**Prerequisites:** ARTGE\_VS 1030, ARTDR\_VS 1050

**Recommended:** ARTGE\_VS 1040

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**ARTGD\_VS 2420: Graphic Design II**

Introduction to the discipline, function and tradition of typography. Topics include communication, text intensive documents, legibility/readability, movement, language sequence and information hierarchy. Payment of expendable materials fee is required. Enrollment is limited to students who have completed ARTGD\_VS 2410 and successful completion of the graphic design portfolio review.

**Credit Hours:** 3

**Prerequisites:** consent of instructor

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**ARTGD\_VS 2430: Calligraphy and Hand Lettering**

Technical and historical instruction on several calligraphic alphabets. Application of hand lettering to both two and three-dimensional design projects. Emphasis placed on both technical mastery of letters, development of personal style and creative expression in projects.

**Credit Hours:** 3

**Prerequisites:** ARTGE\_VS 1030, ARTDR\_VS 1050 or instructor's consent

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**ARTGD\_VS 2440: Basic Design and Visual Communications**

This course is a hands-on course that utilizes lectures, readings, exercises and projects to help non-majors explore graphic design and

improve their ability to communicate using design. Students will be introduced to topics including graphic design in society, visual hierarchy, grid, typography, color theory, image usage, UI, UX, digital platforms and organizing principles of design. This course is intended for students who have an interest in design but do not plan on becoming practicing designers, there are no prerequisites.

**Credit Hours:** 3

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**ARTGD\_VS 3410: Graphic Design III**

Digital media and motion graphics are explored through the development of interactive presentations and web site design. Students experiment with the computer as a medium for delivery of communication. New, practical and conceptual skills will be discussed in order to develop meaningful, interactive user experiences. Payment of expendable materials fees is required.

**Credit Hours:** 3

**Prerequisites:** ARTGD\_VS 2420

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**ARTGD\_VS 3430: Advanced Calligraphy and Hand Lettering**

Continuation of ARTGD\_VS 2430. Students will expand their skills including study of more complex alphabets and further their personal style. Emphasis placed on both mastery of letters and creative exploration in projects. Repeatable to 6 credits.

**Credit Hours:** 3

**Prerequisites:** ARTGD\_VS 2430

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**ARTGD\_VS 3440: Packaging Design**

This course will look at the discipline of packaging design from a three-dimensional perspective. By gaining an understanding of the materials and processes that relate to packaging, students will develop a selection of packaging solutions for a variety of different clients. Payment of expendable material fee is required. Repeatable to 6 credits.

**Credit Hours:** 3

**Prerequisites:** ARTGD\_VS 3410

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**ARTGD\_VS 3441: The History of Graphic Design**

Broad overview of the history of graphic design. Topics will range from the history of printing, the beginnings of the profession, major movements and developments to the practice of design. Also looks at how the history of design and printing apply to today's visual communication.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARTGD\_VS 3442: Design for Corporate Identity and Branding**

Planning, strategy, and design of the visual components necessary to create a corporate identity. Course will focus on how cohesive design programs function across various mediums and engage specific audiences. Payment of expendable materials fees is required. Repeatable to 6 credits.

**Credit Hours:** 3

**Prerequisites:** ARTGD\_VS 3410

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**ARTGD\_VS 3443: Letterpress**

This course is about creating conceptual design solutions using the letterpress printing process. Projects are very broad, conceptual and

highly individual with the opportunity to explore letterpress printing processes using several different presses and printing techniques. Each project will require a limited edition print run. Repeatable to 9 hours.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**ARTGD\_VS 4400: Graphic Design IV**

Goal directed graphic design problem solving stressing the integration of theory and practical applications while sharpening conceptual, computer, and research skills. Topics include current design theory, advanced typographic study, production methods and design/client interaction. Payment of expendable materials fee is required.

**Credit Hours:** 3

**Prerequisites:** ARTGD\_VS 3410

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**ARTGD\_VS 4410: Graphic Design V**

Directed research, study and critical analysis in graphic design. Emphasis placed on research, writing, problem solving, aesthetic perception, conceptual thinking skills and technical proficiency. Students will focus on portfolio preparation and are advised to take the course a minimum of two times. May be repeated to 15 hours maximum. Payment of expendable materials fee is required.

**Credit Hours:** 3

**Prerequisites:** ARTGD\_VS 3420

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**ARTGD\_VS 4485: Problems in Graphic Design**

Problems in Graphic Design.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent required

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**ARTGD\_VS 7400: Graduate Graphic Design**

Graduate level work in graphic design. Emphasis on self-directed research and critical analysis. Students are encouraged to focus on conceptual development of their design work. Instruction is tailored to the student's individual investigations. Repeatable to 15 hours maximum.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARTGD\_VS 7485: Problems in Graphic Design**

Graduate level work in graphic design.

**Credit Hour:** 1-3

**Prerequisites:** ARTGD\_VS 4410 and departmental consent

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**ARTGD\_VS 8400: Graduate Graphic Design II**

Continuation of ARTGD\_VS 7400. Repeatable to 15 hours.

**Credit Hours:** 3

**Prerequisites:** ARTGD\_VS 7400 or equivalent

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## Art History - Visual Studies (ARH\_VS)

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### ARH\_VS 1005: Undergraduate Topics in Visual Studies - Art History - Humanities

Special studies in Visual Studies - Art History.

**Credit Hour:** 1

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### ARH\_VS 1010: Introduction to Museum of Art and Archaeology, UMC

This course is a brief introduction to the Museum of Art and Archaeology on Francis Quadrangle. Special attention will be given to the history of the Museum, to its operation and to its collection. Guest lecturers from the from the Museum will provide first hand accounts of their contributions to the day-to-day operations of the Museum and to the academic mission of the University.

**Credit Hour:** 1

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### ARH\_VS 1020: Giotto and the Arena Chapel

This course is a brief introduction to one of the major monuments of western art, the Area (or Scrovegni) Chapel of Giotto di Bondone. Special attention will be given to stories about him by Renaissance authors.

**Credit Hour:** 1

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### ARH\_VS 1020H: Giotto and the Arena Chapel - Honors

This course is a brief introduction to one of the major monuments of western art, the Area (or Scrovegni) Chapel of Giotto di Bondone. Special attention will be given to stories about him by Renaissance authors.

**Credit Hour:** 1-11

**Prerequisites:** Honors eligibility required

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### ARH\_VS 1030: Early Works of Michelangelo

This course is a brief introduction to the life and work of Michelangelo. Special attention will be given to his early works and to stories about him, especially those by Giorgio Vasari in his Lives of the Artist, Florence, 1568.

**Credit Hour:** 1

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### ARH\_VS 1040: Rembrandt

This course is a brief introduction to the life and work of the seventeenth-century Dutch painter Rembrandt van Rijn. Special attention is give to the appreciation of his art by his contemporaries.

**Credit Hour:** 1

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### ARH\_VS 1105: Undergraduate Topics in Visual Studies - Art History - Humanities

Special studies in Visual Studies - Art History.

**Credit Hours:** 3

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### ARH\_VS 1110: Ancient and Medieval Art

Introductory survey of the architecture, sculpture and painting of the ancient Near East, Greece, Rome, Byzantium and Medieval Europe.

**Credit Hours:** 3

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### ARH\_VS 1110H: Ancient and Medieval Art - Honors

Introductory survey of the architecture, sculpture and painting of the ancient Near East, Greece, Rome, Byzantium and Medieval Europe.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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### ARH\_VS 1110W: Ancient and Medieval Art - Writing Intensive

Introductory survey of the architecture, sculpture and painting of the ancient Near East, Greece, Rome, Byzantium and Medieval Europe.

**Credit Hours:** 3

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### ARH\_VS 1120: Renaissance through Modern Art

Introductory survey of architecture, sculpture and painting of Europe and America from the Renaissance to Modern times.

**Credit Hours:** 3

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### ARH\_VS 1120H: Renaissance through Modern Art - Honors

Introductory survey of architecture, sculpture and painting of Europe and America from the Renaissance to Modern times.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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### ARH\_VS 1120W: Renaissance through Modern Art - Writing Intensive

Introductory survey of architecture, sculpture and painting of Europe and America from the Renaissance to Modern times.

**Credit Hours:** 3

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### ARH\_VS 1130: Introduction to the History of Art

Introduction to the history of art, including a survey of major historical eras and global contexts, discussion of prominent works of art and methods of analysis.

**Credit Hours:** 3

**Recommended:** ARTGE\_VS 1020, or its equivalent

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### ARH\_VS 1130W: Introduction to the History of Art - Writing Intensive

Introduction to the history of art, including a survey of major historical eras and global contexts, discussion of prominent works of art and methods of analysis.

**Credit Hours:** 3

**Recommended:** ARTGE\_VS 1020, or its equivalent

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### ARH\_VS 1230: Introduction to Asian Arts

(same as HIST 1820, REL\_ST 1820, S\_A\_ST 1152). This course is an introduction to the literature and visual arts of Asia through selected master works. It focuses principally on India and China and investigates the distinctive features of their cultures.

**Credit Hours:** 3

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### ARH\_VS 2005: Topics in Visual Studies - Art History - Humanities

Study of special topics in Visual Studies - Art History.

**Credit Hour:** 1-3

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**ARH\_VS 2005W: Topics in Visual Studies - Art History - Humanities - Writing Intensive**

Study of special topics in Visual Studies - Art History.

**Credit Hour:** 1-3

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**ARH\_VS 2150: The Art of the Book**

Introduction to the illustrated book as a locus of artistic style, cultural currency, and visual literacy.

**Credit Hours:** 3

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**ARH\_VS 2150W: The Art of the Book - Writing Intensive**

Introduction to the illustrated book as a locus of artistic style, cultural currency, and visual literacy.

**Credit Hours:** 3

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**ARH\_VS 2720: African-American Visual Culture**

(same as BL\_STU 2720) This course introduces students to African-American art history, visual culture, and material culture in the cultural, political, and historical contexts. Specific focuses may include Harlem Renaissance, the Black Arts Movement, and other topics.

**Credit Hours:** 3

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**ARH\_VS 2720W: African-American Visual Culture - Writing Intensive**

(same as BL\_STU 2720) This course introduces students to African-American art history, visual culture, and material culture in the cultural, political, and historical contexts. Specific focuses may include Harlem Renaissance, the Black Arts Movement, and other topics.

**Credit Hours:** 3

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**ARH\_VS 2830: American Art and Architecture**

Architecture, sculpture, painting of America from 17th century to present day.

**Credit Hours:** 3

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**ARH\_VS 2830W: American Art and Architecture - Writing Intensive**

Architecture, sculpture, painting of America from 17th century to present day.

**Credit Hours:** 3

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**ARH\_VS 2850: Introduction to Visual Culture**

Introduction to the problems of understanding, analyzing, and writing about visual culture.

**Credit Hours:** 3

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**ARH\_VS 2850H: Introduction to Visual Culture - Honors**

Introduction to the problems of understanding, analyzing, and writing about visual culture.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**ARH\_VS 2850HW: Introduction to Visual Culture - Honors/Writing Intensive**

Introduction to the problems of understanding, analyzing, and writing about visual culture.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**ARH\_VS 2850W: Introduction to Visual Culture - Writing Intensive**

Introduction to the problems of understanding, analyzing, and writing about visual culture.

**Credit Hours:** 3

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**ARH\_VS 2860: The Lives of Objects**

Introduction to the problems of understanding, analyzing and writing about decorative arts, design history, and material culture.

**Credit Hours:** 3

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**ARH\_VS 2860W: The Lives of Objects - Writing Intensive**

Introduction to the problems of understanding, analyzing and writing about decorative arts, design history, and material culture.

**Credit Hours:** 3

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**ARH\_VS 2960: Special Readings in Visual Studies - Art History**

Independent readings and research selected in consultation with supervisory faculty.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ARH\_VS 3005: Topics in Visual Studies - Art History**

Selected studies in various facets of a Visual Studies - Art History.

**Credit Hour:** 1-3

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**ARH\_VS 3005H: Topics in Visual Studies - Art History- Humanities - Honors**

Selected studies in various facets of Visual Studies - Art History.

Enrollment limited to students with Honor's eligibility.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ARH\_VS 3530: Late Medieval Art**

General survey of European art and architecture from the 11th through the 14th centuries.

**Credit Hours:** 3

**Recommended:** ARH\_VS 1110 or equivalent

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**ARH\_VS 3530W: Late Medieval Art - Writing Intensive**

General survey of European art and architecture from the 11th through the 14th centuries.

**Credit Hours:** 3

**Recommended:** ARH\_VS 1110 or equivalent

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**ARH\_VS 3620: Italian Renaissance Art**

General survey of the architecture, painting and sculpture of Italy from the 14th through the 16th century.

**Credit Hours:** 3

**Recommended:** ARH\_VS 1110 or ARH\_VS 1120 or equivalent

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**ARH\_VS 3630: Northern Renaissance Art**

General survey of northern European art and architecture from the late 14th through the late 16th century.

**Credit Hours:** 3

**Recommended:** ARH\_VS 1120 or equivalent

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**ARH\_VS 3630W: Northern Renaissance Art - Writing Intensive**

General survey of northern European art and architecture from the late 14th through the late 16th century.

**Credit Hours:** 3

**Recommended:** ARH\_VS 1120 or equivalent

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**ARH\_VS 3640: Baroque Art**

General survey of 17th century European architecture, painting and sculpture.

**Credit Hours:** 3

**Recommended:** ARH\_VS 1120 or equivalent

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**ARH\_VS 3720: Cities in the Western Imagination**

Interdisciplinary introduction to the forms, functions, and meanings of cities in Europe and the Americas from ancient to modern times; plans and predictions for the future also considered. Emphasis is placed on cities as fields for imaginative activity on the part of those who have designed, built, used, and interpreted them.

**Credit Hours:** 3

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**ARH\_VS 3730: Eighteenth Century European Art**

General survey of 18th-century European painting, sculpture and architecture.

**Credit Hours:** 3

**Recommended:** ARH\_VS 1120 or equivalent

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**ARH\_VS 3730W: Eighteenth Century European Art - Writing Intensive**

General survey of 18th-century European painting, sculpture and architecture.

**Credit Hours:** 3

**Recommended:** ARH\_VS 1120 or equivalent

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**ARH\_VS 3740: Nineteenth-Century European Art**

General survey of 19th-century European painting, sculpture and architecture.

**Credit Hours:** 3

**Recommended:** ARH\_VS 1120 or equivalent

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**ARH\_VS 3740W: Nineteenth-Century European Art - Writing Intensive**

General survey of 19th-century European painting, sculpture and architecture.

**Credit Hours:** 3

**Recommended:** ARH\_VS 1120 or equivalent

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**ARH\_VS 3750: Modern Art in Europe and America**

General survey of international directions in painting, sculpture, and architecture from 1885 to ca. 1940.

**Credit Hours:** 3

**Recommended:** ARH\_VS 1120 or equivalent

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**ARH\_VS 3760: Contemporary Art**

General survey of painting, sculpture, and architecture from the Second World War to the present.

**Credit Hours:** 3

**Recommended:** ARH\_VS 1120 or equivalent

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**ARH\_VS 3780: Architecture in Film**

(same as FILMS\_VS 3780) Filmmakers use architecture to convey meaning on symbolic, psychological, and ideological levels. Using architectural history and theory, in conjunction with weekly film screenings from a variety of genres, this course explores how architecture operates within film.

**Credit Hours:** 3

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**ARH\_VS 3785: Arts and Artists on Film**

(same as FILMS\_VS 3785) This course explores representations of art and artists in film, including documentary films, fictionalized films, and films made by artists.

**Credit Hours:** 3

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**ARH\_VS 3790: Indian Cinema**

1(same as ANTHRO 3490, S\_A\_ST 3490, FILMS\_VS 3490). Indian Cinema provides an overview of the key genres and themes of Indian film, including Bollywood, art cinema/parallel cinema, Indian regional cinemas, and diasporan cinema. The course combines film studies, anthropological, historical, and visual culture analyses to provide a holistic view of Indian culture and society through cinema.

**Credit Hours:** 3

**Recommended:** Sophomore standing or higher

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**ARH\_VS 3830: American Art and Culture, 1500-1820**

General survey of American visual culture - painting, sculpture, architecture-between 1500 and 1820.

**Credit Hours:** 3

**Recommended:** ARH\_VS 1120 or equivalent

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**ARH\_VS 3840: American Art and Culture, 1820-1913**

General survey of American visual culture - painting, sculpture, architecture, photography - between 1820-1913.

**Credit Hours:** 3

**Recommended:** ARH\_VS 1120 or ARH\_VS 2830 or equivalent

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**ARH\_VS 3850: American Art and Culture, 1913-Present**

General survey of American visual culture - painting, sculpture, architecture, photography, advertising, film, new media - between 1913 and the present.

**Credit Hours:** 3

**Recommended:** ARH\_VS 1120 or ARH\_VS 2830 or equivalent

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**ARH\_VS 4005: Topics in Visual Studies - Art History-Humanities**

Special studies in art history/archaeology; covers subjects not included in regularly offered courses.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ARH\_VS 4120: Gender and the Arts**

(same as WGST 4120; cross-leveled with WGST 7120, VS\_ARH 7120). Exploration of the relationship between the visual arts and constructions of gender and sexuality in selected eras.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 4160: Global Encounters in Art History**

(cross-leveled with ARH\_VS 7160). This course explores art created as a result of contact between geographical regions across the globe. It contributes to the project of globalizing art history, namely reorienting art history's traditionally Euro-American focus to an approach that involves cultures from diverse regions of the world.

**Credit Hours:** 3

**Prerequisites:** ARH\_VS 1110, ARH\_VS 1120, ARH\_VS 1130 or consent of instructor

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**ARH\_VS 4530: Romanesque Art and Architecture**

(cross-leveled with ARH\_VS 7530). Exploration of topics in the art and architecture of Europe from the 10th through the 12th centuries.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 4540: Gothic Art and Architecture**

(cross-leveled with ARH\_VS 7540). Exploration of topics in the art and architecture of the 12th through the 14th century.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 4630: The Renaissance Artist**

(cross-leveled with VS\_ARH 7630). Lectures, readings, discussions and a research paper related to the Renaissance artist. Focus will be on representations of the artist in art and literature from ca. 1300 to ca. 1650.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 4640: Renaissance and Baroque Architecture**

(cross-leveled with ARH\_VS 7640). Problems in European architectural history from the 15th through the 18th century.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 4650: Venetian Painting**

(cross-leveled with ARH\_VS 7650). Survey of Venetian Painting from the 14th through the 18th century.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 4660: Art and Ideas in the Northern Renaissance**

(cross-leveled with ARH\_VS 7660). Discussion of selected topics in painting and sculpture and their artistic and cultural relationships from the 14th through the 16th century in northern Europe.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 4710: The Arts of the Rococo**

(cross-leveled with ARH\_VS 7710). This course explores European Art from approximately 1710 to 1770, focusing on art associated with two different social sectors: The early modern aristocratic court culture whose artistic predilections had formed the European norm, and the increasingly powerful merchant classes whose newfound wealth enabled new artistic genres and styles to proliferate. Our inquiry begins with an exploration of the rococo as an ornamental style; we examine its origins in Italian garden architecture and subsequent transformation into a decoration for both French palatial interiors and German Churches. We then launch a succession of case studies of important artists, media, and objects in order to assess the varied ways that diverse social identities were deflected through the periods' art an architecture. Students will pursue a research topic on rococo art for their semester project.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 4720: Revolution and Romanticism: Art C. 1800**

(cross-leveled with ARH\_VS 7720). This course examines European art from circa 1780 to 1820, focusing on art made in conjunction with the major events of the French Revolution, its aftermath, and its global repercussions. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 4740: Modern Architecture**

(cross-leveled with ARH\_VS 7740). Problems in the history of architecture from the late 18th century to the present.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 4750: Contemporary World Architecture**

(cross-leveled with ARH\_VS 7750). This course will study key themes, events, and figures in architectural theory and practice from around the world since the 1960s. As with any course treating such a large body of material, this one will be selective topical rather than comprehensive in nature. The format will include lectures, discussions based on reading, writing, and research assignments, films, and field trips. Graded on A-F basis only.



**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 4760: Modern Sculpture**

(cross-leveled with ARH\_VS 7760). Sculpture in Europe and the U.S. ca. 1880 to the present, with special emphasis on changing definitions of the medium.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 4780: Advanced Course in Contemporary Art**

(cross-leveled with ARH\_VS 7780). Topics in European and American painting and sculpture after 1950.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 4820: American Material Culture**

(cross-leveled with ARH\_VS 7820). An exploration of American material culture from a multidisciplinary perspective.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 4840: American Architecture**

(cross-leveled with ARH\_VS 7840). An exploration of architecture and urbanism from the colonial period to the present.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 4960: Special Readings in Visual Studies - Art History**

Independent readings and research selected in consultation with supervisory faculty.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ARH\_VS 4970: Capstone: Visual Studies - Art History**

Students will write an expanded, guided research paper. The Capstone student will consult on a regular basis with the professor responsible for the course and will make an oral presentation of the paper in the course. Must be taken in conjunction with a 4000-level Art History and Archaeology course.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**ARH\_VS 4980: Internship**

A one-semester or full summer intensive internship for departmental majors with specific projects and responsibilities to be arranged by the student in cooperation with a faculty member and an appropriate agent of the museum involved. May be taken as an elective only. May be repeated for a maximum of 6 hours credit.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 4996: Honors Proseminar I**

Research methods, bibliography, use and criticism of source material.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 4999: Honors Reading and Research I**

Individual research projects in preparation of senior thesis.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 7005: Topics in Visual Studies - Art History**

Special studies in Visual Studies - Art History; covers subjects not included in regularly offered courses.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ARH\_VS 7120: Gender and the Arts**

(same as WGST 7120; cross-leveled with WGST 4120, ARH\_VS 4120). Exploration of the relationship between the visual arts and constructions of gender and sexuality in selected eras.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 7130: Museum Studies**

Functions and history of museums and interrelations among departments, including those of director, curator, registrar, education, conservation, and marketing. Topics include acquisitions policies; public outreach; role of architecture; and philosophical and legal issues pertaining to administration of museums.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 7160: Global Encounters in Art History**

(cross-leveled with ARH\_VS 4160). This course explores art created as a result of contact between geographical regions across the globe. It contributes to the project of globalizing art history, namely reorienting art history's traditionally Euro-American focus to an approach that involves cultures from diverse regions of the world.

**Credit Hours:** 3

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**ARH\_VS 7170: Historic Preservation**

(same as HIST 7450; cross-leveled with HIST 4540). Survey of the historic preservation movement and techniques by faculty and guest speakers active in the field.

**Credit Hour:** 3-9

**Prerequisites:** instructor's consent

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**ARH\_VS 7530: Romanesque Art and Architecture**

(cross-leveled with VS\_ARH 4530). Exploration of topics in the art and architecture of Europe from the 10th through the 12th centuries.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 7540: Gothic Art and Architecture**

(cross-leveled with VS\_ARH 4540). Exploration of topics in the art and architecture of the 12th through the 14th century.

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**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 7630: The Renaissance Artist**

(cross-leveled with VS\_ARH 4630). Lectures, readings, discussions and a research paper related to the Renaissance artist. Focus will be on representations of the artist in art and literature from ca. 1300 to ca. 1650.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 7640: Renaissance and Baroque Architecture**

(cross-leveled with VS\_ARH 4640). Problems in European architectural history from the 15th through the 18th century.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**ARH\_VS 7650: Venetian Painting**

(cross-leveled with VS\_ARH 4650). Survey of Venetian painting from the 14th through the 18th century.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 7660: Art and Ideas in the Northern Renaissance**

(cross-leveled with VS\_ARH 4660). Discussion of selected topics in painting and sculpture and their artistic and cultural relationships from the 14th through the 16th century in northern Europe.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 7670: Baroque Figural Arts**

(cross-leveled with VS\_ARH 4670). Painting and sculpture of Italy in the 17th century.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 7710: The Arts of the Rococo**

(cross-leveled with VS\_ARH 4710). This course explores European art from 1710 to 1770, beginning with an exploration of the rococo as an ornamental language and then moving to case studies of artists, media, and objects in order to assess how social identities were expressed through design.

**Credit Hours:** 3

**Prerequisites:** VS\_ARH 8110 and instructor's consent

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**ARH\_VS 7720: Revolution and Romanticism: Art Circa 1800**

(cross-leveled with VS\_ARH 4720). This course examines European art from circa 1780 to 1820, focusing on art made in conjunction with the major events of the French Revolution, its aftermath, and its global repercussions.

**Credit Hours:** 3

**Prerequisites:** VS\_ARH 8110 and instructor's consent

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**ARH\_VS 7730: Realism Through Post-Impressionism**

(cross-leveled with VS\_ARH 4730). Styles and issues in nineteenth-century art.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 7740: Modern Architecture**

(cross-leveled with VS\_ARH 4740). Problems in the history of architecture from the late 18th century to the present.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 7750: Contemporary World Architecture**

(cross-leveled with VS\_ARH 4750). This course will study key themes, events, and figures in architectural theory and practice from around the world since the 1960s. As with any course treating such a large body of material, this one will be selective, topical rather than comprehensive in nature. The format will include lectures, discussions based on reading, writing, and research assignments, films and field trips. Graded A-F only.

**Credit Hours:** 3

**Prerequisites:** VS\_ARH 1120 and instructor's consent

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**ARH\_VS 7760: Modern Sculpture**

(cross-leveled with VS\_ARH 4760). Sculpture in Europe and the U.S. ca. 1880 to the present, with special emphasis on changing definitions of the medium.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**ARH\_VS 7780: Advanced Course in Contemporary Art**

(cross-leveled with ARH\_VS 4780). Topics in European and American painting and sculpture after 1950.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 7820: American Material Culture**

(cross-leveled with VS\_ARH 4820). An exploration of American material culture from a multidisciplinary perspective.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 7840: American Architecture**

(cross-leveled with VS\_ARH 4840). An exploration of architecture from the colonial period to the present.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 7960: Special Readings in Art History or Archaeology**

Independent readings and research selected in consultation with supervisory faculty.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ARH\_VS 7980: Internship in Art History and Archaeology**

A one semester or full summer intensive internship with specific projects and responsibilities to be arranged by the student and the program director.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 8070: Master's Tutorial**

Consultation with faculty advisory and preparation of a scholarly essay based on a graduate research paper. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** VS\_ARH 8110, and other graduate courses in Art History & Archaeology

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**ARH\_VS 8080: Readings for MA Thesis in Art History and Archaeology**

Reading, critical evaluation of literature of special fields of art history and/or archaeology.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ARH\_VS 8090: Master's Thesis Research and Thesis**

Individual research leading to preparation of the M.A. thesis Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ARH\_VS 8110: Introduction to Graduate Study**

Research methods, bibliography, use and criticism of source material. Required of graduate students in Art History and Archaeology who have not had VS\_ARH 4996.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**ARH\_VS 8120: Theories and Methodologies in Art History and Archaeology**

Literature of art and archaeology in terms of works of leading European and American art historians, archaeologists.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 8130: Museum Studies Seminar**

Appropriate means for care and display of artifacts. Topics include: accessioning, cataloging, retrieval of information, and laws and ethics of collecting; the museum environment and its monitoring; condition reports, shipping and storage, and conservation. Field trips.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 8170: Historic Preservation Seminar**

Research techniques to solve research problems and conduct field recording in historic preservation, material culture, historic architecture, and cultural heritage studies.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 8520: Seminar in Medieval Art and Archaeology**

Specific subjects of study will be assigned to students for presentation in relation to broader questions of the cultural/ historical phenomena of the time, from ca 700 to ca 1400.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ARH\_VS 8620: Seminar in Renaissance Art**

Special subjects of study assigned for Northern or Southern Renaissance for individual research, discussion of reports by seminar members.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ARH\_VS 8710: Seminar in 18th Century Art**

Special subjects of study in 18th century art assigned for individual research; reports to be presented and discussed by seminar members.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ARH\_VS 8750: Seminar in Modern and Contemporary Art**

Special subjects of study assigned for individual research; discussion of reports by seminar members.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ARH\_VS 8800: Seminar in American Art**

Special subjects of study assigned for individual research; discussion of reports by seminar members.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ARH\_VS 9080: Readings for PhD Dissertation in Art History and Archaeology**

Reading, critical evaluation of literature of special fields of art history and/or archaeology.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ARH\_VS 9090: Doctoral Dissertation Research in Art History**

Individual research leading to preparation of the Ph.D. dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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## Art Painting - Visual Studies (ARTPA\_VS)

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**ARTPA\_VS 2500: Beginning Painting**

Introduces primary techniques of painting. Emphasis on conceptualization of visual perception (understanding how we see) and

the creative processes (understanding how we create). Sections either in oil or acrylic; contact instructor. Expendable material fee required.

**Credit Hours:** 3

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**ARTPA\_VS 2510: Beginning Watercolor Painting**

Theory, practice of painting in water color from still life, landscape, figure. Expendable materials fee required.

**Credit Hours:** 3

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**ARTPA\_VS 3500: Intermediate Painting**

This course provides a bridge between beginning and advanced painting. Student work will build on the structured assignments in the beginning course (ARTPA\_VS 2500) to the more self-directed work expected in advanced art courses. Students will develop skills and critical thinking around how to make paintings that are visually dynamic yet also conceptually interesting and innovative. This course begins the process of creating a cohesive project in painting and a body of work as a professional artist. May be repeated to 9 hours maximum. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ARTPA\_VS 2500

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**ARTPA\_VS 3510: Intermediate Watercolor Painting**

Continuation of ARTPA\_VS 2510. Theory and practice of painting in watercolor. May be repeated to 9 hours maximum. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ARTPA\_VS 2510

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**ARTPA\_VS 4500: Advanced Painting: Portfolio**

This course will provide an intensive experience in the development of a portfolio of artwork in painting. Students will explore the connections between their work and contemporary art. May be repeated to 15 hours maximum. Cross-listed with other advanced art classes so students may be working in a range of media. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ARTPA\_VS 3500

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**ARTPA\_VS 4510: Advanced Watercolor Painting**

(cross-leveled with ART\_PNT 7510). Advanced problems in watercolor. May repeat to 15 hours maximum. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ART\_PNT 3510

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**ARTPA\_VS 4585: Problems in Painting**

Problems in Painting. Enrollment limited to students who have taken ARTPA\_VS 4500.

**Credit Hour:** 1-3

**Prerequisites:** Instructor consent

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**ARTPA\_VS 7500: Graduate Painting**

Advanced study. Emphasis on individual creative expression. May repeat to 18 hours maximum. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** graduate Art major

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**ARTPA\_VS 7585: Problems in Painting**

**Credit Hour:** 1-3

**Prerequisites:** ART\_PNT 7500 and departmental consent

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**ARTPA\_VS 8500: Advanced Graduate Painting**

Continuation of ART\_PNT 7500. Repeatable to 15 hours.

**Credit Hours:** 3

**Prerequisites:** ART\_PNT 7500 or equivalent

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**ARTPA\_VS 8570: Graduate Painting - Theory and Context**

Contextualizing artwork in culture, history, and theory. Repeatable to 18 hours for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Graduate Art standing

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**ARTPA\_VS 8585: Problems in Painting II**

Advanced independent studio practice including critical evaluation of student's creative work. Individual study in painting is to be proposed by the student and approved by the instructor. The student will meet on a regular basis with the instructor to review student progress. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** For students with strong preparation in Art; departmental consent; ART\_PNT 7585

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## Art Photo - Visual Studies (ARTPH\_VS)

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**ARTPH\_VS 2600: Beginning Photography**

Introduction to photography within an art context; digital workflow including use of camera, software, and digital output methods; and a survey of both contemporary and historical topics related to visual and conceptual concerns. Digital camera with RAW capability and manual aperture + shutter controls required. DSLR recommended. Payment of expendable materials fee required.

**Credit Hours:** 3

**Recommended:** ARTGE\_VS 1030, ARTGE\_VS 1040, ARTDR\_VS 1050

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**ARTPH\_VS 3600: Intermediate Photography**

Exploration of black and white film photography centering on the 4x5 inch large format camera. All camera and darkroom equipment is provided by the program. Students will learn traditional analog developing and printing as well as methods for digitizing film and large format inkjet printing from scanned negatives. Additionally, students transition to more independently conceived artwork. Payment of expendable material fee is required.

**Credit Hours:** 3

**Prerequisites:** ARTPH\_VS 2600

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**ARTPH\_VS 4600: Advanced Photography**

Advanced studio course in photography focuses on a process of production, critique, and revision. Students pursue a self-directed

body of work made in direct relationship to photography's expanding definition; its past and present position within the the arts; and within the diverse landscape of imaging practices and visual culture. Payment of expendable material fee is required. May repeat up to 15 hours maximum.

**Credit Hours:** 3

**Prerequisites:** ARTPH\_VS 2600 and ARTPH\_VS 3600

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**ARTPH\_VS 4685: Problems in Photography**

Supervised research in creative photography.

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent

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**ARTPH\_VS 7600: Graduate Photography**

Advanced technical study with emphasis on development of the individual student's creative ideas. Payment of expendable materials expense is required. May repeat to 15 hours maximum.

**Credit Hours:** 3

**Prerequisites:** ART\_PHOT 3600 and consent required

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**ARTPH\_VS 7685: Problems in Photography**

Supervised research in creative photography.

**Credit Hour:** 1-3

**Prerequisites:** ART\_PHOT 4410

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**ARTPH\_VS 8600: Graduate Photography II**

Continuation of ART\_PHOT 7600. Repeatable to 15 hours.

**Credit Hours:** 3

**Prerequisites:** ART\_PHOT 7600 or equivalent

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## Art Printmaking - Visual Studies (ARTPR\_VS)

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**ARTPR\_VS 2700: Introduction to Etching and Relief Printmaking**

Introduction to etching and relief printing techniques to create original works of art. Processes include copper and laser etching, linocut, woodcut, drypoint, collography, mezzotint, and color printing. This course engages concepts of originality, reproduction, pop culture and the cultural record. Expendable materials fee required.

**Credit Hours:** 3

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**ARTPR\_VS 2730: Introduction to Screen Printing**

Introduction to large format screen printing to create original works of art. Processes include CMYK reduction, photo-based screen printing, screen building and registration. Students will be exposed to an historical focus on the history of screen-printing as central to Pop Art and social critique. Expendable materials fee required.

**Credit Hours:** 3

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**ARTPR\_VS 3700: Intermediate Printmaking**

Intermediate printmaking focuses on strengthening all printmaking processes (Etching, Relief, Screen Printing, Lithography, Photo

mechanics, Collagraphy and Monotype) towards an emphasis in concept, critique and portfolio building. Expendable materials fee required

**Credit Hours:** 3

**Recommended:** ART\_PRNT 2700, ART\_PRNT 2730

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**ARTPR\_VS 4700: Advanced Printmaking**

An advanced study of all printmaking processes with an emphasis in experimentation towards finalizing a fully realized fine art portfolio for a career in art. This class focuses on the refinement of all printmaking processes, critique and individual creative expression. May be repeatable to 15 hours. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** ART\_PRNT 2700 or ART\_PRNT 2730 and ART\_PRNT 3700

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**ARTPR\_VS 4785: Problems in Printmaking**

An intense independent study of printmaking processes designed around the student's particular academic goals.

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent required

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**ARTPR\_VS 7700: Graduate Printmaking**

Graduate level study in all processes of printmaking with a focus on exploring thesis themes within the history and concept of print based art. May repeat to 15 hours maximum. Expendable materials fee required.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**ARTPR\_VS 7785: Problems in Printmaking**

An intense independent study designed around the graduate student's particular academic goals.

**Credit Hour:** 1-3

**Prerequisites:** ART\_PRNT 7700 and departmental consent

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**ARTPR\_VS 8700: Graduate Printmaking II**

Continuation of ART\_PRNT 7700. Repeatable to 15 hours.

**Credit Hours:** 3

**Prerequisites:** ART\_PRNT 7700 or equivalent

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## Art Sculpture - Visual Studies (ARTSC\_VS)

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### Astronomy (ASTRON)

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**ASTRON 1010: Introduction to Astronomy**

Survey of methods of astronomy; description of the solar system, stellar astronomy, structure of the galaxy and the universe. Three hours of lecture and one hour of lab per week (scheduled by the instructor). Satisfies physical science laboratory requirement. Laboratory section: Survey of astronomical methods, instruments, observations and measurement techniques.

**Credit Hours:** 4

**Recommended:** MATH 1100 or MATH 1120 or equivalent

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**ASTRON 1020: Introduction to Laboratory Astronomy**

Laboratory supplement to Astronomy 1010. Satisfies physical science laboratory requirement. Survey of astronomical methods, instruments, observations and measurement techniques.

**Credit Hours:** 2

**Recommended:** MATH 1100 or MATH 1120

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**ASTRON 1200: History of Astronomy**

Astronomy is the oldest and yet the newest science discipline that has far-reaching impact on our civilization. This course aims to provide a brief historical account of the major milestones in Astronomy that have led to our current understanding of the universe. Graded on A-F basis only.

**Credit Hours:** 3

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**ASTRON 3010: Introduction to Modern Astrophysics**

(same as PHYSCS 3010). Elements of stellar, and galactic astrophysics. Interpretation of observations and physical conditions of various astronomical objects including stars, gaseous nebulae and, galaxies.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**ASTRON 4020: Astrophysical Techniques**

(same as PHYSCS 4020; cross-leveled with PHYSCS 7020. ASTRON 7020). Elements of modern astronomical instruments, observations and analysis, with the emphasis in the optical regime. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**ASTRON 4180: Solar System Science**

(same as PHYSCS 4180, GEOL 4180; cross-leveled with GEOL 7180). Investigates physical states, interior structures and comparative geology of solar systems bodies: planets, moons, asteroids, comets, sun. Solar system formation and evolution.

**Credit Hours:** 3

**Prerequisites:** ASTRON 3010

**Recommended:** MATH 1700

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**ASTRON 4210: Contributions to Science from Under-represented Groups**

(same as PHYSCS 4210; cross-leveled with ASTRON 7210, PHYSCS 7210). STEM fields are amongst the areas of human endeavor that struggle with increasing their human diversity. Teaching of science rarely discusses the contributions or marginalizations of under-represented groups. Meanwhile, many women and indigenous cultures have contributed to progress in STEM but are often not recognized. In this course we will investigate these contributions, and the lack of recognition both historically and in the present day. The aim is to provide students with a better understanding of the advantages of and challenges in inclusive, diverse science. Initially the course will use astronomy as its frame of reference because the sky was one of the earliest laboratories and consequently it has a long history with many indigenous cultures developing their own cosmologies and ways of studying the sky. As we discuss the role of Indigenous peoples, people of color, and women, we will investigate the role of power structures as well as systemic

biases in the marginalization of these groups. This class will be strongly discussion oriented, with assessment based on the development throughout the semester, of a final project. As many students will be pursuing graduate school in STEM fields, the final project will be to develop a Broader Impact statement. Many federal funding agencies request or even require that research grants include a component aimed at 'broadening participation', i.e. making STEM more inclusive and diverse. Student will work on a multipart assignment that will culminate in a Broader Impact statement - that may well be directly applicable to an NSF GRFP (Graduate Research Fellowship Program) or NSF Post-Doctoral Fellowship. In addition to the Broader Impact statement - students will give presentations and learn how to be more inclusive in their presentation design, following the principles of Inclusive Design for Learning. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760 or PHYSCS 1200 or instructors consent

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**ASTRON 4250: Stellar Astrophysics**

(same as PHYSCS 4250). Basic astrophysics of stable and unusual stars, stellar systems. Investigates stellar dimensions, radiation, spectra, energy, evolution, populations; interstellar medium, stellar motions and aggregation.

**Credit Hours:** 3

**Prerequisites:** ASTRON 3010

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**ASTRON 4350: Galactic Astronomy**

(same as PHYSCS 4350; cross-leveled with ASTRON 7350). Observational properties of normal galaxies and clusters of galaxies, Seyfert and emission-line structure and dynamics of galaxies; interacting galaxies, quasi-stellar objects. Introduction to cosmology.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**ASTRON 4360: Extragalactic Astronomy**

(same as PHYSCS 4360; cross-leveled with ASTRON 7360, PHYSCS 7360). This course introduces students to the most basic knowledge of extragalactic astronomy, starting from Milky Way and extending to the most distant universe. Topics covered will include galaxy morphology and classification, groups and clusters of galaxies, active galactic nuclei, and galaxy formation and evolution.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**ASTRON 4460: Interstellar Medium**

(same as PHYSCS 4460). The course discusses observational properties and physical and chemical processes occurring in the interstellar medium. Topics include interstellar diffuse and molecular clouds, HII regions, dust grains, interstellar chemistry, star formation, supernova remnants, and interstellar shock waves.

**Credit Hours:** 3

**Prerequisites:** ASTRON 3010

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**ASTRON 4550: Cosmochemistry**

(same as PHYSCS 4550; cross-leveled with ASTRON 7550, PHYSCS 7550). Cosmic dust, stardust, spectra, energy, interstellar medium, meteorites, astromineralogy.

**Credit Hours:** 3

**Prerequisites:** ASTRON 3010

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**ASTRON 4950: Undergraduate Research in Astronomy**

Special studies in astronomy; covers subjects not included in courses regularly offered.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ASTRON 4960: Senior Thesis in Astronomy**

Special studies for senior undergraduate students in astronomy. The course requires an oral or poster presentations, or faculty-guided writing of a senior thesis involving independent research. Departmental consent required for repetition. Enrollment limited to students who have completed 3 credit hours of ASTRON 4950 or PHYSICS 4950.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ASTRON 7020: Astrophysical Techniques**

(same as PHYSICS 7020; cross-leveled with PHYSICS 4020, ASTRON 4020). Elements of modern astronomical instruments, observations and analysis, with the emphasis in the optical regime. Graded on A-F basis only.

**Credit Hours:** 3

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**ASTRON 7180: Solar System Science**

(same as PHYSICS 7180, GEOL 7180; cross-leveled with ASTRON 4180, PHYSICS 4180, GEOL 4180). Investigates physical states, interior structures and comparative geology of solar systems bodies: planets, moons, asteroids, comets, sun. Solar system formation and evolution.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 1220 or PHYSICS 2760 or instructor's consent

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**ASTRON 7210: Contributions to Science from Under-represented Groups**

(same as PHYSICS 7210; cross-leveled with PHYSICS 4210, ASTRON 4210). STEM fields are amongst the areas of human endeavor that struggle with increasing their human diversity. Teaching of science rarely discusses the contributions or marginalizations of under-represented groups. Meanwhile, many women and indigenous cultures have contributed to progress in STEM but are often not recognized. In this course we will investigate these contributions, and the lack of recognition both historically and in the present day. The aim is to provide students with a better understanding of the advantages of and challenges in inclusive, diverse science. Initially the course will use astronomy as its frame of reference because the sky was one of the earliest laboratories and consequently it has a long history with many indigenous cultures developing their own cosmologies and ways of studying the sky. As we discuss the role of Indigenous peoples, people of color, and women, we will investigate the role of power structures as well as systemic biases in the marginalization of these groups. This class will be strongly discussion oriented, with assessment based on the development throughout the semester, of a final project. As many students will be pursuing graduate school in STEM fields, the final project will be to develop a Broader Impact statement. Many federal funding agencies request or even require that research grants include a component aimed

at 'broadening participation', i.e. making STEM more inclusive and diverse. Student will work on a multipart assignment that will culminate in a Broader Impact statement that may well be directly applicable to an NSF GRFP (Graduate Research Fellowship Program) or NSF Post-Doctoral Fellowship. In addition to the Broader Impact statement - students will give presentations and learn how to be more inclusive in their presentation design, following the principles of Inclusive Design for Learning. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 2760 or PHYSICS 1200 or instructors consent

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**ASTRON 7350: Galactic Astronomy**

(cross-leveled with PHYSICS 4350, ASTRON 4350). The course aims to introduce students to the basic knowledge of our Galaxy: how it looks like, how it might be formed, and how we have gained knowledge about it through observations. The main topics include distance measurement of stars, evolution of stars, interstellar medium, star clusters, the structure of Galaxy. The course will also briefly touch on 'Near-field Cosmology' (sometimes referred to as 'Galactic Archeology'), i.e., what we can infer from our Galaxy the general picture of galaxy formation and evolution.

**Credit Hours:** 3

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**ASTRON 7360: Extragalactic Astronomy**

(same as PHYSICS 7360; cross-leveled with ASTRON 4360, PHYSICS 4360). This course introduces students to the most basic knowledge of extragalactic astronomy, starting from Milky Way and extending to the most distant universe. Topics covered will include galaxy morphology and classification, groups and clusters of galaxies, active galactic nuclei, and galaxy formation and evolution.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 2760

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**ASTRON 7550: Cosmochemistry**

(same as PHYSICS 7550; cross-leveled with ASTRON 4550, PHYSICS 4550). Cosmic dust, stardust, spectra, energy, interstellar medium, meteorites, astromineralogy.

**Credit Hours:** 3

**Prerequisites:** ASTRON 3010

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**ASTRON 7750: Interstellar Medium**

(same as PHYSICS 7750; cross-leveled with ASTRON 4750, PHYSICS 4750). The course discusses observational properties and physical and chemical processes occurring in the interstellar medium. Topics include interstellar diffuse and molecular clouds, HII regions, dust grains, interstellar chemistry, star formation, supernova remnants, and interstellar shock waves.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 1220 or PHYSICS 2760

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**ASTRON 8550: Stellar Structure and Evolution**

(same as PHYSICS 8550). Reviews of atomic and molecular spectra. Investigates quantum radiation law, emission and absorption processes, radiation transfer theory, continuous and discrete line spectra of stars, stellar composition.

**Credit Hours:** 3

**Prerequisites:** ASTRON 4250, PHYSCS 4800, or instructor's consent

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## Athletic Training (ATHTRN)

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### **ATHTRN 1100: Athletic Training Skills I**

Introduction to athletic training skills. Clinical observation hours required. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to Pre-Athletic Training majors only

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### **ATHTRN 1200: Athletic Training Skills II**

Continuation of athletic training skills. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Pre-Athletic Training majors; Completion of ATHTRN 1100 with minimum grade of B-

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### **ATHTRN 2001: Topics in Athletic Training**

Organized study of selected topics in Athletic Training. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-15

**Prerequisites:** Instructor's consent

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### **ATHTRN 2100: Principles and Fundamentals of Athletic Training**

Introduces students to the common principles and fundamentals associated with the profession of athletic training. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Pre-Athletic Training majors

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### **ATHTRN 2150: Athletic Training Practicum I**

The first in a sequence of practical/clinical experiences under the direct supervision of a Preceptor. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors; ATHTRN 1100, ATHTRN 1200, and ATHTRN 2100

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### **ATHTRN 2250: Athletic Training Practicum II**

The second in a sequence of practical/clinical experiences under the direct supervision of a Preceptor. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors; Completion of ATHTRN 2150 with minimum grade of B-

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### **ATHTRN 2500: Elementary Human Anatomy**

Analysis of the structure and function of cells, tissue, and organ systems. Emphasis is placed on the muscular, skeletal, and nervous systems as they relate to human movement. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Pre-Athletic Training majors only

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### **ATHTRN 2550: Examination of Cadaveric Human Anatomy**

Study of the human body utilizing cadaver specimens. Special emphasis will be placed upon the skeletal, muscular and nervous systems. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Restricted to Athletic Training majors; Completion of ATHTRN 2500 with a minimum grade of C

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### **ATHTRN 2600: Human Physiology**

Investigation into the structure, function, physiology, and biochemistry of the cardiovascular, lymphatic, respiratory, digestive, urinary, endocrine, and reproductive systems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors only; Completion of ATHTRN 2500 with a minimum grade of C

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### **ATHTRN 3100: Mental Health in Athletic Training**

Study of psychosocial strategies, mental health referral policies and clinical application to athletic training. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors; PSYCH 1000

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### **ATHTRN 3150: Athletic Training Practicum III**

The third in a sequence of practical/clinical experiences under the direct supervision of a Preceptor. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors only; Completion of ATHTRN 2250 with a minimum grade of B-

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### **ATHTRN 3200: Therapeutic Modalities**

Study of therapeutic modalities utilized in the treatment and rehabilitation of athletic injuries. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Restricted to Athletic Training majors; Completion of ATHTRN 2250 with a minimum grade of B-

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### **ATHTRN 3250: Athletic Training Practicum IV**

The fourth in a sequence of practical/clinical experiences under the direct supervision of a Preceptor. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors; Completion of ATHTRN 3150 with a minimum grade of B-

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### **ATHTRN 3300: Injury Assessment I**

A systematic approach to injury evaluation of the lower extremity and spine. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Restricted to Athletic Training majors; Completion of ATHTRN 2100 with a minimum grade of B- and ATHTRN 2500 and ATHTRN 2550 with a minimum grade of C

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### **ATHTRN 3400: Injury Assessment II**

A systematic approach to injury evaluation of the upper extremity, spine and head. Graded on A-F basis only.



**Credit Hours:** 4

**Prerequisites:** Restricted to Athletic Training majors; Completion of ATHTRN 3300 with a minimum grade of B-

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**ATHTRN 3500: Rehabilitation of Athletic Injuries**

Study of rehabilitation principles and techniques used to return active individuals to their sport/activity. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Restricted to Athletic Training majors; Completion of ATHTRN 3200 with a minimum grade of B-

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**ATHTRN 3600: Administration of Athletic Training**

Examines the organizational and administrative aspects of Athletic Training. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors

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**ATHTRN 3800: General Medical Conditions**

Examination of illness and disease found within the athletic population. Course graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors only, Completion of ATHTRN 3150 with a minimum grade of B-

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**ATHTRN 4150: Athletic Training Practicum V**

The fifth in a sequence of practical/clinical experiences under the direct supervision of a Preceptor. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors; Completion of ATHTRN 3250 with a minimum grade of B-

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**ATHTRN 4250: Athletic Training Practicum VI**

The sixth in a sequence of practical/clinical experiences under the direct supervision of a Preceptor. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors; Completion of ATHTRN 4150 with a minimum grade of B-

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**ATHTRN 4500: Nutrition for Athletic Performance and Rehabilitation**

Nutritional study examining how nutrition impacts sports performance. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors; PH\_THR 4420

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**ATHTRN 4800: Medical Diagnostics and Procedures in Athletic Training**

Study of advanced medical and clinical athletic training skills. Emphasis is placed on diagnostic testing and procedural skills used in medical and athletic training facilities. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic training majors; Completion of ATHTRN 4150 with a minimum grade of B-

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**ATHTRN 4970: Seminar in Athletic Training**

Capstone senior athletic training course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors; Completion of ATHTRN 3250 with a minimum grade of B-

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**ATHTRN 4970W: Seminar in Athletic Training - Writing Intensive**

Capstone senior athletic training course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Athletic Training majors; Completion of ATHTRN 3250 with a minimum grade of B-

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**ATHTRN 7110: Examination of Cadaveric Human Anatomy**

Study of the human body utilizing cadaver specimens. This course will have didactic work as well as laboratory work in the School of Medicine Anatomy Lab. Special emphasis will be placed up on the skeletal, muscular and nervous systems. Graded on an A-F basis.

**Credit Hours:** 4

**Prerequisites:** Admission into the Graduate Athletic Training Program

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**ATHTRN 7120: Introduction to Athletic Training Practice**

This course provides a foundation for understanding professional development as students evolve into athletic training practitioners. Students are provided an introduction to professional associations, legislative processes affecting athletic training practice, and requirements for initial and ongoing professional certification, and licensure. It will include an introduction to health care practice and how the profession of athletic training integrates into patient care. Included are basic psychomotor skills of athletic training required for prevention and management of injury. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Admission into the graduate athletic training program

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**ATHTRN 7130: Scientific Foundations of Therapeutic Interventions**

This course will introduce students to theories of pain modulation, physiologic effects of physical trauma and the healing process, and the effect inflammation has on quality of life. Students will develop introductory rehabilitation practices with the goals of therapeutic intervention. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Admission to the Athletic Training Program

---

**ATHTRN 7210: Clinical Experience I**

The first in a sequence of clinical experiences under the direct supervision of a preceptor to further advance clinical skills and understand the practice of athletic training. This experience will occur at a traditional (college or secondary school) clinical site. Graded on S/U basis only.

**Credit Hours:** 4

**Prerequisites:** Meet all Athletic Training Program retention requirements as detailed in the Athletic Training Program Handbook

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**ATHTRN 7220: Assessment and Management in Athletic Training I**

This course will focus on a systematic approach to injury evaluation, assessment, and diagnosis. Examination techniques for a variety

of injuries and conditions will be explored using both patient based and clinician based measures. Additionally, evidence-based injury management strategies and therapeutic interventions will be discussed in relation to the treatment and rehabilitation of various conditions. This course will also focus on a patient-centered care approach to the assessment and management of athletic injury. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites:** Meet all Athletic Training Program retention requirements as detailed in the Athletic Training Program Handbook

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#### **ATHTRN 7230: Emergency Management**

This course will prepare students in the acute evaluation, recognition, and management of emergent and life threatening injury and illness. An emphasis will be placed on preventing catastrophic injury and sudden death during activity. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Meet all Athletic Training Program retention requirements as detailed in the Athletic Training Program Handbook

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#### **ATHTRN 7240: Evidence Based Practice In Health Care**

In this course, the student will learn the importance of integrating scientific evidence into clinical decision-making. This course applies evidence-based practice concepts, including literature appraisal, to clinical scenarios and patient populations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Meet all program retention requirements as detailed in the Athletic Training Program Handbook

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#### **ATHTRN 7340: Health and Wellness Across the Lifespan**

This course will introduce students to the adaptations of the human body to mental and physical interventions to improve the well-being of the physically active across the lifespan. Graded on an A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Meet all program retention requirements as detailed in the Athletic Training Program Handbook

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## **Atmospheric Science (ATM\_SC)**

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#### **ATM\_SC 1050: Introductory Meteorology**

(same as GEOG 1050). Physical processes of atmosphere in relation to day-to-day changes in weather.

**Credit Hours:** 3

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#### **ATM\_SC 1050H: Introductory Meteorology - Honors**

(same as GEOG 1050H). Physical processes of atmosphere in relation to day-to-day changes in weather.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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#### **ATM\_SC 2150: Natural Hazards**

A survey of natural hazards, including severe thunderstorms, tornadoes, flooding, tropical storms, ocean movements, earthquakes, tsunamis,

volcanoes, asteroids, solar weather, managing risk and human impacts. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 1050 or equivalent, or instructor's consent

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#### **ATM\_SC 2720: Weather Briefing**

Student participation in daily discussions of current weather patterns and forecasts and their applications to weather sensitive activities including aviation, agriculture and industry.

**Credit Hours:** 2

**Prerequisites:** ATM\_SC 1050

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#### **ATM\_SC 2792: Weather Communication**

Methods of surface and upper air weather observation. How such data are distributed to users in the meteorological community is also addressed.

**Credit Hour:** 1

**Prerequisites:** ATM\_SC 1050; sophomore standing

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#### **ATM\_SC 3000: Independent Study in Atmospheric Science**

Independent study of a topic dealing with meteorological theory or application of meteorological science to the solution of relevant problem.

**Credit Hour:** 1-3

**Prerequisites:** ATM\_SC 1050

**Recommended:** Upper level standing

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#### **ATM\_SC 3600: Climates of the World**

(same as GEOG 3600). A study of the world distribution of climates based on 'cause and effect' relationships. Special attention is given to the impacts of climate on humanity.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 1050 or graduate standing

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#### **ATM\_SC 4001: Topics in Atmospheric Science**

Development of theory and applications for selected topics in atmospheric science.

**Credit Hour:** 1-99

**Prerequisites:** junior standing and instructor's consent

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#### **ATM\_SC 4110: Broadcast Meteorology I**

An introduction to broadcast meteorology including the business of media, use of meteorological data to produce a forecast, and television and radio presentation skills. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** ATM\_SC 1050, ATM\_SC 2720, or equivalents

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#### **ATM\_SC 4310: Atmospheric Thermodynamics**

(cross-leveled with ATM\_SC 7310). Thermodynamics of dry and moist air, atmospheric hydrostatics, convection, and development of the fundamental equations of geophysical fluid dynamics.

**Credit Hours:** 4

**Prerequisites:** ATM\_SC 1050, MATH 1700 (C or better), and one physics course

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**ATM\_SC 4320: Atmospheric Dynamics**

(cross-leveled with ATM\_SC 7320). Dynamics and kinematics of atmospheric flow. Manipulation of fundamental equations, numerical modeling of atmosphere.

**Credit Hours:** 4

**Prerequisites:** ATM\_SC 4310 or ATM\_SC 7310

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**ATM\_SC 4350: Mesoscale Meteorology and Dynamics**

(cross-leveled with ATM\_SC 7350). Survey of mesoscale phenomena, observing systems, analysis techniques, and modeling. Topics include fronts, jet streaks, gravity waves, organized convection, tornadoes, and severe local storm forecasting and structure.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4720 or ATM\_SC 7720 and MATH 2300

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**ATM\_SC 4400: Micrometeorology**

(cross-leveled with ATM\_SC 7400). Study of transport processes in the surface boundary layer. Important applications in pollution will be discussed.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4310 or PHYSCS 2760, MATH 2300

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**ATM\_SC 4510: Remote Sensing for Meteorology and Natural Resources**

(cross-leveled with ATM\_SC 7510). Principles of remote sensing with emphasis on the properties of atmosphere and the earth's surface from airborne and satellite sensors. The techniques for using geosynchronous and orbiting satellite platforms for assessing weather and natural resource features.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 1050, MATH 1500, junior standing or instructor's consent

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**ATM\_SC 4520: Environmental Biophysics**

(same as GEOG 4520; cross-leveled with ATM\_SC 7520, GEOG 7520). Students will learn techniques and principles used to describe the microenvironment of living organisms and use quantitative expressions to estimate missing values, and mass transfer laws to estimate flux of energy, water and gas.

**Credit Hours:** 3

**Prerequisites:** College Physics and Calculus I

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**ATM\_SC 4550: Physical Meteorology**

(cross-leveled with ATM\_SC 7550). Physics of atmospheric nucleation-condensation, cloud droplet and precipitation formation, associated electrical phenomena, radiation transfer and remote sensing.

**Credit Hours:** 3

**Prerequisites:** MATH 1500

**Recommended:** 1 year of college Physics, CHEM 1320

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**ATM\_SC 4590: Radar Meteorology**

(cross-leveled with ATM\_SC 7590). Course concerns the theory and application of radar in meteorology. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 1110, MATH 1700, PHYSCS 2750

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**ATM\_SC 4650: Long-Range Forecasting**

(cross-leveled with ATM\_SC 7650). Physical-dynamical principles of long-range forecasting from a month to a year. Empirical and numerical approaches in forecast practice.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4050 or ATM\_SC 7050 or ATM\_SC 3600

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**ATM\_SC 4710: Synoptic Meteorology I**

(cross-leveled with ATM\_SC 7710). Meteorological Data. Basic techniques for surface and upper air analysis, using selected examples of weather patterns.

**Credit Hours:** 4

**Prerequisites:** ATM\_SC 1050, MATH 1700 (C or better)

**Recommended:** one physics course

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**ATM\_SC 4720: Synoptic Meteorology II**

(cross-leveled with ATM\_SC 7720). Graphical analysis and interpretation of physical, kinematical and dynamical properties of the atmosphere. Analysis techniques applicable to atmospheric research.

**Credit Hours:** 4

**Prerequisites:** ATM\_SC 4710 or ATM\_SC 7710

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**ATM\_SC 4720W: Synoptic Meteorology II - Writing Intensive**

(cross-leveled with ATM\_SC 7720). Graphical analysis and interpretation of physical, kinematical and dynamical properties of the atmosphere. Analysis techniques applicable to atmospheric research.

**Credit Hours:** 4

**Prerequisites:** ATM\_SC 4710 or ATM\_SC 7710

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**ATM\_SC 4730: Advanced Forecasting Laboratory**

Advanced principles of weather forecasting will be addressed via online electronic modules and weekly laboratory exercises. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4720

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**ATM\_SC 4800: Numerical Methods in Atmospheric Science and Natural Resources**

(cross-leveled with ATM\_SC 7800). Examines numerical methods used in solving differential equations, filtering data sets, and Fourier decomposition of discrete data sets.

**Credit Hours:** 3

**Prerequisites:** senior standing

**Recommended:** Math through Calculus III

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**ATM\_SC 4949: Internship in Meteorology**

Practical professional work experience with professional or scientific meteorologists in off-campus work environment. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** junior standing

**Recommended:** Math through Calculus III

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**ATM\_SC 4950: Undergraduate Research in Atmospheric Science**

Research apprenticeship with a faculty mentor. Students are expected to develop initial concept for the research, design experiments, collect data, and analyze data with faculty input, oversight, and guidance.

**Credit Hour:** 1-4

**Prerequisites:** STAT 1400, MATH 1500

**Recommended:** 10 hours of Atmospheric Science courses

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**ATM\_SC 7310: Atmospheric Thermodynamics**

(cross-leveled with ATM\_SC 4310). Thermodynamics of dry and moist air, atmospheric hydrostatics, convection, and development of the fundamental equations of geophysical fluid dynamics.

**Credit Hours:** 4

**Prerequisites:** ATM\_SC 1050, MATH 1700 (C or better), and one physics course

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**ATM\_SC 7320: Atmospheric Dynamics**

(cross-leveled with ATM\_SC 4320). Dynamics and kinematics of atmospheric flow. Manipulation of fundamental equations, numerical modeling of atmosphere.

**Credit Hours:** 4

**Prerequisites:** ATM\_SC 4310 or ATM\_SC 7310

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**ATM\_SC 7350: Mesoscale Meteorology and Dynamics**

(cross-leveled with ATM\_SC 4350). Survey of mesoscale phenomena, observing systems, analysis techniques, and modeling. Topics include fronts, jet streaks, gravity waves, organized convection, tornadoes, and severe local storm forecasting and structure.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4720 or ATM\_SC 7720 and MATH 2300

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**ATM\_SC 7400: Micrometeorology**

(cross-leveled with ATM\_SC 4400). Study of transport processes in the surface boundary layer. Important applications in pollution will be discussed.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4050 or ATM\_SC 7050

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**ATM\_SC 7510: Remote Sensing for Meteorology and Natural Resources**

(cross-leveled with ATM\_SC 4510). Principles of remote sensing with emphasis on the properties of atmosphere and the earth's surface from airborne and satellite sensors. The techniques for using geosynchronous and orbiting satellite platforms for assessing weather and natural resource features. Graduate student credit is dependent upon completion of additional advanced research assignments. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 1050, MATH 1500, junior standing or instructor's consent

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**ATM\_SC 7520: Environmental Biophysics**

(same as GEOG 7520; cross-leveled with ATM\_SC 4520, GEOG 4520). Students will learn techniques and principles used to describe the microenvironment of living organisms and use quantitative expressions

to estimate missing values, and mass transfer laws to estimate flux of energy, water, and gas.

**Credit Hours:** 3

**Prerequisites:** college physics, calculus I

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**ATM\_SC 7550: Physical Meteorology**

(cross-leveled with ATM\_SC 4550). Physics of atmospheric nucleation-condensation, cloud droplet and precipitation formation, associated electrical phenomena, radiation transfer and remote sensing.

**Credit Hours:** 3

**Prerequisites:** MATH 1500

**Recommended:** 1 year of college Physics, CHEM 1320

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**ATM\_SC 7590: Radar Meteorology**

(cross-leveled with ATM\_SC 4590). Course concerns the theory and application of radar in meteorology. Graduate students will be required to conduct an independent research project using radar, in addition to the undergraduate requirements for the class. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** MATH 1700, PHYSCS 2760

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**ATM\_SC 7650: Long-Range Forecasting**

(cross-leveled with ATM\_SC 4650). Physical-dynamical principles of long-range forecasting from a month to a year. Empirical and numerical approaches in forecast practice.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4050 or ATM\_SC 7050 or ATM\_SC 3600

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**ATM\_SC 7710: Synoptic Meteorology I**

(cross-leveled with ATM\_SC 4710). Meteorological Data. Basic techniques for surface and upper air analysis, using selected examples of weather patterns.

**Credit Hours:** 4

**Prerequisites or Corequisites:** one physics course

**Prerequisites:** ATM\_SC 1050, MATH 1700 (C or better)

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**ATM\_SC 7720: Synoptic Meteorology II**

(cross-leveled with ATM\_SC 4720). Graphical analysis and interpretation of physical, kinematical and dynamical properties of the atmosphere. Analysis techniques applicable to atmospheric research.

**Credit Hours:** 4

**Prerequisites:** ATM\_SC 4710 or ATM\_SC 7710

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**ATM\_SC 7800: Numerical Methods in Atmospheric Science and Natural Resources**

(cross-leveled with ATM\_SC 4800). Examines numerical methods used in solving differential equations, filtering data sets, and Fourier decomposition of discrete data sets.

**Credit Hours:** 3

**Prerequisites:** Math through Calculus III

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**ATM\_SC 8001: Topics in Atmospheric Science**

Development of the theory with its application for selected topics in atmospheric science.

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**Credit Hours:** 3

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**ATM\_SC 8085: Problems in Atmospheric Science**

Independent study by graduate students in atmospheric science.

**Credit Hour:** 1-99

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**ATM\_SC 8090: Masters Research in Atmospheric Science**

Original investigation in atmospheric science in support of a master's thesis. Graded on S/U basis only.

**Credit Hour:** 1-99

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**ATM\_SC 8200: Meteorological Statistics**

Applies theory of probability and frequency distribution to meteorological variables.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4050 or ATM\_SC 7050 or STAT 4710 or instructor's consent

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**ATM\_SC 8400: Atmospheric General Circulation**

Comprehensive review of dynamical theories of general circulation with intensive discussion of current problems.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4320 or ATM\_SC 7320

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**ATM\_SC 8450: Tropical Meteorology**

Study of the synoptic and dynamic character of the atmosphere in the tropical regions, including an examination of the general circulation and tropical storms.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4710 or ATM\_SC 7710, ATM\_SC 4720 or ATM\_SC 7720 and MATH 2300; instructor's consent. Graded on A-F basis only

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**ATM\_SC 8500: Radiation in the Atmosphere**

Physics of solar and infrared radiative transfer in the atmosphere, including energy conversion effects, atmospheric optics, and photochemical processes.

**Credit Hours:** 3

**Prerequisites:** one year College Physics and MATH 1700

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**ATM\_SC 8550: Nowcasting**

Students will learn the science of nowcasting through the study of the various methods used and apply their knowledge in the design of the elements of a nowcast system and practical nowcasting exercises.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 8500, instructor's consent

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**ATM\_SC 8600: Advanced Climate Dynamics**

Study of global climate; application of large scale atmospheric dynamics; conservation of various forms of energy, climatic evaluation, large scale climatic modification.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4320 or ATM\_SC 7320 and ATM\_SC 8400 or ATM\_SC 3600

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**ATM\_SC 9085: Problems in Atmospheric Science**

Independent study by graduate students in atmospheric science.

**Credit Hour:** 1-99

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**ATM\_SC 9087: Seminar in Atmospheric Science**

Seminar in Atmospheric Science.

**Credit Hour:** 1-99

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**ATM\_SC 9090: Doctoral Research in Atmospheric Science**

Original investigation in atmospheric science in support of a doctoral dissertation. Graded on S/U basis only.

**Credit Hour:** 1-99

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**ATM\_SC 9300: Introduction to Chaos Theory**

Atmospheric predictability and related topics are examined as they relate to governing equations of motion and their non-linear solutions.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4320 or ATM\_SC 7320, MATH 4100

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**ATM\_SC 9350: Advanced Dynamic Meteorology**

Application of perturbation dynamics, advanced dynamics, and numerical methods to study of atmospheric circulations.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4320 or ATM\_SC 7320

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**ATM\_SC 9590: Advanced Applications of Weather Radar**

This course will investigate quantitative uses of weather radar data that go beyond standard reflectivity and velocity image interpretation, particularly those that use new techniques such as dual-polarization. Students will develop methods to analyze and display meteorological radar data. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

**Recommended:** MATH 1700, PHYSICS 2760, INFOTC 1040 or equivalent, ATM\_SC 4590

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**ATM\_SC 9700: Advanced Synoptic Meteorology**

Detailed examination of vertical motions, their forcing, and how each is diagnosed (quasigeostrophic theory, the Trenberth approximation, Q-vectors). Current issues in synoptic meteorology and operational forecasting are discussed.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4720 or ATM\_SC 7720

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**ATM\_SC 9712: Convection and Lightning**

Cumulus convection and cloud physics topics that will facilitate a deeper understanding of cloud electrification and lightning production are studied. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ATM\_SC 4710 or ATM\_SC 7710, ATM\_SC 4720 or ATM\_SC 7720, MATH 2300; instructor's consent

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**ATM\_SC 9800: Numerical Weather Prediction**

Examination of finite difference and objective analysis techniques, basic physical concepts, and parameterization of physical processes. Experience with a range of models (1-D cloud to operational PE models) stressed.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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## Biochemistry (BIOCHM)

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**BIOCHM 1090: Introduction to Biochemistry**

Fundamental concepts in biochemistry and molecular biology: structure function relationships, reactivity, thermodynamics, gene expression. Professional skills for biomedical careers. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** CHEM 1320

**Prerequisites:** MATH 1100 or MATH 1160 or MATH 1500 and Freshman or Sophomore standing

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**BIOCHM 1094: Introductory Biochemistry Laboratory**

Techniques course involving analytical experiments with carbohydrates, lipids, proteins, nucleic acids; use of instrumentation in biochemistry; purification and kinetics of enzymes, PCR and cloning. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** BIOCHM 1090; Biochemistry majors only

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**BIOCHM 2110: The Living World: Molecular Scale**

Survey of modern biochemistry and biotechnology. Structure and function of DNA, proteins, lipids and carbohydrates. The role of biopolymers in life processes and everyday living is emphasized.

**Credit Hours:** 3

**Prerequisites:** for non-Biochemistry majors only

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**BIOCHM 2112: Biotechnology in Society**

Biotechnology in a social context covers three areas: introduction to terminology and concepts, specific biotechnological applications to modern problems, and ethical questions.

**Credit Hours:** 3

**Prerequisites:** for non-biochemistry majors only

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**BIOCHM 2112H: Biotechnology in Society - Honors**

Biotechnology in a social context covers three areas: introduction to terminology and concepts, specific biotechnological applications to modern problems, and ethical questions.

**Credit Hours:** 3

**Prerequisites:** for non-biochemistry majors only

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**BIOCHM 2480: Introduction to Macromolecular Structure and Function**

The function of biochemical macromolecules is directly related to their structure. The three-dimensional structures of proteins, nucleic acids, polysaccharides and membranes are each explored in the context of their

functions and their microenvironments within living organisms. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** C- or higher in BIOCHM 1090

**Corequisites:** CHEM 2100 or CHEM 2110

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**BIOCHM 2484: Macromolecular Techniques Laboratory**

The laboratory experiments include DNA isolation, DNA cloning, PCR, plasmid transformation, protein expression, affinity-tagged chromatography, SDS-polyacrylamide gel electrophoresis, enzyme isolation, enzyme assay, buffer preparation, and Michaelis-Menten kinetics. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** sophomore standing; restricted to Biochemistry majors only

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**BIOCHM 2484H: Macromolecular Techniques Laboratory - Honors**

The laboratory experiments include DNA isolation, DNA cloning, PCR, plasmid transformation, protein expression, affinity-tagged chromatography, SDS-polyacrylamide gel electrophoresis, enzyme isolation, enzyme assay, buffer preparation, and Michaelis-Menten kinetics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing; Biochemistry majors only. Honors eligibility required

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**BIOCHM 2484HW: Macromolecular Techniques Laboratory - Honors/ Writing Intensive**

The laboratory experiments include DNA isolation, DNA cloning, PCR, plasmid transformation, protein expression, affinity-tagged chromatography, SDS-polyacrylamide gel electrophoresis, enzyme isolation, enzyme assay, buffer preparation, and Michaelis-Menten kinetics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing; Biochemistry majors only. Honors eligibility required

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**BIOCHM 2950: Undergraduate Research in Biochemistry**

Research for students in which independent research is less than 50% of total. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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**BIOCHM 3630: General Biochemistry**

Survey of biochemistry; static/dynamic aspects of carbohydrates, lipids, proteins, nucleic acid. Discussion of metabolic pathways, energy production, and metabolic regulatory mechanism.

**Credit Hours:** 3

**Prerequisites:** CHEM 2030 or CHEM 2100

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**BIOCHM 4001: Topics in Biochemistry**

Experimental courses; highly specialized topics taught infrequently or courses taught by visiting professors.

**Credit Hour:** 1-99

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**BIOCHM 4120: Medicinal Plant Science**

Presentation of core topics, including an overview of plant groups with medicinal properties, botanical nomenclature, important biochemical pathways, exposure to journals, texts, and online databases that facilitate evidence-based research involving medicinal plants. Content of world-wide application. Has an international flavor. The course facilitates students to be independent learners and critical thinkers in this important knowledge area (of value to diverse academic backgrounds). The important role of collaborative inter-disciplinary studies will also be emphasized. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CHEM 1100 or CHEM 1320

**Recommended:** BIO\_SC 1200 or BIO\_SC 1500 or BIOCHM 1090

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**BIOCHM 4270: Biochemistry**

(cross-leveled with BIOCHM 7270). First semester of comprehensive biochemistry course: metabolic pathways, amino acids/proteins, carbohydrates, lipids, nucleic acids, kinetics, energy requirements, metabolic regulation in living cells.

**Credit Hours:** 3

**Prerequisites:** CHEM 2110

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**BIOCHM 4272: Biochemistry**

(cross-leveled with BIOCHM 7272). Second semester of a comprehensive biochemistry course, including metabolism of carbohydrates, fatty acids, steroids, amino acid synthesis and metabolism, molecular genetics, hormones, photosynthesis and integrated metabolism.

**Credit Hours:** 3

**Prerequisites:** C- or higher in BIOCHM 4270

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**BIOCHM 4300: Physical Chemistry of Biological Systems**

To present fundamental principles of physical chemistry in the context of the structure and function of biological macromolecules. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** BIOCHM 4270

**Prerequisites:** MATH 1500 and PHYSCS 1210 or PHYSCS 2750

**Recommended:** MATH 1700 and PHYSCS 1220 or PHYSCS 2760

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**BIOCHM 4376: Computer Assisted Sequence Analysis and Molecular Modeling**

(cross-leveled with BIOCHM 7376). Employs the use of computer-based interactive molecular graphics and sequence analysis software to analyze the three dimensional structures of macromolecules.

**Credit Hours:** 3

**Prerequisites:** CHEM 2110

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**BIOCHM 4385: Problems in Biochemistry**

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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**BIOCHM 4510: Single Molecule Biophysics**

(same as PHYSCS 4510; cross-leveled with BIOCHM 7510, PHYSCS 7510). The course provides an overview of the biophysics of enzymes, nucleic acids and the cytoskeleton. Topics covered will include diffusion, molecular motors, polymerization and the cytoskeleton and the polymer properties of nucleic acids and microtubules.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**BIOCHM 4950: Advanced Undergraduate Research in Biochemistry**

Research credit for students doing an independent research project under the guidance of a faculty member. Project must be arranged by student and faculty member prior to registration. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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**BIOCHM 4964: Industrial Internship with ABC Laboratories**

This 5-credit course is a school and field-based learning experience combining the study, observation, and employment with ABC Laboratories in Columbia, MO. The internship provides opportunities to apply skills, concepts and theories about biochemistry and analytical chemistry in a practical context. The purpose of the internship experience is to provide the intern with the opportunity to develop knowledge and skills deemed desirable for a career in the biotechnology industries. During the time indicated in this agreement for the internship experience, the intern is expected to become a productive employee of ABC Laboratories. This course will provide technical instruction on commonly used laboratory skills and instrumentation at the University of Missouri followed by technical instruction on software and instrumentation at ABC Laboratories. After the training period, the interns will have the opportunity to work at ABC Laboratories full time for the summer.

**Credit Hours:** 5

**Prerequisites or Corequisites:** BIOCHEM 4272, CHEM 3200

**Prerequisites:** BIOCHM 1090, BIOCHM 2484, BIOCHM 4270

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**BIOCHM 4970: Senior Capstone in Biochemistry**

Problem-based course on fundamental concepts of biochemistry. Requires written and oral presentations. One of two capstone courses required for biochemistry majors. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Departmental consent required

**Recommended:** Corequisite of BIOCHM 4974

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**BIOCHM 4974: Biochemistry Laboratory**

(cross-leveled with BIOCHM 7274). Techniques course involving analytical experiments with carbohydrates, lipids, proteins, nucleic acids; use of instrumentation in biochemistry; purification and kinetics of enzymes. One of two capstone courses required for biochemistry majors.

**Credit Hours:** 5

**Prerequisites or Corequisites:** BIOCHM 4272

**Corequisites:** BIOCHM 4970

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**BIOCHM 4974H: Biochemistry Laboratory - Honors**

(cross-leveled with BIOCHM 7274). Techniques course involving analytical experiments with carbohydrates, lipids, proteins, nucleic

acids; use of instrumentation in biochemistry; purification and kinetics of enzymes. One of two capstone courses required for biochemistry majors.

**Credit Hours:** 5

**Prerequisites or Corequisites:** BIOCHM 4272; Honors eligibility required

**Corequisites:** BIOCHM 4970

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**BIOCHM 4974W: Biochemistry Laboratory - Writing Intensive**

(cross-leveled with BIOCHM 7274). Techniques course involving analytical experiments with carbohydrates, lipids, proteins, nucleic acids; use of instrumentation in biochemistry; purification and kinetics of enzymes. One of two capstone courses required for biochemistry majors.

**Credit Hours:** 5

**Prerequisites or Corequisites:** BIOCHM 4272

**Corequisites:** BIOCHM 4970

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**BIOCHM 4978: Cancer Biology**

(same as BIO\_SC 4978; cross-leveled with BIOCHM 7978, BIO\_SC 7978). The cellular and molecular basis of cancer, with emphasis on the application of genomics, proteomics, and genetic manipulations in model organisms to the study of cancer biology.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200 and BIO\_SC 2300 or BIOCHM 4270

**Recommended:** BIO\_SCI 4976 or BIOCHM 4272

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**BIOCHM 4996H: Honors Thesis Research in Biochemistry**

Laboratory research for honors students doing an honors thesis research project in their final two semesters. Enrollment limited to Honors eligible students with senior standing who have CAFNR honors approval. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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**BIOCHM 7085: Problems in Biochemistry**

Problems in Biochemistry.

**Credit Hour:** 1-6

**Prerequisites:** Consent of Director of Graduate Studies required

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**BIOCHM 7270: Biochemistry**

(cross-leveled with BIOCHM 4270). First semester of comprehensive biochemistry course: metabolic pathways, amino acids/proteins, carbohydrates, lipids, nucleic acids, kinetics, energy requirements, metabolic regulation in living cells.

**Credit Hours:** 3

**Prerequisites:** CHEM 2110

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**BIOCHM 7272: Biochemistry**

(cross-leveled with BIOCHM 4272). Second semester of a comprehensive biochemistry course, including metabolism of carbohydrates, fatty acids, steroids, amino acid synthesis and metabolism, molecular genetics, hormones, photosynthesis and integrated metabolism.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 7270

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**BIOCHM 7274: Biochemistry Laboratory**

Techniques course involving analytical experiments with carbohydrates, lipids, proteins, nucleic acids; use of instrumentation in biochemistry; radioisotope tracers in metabolism; isolation, purification and kinetics of enzymes.

**Credit Hours:** 5

**Corequisites:** concurrent enrollment in BIOCHM 7270

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**BIOCHM 7376: Computer Assisted Sequence Analysis and Molecular Modeling**

(cross-leveled with BIOCHM 4376). This course uses advanced computer graphics and computational techniques to analyze protein and nucleic acid sequences and their three-dimensional structures.

**Credit Hours:** 2

**Prerequisites:** CHEM 2110

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**BIOCHM 7510: Single Molecule Biophysics**

(same as PHYSCS 7510; cross-leveled with BIOCHM 4510, PHYSCS 4510). The course provides an overview of the biophysics of enzymes, nucleic acids and the cytoskeleton. Topics covered will include diffusion, molecular motors, polymerization and the cytoskeleton and the polymer properties of nucleic acids and microtubules.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**BIOCHM 7978: Cancer Biology**

(same as BIO\_SC 7978). The course will cover major molecular and cellular aspects of cancer. Students will read original research articles, present overviews and lead class discussions.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 4270, BIO\_SC 2300 and BIO\_SC 4976

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**BIOCHM 8060: Ethical Conduct of Research**

(same as BIO\_SC 8060). Discussion of ethical issues in biological research, including the rules and conventions for appropriate research conduct. Graded on S/U basis only.

**Credit Hour:** 1

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**BIOCHM 8090: Research in Biochemistry**

Research in biochemistry for qualified students, with counsel of faculty. Includes preparation of dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** Consent of Director of Graduate Studies required

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**BIOCHM 8120: Advanced Medicinal Plant Science**

Presentation of core topics in pharmacognosy, including an overview of plant groups with medicinal properties, essentials of botanical nomenclature, Overview of pharmacological activities of plant-sourced products and evidence-based research, phytochemical variation and significance, important biochemical pathways, origins of secondary metabolites, some major groups of phytochemicals, observations on economic and social trends in the use of medicinal plant products in developed and developing countries, overview of modern technology, high throughput screening, bioinformatics. Considerable exposure to



key articles in journals, based on internationally accepted text (Trease & Evans), exposure to online databases - all sources of information that facilitate evidence-based research involving medicinal plants. Content of world-wide application. Has considerable international flavor and directly applicable to medicinal flora world-wide. The course facilitates students to be independent learners and critical thinkers in this important knowledge area (of value to diverse academic backgrounds). The important role of collaborative inter-disciplinary studies is also emphasized. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CHEM 1100 or CHEM 1320 or BIOCHM 1090 and BIO\_SC 1200 or BIO\_SC 1500 or the equivalent of these courses for non-MU students

**Recommended:** A Freshman level course in the Life Sciences or General Botany will also be advantageous but not essential

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### **BIOCHM 8130: Commercial Use of Biodiversity**

Biological diversity/biodiversity - provides the basis for life on earth. The variability among living organisms and among the ecological complexes of which they are part - forms the basis of many commercial products and underpins our very existence by providing essential ecosystem services e.g. water purification, prevention of soil erosion and floods, and regulation of the climate. But biodiversity is declining. The rapidly growing demand for access to genetic resources, is raising the commercial value of biological diversity (especially plant diversity) for providing new genetic resources for enhancing existing crops species, developing new crops, phytopharmaceuticals, botanical medicines, horticulture - via GMO and plant breeding technologies. The course will address the commercial use of biodiversity - access to genetic resources and benefit-sharing via the following topics: Regulating access to genetic resources and benefit-sharing (legal aspects); Natural products and the pharmaceutical industry; Botanical medicine industry; Development of major crops by the seed industry; Horticulture; Crop protection; Biotechnology in fields other than healthcare and agriculture; Natural personal care and cosmetics industry; Industry and the Convention on Biodiversity (CBD). The areas of Technical Barriers to Trade (TBT) and the Regulatory Frameworks that govern the release of new crops and other plant-based products will also be addressed. Course is of world-wide appeal, facilitated by being 100% online and asynchronous (independent of time zones). This course is recommended (as an elective) for students desiring more understanding of the complexities associated with the commercial use of biodiversity (specifically the commercial use of genetic resources). Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Experience in some undergraduate course work in the life-science area would be advantageous

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### **BIOCHM 8240: Introduction to Graduate Biochemistry I**

Introduction to biochemistry for life science graduate students. Core course for Biochemistry students. Structures and interactions of biological macromolecules including thermodynamics, binding, enzyme action and biological membranes as well as techniques of analysis and structure determination.

**Credit Hours:** 4

**Prerequisites:** Undergraduate organic chemistry plus undergraduate biochemistry or molecular biology, their equivalent or permission of instructor

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### **BIOCHM 8260: Macromolecular Systems Integration**

To introduce graduate students to biochemistry at the graduate level with particular emphasis on genomics/gene expression and replication; proteomics/cell signaling and metabolism. Course graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** BIOCHM 8240

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### **BIOCHM 8362: Introduction to Plant Metabolism**

(same as PLNT\_S 8362 and BIO\_SC 8362). This course is part of a series that aims to provide a solid conceptual foundation in interdisciplinary plant biology for graduate students with a research emphasis in plant biology. This course examines the basic concepts and techniques used to understand plant metabolism. Graded on A-F basis only.

**Credit Hours:** 2

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### **BIOCHM 8365: Introduction to Molecular Cell Biology**

(same as BIO\_SC 8365 and PLNT\_S 8365). This course is part of a series that aims to provide a solid conceptual foundation in interdisciplinary plant biology for graduate students with a research emphasis on plant biology. This course examines the basic concepts and techniques used to understand molecular cell biology. Graded on A-F basis only.

**Credit Hours:** 2

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### **BIOCHM 8432: Enzymology and Metabolic Regulation**

A basic introduction to the study of enzymes and their role in intermediary metabolism. Topics include enzyme kinetics, mechanisms of enzymatic catalysis and control of metabolic pathways.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 7272

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### **BIOCHM 8434: Signaling in Molecular Cell Biology**

The objective of this course is to provide important foundations in cellular signaling in the context of biochemistry and cell biology for first and second year graduate students. The course focuses on cell-to-cell communication and intracellular signaling via different classes of cell surface receptors using specific receptor paradigms from human, other animals, plants, yeast and E.coli. Primary literature will be used for in-class discussions and homework assignments to highlight key experiments and introduce students to relevant experimental techniques. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** BIO\_SC 2300, BIOCHM 4270

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### **BIOCHM 8450: Rotation Research**

Introductory laboratory research. Graded on A-F basis only. Normally 1 hour per advisor per semester, two-1 hour sections can be taken per semester.

**Credit Hour:** 1-2

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### **BIOCHM 9001: Topics in Biochemistry**

Experimental courses, highly specialized topics taught infrequently or courses taught by visiting professors.

**Credit Hour:** 1-9

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**BIOCHM 9087: Seminar in Biochemistry**

Review of current literature; individual presentation of research or classical science topics.

**Credit Hour:** 1

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**BIOCHM 9090: Research in Biochemistry**

Research in biochemistry for qualified students, with counsel of faculty. Includes preparation of dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**BIOCHM 9432: Molecular Biology II**

(same as MICROB and BIO\_SC 9432) Detailed experimental analysis of eukaryotic cellular and molecular biology relevant to cellular and viral gene expression, post-transcriptional and post-translational modifications and genome replication. Models for developmental genetic analysis and genetic determinants controlling developmental processes utilizing the current literature will be examined.

**Credit Hours:** 4

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**BIOCHM 9462: Hormone Action**

A lecture course with weekly assigned readings. Topics will include: a description of selected polypeptide, steroid and other hormones and their biological effects; receptors; second messengers; protein phosphorylation in hormone mediation; growth factors; cellular oncogenes.

**Credit Hours:** 2

**Prerequisites:** BIOCHM 7272

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**BIOCHM 9468: Molecular Biology of Plant Growth and Development**

(same as BIO\_SC 9468). Molecular biology of plant hormones, signal transduction, environmental signals.

**Credit Hours:** 3

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## Biological Engineering (BIOL\_EN)

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**BIOL\_EN 1000: Introduction to Biological Engineering**

For first semester engineering students. Develop appreciation for professional engineering. Students will participate with senior design students to conceptualize a case-study problem.

**Credit Hour:** 1-2

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**BIOL\_EN 2000: Professional Development in Engineering**

(same as BME 2000). A review of professional opportunities, registration, ethics, and societies. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** sophomore standing

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**BIOL\_EN 2007: World of Neuroscience**

(same as BME 2007, CMP\_SC 2007, ECE 2007). This in-class course will introduce undergraduates to the growing area of neuroscience from the perspectives of three disciplines: engineering, biology and psychology. Topics in the course will span multiple levels of neuroscience

including genomic, genetic, molecular, cellular, systems, behavioral and clinical levels. Due to the interdisciplinary nature of the neuroscience, the classes will cover diverse topics. The topics will range from overviews of the key neurobiology areas, to lab sessions involving how to analyze your own brain signals (EEG), and to visits to brain imaging center and EEG lab. The overall goal is to provide a broad exposure to the fascinating world of interdisciplinary neuroscience. Graded on A-F basis only.

**Credit Hour:** 1

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**BIOL\_EN 2080: Introduction to Programming for Engineers**

(same as BME 2080). This course teaches how to write scientific programs for analysis of data and simulation of physical phenomena using Matlab. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1500

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**BIOL\_EN 2180: Engineering Analysis of Bioprocesses**

(same as BME 2180). Material and Energy Balances. Integrating principles of physics, chemistry and mathematics to analyze steady state and transient biological/biomedical processes. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1700, CHEM 1320, PHYSICS 2750. Restricted to Biological Engineering students only

**Recommended:** BIOL\_EN 2080

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**BIOL\_EN 2600: Sustainability Foundations: An Introduction to Sustainability**

(same as ENV\_SC 2600). This course introduces fundamental concepts of sustainability from sustainable development to sustainability science. It focuses on human-environment systems, the characteristics of these systems, and patterns of change. Course materials interrogate taken-for-granted assumptions that shape human relationships with the natural world. You will learn to identify common dynamics leading to social and environmental problems with the aim of identifying alternative actions (solutions) for transitioning towards sustainability. Sustainability integrates the social and biophysical sciences; and implementing solutions requires the integration of the social justice, the arts, and humanities. Through a variety of interdisciplinary perspectives and frameworks, you will learn about current sustainability research and be able to develop an understanding of what sustainability means to you and your field of study. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**BIOL\_EN 2600H: Sustainability Foundations: An Introduction to Sustainability - Honors**

(same as ENV\_SC 2600). This course introduces fundamental concepts of sustainability from sustainable development to sustainability science. It focuses on human-environment systems, the characteristics of these systems, and patterns of change. Course materials interrogate taken-for-granted assumptions that shape human relationships with the natural world. You will learn to identify common dynamics leading to social and environmental problems with the aim of identifying alternative actions (solutions) for transitioning towards sustainability. Sustainability integrates the social and biophysical sciences; and implementing solutions requires the integration of the social justice, the arts, and humanities. Through a variety of interdisciplinary perspectives and frameworks, you will

learn about current sustainability research and be able to develop an understanding of what sustainability means to you and your field of study. Graded on A-F basis only. Honors eligibility required

**Credit Hours:** 3  
**Prerequisites:** sophomore standing

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**BIOL\_EN 3070: Biological Fluid Mechanics**  
(same as BME 3070). Basic principles of fluid mechanics applied to transport processes in biological systems. Graded on A-F basis only.

**Credit Hours:** 3  
**Prerequisites:** PHYSCS 2750 and MATH 1700

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**BIOL\_EN 3075: Introduction to Materials Engineering**  
(same as BME 3075, CH\_ENG 3075). Course covers concepts and techniques in materials engineering from an engineering design perspective, materials requirements for design, and fundamentals; intended for undergraduate engineering students. Graded on A-F basis only.

**Credit Hours:** 3  
**Prerequisites or Corequisites:** One of the following BIOL\_EN 3180, CH\_ENG 3234, MAE 4231, MAE 4300, or instructor consent  
**Prerequisites:** MATH 2300, ENGINR 1200

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**BIOL\_EN 3170: Biomaterials**  
(same as BME 3170). Engineering sciences and design will be leverage for the study and design of biomaterials. Understanding the structure-property relationship between biomaterials and tissue will be addressed for implant design.

**Credit Hours:** 3  
**Prerequisites:** BIOL\_EN 3075 or BME 3075  
**Corequisites:** BIOL\_EN 2180, ENGINR 2200 or instructor's consent

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**BIOL\_EN 3170W: Biomaterials - Writing Intensive**  
(same as BME 3170W). Engineering sciences and design will be leverage for the study and design of biomaterials. Understanding the structure-property relationship between biomaterials and tissue will be addressed for implant design.

**Credit Hours:** 3  
**Prerequisites:** BIOL\_EN 3075 or BME 3075  
**Corequisites:** BIOL\_EN 2180, ENGINR 2200 or instructor's consent

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**BIOL\_EN 3180: Heat and Mass Transfer in Biological Systems**  
(same as BME 3180). Principles of heat and mass transfer and their applications in biomedical, bioenvironmental, and bioprocessing engineering.

**Credit Hours:** 3  
**Prerequisites or Corequisites:** ENGINR 2300 or CH\_ENG 3261  
**Prerequisites:** BIOL\_EN 2180 or CH\_ENG 2225

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**BIOL\_EN 4001: Topics in Biological Engineering**  
Current and new technical developments in biological engineering.

**Credit Hour:** 3-9

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**BIOL\_EN 4001H: Topics in Biological Engineering - Honors**  
Current and new technical developments in biological engineering.

**Credit Hour:** 3-9  
**Prerequisites:** Honors eligibility required

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**BIOL\_EN 4070: Bioelectricity**  
(cross-leveled with BIOL\_EN 7070). Application of engineering approaches to understand bioelectricity at the cellular level including the equivalent circuit of cell membranes and the electronic design of patch-clamp amplifiers.

**Credit Hours:** 3  
**Prerequisites:** PHYSCS 2760 and BIOL\_EN 3180

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**BIOL\_EN 4075: Brain Signals and Brain Machine Interfaces**  
(same as BME 4075; cross-leveled with BIOL\_EN 7075). The course introduces state-of-the-art technologies for monitoring and manipulating brain activity, as well as the design principles of modern brain-machine interfaces (BMIs) for interacting with the brain in health and disease. Graded on A-F basis only.

**Credit Hours:** 3  
**Prerequisites:** BIOL\_EN 4070 or instructor's consent

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**BIOL\_EN 4085: Problems in Biological Engineering**  
Supervised independent study at the undergraduate level.

**Credit Hour:** 1-5  
**Prerequisites:** instructor's consent

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**BIOL\_EN 4150: Soil and Water Conservation Engineering**  
(same as CV\_ENG 4710; cross-leveled with BIOL\_EN 7150, CV\_ENG 7710). Urban and rural run-off and erosion analysis. Design and layout of erosion control structures.

**Credit Hours:** 3  
**Recommended:** BIOL\_EN 2180 or CV\_ENG 3200

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**BIOL\_EN 4160: Food Process Engineering**  
(cross-leveled with BIOL\_EN 7160). Food engineering is an interdisciplinary field that connects agricultural and biological engineering, chemical engineering, food science, biochemistry, human nutrition, and other fields involving food systems to improve the health of people and planet. The course introduces underlying engineering principles in food processing, and unit operations in food industries. Topics include fluid flow, heat transfer in food processing, preservation process, dehydration, refrigeration, food freezing, psychrometrics, food packaging, emerging technologies, and sustainability.

**Credit Hours:** 3  
**Prerequisites:** BIOL\_EN 3180

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**BIOL\_EN 4170: Biomaterials Interfaces of Implantable Devices**  
(same as BME 4170; cross-leveled with BIOL\_EN 7170). Surface structures and properties to improve biocompatibility will be studied. Engineering sciences and design will be leverage in the design of an improved biocompatible surface.

**Credit Hours:** 3  
**Prerequisites:** BIOL\_EN 3170

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**BIOL\_EN 4231: Transport Phenomena in Materials Processing**

(same as MAE 4231; cross-leveled with BIOL\_EN 7231, MAE 7231).

Applications of fluid flow, heat transfer, and mass transfer in steady-state and unsteady-state materials processing with applications to metals, polymers, and ceramics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MAE 4300

**Prerequisites:** C- or better in Math 4100

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**BIOL\_EN 4250: Irrigation and Drainage Engineering**

(same as CV\_ENG 4740; cross-leveled with BIOL\_EN 7250). Soil, water, plant relationships. Water supplies and design of surface, sprinkler and drip irrigation systems. Surface and tile drainage.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3700 or MAE 3400 or BIOL\_EN 2180

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**BIOL\_EN 4270: Design of Experiments and Statistical Quality Control for Process Engineers**

(same as CH\_ENG 4270; cross-leveled with BIOL\_EN 7270, CH\_ENG 7270). A practical statistical tool box for experimenters including comparison of process means, effects of variables, design and interpretation of factorial experiments, and statistical quality control.

**Credit Hours:** 3

**Recommended:** experience with Excel or instructor's consent

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**BIOL\_EN 4310: Feedback Control Systems**

(same as ECE 4310, MAE 4750; cross-leveled with BIOL\_EN 7310, ECE 7310, MAE 7750). System modeling and time and frequency response, closed loop control, stability, continuous system design, introduction to discrete time control, software and hardware experiments on compensator design and PID control. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 4100 and junior/senior standing

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**BIOL\_EN 4315: Principles of Biochemical Engineering**

(same as CH\_ENG 4315; cross-leveled with BIOL\_EN 7315, CH\_ENG 7315). This course serves as an introduction to the application of biological, biochemical, and engineering fundamentals for biochemical processing. Topics include biological basics, enzyme kinetics, metabolic pathways, cell growth kinetics, analysis of intracellular flux, thermodynamics of biological reactions, and bioreactor design and modeling. Analyses proceed through the use of mass balances, energy balances, and empirical or theoretical models.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 2180 (for Biological Engineering students) or CH\_ENG 2225 (for Chemical Engineering students) or Instructor's consent

**Recommended:** BIOL\_EN 3180 (for Biological Engineering students) or CH\_ENG 3234 (for Chemical Engineering students) as a prerequisite or a co-requisite

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**BIOL\_EN 4316: Biomass Refinery Operations**

(same as CH\_ENG 4316; cross-leveled with BIOL\_EN 7316, CH\_ENG 7316). Design and operation of processes for conversion and/or

fractionation of biomass and associated upstream and downstream unit operations. Emphasis on separations and product recovery.

**Credit Hours:** 3

**Recommended:** BIOL\_EN 2180 or CH\_ENG 2225 (for Chemical Engineering students) or instructor's consent

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**BIOL\_EN 4350: Watershed Modeling Using GIS**

(same as CV\_ENG 4720; cross-leveled with BIOL\_EN 7350, CV\_ENG 7720). Watershed evaluation using AVSWAT for hydrology, sediment yield, water quality; includes USLE, MUSLE, WEPP. Procedures for model calibration/sensitivity data analysis.

**Credit Hours:** 3

**Recommended:** BIOL\_EN 2180 or CV\_ENG 3200 or instructor's consent

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**BIOL\_EN 4360: Biomanufacturing Technologies**

(same as BME 4360). This course is an introduction to biomanufacturing technologies and processes for manufacturing biological products (e.g., vaccine, antibodies, and therapeutic proteins). It mainly covers process development, unit operations, product evaluation, facilities, and regulatory compliance. It is an interdisciplinary course of biochemistry, microbiology, and engineering. The purpose of this course is to help the students acquire the knowledge of modern biomanufacturing and prepare them for rapidly growing fields in biomanufacturing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 2180 and BIOL\_EN 3180 (for biological engineering students) -or- CH\_ENG 2225 and CH\_ENG 3234 (for chemical engineering students) -or- Consent of instructor

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**BIOL\_EN 4370: Orthopaedic Biomechanics**

(same as BME 4370; cross-leveled with BIOL\_EN 7370). Engineering sciences will be leverage to create a comprehensive study of orthopaedic biomechanics. The tissue mechanics of bone and soft tissue will be studied along with applying structural analysis of the musculoskeletal system. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 3075

**Recommended:** ENGINR 1200 and BIOL\_EN 3170

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**BIOL\_EN 4380: Applied Electronic Instrumentation**

(same as BME 4380; cross-leveled with BIOL\_EN 7380). Fundamental concepts and theories, basic electronics, analog and digital circuits, signal conditioning, computer interfacing, measurement principles and techniques used in developing computer-based instrumentation systems. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** PHYSCS 2750

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**BIOL\_EN 4420: Introduction to Biomedical Imaging**

(same as BME 4420, PHYSCS 4420; cross-leveled with BIOL\_EN 7420, PHYSCS 7420). This course offers a broad introduction to medical imaging. Topics to be covered include the physics basics and instrumentation of X-ray CT, PET, SPECT, ultrasound, MRI and Optical Imaging, as well as recent developments in biomedical imaging.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**BIOL\_EN 4470: Biomolecular Engineering and Nanobiotechnology**

(same as BME 4470; cross-leveled with BIOL\_EN 7470). Generation of biotechnological products, devices through integration of engineering approaches with contemporary biology, chemistry and nanotechnology starting at the molecular level. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1700, PHYSCS 2760, CHEM 2100

**Recommended:** Senior/graduate standing or instructor's consent

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**BIOL\_EN 4470H: Biomolecular Engineering and Nanobiotechnology - Honors**

(cross-leveled with BIOL\_EN 7470). Generation of biotechnological products, devices through integration of engineering approaches with contemporary biology, chemistry and nanotechnology starting at the molecular level. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1700, PHYSCS 2760, CHEM 2100. Honors eligibility required

**Recommended:** Senior/graduate standing or instructor's consent

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**BIOL\_EN 4480: Physics and Chemistry of Materials**

(same as PHYSCS 4190, CHEM 4490, NU\_ENG 4319 BME 4480; cross-leveled with BIOL\_EN 7480, PHYSIC 7190, CHEM 7490, NU\_ENG 7319). Physics and Chemistry of Materials is a 3 credit hours course offered every spring semester for students from Physics, Chemistry, Engineering and Medical Departments and consists of lectures, laboratory demonstrations, two mid-term and one final exam. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2750, CHEM 1320 or equivalent, or instructor's consent

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**BIOL\_EN 4540: Neural Models and Machine Learning**

(same as BME 4540, CMP\_SC 4540, ECE 4540; cross-leveled with CMP\_SC 7540, ECE 7540, BIOL\_EN 7540). The projects-based course has three inter-linked components: (I) math models of neurons and neural networks, (II) machine learning in neuroscience, after a brief introduction to python and (III) software automation and cyberinfrastructure to support neuroscience. Extensive projects focusing on software automation and machine learning components, with brief in-class presentations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1500 or consent of instructor

**Recommended:** Introductory software programming, and introductory cell biology or consent of instructor

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**BIOL\_EN 4570: Fluorescent Imaging**

(same as BME 4570; cross-leveled with BIOL\_EN 7570). Principles and applications of fluorescent imaging. The course covers: Image formation in microscope; Fundamentals of fluorescence and fluorescent microscopy; molecular and cellular fluorescent imaging.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1500 and BIOL\_EN 2180 or instructor's consent

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**BIOL\_EN 4590: Computational Neuroscience**

(same as BIO\_SC 4590, ECE 4590, BME 4590; cross-leveled with BIOL\_EN 7590, BIO\_SC 7590, ECE 7590). An interdisciplinary course with a strong foundation in quantitative science for students in biological-behavioral sciences. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1010, BIO\_SC 1500; MATH 1500

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**BIOL\_EN 4770: Biomedical Optics**

(same as BME 4770, cross-leveled with BIOL\_EN 7770). Essential concepts and methods for applying optical techniques to biomedical diagnosis and therapy will be covered with major application examples being discussed.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

**Recommended:** BIOL\_EN 3180

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**BIOL\_EN 4940: Engineering Internship**

(same as BME 4940). Problem course following prior approved work experience. Problem selected by internship company representative, faculty problem adviser and student. Supervised by faculty problem advisor and presented in engineering report form. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** advisor's consent

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**BIOL\_EN 4970: Nuclear Magnetic Resonance and Magnetic Resonance Imaging**

(same as BME 4970). Nuclear Magnetic Resonance (NMR) is one of the most powerful methods of investigating the structure, composition, and dynamics of atoms and molecules. It is now ubiquitous in chemistry and engineering labs, and has blossomed into one of the most successful medical imaging modalities - Magnetic Resonance Imaging (MRI). This course is an in-depth examination of the relevant physical principles behind this technology: basic spin physics, spectrometer design and implementation, what it can be used to measure, and how it is currently being used in laboratory and clinical settings. In particular, students will gain a working knowledge of basic nuclear physics, spin precession, T1 and T2 weighting mechanisms, the pulse/acquire NMR experiment, the influence of magnetic field gradients, Fourier theory and k-space, imaging principles, and the many pulse sequences currently employed in NMR/MRI research labs around the world. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Senior Standing or Instructor Consent

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**BIOL\_EN 4980: Bioengineering Design I**

(same as BME 4980). Capstone design course for Biological Engineering or Biomedical Engineering major. Design of devices or processes for biological or biomedical applications.

**Credit Hours:** 3

**Prerequisites:** ENGINR 1100 or MAE 1100, ENGINR 2200, and BIOL\_EN 3180 or BME 3180, or instructor's consent

**Corequisites:** BIOL\_EN 4380 or BME 4380

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**BIOL\_EN 4980W: Bioengineering Design I - Writing Intensive**  
(same as BME 4980W). Capstone design course for Biological Engineering or Biomedical Engineering major. Design of devices or processes for biological or biomedical applications.

**Credit Hours:** 3

**Prerequisites:** ENGINR 1100 or MAE 1100, ENGINR 2200, and BIOL\_EN 3180 or BME 3180, or instructor's consent

**Corequisites:** BIOL\_EN 4380 or BME 4380

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**BIOL\_EN 4985: Bioengineering Design II**

(same as BME 4985). Second term of capstone, senior design course for the Biomedical Engineering major. Design of biological system devices or processes. Includes prototyping and testing of design. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** BIOL\_EN 4980 or BME 4980

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**BIOL\_EN 4990: Undergraduate Research in Biological Engineering**

Supervised independent study at the undergraduate level.

**Credit Hour:** 1-5

**Prerequisites:** instructor's consent

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**BIOL\_EN 4995: Undergraduate Honors Research in Biological Engineering**

Open only to honor students in Biological Engineering. Independent investigation in biological engineering to be presented as a thesis.

**Credit Hour:** 1-5

**Prerequisites:** advisor's consent

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**BIOL\_EN 4995H: Undergraduate Honors Research in Biological Engineering**

Open only to honor students in Biological Engineering. Independent investigation in biological engineering to be presented as a thesis.

**Credit Hour:** 1-5

**Prerequisites:** advisor's consent. Honors eligibility required

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**BIOL\_EN 7001: Topics in Biological Engineering**

Study of advanced developments in biological engineering.

**Credit Hour:** 1-3

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**BIOL\_EN 7070: Bioelectricity**

(cross-leveled with BIOL\_EN 4070). Application of engineering approaches to understand bioelectricity at the cellular level including the equivalent circuit of cell membranes and the electronic design of patch-clamp amplifiers. Prerequisites: PHYSCS 2760 and BIOL\_EN 3180 or instructor's consent

**Credit Hours:** 3

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**BIOL\_EN 7075: Brain Signals and Brain Machine Interfaces**

(cross-leveled with BIOL\_EN 4075, BME 4075). The course introduces state-of-the-art technologies for monitoring and manipulating brain activity, as well as the design principles of modern brain-machine interfaces (BMIs) for interacting with the brain in health and disease. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**BIOL\_EN 7150: Soil and Water Conservation Engineering**

(same as CV\_ENG 7710; cross-leveled with BIOL\_EN 4150, CV\_ENG 4150). Urban and rural run-off and erosion analysis. Design and layout of erosion control structures.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 2180 or CV\_ENG 3200, or instructor's consent

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**BIOL\_EN 7160: Food Process Engineering**

(cross-leveled with BIOL\_EN 4160). Food engineering is an interdisciplinary field that connects agricultural and biological engineering, chemical engineering, food science, biochemistry, human nutrition, and other fields involving food systems to improve the health of people and planet. The course introduces underlying engineering principles in food processing, and unit operations in food industries. Topics include fluid flow, heat transfer in food processing, preservation process, dehydration, refrigeration, food freezing, psychrometrics, food packaging, emerging technologies, and sustainability.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 3180 or instructor's consent

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**BIOL\_EN 7170: Biomaterials Interfaces of Implantable Devices**

(cross-leveled with BIOL\_EN 4170, BME 4170). Surface structures and properties to improve biocompatibility will be studied. Engineering sciences and design will be leverage in the design of an improved biocompatible surface.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 3170 or instructor's consent

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**BIOL\_EN 7250: Irrigation and Drainage Engineering**

(cross-leveled with BIOL\_EN 4250). Soil, water, plant relationships. Water supplies and design of surface, sprinkler and drip irrigation systems. Surface and tile drainage.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3700 or MAE 3400 or BIOL\_EN 2180

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**BIOL\_EN 7310: Feedback Control Systems**

(same as ECE 7310, MAE 7750; cross-leveled with ECE 4310, BIOL\_EN 4310, MAE 4750). System modeling and time and frequency response, closed loop control, stability, continuous system design, introduction to discrete time control, software and hardware experiments on compensator design and PID control. Graded A-F only. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** MATH 4100

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**BIOL\_EN 7315: Introduction to Bioprocess Engineering**

(same as CH\_ENG 7315; cross-leveled with BIOL\_EN 4315, CH\_ENG 4315). This course serves as an introduction to the application of biological, biochemical, and engineering fundamentals for biochemical processing. Topics include biological basics, enzyme kinetics, metabolic pathways, cell growth kinetics, analysis of intracellular flux, thermodynamics of biological reactions, and bioreactor design and

modeling. Analyses proceed through the use of mass balances, energy balances, and empirical or theoretical models.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 2180 (for Biological Engineering students) or CH\_ENG 2225 (for Chemical Engineering students) or Instructor's consent

**Recommended:** BIOL\_EN 3180 (for Biological Engineering students) or CH\_ENG 3234 (for Chemical Engineering students) as a prerequisite or a co-requisite

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### **BIOL\_EN 7316: Biomass Refinery Operation**

(same as CH\_ENG 7316; cross-leveled with BIOL\_EN 4316, CH\_ENG 4316). Design and operation of processes for conversion and/or fractionation of biomass and associated upstream and downstream unit operations. Emphasis on separations and product recovery.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 2180 or CH\_ENG 2225 or instructor's consent

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### **BIOL\_EN 7350: Watershed Modeling Using GIS**

(same as CV\_ENG 7720; cross-leveled with BIOL\_EN 4350, CV\_ENG 4720). Watershed evaluation using AVSWAT for hydrology, sediment yield, water quality; includes USLE, MUSLE, WEPP, Procedures for model calibration/sensitivity data analysis.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 2180 or CV\_ENG 3200 or instructor's consent

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### **BIOL\_EN 7370: Orthopaedic Biomechanics**

(same as V\_M\_S 7370; cross-leveled with BIOL\_EN 4370). Engineering sciences will be leverage to create a comprehensive study of orthopaedic biomechanics. The tissue mechanics of bone and soft tissue will be studied along with applying structural analysis of the musculoskeletal system. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGINR 1200 and BIOL\_EN 3170, instructor's consent required

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### **BIOL\_EN 7380: Applied Electronic Instrumentation**

(cross-leveled with BIOL\_EN 4380; BME 4380). Fundamental concepts and theories, basic electronics, analog and digital circuits, signal conditioning, computer interfacing, measurement principles and techniques used in developing computer-based instrumentation systems. Graded on A-F basis only..

**Credit Hours:** 4

**Prerequisites:** PHYSCS 2750

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### **BIOL\_EN 7420: Introduction to Biomedical Imaging**

(same as PHYSCS 7420; cross-leveled with BIOL\_EN 4420, BME 4420, PHYSCS 4420). This course offers a broad introduction to medical imaging. Topics to be covered include the physics basics and instrumentation of X-ray CT, PET, SPECT, ultrasound, MRI and Optical Imaging, as well as recent developments in biomedical imaging, as well as recent developments in biomedical imaging.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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### **BIOL\_EN 7450: Environmental Hydrology**

(same as ENV\_SC 7450; cross-leveled with ENV\_SC 4450, BIOL\_EN 4450). This course provides an understanding, and the roles of natural processes and anthropogenic factors influencing the occurrence and the movement of water. Students will learn the quantitative basis of hydrology, which will help them to appreciate the scientific approach to understanding the observed phenomena. The material presented will provide sufficient knowledge for students to evaluate hydrologic processes associated with environmental systems and to develop conceptual evaluations that are part of water and natural resource assessments. Learning objectives: 1. Describe basic mechanisms and variables of hydrologic fluxes and states 2. Describe and define different mathematical formulations of hydrologic fluxes and states 3. Understand key components of a watershed model 4. Analyze, synthesize and interpret hydrologic data.

**Credit Hours:** 3

**Prerequisites:** MATH 1100, MATH 1400 and STAT 1300 or consent of the instructor

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### **BIOL\_EN 7470: Biomolecular Engineering and Nanobiotechnology**

(cross-leveled with BIOL\_EN 4470; BME 4470). Generation of biotechnological products, devices through integration of engineering approaches with contemporary biology, chemistry and nanotechnology starting at the molecular level. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1700, PHYSCS 2760, CHEM 2100

**Recommended:** Senior/graduate standing or instructor's consent

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### **BIOL\_EN 7480: Physics and Chemistry of Materials**

(same as PHYSCS 7190, NU\_ENG 7319, CHEM 7490; cross-leveled with BIOL\_EN 4480, PHYSCS 4190, NU\_ENG 4319, CHEM 4490, BME 4480). Physics and Chemistry of Materials is a 3 credit hours course offered every spring semester for students from Physics, Chemistry, Engineering and Medical Departments and consists of lectures, laboratory demonstrations, two mid-term and one final exam. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2750, CHEM 1320 or equivalent, or instructor's consent

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### **BIOL\_EN 7540: Neural Models and Machine Learning**

(same as CMP\_SC 7540, ECE 7540; cross-leveled with BIOL\_EN 4540, CMP\_SC 4540, ECE 4540). The projects-based course has three inter-linked components: (I) math models of neurons and neural networks, (II) machine learning in neuroscience, after a brief introduction to python and (III) software automation and cyberinfrastructure to support neuroscience. Extensive projects focusing on software automation and machine learning components, with brief in-class presentations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1500 + at least Junior standing, or consent of instructor

**Recommended:** Introductory software programming, and introductory cell biology or consent of instructor

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**BIOL\_EN 7560: Observing the Earth from Space**

(same as ENV\_SC 7560; cross-leveled with BIOL\_EN 4560, ENV\_SC 4560). This course provides an understanding of the theory and application of earth observing satellite remote sensing as a tool for environmental engineering and science. The topics include the fundamentals of electromagnetic radiation, satellite and sensor technology, integration of satellite and GIS data and digital image analysis. The lectures and homework assignments at the beginning of the course provide the necessary foundation to work with satellite imagery. Students will receive training with advanced image processing software and data acquisition techniques. The course will also cover case studies using remote sensing and image analysis techniques to answer real-world problems. The lectures and homework assignments include applications in forest management, land use change detection, monitoring agricultural activities, water and air quality monitoring, climate studies, and ecology and infectious diseases. The course will cover lectures on advanced remote sensing techniques towards the end of the course. Students will work on their independent projects during the last three weeks, applying remote sensing techniques to satellite images.

**Credit Hours:** 3**Prerequisites:** MATH 1100, MATH 1400 and STAT 1300 or consent of the instructor**BIOL\_EN 7570: Fluorescent Imaging**

(cross-leveled with BIOL\_EN 4570, BME 4570). Principles and applications of fluorescent imaging. The course covers: Image formation in microscope; Fundamentals of fluorescence and fluorescent microscopy; molecular and cellular fluorescent imaging. Graded on A-F basis only.

**Credit Hours:** 3**Prerequisites:** BIO\_SC 1500 and BIOL\_EN 2180 or instructor's consent**BIOL\_EN 7590: Computational Neuroscience**

(same as BIO\_SC 7590, ECE 7590; cross-leveled with BIOL\_EN 4590, BIO\_SC 4590, ECE 4590; BME 4590). An interdisciplinary course with a strong foundation in quantitative science for students in biological-behavioral science. Graded on A-F basis only.

**Credit Hours:** 4**Prerequisites:** BIO\_SC 1010, BIO\_SC 1500; MATH 1500**BIOL\_EN 7770: Biomedical Optics**

(cross-leveled with BIOL\_EN 4770 and BME 4770). Essential concepts and methods for applying optical techniques to biomedical diagnosis and therapy will be covered with major application examples being discussed.

**Credit Hours:** 3**Prerequisites:** PHYSICS 2760 and BIOL\_EN 3180; or instructor's consent**BIOL\_EN 8000: Scientific Discovery Leading to Life Science Innovations**

(same as MPP 8000). The goal of this course is to provide participants with a conceptual and practical understanding of how life science research is conducted in a modern research institution in the US and the pathways involved in translating fundamental discoveries into products and services that affect healthcare. We will cover the transitions from initial discovery concepts to first-in-human studies, clinical trials, healthcare guidelines and policy to product development. We will

provide an introduction to essential disciplines and interactions that enable scientific discoveries to move forward into novel device and drug therapies. Participants will come away with a very complete picture of how medical research happens, including: how it is funded; what is required to make discoveries and record and protect intellectual property that is created; how to advance innovations to clinical practice, how to navigate the regulatory and bioethical environment, and how discoveries reach practitioners and benefit patients. The Course is the first in a three course sequence leading to a Graduate Certificate in Life Science Innovation and Entrepreneurship. Graded on A-F basis only.

**Credit Hours:** 3**Prerequisites:** Must be Graduate Standing or receive certificate program director's approval**BIOL\_EN 8001: Advanced Topics in Biological Engineering**

Study of advanced developments in biological engineering.

**Credit Hour:** 1-3**BIOL\_EN 8004: Regulatory Issues in Clinical Research and Clinical Trials**

(same as MPP 8004). The goal of the course is to highlight key FDA regulatory issues for conducting human clinical trials and clinical research. For clinical trials, FDA has set up several compliance programs and guidance documents as a part of human subject protection (HSP)/ Bioresearch Monitoring (BIMO) initiatives. The aim of the program was to strengthen FDA oversight and protection of subjects in clinical trials and to preserve confidentiality of data. The HSP/BIMO initiative comprehends all FDA regulated clinical trials including human drugs and biological drug products, devices, foods, and veterinary medicine. The course is designed for students in medical professions, management, biomedical engineering, and related areas. Adequate knowledge regarding FDA guidance in conducting human clinical trials and clinical research will help professionals steer drug/device development and commercialization in their respective field. This course will be offered online only. An introduction to essential disciplines for conducting clinical trials and clinical research will be provided. The basics of good clinical practices (GCPs), biostatistics and clinical epidemiology in relation to clinical trials will be presented. Several relevant case studies for conducting clinical trials, both nationally and internationally, will be discussed. The importance of data collection and data management while conducting clinical trials will be explained. Graded on A-F basis only.

**Credit Hours:** 3**Recommended:** Knowledge in biomedical sciences, clinical sciences**BIOL\_EN 8085: Problems in Biological Engineering**

Supervised individual study at the graduate level.

**Credit Hour:** 1-99**Prerequisites:** departmental consent**BIOL\_EN 8087: Seminar in Biological Engineering**

Recent investigations in biological engineering and related fields. Discussion of current literature; preparation and presentation of papers.

**Credit Hour:** 1



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**BIOL\_EN 8100: Design and Development of Biomedical Innovations**

(same as ENGINR 8100, MPP 8100). The overarching goal of this course is to help participants understand the design and development (drug or device) process in biomedical innovation. This course will help participants to understand the process of choosing unmet clinical needs, articulate a need statement without integrating solution, design and develop a solution. Participants will learn to assess the commercial potential of clinical needs by performing market analysis and valuing customer needs. A conceptual understanding about development of a prototype for a device and also drug development by different brainstorming process will be provided. Details of regulatory, reimbursement, patenting process required for product development will be explained with examples. An overview about how to evaluate preliminary designs, define product specifications, comply with manufacturing principles and methods, costs, cGMP requirements will be explained. Quality control and Quality assurance necessities for drug/device will be elucidated with case studies. Participants will gain knowledge about different business models for drug and devices, estimate market penetration and how to make profitable, patient-driven products. Graded on A-F basis only.

**Credit Hours:** 3

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**BIOL\_EN 8170: Sensors and Biosensors**

The course covers basic principles of chemical and biological sensors, such as immobilization techniques, transducers (optical, electrical, etc.) and performance factors.

**Credit Hours:** 3

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**BIOL\_EN 8180: Numerical Methods in Engineering Research**

Numerical techniques and case studies in Biological Engineering. Topics include basic numerical methods, mathematical representation of data, matrix algebra, ordinary and partial differential equations.

**Credit Hours:** 3

**Prerequisites:** MATH 4100

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**BIOL\_EN 8200: Commercialization of Life Science Innovations**

(same as MANGMT 8200). This course will provide educational content and experiences that equip course participants to navigate the main pathways for commercialization of biomedical innovations. Students will also learn how to access sources of capital for R&D and develop an understanding of the role of FDA approval and the processes for approval of different types of biomedical products. Students will become familiar with quality assurance programs required in the biomedical industry. Students will also become familiar with the most common business models for biomedical companies and the importance of product development and commercialization alliances.

**Credit Hours:** 3

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**BIOL\_EN 8230: Advanced Ceramic Materials**

(same as CH\_ENG 8230, MAE 8230). To provide an advanced level understanding between processing, properties, and microstructure of ceramic materials. Topics include crystallography, defect chemistry, transport properties, microstructure, and forming methods. Graded on A-F basis only.

**Credit Hours:** 3

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**BIOL\_EN 8250: Water Management Theory**

Advanced studies in erosion control, irrigation, and drainage. Water resources engineering.

**Credit Hours:** 3

**Prerequisites:** MATH 1500, Computer Engineering and Computer Science course, SOIL 4307 or SOIL 7307 and Soil Conservation course

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**BIOL\_EN 8280: Advanced Biological Transport Processes**

Principles of fluid flow, heat transfer, and mass transfer applied to (a) understanding of how the human body functions (from the cellular up to the system level) and (b) designing biomedical devices. An independent project/case-study of a relevant research topic also required.

**Credit Hours:** 3

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**BIOL\_EN 8370: Materials Characterization Techniques**

Concepts and techniques in characterizing materials, including bulk and surface analyses. Techniques are presented in terms of use, sample requirements, and the engineering principles. Topics include: contact angle measurement, XPS, SEM, TEM, STM, AFM, XRD, and thermal analyses.

**Credit Hours:** 3

**Prerequisites:** at least one undergraduate course in material science, engineer, or design

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**BIOL\_EN 8402: Research Methods**

(same as F\_S 8402). Review of literature; planning research projects; publication procedures.

**Credit Hours:** 2

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**BIOL\_EN 8470: Ultrasensitive Biodetection**

Multiplexing single-molecule, single-cell, nanobiotech analytical techniques to improve disease diagnosis, treatment, and understanding of biophenomena (membrane transport, gene expression, enzyme activities, cell communications). Graded A-F only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required

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**BIOL\_EN 8570: Microscopic Imaging**

Advanced topics in microscopic imaging with focus on applications of molecular and cellular imaging using fluorescent microscopy.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 7570 or instructor's consent

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**BIOL\_EN 8670: Orthopaedic Failure Modes and Effect Analysis**

Engineering sciences will be leveraged provide a comprehensive study of failure modes and related effects for orthopaedic devices, orthopaedic tissue repair, and surgical interventions. Clinical case studies will be analyzed to introduce real world problems of orthopaedic failures. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 3170 or ENGINR 1200, BIOL\_EN 4370 or BIOL\_EN 7370 or instructor consent

**Recommended:** For department majors

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**BIOL\_EN 8870: Molecular and Cell Mechanics**

Application of mechanics and engineering principles to biological systems at the cellular and molecular levels. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGINR 2200

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**BIOL\_EN 8990: Masters Thesis Research in Biological Engineering**

Independent investigation to be presented as a thesis. Graded on S/U basis only.

**Credit Hour:** 1-15

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**BIOL\_EN 9990: Doctoral Dissertation Research in Biological Engineering**

Independent investigation to be presented as a thesis. Graded on S/U basis only.

**Credit Hour:** 1-99

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## Biological Sciences (BIO\_SC)

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**BIO\_SC 1001: Topics in Biological Science - General**

Selected topics not covered in current offerings. May not be used in partial fulfillment of requirements for a biological science in general education. May be graded on A-F or S/U basis.

**Credit Hour:** 1-3

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**BIO\_SC 1002: Topics in Biological Sciences - Biological Sciences**

Selected topics not in regularly offered courses. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-3

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**BIO\_SC 1006: Topics in Biological Sciences - Mathematical Sciences**

Selected topics not in regularly offered courses. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-31

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**BIO\_SC 1007: Topics in Biological Sciences - Physical Sciences**

Selected topics not in regularly offered courses. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-3

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**BIO\_SC 1010: General Principles and Concepts of Biology**

Emphasizes connections and applications to society and the human condition, science literacy, and critical thinking skills. A discussion of general principles and fundamental concepts of living things. This course is intended for non-science majors. No more than 5 credits for BIO\_SC 1010, BIO\_SC 1020, and BIO\_SC 1030.

**Credit Hours:** 3

**Recommended:** MATH 1100

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**BIO\_SC 1020: General Biology Laboratory**

Laboratory exercises dealing with representative organisms and methods of modern biological sciences. This course is intended for non-science

majors. No more than 5 credits for BIO\_SC 1010, BIO\_SC 1020, and BIO\_SC 1030.

**Credit Hours:** 2

**Prerequisites or Corequisites:** BIO\_SC 1010

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**BIO\_SC 1030: General Principles and Concepts of Biology with Laboratory**

Survey of general principles and basic concepts of life science, emphasizing applications to society and the human condition. Lectures address science literacy and critical thinking and laboratory exercises use representative organisms to complement lecture topics. This course is intended for non-science majors. No more than 5 credits for BIO\_SC 1010, BIO\_SC 1020, and BIO\_SC 1030.

**Credit Hours:** 5

**Recommended:** MATH 1100 or concurrent enrollment

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**BIO\_SC 1060: Basic Environmental Studies**

Considers the ecosystem, energy and biogeochemical cycles and population dynamics; relation of the environment to agriculture and technology, pollution, power and food production; politico-economic considerations; moral and ethical issues. For non-science majors.

**Credit Hours:** 3

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**BIO\_SC 1200: General Botany with Laboratory**

Introduction to study of plants. Emphasis on structure, growth, physiology, genetics and reproduction of plants.

**Credit Hours:** 5

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**BIO\_SC 1400: Evolution for Everyone**

This course will explore the application of evolutionary theory to modern human affairs. We will study the processes involved in evolution and investigate evolutionary interpretations of human social behavior (e.g., psychology, mate choice, economics, religion, and morality). No credit if student has received credit for BIO\_SC 2060 or BIO\_SC 4600.

**Credit Hours:** 3

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**BIO\_SC 1500: Introduction to Biological Systems with Laboratory**

Basic concepts and principles of the structure and function of living systems, from cells to populations. Foundation course for science students intending to complete a 3-semester sequence that also includes genetics and cell biology.

**Credit Hours:** 5

**Recommended:** MATH 1100 or sufficient ALEKS score

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**BIO\_SC 1500H: Introduction to Biological Systems with Laboratory Honors**

Basic concepts and principles of the structure and function of living systems, from cells to populations. Foundation course for science students intending to complete a 3-semester sequence that also includes genetics and cell biology.

**Credit Hour:** 3-5

**Prerequisites:** MATH 1100 and high school chemistry. Honors eligibility required

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**BIO\_SC 2001: Topics in Biological Sciences - General**

Selected topics not covered in current offerings. May not be used in partial fulfillment of requirements for a biological science in general education. May be graded on A-F or S/U basis.

**Credit Hour:** 1-3

**Recommended:** One course in Biology

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**BIO\_SC 2002: Topics in Biological Sciences- Biological Sciences**

Selected topics not covered in regularly offered courses. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-3

**Recommended:** a course in general biology

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**BIO\_SC 2002H: Topics in Biological Sciences- Biological Science - Honors**

Selected topics not covered in regularly offered courses. Recommended: a course in biology

**Credit Hour:** 1-3

**Prerequisites:** Honors eligibility required

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**BIO\_SC 2006: Topics in Biological Sciences- Mathematical Sciences**

Selected topics not covered in regularly offered courses. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-3

**Recommended:** a course in general biology

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**BIO\_SC 2006H: Topics in Biological Sciences- Mathematical Science - Honors**

Selected topics not covered in regularly offered courses. Recommended: a course in biology

**Credit Hour:** 1-3

**Prerequisites:** Honors eligibility required

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**BIO\_SC 2007: Topics in Biological Sciences- Physical Sciences**

Selected topics not covered in regularly offered courses. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-3

**Recommended:** a course in general biology

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**BIO\_SC 2007H: Topics in Biological Sciences- Physical Science - Honors**

Selected topics not covered in regularly offered courses. Recommended: a course in biology

**Credit Hour:** 1-3

**Prerequisites:** Honors eligibility required

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**BIO\_SC 2010: Undergraduate Seminar in Biological Sciences**

Discussion and critical evaluation of current topics in biological sciences for intermediate-level students. Some sections may be graded on either A-F or S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing

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**BIO\_SC 2015: Biological Career Explorations**

Students will learn about career options and choices, construct career portfolios, and interact with current biological professionals. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Departmental consent

**Recommended:** Sophomore standing

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**BIO\_SC 2020: How the Brain Works**

Basic structure and function of the brain; left and right brain studies; gender differences; learning and memory; brain disorders..

**Credit Hour:** 1

**Prerequisites:** C- or above in BIO\_SC 1010 or BIO\_SC 1500

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**BIO\_SC 2030: Life of the Cell**

This course will help students understand basic concepts of biomolecular structure, cell organization, cell membranes, energy and metabolism, cellular communication, and cell division. This course is intended for non-science majors and may not be used to satisfy requirements for either a major or a minor in biological sciences.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1010

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**BIO\_SC 2060: Community Biology**

Principles of population biology, ecology, and evolution, including consideration of human impacts on biological communities and ecosystems.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1010 or equivalent. Not open to biology majors

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**BIO\_SC 2100: Infectious Diseases**

An introduction to the basic science of bacterial, viral, protozoan, fungal and helminth infections, including discussions of how illness has influenced or been affected by public policy and culture.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1010, BIO\_SC 1200 or BIO\_SC 1500. Not open to Biology Majors

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**BIO\_SC 2150: Genetic Diseases**

This course will discuss the biological basis for genetic diseases, including inherited diseases and non-inherited diseases such as cancer. The units will include an introduction providing necessary background information, as section studying the technology used to study genetic diseases and several units discussing specific diseases and their impact on history and society. This course is intended for non-science majors. Cannot be used to satisfy degree requirements for biology major or biology minor.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1010

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**BIO\_SC 2200: General Genetics**

Principles of inheritance in plants and animals; structure and use of genetic material, transmission of genetic information, linkage, modification of genetic information, regulation of genetic activity, population genetics.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1100, BIO\_SC 1200 or BIO SC 1500 and CHEM 1320 (or concurrent enrollment)

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**BIO\_SC 2200H: General Genetics - Honors**

Principles of inheritance in plants and animals; structure and use of genetic material, transmission of genetic information, linkage, modification of genetic information, regulation of genetic activity, population genetics. Prerequisites:

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1100, BIO\_SC 1200 or BIO SC 1500 and CHEM 1320 (or concurrent enrollment). Honors eligibility required

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**BIO\_SC 2300: Introduction to Cell Biology**

Analysis of cellular organization and function at the molecular level. The mechanisms underlying cellular trafficking, cell motility, and signaling within cells and between cells and their environment will be emphasized.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 2200

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**BIO\_SC 2300H: Introduction to Cell Biology- Honors**

Analysis of cellular organization and function at the molecular level. The mechanisms underlying cellular trafficking, cell motility, and signaling within cells and between cells and their environment will be emphasized.

**Credit Hours:** 5

**Prerequisites:** BIO\_SC 2200 or 2200H. Honors eligibility required

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**BIO\_SC 2300HW: Introduction to Cell Biology - Honors/Writing Intensive**

Analysis of cellular organization and function at the molecular level. The mechanisms underlying cellular trafficking, cell motility, and signaling within cells and between cells and their environment will be emphasized.

**Credit Hours:** 5

**Prerequisites:** BIO\_SC 2200 or 2200H. Honors eligibility required

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**BIO\_SC 2940: Internship in Biological Science**

Work experience in a non-profit, for profit, or governmental organization relevant to the biological sciences. Intended for students doing internships in which independent research is less than 50% of the experience. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

**Recommended:** junior standing, 12 hours of biological science and 2.70 GPA

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**BIO\_SC 2950: Directed Independent Research**

Participation in faculty research activities. May not be used to satisfy degree requirements for BA or BS in biological sciences or the minor in biological sciences.

**Credit Hour:** 1-3

**Prerequisites:** Departmental consent

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**BIO\_SC 2960: Readings in Biological Science**

Supervised reading in biological literature. May be repeated up to six hours total credit. Selected sections of this course may be graded either

on A-F or S/U basis only. May not be used in partial fulfillment of Arts and Science foundation requirement.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**BIO\_SC 2965H: Honors Readings in Biological Literature**

Selected readings in biological literature for Honors, in consultation with instructor. May not be used in partial fulfillment of Arts and Science foundation requirement.

**Credit Hour:** 1-3

**Prerequisites:** overall 3.3 GPA; instructor's consent. Honors eligibility required

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**BIO\_SC 3002: Topics in Biological Sciences - Biological Sciences**

Selected topics not in regularly offered courses. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-3

**Recommended:** Junior Standing

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**BIO\_SC 3002H: Topics in Biological Sciences- Biological Sciences - Honors**

Selected topics not offered in regular curriculum.

**Credit Hour:** 1-3

**Prerequisites:** Honors eligibility required

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**BIO\_SC 3002W: Topics in Biological Sciences- Biological Sciences - Writing Intensive**

Selected topics not in regularly offered courses. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-3

**Recommended:** Junior Standing

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**BIO\_SC 3006: Topics in Biological Sciences - Mathematical Sciences**

Selected topics not in regularly offered courses. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-3

**Recommended:** Junior Standing

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**BIO\_SC 3006H: Topics in Biological Sciences- Mathematical Sciences - Honors**

Selected topics not offered in regular curriculum.

**Credit Hour:** 1-3

**Prerequisites:** Honors eligibility required

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**BIO\_SC 3006W: Topics in Biological Sciences- Mathematical Sciences - Writing Intensive**

Selected topics not in regularly offered courses. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-3

**Recommended:** Junior Standing

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**BIO\_SC 3007: Topics in Biological Sciences - Physical Sciences**

Selected topics not in regularly offered courses. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-3

**Recommended:** Junior Standing

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**BIO\_SC 3007H: Topics in Biological Sciences- Physical Sciences - Honors**

Selected topics not offered in regular curriculum.

**Credit Hour:** 1-3

**Prerequisites:** Honors eligibility required

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**BIO\_SC 3007W: Topics in Biological Sciences- Physical Sciences - Writing Intensive**

Selected topics not in regularly offered courses. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-3

**Recommended:** Junior Standing

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**BIO\_SC 3010: Professional Skills**

This course will focus on application and interview skills for students interested in medical school. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

**Recommended:** junior standing; 3.4 GPA, and biological sciences majors

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**BIO\_SC 3050: Genetics and Society**

Introduction to genetics, emphasizing the impact of genetics on human society. Human evolution, molecular genetics, genetic engineering in medicine and agriculture. An intensive writing course.

**Credit Hours:** 3

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**BIO\_SC 3050W: Genetics and Society - Writing Intensive**

Introduction to genetics, emphasizing the impact of genetics on human society. Human evolution, molecular genetics, genetic engineering in medicine and agriculture. An intensive writing course.

**Credit Hours:** 3

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**BIO\_SC 3075: The Human Microbiome**

This course examines the astonishing diversity and medical significance of the microbes that inhabit our bodies. Interactive discussions explore scientific and ethical dimensions of topics ranging from probiotics and 'poop transplants' to the role of microbes in asthma and obesity.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200

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**BIO\_SC 3075W: The Human Microbiome - Writing Intensive**

This course examines the astonishing diversity and medical significance of the microbes that inhabit our bodies. Interactive discussions explore scientific and ethical dimensions of topics ranging from probiotics and 'poop transplants' to the role of microbes in asthma and obesity.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200

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**BIO\_SC 3210: Plant Systematics**

Principles of classification of plants; survey of diversity in flowering plant families; identification of local flora; use of keys. Includes lab.

**Credit Hours:** 4

**Recommended:** 8 hours of Biological Sciences

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**BIO\_SC 3210W: Plant Systematics - Writing Intensive**

Principles of classification of plants; survey of diversity in flowering plant families; identification of local flora; use of keys. Includes lab.

**Credit Hours:** 4

**Recommended:** 8 hours of Biological Sciences

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**BIO\_SC 3260: Invertebrate Zoology**

Structure, ecology and phylogeny of the invertebrate phyla. Includes lab.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1100 or BIO\_SC 1500

**Recommended:** Junior Standing

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**BIO\_SC 3260W: Invertebrate Zoology - Writing Intensive**

Structure, ecology and phylogeny of the invertebrate phyla. Includes lab.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1100 or BIO\_SC 1500

**Recommended:** Junior Standing

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**BIO\_SC 3360: Herpetology**

The biology, ecology, taxonomy, and distribution of amphibians and reptiles. Some Saturday field trips.

**Credit Hours:** 4

**Recommended:** 8 hours Biological Sciences or equivalent

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**BIO\_SC 3400: Evolution and Ecology**

Introduction to principles of evolution and ecology. Topics include natural selection, adaptation, phylogenetic analysis, human evolution, population growth and regulation, population interactions, ecosystem ecology, and human impacts on ecological processes. No credit for this course if either BIO\_SC 3650 or BIO\_SC 4600 already completed; may not co-enroll in this course and BIO\_SC 4600.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200

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**BIO\_SC 3510: Biology of Fungi**

(same as PLNT\_S 3510). The diverse roles of fungi in the biosphere will be explored by considering fungi we eat, fungi which destroy our food, fungi in folklore and fungi as global nutrient recyclers. Includes lab.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1200 or BIO\_SC 1500 or equivalent

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**BIO\_SC 3650: General Ecology**

Principles of populations, coevolution, density factors, competition; physical environment; concept of community, trophic structure, biotic succession; characterization of biomes, man in ecosystem. Biology majors having completed BIO\_SC 3100: 2 hours credit.

**Credit Hours:** 5

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**Prerequisites:** junior standing  
**Recommended:** 10 hours in Biology

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**BIO\_SC 3650W: General Ecology - Writing Intensive**

Principles of populations, coevolution, density factors, competition; physical environment; concept of community, trophic structure, biotic succession; characterization of biomes, man in ecosystem. Biology majors having completed BIO\_SC 3100: 2 hours credit.

**Credit Hours:** 5  
**Prerequisites:** junior standing  
**Recommended:** 10 hours in Biology

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**BIO\_SC 3655: Tropical Ecology: Methods and Applications**

Field study of tropical community; additional fee for transportation and accommodations required.

**Credit Hours:** 3  
**Prerequisites:** BIO\_SC 3650 or BIO\_SC 4600 or BIO\_SC 4660

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**BIO\_SC 3700: Animal Physiology**

Introduces concepts of vertebrate organ function and homeostatic control emphasizing mammalian physiology. Some comparisons to function in other vertebrates and strategies for coping with environmental stresses introduced. Includes lab.

**Credit Hours:** 5  
**Prerequisites:** BIO\_SC 2300

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**BIO\_SC 3710: Introductory Entomology**

(same as PLNT\_S 3710). Emphasizes the role insects play in the scheme of life. Topics include insect structure, development, diversity, ecology, communication and behavior, and management. Prerequisites: Completion of 60 credit hours and one of the following: BIO\_SC 1100 (or F\_W 1100) or BIO\_SC 1200, or BIO\_SC 1500.

**Credit Hours:** 3

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**BIO\_SC 3715: Insect Diversity**

(same as PLNT\_S 3715). Laboratory exercises emphasizing external insect anatomy, classification, and identification (to family level). Preparation of an insect collection is required.

**Credit Hours:** 2  
**Prerequisites:** PLNT\_S 3710 (or BIO\_SC 3710) or concurrent registration

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**BIO\_SC 3750: General Microbiology**

Explores the diversity and adaptive capabilities of microbial life. Topics include bacterial cell structure, metabolism, genetics, and ecology.

**Credit Hours:** 3  
**Prerequisites:** BIO\_SC 2200 and BIO\_SC 2300  
**Recommended:** grades in C range for prerequisites

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**BIO\_SC 3760: Microbiology Laboratory**

This is a hands-on microbiology lab course which provides students with training in microbiology techniques, data collection and analysis, writing a research proposal and completing an independent project.

**Credit Hours:** 2

**Prerequisites or Corequisites:** BIO\_SC 3750 or MICROB 3200 or concurrent enrollment in BIO\_SC 3750

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**BIO\_SC 3780: Genetics Laboratory**

Experimental genetic studies of *Drosophila*, corn and microorganisms.

**Credit Hours:** 2  
**Prerequisites:** C range grade or better in BIO\_SC 2200 or instructor's consent

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**BIO\_SC 4002: Topics in Biological Science - Biological Science**

Selected topics not in regularly offered courses. May be repeated up to 2 times for credit.

**Credit Hour:** 1-3  
**Prerequisites:** senior standing

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**BIO\_SC 4006: Topics in Biological Science - Mathematical Science**

Selected topics not in regularly offered courses. May be repeated up to 2 times for credit.

**Credit Hour:** 1-3  
**Prerequisites:** senior standing

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**BIO\_SC 4007: Topics in Biological Science - Physical Science**

Selected topics not in regularly offered courses. May be repeated up to 2 times for credit.

**Credit Hour:** 1-3  
**Prerequisites:** senior standing

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**BIO\_SC 4085: Problems in Biological Sciences**

Individual supervised work to supplement regularly organized courses in biology; introduction to research. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-3  
**Prerequisites:** instructor's consent  
**Recommended:** Junior Standing

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**BIO\_SC 4085W: Problems in Biological Sciences - Writing Intensive**

Individual supervised work to supplement regularly organized courses in biology; introduction to research. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-3  
**Prerequisites:** instructor's consent  
**Recommended:** Junior Standing

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**BIO\_SC 4320: Molecular Plant Physiology**

(same as PLNT\_S 4320; cross-leveled with BIO\_SC 7320, PLNT\_S 7320). Modern physiology of higher plants using common cultivated plants as examples.

**Credit Hours:** 3  
**Prerequisites:** BIO\_SC 1200 or BIO\_SC 1500 and CHEM 1320

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**BIO\_SC 4328: Introductory Radiation Biology**

(same as NU\_ENG 4328, RADIOL 4328; cross-leveled with BIO\_SC 7328, NU\_ENG 7328, RADIOL 7328). Concepts of ionizing radiations,

their actions on matter through effects on simple chemical systems, biological molecules, cell, organisms, man.

**Credit Hours:** 3

**Prerequisites:** junior standing, Sciences/Engineering; one course in Biological Sciences and Physics/Chemistry; or instructor's consent

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**BIO\_SC 4400: Plant Anatomy**

(same as PLNT\_S 4400; cross-leveled with BIO\_SC 7400, PLNT\_S 7400). Comparative structure, growth of meristems; development, structure of important cell types, tissues, tissue systems; comparative anatomy of stem, root, leaf. Emphasizes anatomy of gymnosperms, angiosperms. Includes lab.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1200 or BIO\_SC 1500

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**BIO\_SC 4500: Neurobiology**

(cross-leveled with BIO\_SC 7500). Vertebrate and invertebrate neurobiology, including cell and molecular biology of the neuron, neurophysiology, neuroanatomy, neuroethology and developmental neurobiology.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2300 or instructor's consent

**Recommended:** BIO\_SC 3700

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**BIO\_SC 4560: Sensory Physiology and Behavior**

(cross-leveled with BIO\_SC 7560). Basic principles of coding and integration of sensory stimuli; neural correlates of animal behavior; environmental influences on postnatal sensory development. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 4500

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**BIO\_SC 4590: Computational Neuroscience**

(same as ECE 4590, BIOL\_EN 4590, BME 4590; cross-leveled with ECE 7590, BIOL\_EN 7590, BIO\_SC 7590). An interdisciplinary course with a strong foundation in quantitative sciences for students in biological and behavioral science and an introduction to experimental methods for students from quantitative sciences.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1010 or BIO\_SC 1500; MATH 1500

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**BIO\_SC 4600: Evolution**

Surveys various processes in organic evolution and underlying genetic mechanisms.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200

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**BIO\_SC 4640: Behavioral Biology**

(cross-level with BIO\_SC 7640). Comparative study of animal ethology. Principles of animal ethology illustrated in different animal phyla. May be taken with Laboratory for 4 credits.

**Credit Hour:** 3-4

**Prerequisites:** BIO\_SC 1500

**Recommended:** one additional upper-level course in Biological Sciences or Psychology

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**BIO\_SC 4642: Animal Communication**

Physical properties of sensory stimuli, receptor mechanisms, functional significance of communication behavior, and multidisciplinary and experimental approaches to current research in animal communication.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3400 or BIO\_SC 4600

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**BIO\_SC 4642W: Animal Communication - Writing Intensive**

Physical properties of sensory stimuli, receptor mechanisms, functional significance of communication behavior, and multidisciplinary and experimental approaches to current research in animal communication.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3400 or BIO\_SC 4600

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**BIO\_SC 4670: Avian Ecology**

(cross-level with BIO\_SC 7670). Advanced examination of ecological patterns in birds. Explores the environmental factors affecting the evolution of avian behavior, morphology, community structure and distribution.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2600 or BIO\_SC 3650

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**BIO\_SC 4950: Undergraduate Research in Biology**

Individually directed field or laboratory research for upperclass students under faculty supervision. Project must be arranged by student and faculty member prior to registration. May be repeated to a maximum of 6 hours.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

**Recommended:** Overall GPA 2.75; 20 hours of Biological Sciences and/or Chemistry

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**BIO\_SC 4950H: Honors Research in Biology**

Individually directed field or laboratory research for upper-level Honors students, in consultation with a faculty member. Project must be arranged by student and faculty member prior to registration. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** overall GPA 3.3; instructor's consent; biology or microbiology major. Honors eligibility required

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**BIO\_SC 4952: Undergraduate Research in Biology**

Individually directed field or laboratory research for upperclass students under faculty supervision. Project must be arranged by student and faculty member prior to registration. May be repeated to a maximum of 6 hours.

**Credit Hour:** 1-3

**Prerequisites:** BIO\_SC 4950; overall GPA 2.75; instructor's consent

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**BIO\_SC 4952H: Honors Research in Biology**

Continuation of research program. Successful completion requires public presentation and leads to degree with Honors in biological sciences. May be repeated for credit for maximum of 6 hours. Graded on A-F basis only.

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**Credit Hour:** 1-3

**Prerequisites:** BIO\_SC 4950H; overall GPA 3.3; instructor's consent.  
Honors eligibility required

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**BIO\_SC 4960: Special Readings in Biological Sciences**

Independent readings and discussions of topics in biology selected in consultation with supervising faculty member. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** senior standing in Biological Sciences and instructor's consent

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**BIO\_SC 4972: Developmental Biology**

Analysis of the molecular, genetic, cellular, and morphological processes responsible for phenotypic changes in developing organisms. A variety of experimental systems are discussed to identify common mechanisms used by developing organisms.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200, BIO\_SC 2300, CHEM 2100

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**BIO\_SC 4972W: Developmental Biology**

Analysis of the molecular, genetic, cellular, and morphological processes responsible for phenotypic changes in developing organisms. A variety of experimental systems are discussed to identify common mechanisms used by developing organisms.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200, BIO\_SC 2300, CHEM 2100

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**BIO\_SC 4976: Molecular Biology**

(cross-leveled with BIO\_SC 7976). Molecular mechanisms of DNA replication, mutation, recombination and gene expression in prokaryotes, eukaryotes, and their viruses; gene fine structure; genetic engineering.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200 and BIO\_SC 2300

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**BIO\_SC 4978: Cancer Biology**

(same as BIOCHM 4978; cross-leveled with BIO\_SC 7978, BIOCHM 7978). The cellular and molecular basis of cancer, with emphasis on the application of genomics, proteomics, and genetic manipulations in model organisms to the study of cancer biology.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200 and BIO\_SC 2300

**Recommended:** BIO\_SC 4976 or BIOCHM 4270 and BIOCHM 4272

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**BIO\_SC 4982: Human Inherited Diseases**

(cross-leveled with BIO\_SC 7982). Advances in molecular genetics have led to a revolution in our understanding of human disease. This course will examine how molecular technologies, combined with detailed information on cell biology and biochemistry, have been used to unravel the causes of human inherited disease. In addition, we will examine how this new understanding is being used to design therapies for the diseases, and we will discuss some of the ethical and moral questions that have been generated by recent scientific progress.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200 and BIO\_SC 2300

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**BIO\_SC 4982W: Human Inherited Diseases - Writing Intensive**

(cross-leveled with BIO\_SC 7982). Advances in molecular genetics have led to a revolution in our understanding of human disease. This course will examine how these technologies, combined with detailed information on cell biology and biochemistry, have been used to unravel the causes of human inherited disease. In addition, we will examine how this new understanding is being used to design therapies for the diseases, and we will discuss some of the ethical and moral questions that have been generated by recent scientific progress. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200 and BIO\_SC 2300

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**BIO\_SC 4983: Molecular Ecology**

Application of molecular genetic techniques to topics in ecology and population biology such as sex ratios, dispersal, mating systems, biogeography and conservation genetics.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 3400 or BIO\_SC 2200 and BIO\_SC 3650

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**BIO\_SC 4984: Mammalian Reproductive Biology**

Adult reproductive anatomy, physiology and behavior; gametogenesis and fertilization; placentation; sexual differentiation; parturition; maternal behavior and lactation; puberty; reproductive aging; reproductive ecology.

**Credit Hours:** 3

**Prerequisites:** junior standing

**Recommended:** 15 hours of Biological Sciences

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**BIO\_SC 4986: Neurology of Motor Systems**

(cross-leveled with BIO\_SC 7986). Examination of the function of neural networks at all levels, from properties of single neurons to large collections of neural elements.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3700 or instructor's consent

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**BIO\_SC 4988: Nerve Cells and Behavior**

The cellular basis of behavior. Molecular and cellular properties of nerve cells, as related to behavior, will be represented and discussed.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3700 or instructor's consent

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**BIO\_SC 4990: Vertebrate Histology and Microscopic Anatomy**

Microscopic anatomy of vertebrate tissues and organs. Includes lab.

**Credit Hours:** 5

**Prerequisites:** junior standing

**Recommended:** BIO\_SC 3700, or equivalent

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**BIO\_SC 4994: Senior Seminar**

Readings and critical evaluation of selected problems and theories in biology. Offered in one or more sections, with specialized subdisciplinary emphasis.

**Credit Hours:** 3

**Prerequisites:** Biological Sciences major, senior standing

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**BIO\_SC 4994H: Senior Seminar - Honors**

Readings and critical evaluation of selected problems and theories in biology. Offered in one or more sections, with specialized sub disciplinary emphasis.

**Credit Hours:** 3

**Prerequisites:** Biological Sciences major, senior standing; Honors eligibility required

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**BIO\_SC 4994HW: Senior Seminar - Honors/Writing Intensive**

Readings and critical evaluation of selected problems and theories in biology. Offered in one or more sections, with specialized sub disciplinary emphasis.

**Credit Hours:** 3

**Prerequisites:** Biological Sciences major, senior standing; Honors eligibility required

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**BIO\_SC 4994W: Senior Seminar - Writing Intensive**

Readings and critical evaluation of selected problems and theories in biology. Offered in one or more sections, with specialized subdisciplinary emphasis.

**Credit Hours:** 3

**Prerequisites:** Biological Sciences major, senior standing

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**BIO\_SC 7002: Topics in Biological Sciences**

Advanced topics not in regularly offered courses. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1-6

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**BIO\_SC 7320: Molecular Plant Physiology**

(same as PLNT\_S 7320; cross-leveled with BIO\_SC 4320, PLNT\_S 4320). Modern physiology of higher plants using common cultivated plants as examples. May be taken with or without laboratory.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1200 or BIO\_SC 1500 and 5 hours Chemistry

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**BIO\_SC 7328: Introductory Radiation Biology**

(same as NU\_ENG 7328, RADIOL 7328, V\_M\_S 7328; cross-leveled with BIO\_SC 4328, NU\_ENG 4328, RADIOL 4328). Concepts of ionizing radiations, their actions on matter through effects on simple chemical systems, biological molecules, cell, organisms, man.

**Credit Hours:** 3

**Prerequisites:** Sciences/Engineering; one course in Biological Sciences and Physics/Chemistry; or instructor's consent

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**BIO\_SC 7400: Plant Anatomy**

(same as PLNT\_S 7400; cross-leveled with BIO\_SC 4400, PLNT\_S 4400). Comparative structure, growth of meristems; development, structure of important cell types, tissues systems; comparative anatomy of stem root, leaf. Emphasizes anatomy of gymnosperms, angiosperms. Includes lab. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1200 or equivalent

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**BIO\_SC 7490: Vertebrate Histology and Microscopic Anatomy**

Microscopic anatomy of vertebrate tissues and organs. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites:** BIO\_SC 2300 and BIO\_SC 3700, or equivalent

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**BIO\_SC 7500: Neurobiology**

(cross-leveled with BIO\_SC 4500). Vertebrate and invertebrate neurobiology, including cell and molecular biology of the neuron, neurophysiology, neuroanatomy, neurothology and developmental biology. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2300 or BIO\_SC 3700

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**BIO\_SC 7560: Sensory Physiology and Behavior**

(cross-leveled with BIO\_SC 4560). Basic principles of coding and integration of sensory stimuli; neural correlates of animal behavior; environmental influences on postnatal sensory development.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 4500 or equivalent

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**BIO\_SC 7590: Computational Neuroscience**

(same as BIOL\_EN 7590, ECE 7590; cross-leveled with BIO\_SC 4590, BIOL\_EN 4590, ECE 4590, BME 4590). An interdisciplinary course with a strong foundation in quantitative sciences for students in biological and behavioral sciences and an introduction to experimental methods for students from quantitative sciences.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1010 or BIO\_SC 1500, MATH 1500

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**BIO\_SC 7640: Behavioral Biology**

(cross-leveled with BIO\_SC 4640). Comparative study of animal ethology. Principles of animal ethology illustrated in different animal phyla.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1500 and one additional upper-level course in Biological Sciences or Psychology

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**BIO\_SC 7670: Avian Ecology**

(cross-leveled with BIO\_SC 4670). Advanced examination of ecological patterns in birds. Explores the environmental factors affecting the evolution of avian behavior, morphology, community structure and distribution.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2060 or BIO\_SC 3650; BIO\_SC 2600

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**BIO\_SC 7976: Molecular Biology**

(cross-leveled with BIO\_SC 4976). Molecular mechanisms of DNA replication, mutation, recombination and gene expression in prokaryotes, eukaryotes, and their viruses; gene fine structure; genetic engineering.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200 and BIO\_SC 2300

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**BIO\_SC 7978: Cancer Biology**

(same as BIOCHM 7978; cross-leveled with BIO\_SC 4978, BIOCHM 4978). The course will cover major molecular and cellular aspects of cancer. Students will read original research articles, present overviews and lead class discussions.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 4270, BIO\_SC 2300 and BIO\_SC 4976 or equivalent

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**BIO\_SC 7982: Human Inherited Diseases**

(cross-leveled with BIO\_SC 4982). Advances in molecular genetics have led to a revolution in our understanding of human disease. This course will examine how molecular technologies, combined with detailed information on cell biology and biochemistry, have been used to unravel the causes of human inherited disease. In addition, we will examine how this new understanding is being used to design therapies for the diseases, and we will discuss some of the ethical and moral questions that have been generated by recent scientific progress. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200 and instructor's consent

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**BIO\_SC 7986: Neurology of Motor Systems**

(cross-leveled with BIO\_SC 4986). Examination of the function of neural networks at all levels, from properties of single neurons to large collections of neural elements. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3700

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**BIO\_SC 7990: Non-thesis Research**

Independent research not leading to a thesis. Some sections may be offered on either A-F or S/U grading basis.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**BIO\_SC 8002: Topics in Biological Sciences- Biological/Physical/Mathematics**

Advanced topics not in regularly offered courses.

**Credit Hour:** 1-6

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**BIO\_SC 8050: Professional Survival Skills**

Introduction to resources, facilities, and communication skills for professional careers in biological sciences. Topics include computer resources, accessing scientific literature, making slides and figures, grantsmanship, resume preparation, manuscript review, and research presentation.

**Credit Hours:** 2

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**BIO\_SC 8060: Ethical Conduct of Research**

(same as BIOCHM 8060). Discussion of ethical issues in biological research, including the rules and conventions for appropriate research conduct. Graded on S/U basis only.

**Credit Hour:** 1

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**BIO\_SC 8070: Professional Communication Development**

The purpose of this course is to develop professional communication skills in students that are planning to attend (or are in their first year of) graduate training. Some sections may be offered with A-F or S/U grading option.

**Credit Hour:** 1-2

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**BIO\_SC 8085: Problems in Biological Sciences**

Research not expected to terminate in thesis, or individual advanced study in special subjects.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**BIO\_SC 8087: Seminar**

Current topics in the biological sciences. Open to all graduate students. Graded S/U basis only.

**Credit Hour:** 1

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**BIO\_SC 8090: Research in Biological Sciences**

Research leading to thesis. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**BIO\_SC 8187: Seminar in Areas of Specialization**

Offered each semester in one or more specialized sections followed by the topic title of the seminar. Graded on S/U basis only.

**Credit Hour:** 1

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**BIO\_SC 8300: Advanced Plant Genetics**

Genetic approaches to molecular and biochemical studies in maize, wheat, and Arabidopsis.

**Credit Hours:** 3

**Prerequisites:** General Genetics and course in Cell Biology or Plant Physiology

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**BIO\_SC 8310: Fungal Genetics and Biology**

Introduction to fungal research, with an emphasis on genetics, biochemistry, cell and molecular biology, and pathogenicity of fungi. Graded A-F only.

**Credit Hours:** 3

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**BIO\_SC 8320: Developmental Genetics**

An overview of various developing systems amenable to classical and molecular genetic analysis. Specific developmental phenomena will be introduced in particular model systems, with an emphasis on experimental approaches used to address the underlying mechanisms.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200 and BIOCHM 7270, BIOCHM 7272, or equivalent

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**BIO\_SC 8440: Integrative Neuroscience I**

(same as NEUROSCI 8440). Organization, development and function of the nervous system focusing on cellular and molecular processes. Graded on A-F basis only.

**Credit Hours:** 3

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**BIO\_SC 8442: Integrative Neuroscience II**

(same as NEUROSCI 8442). Organization and function of the nervous system at the systems level to examine processes of behavior and cognition. Graded on A-F basis only.

**Credit Hours:** 3

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**BIO\_SC 8460: Advanced Cancer Biology**

A study of the molecular basis of cancer, including topics in tumor cell biology, interactions between cancer cells and normal cells, mechanisms of metastasis, and novel approaches to development of new chemotherapies.

**Credit Hours:** 3

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**BIO\_SC 8505: Introduction to Plant Stress Biology**

(same as PLNT\_S 8505). This course is part of a series that aims to provide a solid conceptual foundation to interdisciplinary plant biology for graduate students with a research emphasis in plant biology. This course examines the basic concepts and techniques used to understand plant stress biology. Graded on A-F basis only

**Credit Hours:** 2

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**BIO\_SC 8600: Design of Ecological Experiments**

Principles of experimental design in the context of ecological, behavioral, and evolutionary research.

**Credit Hours:** 2

**Prerequisites:** STAT 1400

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**BIO\_SC 8610: Current Concepts in Conservation Biology**

Survey of current concepts in conservation biology literature. Discussions will provide students with an appreciation of the historical development of concepts, the interdisciplinary nature of conservation problems, and the research required for effective solutions.

**Credit Hours:** 2

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**BIO\_SC 8633: Molecular and Network Evolution**

(same as AN\_SCI 8633). Evolution of biological macromolecules and networks, including sequence analysis algorithms and theory, phylogenetics, gene duplication, genome evolution, principles of biological networks. Development of computational skills emphasized.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required

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**BIO\_SC 8700: Ecological Genetics**

Population genetics and evolutionary theory, with emphasis on studies of natural populations.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200, BIO\_SC 3100 or BIO\_SC 3650, and STAT 1400 or equivalent

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**BIO\_SC 8720: Speciation**

Advanced discussion of species concepts and the processes of formation of species.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200 and BIO\_SC 4600

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**BIO\_SC 8724: College Science Teaching**

(same as LTC 8724, PHYSCS 8310, ASTRON 8310). Study of learner characteristics, teaching strategies, and research findings related to teaching science at the post-secondary level.

**Credit Hours:** 3

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**BIO\_SC 8725: Science Outreach: Public Understanding of Science**

(same as AN\_SCI 8725, PHYSCS 8350, LTC 8725). Development of presentations to adult audiences on the science underlying issues of current interest. May be repeated for credit.

**Credit Hour:** 1-2

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**BIO\_SC 8726: Integrating Science with Outreach**

(same as LTC 8726). This course provides an opportunity for students to earn credit for outreach activities in the community. Students will capitalize on their area of study and scientific expertise in developing, implementing, and evaluating related outreach activities. May be repeated for credit.

**Credit Hour:** 1-6

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**BIO\_SC 8740: Plant/Animal Interactions**

Discussion and lectures on herbivory, pollination biology, and dynamics of fruit and seed dispersal from ecological and evolutionary perspectives.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3650 or BIO\_SC 4660 or equivalent

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**BIO\_SC 9090: Research in Biological Sciences**

Research leading to dissertation. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**BIO\_SC 9432: Molecular Biology II**

(same as MICROB 9432, BIOCHM 9432) Detailed experimental analysis of eukaryotic cellular and molecular biology relevant to cellular and viral gene expression, post-transcriptional and post-translational modifications and genome replication. Models for developmental genetic analysis and genetic determinants controlling processes utilizing the current literature will be examined.

**Credit Hours:** 4

**Prerequisites:** MICROB 9430

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**BIO\_SC 9468: Molecular Biology of Plant Growth and Development**

(same as BIOCHM 9468). Molecular biology of plant hormones, signal transduction, environmental signals.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 4976

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## Biomedical Engineering (BME)

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## Biomedical Sciences (BIOMED)

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### BIOMED 1010: Biomedical Career Explorations

An introduction to the variety of career possibilities within the growing field of biomedical sciences. Graded on A-F basis only.

**Credit Hour:** 1

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### BIOMED 2110: Biomedical Terminology

Life science etymology (Greek for 'true meaning', means the study of word derivation) taught by classroom presentation and discussion. The course organization is based primarily on common themes of Greek and Latin terms along with historical reasons for current usage. The application of these terms is for all biomedical sciences and life sciences. Graded on A-F basis only.

**Credit Hours:** 3

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### BIOMED 2111: Veterinary Medical Terminology

Veterinary Medical Terminology is an extension of Biomedical Sciences 2110, Biomedical Terminology. The course organization is lecture, based primarily on domestic species and common themes of Greek and Latin terms. In addition, major veterinary medical eponyms, acronyms, and medical and surgical instruments are included. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** BIOMED 2110 or instructor's consent

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### BIOMED 2120: Essentials of Animal Handling and Physical Restraint

Fundamentals of handling and physical restraint of domestic large and small animals, laboratory animals, and common non-domestic pets. Graded on A-F basis only.

**Credit Hours:** 2

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### BIOMED 2130: Introduction to Veterinary Anatomy and Physiology

This introductory anatomy and physiology course describes the body and its functions from a systemic approach. Suitable for a student with no previous coursework in anatomy and physiology. Graded on A-F only.

**Credit Hours:** 3

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### BIOMED 2140: Companion Animals

(same as AN\_SCI 2140). Companion animals form an important part of our society. They serve us, provide companionship and many become members of our families. This class focuses primarily on dogs, cats, and horses. Topics covered include: the pet industry, breeds, wellness, management, care, training, zoonotic diseases, evolution and domestication, toxicology, nutrition, reproduction, genetics, human animal interactions, companion animal enterprise, and biomedical research. Students may enroll in one of two sections: service learning section or traditional course section.

**Credit Hours:** 3

**Recommended:** sophomore standing

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### BIOMED 2230: Animal Sanitation and Disease Prevention

Preventative measures for diseases and parasites of farm animals.

**Credit Hours:** 3

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### BIOMED 2940: Internship in Biomedical Sciences

Supervised work experience to develop technical skills and enhance student knowledge in an area of biomedical science. Not intended for more than 50% independent research. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** sophomore standing and instructor's consent

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### BIOMED 3000: Specialty Careers for Veterinary Technicians

Specialty careers for veterinary technicians are jobs which required knowledge and skills beyond those needed in primary care clinical veterinary practice. This course will explore veterinary technician specialties, the education required, and the advantages of advanced academic training. Course graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** AAS degree in veterinary technology or instructor's consent required

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### BIOMED 3001: Topics in Biomedical Sciences

Topics in Biomedical Sciences.

**Credit Hour:** 1-99

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### BIOMED 3100: Biomedical Pathophysiology

Pathophysiology is the study of changes in the body resulting from disease. This course requires knowledge of normal anatomy and physiology. A comparative approach is used involving both domestic animal and human examples. Course graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 3254 or BIO\_SC 3700 or equivalent, AAS or equivalent degree from AVMA-accredited program or instructor's consent

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### BIOMED 3200: Comparative Hematology

Hematology is the study of blood cells in health and disease. Emphasis in this course is placed on the changes associated with disease. Transfusion medicine and coagulation disorders will also be included. Course graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 3254 or BIO\_SC 3700 or equivalent, AAS or equivalent degree from AVMA-accredited program or instructor's consent

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### BIOMED 3219: Elements of Comparative Anatomy

This course is designed to give students an introduction to and appreciation for comparative anatomy of various species encountered in animal science, veterinary technology and veterinary medicine. Detailed and labeled photos of dissected specimens are used to aid instruction. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** five hours of biological science or zoology or equivalent or instructor's consent or an AAS degree in veterinary technology

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### BIOMED 3250: Parasitology

Parasitism is considered as a fundamental type of interspecies interaction. Identifying characteristics, life cycle, and resulting disease caused by the common parasites of domestic animals, common laboratory animals, selected wildlife, and humans are described. Special

emphasis is given to parasites that can be transmitted from animals to man.

**Credit Hours:** 3

**Prerequisites:** 8 hours of biology or instructor's consent

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#### **BIOMED 3300: Animal Welfare and Ethics**

An introductory examination of ethical issues related to animal welfare, including animal use for food, research, and companionship, plus contemporary issues affecting companion animals, farm animals, and horses. Topics related to animal pain and legal status will also be discussed. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** junior standing

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#### **BIOMED 3326: Principles of Veterinary Pharmacology**

An introduction to the study of veterinary pharmacology. Topics to be covered include terminology, calculations, basic physiology, and basic pharmacokinetics and pharmacodynamics. Both small and large animal organ systems are discussed. Basic medicolegal aspects of pharmacology are also reviewed.

**Credit Hours:** 3

**Prerequisites:** an AAS degree in veterinary technology or AN\_SCI 3254 or BIO\_SC 3700, or equivalent, or instructor's consent

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#### **BIOMED 3400: Domestic Animal Behavior in Veterinary Practice**

Students will be introduced to the key characteristics of behavior among common domestic animals such as dogs, pigs, cats, horses, cattle, sheep and goats. Topics include communication, aggression, biological rhythms, reproductive behavior, learning and development, ingestive behavior and genetics. This course will enable students to gain a thorough understanding of assessing animal behavior, as well as how to utilize the assessment to better the animal's health. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Junior standing

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#### **BIOMED 4001: Topics in Biomedical Sciences**

Topics in Biomedical Sciences.

**Credit Hour:** 1-99

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#### **BIOMED 4100: Veterinary Clinical Chemistry**

(cross-leveled with V\_PBIO 7100). This course is designed to hone the skills of the practicing veterinary technician, veterinary student, or veterinarian and assumes some basic knowledge of normal serum chemistry and urinalysis results. The review of normal will be minimal and emphasis will be placed on clinical serum chemistry and urinalysis findings associated with diseases. The graduate level course will include discussion of ancillary tests and more extensive case interpretations.

**Credit Hours:** 3

**Prerequisites:** An AAS or equivalent degree in veterinary technology from an American Veterinary Medical Association accredited programs; Undergraduate physiology on mammals (AN\_SCI 3254, BIO\_SC 3700, or equivalent

**Recommended:** BIOMED 2110 and BIOMED 3200 or instructor's consent

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#### **BIOMED 4110: Veterinary Cytology**

(cross-leveled with V\_PBIO 7110). This course of Veterinary Cytology is designed to hone the skills of the practicing Veterinary Technician, Veterinary Student, or Veterinarian and assumes some basic knowledge of microscope usage and normal hematology. The review of normal cells will be minimal and emphasis will be placed on findings associated with inflammatory and neoplastic diseases. The graduate level course will include discussion of ancillary tests, special stains and treatment alternatives. The focus will be on canine and feline diseases but some common equine and bovine disease. Prerequisites: An AAS or equivalent degree in veterinary technology from an American Veterinary Medical Association-accredited program, or instructor's consent

**Credit Hours:** 2

**Recommended:** BIOMED 3200 and BIOMED 2110

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#### **BIOMED 4120: Principles of Toxicology**

(cross-leveled with V\_PBIO 7120). This course will provide an introduction to the general principles of toxicology, including the history and scope of the field; risk assessment and management; mechanisms of toxicology; the disposition of toxicants; non-target organ-directed toxicity; toxic responses of specific target organs; and various toxicological application, such as environmental toxicology.

**Credit Hours:** 3

**Prerequisites:** one year of college chemistry and biology, each or instructor's consent

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#### **BIOMED 4210: Animal Issues in Disasters**

(cross-leveled with V\_PBIO 7210). This course describes the various aspects of responding to disasters that involve animals. Government involvement, legal requirements, effects on the human-animal bond, preparation for disasters of different kinds, and impacts on animal-related businesses will be discussed.

**Credit Hour:** 1

**Prerequisites:** an AAS in veterinary technology from an American Veterinary Medical Association accredited program, or equivalent training, or instructor's consent

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#### **BIOMED 4300: Clinical Veterinary Neurology**

Clinical veterinary neurology will review the neurologic examination, common neurologic diseases and techniques to properly care for the neurologic patient. The course organization is based primarily on neuroanatomic localization of disease. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AAS in Veterinary Technology or BIOMED 3219 and 3100 or instructor's consent; junior or senior standing

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#### **BIOMED 4320: Fundamentals of Small Animal Emergency and Critical Care**

(cross-leveled with V\_BSCI 7320). This course will provide students with the knowledge and skills to assist in small animal medical emergency and critical care facilities.

**Credit Hours:** 3

**Prerequisites:** An AAS in veterinary technology from an American Veterinary Medical Association accredited program, or equivalent training, or instructor's consent

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**BIOMED 4333: Veterinary Cell Biology**

(same as V\_BSCI 5506). Course material stresses cell biology as related to animal health and medical issues. A comprehensive course overviewing molecular and biochemical issues of cell function especially as related to medicine and the underlying molecular causes of disease.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1500, or equivalent, 1 course in biochemistry or 4 credit hours in chemistry; or instructor's consent

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**BIOMED 4400: Veterinary Surgical Nursing**

Veterinary Surgical Nursing will enable the student to properly identify, care for, and maintain surgical equipment. The course will also prepare the student to learn surgical anatomy as well as the potential complications of common clinical setting surgeries. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIOMED 2111, BIOMED 3219, and BIOMED 3100, or instructor's consent

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**BIOMED 4410: Small Animal Physical Rehabilitation**

This course will review the science of veterinary rehabilitation, assessment of rehabilitation patients, and the techniques used to treat these patients. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AAS degree in veterinary technology or BIOMED 2110 or HTH\_PR 2190 or equivalent, plus BIOMED 3219 or PTH\_AS 2201 or equivalent, or instructor's permission

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**BIOMED 4500: Equine Critical Care and Nursing**

This course provides advanced information for veterinary technicians, veterinary assistants, and pre-veterinary students wishing to enhance and focus their understanding of equine critical care and nursing concepts. Course graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 2095 and AN\_SCI 3254 or BIO\_SC 3700 or equivalents, AAS or equivalent degree from AVMA-accredited program or instructor's consent

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**BIOMED 4510: Equine Clinical Anatomy: Forelimbs**

(cross-leveled with V\_BSCI 7510). Basic foundation in selected aspects of equine clinical anatomy from veterinary technicians, pre-veterinary students, and other students wishing to enhance their understanding of anatomical structures of the horse's forelimbs.

**Credit Hour:** 1

**Prerequisites:** five hours of biologic science or zoology, or equivalent, or instructor's consent, or an AAS or equivalent degree in veterinary technology from an American Veterinary Medical Association accredited program

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**BIOMED 4520: Equine Clinical Practice**

This course is an introduction to a common medical conditions of the horse. Emphasis will be placed on the presenting complaint and the veterinarians approach to diagnosis, treatment, and prognosis.

**Credit Hour:** 1

**Prerequisites:** BIOMED 2110, BIOMED 2111 and AN\_SCI 4977 or their equivalents, or an associate's degree in veterinary technology, or instructor's consent

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**BIOMED 8100: Veterinary Online Course Development and Teaching**

Best practices of online teaching in veterinary medicine are taught. Emphasis is placed on proper course objectives, productive instructor and student interactions, appropriate student assessments, and essentials of course alignment. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** ED\_LPA 9456

**Prerequisites:** ED\_LPA 9448

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**BIOMED 8310: Advanced Topics in Stress Physiology**

An in-depth study of the causes and physiological responses to internal and external stress conditions that affect animals throughout life. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Admission to the MS in Biomedical Sciences program

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**BIOMED 8311: Clinical Veterinary Physiology Review Series A: Cells, Circulation, Musculoskeletal, Renal, Immune**

This course will provide graduate level instruction to review cellular, circulation, musculoskeletal, renal, and immune physiology, and apply concepts to the veterinary patient. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Acceptance into program

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**BIOMED 8312: Clinical Veterinary Physiology Review Series B: Respiration, Neurological, Gastrointestinal, Metabol**

This course will provide graduate level instruction to review respiratory, neurological, gastrointestinal, metabolic, and endocrine physiology, and apply concepts to the veterinary patient. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** admission into program

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**BIOMED 8700: Principles of Veterinary Pain Management**

Pain pathophysiology, assessment, and management in veterinary patients. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Admission to the MS in Biomedical Sciences program

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**BIOMED 8710: Essentials of Radiation Biology**

Essentials of Radiation Biology begins with an overview of pertinent medical physics and cell biology, then continues with the biologic, cellular and systemic responses to ionizing radiation. This course also includes a presentation of the early and late somatic and genetic effects of ionizing radiation. Required radiation protection guidelines and regulations will be taught as well as methods and techniques to reduce whole body and organ occupational radiation exposure. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Successful completion of undergraduate Biology; admission into the program

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**BIOMED 8900: Small Animal Wound Management and Reconstructive Surgery**

This course addresses wound physiology, management and reconstructive surgery in small animal patients. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Admission to program

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## Black Studies (BL\_STU)

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**BL\_STU 1000: Introduction to Black Studies**

An interdisciplinary introduction to the basic concepts and literature in the disciplines covered by Black Studies. The role of historical, political, social, and economic forces in shaping cultural expression will be stressed. This course prepares students at all levels with a good foundation for advancement in Black Studies but also with a useful set of guidelines for further achievement in the humanities, behavioral and the social sciences.

**Credit Hours:** 3

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**BL\_STU 1250: World Theatre Workshop**

(same as THEATR 1250). Provides a diverse ensemble of student performers, writers, and technicians with an intensive immersion in the process of theatrical production through the public presentation of dramatic literature that focuses on global issues of ethnicity and culture.

**Credit Hours:** 2

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**BL\_STU 1335: Introduction to Soul and Country**

(same as MUSIC\_NM 1335). Examination of musical cultures signified by 'soul' and 'country'. Study of the evolution and aesthetics of these genres and how they deal with concepts like identity, class, race, and ethnicity; gender and sexuality; politics and patriotism.

**Credit Hours:** 3

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**BL\_STU 1410: African American History**

(same as HIST 1410). Survey of social, political and economic development to the African American people in American life from 1619 to the present.

**Credit Hours:** 3

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**BL\_STU 1700: Black Studies in Gender, Race, Sexuality, and Class: Introduction**

This course introduces students to basic terminology, historical and contemporary dimensions of social inequality centered in race, gender, class and sexuality. Using multidisciplinary lenses to examine social, cultural, political and economic experiences of diverse Black populations, communities and individuals to learn core concepts: race, class, gender, and sexuality toward understanding the implications of socially-constructed identities for distinct groups of Black societies navigating various gendered modes of being. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** BL\_STU 1000

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**BL\_STU 1704: Introduction to Black Politics**

(same as POL\_SC 1704). This course is oriented toward the development of concepts and theory in the study of black politics. The readings in the course are divided into political science categories such as ideology, electoral participation, movement politics and public policy. In addition, major periods in black political history are examined in the light of the behavioral and theoretical concerns prominent in political science. Black Politics seeks an increased understanding of Black Diaspora history as a group and the various political effects of the history of slavery and racism; and (2) studies Black Diaspora struggles for racial justice, civil rights, political equality, and fundamental respect in the face of both explicit and structural or systematic racism. Graded on A-F basis only.

**Credit Hours:** 3

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**BL\_STU 1705: Introduction to Black Studies in Culture**

Introduction to the concepts, terms, themes, and practices in the study of the African diaspora cultures, through readings in literature, music, and the arts that demonstrate concepts, terms, themes, and practices. Recommended for prospective Black Studies Majors. Program consent for repetition.

**Credit Hours:** 3

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**BL\_STU 1705H: Introduction to Black Studies in Culture - Honors**

Introduction to the concepts, terms, themes, and practices in the study of the African diaspora cultures, through readings in literature, music, and the arts that demonstrate concepts, terms, themes, and practices. Recommended for prospective Black Studies Majors. Program consent for repetition.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**BL\_STU 1720: African-American Theatre History**

(same as THEATR 1720). A historical and critical analysis of the evolution of African American cultural performance in the American theatre and entertainment industry.

**Credit Hours:** 3

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**BL\_STU 1790: History of Early Africa**

(same as HIST 1790). This course introduces students to the early history of Africa. It focuses on political, social, economic and cultural developments based on primary and secondary sources available in print and online.

**Credit Hours:** 3

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**BL\_STU 1800: History of Modern Africa**

(same as HIST 1800). This course introduces students to the recent history of Africa. It provides them with an opportunity to understand the main challenges Africans faced since colonial times based on primary and secondary sources.

**Credit Hours:** 3

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**BL\_STU 1801: Introduction to the Black Diaspora**

This course introduces students to the content and contours of Diaspora Studies as a field of study--its genealogy, development, and

future challenges. The course focuses on historic and contemporary experiences of African-descended peoples in the Americas, particularly the United States, the Caribbean, and Latin America. We will also give some attention to how members of the Diaspora remember and encounter Africa, and to how Africans respond to the history of enslavement, colonialism, apartheid, racism and globalization. In addition to literature and research, film, music, photography, and artwork will be used to develop a critical understanding of the African Diaspora. These non-written texts will make abstract readings come to life while stimulating the development of critical thinking skills. Students are encouraged to draw connections between these visual/audio representations and the ideas and issues that we uncover from course readings. Graded on A-F basis only.

**Credit Hours:** 3

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**BL\_STU 2001: Undergraduate Topics in Black Studies-General**

Organized study of selected topics. Subjects and credits may vary from semester to semester. Program consent for repetition.

**Credit Hour:** 1-3

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**BL\_STU 2001H: Undergraduate Topics in Black Studies-General - Honors**

Organized study of selected topics. Subjects and credits may vary from semester to semester. Program consent for repetition.

**Credit Hour:** 1-3

**Prerequisites:** Honors eligibility required

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**BL\_STU 2003: Undergraduate Topics in Black Studies-Behavioral Science**

Organized study of selected topics. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to 6 hours with program consent.

**Credit Hours:** 3

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**BL\_STU 2003W: Undergraduate Topics in Black Studies-Behavioral Science - Writing Intensive**

Organized study of selected topics. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to 6 hours with program consent.

**Credit Hours:** 3

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**BL\_STU 2004: Topics in Black Studies-Social Science**

Organized study of selected topics. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to 6 hours with departmental consent.

**Credit Hours:** 3

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**BL\_STU 2004W: Topics in Black Studies-Social Science - Writing Intensive**

Organized study of selected topics. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to 6 hours with departmental consent.

**Credit Hours:** 3

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**BL\_STU 2005: Topics in Black Studies - Humanities**

Organized study of selected topics focusing on Black history and culture. Specific content may vary from semester to semester and will be announced in advance.

**Credit Hours:** 3

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**BL\_STU 2200: Social Inequalities**

(same as SOCIOL 2200). Survey of inequalities based upon criteria such as race, ethnicity, sex, age, religion and social class in contemporary societies. Focus on dynamics by which privilege and inequality are structured.

**Credit Hours:** 3

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**BL\_STU 2210: The Black Americans**

(same as SOCIOL 2210.) Analysis of history of blacks in the United States. Assessment of contemporary black community in terms of its institutions, style of life, patterns of work and intergroup relations.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 1000 or equivalent or instructor's consent

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**BL\_STU 2303: Studies in Black Relationships**

This course examines constructions of Black American coupling and therefore, gender, race, sexuality, and class in the 20th and 21st centuries. Blackness has been and continues to be reconstructed via marriage, dating, and other forms of coupling. Emphasis will be placed on the role of socialization, institutions, mass media, myth, and individual and group practices. Students will have the opportunity to explore their own socialization and personal construction through assigned readings, self-reflection, experiential activities, and small group presentations.

**Credit Hours:** 3

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**BL\_STU 2400: Introduction to African Diaspora Literature**

(same as ENGLSH 2400). Introduces students to African Diaspora literature with an emphasis on literature written originally in English. No more than six hours may be taken in the Introduction to African Diaspora Literature series.

**Credit Hours:** 3

**Recommended:** ENGLSH 1000

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**BL\_STU 2409: Introduction to African Diaspora Literature, 1890-Present**

(same as ENGLSH 2409). See BL\_STU 2400 for course description.

**Credit Hours:** 3

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**BL\_STU 2410: African American Women in History**

(same as HIST 2410 and WGST 2410). African American Women in history is a topics course covering major issues affecting black women since their introduction into english-speaking North America to the present.

**Credit Hours:** 3

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**BL\_STU 2425: Race and the American Story**

(same as POL\_SC 2425, CNST\_DEM 2425). This course represents a collaboration between the University of Missouri's Department of Black



Studies and the Kinder Institute on Constitutional Democracy. Building upon the existing Citizenship@Mizzou program, the course aims to carry forward the goals of the Citizenship program and to further solidify and magnify its impact on campus. In so doing, the course will also serve as a model for improving diversity education on campuses across the country and contribute to a more informed and unified national culture. The core syllabus will consist in readings that tell the story of the confrontation between American political principles and the practice of racial injustice throughout our history. Students will read and discuss the Declaration of Independence, the slavery clauses in the Constitution, the poetry of Phillis Wheatley, and the speeches of Frederick Douglass, Abraham Lincoln, and Martin Luther King, Jr., among others. They will achieve a greater understanding of how diversity relates to humanity, and will learn to dialogue productively and civilly with others who may not share their background or opinions.

**Credit Hours:** 3

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**BL\_STU 2601: Languages of Africa**

(same as ENGLISH 2601 and LINGST 2601). Introduction to the diversity of the 2000+ African languages, including first-hand experience exploring a few in detail with native speakers. Features of African languages are compared with others of the world. Political and social aspects of language in Africa are discussed.

**Credit Hours:** 3

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**BL\_STU 2604: Caribbean History and Culture**

This course surveys the historical and cultural development of the Caribbean region from colonial times to the present. It emphasizes the colonial decimation of Amerindians and the evolution from plantation societies to slave societies, along with tracing the history of racial and gender relations, imperial rivalries, economic dependency, and ultimately nationalism and political independence.

**Credit Hours:** 3

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**BL\_STU 2700: Black Studies in Gender, Race, Sexuality, and Class: Intermediate**

This course explores the historical and contemporary dimensions of social inequality centered in gender, race, class and sexuality. Using an interdisciplinary lens and feminist analysis this course will analyze social, cultural, political and economic experiences of various individuals and communities. Readings, lectures, films and discussions will focus on diverse structures of power and inequality and their relationship to constructions of patriarchy, capitalism, heterosexism, racism, nationality, and ability. Emphasis will be placed on the socially constructed definitions of various groups and how these definitions affect individual and group experiences. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** BL\_STU 1000

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**BL\_STU 2704: African Political Thought**

This course investigates African political philosophy and debate throughout the period leading to decolonization and the reflective years of thought following independence. Course will focus on individual political thinkers and cultural phenomena beginning with indigenous African theoretical approaches. Topics will include African Nationalism, populism and Marxism, Pan-Africanism, and concludes with contemporary perspectives on democracy, development, and the African State.

**Credit Hours:** 3

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**BL\_STU 2715: Studies in Black Culture**

This course will survey selected forms of black cultural expression, from a range of U.S., Africa, and the African Diaspora cultures in various media including literature, music, film studies, as well as other related disciplines. Program consent for repetition.

**Credit Hours:** 3

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**BL\_STU 2715H: Studies in Black Culture - Honors**

This course will survey selected forms of black cultural expression, from a range of U.S., Africa, and the African Diaspora cultures in various media including literature, music, film studies, as well as other related disciplines. Program consent for repetition.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**BL\_STU 2804: Black Political Thought**

Black Political Thought develops a set of critical tools to help explain the distinctiveness of Black Politics. The distinctiveness of Black Political Thought first emerged from spaces of exclusion in Western nations and colonies. The thinking surrounding Black Political Thought originates in a standpoint, or perspective, profoundly different from that of mainstream Political Theory. Out of this encounter comes a deeper understanding of Black intellectual traditions as well as an enhanced understanding of Political Theory's core concepts. Black Political Thought uses the lens of the African diaspora to investigate the abiding concerns of Political Theory, i.e. the meanings of justice, freedom, and equality; the nature of power, obligation, and 'the good life.'

**Credit Hours:** 3

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**BL\_STU 2904: Black Studies in Slavery and Freedom**

(same as HIST 2904). This course provides study of historical background, economic, political and social implications of slavery and freedom in the African Diaspora (Americas, Africa, Europe, Asia) as well as the legal and extralegal struggles for and meaning of (global, local, and national) freedom.

**Credit Hours:** 3

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**BL\_STU 2940: African Religions**

(same as REL\_ST 2940). This course will serve as an introduction to various forms of religiosity in sub-Saharan Africa. Greater emphasis will be devoted to the indigenous religious traditions of the continent, but we will also examine Christianity and Islam as they are practiced on the continent. The aim of this class is to help students to better understand various aspects of African cultures by dismantling stereotypes and assumptions that have long characterized the study of religions in Africa. The readings and lectures will be drawn from historical, anthropological, sociological, and literary sources. Graded on A-F basis only.

**Credit Hours:** 3

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**BL\_STU 2975: Traditions and Concepts in Black Studies**

This course provides a broad understanding of the diverse theoretical traditions within the field of Black Studies, through a comparative examination of concepts, developments, and debates in humanities,

social and behavioral sciences, including literature, languages, and music, sociology, psychology, political science, women's and gender studies, and history. Course graded on A-F basis only.

**Credit Hours:** 3

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**BL\_STU 3001: Undergraduate Topics in Black Studies - General**

Organized study of selected topics. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to 6 hours with program consent.

**Credit Hours:** 3

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**BL\_STU 3003: Undergraduate Topics in Black Studies - Behavioral Sciences**

Organized study of selected topics focusing on Black history, culture, or other relevant disciplines. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to 6 hours with program consent.

**Credit Hour:** 1-3

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**BL\_STU 3004: Undergraduate Topics in Black Studies - Social Science**

Organized study of selected topics focusing on Black history, culture, or other relevant disciplines. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to 6 hours with program consent.

**Credit Hour:** 1-3

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**BL\_STU 3004W: Undergraduate Topics in Black Studies - Social Science - Writing Intensive**

Organized study of selected topics focusing on Black history, culture, or other relevant disciplines. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to 6 hours with program consent.

**Credit Hour:** 1-3

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**BL\_STU 3005: Undergraduate Topics in Black Studies - Humanities**

Organized study of selected topics focusing on Black history, culture, or other relevant disciplines. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to six credit hours with program consent.

**Credit Hour:** 1-3

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**BL\_STU 3100: African American Psychology**

(same as ESC\_PS 3100 and PSYCH 3880). The research, theories, and paradigms developed to understand the attitudes, behaviors, and psychosocial realities of African-Americans are discussed.

**Credit Hours:** 3

**Recommended:** PSYCH 1000

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**BL\_STU 3200: Black Freedom Movement, 1955-1973**

(same as HIST 3200). Examines the dismantling of American apartheid and its transformation into a new racial control system. It also explores how and why the Civil Rights Movement was converted into a struggle for Black Power.

**Credit Hours:** 3

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**BL\_STU 3230: Studies in Black Sexual Politics**

Course explores Black transnational politics of sex/sexuality and examines the theoretical, historical, and socio-cultural context that race, gender, and sexuality are used as analytical concepts. Students learn a transdisciplinary approach and apply this newly acquired information to analyze shifts in the field of Black sexuality studies. May be repeated for credit.

**Credit Hours:** 3

**Recommended:** sophomore standing required

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**BL\_STU 3303: Black Athletes**

This course examines Black Athletes in the 20th and 21st centuries. Emphasis will be placed on how Blacks entered competitive athletics and the role of racism and power, socialization, institutions, mass media, myth, and individual and group practices. Students will have the opportunity to explore their own socialization and personal construction through assigned readings, self-reflection, experiential activities, and small group presentations.

**Credit Hours:** 3

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**BL\_STU 3400: Survey of African American Literature, Beginnings to 1900**

(same as ENGLISH 3400). A survey of major authors and movements in African American literature from its beginnings to 1900.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**BL\_STU 3400W: Survey of African American Literature, Beginnings to 1900 - Writing Intensive**

(same as ENGLISH 3400). A survey of major authors and movements in African American literature from its beginnings to 1900.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**BL\_STU 3410: Survey of African American Literature, 1900-Present**

(same as ENGLISH 3410). A survey of major authors and movements in African American literature from 1900 to the present.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**BL\_STU 3605: The History of Blacks in Germany**

(same as GERMAN 3605). This course investigates the history of Africans and African Americans in Germany and Central Europe, from Antiquity to today. Special focus on Medieval Africans in Europe, travelling African American intellectuals around 1900, and African American GIs in occupied Germany. This course will challenge your understanding of race and racism.

**Credit Hours:** 3

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**BL\_STU 3605H: The History of Blacks in Germany - Honors**

(same as GERMAN 3605). This course investigates the history of Africans and African Americans in Germany and Central Europe, from Antiquity to today. Special focus on Medieval Africans in Europe,

travelling African American intellectuals around 1900, and African American GIs in occupied Germany. This course will challenge your understanding of race and racism.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**BL\_STU 3624: Comparative Approaches to Black Studies in History**

(same as HIST 3624). Comparative approach to the study of Black Diaspora history that focuses on the theory, method, structure, and application of modes of cultural production within the history of Black Diaspora cultures. Recommended for students with an interest in Black Studies or majors in the Humanities field. Program consent for repetition.

**Credit Hours:** 3

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**BL\_STU 3624W: Comparative Approaches to Black Studies in History - Writing Intensive**

(same as HIST 3624). Comparative approach to the study of Black Diaspora history that focuses on the theory, method, structure, and application of modes of cultural production within the history of Black Diaspora cultures. Recommended for students with an interest in Black Studies or majors in the Humanities field. Program consent for repetition.

**Credit Hours:** 3

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**BL\_STU 3700: Black Studies in Gender, Race, Sexuality, and Class: Advanced**

This course provides in-depth study, reading, analysis, and application of key of race, class, gender, and sexuality, and related systemic racism, sexism, classism, and homophobia that impact social institutions, histories and cultural practices for diverse groups of Black people across the gender, color, age, and ability spectrums, with attention to intersecting modes of being that frame our understanding of Black culture, history, and societies and their implications for inequality and equity. Importantly the course examine the importance of social identities, oppression and privilege, social spaces and how differences and similarities historically, psychologically, and culturally construct symbolic and political Blackness that matters, to whom, for whom, and to what end, by exposing students to culturally-specific forms of internal and external oppression and suppression of voices and the responses of underrepresented, oppressed, and/or exploited groups to recover narratives of empowerment and effect change within their diverse communities and societies. Students will engage in diverse disciplinary methods for studying historical, cultural, and sociological phenomena in Black studies such as double-consciousness and internalized racism, and critique existing models and develop new ways of thinking about, engaging, and critically challenging socially constructed and reconstructed notions of Black gendered monolithic otherness. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** BL\_STU 1000

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**BL\_STU 3703: Themes in Black Society**

Examines various themes, issues, and perspectives in political science, psychology, sociology, and other related disciplines related to social and historical institutions in the U.S., Africa, and the African Diaspora. Recommended for Black Studies or Behavioral Science Majors. Program consent for repetition.

**Credit Hours:** 3

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**BL\_STU 3705: Themes in Black Culture**

Examines various themes, issues and perspective in literature, music, the arts, and other related disciplines related to social and historical institutions in the U.S., Africa, and the African Diaspora. Recommended for Black Studies Majors. Program consent required for repetition.

**Credit Hours:** 3

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**BL\_STU 3804: Resistance in the Black Atlantic**

Enslaved black people resisted slavery in the Americas in a variety of ways. From everyday forms of resistance to the planning of revolts, enslaved people displayed an unwillingness to yield to slavery, assertions of their freedom built on political, philosophical, and economic concepts about society and the rights of human beings. Resistance in what is known as the black Atlantic can be divided into nonviolent and violent forms, but within each of these categories were scores of activities validating the claim that the enslaved never accepted slavery or lost their sense of freedom as human beings. By focusing on nonviolent, violent, everyday and periodic forms of resistance, this course examines how the agency of the enslaved served as a foundation for the culture of freedom in the Americas. Resistance is used to explore the influence of blacks on the historical evolution of the Americas, and the overall aim of this course is to give students an understanding of black resistance as one of the most important sources of the progress of the Atlantic world.

**Credit Hours:** 3

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**BL\_STU 3805: Hip-Hop: Global Music and Culture**

Hip-Hop has captured the minds of youth worldwide, spawning themes, trends, attitudes, and behaviors that are similar to but distinct from the manifestation of hip-hop in the US. This course is designed as an intellectual excursion to explore the US and global creation and consumption of hip-hop through the lens of cultural studies. The class will study processes of imitation, appropriation, translation, and customization and their impact on themes of gender, hegemony, commercialism, sexuality, race, and identity.

**Credit Hours:** 3

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**BL\_STU 3977: Black Studies Methodologies**

Advanced research, writing, and application of knowledge and critical paradigms in Black Studies, through study of such topics as slavery, colonialism, urbanization and migration, environment, gender, race, identity, intellectual movements, cultural studies and popular culture. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** BL\_STU 2975

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**BL\_STU 4001: Undergraduate Topics in Black Studies-General**

Organized study of selected topics. Subjects and credit may vary from semester to semester. Program consent for repetition.

**Credit Hour:** 1-3

**Prerequisites:** junior standing

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**BL\_STU 4001W: Undergraduate Topics in Black Studies-General - Writing Intensive**

Organized study of selected topics. Subjects and credit may vary from semester to semester. Program consent for repetition.

**Credit Hour:** 1-3

**Prerequisites:** junior standing

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**BL\_STU 4003: Topics in Black Studies-Behavioral Science**

Organized study of selected topics. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to 6 hours with departmental consent.

**Credit Hours:** 3

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**BL\_STU 4004: Topics in Black Studies-Social Science**

Organized study of selected topics. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to 6 hours with departmental consent.

**Credit Hours:** 3

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**BL\_STU 4005: Topics in Black Studies-Humanities**

Organized study of selected topics. Subjects, specific content, and credits may vary from semester to semester. Repeatable up to 6 hours with departmental consent.

**Credit Hours:** 3

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**BL\_STU 4020: Studies in Black Feminist Thought**

(same as WGST 4020; cross-leveled with BL\_STU 7020, WGST 7020). Examines recent problems and critical debates within feminist theory. May be repeated for credit (up to 6 credits) with different semester themes.

**Credit Hours:** 3

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**BL\_STU 4040: Slavery and the Crisis of the Union: The American Civil War Era**

(same as HIST 4040, CNST\_DEM 4040). This class explores the history of the Civil War era, a transformative moment in both U.S. and world history. Our goal is to explore and answer a number of questions of great historical significance: How and why did slavery persist in an age of liberal democracy? Why did the pre-war Union prove unable to tolerate the plural visions and diverse institutions of its people? Was the descent into war more a measure of institutional weakness than of the intensity of moral conflict? What were the constituent elements of the competing wartime 'nationalisms' that evolved in both north and south? How and why did a war that began to restore the Union become one for emancipation? How was it the forerunner of modern, 'total' warfare? Did the governmental, socio-economic and racial changes wrought by war constitute a 'second American revolution'? Were the limits or the achievements of post-war Reconstruction more notable? And, last but certainly not least, how did the triumph of the Union condition the political and economic development of a rapidly globalizing world?

**Credit Hours:** 3

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**BL\_STU 4130: African-American Politics**

(same as POL\_SC 4130). Surveys political participation of African-Americans in American politics. Analyzes their public lives in the context

of elections, behavior of political organizations, social movements, parties, and level of government.

**Credit Hours:** 3

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**BL\_STU 4210: African-American Religion**

(same as REL\_ST 4210). Examines the organization of major African American Christian denominations, Islam and religious movements. Twentieth century issues will be discussed, including sexism, classism and homophobia in church communities.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**BL\_STU 4230: Women, Development, and Globalization**

(same as SOCIOL 4230, WGST 4230, PEA\_ST 4230; cross-leveled with BL\_STU 7230, SOCIOL 7230, WGST 7230). Examines the history and structure of 'development' discourse and practices. Stresses the interconnections and impact on women globally. Reviews women's strategies in defining and instituting programs to improve quality of life in communities.

**Credit Hours:** 3

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**BL\_STU 4270: African-Americans in the Twentieth Century**

(same as HIST 4270; cross-leveled with BL\_STU 7270, HIST 7270). Surveys the African-American experience from 1900 to the present. Attention is given to economic, political, social, and cultural trends.

**Credit Hours:** 3

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**BL\_STU 4300: The Black Family: Past, Present & Future**

(same as H\_D\_FS 4300; cross-leveled with BL\_STU 7300, H\_D\_FS 7300). Emphasis is on the unique social, economic, religious, educational and political environments that have affected the structure and function of the black family.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**BL\_STU 4303: Black Studies in Race, Class, Gender, and U.S. Policy**

(same as HIST 4303; cross-leveled with BL\_STU 7303, HIST 7303). Examines the causes and effects of the vast social and economic inequalities that exist between blacks and whites in US society, including the role federal, state and local government play in creating and addressing such inequalities as financial, tax, environmental, trade, and foreign policies as well as issues of human and social welfare.

**Credit Hours:** 3

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**BL\_STU 4335: The Wire: Race, Urban Inequality, and the 'Crisis' of the American City**

(same as HIST 4235; cross-leveled with BL\_STU 7335, HIST 7235). The HBO series 'The Wire', a crime drama based on the border city of Baltimore, exposed the interlocking, structural realities giving shape to the landscapes, neighborhoods, and lived experiences of urban America during the early twenty-first century. Through vivid storytelling, 'The Wire' complicates understandings of the 'urban crisis' through a focus on the inner workings of major institutions such as the media, public schools, politics, underground economies, public housing, and the criminal justice system and on the ways in which poor and working-class black residents

negotiate power and survival. Using the cable series as a lens, this class offers students the opportunity to critically examine the historical, economic, social, and political dimensions of urban inequality.

**Credit Hours:** 3

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**BL\_STU 4352: Historical Studies in African Music**

(same as MUS\_H\_LI 4352). Ethnomusicological introduction to the music and culture of countries and ethnic groups in Africa. Traditional and contemporary popular styles are explored, and influences of Islamic invasions, missionary arrivals, colonial conquests, neo-colonial trends, and globalization.

**Credit Hours:** 3

**Prerequisites:** Open to upper-level undergraduate students with instructor's consent

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**BL\_STU 4400: Studies in African Diaspora Literature**

(same as ENGLISH 4400; cross-leveled with BL\_STU 7400, ENGLISH 7400). Topics (e.g., African American Poetry, African Diaspora Drama) announced at time of registration. No more than six hours may be taken in the Studies in African Diaspora Literature series.

**Credit Hours:** 3

**Recommended:** junior standing

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**BL\_STU 4409: Studies in African Diaspora Literature, 1890 to Present**

(same as ENGLISH 4409; cross-leveled with BL\_STU 7409, ENGLISH 7409). See BL\_STU 4400 for course description.

**Credit Hours:** 3

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**BL\_STU 4415: African Americans and American Justice**

(same as HIST 4415; cross-leveled with BL\_STU 7415, HIST 7415). This course provides opportunities to review and discuss selected court cases and legislation in which black men, women, or children were plaintiffs and defendants or affected by the laws.

**Credit Hours:** 3

**Prerequisites:** senior standing required

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**BL\_STU 4415W: African Americans and American Justice - Writing Intensive**

(same as HIST 4415; cross-leveled with BL\_STU 7415, HIST 7415). This course provides opportunities to review and discuss selected court cases and legislation in which black men, women, or children were plaintiffs and defendants or affected by the laws.

**Credit Hours:** 3

**Prerequisites:** senior standing required

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**BL\_STU 4420: Africana Womanism**

(same as ENGLISH 4420; cross-leveled with BL\_STU 7420, ENGLISH 7420). An intensive study of Africana Womanism, focusing on selected Africana women writers. May be repeated to six hours with departmental consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**BL\_STU 4480: Major African Diaspora Women Writers**

(same as WGST 4480, ENGLISH 4480; cross-leveled with BL\_STU 7480, WGST 7480, ENGLISH 7480). Study of selected Africana Diaspora women writers, focusing on texts originally in English. Repeatable with department's consent. Maximum of 6 hours for Black Studies 4180 and 4480.

**Credit Hours:** 3

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**BL\_STU 4488: Major African Diaspora Women Writers, 1789 to 1890**

(same as WGST 4488, ENGLISH 4488; cross-leveled with BL\_STU 7488, WGST 7488, ENGLISH 7488). See BL\_STU 4480 for course description.

**Credit Hours:** 3

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**BL\_STU 4489: Major African Diaspora Women Writers, 1890 to Present**

(same as WGST 4489, ENGLISH 4489; cross-leveled with BL\_STU 7489, WGST 7489, ENGLISH 7489). See BL\_STU 4480 for course description.

**Credit Hours:** 3

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**BL\_STU 4489W: Major African Diaspora Women Writers, 1890 to Present - Writing Intensive**

(same as WGST 4489W, ENGLISH 4489W; cross-leveled with BL\_STU 7489, WGST 7489, ENGLISH 7489). See BL\_STU 4480 for course description.

**Credit Hours:** 3

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**BL\_STU 4500: Special Problems in Black Studies**

Independent project or paper, not leading to dissertation.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**BL\_STU 4604: Advanced Studies in Black Politics**

(cross-leveled with BL\_STU 7604). This is an advanced undergraduate, graduate cross-level course exploring political systems through the lens of the Black cultural and political experience. The overall goal of the course is to get students to think about and understand the importance of politics. The issues that will be focused upon are ones that are of specific importance to Black politics. This course is a challenging one in the sense that students will be required to think and write critically and thoughtfully about the issues. It will also be an interesting one given that all students keep up with the readings and participate actively and regularly. This course is intended to sharpen analytical thinking about Black politics, discuss contemporary issues and problems with respect to political systems, examine various avenues of political expression, and raise questions and new ideas pertaining to the exploration of Black politics. Graded on A-F basis only.

**Credit Hours:** 3

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**BL\_STU 4640: African Politics**

(same as POL\_SC 4640). A general comparative course focusing on post-independent Africa. Theories and concepts related to decolonization, nationalism, democratization, and ethnicity; also institutional forms and organizations: political parties, parliaments, and executives.

**Credit Hours:** 3

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**BL\_STU 4704: Religion and Black Freedom**

(same as REL\_ST 4704). In this course, we will explore the role of religion in the shaping of the African diaspora in the Americas through discussions of the readings. We will focus on the use of religion to pursue emancipation from enslavement and the concept of full freedom. Research and theories from mainly history, religious studies, and literature will be used to examine some of the ways in which black people have improved their condition through religion. The main objective of this course is to study the connections between religion and the fashioning of black resistance to slavery and systems of domination after slavery.

**Credit Hours:** 3

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**BL\_STU 4705: Advanced Studies and Themes in Black Culture**

(cross-leveled with BL\_STU 7705). This cross-level course provides students with an advanced understanding of the cultural traditions and social organization of Black communities across the African Diaspora. The selected topics covered include family structure, social institutions, religious forms, musical genres, folklore and oral histories. The course explores the cultural continuities from a shared African heritage and emphasizes the regionally distinctive cultural practices resulting from local transformations through cultural adaptation. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** The Department recommends students complete BL\_STU 3977 or another approved methods or writing intensive course prior to registering for this course

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**BL\_STU 4710: Themes in African Diaspora Folklore**

(same as ANTHRO 4160 and ENGLSH 4710.) Intensive study in a selected area of African Diaspora Folklore: folk narrative, folk song, myth, proverb, etc., folklore and literature, or the folklore of a particular group. 4710 may be repeated for a maximum of six hours with instructor's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**BL\_STU 4773: Pan Africanism**

(cross-leveled with BL\_STU 7773). Geographically this course will focus heavily on Pan-Africanism in the United States and the U.K. as well as Africa and the Caribbean. The course will also touch briefly on Pan-Africanism in Latin America and Asia. In addition to the concept of Pan-Africanism, we will explore related themes such as Black Nationalism, Ethiopianism, and Negritude while situating key figures of the African diaspora within the intellectual genealogy of Pan-African thought. Lectures will be supplemented with documentary films and other multimedia sources. Graded on A-F basis only. **Recommended:** The department recommends that students complete BLSTU\_3977: Methodologies or another writing intensive course.

**Credit Hours:** 3

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**BL\_STU 4804: Historical Studies of Black Women**

This course offers a comprehensive examination of the origins, developments, and productions of the specified time period with emphases on black women as creative artists, activists, performers, musicians, and writers.

**Credit Hours:** 3

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**BL\_STU 4875: Black Studies: Study Abroad-Humanities**

This interdisciplinary study abroad course provides students with global experience within the African Diaspora, the opportunity to study in a foreign culture, augment their 'global competencies,' and support their study and/or career development.

**Credit Hours:** 3

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**BL\_STU 4877: Black Studies: Study Abroad-Social Science**

This interdisciplinary study abroad course provides students with global experience within the African Diaspora, the opportunity to study in a foreign culture and augment their 'global competencies' and support their study and/or career development. Graded A-F basis only.

**Credit Hours:** 3

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**BL\_STU 4904: Historical and Contemporary Slavery**

(same as HIST 4904). An exploration of slavery in both its historical and contemporary context, focusing on the origins, characteristics, and struggles to abolish the practice. Historical slavery examined using African enslavement in the Americas, and contemporary slavery using human trafficking and forced labor in the developed and developing world.

**Credit Hours:** 3

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**BL\_STU 4977: Black Studies Capstone**

This course is designed to permit students to integrate general and specialized knowledge within the three Black Studies tracks (History, Society, Culture) using an interdisciplinary approach. Topics vary according to instructor and core discipline. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Junior standing

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**BL\_STU 7020: Studies in Black Feminist Thought**

(same as WGST 7020; cross-leveled with BL\_STU 4020 and WGST 4020). Examines recent problems and critical debates within black feminist theory.

**Credit Hours:** 3

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**BL\_STU 7270: African-Americans in the Twentieth Century**

(same as HIST 7270). Surveys the African-American experience from 1900 to the present. Attention is given to economic, political, social, and cultural trends.

**Credit Hours:** 3

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**BL\_STU 7300: The Black Family: Past, Present & Future**

(same as H\_D\_FS 7300). Emphasis is on the unique social, economic, religious, educational and political environments that have affected the structure and function of the black family.

**Credit Hours:** 3

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**BL\_STU 7303: Black Studies in Race, Class, Gender, and U.S. Policy**

(same as HIST 7303; cross-leveled with BL\_STU 4303, HIST 4303). Examines the causes and effects of the vast social and economic

inequalities that exist between blacks and whites in US society, including the role federal, state and local government plays in creating and addressing such inequalities as financial, tax, environmental, trade and foreign policies as well as issues of human and social welfare.

**Credit Hours:** 3

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**BL\_STU 7335: The Wire: Race, Urban Inequality, and the 'Crisis' of the American City**

(same as HIST 7235; cross-leveled with HIST 4235, BL\_STU 4335). The HBO series 'The Wire', a crime drama based on the border city of Baltimore, exposed the interlocking, structural realities giving shape to the landscapes, neighborhoods, and lived experiences of urban America during the early twenty-first century. Through vivid storytelling, 'The Wire' complicates understandings of the 'urban crisis' through a focus on the inner workings of major institutions such as the media, public schools, politics, underground economies, public housing, and the criminal justice system and on the ways in which poor and working-class black residents negotiate power and survival. Using the cable series as a lens, this class offers students the opportunity to critically examine the historical, economic, social, and political dimensions of urban inequality.

**Credit Hours:** 3

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**BL\_STU 7420: Africana Womanism**

(same as ENGLSH 7420). An intensive study of Africana Womanism, focusing on selected Africana women writers. May be repeated to six hours with departmental consent.

**Credit Hours:** 3

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**BL\_STU 7480: Major African Diaspora Women Writers**

(same as WGST 7480 and ENGLSH 7480). Study of selected African Diaspora women writers, focusing on texts originally in English. May be repeated for credit with departmental consent. Maximum of 6 hours for Black Studies 7180 and 7480.

**Credit Hours:** 3

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**BL\_STU 7604: Advanced Studies in Black Politics**

(cross-leveled with BL\_STU 4604). This is an advanced undergraduate, graduate cross-level course exploring political systems through the lens of the Black cultural and political experience. The overall goal of the course is to get students to think about and understand the importance of politics. The issues that will be focused upon are ones that are of specific importance to Black politics. This course is a challenging one in the sense that students will be required to think and write critically and thoughtfully about the issues. It will also be an interesting one given that all students keep up with the readings and participate actively and regularly. This course is intended to sharpen analytical thinking about Black politics, discuss contemporary issues and problems with respect to political systems, examine various avenues of political expression, and raise questions and new ideas pertaining to the exploration of Black politics. Graded on A-F basis only.

**Credit Hours:** 3

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**BL\_STU 7705: Advanced Studies and Themes in Black Culture**

(cross-leveled with BL\_STU 4705). This cross-level course provides students with an advanced understanding of the cultural traditions and social organization of Black communities across the African Diaspora.

The selected topics covered include family structure, social institutions, religious forms, musical genres, folklore and oral histories. The course explores the cultural continuities from a shared African heritage and emphasizes the regionally distinctive cultural practices resulting from local transformations through cultural adaptation. Graded on A-F basis only.

**Credit Hours:** 3

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**BL\_STU 7773: Pan Africanism**

(cross-leveled with BL\_STU 4773). Geographically this course will focus heavily on Pan-Africanism in the United States and the U.K. as well as Africa and the Caribbean. The course will also touch briefly on Pan-Africanism in Latin America and Asia. In addition to the concept of Pan-Africanism, we will explore related themes such as Black Nationalism, Ethiopianism, and Negritude while situating key figures of the African diaspora within the intellectual genealogy of Pan-African thought. Lectures will be supplemented with documentary films and other multimedia sources.

**Credit Hours:** 3

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**BL\_STU 8000: Independent Readings in Black Studies**

Readings on selected topics in Black Studies, with emphasis on the implications of the interdisciplinary and intersecting areas of History, Society, and Culture. May be repeated to a maximum of six hours.

**Credit Hours:** 3

**Prerequisites:** Department Consent Required

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**BL\_STU 8001: Graduate Seminar in Black Studies**

This research seminar introduces students to the central themes, traditions, and scholarly work in Black Studies on a graduate level. It also emphasizes critical thinking, research, and writing in order to prepare students for undertaking effective and successful scholarly writing projects. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** This course is designed for graduate and professional students

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**BL\_STU 8400: Seminar in African Diaspora Literature**

(same as ENGLSH 8400). Topic (e.g., Autobiography, Black Women Writers) announced at time of registration. May be repeated to 12 hours with departmental consent.

**Credit Hours:** 3

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**BL\_STU 8510: Ecology, Conservation, and Environmental Justice**

(same as F\_W 8510). The goal of this course is to introduce graduate students in natural resource management and conservation biology to the ecological and management concepts that underlie environmental justice issues, and to explain how broader environmental justice concepts are relevant to natural resource and conservation fields. Graded on A-F basis only. Prerequisites: One undergraduate course from the following list of disciplines: ecology, natural resource management, conservation biology, sociology or equivalent.

**Credit Hours:** 2

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**BL\_STU 8901: Graduate Topics in Black Studies**

Graduate seminar arranged by topics or themes related to Black Studies. Graded on A-F basis only.

**Credit Hours:** 3

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## **Business Administration (BUS\_AD)**

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**BUS\_AD \_0501: College of Business Study Abroad Pre-departure required on-Campus Information Session**

Place holder Course for required per-departure on campus information sessions Zero credit and billing hours No term finalization

**Credit Hours:** 0

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**BUS\_AD 1500: Foundations of Business and Professional Development Principles**

This course will provide students the opportunity to learn how to be successful in the Trulaske College of Business (TCoB) as they prepare for a career in business. Students will be led through an exploration of opportunities in our college as well as their personal strengths and how those strengths match with various business academic and career paths. Further, students will learn competencies that are necessary for both academic and professional success. This course is offered as a component of the college's unique Professional Development Program. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to freshman and sophomore students during early registration

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**BUS\_AD 2500: Intermediate Professional Development Principles**

Introduction to Professional Development in Business, will provide students the opportunity to learn about professional interpersonal dynamics - understanding and working with others. Students will learn skills imperative to forming and nurturing professional relationships and will have the opportunity to practice these skills via field experience. Throughout the course, students will continue to develop the professional competencies necessary for career success. This course is offered as a component of the college's unique Professional Development Program. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** 27 credit hours

**Corequisites:** BUS\_AD 1500 or MNGMT 1050

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**BUS\_AD 3500: Advanced Professional Development Principles**

Provides a discussion of professional competencies important for success as a business professional. Includes the assessment, communication and development of competencies valued by employers. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Must be a BSBA or ACCT\_BSACC major

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**BUS\_AD 4500: Professional Development Program - Internship**

This course is designed to help students practice professional core competencies in the workplace. Students will secure a professional-level work experience and apply classroom knowledge and interpersonal skills.

This course is a graduation requirement for students seeking the BSBA degree. Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites:** BUS\_AD 3500; Restricted to Upper Level Business Majors who have had their internship approved by the Professional Development Program

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**BUS\_AD 7050: MBA Communications Practice**

Special laboratory instruction in oral and written communication skills with an emphasis on business communications.

**Credit Hours:** 3

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**BUS\_AD 7340: Business Ethics and Leadership**

Case studies, discussion, and readings used to integrate critical thinking about ethical issues into business decision. Development and application of ethical decision making frameworks.

**Credit Hour:** 1.5

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**BUS\_AD 8001: Topics in Business Administration**

Selected topics in administration offered on experimental basis.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**BUS\_AD 8010: MBA Seminar**

Integration of business executives and real world problem solving, career preparation, and professional growth activities. Assignments emphasize teamwork and group productivity. May be repeated. Some sections may be graded on A-F or S/U basis.

**Credit Hour:** 1-3

**Prerequisites:** MBA students only

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**BUS\_AD 8020: MBA Seminar**

Integration of business executives and real world problem solving, career preparation, and professional growth activities. Assignments emphasize teamwork and group productivity. May be repeated. Some sections may be graded on A-F or S/U basis.

**Credit Hour:** 1-3

**Prerequisites:** MBA students only

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**BUS\_AD 8030: MBA Seminar**

Integration of business executives and real world problem solving, career preparation, and professional growth activities. Assignments emphasize teamwork and group productivity. Some sections may be graded A-F or S/U only. May be repeated.

**Credit Hour:** 1-3

**Prerequisites:** MBA students only

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**BUS\_AD 8500: Business Problem Analysis: Field Project**

Application of functional areas of business to real-world cases in business planning. Students will prepare and present business plan for an organization as a team project in a supervised experience.

**Credit Hours:** 3

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**BUS\_AD 8600: Business Consulting**

Students work in a team consulting capacity, with medium to large organizations, identifying and defining relatively complex and often ambiguous business problems such as needs assessment, quality management, systems management, policy/strategy formulation and similar areas.

**Credit Hours:** 3

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**BUS\_AD 8730: International Study Abroad**

Study abroad opportunities in one or more countries. Focuses on selected international business issues, cultural differences, and visiting businesses on-site. Some sections may be graded on A-F or S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** consent required

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## Chemical Engineering (CH\_ENG)

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**CH\_ENG 1000: Introduction to Chemical Engineering**

Orientation course for freshmen-level students. Introduction to careers and opportunities in chemical engineering, basic engineering principles, simple calculations.

**Credit Hours:** 2

**Prerequisites or Corequisites:** MATH 1500, CHEM 1320

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**CH\_ENG 1000H: Introduction to Chemical Engineering - Honors**

Orientation course for freshmen-level students. Introduction to careers and opportunities in chemical engineering, basic engineering principles, simple calculations.

**Credit Hours:** 2

**Prerequisites or Corequisites:** MATH 1500, CHEM 1320. Honors eligibility required

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**CH\_ENG 2225: Mass and Energy Balance**

Industrial stoichiometry, material and energy balances, thermophysics, thermochemistry; related topics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** PHYSCS 2750, CHEM 1330

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**CH\_ENG 2225H: Mass and Energy Balance - Honors**

Industrial stoichiometry, material and energy balances, thermophysics, thermochemistry; related topics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** PHYSCS 2750, CHEM 1330

**Prerequisites:** Honors eligibility required

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**CH\_ENG 2226: Engineering Process Computations**

Introduction to the effective use of computer software with emphasis on chemical engineering applications, which include solutions for systems of algebraic equations using matrix methods; solutions of ordinary differential equations and partial differential equations and visualization of those solutions; linear, multilinear, and nonlinear regression for data analysis; 2D and 3D plotting, symbolic calculations, process control simulations, and text processing.

**Credit Hours:** 3

**Prerequisites or Corequisites:** CH\_ENG 2225, MATH 2300

**Prerequisites:** MATH 1700

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**CH\_ENG 3075: Introduction to Materials Engineering**

(same as BIOL\_EN 3075, BME 3075). Course covers concepts and techniques in materials engineering from an engineering design perspective, materials requirements for design, and fundamentals; intended for undergraduate engineering students. Graded on A-F basis only. Prerequisites or Corequisites: One of the following: BIOL\_EN 3180, BME 3180, CH\_ENG 3234, MAE 4231, MAE 4300, or instructor's consent.

**Credit Hours:** 3

**Prerequisites:** MATH 2300, ENGINR 1200 (or instructor's consent)

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**CH\_ENG 3233: Chemical Engineering Fluid Dynamics**

Introductory-level continuum mechanics of fluid flow (first in a two-course series on transport phenomena). Topics emphasized include buoyancy; stress; integral and differential conservation of mass, momentum, and energy; the viscous stress equations of motion; Newtonian fluids, viscosity, creeping flow, and the Navier-Stokes equations; turbulence; dimensionless parameters and correlations; and solutions to partial differential equations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MATH 4100

**Prerequisites:** PHYSCS 2750, MATH 2300, and a grade of C- or better in CH\_ENG 2225

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**CH\_ENG 3234: Momentum, Heat, and Mass Transfer**

Fluid flow, heat and mass transfer. A comprehensive treatment of the transport processes related to chemical engineering operations, with focus on both theory and applications.

**Credit Hours:** 4

**Prerequisites or Corequisites:** MATH 4100

**Prerequisites:** grade of C- or better in CH\_ENG 2225; PHYSCS 2750, MATH 2300

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**CH\_ENG 3235: Separation Processes**

Separation processes in chemical engineering, including: Evaporation, absorption, distillation, extraction, leaching, membrane separation, and drying.

**Credit Hours:** 3

**Prerequisites or Corequisites:** CH\_ENG 3262

**Prerequisites:** CH\_ENG 2225, CH\_ENG 2226

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**CH\_ENG 3243: Chemical Engineering Laboratory I**

Laboratory study of some principal unit operations of chemical engineering.

**Credit Hours:** 3

**Prerequisites or Corequisites:** CH\_ENG 3235, CH\_ENG 4363

**Prerequisites:** CH\_ENG 2226, CH\_ENG 3234, PHYSCS 2760

**Recommended:** CH\_ENG 4370 or concurrent enrollment

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**CH\_ENG 3243W: Chemical Engineering Laboratory I - Writing Intensive**

Laboratory study of some principal unit operations of chemical engineering. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** CH\_ENG 3235, CH\_ENG 4363

**Prerequisites:** CH\_ENG 2226, CH\_ENG 3234

**Recommended:** CH\_ENG 4370 or concurrent enrollment

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**CH\_ENG 3261: Chemical Engineering Thermodynamics I**

Introduction to classical thermodynamics with chemical engineering applications. Heat, work, and energy; Application of the Laws of Thermodynamics to closed systems, open systems, and power and refrigeration cycles; Thermochemical calculations; Equations of state; Phase equilibrium properties of pure fluids.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MATH 2300

**Prerequisites:** PHYSCS 2750; grade of C or better in CH\_ENG 2225

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**CH\_ENG 3262: Chemical Engineering Thermodynamics II**

Chemical thermodynamics, with emphasis on mixtures. Multicomponent systems and phase diagrams; residual and excess properties; chemical potential, fugacity, and activity; models of non-ideal mixtures; phase and surface equilibria; chemical reaction equilibria.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3261, MATH 2300

**Recommended:** CHEM 2110 or concurrent enrollment

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**CH\_ENG 3307: Chemical Process Safety and Professional Ethics**

A course focused on important technical fundamentals of chemical process safety and their application including professional ethics considerations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 2225

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**CH\_ENG 4001: Topics in Chemical Engineering**

Current and new technical developments in chemical engineering.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**CH\_ENG 4085: Problems in Chemical Engineering**

Directed study of chemical engineering problems.

**Credit Hour:** 2-4

**Prerequisites:** instructor's consent

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**CH\_ENG 4220: Hazardous Waste Management**

(same as CV\_ENG 4220; cross-leveled with CH\_ENG 7220, CV\_ENG 7220). Engineering principles involved in handling, collection, transportation, processing and disposal of hazardous waste, waste minimization, legislation on hazardous wastes and groundwater contamination.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**CH\_ENG 4232: Ceramic Materials and Processing**

(same as MAE 4232; cross-leveled with MAE 7232, CH\_ENG 7232). Treatment of ceramics materials, structure, and ceramic processing with hands-on demonstration/labs.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 2200, BIOL\_EN 3075, BME 3075, or CH\_ENG 3075

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**CH\_ENG 4270: Design of Experiments and Statistical Quality Control for Process Engineers**

(same as BIOL\_EN 4270; cross-leveled with CH\_ENG 7270, BIOL\_EN 7270). A practical statistical tool box for experimenters: process means, effects of variables, factorial experiments, and statistical quality control.

**Credit Hours:** 3

**Recommended:** experience with Excel or instructor's consent

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**CH\_ENG 4285: Pollution Prevention**

Identify, analyze, and solve energy, water, and raw materials inefficiencies common to industrial processes and facilities. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Thermodynamics (ENGINR 2300, MAE 2300, or CH\_ENG 3261); Sophomore standing

**Recommended:** CHEM 1320

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**CH\_ENG 4306: Advanced Engineering Math**

(same as NU\_ENG 4306). Applies ordinary and partial differential equations to engineering problems; Fourier's series; determinants and matrices; Laplace transforms; analog computer techniques.

**Credit Hours:** 3

**Prerequisites:** MATH 4100

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**CH\_ENG 4311: Chemodynamics**

(cross-leveled with CH\_ENG 7311). Environmental movement of chemicals in air, water, and soil; designed to introduce students to the basic principles and techniques useful for the prediction of the movement and fate chemicals in ecosystems.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3234 or instructor's consent

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**CH\_ENG 4312: Air Pollution Control**

(cross-leveled with CH\_ENG 7312). Modeling of urban air pollution and control techniques. Topics treated are plume dispersion theories, photochemistry, methods of monitoring, methods of industrial abatement and legal aspects.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3234 or instructor's consent

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**CH\_ENG 4315: Principles of Biochemical Engineering**

(same as BIOL\_EN 4315; cross-leveled with CH\_ENG 7315, BIOL\_EN 7315). This course serves as an introduction to the application of biological, biochemical, and engineering fundamentals for biochemical processing. Topics include biological basics, enzyme kinetics, metabolic pathways, cell growth kinetics, analysis of intracellular flux, thermodynamics of biological reactions, and bioreactor design and

modeling. Analyses proceed through the use of mass balances, energy balances, and empirical or theoretical models.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 2180 (for Biological Engineering students) or CH\_ENG 2225 (for Chemical Engineering students) or Instructor's consent

**Recommended:** BIOL\_EN 3180 (for Biological Engineering students) or CH\_ENG 3234 (for Chemical Engineering students) as a prerequisite or a co-requisite

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#### **CH\_ENG 4316: Biomass Refinery Operations**

(same as BIOL\_EN 4316; cross-leveled with CH\_ENG 7316, BIOL\_EN 4316). Design and operation of processes for conversion and/or fractionation of biomass and associated upstream and downstream unit operations. Emphasis on separations and product recovery.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 2180 (for Biological Engineering students) or CH\_ENG 2225 (for Chemical Engineering students) or instructor's consent

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#### **CH\_ENG 4317: Chemical Processing in Semiconductor Device**

(cross-leveled with CH\_ENG 7317). This course covers the current plasma processing methods used to produce semiconductor devices with emphasis on memory devices. The physics and chemistry of how plasmas are formed, sustained and interact with the semiconductor wafers being processed. Plasma chemistry and the chemical reactions used in plasma etching are discussed.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760, CHEM 1320, and MATH 4100 or MATH 7100

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#### **CH\_ENG 4318: Energy Technology and Sustainability**

An introductory course on energy technology, resources, practices, and common calculations used for energy analysis. May be repeated for credit. Recommended: at least one thermodynamics or physical chemistry course (examples: CHEM 3310, CH\_ENG 3261, ENGINR 2300, MAE 2300, PHYSCS 4120) or instructor's consent.

**Credit Hours:** 3

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#### **CH\_ENG 4319: Introduction to Polymers**

(cross-leveled with CH\_ENG 7319). This course provides a general introduction to polymer materials and their engineering applications. The course centers on two aspects: (i) fundamental knowledge about polymer properties and synthesis; and (ii) an introduction of some emerging polymer materials, including polymer nanocomposites, conductive polymers, biodegradable polymers, self-healing polymers, and hydrogels. Examples from current literature are also introduced to expose students to the frontier research in the field.

**Credit Hours:** 3

**Prerequisites or Corequisites:** CH\_ENG 4363

**Prerequisites:** CHEM 2110, CH\_ENG 3234, CH\_ENG 3262

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#### **CH\_ENG 4335: Intermediate Transport Phenomena**

(cross-leveled with CH\_ENG 7335). Integrated study of momentum, heat and mass transport.

**Credit Hours:** 3

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**Prerequisites:** CH\_ENG 3234, and MATH 4100 or MATH 7100

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#### **CH\_ENG 4363: Chemical Reaction Engineering and Technology**

Reactor design and optimization; rate equations; thermal effects in reactor.

**Credit Hours:** 3

**Prerequisites:** CHEM 1330, CH\_ENG 2226, CH\_ENG 3234

**Recommended:** CH\_ENG 3262

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#### **CH\_ENG 4370: Process Control**

State-space modeling, simulation, and experimental validation; stability analysis; feedback design and experimental studies; methods for disturbance rejection.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 2225, CH\_ENG 2226, MATH 4100

**Recommended:** CH\_ENG 3261, MATH 4140

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#### **CH\_ENG 4385: Chemical Engineering Design I**

The course presents optimum design methods, cost estimation, material selection and other relevant areas for the design of chemical plants. In addition, chemical safety and risk assessment will be covered. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** CH\_ENG 4363

**Prerequisites:** CH\_ENG 2226, CH\_ENG 3234, CH\_ENG 3235, CH\_ENG 3262, CHEM 2110

**Recommended:** CH\_ENG 4370 or concurrent enrollment

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#### **CH\_ENG 4401: Finite Element Methods in Chemical Engineering**

(cross-leveled with CH\_ENG 7401). The numerical solution of engineering problems in heat and mass transport, computational fluid dynamics, and chemical reactions including electromagnetic effects are treated in full detail using finite element methods and computational software to solve problems in one, two, and three dimensional spaces. Both time dependent and steady state solutions are considered. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MATH 4100

**Prerequisites:** CHEM 1330, CH\_ENG 2226

**Recommended:** CH\_ENG 3234 and CH\_ENG 4363, or concurrent enrollment

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#### **CH\_ENG 4464: Electrochemical Reaction Engineering Science**

(cross-leveled with CH\_ENG 7464). Phenomenological behavior of electrochemical processes (battery emphasis). Theoretical interpretations of diffusion and reaction processes including system modeling. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3261 or MAE 2300 or CHEM 4310 or instructor's consent

**Recommended:** A course in thermodynamics or physical chemistry

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#### **CH\_ENG 4980: Process Synthesis and Design**

(cross-leveled with CH\_ENG 7980). Continuation of CH\_ENG 4385: application of chemical analysis and modeling to a capstone design project.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3262, CH\_ENG 4363, CH\_ENG 4385

**Recommended:** CH\_ENG 4370 or concurrent enrollment

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**CH\_ENG 4980W: Process Synthesis and Design - Writing Intensive**

(cross-leveled with CH\_ENG 7980). Continuation of CH\_ENG 4385: application of chemical analysis and modeling to a capstone design project.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3262, CH\_ENG 4363, CH\_ENG 4385

**Recommended:** CH\_ENG 4370 or concurrent enrollment

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**CH\_ENG 4990: Undergraduate Research in Chemical Engineering**

Directed study of chemical engineering problems.

**Credit Hour:** 2-4

**Prerequisites:** instructor's consent

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**CH\_ENG 4995: Undergraduate Research in Chemical Engineering - Honors**

Individual research for a senior thesis; research is supervised by the chemical engineering faculty. The thesis is to be defended before the departmental Honors committee.

**Credit Hour:** 3-6

**Prerequisites:** senior standing

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**CH\_ENG 7001: Topics in Chemical Engineering**

Current and new technical developments in chemical engineering.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**CH\_ENG 7220: Hazardous Waste Management**

(same as CV\_ENG 7220; cross-leveled with CH\_ENG 4220, CV\_ENG 4220). Engineering principles involved in handling, collection transportation, processing and disposal of hazardous waste minimization, legislation on hazardous wastes and groundwater contamination.

**Credit Hours:** 3

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**CH\_ENG 7232: Ceramic Materials and Processing**

(same as MAE 7232; cross-leveled with CH\_ENG 4232, MAE 4232). Treatment of ceramics materials, structure, and ceramic processing with hands-on demonstration/labs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MAE 2200 or equivalent course

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**CH\_ENG 7270: Design of Experiments and Statistical Quality Control for Process Engineers**

(same as BIOL\_EN 7270; cross-leveled with CH\_ENG 4270, BIOL\_EN 4270). A practical statistical tool box for experimenters: process means, effects of variables, factorial experiments, and statistical quality control.

**Credit Hours:** 3

**Prerequisites:** experience with Excel or instructor's consent

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**CH\_ENG 7311: Chemodynamics**

(cross-leveled with CH\_ENG 4311). Environmental movement of chemicals in air, water, and soil; designed to introduce students to the basic principles and techniques useful for the prediction of the movement and fate chemicals in ecosystems.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3234 or instructor's consent

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**CH\_ENG 7312: Air Pollution Control**

(cross-leveled with CH\_ENG 4312). Modeling of urban air pollution and control techniques. Topics treated are plume dispersion theories, photochemistry, methods of monitoring, methods of industrial abatement and legal aspects.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3234 or instructor's consent

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**CH\_ENG 7315: Principles of Biochemical Engineering**

(same as BIOL\_EN 7315; cross-leveled with CH\_ENG 4315, BIOL\_EN 4315). This course serves as an introduction to the application of biological, biochemical, and engineering fundamentals for biochemical processing. Topics include biological basics, enzyme kinetics, metabolic pathways, cell growth kinetics, analysis of intracellular flux, thermodynamics of biological reactions, and bioreactor design and modeling. Analyses proceed through the use of mass balances, energy balances, and empirical or theoretical models.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 2180 (for biological engineering students) or CH\_ENG 2225 (for chemical engineering students) or Instructor's consent

**Recommended:** BIOL\_EN 3180 (for Biological Engineering students) or CH\_ENG 3234 (for Chemical Engineering students) as a prerequisite or a co-requisite

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**CH\_ENG 7316: Biomass Refinery Operation**

(same as BIOL\_EN 7316; cross-leveled with CH\_ENG 4316, BIOL\_EN 4316). Design and operation of processes for conversion and/or fractionation of biomass and associated upstream and downstream unit operations. Emphasis on separations and product recovery.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 2180 or CH\_ENG 2225 or instructor's consent

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**CH\_ENG 7317: Chemical Processing in Semiconductor Device**

(cross-leveled with CH\_ENG 4317). This course covers the current plasma processing methods used to produce semiconductor devices with emphasis on memory devices. The physics and chemistry of how plasmas are formed, sustained and interact with the semiconductor wafers being processed. Plasma chemistry and the chemical reactions used in plasma etching are discussed.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760, CHEM 1320, and MATH 4100 or MATH 7100

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**CH\_ENG 7319: Introduction to Polymers**

(cross-leveled with CH\_ENG 7319). This course provides a general introduction to polymer materials and their engineering applications. The course centers on two aspects: (i) fundamental knowledge about polymer

properties and synthesis; and (ii) an introduction of some emerging polymer materials, including polymer nanocomposites, conductive polymers, biodegradable polymers, self-healing polymers, and hydrogels. Examples from current literature are also introduced to expose students to the frontier research in the field.

**Credit Hours:** 3

**Prerequisites or Corequisites:** CH\_ENG 4363

**Prerequisites:** CHEM 2110, CH\_ENG 3234, CH\_ENG 3262

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### **CH\_ENG 7335: Intermediate Transport Phenomena**

(cross-leveled with CH\_ENG 4335). Integrated study of momentum, heat and mass transport.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3234, and MATH 4100 or MATH 7100

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### **CH\_ENG 7401: Finite Element Methods in Chemical Engineering**

(cross-leveled with CH\_ENG 4401). The numerical solution of engineering problems in heat and mass transport, computational fluid dynamics, and chemical reactions including electromagnetic effects are treated in full detail using finite element methods and computational software to solve problems in one, two, and three dimensional spaces. Both time dependent and steady state solutions are considered. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MATH 4100

**Prerequisites:** CHEM 1330, CH\_ENG 2226

**Recommended:** CH\_ENG 3234 and CH\_ENG 4363, or concurrent enrollment

---

### **CH\_ENG 7464: Electrochemical Reaction Engineering Science**

(cross-leveled with CH\_ENG 4464). Phenomenological behavior of electrochemical processes (battery emphasis). Theoretical interpretations of diffusion and reaction processes including system modeling. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3261 or MAE 2300 or CHEM 4310 or instructor's consent

**Recommended:** A course in thermodynamics or physical chemistry

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### **CH\_ENG 7980: Synthesis and Design of Chemical Process**

(cross-leveled with CH\_ENG 4980). This is a heuristics-based design course intended to assist students in bringing together capabilities from previous course. An emphasis is placed on the creation process of design. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3262, CH\_ENG 4363, CH\_ENG 4385

**Recommended:** CH\_ENG 4370 or concurrent enrollment

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### **CH\_ENG 8001: Advanced Topics in Chemical Engineering**

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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### **CH\_ENG 8029: Advanced Plasma Processing**

Concepts and techniques in novel plasma processing: plasma characteristics, plasma sputtering, plasma enhanced chemical vapor deposition (PECVD), plasma etching, plasma treatment, plasma

fabrication of nano-structured materials and diamondlike films, biomedical applications.

**Credit Hours:** 3

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### **CH\_ENG 8085: Problems in Chemical Engineering**

Supervised investigation in chemical engineering to be presented in the form of a report.

**Credit Hour:** 1-5

**Prerequisites:** instructor's consent

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### **CH\_ENG 8087: Seminar in Chemical Engineering**

Reviews investigations and projects of importance in chemical engineering.

**Credit Hour:** 1

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### **CH\_ENG 8230: Advanced Ceramic Materials**

(same as BIOL\_EN 8230 and MAE 8230). To provide an advanced level understanding between processing, properties, and microstructure of ceramic materials. Topics include crystallography, defect chemistry, transport properties, microstructure, and forming methods. Graded on A-F basis only.

**Credit Hours:** 3

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### **CH\_ENG 8336: Advanced Heat and Momentum Transfer**

Advanced study of these transport phenomena.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3235 or instructor's consent

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### **CH\_ENG 8337: Advanced Mass Transfer**

Advanced study of mass transfer.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 4336 or instructor's consent

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### **CH\_ENG 8338: Analysis of Equilibrium Stage Processes**

Advanced study of stage processes.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 2226, CH\_ENG 3235 and CH\_ENG 3262

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### **CH\_ENG 8451: Advanced Chemical Engineering Thermodynamics I**

Advanced thermodynamics; particular reference to its application to chemical engineering.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 3262 or instructor's consent

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### **CH\_ENG 8452: Advanced Chemical Engineering Thermodynamics II**

Introduction to the methods of statistical thermodynamics and statistical mechanics. The method of ensembles, Maxwell-Boltzmann statistics, the kinetic theory of gases, and theories of liquids. Applications of statistical mechanics to the prediction of physical and chemical properties such as rate coefficients, diffusion coefficients, and conductivities. Graded A-F only.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 8451 or instructor's consent

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**CH\_ENG 8463: Chemical Reaction Engineering Science**

Phenomenological behavior of catalysts. Theoretical interpretations for heterogeneous and homogeneous catalysts.

**Credit Hours:** 3

**Prerequisites:** CH\_ENG 4363

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**CH\_ENG 8470: Mathematical Studies of Chemical Engineering Operation**

Analytical methods applied to solution of chemical engineering problems.

**Credit Hours:** 3

**Prerequisites:** MATH 4100

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**CH\_ENG 8990: Research-Masters Thesis in Chemical Engineering**

Independent investigation in chemical engineering, to be presented as a thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** Masters candidate

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**CH\_ENG 9990: Research-Doctoral Dissertation in Chemical Engineering**

Independent investigation in chemical engineering, to be presented as a thesis. Graded on a S/U basis only. candidate

**Credit Hour:** 1-99

**Prerequisites:** Ph.D

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## Chemistry (CHEM)

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**CHEM 1000: Introductory Chemistry**

Introductory course for students with no high school background in chemistry. Covers fundamental principles of scientific measurement, stoichiometry, solutions, basic atomic structure, gases. No credit if taken after CHEM 1100 or CHEM 1320 .

**Credit Hours:** 2

**Prerequisites or Corequisites:** MATH 1100 or MATH 1120

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**CHEM 1100: Atoms and Molecules with Lab**

One-semester introduction for non-science majors to the basic concepts and important applications of chemistry. Satisfies A&S requirement for a laboratory science. No credit if taken after CHEM 1000, CHEM 1310 or CHEM 1320.

**Credit Hours:** 3

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**CHEM 1100H: Atoms and Molecules with Laboratory - Honors**

One-semester introduction for non-science majors to the basic concepts and important applications of chemistry. Satisfies A&S requirement for a laboratory science. No credit if taken after CHEM 1310.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**CHEM 1320: College Chemistry I**

First of two-course sequence emphasizing principles and applications of modern chemical sciences. Covers chemical nomenclature,

stoichiometry, kinetic molecular theory, atomic structure, periodic properties, and molecular structure and bonding. Satisfies laboratory science requirement. Math Reasoning Proficiency Course.

**Credit Hours:** 4

**Prerequisites:** MATH 1100. MATH 1050 is NOT an appropriate substitution for College Algebra

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**CHEM 1320H: College Chemistry I - Honors**

First of a two-course sequence emphasizing principles and applications of modern chemical sciences. Covers chemical nomenclature, stoichiometry, kinetic molecular theory, atomic structure, periodic properties, and molecular structure and bonding. Satisfies laboratory science requirement. Math Reasoning Proficiency Course.

**Credit Hours:** 4

**Prerequisites:** MATH 1100 or equivalent. Honors eligibility required. MATH 1050 does not satisfy the math requirement

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**CHEM 1330: College Chemistry II**

Continuation of CHEM 1320. Covers intermolecular forces, solutions, kinetics, acid-base chemistry, electrochemistry, nuclear chemistry, thermodynamics. Satisfies requirement for a laboratory science. May be taken concurrently with CHEM 2030 or CHEM 2100.

**Credit Hours:** 4

**Prerequisites:** grade of C- or better in CHEM 1320 or CHEM 1320H

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**CHEM 1330H: College Chemistry II- Honors**

Continuation of CHEM 1320H. Covers equilibria, kinetics, electrochemistry, nuclear chemistry, thermodynamics. Satisfies requirement for a laboratory science. May be taken concurrently with CHEM 2030 or CHEM 2100.

**Credit Hours:** 4

**Prerequisites:** grade of C- or better in CHEM 1320 or CHEM 1320H. Honors eligibility required

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**CHEM 2030: Survey of Organic Chemistry**

One-semester introduction to structure and bonding, functional group chemistry, principles of reactivity, reaction mechanisms, the molecules of life.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in CHEM 1320 or CHEM 1320H or equivalent. Recommended CHEM 1330, or CHEM 1330 concurrently

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**CHEM 2100: Organic Chemistry I**

First course of a two-semester sequence. Structure and bonding; chemistry of hydrocarbons, alkyl halides, alcohols and ethers; reaction mechanisms; principles of reactivity and synthesis; IR and NMR spectroscopy. Only 1 hour credit if taken after CHEM 2030 or equivalent.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CHEM 1320 or equivalent or CHEM 1330 concurrently

**Recommended:** CHEM 1330

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**CHEM 2110: Organic Chemistry II**

Continuation of CHEM 2100. Aromatic hydrocarbons, carbonyls, amines; chemistry of carbanions; reactions of polar double bonds; nucleic acids, proteins, carbohydrates and fats.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CHEM 2100 or equivalent, or departmental consent

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**CHEM 2130: Organic Laboratory I**

Basic lab techniques, functional group manipulations, and short syntheses. Pre-lab and post-lab writing assignments. 1 hour recitation, 3 hours lab per week.

**Credit Hours:** 2

**Recommended:** Concurrent enrollment in CHEM 2110 or CHEM 2030. No credit for students who have previous organic laboratory credit

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**CHEM 2130H: Organic Laboratory I - Honors**

Basic lab techniques, functional group manipulations, and short syntheses. Pre-lab and post-lab writing assignments. 1 hour recitation, 3 hours lab per week.

**Credit Hours:** 2

**Prerequisites:** Honors eligibility required

**Recommended:** Concurrent enrollment in CHEM 2110 or CHEM 2030. No credit for students who have previous organic laboratory credit

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**CHEM 2140: Organic Laboratory II**

Continuation of CHEM 2130. Preparation and identification of organic compounds; application of instrumental techniques. 2 lab sessions, 1 recitation session per week.

**Credit Hours:** 2

**Prerequisites:** grade of C- or better in CHEM 2110 and CHEM 2130 or equivalent

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**CHEM 2170H: Honors Organic Chemistry II with Lab - Honors**

Continuation of CHEM 2160H; includes laboratory. Content and structure similar to CHEM 2110, but with increased depth and breadth.

**Credit Hours:** 5

**Prerequisites:** honors eligibility, grade of B or better in CHEM 2160H or instructor's permission

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**CHEM 2400: Fundamentals of Inorganic Chemistry with Lab**

A systematic introduction with laboratory to inorganic and organometallic compounds, reactions, and periodic properties.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CHEM 2130

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**CHEM 2950: Undergraduate Research in Chemistry**

A laboratory research project and/or preparation of compounds with a written final report. Cannot be substituted for other chemistry courses required for a B.S. or B.A. degree. No more than 6 hrs. total credit.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing, 2.75 GPA and/or instructor's consent

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**CHEM 3200: Quantitative Methods of Analysis with Lab**

Principles and practice of quantitative analysis, including the basic principles of modern instrumental methods.

**Credit Hours:** 4

**Prerequisites:** CHEM 1330 or CHEM 1500H

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**CHEM 3300: Fundamentals of Physical Chemistry**

Survey of physical chemistry. Satisfies physical chemistry prerequisite for BIOCHM 8430.

**Credit Hours:** 3

**Prerequisites:** MATH 1700, a course in organic chemistry; PHYSCS 1210 and PHYSCS 1220 or PHYSCS 2750, or PHYSCS 2760

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**CHEM 3700: Undergraduate Seminar in Chemistry**

Methods for locating and presenting chemical information, data analysis techniques, professional issues.

**Credit Hours:** 3

**Prerequisites:** CHEM 1330 and CHEM 2100

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**CHEM 3700W: Undergraduate Seminar in Chemistry - Writing Intensive**

Methods for locating and presenting chemical information, data analysis techniques, professional issues.

**Credit Hours:** 3

**Prerequisites:** CHEM 1330 and CHEM 2100

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**CHEM 3800: Internship in Chemistry**

Cannot be substituted for other chemistry courses required for B.S. or B.A. degree.

**Credit Hour:** 1-6

**Prerequisites:** departmental consent

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**CHEM 4001: Topics in Chemistry - General**

Organized study designed to broaden the knowledge base of students. Subjects on analytical, inorganic, organic and physical chemistry covered.

**Credit Hour:** 1-99

**Prerequisites:** departmental consent

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**CHEM 4010: Advanced Chemistry Laboratory**

Advanced methods for the synthesis and characterization of organic, inorganic, and organometallic compounds.

**Credit Hours:** 3

**Prerequisites:** CHEM 2400, CHEM 2140, or CHEM 2190H, CHEM 3200, CHEM 4330 (or CHEM 4330 corequisite)

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**CHEM 4050: Problems in Chemistry**

Individual study under the direction of a faculty member that supplements regular course work.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**CHEM 4160: Intermediate Organic Chemistry**

Stresses synthetic organic chemistry at an intermediate level.

**Credit Hours:** 3

**Prerequisites:** at least one year organic chemistry

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**CHEM 4170: Medicinal Chemistry**

Chemical mechanisms of drug action. Topics include drug metabolism and action, chemical toxicology and medicines, enzyme activity, and specific drug case studies.

**Credit Hours:** 3

**Prerequisites:** CHEM 2110 or instructor's consent

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**CHEM 4200: Instrumental Methods of Analysis with Lab**

(cross-leveled with CHEM 7200). Chemical instrumentation methods including electrochemistry, spectroscopy, and advanced separations techniques.

**Credit Hours:** 3

**Prerequisites:** CHEM 3200, a semester of physical chemistry

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**CHEM 4280: Environmental Chemistry**

Surveys the chemistry of air and water environments; discusses the chemistry of waste treatment.

**Credit Hours:** 3

**Prerequisites:** 8 hours chemistry including organic and analytical

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**CHEM 4310: Physical Chemistry I**

Lecture only. Topics include the kinetic theory of gases, chemical kinetics, thermodynamics and chemical equilibrium.

**Credit Hours:** 3

**Prerequisites:** CHEM 2100, MATH 1700, and PHYSCS 1220 or 2760

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**CHEM 4330: Physical Chemistry II**

Lecture only. Covers wave mechanics, bonding, molecular spectroscopy and statistical mechanics.

**Credit Hours:** 3

**Prerequisites:** MATH 2300 or instructor approval. May be taken independently of CHEM 4310

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**CHEM 4330H: Physical Chemistry II - Honors**

Covers wave mechanics, bonding, molecular spectroscopy and statistical mechanics.

**Credit Hours:** 3

**Prerequisites:** MATH 2300 or instructor approval. May be taken independently of CHEM 4310. Honors eligibility required

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**CHEM 4340: Physical Chemistry Laboratory**

This course is intended to introduce the practice of experimental physical chemistry including applying the principles of thermodynamics, kinetics, and spectroscopy in experiments.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in CHEM 3200; CHEM 4330 or CHEM 4330 concurrently

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**CHEM 4400: Inorganic Chemistry**

(cross-leveled with CHEM 7400). Atomic and molecular structure, bonding, kinetics and mechanism, ligand field theory, coordination compounds, acids and bases.

**Credit Hours:** 3

**Prerequisites:** CHEM 2400

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**CHEM 4490: Physics and Chemistry of Materials**

(same as NU\_ENG 4319, PHYSCS 4190, BIOL\_EN 4480; BME 4480; cross-leveled with CHEM 7490, NU\_ENG 7319, PHYSCS 7190, BIOL\_EN 7480). Physics and Chemistry of Materials is a 3 credit hours course offered every spring semester for students from Physics, Chemistry, Engineering and Medical Departments and consists of lectures, laboratory demonstrations, two mid-term and one final exam. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2750, CHEM 1320 or equivalent, or instructor's consent

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**CHEM 4600: Introduction to Radiochemistry with Lab**

Introduces application of radio-tracer techniques to chemical research.

**Credit Hours:** 3

**Prerequisites:** CHEM 1330

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**CHEM 4800: Chemistry Teaching Practicum**

Provides practical experience teaching introductory chemistry in discussion and laboratory settings. For students pursuing dual degrees in chemistry and secondary education. For students pursuing simultaneous dual degrees in chemistry and secondary education. Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites:** senior standing; departmental consent required

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**CHEM 4950: Senior Research**

A laboratory research project with approved written goals and a final written report. It may be taken twice.

**Credit Hours:** 3

**Prerequisites:** a 2.75 GPA, departmental consent

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**CHEM 4990H: Senior Honors Research I**

A laboratory research experience with a student-instructor prepared outline approved by the Honors Director, a final written report and a final oral presentation and examination. May replace CHEM 4950 in ACS Certification Track or 4000+ level elective requirement for Medicinal Chemistry track. Must take CHEM 4990H and CHEM 4991H for departmental honors.

**Credit Hours:** 3

**Prerequisites:** a 3.33 GPA, departmental consent, and approval of project outline. Honors eligibility required

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**CHEM 4991H: Senior Honors Research II**

A laboratory research experience with a student-instructor prepared outline approved by the Honors Director, a final written report and a final oral presentation and examination.

**Credit Hours:** 3



**Prerequisites:** a 3.33 GPA, departmental consent, approval of project outline. Honors eligibility required

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**CHEM 7087: Seminar in Chemistry for Beginning Graduate Students**  
Seminar in Chemistry for Beginning Graduate Students

**Credit Hour:** 1

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**CHEM 7200: Instrumental Methods of Analysis with Lab**  
(cross-leveled with CHEM 4200). Chemical instrumentation methods including electrochemistry, spectroscopy, and advanced separations techniques.

**Credit Hours:** 3

**Prerequisites:** CHEM 3200, a semester of physical chemistry

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**CHEM 7300: Intermediate Physical Chemistry**

Treatment of atomic and molecular, structure and spectroscopy based on quantum concepts. Designed to provide a broad base of knowledge in these fundamental areas to beginning graduate students in chemistry.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**CHEM 7400: Inorganic Chemistry**

(cross-leveled with CHEM 4400). Atomic and molecular structure, bonding, kinetics and mechanism, ligand field theory, coordination compounds, acids and bases.

**Credit Hours:** 3

**Prerequisites:** CHEM 2400

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**CHEM 7490: Physics and Chemistry of Materials**

(same as NU\_ENG 7319, PHYSICS 7190, BIOL\_EN 7480; cross-leveled with CHEM 4490, NU\_ENG 4319, PHYSICS 4190, BIOL\_EN 4480, BME 4480). Physics and Chemistry of Materials is a 3 credit hours course offered every spring semester for students from Physics, Chemistry, Engineering and Medical Departments and consists of lectures, laboratory demonstrations, two mid-term and one final exam. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 2750, CHEM 1320 or equivalent, or instructor's consent

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**CHEM 8003: Topics in Chemistry - Natural Science**

Organized study of selected topics. Subjects and earned credit may vary from semester to semester. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**CHEM 8050: Non-Thesis Research in Chemistry**

Does not lead to dissertation.

**Credit Hour:** 1-99

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**CHEM 8085: Topics in Chemistry**

Organized study of selected topics. Subjects and earned credit may vary from semester to semester. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**CHEM 8087: Seminar in Chemistry**

Seminar in Chemistry

**Credit Hour:** 1

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**CHEM 8090: Thesis/Dissertation (pre-candidacy) Research in Chemistry**

Research leading to thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**CHEM 8150: Organic Reaction Mechanisms**

Organic reaction mechanisms are discussed within a framework of structure-reactivity relationships. Particular attention directed to the chemistry of reactive intermediates and the application of stereochemical and molecular orbital concepts.

**Credit Hours:** 3

**Prerequisites:** 1 year of Organic Chemistry and Physical Chemistry

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**CHEM 8160: Organic Spectroscopy**

Structural analysis of organic compounds involving problem solving using modern NMR, IR, UV-VIS, MS CD/ORD and other spectroscopic techniques.

**Credit Hours:** 3

**Prerequisites:** CHEM 3330 or equivalent or instructor's consent

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**CHEM 8170: Applications of the Reactions of Organic Chemistry**

**Credit Hours:** 3

**Prerequisites:** CHEM 8150

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**CHEM 8210: Analytical Measurement**

Fundamental and applied aspects of scientific measurements. Topics include: Statistics, signal-to-noise, frequency analysis, sources of noise, digital and analog filtering, time vs. frequency domain measurements, Fourier transformation, sampling, convolution/deconvolution, autocorrelation and cross-correlation. Directed toward entering graduate students.

**Credit Hours:** 3

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**CHEM 8230: Separations and Chromatography**

Classical and instrumental methods of separation: gas, paper, thin film, and column chromatography; ion exchange.

**Credit Hours:** 3

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**CHEM 8240: Mass Spectrometry**

This course will cover various aspects of modern mass spectrometry. Topics will include instrumentation, theory, uses and interfaces to mass spectrometry. Graded on A-F basis only.

**Credit Hours:** 3

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**CHEM 8250: Analytical Spectroscopy**

Selected topics dealing with recent advances in analytical chemistry.

**Credit Hours:** 3

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**CHEM 8260: Surface Analysis and Characterization**

Covers various aspects of modern methods of surface analysis and characterization. Topics include instrumentation, theory, and data reduction methods. Major sections include electron spectroscopy, microscopy, and vibrational spectroscopy as applied to surfaces. Graded on A-F basis only.

**Credit Hours:** 3

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**CHEM 8265: Fluorescence Spectroscopy**

Advanced analytical chemistry course that explores the fundamental principles and uses of modern fluorescence spectroscopy in biology, materials science, chemistry, physics and engineering. Special emphasis is placed on the methodologies used to obtain specific information about a particular chemical system. Graded on A-F basis only.

**Credit Hours:** 3

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**CHEM 8270: Advanced Analytical Chemistry**

Continuation of CHEM 8250.

**Credit Hours:** 3

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**CHEM 8280: Bioanalytical Chemistry**

This course is aimed at introducing students to the instrumental and theoretical principles by which biological molecules are measured in vivo and in vitro. The course explores how protein, DNA and metabolite structures and quantities are determined in the laboratory with an emphasis on understanding historical methods up through cutting edge approaches in each field. The theory of measurement techniques, separation techniques and related instrumentation are explored in the context of understanding the chemical equilibria that govern each instance. Students will leave this course with a broad understanding for how many biological molecules are measured and what the limitations of various techniques may be. Graded on A-F basis only.

**Credit Hours:** 3

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**CHEM 8285: Nanochemistry**

Covers various aspects of nanochemistry. Topics include synthesis and characterization of nonmaterial, nanotoxicity, and catalysis. Graded on A-F basis only.

**Credit Hours:** 3

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**CHEM 8310: Quantum Chemistry**

Introduction to formal quantum mechanical theory, quantum measurement, simple model problems having exact solutions, angular momenta, approximation methods (perturbation theory, variation principle, WKB), and the structure of many-electron atoms.

**Credit Hours:** 3

**Prerequisites:** CHEM 4330 or equivalent or instructor's consent

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**CHEM 8320: Chemical Kinetics**

Factors affecting rates, orders and mechanisms of chemical reactions, with emphasis on current theories and experimental techniques.

**Credit Hours:** 3

**Prerequisites:** CHEM 4330 or equivalent or instructor's consent

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**CHEM 8330: Computational Chemistry**

Theory and application of modern computational techniques (molecular mechanics, ab initio and semiempirical molecular orbital methods) for predicting the structures, energies, and properties of molecules and molecular systems.

**Credit Hours:** 3

**Prerequisites:** CHEM 3300 or equivalent or instructor's consent

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**CHEM 8340: Statistical Mechanics**

Principles of statistical mechanics and their application to chemical systems; ensemble theory; condensed phases.

**Credit Hours:** 3

**Prerequisites:** CHEM 4330 or equivalent or instructor's consent

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**CHEM 8360: Atomic-Scale Simulations**

This course will provide an in-depth introduction to the methods and applications of atomic-scale simulation methods (mainly classical molecular dynamics, hereafter 'MD') for graduate students in chemistry, physics, materials science, and engineering. One of the beauties of MD methods is that, if applied judiciously and with skill, they provide exquisitely high-fidelity information about the fundamental properties and processes that occur on time scales ranging from femtoseconds to nanoseconds (or longer) and space scales ranging from Ångströms to approximately microns. In many cases, this information can be used to guide or assess theoretical developments, interpret experiments, or provide insights or predictions for thermodynamic or non-equilibrium states that are not easily achieved or are difficult to probe experimentally. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor consent

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**CHEM 8410: Chemistry of the Main Group Elements**

Descriptive inorganic chemistry of the main group elements. Textbook material extensively supplemented with information from the current chemical literature.

**Credit Hours:** 3

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**CHEM 8420: Supramolecular Chemistry**

The basics of supramolecular chemistry will be covered, including host-guest complexes, reorganization, complementarily, thermodynamic interactions, self assembly and biochemical, molecular device and crystal engineering applications. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BS in Chemistry, Biochemistry or Chemical Engineering

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**CHEM 8430: Coordination Chemistry and Reactivity**

The chemistry of the transition elements (d-block) and their reactivity will be discussed, including bonding, coordination numbers, oxidation states, and reactivity (kinetics). Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CHEM 4400 or equivalent; graduate standing in chemistry or instructor's consent

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**CHEM 8440: Inorganic Structural Methods**

Chemical bonding, application of group theory, spectroscopy; diffraction as applied to structure determination; structural implications of dipole moment and magnetic susceptibility measurements.

**Credit Hours:** 3

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**CHEM 8450: Organometallics**

Condensations effected by organometallics; dissolving metal reductions; sandwich compounds and related organotransition metal derivatives.

**Credit Hours:** 3

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**CHEM 8470: Actinide Chemistry**

The course covers the inorganic and organometallic chemistry of the actinides. Graded on A-F basis only.

**Credit Hours:** 3

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**CHEM 8480: Chemistry of Nanomaterials**

This course will cover several aspects of nanomaterials including synthesis and processing of small particles, as well as their characterization by crystallography, scanning tunneling microscopy magnetism, and other optical properties. Also studied will be the application of quantum confinement to the electronic and optical properties of nanomaterials and the development of photonic materials. The nanostructure of organic polymers, micelles, and the process of biomineralization to make organic-inorganic hybrid materials will also be discussed.

**Credit Hours:** 3

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**CHEM 8600: Radiochemistry and Detection with Lab**

An introductory course in the applications of radionuclides in chemistry. Topics include radioactive decay, interactions of radiation with matter, radioactive tracers, and nuclear methods of analysis. Directed towards entering graduate students.

**Credit Hours:** 3

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**CHEM 8610: Advanced Radiochemistry**

Reviews current advances in radiochemistry, hot atom chemistry, radiation chemistry, nuclear spectrometry.

**Credit Hours:** 3

**Prerequisites:** CHEM 8600 or equivalent

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**CHEM 8630: Radiopharmaceutical Chemistry**

The radiotracer concept, history of nuclear medicine, radionuclide production, organic and inorganic chemistry of radiopharmaceutical chemistry, and applications will be discussed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** undergraduate organic and inorganic chemistry; graduate standing in chemistry or instructor's consent

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**CHEM 8640: Biological Radiochemistry**

(same as V\_M\_S 8640). Covers the interaction of radiation on biological material. The effects of radiation overdose is discussed along with the use of radiation in therapy. Graded on A-F basis only.

**Credit Hours:** 3

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**CHEM 9090: Post-candidacy Dissertation Research in Chemistry**

Research leading to Ph.D. dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**Child Health (CH\_HTH)**

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**CH\_HTH 6000: Child Health Clerkship**

Students have the opportunity to learn about common illnesses and abnormalities in children. Emphasis also is placed on the importance of preventive and developmental aspects of child care. Lectures and case presentations correlate with the clinical experiences.

**Credit Hours:** 8

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**CH\_HTH 6010: Rural Child Health Clerkship**

Rural Child Health Clerkship

**Credit Hours:** 8

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**CH\_HTH 6020: Springfield Child Health Clerkship**

Students have the opportunity to learn about common illnesses and abnormalities in children. Emphasis also is placed on the importance of preventive and developmental aspects of child care. Lectures and case presentations correlate with the clinical experiences.

**Credit Hours:** 8

**Prerequisites:** Successful completion of the first two years of medical school

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**CH\_HTH 6037: SCC Pediatric Intensive Care**

Student will learn the initial approach and daily management of children requiring care in the Pediatric Intensive Care Unit. Students will learn the evaluation of and the management of critically ill or injured children focusing on airway and pulmonary physiology, cardiac physiology, neurological diseases, traumatic injuries, acute overdoses, endocrine emergencies, basic fluid management, and the medically complex child. Pharmacologic and nutritional management of the critically ill or injured child will also be reviewed.

**Credit Hours:** 5

**Prerequisites:** Successful completion of 5 of the 7 core clerkships. One of the 5 must be the Child Health clerkship. CH\_HTH 6000, 6010, 6020, or 6100

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**CH\_HTH 6043: SCC Pediatric Allergy and Immunology**

This subspecialty elective emphasizes experience in the evaluation and management of common clinical problems in allergy and immunology. The learner will assist in the diagnosis and management of asthma, rhinitis/conjunctivitis/rhinosinusitis, atopic dermatitis, contact dermatitis, urticaria, angioedema, anaphylaxis and adverse reactions to foods, drugs and stinging insects. Additional experience in immunodeficiency disorders, as well as experience in allergy skin testing, administration of allergen immunotherapy, performance and interpretation of pulmonary function tests, and performance of food challenges and/or drug challenges/desensitizations may also be provided. Outpatients will be evaluated by the student under supervision of the faculty physician. In addition, it is expected that the learner will complete recommended

readings, participate in selected on-line learning activities and complete both pre-test and post-test assessments.

**Credit Hours:** 5

**Recommended:** Successful completion of the Child Health clerkship

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**CH\_HTH 6045: SCC Neonatal Intensive Care Unit Selective**

Students will gain experience in the evaluation, diagnosis, and management of sick newborns, and in the performance of specialized procedures necessary for ICU care.

**Credit Hours:** 5

**Prerequisites:** Successful completion of 5 of the 7 core clerkships. One of the 5 must be Child Health clerkship

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**CH\_HTH 6055: Springfield Pediatric Endocrinology**

This rotation is primarily an outpatient experience, though the student may be asked to do inpatient consultations with the attending physician. This elective will present an in-depth experience of diabetes/endocrinology as a subspecialty, including but not limited to exposure to disorders in growth and puberty, obesity, abnormalities in thyroid function, and managing blood glucose levels in patients with type 1 diabetes. Additional teaching methods used may include mini-lectures and readings relevant to this subspecialty.

**Credit Hours:** 5

**Prerequisites:** Successful completion of the first two years of medical school. Completion of M3 CH clerkship suggested but not required

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**CH\_HTH 6100: Remediation Child Health Clerkship**

Enrolled students are those who received an unsatisfactory grade in a Child Health Clerkship at any Mizzou Med location or site. This course gives them the opportunity to rectify a deficiency.

**Credit Hours:** 8

**Prerequisites:** CH\_HTH 6000 Child Health Clerkship, received unsatisfactory grade

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**CH\_HTH 6221: Advanced Biomedical Science Medicine Problem Premature Infant**

Advanced Biomedical Science Medicine Problem Premature Infant

**Credit Hours:** 5

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**CH\_HTH 6223: ABS Child Health Research**

ABS Child Health Research

**Credit Hour:** 5-10

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**CH\_HTH 6225: ABS Child Health Research and Review**

ABS Child Health Research and Review

**Credit Hour:** 5-10

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**CH\_HTH 6425: Child Health Genetics**

Goals/Objectives: To develop an understanding of medical genetics, including genetic diagnosis, cytogenetics, metabolic genetic diseases, teratology, and the genetics literature, and computer databases. CURRICULUM: During the block, each student will see patients in consultation and in the genetics clinics (general genetics, metabolic, PKU, autism, Down Syndrome, outreach) where they will work up

the patients and prepare a report and discussion of the diagnosis or diagnostic differential. Each student will also prepare a literature review around a specific patient or problem. For interested students, cytogenetics or metabolic problems are available.

**Credit Hours:** 5

**Prerequisites:** Child Health clerkship

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**CH\_HTH 6426: Child Health Infectious Disease**

Child Health Infectious Disease

**Credit Hours:** 5

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**CH\_HTH 6427: Pediatric Hematology/Oncology**

Pediatric Hematology/Oncology

**Credit Hours:** 5

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**CH\_HTH 6428: Pediatric Diabetes and Endocrinology**

Goals/Objectives: 1) To understand the pathophysiology of endocrine and metabolic diseases in childhood. 2) To understand the fundamentals of growth processes in infancy, childhood, and adolescence. CURRICULUM: The Department of Child Health has a large patient care and research program for children with diabetes mellitus. In addition, the Department has a busy general endocrinology program. Thus, students on the elective can participate in the care of patients with a wide spectrum of endocrine and metabolic diseases. Students can carry out specific clinical or laboratory projects relating to specific aspects of either diabetes or endocrine disease, deepen their understanding of pathophysiology of disease and gain a better understanding of the impact of a chronic disorder on the child and his/her family.

**Credit Hours:** 5

**Prerequisites:** Child Health Clerkship

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**CH\_HTH 6429: Developmental Pediatrics**

Developmental Pediatrics

**Credit Hours:** 5

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**CH\_HTH 6430: Pediatric Cardiology**

Goals/Objectives: Clinical and laboratory material is available to achieve the following objectives: 1) Develop skills in auscultation, resuscitation, treatment of congestive heart failure, and recognition of congenital heart disease in infants. 2) Adequate exposure to pediatric electrocardiography, echocardiography, cineangiography, and interpretation of cardiac catheterization data. 3) Proficiency in the management of postoperative cardio-vascular patients.

**Credit Hours:** 5

**Prerequisites:** Child Health Clerkship

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**CH\_HTH 6431: Pediatric Pulmonology**

Goals/Objectives: To gain experience in the treatment of asthma, bronchopulmonary dysplasia, cystic fibrosis, sleep disorders, and other respiratory diseases and to learn about pulmonary function testing in children.

**Credit Hours:** 5

**Prerequisites:** Child Health Clerkship

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**CH\_HTH 6432: Pediatric Gastroenterology**

Goals/Objectives: 1) Gain experience in GI diseases of children noting the difference and similarities with adult diseases. 2) To introduce the student to some of the most commonly encountered diagnoses in pediatrics and to its management. 3) To learn to focus on physical diagnosis skills. CURRICULUM: Preceptorship with a pediatric subspecialist for four weeks will include inpatient and outpatient service activities.

**Credit Hours:** 5

**Prerequisites:** Child Health Clerkship

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**CH\_HTH 6434: Child Adolescent Medicine**

Goals/Objectives: To teach 4th year students the intricacies of care of the adolescent patient. Specifically, the rotation will address the adolescent interview, important considerations in the adolescent 'check-up', and managing the varied problems in adolescents, from attention deficit disorder to eating disorders and gynecological issues. The student will leave the rotation with a better understanding of the care of adolescents. CURRICULUM: These objectives will be met in the following manner: 1) Student will actively participate in adolescent medicine clinic with both clinical attendings. He/she will be responsible for the initial evaluation of the patients in the clinic, will actively participate in clinical decision-making, and will be responsible for helping with patient write-ups and referral letters (at the discretion of the attending). The student will be expected to function on an extern level, following up on laboratory evaluations and checking in with patients seen, when needed. 2) The student will participate in the adolescent interview practice sessions with the interact teen theatre with the residents on the rotation. This process will help to improve interviewing skills with adolescents. 3) The student will be responsible for helping with any inpatient care, including consultations and/or admissions. 4) The student will be asked to identify particular areas of interest to be used as topics for interactive discussion with one of the attendings or for a short paper.

**Credit Hours:** 5

**Prerequisites:** Child Health Clerkship

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**CH\_HTH 6435: Ped Renal and Rheumatology**

4th year elective for renal/rheumatology rotation, four weeks.

**Credit Hours:** 5

**Prerequisites:** 3rd year Pediatrics/Child Health or Internal Medicine rotation

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**CH\_HTH 6726: Child Health Rural Elective**

Students will enhance their knowledge about patient-centered care of children through active participation in a primarily outpatient clinical experience. Limited inpatient experience may be offered as well.

**Credit Hours:** 5

**Prerequisites:** CH\_HTH 6000; restricted to medical students only

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**CH\_HTH 6825: General Child Health - Inpatient**

Goals/Objectives: To provide additional experience in general pediatrics in inpatient care. CURRICULUM: The student will function as a member of the house staff team assuming many of the roles of the first year resident in patient care. This includes working up of patient's management plans, rounding, staffing, conferences, etc. Night coverage with supervision is included.

**Credit Hours:** 5

**Prerequisites:** Child Health Clerkship

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**CH\_HTH 6826: General Child Health - Outpatient**

Goals/Objectives: To provide additional experience in general pediatrics in outpatient care. CURRICULUM: The student will function as a member of the healthcare team. This includes taking histories, performing physical exams, and working up patient management plans. This may require working evening clinic and Saturday clinic in addition to regular daytime clinics.

**Credit Hours:** 5

**Prerequisites:** Child Health Clerkship

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**CH\_HTH 6827: Neonatology/Neonatal Intensive Care Unit**

Goals/Objectives: To gain experience: 1) in the evaluation, diagnosis, and management of sick newborns, and 2) in the performance of specialized procedures necessary for ICU care. CURRICULUM: The student will function as a first-year house officer, with his/her own neonatal ICU patients for initial work-up and management, under the supervision of the PL-2 or PL-3 and attending staff. (rotation at Columbia Regional Hospital)

**Credit Hours:** 5

**Prerequisites:** Child Health Clerkship

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**CH\_HTH 6828: Pediatric Intensive Care Unit**

Goals/Objectives: 1) To provide the student with the initial approach and management of children requiring care in the Pediatric Intensive Care Unit. 2) To provide the student with the basics of airway management in children. 3) To provide the student with an understanding of the preoperative assessment with preparation of pediatric patients. 4) To provide the student with an introduction to the perioperative management of common pediatric surgical problems. CURRICULUM: Students in this elective will spend time in both the Pediatric ICU and the operating rooms. They will be required to participate in daily rounds in the PICU and follow the medical/surgical patients admitted to the PICU.

**Credit Hours:** 5

**Prerequisites:** Child Health Clerkship

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**CH\_HTH 6829: Pediatric Neurology**

Pediatric Neurology

**Credit Hours:** 5

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**CH\_HTH 6912: Introduction to Adolescent Medicine**

The rotation is primarily an outpatient experience, though the student may be asked to do inpatient consultations with the attending physician on service. In addition to learning and practicing primary care of adolescent patients the elective will present an in-depth experience of adolescent medicine as a subspecialty, including, but not limited to, conditions such as eating disorders, disorders of puberty and menstruation, obesity, ADHD, and substance abuse. Additional teaching methods used include a pre-post test, lectures, and readings relevant to adolescent medicine. Completion of the Child Health Clerkship: CH\_HTH 6000 and CH\_HTH 6010.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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**CH\_HTH 6913: Introduction to Pediatric Endocrinology**

The rotation is primarily an outpatient experience, though the student may be asked to do inpatient consultations with the attending physician on service. The elective will present an in-depth experience of diabetes/endocrinology as a subspecialty, including, but not limited to, exposure to disorders in growth and puberty, obesity, abnormalities in thyroid function and managing blood glucose levels in patients with type 1 diabetes. Additional teaching methods used may include lectures and readings relevant to this subspecialty.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

**Recommended:** Completion of the Child Health Clerkship (CH\_HTH 6000 or CH\_HTH 6010) is suggested but not required

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**CH\_HTH 6951: SCC Pediatric Allergy and Immunology 2 week**

This subspecialty elective emphasizes an introductory experience in the evaluation and management of common clinical problems in allergy and immunology. The learner will assist in the diagnosis and management of asthma, rhinitis/conjunctivitis/rhinosinusitis, atopic dermatitis, contact dermatitis, urticaria, angioedema, anaphylaxis and adverse reactions to foods, drugs and stinging insects. Additional experience in immunodeficiency disorders, as well as experience in allergy skin testing, administration of allergen immunotherapy, performance and interpretation of pulmonary function tests, and performance of food challenges and/or drug challenges/desensitizations may also be provided. Outpatients will be evaluated by the student under supervision of the faculty physician. In addition, it is expected that the learner will complete recommended readings, participate in selected on-line learning activities and complete both pre-test and post-test assessments.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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**CH\_HTH 6953: SCC Neonatal Intensive Care Unit 2-Week**

The course goals are for the student to gain the knowledge and experience in the evaluation, diagnosis, and management of sick newborns, and in the performance of specialized procedures necessary for ICU care. The student will demonstrate an introductory level working understanding of these areas.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school and a core rotation in family medicine or pediatrics

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## Chinese (CHINSE)

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**CHINSE 1100: Elementary Chinese I**

For beginners with no prior knowledge of Chinese. Five hours of classroom instruction, with one hour lab work weekly.

**Credit Hours:** 6

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**CHINSE 1200: Elementary Chinese II**

This course is a continuation of Elementary Chinese I, consisting of 5 hours of classroom instruction and 1 hour of lab work weekly.

**Credit Hours:** 6

**Prerequisites:** C- or better in CHINSE 1100 or equivalent

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**CHINSE 2100: Everyday Spoken Chinese Level I**

Reinforces and extends ability to use Chinese language for spoken communication. Studies situation-specific Chinese in real-life situations. Intended to supplement, not replace, Chinese language courses taught on MU campus. Students must be enrolled in MU China Study Abroad.

**Credit Hours:** 3

**Prerequisites:** C- or better in CHINSE 1200

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**CHINSE 2160: Intermediate Chinese I Conversation and Composition**

This course builds on Chinese language learned in the elementary Chinese Language Sequences I & II through conversation and writing.

**Credit Hours:** 3

**Prerequisites:** C- or better in CHINSE 1200 or equivalent

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**CHINSE 2310: Chinese Civilization I**

Survey of Chinese culture and arts. No knowledge of Chinese is required. No foreign language credit.

**Credit Hours:** 3

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**CHINSE 2330: Chinese Language and Culture**

Presents information about the development of Chinese language over time, the variety of dialects spoken in China, and around the world. Explores relationship between Chinese language and culture. Considers different genres of Chinese literature. Visits to sites significant to development of Chinese language and literature. Introduction to calligraphy and basic daily Chinese.

**Credit Hours:** 3

**Prerequisites:** Must be enrolled in MU China Study Abroad; sophomore standing required

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**CHINSE 3001: Topics in Chinese - General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** Sophomore standing and instructor consent

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**CHINSE 3005: Topics in Chinese - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Some sections may be graded on A-F or S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing and instructor's consent

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**CHINSE 3005H: Topics in Chinese - Humanities - Honors**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Some sections may be graded on A-F or S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing and instructor's consent, Honors eligibility required

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**CHINSE 3085: Problems in Chinese**

Supervised study in Chinese language and/or culture.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**CHINSE 3160: Intermediate Chinese II Conversation and Composition**

Continuation of CHINSE 2160. Introduces more complex grammatical constructions and extends ability to use those constructions for written and oral communication. Successful completion of course will enable students to communicate in Mandarin Chinese regarding everyday topics, with a vocabulary of just over 1900 words, and about 380 sentence patterns.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CHINSE 2160

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**CHINSE 3170: Everyday Spoken Chinese Level II**

For students who have completed 18 credits college-level Chinese. Reinforces and extends ability to use Chinese language for Spoken communication. Class-time spent studying situation-specific Chinese in real-life situations. Intended to supplement, not replace, Chinese language courses taught on UMC campus. Students must be enrolled in MU China Study Abroad.

**Credit Hours:** 3

**Prerequisites:** C- or better in CHINSE 3160 or consent of instructor

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**CHINSE 3180: Advanced Chinese I**

Improves vocabulary, listening, spoken and written Chinese Skills. Discusses basic cultural ideas. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CHINSE 3160, or equivalent

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**CHINSE 3190: Advanced Chinese II**

Students will build on grammatical patterns and vocabulary learned in Advanced Chinese 1, and will be able to use the Chinese language to discuss, read, and write about topics related to Chinese culture and modern society. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or above in CHINSE 3180, or equivalent

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**CHINSE 3300: Chinese Traditions and Global Integration**

Focuses on developments in China's International relations that have led to prominence on world stage, and the impact of modernization and integration into world community on China's sense of national identity, shape of Chinese culture, and lives of the people. Visits to cultural and business sites, guest lectures, and conversations with Chinese people.

**Credit Hours:** 3

**Prerequisites:** Must be enrolled in MU China Study Abroad; sophomore standing required

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**CHINSE 3300H: Chinese Traditions and Global Integration - Honors**

Focuses on developments in China's International relations that have led to prominence on world stage, and the impact of modernization and integration into world community on China's sense of national identity, shape of Chinese culture, and lives of the people. Visits to cultural and business sites, guest lectures, and conversations with Chinese people.

**Credit Hours:** 3

**Prerequisites:** Must be enrolled in MU China Study Abroad; sophomore standing required. Honors eligibility required

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**CHINSE 3310: Chinese Poetry**

This is an introductory course to Chinese poetry, both classical and contemporary, in English. It will explore issues in the intercultural and interlingual interpretation of foreign literature through the study of Western translations of and scholarship on selected Chinese poets.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing

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**CHINSE 3320: Modern and Contemporary Chinese Fiction (in translation)**

Studies Chinese fiction from 1920s to 1990s. Preceded by a brief historical survey of Chinese literature. Analyzes works by authors like Lu Xun, Ba Jin, Lao She, Wang Meng and many others of the younger generation. Readings and lectures in English.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing

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**CHINSE 3400: Negotiating Chinese Culture**

As political, business, religious, and personal encounters between Chinese and Americans increase, so also does the need for competence in negotiating these cross-cultural interactions. Whether hosting Chinese guests, visiting China for business or as a scholar, or simply trying to understand current events, a clear understanding of cultural differences and similarities can be quite valuable. Students will be introduced to multiple perspectives on American and Chinese cultural differences along with narratives of cross-cultural experiences. Course address issues related to American and Chinese cross-cultural communication in five spheres of interaction: political, religious, business, interpersonal, education. Through related readings, discussions, and structured conversations with Chinese, students will explore how this information and a deeper understanding of Chinese and American culture can be applied to more fruitful and positive cross-cultural interactions in multiple contexts.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**CHINSE 3880: Contemporary Chinese Film**

(same as FILMS\_VS 3880). Introduces development of 20th century Chinese film and popular genres, including review of earlier times. Explores how present day Chinese understand their own history, and issues they face in drive toward modernization in a global context. Films and readings in English or with English subtitles. No previous knowledge of the culture or language required.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**CHINSE 4730: Chinese Teaching Methods**

(same as GERMAN 4730). Supervised introduction to the methodology of the teaching of elementary-level language; conducted in a classroom environment.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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## Civil Engineering (CV\_ENG)

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**CV\_ENG 1001: Experimental Course**

For freshman-level students. Content and number of credit hours to be listed in Schedule of Courses.

**Credit Hour:** 1-99

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**CV\_ENG 2001: Experimental Course**

For sophomore-level students. Content and number of credit hours to be listed in Schedule of Courses.

**Credit Hour:** 1-99

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**CV\_ENG 2080: Introduction to Dynamics**

Basic fundamentals of particle and rigid body dynamics; energy and momentum methods.

**Credit Hours:** 3

**Prerequisites:** ENGINR 1200

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**CV\_ENG 3010: Decision Methods for Civil Engineering Design**

Essential features of civil engineering including the design process, design teams, experimental and computational tools, engineering economy, communication skills, and ethical considerations.

**Credit Hours:** 3

**Prerequisites or Corequisites:** ENGINR 1200

**Prerequisites:** grade of C- or better in ENGLSH 1000

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**CV\_ENG 3010W: Decision Methods for Civil Engineering Design - Writing Intensive**

Essential features of civil engineering including the design process, design teams, experimental and computational tools, engineering economy, communication skills, and ethical considerations.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in ENGLSH 1000

**Corequisites:** ENGINR 1200

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**CV\_ENG 3050: Introduction to Geographic Information Systems GIS**

(same as GEOG 3040) Introduces theory, concepts and techniques related to the creation, manipulation, processing, and basic analysis of spatial data using GIS. Data management, current data models, GIS applications and course topics are reinforced through hands-on computer laboratory exercises.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**CV\_ENG 3100: Fundamentals of Transportation Engineering**

Covers fundamentals of transportation engineering including geometric design, traffic engineering, pavements, and planning.

**Credit Hours:** 4

**Prerequisites or Corequisites:** CV\_ENG 3010

**Prerequisites:** grade of C- or better in ENGINR 1100

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**CV\_ENG 3200: Fundamentals of Environmental Engineering**

Fundamentals of water quality engineering and water resources, water and wastewater treatment, solid and hazardous and radioactive waste management, air pollution, environmental regulation, and environmental ethics.

**Credit Hours:** 4

**Prerequisites or Corequisites:** CV\_ENG 3010

**Prerequisites:** grade of C- or better in CHEM 1320 or equivalent

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**CV\_ENG 3250: Pollutant Fate and Transport**

(same as ENV\_SC 3250). Introduction to concepts governing pollutant fate and transport in the environment, including pollutant interactions within and migration through environmental systems, as well as analytical techniques and tools necessary to quantify conditions and movement.

**Credit Hours:** 3

**Prerequisites:** ENV\_SC 1100 or SOIL 2100 or CV\_ENG 3200; and

CHEM 1320; or instructor's permission

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**CV\_ENG 3300: Structural Analysis I**

Analysis of statically determinate beams, frames; shear and moment diagrams; influence line diagrams; beam deflections. Analysis of statically indeterminate structures; moment distribution; energy methods. Introduction to matrix analysis.

**Credit Hours:** 4

**Prerequisites:** grade of C- or better in ENGINR 1200 and ENGINR 2200

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**CV\_ENG 3300H: Structural Analysis I - Honors**

Analysis of statically determinate beams, frames; shear and moment diagrams; influence line diagrams; beam deflections. Analysis of statically indeterminate structures; moment distribution; energy methods. Introduction to matrix analysis.

**Credit Hours:** 4

**Prerequisites:** grade of C- or better in ENGINR 1200 and ENGINR 2200.

Honors Eligibility required

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**CV\_ENG 3312: Reinforced Concrete Design**

Basic principles of reinforced concrete design. Design of beams for flexure and shear; design of short and slender columns. Prerequisites: CV\_ENG 3300;

**Credit Hours:** 3

**Prerequisites or Corequisites:** CV\_ENG 3600

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**CV\_ENG 3313: Structural Steel Design**

Basic principles of structural steel design. Design of beams, axially loaded members, columns, and bolted and welded connections.

**Credit Hours:** 3

**Corequisites:** CV\_ENG 3300 and CV\_ENG 3600

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**CV\_ENG 3400: Fundamentals of Geotechnical Engineering**

Detailed study of physical and mechanical properties of soil governing its behavior as an engineering material.

**Credit Hours:** 4

**Prerequisites:** grade of C- or better in ENGINR 2200; Restricted to Civil Engineering major students only

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**CV\_ENG 3600: Civil Engineering Materials**

Introduces composition, structure, properties, behavior, and selection of civil engineering materials.

**Credit Hours:** 4

**Prerequisites or Corequisites:** CV\_ENG 3010

**Prerequisites:** grade of C- or better in ENGINR 2200 or instructor's consent

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**CV\_ENG 3700: Fluid Mechanics**

Statics and dynamics of fluids, principles of continuity, momentum and energy, pipe flow.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better PHYSCS 2750

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**CV\_ENG 3702: Hydrology**

Fundamental concepts of hydrology in engineering; quantitative estimation of stream-flow magnitude and frequency; and open channel flow considerations from stream-flow. Fluid Mechanics lab with lab reports.

**Credit Hours:** 4

**Prerequisites:** grade of C- or better MATH 2300 and CV\_ENG 3200 and CV\_ENG 3700

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**CV\_ENG 4001: Topics in Civil Engineering**

Study of current and new technical developments in civil engineering.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**CV\_ENG 4006: Computational Methods in Civil Engineering**

(cross-leveled with CV\_ENG 7006). Use of numerical methods for solution of engineering problems involving roots of equations, simultaneous equations, curve fitting, integration, optimization, differentiation, and differential equations. The numerical methods are demonstrated through computer implementation and application to engineering design problems.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

**Corequisites:** MATH 4100

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**CV\_ENG 4008: Risk and Reliability for Civil Engineers**

(cross-leveled with CV\_ENG 7008). This course focuses on how to use probability and statistics to quantify uncertainties and consider risks when making civil engineering decisions and designing civil engineering systems.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3010 or other introductory probability/statistics course

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**CV\_ENG 4085: Problems in Civil and Environmental Engineering**

Directed investigation of civil engineering.

**Credit Hour:** 2-4

**Prerequisites:** instructor's consent

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**CV\_ENG 4100: Traffic Engineering**

(cross-leveled with CV\_ENG 7100). Characteristics and studies associated with highway traffic. Capacity analysis and evaluation of freeways, rural highways, and urban streets. Traffic signal control and coordination.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3100

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**CV\_ENG 4104: Pavement Materials and Design**

(cross-leveled with CV\_ENG 7104). Properties of materials used in roads, airports and other pavement construction. Design methods for rigid and flexible pavements.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in ENGINR 2200

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**CV\_ENG 4105: Asphalt Materials and Mixture Design**

(cross-leveled with CV\_ENG 7105). This course consists of a combination of interactive classroom lectures and discussions, group activities, hands-on laboratory exercises, laboratory demonstrations, and field trips (live and/or recorded) to observe asphalt binder and mixture design, production, and control. Upon completion of the course, the student will be able to: (1) select, specify, and design an asphalt paving mixture for specific climatic and traffic conditions using the SUPERPAVE mixture design system; (2) understand the sources, types, and manufacturing aspects of asphalt binders and aggregates; (3) understand the key elements of asphalt mixture construction, process control, and acceptance; (4) perform key SUPERPAVE laboratory tests for asphalt binders, aggregates, and mixtures and master the analysis and interpretation of data collected; (5) understand contemporary concepts and approaches in sustainable asphalt mixture design and construction; (6) understand and mathematically describe fundamental properties of asphalt binders and mixtures, which is a critical step in mastering mixture/pavement design, evaluation, and rehabilitation, and; (7) understand and describe the key types and uses of special asphalt binder and mixture products, including emulsions, cutbacks, polymer-modified binders, warm-mix asphalt, other additives, and mixtures containing recycled asphalt pavement (RAP) and recycled asphalt shingles (RAS). Graded on A-F only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** CV\_ENG 3600

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**CV\_ENG 4106: Intelligent Transportation Systems**

(cross-leveled with CV\_ENG 7106). This is an introductory course in Intelligent Transportation Systems (ITS). Topics include the theory of transportation networks and systems optimization, current implementations of ITS, and practical issues and implications of ITS.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3100

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**CV\_ENG 4110: Transportation Simulation**

(cross-leveled with CV\_ENG 7110). Theory and application of simulation in transportation engineering.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3100

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**CV\_ENG 4120: Airport Engineering**

(cross-leveled with CV\_ENG 7120). Airport systems planning, design, and management.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3100

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**CV\_ENG 4125: Transportation Legal Issues**

(cross-leveled with CV\_ENG 7125). This course discusses some of the legal issues that transportation engineers encounter throughout the course of their careers.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3100

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**CV\_ENG 4130: Transportation Safety**

(cross-leveled with CV\_ENG 7130). This course is an introduction to transportation safety. The focus will be on surface transportation. The student is expected to analyze safety data and to devise engineering solutions to safety problems.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3100

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**CV\_ENG 4145: Civil and Environmental Engineering Legal Issues**

(cross-leveled with CV\_ENG 7145). Discussion of legal issues facing civil engineers including right of way, risk and liability, environment, financing public works, contracting and ethics.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3100

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**CV\_ENG 4155: Transportation Geography**

(same as GEOG 4850; cross-leveled with CV\_ENG 7155; GEOG 7850). Introduction to fundamental concepts and modes of analysis in transportation geography. Focus on descriptive, explanatory, as well as normative approaches. Topics reviewed include spatial organization, transportation economics, spatial interaction, network analysis, location/allocation, and urban transportation planning.

**Credit Hours:** 3

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**CV\_ENG 4175: The Geospatial Science in National Security**

(Same as GEOG 4130; cross-leveled with CV\_ENG 4175, GEOG 7130). This course explores the critical contribution of the geospatial sciences in the collection processing, visualization and analysis of geospatial information related to national security. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

**Recommended:** junior standing

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**CV\_ENG 4185: Location Analysis/Site Selection**

(same as GEOG 4740; cross-leveled with CV\_ENG 7185; GEOG 7740). An overview of location analysis in regional planning and spatial decision support, this course focuses on the use of Geographic Information Science (GIS) and location analysis methods in addressing regional service needs. Maybe be repeated for credit.

**Credit Hours:** 3

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**CV\_ENG 4190: Infrastructure Project Development**

(cross-leveled with CV\_ENG 7190). Students will learn how the key elements of major civil engineering infrastructure projects fit together. The course will focus on the horizontal integration of: financing - planning - environment - right of way - design - construction - operations - maintenance. Engineering is important but so are a lot of other things. Graded on A-F basis only. Prerequisites: junior standing

**Credit Hours:** 3

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**CV\_ENG 4220: Hazardous Waste Management**

(same as CH\_ENG 4220; cross-leveled with CV\_ENG 7220, CH\_ENG 7220). Engineering principles involved in handling, collection, transportation, processing and disposal of hazardous wastes, waste minimization, legislation on hazardous wastes and groundwater contamination.

**Credit Hours:** 3

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**CV\_ENG 4230: Introduction to Water Quality**

(cross-leveled with CV\_ENG 7230). Methods for determining and characterizing water quality, effects of pollution on streams and lakes, and an introduction to engineered systems for the distribution, collection and treatment of water and wastewater.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**CV\_ENG 4232: Water and Wastewater Treatment Facilities**

(cross-leveled with CV\_ENG 7232). Physical, chemical, and biochemical processes for treating drinking water supplies and wastewaters (domestic and industrial), with emphasis on planning and design of such facilities.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4230 or CV\_ENG 7230 or instructor's consent

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**CV\_ENG 4240: Water Quality Analysis**

(cross-leveled with CV\_ENG 7240). Chemical, physical and biological methods for analysis of streams, lakes, wastewaters and water supplies and their use in water quality management.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 4230 or instructor's consent

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**CV\_ENG 4245: Environmental Chemistry for Engineers**

(cross-leveled with CV\_ENG 7245). This course will cover the fundamentals of environmental chemistry. Physical, equilibrium, organic and colloid chemistry topics will be presented from an environmental perspective with a focus on their relevant engineering applications.

**Credit Hours:** 3

**Prerequisites:** CHEM 1320 or CV\_ENG 3200

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**CV\_ENG 4250: Environmental Regulatory Compliance**

(cross-leveled with CV\_ENG 7250). Systems of water law; provisions of major federal environmental laws and regulations; development of regulations at the federal, state, and local levels; regulatory frameworks; permits; and enforcement.

**Credit Hours:** 3

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**CV\_ENG 4270: Environmental Engineering Microbiology**

(cross-leveled with CV\_ENG 7270). Theory and application of fundamental principles of microbiology, ecology, and aquatic biology of the microorganisms of importance to sanitary engineers.

**Credit Hours:** 3

**Prerequisites:** senior standing or instructor's consent

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**CV\_ENG 4286: Environmental Sustainability**

(cross-leveled with CV\_ENG 7286). This course will present an introduction to sustainability in engineering, tools for assessing sustainability and principles of sustainable design practices. Topics include climate change, energy and renewable resources, limits to growth, risk assessment, life cycle assessments, water and energy footprints, green buildings, and the water-food-energy-nexus. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3200

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**CV\_ENG 4290: Wastewater Treatment and Process Design**

(cross-leveled with CV\_ENG 7290). Selection and use of wastewater and sludge treatment processes, disposal methods, sustainable wastewater treatment including anaerobic treatment of wastewater reuse.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3200. Instructor's consent required

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**CV\_ENG 4300: Advanced Structural Steel Design**

(cross-leveled with CV\_ENG 7300). Design of steel structures and bridges. Topics include composite beams, plate girder design, and moment resistant connections.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3313

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**CV\_ENG 4302: Prestressed/Advanced Reinforced Concrete**

(cross-leveled with CV\_ENG 7302). Principles of prestressing. Constituent materials, loading and allowable stresses. Working and ultimate stress analysis and design. Shear and torsion. Deflections. Prestress losses. Continuous beams. Composite beams. Compression members. Footings.

**Credit Hours:** 3

**Prerequisites or Corequisites:** CV\_ENG 3312

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**CV\_ENG 4320: Energy Methods in Mechanics**

(cross-leveled with CV\_ENG 7320). Variational mechanics including practical examples. Topics include calculus of variation of boundary value problems, energy methods such as Ritz and Galerkin methods,

approximate solutions methods such as the finite element and finite difference, and eigenvalue problems.

**Credit Hours:** 3

**Prerequisites:** senior or graduate standing required

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**CV\_ENG 4330: Structural System Design**

(cross-leveled with CV\_ENG 7330). Design of buildings in steel and reinforced concrete, including estimation of loads and design of gravity and lateral force resisting systems.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3312 and CV\_ENG 3313

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**CV\_ENG 4350: Matrix Methods of Structural Analysis**

(cross-leveled with CV\_ENG 7350). An introduction to the fundamentals of stiffness and flexibility methods for analysis of truss and frame structures. Application of the STRUDL and NASTRAN programs to three dimensional structures.

**Credit Hours:** 3

**Prerequisites:** senior standing; grade of C- or better in CV\_ENG 3300

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**CV\_ENG 4360: Bridge Engineering**

(cross-leveled with CV\_ENG 7360). Review of Highway Bridge Analysis and Design Fundamentals. Study of Influence Line Diagrams and Shear and Moment Envelopes. Design of Medium- and Short-Span Girder Bridges based on AASHTO LRFD specs.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3312 and CV\_ENG 3313

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**CV\_ENG 4404: Geotechnical Earthquake Engineering**

(cross-leveled with CV\_ENG 7404). This course provides an introduction to geotechnical aspects of earthquake engineering. Topics include: basic seismology, seismic hazard analysis, dynamic soil properties, site response analysis and soil liquefaction.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3400 or instructor's consent

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**CV\_ENG 4406: Geotechnics of Landfill Design**

(cross-leveled with CV\_ENG 7406). This course will focus on geotechnical and construction aspects in the analysis, design and construction of waste containment facilities (landfills) including expansions of existing facilities.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**CV\_ENG 4410: Foundation Engineering**

(cross-leveled with CV\_ENG 7410). Subsurface exploration. Design of basic foundation structures, shallow foundations, retaining walls, deep foundations.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3400

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**CV\_ENG 4412: Applied Geotechnical Engineering**

(cross-leveled with CV\_ENG 7412). Study of concepts, theories, and design procedures for modern earthwork engineering including: compaction and densification of soils and soil improvement, seepage and drainage, slope stability and performance, and earth retaining structures.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3400

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**CV\_ENG 4500: Introduction to Construction Management**

(cross-leveled with CV\_ENG 7500). Structure of the construction industry; construction drawings and specifications; estimating and bidding; construction contracts, bonds and insurance; planning and scheduling of construction operations; project management; computer techniques.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**CV\_ENG 4600: Advanced Mechanics of Materials**

(same as MAE 4600; cross-leveled with CV\_ENG 7600 and MAE 7600). Analysis of more complicated problems in stresses, strains.

**Credit Hours:** 3

**Prerequisites:** C- or better in ENGINR 2200, MAE 3200 and Junior standing

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**CV\_ENG 4610: Sensors and Experimental Stress Analysis**

(cross-leveled with CV\_ENG 7610). Sensors and instrumentation for stress analysis, mechanical measurement and health monitoring of civil structures. Application and design of data acquisition systems, basic digital signal processing. Electronics and instrumentation circuits.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in ENGINR 2200 and PHYSCS 2760

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**CV\_ENG 4660: Vibration Analysis**

(same as MAE 4660; crossleveled with CV\_ENG 7660, MAE 7660). Vibration theory and its application to mechanical systems. Topics include free and forced vibration analysis of single- and multi-degree of freedom systems.

**Credit Hours:** 3

**Prerequisites:** C- or better in MATH 4100 and MAE 2600

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**CV\_ENG 4692: Introduction to Structural Dynamics**

(cross-leveled with CV\_ENG 7692). Theory of structural response to dynamic loads. Computation of dynamic response of structures to dynamic loads like blast and earthquake. Modal analysis and single degree of freedom methods will be covered.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3300

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**CV\_ENG 4700: Hydraulics of Open Channels**

(cross-leveled with CV\_ENG 7700). Gradually varied flow and theory of the hydraulic jump. Slowly varied flow involving storage; rating curves.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3700

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**CV\_ENG 4710: Soil and Water Conservation Engineering**

(same as BIOL\_EN 4150; cross-leveled with CV\_ENG 7710, BIOL\_EN 7150). Urban and rural run-off and erosion analysis. Design and layout of erosion control structures.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 2180 or CV\_ENG 3200

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**CV\_ENG 4720: Watershed Modeling Using GIS**

(same as BIOL\_EN 4350). Watershed evaluation using AVSWAT for hydrology, sediment yield, water quality; includes USLE, MUSLE, WEPP, Procedures for model calibration/sensitivity data analysis.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 2180 or CV\_ENG 3200

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**CV\_ENG 4730: Hydraulic Design**

(cross-leveled with CV\_ENG 7730). Design of hydraulic infrastructure utilizing principles of both pressure conduits and open channels. Hand calculations and use of commercial design software for water distribution (quantity and quality), stormwater collection and sanitary sewer systems, and detention basins. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3700 or equivalent

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**CV\_ENG 4740: Irrigation and Drainage Engineering**

(same as BIOL\_EN 4250; cross-leveled with CV\_ENG 7740). Soil, water, plant relationships. Water supplies and design of surface, sprinkler and drip irrigation systems. Surface and tile drainage.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3700 or MAE 3400 or BIOL\_EN 2180

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**CV\_ENG 4980: Civil Engineering Systems Design**

Design of civil engineering systems.

**Credit Hours:** 3

**Prerequisites:** senior standing in Civil Engineering at the University of Missouri-Columbia or written consent of Chairman

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**CV\_ENG 4980W: Civil Engineering Systems Design - Writing Intensive**

Design of civil engineering systems.

**Credit Hours:** 3

**Prerequisites:** senior standing in Civil Engineering at the University of Missouri-Columbia or written consent of Chairman

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**CV\_ENG 4990: Undergraduate Research in Civil and Environmental Engineering**

Independent investigation or project in Civil Engineering. May be repeated to 6 hours. Enrollment limited to seniors in Civil and Environmental Engineering.

**Credit Hour:** 1-4

**Prerequisites:** instructor's consent

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**CV\_ENG 4995: Research in Civil and Environmental Engineering- Undergraduate Honors**

Independent project, supervised by the honors advisor, to be presented as a formal written report.

**Credit Hour:** 1-3

**Prerequisites:** Civil Engineering students only

**Recommended:** participation in the Civil and Environmental Engineering Departmental Honors Program

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**CV\_ENG 7001: Topics in Civil Engineering**

Study of current and new technical developments in civil engineering.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**CV\_ENG 7002: Analysis of Civil Engineering Decisions**

Formulates and analyzes probabilistic models of civil engineering systems and their environment. Elementary theory of decision making under uncertainty. Application to selected civil engineering problems.

**Credit Hours:** 3

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**CV\_ENG 7003: Optimization of Civil Engineering Systems**

Automated design techniques such as linear, nonlinear, and dynamic programming; gradient and random searching. Civil engineering applications emphasized throughout.

**Credit Hours:** 3

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**CV\_ENG 7004: Engineering Administration**

Cash flow analysis, financial analysis, managerial accounting and cost control, budgeting, organizational structure and behavior.

**Credit Hours:** 3

**Prerequisites:** MATH 1300 or MATH 1500, or instructor's consent

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**CV\_ENG 7006: Computational Methods in Civil Engineering**

(cross-leveled with CV\_ENG 4006). Use of numerical methods for solution of engineering problems involving roots of equations, simultaneous equations, curve fitting, integration, optimization, differentiation, and differential equations. The numerical methods are demonstrated through computer implementation and application to engineering design problems.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

**Corequisites:** MATH 4100

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**CV\_ENG 7007: Quality Management in Civil Engineering**

Quantitative and qualitative quality planning and analysis concepts, including statistical tools and total quality management techniques, control, measurement and assessment. Graded on A-F basis only.

**Credit Hours:** 3

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**CV\_ENG 7008: Risk and Reliability for Civil Engineers**

(cross-leveled with CV\_ENG 4008). This course focuses on how to use probability and statistics to quantify uncertainties and consider risks when making civil engineering decisions and designing civil engineering systems.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3010 or other introductory probability/statistics course

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**CV\_ENG 7080: Advanced Surveying**

(cross-leveled with CV\_ENG 4080). Celestial observations for determination of position; state coordinate systems, precise surveys, introduction to geodetic surveys, principles of photogrammetry. Theory of optical surveying instruments.

**Credit Hours:** 3

**Prerequisites:** MATH 1500

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**CV\_ENG 7082: Property Boundary Location**

Principles of real property ownership, deeds, property boundary surveying, legal principles of original and retracement surveys Missouri statutes and regulations affecting surveying, GLO corner restoration and re-establishment.

**Credit Hours:** 3

**Prerequisites:** ENGINR 1500 and CV\_ENG 2090

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**CV\_ENG 7100: Traffic Engineering**

(cross-leveled with CV\_ENG 4100). Characteristics and studies associated with highway traffic. Capacity analysis and evaluation of freeways, rural highways, and urban streets. Traffic signal control and coordination.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3100

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**CV\_ENG 7104: Pavement Materials and Design**

(cross-leveled with CV\_ENG 4104). Properties of materials used in roads, airports and other pavement construction. Design methods for rigid and flexible pavements.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in ENGINR 2200

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**CV\_ENG 7105: Asphalt Materials and Mixture Design**

(cross-leveled with CV\_ENG 4105). This course consists of a combination of interactive classroom lectures and discussions, group activities, hands-on laboratory exercises, laboratory demonstrations, and field trips (live and/or recorded) to observe asphalt binder and mixture design, production, and control. Upon completion of the course, the student will be able to: (1) select, specify, and design an asphalt paving mixture for specific climatic and traffic conditions using the SUPERPAVE mixture design system; (2) understand the sources, types, and manufacturing aspects of asphalt binders and aggregates; (3) understand the key elements of asphalt mixture construction, process control, and acceptance; (4) perform key SUPERPAVE laboratory tests for asphalt binders, aggregates, and mixtures and master the analysis and interpretation of data collected; (5) understand contemporary concepts and approaches in sustainable asphalt mixture design and construction; (6) understand and mathematically describe fundamental properties of asphalt binders and mixtures, which is a critical step in mastering mixture/pavement design, evaluation, and rehabilitation, and; (7) understand and describe the key types and uses of special asphalt binder and mixture products, including emulsions, cutbacks, polymer-modified binders, warm-mix asphalt, other additives, and mixtures

containing recycled asphalt pavement (RAP) and recycled asphalt shingles (RAS). Graded on A-F only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** CV\_ENG 3600

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**CV\_ENG 7106: Intelligent Transportation Systems**

(cross-leveled with CV\_ENG 4106). This is an introductory course in Intelligent Transportation Systems (ITS). Topics include the theory of transportation networks and systems optimization, current implementations of ITS, and its practical issues and implications of ITS.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3100

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**CV\_ENG 7109: Urban Development and Planning**

Introduction to planning processes; procedures and forces that shape urbanization.

**Credit Hours:** 3

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**CV\_ENG 7110: Transportation Simulation**

(cross-leveled with CV\_ENG 7110). Theory and application of simulation in transportation engineering.

**Credit Hours:** 3

**Prerequisites:** C- or better in CV\_ENG 3100

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**CV\_ENG 7120: Airport Engineering**

(cross-leveled with CV\_ENG 4120). Airport systems planning, design, and management.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3100

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**CV\_ENG 7125: Transportation Legal Issues**

(cross-leveled with CV\_ENG 4125). This course discusses some of the legal issues that transportation engineers encounter throughout the course of their careers.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3100

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**CV\_ENG 7130: Transportation Safety**

(cross-leveled with CV\_ENG 4130). This course is an introduction to transportation safety. The focus will be on surface transportation. The student is expected to analyze safety data and to devise engineering solutions to safety problems.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3100

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**CV\_ENG 7145: Civil and Environmental Engineering Legal Issues**

(cross-leveled with CV\_ENG 4125). Discussion of legal issues facing civil engineers including right of way, risk and liability, environment, financing public works, contracting and ethics.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3100

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**CV\_ENG 7155: Transportation Geography**

(same as GEOG 7850; cross-leveled with CV\_ENG 4155, GEOG 4850). Introduction to fundamental concepts and modes of analysis in transportation geography. Focus on descriptive, explanatory, as well as normative approaches. Topics reviewed include spatial organization, transportation economics, spatial interaction, network analysis, location/allocation, and urban transportation planning.

**Credit Hours:** 3

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**CV\_ENG 7165: Geographic Information Systems I**

Introduces concepts of computer analysis of geographic data and emphasizes the techniques for handling geographic data. Application of computer-based GIS systems in coursework.

**Credit Hours:** 3

**Prerequisites:** instructor's consent; GEOG 2840

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**CV\_ENG 7175: The Geospatial Sciences in National Security**

(Same as GEOG 7130; cross-leveled with CV\_ENG 4175, GEOG 4130). This course explores the critical contribution of the geospatial sciences in the collection, processing, visualization and analysis of geospatial information related to national security. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**CV\_ENG 7185: Location Analysis/Site Selection**

(same as GEOG 7740; cross-leveled with CV\_ENG 4185, GEOG 4740). An overview of location analysis in regional planning and spatial decision support, this course focuses on the use of Geographic Information Science (GIS) and location analysis methods in addressing regional service needs. May be repeated for credit.

**Credit Hours:** 3

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**CV\_ENG 7190: Infrastructure Project Development**

(cross-leveled with CV\_ENG 4190). Students will learn how the key elements of major civil engineering infrastructure projects fit together. The course will focus on the horizontal integration of: financing - planning - environment - right of way - design - construction - operations - maintenance. Engineering is important but so are a lot of other things. Graded on A-F basis only.

**Credit Hours:** 3

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**CV\_ENG 7200: Remote Sensing of the Environment**

(cross-leveled with CV\_ENG 4200). Principles, characteristics and applications of remote sensing in engineering, geosciences, agriculture and environmental projects. Topics: basic concepts, photographic, thermal multispectral and microwave systems, satellite remote sensing and digital image processing.

**Credit Hours:** 3

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**CV\_ENG 7220: Hazardous Waste Management**

(same as CH\_ENG 7220; cross-leveled with CV\_ENG 4220, CH\_ENG 4220). Engineering principles involved in handling, collection, transportation, processing and disposal of hazardous wastes, waste minimization, legislation on hazardous wastes and groundwater contamination.

**Credit Hours:** 3

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**CV\_ENG 7230: Introduction to Water Quality**

(cross-leveled with CV\_ENG 4230). Methods for determining and characterizing water quality, effects of pollution on streams and lakes, and an introduction to engineered systems for the distribution, collection and treatment of water and wastewater.

**Credit Hours:** 3

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**CV\_ENG 7232: Water and Wastewater Treatment Facilities**

(cross-leveled with CV\_ENG 4232). Physical, chemical, and biochemical processes for treating drinking water supplies and wastewaters (domestic and industrial), with emphasis on planning and design of such facilities.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4230 or CV\_ENG 7230 or instructor's consent

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**CV\_ENG 7240: Water Quality Analysis**

(cross-leveled with CV\_ENG 4240). Chemical, physical and biological methods for analysis of streams, lakes, wastewaters and water supplies and their use in water quality management.

**Credit Hours:** 3

**Prerequisites:** C- or better in CV\_ENG 4230 or instructor's consent

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**CV\_ENG 7245: Environmental Chemistry for Engineers**

(cross-leveled with CV\_ENG 4245). This course will cover the fundamentals of environmental chemistry. Physical, equilibrium, organic and colloid chemistry topics will be presented from an environmental perspective with a focus on their relevant engineering applications. Graded on A-F basis only.

**Credit Hours:** 3

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**CV\_ENG 7250: Environmental Regulatory Compliance**

(cross-leveled with CV\_ENG 4250). Systems of water law; provisions of major federal environmental laws and regulations; development or regulations at the federal, state, and local levels; regulatory frameworks; permits; and enforcement.

**Credit Hours:** 3

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**CV\_ENG 7260: Environmental Public Policy**

(cross-leveled with CV\_ENG 4260). Engineering and economic aspects of environmental policy. Basic understanding of environmental statutes and case law. Graded on A-F basis.

**Credit Hours:** 3

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**CV\_ENG 7270: Environmental Engineering Microbiology**

(cross-leveled with CV\_ENG 4270). Theory and application of fundamental principles of microbiology, ecology, and aquatic biology of the microorganisms of importance to sanitary engineers.

**Credit Hours:** 3

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**CV\_ENG 7286: Environmental Sustainability**

(cross-leveled with CV\_ENG 4286). This course will present an introduction to sustainability in engineering, tools for assessing sustainability and principles of sustainable design practices. Topics

include climate change, energy and renewable resources, limits to growth, risk assessment, life cycle assessments, water and energy footprints, green buildings, and the water-food-energy-nexus. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3200

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**CV\_ENG 7290: Wastewater Treatment and Process Design**

(cross-leveled with CV\_ENG 4290). Selection and use of wastewater and sludge treatment processes, disposal methods, leading to rational design of overall wastewater treatment systems. Sustainable wastewater treatment including advanced processes in nutrient removal, anaerobic treatment for wastewater reuse. Graded on A-F basis only.

**Credit Hours:** 3

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**CV\_ENG 7300: Advanced Structural Steel Design**

(cross-leveled with CV\_ENG 4300). Design of steel structures and bridges. Topics include composite beams, plate girder design, and moment resistant connections.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3313

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**CV\_ENG 7302: Prestressed/Advanced Reinforced Concrete**

(cross-leveled with CV\_ENG 4302). Principles of prestressing. Constituent materials, loading and allowable stresses. Working and ultimate stress analysis and design. Shear and torsion. Deflections. Prestress losses. Continuous beams. Composite beams. Compression members. Footings.

**Credit Hours:** 3

**Corequisites:** CV\_ENG 3312

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**CV\_ENG 7310: Structural Design and Analysis**

(cross-leveled with CV\_ENG 4310). Design and analysis of building frames and bridges in steel and concrete using case studies. Economic selection of structural type and material. Basic methods of analysis for statically indeterminate structures.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 4300

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**CV\_ENG 7320: Energy Methods in Mechanics**

(cross-leveled with CV\_ENG 4320). Variational mechanics including practical examples. Topics include calculus of variation of boundary value problems, energy methods such as Ritz and Galerkin methods, approximate solutions methods such as the finite element and finite difference, and eigenvalue problems.

**Credit Hours:** 3

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**CV\_ENG 7330: Structural System Design**

(cross-leveled with CV\_ENG 4330). Design of buildings in steel and reinforced concrete, including estimation of loads and design of gravity and lateral force resisting systems.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3312 and CV\_ENG 3313

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**CV\_ENG 7350: Matrix Methods of Structural Analysis**

(cross-leveled with CV\_ENG 4350). An introduction to the fundamentals of stiffness and flexibility methods for analysis of truss and frame structures. Application of the STRUDL and NASTRAN programs to three dimensional structures.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3300

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**CV\_ENG 7360: Bridge Engineering**

(cross-leveled with CV\_ENG 4360). Review of Highway Bridge Analysis and Design Fundamentals. Study of Influence Line Diagrams and shear and Moment Envelopes. Design of medium-and Sort-Span Girder Bridges based on AASHTO LRFD Specs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in CV\_ENG 3312 and CV\_ENG 3313

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**CV\_ENG 7404: Geotechnical Earthquake Engineering**

(cross-leveled with CV\_ENG 4404). This course will provide an introduction to topics relating to geotechnical aspects of earthquake engineering. Topics to be covered include; basic seismology, seismic hazard analysis, dynamic soil properties, site response analysis and soil properties, site response analysis and soil liquefaction. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in CV\_ENG 3400 or instructor's consent

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**CV\_ENG 7410: Foundation Engineering**

(cross-leveled with CV\_ENG 4410). Subsurface exploration. Design of basic foundation structures: shallow foundations, retaining walls, deep foundations.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in CV\_ENG 3400

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**CV\_ENG 7412: Applied Geotechnical Engineering**

(cross-leveled with CV\_ENG 4412). Study of concepts, theories, and design procedures for modern earthwork engineering including: compaction and densification of soils and soil improvement, seepage and drainage, slope stability and performance, and earth retaining structures.

**Credit Hours:** 3

**Prerequisites:** grade or C- or better in CV\_ENG 3400

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**CV\_ENG 7500: Introduction to Construction Management**

(cross-leveled with CV\_ENG 4500). Structure of the construction industry; construction drawings and specifications; estimating and bidding; construction contracts, bonds and insurance; planning and scheduling of construction operations; project management; computer techniques.

**Credit Hours:** 3

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**CV\_ENG 7510: Construction Methods and Equipment**

Selection and use of construction equipment, planning construction operations, equipment economics and operations analyses.

**Credit Hours:** 3

**Prerequisites:** MATH 1300 or MATH 1500, or instructor's consent

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**CV\_ENG 7600: Advanced Mechanics of Materials**

(same as MAE 7600; cross-leveled with CV\_ENG 4600 and MAE 4600). Analysis of more complicated problems in stresses, strains.

**Credit Hours:** 3

**Prerequisites:** C- or better in ENGINR 2200, MAE 3200

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**CV\_ENG 7610: Sensors and Experimental Stress Analysis**

(cross-leveled with CV\_ENG 4610). Sensors and instrumentation for stress analysis, mechanical measurement and health monitoring of civil structures. Application and design of data acquisition systems, digital signals and basic digital signal processing. Electronics and instrumentation circuits.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in ENGINR 2200 and PHYSCS 2760

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**CV\_ENG 7660: Vibration Analysis**

(same as MAE 7660; cross-leveled with CV\_ENG 4660, MAE 4660). Vibration theory with application to mechanical systems.

**Credit Hours:** 3

**Prerequisites:** C- or better in MATH 4100 and MAE 2600

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**CV\_ENG 7692: Introduction to Structural Dynamics**

(cross-leveled with CV\_ENG 4692). Theory of structural response to dynamics loads. Computation of dynamic response of structures to dynamic loads like blast and earthquake. Modal analysis and single degree of freedom methods will be covered. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in CV\_ENG 3300

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**CV\_ENG 7700: Hydraulics of Open Channels**

(cross-leveled with CV\_ENG 4700). Gradually varied flow and theory of the hydraulic jump. Slowly varied flow involving storage; rating curves.

**Credit Hours:** 3

**Prerequisites:** graduate standing and Grade of C- or better in CV\_ENG 3700

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**CV\_ENG 7702: Pipeline Engineering**

Theoretical and practical aspects of pipeline engineering including pipeline transport of natural gas and various solids such as coal, sand and solid wastes.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3700 and MAE 3400

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**CV\_ENG 7703: Applied Hydrology**

(cross-leveled with CV\_ENG 4703). Modern methods of applied hydrologic analysis and synthesis of hydrologic records.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in CV\_ENG 3700 and CV\_ENG 3702, or instructor's consent

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**CV\_ENG 7710: Soil and Water Conservation Engineering**

(same as BIOL\_EN 7150; cross-leveled with CV\_ENG 4710, BIOL\_EN 4150). Urban and rural run-off and erosion analysis. Design and layout of erosion control structures.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 3200 or CV\_ENG 3200 or instructor's consent

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**CV\_ENG 7720: Watershed Modeling Using GIS**

(same as BIOL\_EN 7350). Watershed evaluation using AVSWAT for hydrology, sediment yield, water quality; includes USLE, MUSLE, WEPP. Procedures for model calibration/sensitivity data analysis.

**Credit Hours:** 3

**Prerequisites:** BIOL\_EN 2180 or CV\_ENG 3200 or instructor's consent

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**CV\_ENG 7730: Hydraulic Design**

(cross-leveled with CV\_ENG 4730). Design of hydraulic infrastructure utilizing principles of both pressure conduits and open channels. Hand calculations and use of commercial design software for water distribution (quantity and quality), stormwater collection and sanitary sewer systems, and detention basins. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3700 or equivalent

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**CV\_ENG 7740: Irrigation and Drainage Engineering**

(same as BIOL\_EN 7250; cross-leveled with CV\_ENG 4740). Soil, water, plant relationships. Water supplies and design of surface, sprinkler and drip irrigation systems. Surface and tile drainage.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3700 or MAE 3400 or BIOL\_EN 2180

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**CV\_ENG 7792: Analysis of Water-Resource Systems**

(cross-leveled with CV\_ENG 4792). Applies hydrology, hydraulic and sanitary engineering, and economics to water-resource design problems considering man and his environment. Uses methods of systems analysis.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**CV\_ENG 8001: Advanced Topics in Civil Engineering**

New and current technical developments in civil engineering.

**Credit Hour:** 1-3

**Prerequisites:** CV\_ENG 4006 or equivalent

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**CV\_ENG 8002: Directed Reading In Civil Engineering**

Faculty supervised readings course.

**Credit Hour:** 1-3

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**CV\_ENG 8085: Problems in Civil Engineering**

Supervised investigation in civil engineering to be presented in the form of a report.

**Credit Hour:** 1-6

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**CV\_ENG 8100: Transportation Planning and Models**

Regional and metropolitan transportation studies; land use, traffic generation, distribution and assignment models.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4002 or CV\_ENG 4003

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**CV\_ENG 8106: Advanced Intelligent Transportation Systems**

This course is intended to be an introductory course in Intelligent Transportation Systems (ITS). This course includes the background of ITS, current implementations, sample deployments, and practical issues and implications.

**Credit Hours:** 3

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**CV\_ENG 8107: Transportation Safety Modeling**

This course covers the transportation safety modeling process and focuses on the modeling of crash frequencies. Class topics include background, the Highway Safety Manual, exploratory data analysis, curve-fitting, safety-performance functions, model optimization, goodness-of-fit measures, variable introduction, and model equation. Graded on A-F basis only.

**Credit Hours:** 3

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**CV\_ENG 8110: Theory of Traffic Flow**

Scientific approach to study of traffic phenomena with emphasis on applications. Deterministic and stochastic models of traffic flow; optimization of intersection controls; computer simulation of traffic problems.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4002 or instructor's consent

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**CV\_ENG 8140: Highway Transportation**

Economics of transportation on highways. Comparison of vehicle operation costs. Project studies of highway problems in general.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4103 or equivalent

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**CV\_ENG 8150: Transportation Networks**

This course presents techniques used in equilibrium analysis of transportation networks. The details of traffic assignment algorithms will be discussed along with theory and practical algorithms.

**Credit Hours:** 3

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**CV\_ENG 8160: Advanced Research Methods in Transportation Engineering**

This course will cover advanced research methods used in transportation. A special focus will be on the state-of-art approaches in traffic engineering. Mathematical and analytical models will be reviewed in detail. This is a reading intensive course where students are expected to review research articles on various topics. The methods used in the articles and a critical review of the article findings will be discussed in an interactive manner in the class. Graded on A-F basis only.

**Credit Hours:** 3

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**CV\_ENG 8187: Seminar in Transportation Engineering**

Review of research in progress in the area of transportation engineering.

**Credit Hour:** 1

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**CV\_ENG 8200: Water Quality Modeling**

Derivation and application of models for describing oxygen budget, nutrient exchange, and biological productivity in streams, lakes and estuaries.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 7230

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**CV\_ENG 8215: Environmental Transport Phenomena**

Fundamental processes that control the transport of constituents substances in fluids, and the implications of these processes for a variety of important applications in natural and engineered systems.

**Credit Hours:** 3

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**CV\_ENG 8220: Advanced Hazardous Waste Treatment Processes**

Course includes some introductory materials about hazardous waste regulations followed by advanced treatment methods such as air stripping, soil-vapor extraction, chemical oxidation, membrane processes, in-situ and ex-situ biotreatment methods, solidification and thermal processes.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4220

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**CV\_ENG 8225: Aquatic Chemistry**

Principles of chemical thermodynamics and equilibrium applied to processes in natural water and water and wastewater treatment systems. Emphasis on quantitative analyses of acid/base, complexation/dissociation, precipitation/dissolution, and reduction/oxidation reactions. Graded on A-F basis only.

**Credit Hours:** 3

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**CV\_ENG 8230: Unit Process Laboratory**

Studies chemical and physical relationships as applied to unit processes of water and wastewater.

**Credit Hours:** 3

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**CV\_ENG 8240: Physiochemical Treatment Processes**

Fundamental principles, analysis and modeling of physical and chemical processes for water and wastewater treatment.

**Credit Hours:** 3

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**CV\_ENG 8245: Particles in the Environment**

This course is an introduction to interfacial and colloid science, with an emphasis on aqueous systems of natural colloids and engineered nanomaterials. Graded on A-F basis only.

**Credit Hours:** 3

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**CV\_ENG 8250: Biochemical Treatment Processes**

Biochemical principles, kinetic models and energy considerations in the design of biological wastewater treatment processes.

**Credit Hours:** 3

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**CV\_ENG 8260: Environmental Biotechnology**

Major biochemical reactions relevant to environmental engineering. Theory and application of fundamental principles of attached and suspended microbial growth and process engineering for sanitary engineering and biodegradation.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 8250 or instructor's consent

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**CV\_ENG 8270: Design of Water and Wastewater Treatment Facilities**

Development of design criteria and their application to the design of water and wastewater treatment facilities.

**Credit Hours:** 3

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**CV\_ENG 8287: Seminar in Environmental Engineering**

Review of research in progress in the area of environmental engineering.

**Credit Hour:** 1

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**CV\_ENG 8295: Environmental Regulatory Policy**

Discussion of the various policy aspects of environmental regulation: economic and non-economic impacts of degradation; risk assessment and management; distribution of environmental risks; regulatory tools; federal vs. state; disclosure; enforcement. Relation to environmental laws. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4250 or CV\_ENG 7250 or equivalent

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**CV\_ENG 8303: Behavior of Reinforced Concrete Members**

The design philosophy, constitutive laws, creep rate sensitivity and aging, shrinkage. Nonlinear response of reinforced concrete members. Deflection computation and control. Bond and anchorage.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3312

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**CV\_ENG 8311: Nondestructive Evaluation Engineering**

This course will present the interaction of nondestructive evaluation (NDE) technologies and engineering decision-making. Theory and application NDE technologies will be presented in the context of the engineering analysis required to effectively utilize the technologies. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760, ENGINR 1200, MATH 4100

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**CV\_ENG 8312: Advanced Structural Analysis**

Current trends in structural analysis. Elastic analysis of curved beams, arches and suspensions. Finite element and nonlinear methods of analysis.

**Credit Hours:** 3

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**CV\_ENG 8313: Random Vibration**

Analysis of random vibrations including topics in stationary, ergodic and nonstationary random processes, with application to single-degree of freedom, discrete and continuous mechanical systems.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4606

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**CV\_ENG 8320: Continuum Mechanics**

(same as MAE 8320). Introductory course in the mechanics of continuous media. Basic concepts of stress, strain, constitutive relationships; conservation laws are treated using Cartesian tensor notation. Examples from both solid and fluid mechanics investigated.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3700, MATH 7100, ENGINR 2200

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**CV\_ENG 8330: Theory of Elasticity**

(same as MAE 8330). Stress and strain at a point. General equations of elasticity. Plane stress, plain strain problems; torsion of prismatic bars. Energy methods.

**Credit Hours:** 3

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**CV\_ENG 8340: Theory of Plates and Shells**

(same as MAE 8340). Rectangular and circular plates. Variational methods in the analysis of plates and shells. Plates of unusual shape. Shear deformation effects. Large deformation analysis. Analysis of cylindrical shells.

**Credit Hours:** 3

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**CV\_ENG 8342: Space Mechanics**

Rigid body dynamics analysis of satellites, space vehicles. Trajectories, time of flight optimization.

**Credit Hours:** 3

**Prerequisites:** MAE 3600 or equivalent, and MATH 4100

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**CV\_ENG 8350: Theory of Elastic Stability**

(Same as MAE 8350). Buckling of Columns, frames, arches and other structural systems. Kinematic approach to stability. Large deflections. Energy approach to buckling. Plate and shell buckling. Inelastic buckling of columns. Creep buckling.

**Credit Hours:** 3

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**CV\_ENG 8360: Theory of Plasticity**

(same as MAE 8360). Plastic yield conditions and stress-strain relations. Behavior of elastic-perfectly plastic members. Plain strain in plastic members.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 8330 or instructor's consent

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**CV\_ENG 8372: Reinforced Concrete Theory and Design**

Advanced design of reinforced concrete structures; review of standard codes and specifications and their influence.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4350 or equivalent

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**CV\_ENG 8380: Nonlinear Mechanical Analysis**

Analysis of behavior of nonlinear mechanical systems. Nonlinear phenomena of importance in mechanical design.

**Credit Hours:** 3

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**Prerequisites:** MAE 3600 or equivalent and MATH 4100

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**CV\_ENG 8387: Seminar in Structural Engineering**

Review of research in progress in the area of structural engineering.

**Credit Hour:** 1

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**CV\_ENG 8390: Advanced Topics Structural Analysis**

Computer implementation and application of finite element analysis. Material and geometric nonlinearities. Plastic analysis of structures. Code provisions for analysis of seismic and wind loadings.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4350

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**CV\_ENG 8392: Dynamics of Structures**

(same as MAE 8392). Study of the dynamic behavior of structures. Analysis of equivalent lumped parameter systems for the design of structures in a dynamic environment.

**Credit Hours:** 3

**Prerequisites:** MAE 2600 and MATH 4100 or MATH 7100

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**CV\_ENG 8402: Advanced Shear Strength of Soils**

Theoretical soil mechanics as applied to solution of specific engineering problems.

**Credit Hours:** 3

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**CV\_ENG 8403: Consolidation and Settlement**

Settlement of soil, Theory of Consolidation, consolidation testing, settlements of earth fills and embankments, stress distribution in soils, elastic settlement, bearing capacity of shallow foundations, shallow foundations design.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3400

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**CV\_ENG 8404: Seepage in Soils**

General principles that govern flow of water through soils and specific procedures for analysis and design of filtration and drainage media in geotechnical and geoenvironmental applications.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3400 or instructor's consent

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**CV\_ENG 8407: Soil Behavior**

Detailed study of composition, fabric, and geotechnical and hydrologic properties of soils that consist partly or wholly of clay. Emphasizes physico-chemical factors governing volume change and shear strength. Expansive clay behavior is examined in detail.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3400 or instructor's consent

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**CV\_ENG 8408: Soil Dynamics**

Cover topics relating to the response of soils to dynamic loading. Topics to be covered include: lab and field methods, cyclic soil models, foundation vibrations, and wave propagation through soil. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3400 and instructor's consent

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**CV\_ENG 8410: Advanced Foundation Engineering**

Foundation design beyond simple spread footings, special footings and beams on an elastic foundations, mat foundations, pile foundations - static capacity, lateral loads, bucklin, dynamic analysis load tests, pile groups, drilled piers.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4410

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**CV\_ENG 8412: Stability and Performance of Earth Slopes**

Principles, mechanics and procedures for analyzing the stability of earth slopes and landfills under short-term, long-term, rapid drawdown, and earthquake conditions.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3400 or instructor's consent

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**CV\_ENG 8413: Design and Analysis of Earth Retaining Structures**

General principals and specific procedures for analysis and design of earth retention systems including consideration of soil-structure interaction.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3400 or instructor's consent

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**CV\_ENG 8487: Seminar in Geotechnical Engineering**

Review of research in progress in the area of geotechnical engineering.

**Credit Hour:** 1

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**CV\_ENG 8610: Materials and Measurement**

About 25% of the course is devoted to the physical measurement of strain, force, displacement and motion. Remainder of course is devoted to advanced study of the behavior of steel and concrete with emphasis on brittle fracture in steel.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 3600 or equivalent

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**CV\_ENG 8620: Advanced Dynamics**

(same as MAE 8620). Fundamental principles of advanced rigid body dynamics with applications. Special mathematical techniques including Lagrangian and Hamiltonian methods.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 2080 and MATH 4100

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**CV\_ENG 8630: Vibrations of Distributed Parameter Systems**

(same as MAE 8630). Vibration analysis of strings, cables, bars, rods, shafts, beams, membranes, plates, circular rings, frames; free and forced oscillation; miscellaneous loading; various boundary conditions; effect of damping; energy methods; method of difference equations.

**Credit Hours:** 3

**Prerequisites:** CV\_ENG 4660

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**CV\_ENG 8720: Hydrotechnical Practicum**

Application of advanced analysis and design techniques to practical problems in hydrotechnical engineering. Collaborative group

investigations that may include experimental and computer aided studies. No more than 6 practicum hours may be applied toward the MS degree. Graded on A-F basis only.

**Credit Hour:** 2-4

**Prerequisites:** graduate standing in Civil Engineering

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**CV\_ENG 8990: Research-Masters Thesis in Civil & Environmental Engineering**

Independent investigation in the field of civil engineering to be presented in the form of a thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**CV\_ENG 9990: Research-Doctoral Dissertation Civil & Environmental Engineering**

Independent investigation in the field of civil engineering to be presented in the form of a thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

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## Clinical & Diagnostic Sciences (CDS)

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**CDS 2190: Medical Terminology**

Medical terminology based on a word building system. This course is intended for students majoring in health professions, nursing and other helping professions, pre-med and biology.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**CDS 3200: Essentials of Pathology**

Provides basic foundation for understanding etiology of disease with emphasis on systemic pathology for non-medical students.

**Credit Hours:** 2

**Recommended:** general biology and one course in either physiology or anatomy

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**CDS 3460: Cardiovascular and Pulmonary Diagnostic Applications I**

(same as RA\_SCI 3460). Interdisciplinary small group, case-based study of common cardiovascular, pulmonary and other diseases. Pathophysiology, diagnosis and treatment from the perspective of allied health professionals. Emphasis on critical thinking, teamwork skills.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program

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**CDS 3460W: Cardiovascular and Pulmonary Diagnostic Applications I - Writing Intensive**

(same as RA\_SCI 3460). Interdisciplinary small group, case-based study of common cardiovascular, pulmonary and other diseases. Pathophysiology, diagnosis and treatment from the perspective of allied health professionals. Emphasis on critical thinking, teamwork skills.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program

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**CDS 4085: Problems in Clinical and Diagnostic Sciences**

Supervised investigation in an aspect of Clinical and Diagnostic Sciences usually culminating in a written report.

**Credit Hour:** 1-5

**Prerequisites:** instructor's consent

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**CDS 4328: Radiation Safety and Biology**

Regulations and procedures for safe uses of radiation to heighten student understanding of radiation physics, radiation biology, and radiation safety. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Junior standing

**Recommended:** One course in Biological Sciences and Physics/Chemistry

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**CDS 4440: Organization and Administration**

(same as RA\_SCI 4440 and RS\_THR 4440). Examines design and operation of allied health service departments and educational programs, including facilities, personnel procedures, record systems, ethics, medical-legal aspects, interdepartmental relations and curriculum development.

**Credit Hours:** 3

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**CDS 4460: Cardiovascular and Pulmonary Diagnostic Applications II**

Interdisciplinary study of cardiac dysrhythmias, MI, stroke. Application of current American Heart Association Advanced Cardiac Life Support (AHA ACLS) algorithms. Successful completion of this course fulfills AHA ACLS Provider requirements.

**Credit Hours:** 3

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**CDS 4480: Clinical Ethics**

(same as HLTH\_SCI 4480). Exploration of bioethics issues in health care with emphasis on issues related to patient choice and provider responsibility. Topics include philosophical theories, principles and models for ethical and lawful decision making in healthcare.

**Credit Hours:** 3

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**CDS 4480W: Clinical Ethics - Writing Intensive**

(same as HLTH\_SCI 4480W). Exploration of bioethics issues in health care with emphasis on issues related to patient choice and provider responsibility. Topics include philosophical theories, principles and models for ethical and lawful decision making in healthcare.

**Credit Hours:** 3

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**CDS 4500: Emergency and Disaster Management in Healthcare**

This course will provide the student with an orientation the principles of disaster management in the community (both state and federal levels) and the acute care facility. Topics include biological agents, allocation of resources and ethical considerations. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Restricted to students in the Undergraduate Academic Program of Health Professions

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**CDS 4840: Asthma Education**

This course will provide the student with a multi-faceted approach to caring for the patient with asthma. Topics include pathophysiology, pharmacology, patient/family education, patient assessment and management. Assists students to take the Asthma Educator Credentialing Exam. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**CDS 4955: Introduction to Research**

(same as RS\_THR 4955). An interdisciplinary course designed to promote undergraduate allied health research. Includes identifying and designing research problems through formulating relevant questions, learning to systematically search for answers, and methods for searching the literature.

**Credit Hours:** 3

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**CDS 4955W: Introduction to Research - Writing Intensive**

(same as RS\_THR 4955). An interdisciplinary course designed to promote undergraduate allied health research. Includes identifying and designing research problems through formulating relevant questions, learning to systematically search for answers, and methods for searching the literature.

**Credit Hours:** 3

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**CDS 4985: Healthcare Organization and Leadership**

In this course, students will explore leadership principles as they relate to the student's focus area, combining previous expertise in the field with an interdisciplinary perspective within the healthcare community. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Senior standing

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**CDS 4985W: Healthcare Organization and Leadership - Writing Intensive**

In this course, students will explore leadership principles as they relate to the student's focus area, combining previous expertise in the field with an interdisciplinary perspective within the healthcare community. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Senior standing

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**CDS 7025: CDS Electronic Communication and Informatics**

The course presents an overview of healthcare informatics pertaining to all clinical and diagnostic sciences (CDS) constituent programs and of medical informatics. The course introduces all possible electronic communication avenues and methods used in clinical and diagnostic sciences. It provides a comprehensive introduction to the applications of information systems in a range of healthcare environments including clinical and diagnostic sciences education, clinical research, and diverse clinical settings where students will be employed upon graduation. It includes extensive readings and critical discussions of relevant professional research literature. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Program and instructor's consent

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**CDS 7027: Techniques for Teaching CDS Courses Traditionally or Online**

Clinical and Diagnostic Sciences (CDS) is a new model that integrates multiple dissimilar programs in the allied health and medical fields. This course is designed to prepare CDS professionals to design, organize, conduct and evaluate professional educational offerings, including pre-professional didactic and clinical coursework, in-service trainings, and continuing professional education sessions conducted through traditional and/or online formats. The course will guide the student in developing critical thinking and problem solving strategies necessary in the clinical, therapeutic and diagnostic imaging modalities, as well as the relationship between theoretical and practical aspects of teaching techniques specific to CDS. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Program and instructor's consent

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**CDS 7110: Management Approaches in CDS**

Clinical and Diagnostic Sciences (CDS) is a multiple discipline program in allied health sciences and medical fields. This course is designed to prepare CDS professionals to effectively explore the variety of styles and effective approaches of management. The course will guide the student in developing critical thinking and problem solving strategies necessary in the clear understanding of the strategic avenues required by the appropriate management methods that lead to a harmonic decorum of integration between multiple programs and departments in CDS. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Program and instructor's consent

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**CDS 7112: Leadership Styles in CDS**

The course is designed to prepare clinical and diagnostic sciences (CDS) professionals from various integrated programs of CDS fields to understand and apply effective leadership styles and methods in order to be efficient, dynamic, and successful leader. The course will guide the students in developing critical thinking and problem solving strategies necessary to expand their strategic leadership knowledge and skills to function in diverse environments of the CDS fields as integrated units or separately. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Program and instructor's consent

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**CDS 7113: Practical Multidiscipline Laboratory Organization in CDS**

The course is designed to prepare clinical and diagnostic sciences (CDS) professionals from various integrated programs of CDS fields to understand and effectively apply practical organizational skills when dealing with multidisciplinary clinical laboratory settings. The course will guide the students to explore all available practical methods in order to construct an efficient, dynamic, and flowchart accessible laboratory within the CDS department and the fields. The outcome of this course will augment the student's abilities to develop critical thinking and problem solving strategies necessary to function in diverse laboratory environments within the CDS integrated fields. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Program and instructor's consent

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**CDS 7114: Organizational Design and Dynamics in CDS**

The course is designed to prepare clinical and diagnostic sciences (CDS) professionals from various integrated programs of CDS fields to understand and conceptualize the most appropriate model of structure design of an organization as part of the CDS constituent fields and holistically integrated CDS organization as a whole. Students will learn and be instructed to understand the dynamics that occur within the CDS organizational design. The course will guide the students as they explore various examples available for designs of a CDS organization. The outcome of this course will enhance the student's abilities to develop critical thinking and problem solving strategies necessary to function in diverse clinical and diagnostic environments within the CDS integrated fields. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Program and instructor's consent

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**CDS 7116: Administration of Educational Programs in CDS**

Clinical and Diagnostic Sciences (CDS) is a new model that integrates multiple dissimilar programs in the allied health and medical fields. This course is designed to prepare CDS professionals to effectively administer and articulate with educational programs. The course will guide the student in developing critical thinking and problem solving strategies necessary to implement strategic plans, institute clinical affiliation agreements, establish thoughtful and consistent policies and procedures, evaluate student selection criteria and pursue accreditation for education programs in CDS. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Program and instructor's consent

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**CDS 7118: Telecommunication and Reporting in CDS**

Clinical and Diagnostic Sciences (CDS) is a new model that integrates multiple dissimilar programs in the allied health and medical fields. This course will introduce and prepare CDS professionals to telecommunication avenues of interacting, transmitting, and mobilizing the data and pertinent information to the countless outlets of information distribution areas. The course will provide the professional student with the tools and means to understand how to report all the relevant data and information essential to the process to interact and disseminate significant events and results used within the CDS constituent programs. The course will guide the student in developing critical thinking and problem solving strategies necessary in the clinical, therapeutic, and diagnostic imaging modalities in the process of telecommunication skills and reporting methods among all the CDS fields. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Program and instructor's consent

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**CDS 7840: Asthma Education**

This course will provide the student with a multi-faceted approach to caring for the patient with asthma. Topics include pathophysiology, pharmacology, patient/family education, patient assessment and management. Assists students to take the Asthma Educator Credentialing Exam. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** instructor's consent required

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**CDS 8001: Topics in Clinical and Diagnostic Sciences**

This course is designed to explore, through selected themes assigned by the instructor, advanced clinical and diagnostic sciences (CDS) topics in psychosocial, professional, educational, and technical areas. The organized study of a specific CDS topic will be conducted in a holistic manner. Graded on A-F basis only.

**Credit Hour:** 1-3

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**CDS 8050: Research in Clinical and Diagnostic Sciences**

This course is designed for the clinical and diagnostic sciences (CDS) programs' graduates and health science degree holders who wish to explore advanced opportunities in CDS through a research component and scientific investigations. It will allow the students to formulate appropriate reasons for pursuing a specific area of interest. The course will provide knowledge about research methodology in CDS, the operation of, and how to conduct a research in a CDS department and in a clinical setting. It will guide the student to develop appropriate research qualities associated with the CDS constituent programs. The course guides the students in developing independent study and scientific investigation skills. The course does not lead to a thesis or dissertation. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** Program and instructor's consent

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**CDS 8085: Problems in Clinical and Diagnostic Sciences**

Clinical and Diagnostic Sciences (CDS) field is still an emerging profession in the medical field. This course is designed to provide a broad overview of multiple 'problems' faced by CDS in the health care context. Through a variety of themes exploring theoretical and clinical aspects of the constituent professions, the course will guide the student in developing critical thinking and problem solving strategies necessary in the analysis of the controversial aspects of a chosen subject. Issues will include, but not limited to the role and function of CDS in health care in general and clinical and diagnostic imaging in special, the relationship between theoretical and practical aspects of the imaging modality and clinical aspects (fast pace of advancing technology versus slow pace of clinical application, education, literature of specialty, etc.), ethical and legal issues in the CDS constituent professions, problems faced by a clinical and diagnostic educational program, CDS graduates' role in diagnosis, education, management, and CDS clinical applications. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** Program and instructor's consent

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**CDS 8090: Research in Clinical and Diagnostic Sciences**

This course is designed for the clinical and diagnostic sciences (CDS) constituents programs and health science graduates who wish to explore through the methods of scientific research any area of interest in CDS fields. It leads to a thesis or dissertation. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** Program and instructor's consent

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**CDS 8430: Clinical Leadership**

Leadership theory for practicing clinical and diagnostic health professionals. Exploration of theoretical foundations and models of leadership. Emphasis given to clinical practice trends, reflective self-

assessment. Analysis of leadership cases in hospitals/clinics, industry, and entry-into-practice educational settings. Graded on A-F basis only.

**Credit Hours:** 2

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**CDS 8920: Applied Research Methodologies in Clinical and Diagnostic Sciences**

Practical research application of clinical and diagnostic sciences (CDS) in a real time clinical environment: exploring the various methods of applied clinical research and how they relate to decision making, patient handling, technical applications, instrumentation and image processing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BHS degree in CDS and or allied health professions, and Program and instructor's consent

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## Clinical Laboratory Sciences (CL\_L\_S)

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**CL\_L\_S 1000: Orientation to Clinical Laboratory Science**

The class is designed to give prospective Clinical Laboratory Science students clinical experience in the field of Clinical Laboratory Science. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** HLTH\_SCI 1000

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**CL\_L\_S 4407: Clinical Laboratory Operations**

This course provides a basic introduction to the theory, practical application, technical performance and evaluation of laboratory skills specific to the practice of clinical laboratory science. Laboratory safety; microscopy; pipetting; general laboratory equipment; quality control; mathematics; phlebotomy; pre-analytic, analytic and post-analytic processes, including specimen collection, processing and transport to maintain test result integrity, will be addressed. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Restricted to Clinical Laboratory Students only

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**CL\_L\_S 4408: Introduction to Clinical Hematology**

This course introduces the theory, practical application, technical performance and evaluation of hematological and hemostasis procedures. Correlation of laboratory data with the diagnosis of erythrocyte, leukocyte and bleeding/clotting disorders will be introduced. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Restricted to Clinical Laboratory Students only

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**CL\_L\_S 4409: Introduction to Clinical Microbiology**

This course introduces the theory, practical application, technical performance and evaluation of procedures for isolation, identification and susceptibility testing of infectious disease organisms in humans. The course primarily focuses on bacteriology, but will include introductory coverage of parasitology, mycology and virology. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Restricted to Clinical Laboratory Students only

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**CL\_L\_S 4410: Introduction to Clinical Chemistry and Urinalysis**

This course introduces the theory, practical application, technical performance and evaluation of basic laboratory skills and methods in clinical chemistry and urinalysis. The course focuses on the correlation of laboratory data with the diagnosis of renal conditions, but will include introductory coverage of carbohydrate, liver and protein conditions, as well as enzymes. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Restricted to Clinical Laboratory Students only

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**CL\_L\_S 4411: Introduction to Clinical Immunohematology**

This course introduces the theory, practical application, technical performance and evaluation of immunohematology procedures required to provide compatible blood components for transfusion. Methods for collection, processing, storage and transfusion of blood and blood components will be presented. Immunohematology procedures that assist in the diagnosis and management of hemolytic conditions will be introduced. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Restricted to Clinical Laboratory Students only

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**CL\_L\_S 4412: Clinical Laboratory Science Theory, Application and Correlation**

Application, evaluation and correlation of laboratory procedures used in the diagnosis and treatment of common disease states. Opportunities for building critical thinking, problem solving, and leadership skills are provided in small group clinical case discussions. Course may be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites:** departmental consent, accepted into the Medical Technology Program

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**CL\_L\_S 4413: Clinical Endocrinology and Toxicology**

This course introduces the theory, practical application, and evaluation of clinical chemistry laboratory procedures. Correlation of clinical laboratory data with the diagnosis and treatment of endocrine disorders, toxicology disturbances and therapeutic drug monitoring is emphasized. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Restricted to Clinical Laboratory Students only

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**CL\_L\_S 4414: Clinical Chemistry and Urinalysis I**

This course expands on the theory, practical application, and evaluation of basic laboratory procedures introduced in CL\_L\_S 4407 Clinical Laboratory Operations and CL\_L\_S 4410 Introduction to Clinical Chemistry and Urinalysis, with an emphasis on common automated methodologies used in clinical chemistry and urinalysis laboratories. This course will focus on the interpretation, evaluation and correlation of clinical laboratory data with the diagnosis and treatment monitoring of carbohydrate, renal, hepatic, protein, cardiac, lipid/lipoprotein, major and minor electrolyte, enzyme, pancreatic-gastrointestinal and acid-base disorders. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Clinical Lab Sci (Medical Technology) Program students only

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**CL\_L\_S 4415: Clinical Chemistry and Urinalysis II**

This course expands on the theory, practical application, and evaluation of laboratory procedures introduced in CL\_L\_S 4414 Clinical Chemistry and Urinalysis I and CL\_L\_S 4444 Clinical Core Laboratory Practical I. Correlation of clinical laboratory data with the diagnosis and treatment monitoring of carbohydrate, renal, hepatic, cardiac, lipid/lipoprotein, protein, major and minor electrolyte, trace element, enzyme, pancreatic-gastrointestinal and acid-base disorders; tumor markers; and inborn errors of metabolism is emphasized. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Clinical Lab Sci (Medical Technology) Program students only

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**CL\_L\_S 4416: Clinical Hematology I**

Introduction to the theory, practical application, technical performance and evaluation of hematological and coagulation procedures. Emphasis on correlations of clinical laboratory data with the diagnosis and treatment of anemia, leukemia, and bleeding/clotting disorders. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** departmental consent, accepted into the Medical Technology Program

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**CL\_L\_S 4417: Clinical Hematology II**

This course expands on the theory, practical application, and evaluation of hematological and hemostasis procedures introduced in CL\_L\_S 4416 Clinical Hematology I and CL\_L\_S 4444 Clinical Core Laboratory Practicum I, and includes the analysis of cerebrospinal, synovial and serous fluids. Correlation of clinical laboratory data with the diagnosis and treatment of erythrocyte, leukocyte and bleeding/clotting disorders will be emphasized. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Clinical Lab Sci (Medical Technology) Program students only

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**CL\_L\_S 4418: Clinical Microbiology I**

This course includes the theory, practical application, and evaluation of immunological components and infection disease serology. The principles and methodologies used in the assessment of immunologically related disorders, including hypersensitivity reactions, autoimmune, Immunoproliferative, immunodeficient disorders and infectious disease are included. The course emphasizes the correlation of clinical laboratory data with the patient's diagnosis and treatment. The theory and application of molecular diagnostic tools, such as polymerase chain reaction (PCR), nucleic acid probes, and microarrays are also addressed. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Clinical Lab Sci (Medical Technology) Program students only

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**CL\_L\_S 4419: Clinical Microbiology II**

This course builds on the theory, practical application and evaluation of the procedures for isolation, identification and susceptibility testing of infectious disease organisms in humans introduced in CL\_L\_S 4418 Clinical Microbiology I and CL\_L\_S 4448 Clinical Microbiology Laboratory



Practicum I. This course includes bacteriology, mycology, parasitology, and virology content, and will emphasize the correlation of clinical laboratory data with the patient's diagnosis and treatment. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Clinical Lab Sci (Medical Technology) Program students only

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**CL\_L\_S 4420: Clinical Immunology and Molecular Diagnostics**

This course includes the theory, practical application, and evaluation of immunological components and infection disease serology. The principles and methodologies used in the assessment of immunologically related disorders, including hypersensitivity reactions, autoimmune, Immunoproliferative, immunodeficient disorders and infectious disease are included. The course emphasizes the correlation of clinical laboratory data with the patient's diagnosis and treatment. The theory and application of molecular diagnostic tools, such as polymerase chain reaction (PCR), nucleic acid probes, and microarrays are also addressed. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Clinical Lab Sci (Medical Technology) Program students only

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**CL\_L\_S 4422: Immunohematology I**

Introduction to the theory, practical application, technical performance and evaluation of blood bank procedures required for transfusion of blood and blood components and for handling and storage of blood and blood components. May be repeated for credit. Graded on A/F basis only.

**Credit Hour:** 1-4

**Prerequisites:** departmental approval, accepted into the Medical Terminology Program

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**CL\_L\_S 4423: Clinical Immunohematology II**

This course expands on the theory, practical application, and evaluation of immunohematology procedures presented in CL\_L\_S 4422 Clinical Immunohematology I and CL\_L\_S 4442 Clinical Immunohematology Laboratory Practicum I. There is an emphasis on the application of immunohematology procedures used for the resolution of complex immunohematology problems. Proper selection of immunohematology procedures that assist in the diagnosis and management of hemolytic conditions will be discussed. Concepts in patient blood management and the adverse effects of transfusion will be presented. Quality management as it applies to transfusion medicine will be addressed. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Clinical Lab Sci (Medical Technology) Program students only

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**CL\_L\_S 4424: Phlebotomy**

Theory, practical application, technical performance and evaluation of procedures used in collecting, handling and processing blood specimens. May be repeated for credit. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** departmental approval, accepted into the Medical Technology Program

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**CL\_L\_S 4426: Body Fluid Analysis**

Theory, practical application, technical performance and evaluation of procedures used in the analysis of urine and other body fluids, including cerebrospinal, synovial, serous, seminal, amniotic and feces. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** departmental consent, accepted into the Medical Technology Program

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**CL\_L\_S 4442: Clinical Immunohematology Laboratory Practicum I**

This course provides practical application in a clinical laboratory setting for the technical performance and evaluation of clinical immunohematology procedures and preparation of blood components. Course content will include new skills and procedures, in addition to the skills and procedures presented in CL\_L\_S 4407 Clinical Laboratory Operations and CL\_L\_S 4411 Introduction to Clinical Immunohematology. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Restricted to Clinical Laboratory Students only

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**CL\_L\_S 4443: Clinical Immunohematology Laboratory Practicum II**

This course provides practical application in a clinical laboratory setting for the technical performance and evaluation of clinical immunohematology procedures and preparation of blood components. Course content will include new skills procedures, in addition to the skills and procedures presented in CL\_L\_S 4442 Clinical Immunohematology Laboratory Practicum I. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Restricted to Clinical Laboratory Students only

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**CL\_L\_S 4444: Clinical Core Laboratory Practicum**

This course provides practical application in a clinical laboratory setting for the technical performance and evaluation of clinical hematology/hemostasis, chemistry and urinalysis procedures. Course content will include new skills and procedures and the application of automation and automatic verification techniques, building on the skills and procedures presented in CL\_L\_S 4407 Clinical Laboratory Operations, CL\_L\_S 4408 Introduction to Clinical Hematology and CL\_L\_S 4410 Introduction to Clinical Chemistry and Urinalysis. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Restricted to Clinical Laboratory Students only

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**CL\_L\_S 4445: Clinical Core Laboratory Practicum II**

This course provides practical application in a clinical laboratory setting for the technical performance and evaluation of clinical hematology/hemostasis, chemistry and urinalysis procedures. Course content will include new skills and procedures, in addition to the skills and procedures presented in CL\_L\_S 4444 Clinical Core Laboratory Practicum. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Restricted to Clinical Laboratory Students only

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**CL\_L\_S 4448: Clinical Microbiology Laboratory Practicum I**

This course provides practical application in a clinical laboratory setting for the technical performance and evaluation of clinical microbiology procedures. Course content will include new skills and procedures,

in addition to the skills and procedures presented in CL\_L\_S 4407 Clinical Laboratory Operations and CL\_L\_S 4409 Introduction to Clinical Microbiology. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Restricted to Clinical Laboratory Students only

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**CL\_L\_S 4449: Clinical Microbiology Laboratory Practicum II**

This course provides practical application in a clinical laboratory setting for the technical performance and evaluation of clinical microbiology procedures. Course content will include new skills and procedures, in addition to the skills and procedures presented in CL\_L\_S 4448 Clinical Microbiology Laboratory Practicum I. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Restricted to Clinical Laboratory Students only

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**CL\_L\_S 4970: Clinical Laboratory Management I**

This course introduces the theory, practical application and evaluation of laboratory management principles in healthcare, including safety, research, educational methodology, quality control, ethics, laboratory operations, point-of-care testing, scope of practice, and the job application process. Opportunities for building critical thinking, problem-solving, research, communication, professionalism, management and leadership skills are provided. Graded on A-F basis only. May be repeated for credit.

**Credit Hours:** 2

**Prerequisites:** Clinical Lab Sci (Medical Technology) Program students only

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**CL\_L\_S 4980: Clinical Lab Management II**

Continuation of Clinical Lab Management I. Theory, practical application, and evaluation of laboratory management principles and associated models in compliance and regulatory issues, human resource management, method evaluation, professionalism and laboratory quality. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CL\_L\_S 4970 or departmental consent

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**CL\_L\_S 4980W: Clinical Lab Management II - Writing Intensive**

Continuation of Clinical Lab Management I. Theory, practical application, and evaluation of laboratory management principles and associated models in compliance and regulatory issues, human resource management, method evaluation, professionalism and laboratory quality. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CL\_L\_S 4970 or departmental consent

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## Communication (COMMUN)

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**COMMUN 1200: Public Speaking**

Principles, process of speech communication in small group and public speaking situations.

**Credit Hours:** 3

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**COMMUN 1200H: Public Speaking - Honors**

Principles, process of speech communication in small group and public speaking situations.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**COMMUN 1880: Introduction to Digital Media Production**

(same as DST\_VS 1880, FILMS\_VS 1880, ENGLISH 1880, ARTGE\_VS 1920). Introduction to concepts and skills for Digital Storytelling, including media literacy and forms of narrative manifested historically and currently across a range of media. This course focuses on theories and concepts that support the critical analysis and creation of contemporary narrative in digital form with particular attention to audio, visual and written communication. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor

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**COMMUN 2100: Media Communication in Society**

An introduction to the development and impact of media communications and its technologies on American society. Emphasis on contemporary industry developments, their historical antecedents, as well as contemporary issues related to the influence and impact of media communication on society.

**Credit Hours:** 3

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**COMMUN 2100H: Media Communication in Society - Honors**

An introduction to the development and impact of media communications and its technologies on American society. Emphasis on contemporary industry developments, their historical antecedents, as well as contemporary issues related to the influence and impact of media communication on society.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**COMMUN 2200: Video Workshop: Sports Broadcast Production**

A hands-on workshop; students will learn live sports video production theory and techniques from Mizzou Athletics broadcast professionals. Students will participate in all phases of video production (camera operations, directing, graphics, video replay, and live audio production and digital editing) in a variety of live sports projects. The class will help produce games for SEC Network Plus. There is no requirement of previous production experience or course work. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Communication majors

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**COMMUN 2315: Basic Audio Production and Performance**

Radio speaking in varied types of programs; console operations, tape editing, microphone techniques.

**Credit Hours:** 3

**Prerequisites:** may be restricted to Communication majors only during early registration

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**COMMUN 2500: Introduction to Communication**

Introduction to four main areas of the field of communication, interpersonal, organizational, political, and mass communication.

**Credit Hours:** 3

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**COMMUN 2530: Screenwriting I**

(same as FILMS\_VS 2530). Analyze various script formats and apply different writing techniques and styles to create screenplays and teleplays. Work inside a creative critique environment to craft vivid storytelling and character elements while developing viable loglines and pitches for their stories. Screenwriting concepts include the three-act structure and the timing and placement of plot points. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor Permission

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**COMMUN 2701: Topics in Communication - General**

Topics in Communication - General.

**Credit Hours:** 3

**Prerequisites:** may be restricted to Communication majors only during early registration

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**COMMUN 2703: Topics in Communication - Behavioral Science**

Topics in Communication - Behavioral Science.

**Credit Hours:** 3

**Prerequisites:** may be restricted to Communication majors only during early registration

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**COMMUN 2703W: Topics in Communication - Behavioral Science - Writing Intensive**

Topics in Communication - Behavioral Science.

**Credit Hours:** 3

**Prerequisites:** may be restricted to Communication majors only during early registration

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**COMMUN 2705: Topics in Communication - Humanities/Fine Arts**

Topics in Communication - Humanities/Fine Arts.

**Credit Hours:** 3

**Prerequisites:** may be restricted to Communication majors only during early registration

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**COMMUN 2810: Story Development**

(same as DST\_VS 2810). In this course students will learn about storytelling across time and media, beginning with definitions and fundamentals of narrative and oral storytelling, theories of narrative and its cultural functions, and basic narrative analysis. The course then turns to the close study of structure, narration, character, plot, action, dialogue, and other narrative elements, with a wide variety of examples and prompts. Throughout the course, students practice the development of their own stories in multiple versions and formats, with attention to the ways that formal structures such as blogs, tweets, podcasts, and scripts affect their storytelling strategies. By the end of the course, students will produce a short shooting script or equivalent project ready for production. Thus, the course functions as preparation for audio-visual production

courses in Communication, Film Studies, Media Studies, Film and Media Arts, and Digital Storytelling degree programs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor

---

**COMMUN 2880: Digital Storytelling Production I**

(same as ENGLISH 2880, DST\_VS 2880). Digital Storytelling Production I teaches agility with digital video technology through applied experiences. Assignments in digital video production emphasize how video narratives are created and how images and audio enhance the structure, mood, and theme of the narrative. Instruction will focus on planning a video production and developing the tools and practices in lighting, sound recording, image capturing, and editing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** COMMUN 1880 and consent of instructor

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**COMMUN 3050: Survey of Communication Studies**

A survey of four main areas of the field communication, interpersonal, organizational, political, and mass communication.

**Credit Hours:** 3

**Prerequisites:** May be restricted to Communications majors through early registration

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**COMMUN 3050W: Survey of Communication Studies - Writing Intensive**

A survey of four main areas of the field communication, interpersonal, organizational, political, and mass communication.

**Credit Hours:** 3

**Prerequisites:** May be restricted to Communications majors through early registration

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**COMMUN 3310: Message Design and Writing for the Media**

This course introduces students to writing for the media in various contexts including television, film and new media (e.g., websites and social media).

**Credit Hours:** 3

**Prerequisites:** COMMUN 2100. May be restricted to Communication majors only during early registration

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**COMMUN 3390: Digital Production I**

Focus on building familiarity with video cameras, microphones, lighting, editing as well as the fundamentals of visual composition, (framing, camera angles, story boards, and ways to visualize information) and processes and procedures for producing and directing.

**Credit Hours:** 3

**Prerequisites:** sophomore standing. May be restricted to Communication majors only during early registration

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**COMMUN 3395: Digital Production II**

Focus on advanced production work; more elaborate projects including digital shorts, music videos, and short documentaries; advanced editing, storyboards, and emphasis on developing narrative structure.

**Credit Hours:** 3

**Prerequisites:** COMMUN 3390 or instructor's consent. May be restricted to Communication majors only during early registration

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**COMMUN 3422: Communication Research Methods**

Focuses on writing and administering surveys, conducting field research, and designing experimental studies.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and COMMUN 1200. May be restricted to Communication majors only during early registration

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**COMMUN 3441: Nonverbal Communication**

Analysis of form and content of nonverbal communication. Emphasis on role of nonverbal cues in interpersonal communication.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and COMMUN 1200. May be restricted to Communication majors only during early registration

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**COMMUN 3460: Organizational Advocacy**

Theory and analysis of communication to promote organizational culture and image.

**Credit Hours:** 3

**Prerequisites:** sophomore standing. May be restricted to Communication majors during early registration

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**COMMUN 3470: Culture as Communication**

(same as ANTHRO 3470, LINGST 3470). Study of the influence of culture on communication processes. Examines topics such as the impact of values, languages, and nonverbal behavior on intercultural interaction.

**Credit Hours:** 3

**Prerequisites:** sophomore standing. May be restricted to Communication majors only during early registration

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**COMMUN 3490: Media Effects**

Survey of the topics, research, and theories in the study of media effects.

**Credit Hours:** 3

**Prerequisites:** COMMUN 2100 or senior standing. May be restricted to Communication majors only during early registration

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**COMMUN 3525: Conflict and Communication**

Theory and analysis of communication in conflict situations across a variety of contexts.

**Credit Hours:** 3

**Prerequisites:** sophomore standing required. May be restricted to Communication majors only during early registration

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**COMMUN 3561: Relational Communication**

Analysis of communication influences on relational identities and development.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and COMMUN 1200. May be restricted to Communication majors only during early registration

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**COMMUN 3570: Performance of Literature**

(same as ENGLSH 3570 and THEATR 3200). Analysis and oral interpretation of literary works. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**COMMUN 3571: Group Decision Making Processes**

(same as PEA\_ST 3521). Procedures and techniques for interpersonal communication and decision making in small groups.

**Credit Hours:** 3

**Prerequisites:** sophomore standing. May be restricted to Communication majors only during early registration

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**COMMUN 3572: Argument and Advocacy**

Critical analysis and production of argument emphasizing evidence, reasoning, and refutation.

**Credit Hours:** 3

**Prerequisites:** COMMUN 1200. May be restricted to Communication majors only during early registration

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**COMMUN 3575: Business and Professional Communication**

Principles and practice of speech communication in business and professional settings. Emphasis on interviews, group conferences and personal presentations.

**Credit Hours:** 3

**Prerequisites:** sophomore standing. May be restricted to Communication majors only during early registration

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**COMMUN 3575W: Business and Professional Communication - Writing Intensive**

Principles and practice of speech communication in business and professional settings. Emphasis on interviews, group conferences and personal presentations.

**Credit Hours:** 3

**Prerequisites:** sophomore standing. May be restricted to Communication majors only during early registration

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**COMMUN 3580: Crisis Communication**

The theory and practice of corporate and political communication responses to crisis situations.

**Credit Hours:** 3

**Prerequisites:** sophomore standing. May be restricted to Communication majors only during early registration

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**COMMUN 3701: Topics in Communication-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent required for repetition.

**Credit Hours:** 3

**Prerequisites:** COMMUN 1200 and COMMUN 2100. May be restricted to Communication majors only during early registration

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**COMMUN 3701W: Topics in Communication - General - Writing Intensive**

Topics in Communication - General.

**Credit Hours:** 3

**Prerequisites:** may be restricted to Communication majors only during early registration

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**COMMUN 3703: Topics in Communication-Behavioral Sciences**  
Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent required for repetition.

**Credit Hour:** 1-99

**Prerequisites:** junior standing and instructor's consent, May be restricted to Communication majors only during early registration

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**COMMUN 3705: Topics in Communication-Humanities**  
Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent required for repetition.

**Credit Hour:** 1-99

**Prerequisites:** junior standing and instructor's consent. May be restricted to Communications majors only during early registration

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**COMMUN 4395: Professional Seminar in Television Production**  
Application of principles to advanced television production, direction.

**Credit Hours:** 3

**Prerequisites:** COMMUN 3390 and instructor's consent. May be restricted to Communication majors only during early registration

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**COMMUN 4412: Gender, Language, and Communication**  
(same as LINGST 4412, ANTHRO 4412; cross-leveled with COMMUN 7412, LINGST 7412, ANTHRO 7412). Relationship among gender, language, nonverbal communication, and culture.

**Credit Hours:** 3

**Prerequisites:** junior standing or departmental consent. May be restricted to Communication majors only during early registration

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**COMMUN 4440: Ethical Issues in Communication**  
(same as PEA\_ST 4440; cross-leveled with COMMUN 7440). Exploration and analysis of ethical dimensions intrinsic to human communication.

**Credit Hours:** 3

**Prerequisites:** junior standing or departmental consent. May be restricted to Communication majors only during early registration

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**COMMUN 4473: Political Communication**  
(cross-leveled with COMMUN 7473). Study of role and impact of communication in political campaigns; historical and contemporary study of influence by communication; case studies and practicum.

**Credit Hours:** 3

**Prerequisites:** junior standing or departmental consent. May be restricted to Communication majors only during early registration

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**COMMUN 4474: Theory and Research in Persuasion**  
(cross-leveled with COMMUN 7474). Studies the persuasive process, attitude formation, modification.

**Credit Hours:** 3

**Prerequisites:** junior standing and COMMUN 1200. May be restricted to Communication majors only during early registration

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**COMMUN 4476: Organizational Communication**

(cross-leveled with COMMUN 7476). Theories of communication systems and processes in organizational structures; study of communication behavior in formal and informal organizational settings.

**Credit Hours:** 3

**Prerequisites:** junior standing and COMMUN 1200. May be restricted to Communication majors only during early registration

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**COMMUN 4478: Communication Competencies for a Diverse Workplace**

Review of communication skills that can help students provide leadership around diversity and inclusion issues in the workplace, work more effectively in diverse work environments, and make workplaces more welcoming and inclusive for everyone. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Junior standing. May be restricted to Communication majors only during early registration

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**COMMUN 4491: Political Public Address**

Course focuses on the rhetorical criticism of public address; which involves analyzing the use of symbolic communication - primarily persuasive argument - in public settings on issues of political, social and cultural significance. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** COMMUN 1200

**Recommended:** COMMUN 3572

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**COMMUN 4510: Children's Communication**

Course focuses on the nature of children's communication. Students will examine the communicative abilities, practices, and behaviors of children ranging across preschool and school age years. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Junior standing or departmental consent. May be restricted to Communication majors only during early registration

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**COMMUN 4520: Family Communication**

(same as H\_D\_FS 4680; cross-leveled with COMMUN 7520, H\_D\_FS 7680). Analysis of the functions and processes of communication within families.

**Credit Hours:** 3

**Prerequisites:** junior standing or departmental consent. May be restricted to Communication majors only during early registration

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**COMMUN 4530: Health Communication**

(cross-leveled with COMMUN 7530). A general overview of the impact of communication on health, including doctor/patient communication and health campaigns. Graded on A-F basis only.

**Credit Hours:** 3

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**COMMUN 4628: Children, Adolescents and the Media**

Focus on social scientific research concerning the mass media and social media in the lives of children and adolescents. The course centers on media effects literature and controversies relevant to child and

adolescent media users. Course involves readings, lectures, discussions of theories, concepts, methods, and findings. We will also consider social implication and personal choices in media use. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** junior standing required

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**COMMUN 4638: New Technologies and Communication**

(cross-leveled with COMMUN 7638). Explores the social implications of new technologies designed for communication. Assumes basic computer knowledge.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent. May be restricted to Communication Majors only during early registration

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**COMMUN 4648: Race, Ethnicity, and the Media**

Presents an overview of how social identities of race and ethnicity are constructed within the media landscape. Provides an overview of the effects of stereotypical imagery and prosocial representations on users across a variety of media. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** COMMUN 2100

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**COMMUN 4701: Topics in Communication-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent required for repetition.

**Credit Hour:** 1-99

**Prerequisites:** junior standing and instructor's consent. May be restricted to Communication majors only during early registration

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**COMMUN 4705: Topics in Communication-Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent for repetition.

**Credit Hour:** 1-99

**Prerequisites:** junior standing and instructor's consent. May be restricted to Communication majors only during early registration

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**COMMUN 4880: Digital Storytelling Production II**

(same as ENGLISH 4880, DST\_VS 4880). Digital Storytelling Production II introduces students to advanced techniques in digital storytelling production, while further developing skills in script writing, storyboarding, Adobe Premiere Pro, and video production with DSLR cameras. Assignments in digital video production emphasize how video narratives are created and how images and audio enhance the structure, mood, and theme of the narrative. Instruction will focus on planning a video production and developing the tools and practices in lighting, sound recording, image capturing, and editing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor

**Recommended:** COMMUN 1880 and COMMUN 2880

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**COMMUN 4940: Internship**

Directed professional experience within and outside the University in communication-related fields or organizations. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** Admission to department, junior standing, instructor's consent, 2.5 GPA

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**COMMUN 4950: Research Project**

Student contributes to a research project with approved goals and a final written report. As part of the project, student will read articles in the communication research literature. Project can be independent or in conjunction with a faculty research project. Course may be repeated once for credit. Graded on A-F basis only

**Credit Hour:** 1-3

**Prerequisites:** COMMUN 3050; junior standing and instructor's consent. Approval by a faculty member who will serve as project supervisor

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**COMMUN 4960: Directed Reading**

Independent reading, reports.

**Credit Hour:** 1-99

**Prerequisites:** junior standing or instructor's consent

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**COMMUN 4970: Communication Practicum**

Special applied instruction in an advanced area of communication or media. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** COMMUN 1200, COMMUN 3050, Communication major with junior standing and GPA of 2.5

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**COMMUN 4974: Senior Project**

Integration and adaptation of communication theories to an applied communication problem. Required for all majors.

**Credit Hours:** 3

**Prerequisites:** admission to department, senior standing, and departmental consent

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**COMMUN 7412: Gender, Language, and Communication**

(same as LINGST 7412, ANTHRO 7412; cross-leveled with COMMUN 4412, LINGST 4412, ANTHRO 4412). Relationship among gender, language, nonverbal communication, and culture.

**Credit Hours:** 3

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**COMMUN 7473: Political Communication**

(cross-leveled with COMMUN 4473). Study of role and impact of communication in political campaigns; historical and contemporary study of influence by communication; case studies and practicum.

**Credit Hours:** 3

**Prerequisites:** graduate standing or departmental consent

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**COMMUN 7530: Health Communication**

A general overview of the impact of communication on health, including doctor/patient communication and health campaigns. Graded on A-F basis only.

**Credit Hours:** 3

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**COMMUN 7638: New Technologies and Communication**

Explores the social implications of new technologies designed for communication. Assumes basic computer knowledge.

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**Credit Hours:** 3

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**COMMUN 8000: Pro-Seminar in Communication**

Obtaining a graduate degree requires that students become excellent researchers, teachers, and colleagues. To support learning toward these proficiencies, the Pro-Seminar course supplements classroom learning and faculty mentoring through formal departmental offerings. Graded on S/U basis only.

**Credit Hour:** 1

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**COMMUN 8001: Topics in Communication-General**

Study of selected topics in communication. Topic and credit may vary semester to semester. Repeatable upon consent of department.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**COMMUN 8085: Problems**

Individual study not leading to thesis or dissertation.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**COMMUN 8090: Master's Thesis Research in Communication**

Research leading to thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**COMMUN 8110: Introduction to Graduate Study in Communication**

Orientation to the field. Introduction to research methods. Production of research proposal. Emphasizes scholarly style of writing.

**Credit Hours:** 3

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**COMMUN 8120: Introduction to Communication Research Methods**

Introduction to communication research, including research design and academic writing.

**Credit Hours:** 3

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**COMMUN 8130: Topics in Qualitative Research Methods**

Examination of assumptions and techniques of qualitative methods adopting an interpretive framework for analyzing communication phenomena. May be repeated for credit.

**Credit Hours:** 3

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**COMMUN 8140: Content Analysis**

Introduction to content analysis as a method. Students will learn about issues of sampling, codebook construction, intercoder reliability, validity, and analysis of content analytic data, including computer assisted content analysis.

**Credit Hours:** 3

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**COMMUN 8160: Rhetorical Criticism**

Principles, practice criticism (description, analysis, evaluation) of rhetorical artifacts.

**Credit Hours:** 3

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**COMMUN 8170: Seminar in Quantitative Methods in Communication II**

The focus of this course will be the study and practice of various multivariate statistical methods commonly used in communication research. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** COMMUN 8120; instructor's consent required

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**COMMUN 8180: Advanced Topics in Quantitative Methods**

Seminar in advanced topics in quantitative methods and statistics. Topics will vary. Course may be repeated up to two times for a total of six credit hours. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** COMMUN 8120

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**COMMUN 8310: Seminar in Interpersonal Communication**

Examines theory and research concerning face-to-face dyadic interactions. Emphasis on context of interpersonal communication events and processes of interactional management.

**Credit Hours:** 3

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**COMMUN 8410: Seminar in Organizational Communication Theory**

Exploration of the theoretical foundations of interpersonal communication in the organization, groups and team development, leadership, organizational decision making, motivation and power, bureaucracy, new information technologies, organizational effectiveness and the change process.

**Credit Hours:** 3

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**COMMUN 8510: Seminar in Mediated Communication Theory**

This course will offer graduate students a broad overview of extant theories employed in the study of mediated communication. The class will be a survey of theory from foundation to modern conceptions of the study of mediated communication, from mass communication to interactive media contexts.

**Credit Hours:** 3

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**COMMUN 8610: Survey of Political Communication**

Survey of theory and research on political communication; emphasis on messages and audience responses to messages.

**Credit Hours:** 3

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**COMMUN 9050: Research**

Completes comprehensive exams and writes a literature review.

**Credit Hour:** 1-9

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**COMMUN 9090: Doctoral Dissertation Research in Communication**

Research leading to dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**COMMUN 9170: Research Practicum**

Student conducts research under close supervision of faculty mentor. Goal: produce research report suitable for submission as convention paper, article, or book chapter. May be repeated once for credit.

**Credit Hours:** 3

**Prerequisites:** consent of mentor required; for advanced graduate students

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**COMMUN 9280: Seminar in Communication Theory**

Examines the nature of theory, the assumptions underlying theoretical approaches to communication, and surveys themes in contemporary communication theories.

**Credit Hours:** 3

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**COMMUN 9310: Seminar in Family Communication**

Examines research and theory of family communication; focus on family communication patterns and processes, emphasis on key conceptual, methodological and theoretical aspects of family communication scholarship and research on family forms, processes and outcomes. Graded on A-F basis only.

**Credit Hours:** 3

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**COMMUN 9330: Topics in Interpersonal and Family Communication**

The course will review theory and research on topics related to the study of family communication and/or interpersonal communication. Subjects will rotate and include areas such as relational conflict, gender communication, narrative theory, family diversity, or intercultural communication.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**COMMUN 9430: Topics in Organizational Communication**

Examination of theory and research in selected areas of organizational communication. Topics vary by semester. Topics may include socialization, power, gender, emotions, and others. May be repeated for credit.

**Credit Hours:** 3

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**COMMUN 9460: Topics in Political Communication**

Examination of theory and research in selected areas of political communication. Topics vary by semester. Topics may include political polarization, political socialization, politics and the media, political advertising, politics and new media.

**Credit Hours:** 3

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**COMMUN 9520: Seminar in Media Processes and Effects**

Explores current research in the processes and effects of mediated communication. Readings pertain to the current social and psychological effects of media on users.

**Credit Hours:** 3

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**COMMUN 9530: Topics in Mediated Communication**

Examination of theory and research in selected areas of mediated communication. Topics vary by semester. Topics include mass media

and social relationships, digital media, social identity and media, health and media, and media diversity. May be repeated two times for credit.

**Credit Hours:** 3

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**COMMUN 9610: Seminar in Disaster, Crisis, and Risk**

This course examines several lines of research from multiple disciplines that influence communication during disasters, crises, and emergencies. Topics may include federal government paradigms for disaster communication, crisis communication perspectives, risk perception, resilience, social media and emerging technologies in disasters, and media coverage of disasters.

**Credit Hours:** 3

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**COMMUN 9620: Political Campaign Debates**

Theory and research on political campaign debates applied to analyses of candidate debates. Focus on primary and general presidential debates.

**Credit Hours:** 3

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**COMMUN 9630: Political Advertising**

Theory and research on political advertising applied to analyses of candidate advertisements. Focus on primary and general presidential television spots and web pages.

**Credit Hours:** 3

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## Computer Science (CMP\_SC)

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**CMP\_SC 1000: Introduction to Computer Science**

This course introduces the Computer Science field, including the history of computers, career opportunities, and ethical/social issues. There will be lectures given by MU Computer Science faculty to discuss exciting fields as well as career advisement given by Computer Science industry representatives. Prerequisites: Restricted to freshman/sophomore students who are BS Computer Science, BS Information Technology and Undeclared Engineering or Pre-Engineering may enroll in the class without permission

**Credit Hour:** 1

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**CMP\_SC 1001: Topics in Computer Science**

Topic and credit may vary from semester to semester. May be repeated upon consent of department.

**Credit Hour:** 1-99

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**CMP\_SC 1050: Algorithm Design and Programming I**

This course provides experience in developing algorithms, designing, implementing programs. Topics include syntax/semantics, flow control, loops, recursion, I/O, arrays, strings and pointers.

**Credit Hours:** 4

**Prerequisites:** C- or higher in MATH 1100 or MATH 1160 or MATH 1500. May be restricted to Engineering majors only

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**CMP\_SC 1050H: Algorithm Design and Programming I - Honors**

This course provides experience in developing algorithms, designing, implementing programs. Topics include syntax/semantics, flow control, loops, recursion, I/O, arrays, strings and pointers.

**Credit Hours:** 4

**Prerequisites:** C- or higher in MATH 1100 or MATH 1160 or MATH 1500. Honor eligibility required. May be restricted to Engineering majors only

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**CMP\_SC 2001: Topics in Computer Science**

Topic and credit may vary from semester to semester. May be repeated upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** departmental consent

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**CMP\_SC 2007: World of Neuroscience**

(same as BIOL\_EN 2007, BME 2007, ECE 2007). This in-class course will introduce undergraduates to the growing area of neuroscience from the perspectives of three disciplines: engineering, biology and psychology. Topics in the course will span multiple levels of neuroscience including genomic, genetic, molecular, cellular, systems, behavioral and clinical levels. Due to the interdisciplinary nature of the neuroscience, the classes will cover diverse topics. The topics will range from overviews of the key neurobiology areas, to lab sessions involving how to analyze your own brain signals (EEG), and to visits to brain imaging center and EEG lab. The overall goal is to provide a broad exposure to the fascinating world of interdisciplinary neuroscience. Graded on A-F basis only.

**Credit Hour:** 1

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**CMP\_SC 2010: Intellectual Property for Engineers**

The objective of the course is to enable students to understand and develop informed opinions about issues relating to IP and its increasing influence on the control and use of information in society. A secondary objective is to provide a practical understanding of how to establish copyright, trademark, and/or patent protection for IP. Particular emphasis will be given to the complexities associated with IP in the fields of information technology and computer science.

**Credit Hours:** 3

**Recommended:** Any 1000 level Engineering course or instructor permission

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**CMP\_SC 2050: Algorithm Design and Programming II**

A study of fundamental techniques and algorithms for representing and manipulating data structures. Topics include data abstraction, recursion, stacks, queues, linked lists, trees, efficient methods of sorting and searching, and Big-O analysis.

**Credit Hours:** 4

**Prerequisites:** C or higher in CMP\_SC 1050. May be restricted to Engineering majors only

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**CMP\_SC 2085: Problems in Computer Science**

Independent investigation or project in Computer Science. May be repeated to up 6 hours.

**Credit Hour:** 1-6

**Prerequisites:** C or higher in CMP\_SC 1050

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**CMP\_SC 2111: Production Languages**

The study of the syntax, semantics, and applications of one programming language suitable for large scale scientific or commercial projects, such as FORTRAN, COBOL, PL/1, C, or ADA. May be taken more than once for credit.

**Credit Hour:** 1-3

**Prerequisites:** C- or higher in CMP\_SC 2050 or INFOTC 2040

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**CMP\_SC 2270: Introduction to Logic Systems**

(same as ECE 2210). Basic tools, methods and procedures to design combinational and sequential digital circuits and systems, including number systems, boolean algebra, logic minimization, circuit design, memory elements, and finite state machine design.

**Credit Hours:** 3

**Prerequisites:** C or higher in CMP\_SC 1050 or INFOTC 1040

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**CMP\_SC 2830: Web Application Development I**

(same as INFOTC 2830). This course will attempt to provide a comprehensive understanding of the evolution, the technologies, and the tools of the Internet. In particular, issues pertaining to the World Wide Web and Multimedia (HTML, CGI, Web based applications) will be discussed in detail.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2050 or INFOTC 2040

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**CMP\_SC 3050: Advanced Algorithm Design**

This class surveys fundamental algorithms and data structures that have wide practical applicability, including search trees and graph algorithms. Emphasis is placed on techniques for efficient implementation and good software development methodologies.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050 with a C or higher

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**CMP\_SC 3280: Computer Organization and Assembly Language**

(same as ECE 3280). Introduces computer architectures, programming concepts including parameter passing, I/O, interrupt handling, DMA, memory systems, cache, and virtual memory. Graded of A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C or higher in CMP\_SC 2270 or ECE 2210 or ECE 1210, and C or higher in CMP\_SC 2050

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**CMP\_SC 3330: Object Oriented Programming**

(same as INFOTC 3330). This course focuses on object-oriented programming concepts: abstraction, polymorphism, encapsulation, inheritance, interfaces, abstract classes, files, streams, and object serialization. Topics such as GUI and event-driven programming are also tackled.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050 or INFOTC 2040 with a C or higher grade

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**CMP\_SC 3380: Database Applications and Information Systems**

Covers fundamental topics of database management systems (DBMS) and database-enabled applications. Topics include a brief history of secondary storage and databases, data modeling, introductory SQL,

an overview of current database trends, and current popular database systems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C or higher in CMP\_SC 2050 or INFOTC 2040

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#### **CMP\_SC 3530: UNIX Operating System**

(same as INFOTC 3530). This course is an introduction to UNIX and UNIX-like operating systems and interfaces, to include the file system, command shells, text editors, pipes and filters, input/output system, shell scripting and Regular Expressions. The course will also incorporate an aspect of programming in a UNIX environment, cloud computing, containers and an introduction to System Administration. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2050 or INFOTC 2040

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#### **CMP\_SC 3940: Internship in Computer Science**

Computer-related experience in business or industry jointly supervised by faculty and computer professionals. Students should apply one semester in advance for consent of the supervising professor. Graded on a S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** CMP\_SC 2050

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#### **CMP\_SC 4001: Topics in Computer Science**

Topic and credit may vary from semester to semester. May be repeated upon consent of department.

**Credit Hour:** 1-99

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#### **CMP\_SC 4050: Design and Analysis of Algorithms I**

(cross-leveled with CMP\_SC 7050). This course reviews and extends earlier work with linked structures, sorting and searching algorithms, and recursion. Graph algorithms, string matching, combinatorial search, geometrical algorithms and related topics are also studied.

**Credit Hours:** 3

**Prerequisites:** C or higher in CMP\_SC 3050 and MATH 2320

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#### **CMP\_SC 4060: String Algorithms**

(cross-leveled with CMP\_SC 7060). This course provides an introduction to algorithms that efficiently compute patterns in strings. Topics covered include basic properties of strings, data structures for processing strings, string decomposition, exact and approximate string matching algorithms.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 4050

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#### **CMP\_SC 4070: Numerical Methods for Science and Engineering**

(same as ECE 4070; cross-leveled with CMP\_SC 7070, ECE 7070). This course introduces the basic numerical methods that are widely used by computer scientists and engineers. Students will learn how to use the MATLAB platform to find the computational solution of various problems arising in many real world applications. By completing this course, students will be able to master algorithms, compare their performances and critically assess which ones are viable options for the particular problem at hand. Graded on A-F basis only.

**Credit Hours:** 3

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**Prerequisites:** C- or higher in CMP\_SC 2050 and junior standing or instructor's consent

**Recommended:** Students are expected to have basic knowledge in discrete math and algorithms

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#### **CMP\_SC 4080: Parallel Programming for High Performance Computing**

(cross-leveled with CMP\_SC 7080) This course will provide in-depth treatment of the evolution high performance computing architectures and parallel programming techniques for those architectures. We will cover topics such as: multi-process and multi-threaded programming; multi-node system architectures (clusters, grids, and clouds) and distributed programming; and general purpose GPU programming. To reinforce lecture topics, programming projects will be completed using multi-process and multi-threaded techniques for modern multicore, multiprocessor workstations; parallel and distributed programming techniques for modern multi-node systems; and general purpose GPU programming. Parallel algorithms will be investigated, selected, and then developed for various scientific data processing problems. Programming projects will be completed using C and C++ APIs and language extensions, e.g. threads (pthreads, Boost/C++), TBB, CILK, OpenMP, OpenMPI, CUDA and OpenCL.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 3280 or ECE 3210 and C- or higher in CMP\_SC 3050 or ECE 3220

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#### **CMP\_SC 4085: Problems in Computer Science**

Independent investigation or project in Computer Science. May be repeated to up 6 hours.

**Credit Hour:** 1-6

**Prerequisites:** senior standing in Computer Science

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#### **CMP\_SC 4270: Computer Architecture**

(same as ECE 4270; cross-leveled with CMP\_SC 7270, ECE 7270). Advanced computer architectures and programming; memory, memory management and cache organizations, parallel processing, graphical processor units for general programming.

**Credit Hours:** 4

**Prerequisites:** C or higher in CMP\_SC 2050 and CMP\_SC 3280 or ECE 3280

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#### **CMP\_SC 4280: Network Systems Architecture**

(same as ECE 4280; cross-leveled with CMP\_SC 7280, ECE 7280). The course covers network systems (interconnects and switch fabrics, network considerations) and relevant networking applications at the network, transport and application layer.

**Credit Hours:** 4

**Prerequisites:** C- or higher in CMP\_SC 2050 or ECE 3220 and C- or higher in CMP\_SC 3280 or ECE 3210

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#### **CMP\_SC 4320: Software Engineering I**

(cross-leveled with CMP\_SC 7320). Overview of software life cycle, including topics in systems analysis and requirements specification, design, implementation testing and maintenance. Uses modeling techniques, project management, peer review, quality assurance, and system acquisition.

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**Credit Hours:** 3

**Prerequisites:** C or higher in CMP\_SC 3380

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**CMP\_SC 4320W: Software Engineering I - Writing Intensive**

(cross-leveled with CMP\_SC 7320). Overview of software life cycle, including topics in systems analysis and requirements specification, design, implementation testing and maintenance. Uses modeling techniques, project management, peer review, quality assurance, and system acquisition.

**Credit Hours:** 3

**Prerequisites:** C or higher in CMP\_SC 3380

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**CMP\_SC 4330: Object Oriented Design I**

(cross-leveled with CMP\_SC 7330). Building on a prior knowledge of program design and data structures, this course covers object-oriented design, including classes, objects, inheritance, polymorphism, and information hiding. Students will apply techniques using a modern object-oriented implementation language.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 3330

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**CMP\_SC 4350: Big Data Analytics**

(cross-leveled with CMP\_SC 7350). Big Data Analytics represents a new era of computing, where data in any format maybe processed and exploited to extract insights for industries and organizations to make informed decisions, whether that data is in-place, in-motion or at-rest, in large volume, structured or unstructured. More and more companies are embracing open source Big Data technologies, such as Hadoop and extending it into an enterprise ready Big Data Platform. This course will cover advanced analytics technologies and techniques that enable industries to extract insights from data with sophistication, speed and accuracy. You will learn practical industry best practices to bridge the gap between classroom learning and real world; and have access to cloud services for labs/projects.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 3330 and CMP\_SC 3380

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**CMP\_SC 4380: Database Management Systems I**

(cross-leveled with CMP\_SC 7380). Fundamental concepts of current database systems with emphasis on the relational model. Topics include entity-relationship model, relational algebra, query by example, indexing, query optimization, normal forms, crash recovery, web-based database access, and case studies. Project work involves a modern DBMS, such as Oracle, using SQL.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 3380

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**CMP\_SC 4405: iOS App Development I**

(same as INFOTC 4405). This is a first in a series of courses on developing iOS applications using Xcode, and the Swift programming language on the macOS platform.

**Credit Hours:** 3

**Prerequisites:** INFOTC 1040 or CMP\_SC 1050, or consent of instructor

**Recommended:** Prior experience programming in any programming language. The student should understand basic language concepts such as variables, data structures, control structures, and functions

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**CMP\_SC 4410: Theory of Computation I**

(cross-leveled with CMP\_SC 7410). An introductory study of computation and formal languages by means of automata and related grammars. The theory and applications of finite automata, regular expressions, context free grammars, pushdown automata and Turing machines are examined. May not be counted toward Computer Science MS/PHD.

**Credit Hours:** 3

**Prerequisites:** C- or higher in MATH 2320

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**CMP\_SC 4430: Compilers I**

(cross-leveled with CMP\_SC 7430). Introduction to the translation of programming languages by means of interpreters and compilers. Lexical analysis, syntax specification, parsing, error-recovery, syntax-directed translation, semantic analysis, symbol tables for block structured languages, and run-time storage organization. May not be counted toward Computer Science MS/PHD.

**Credit Hours:** 3

**Prerequisites:** C- or higher in MATH 2320, CMP\_SC 3280 and CMP\_SC 4450

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**CMP\_SC 4440: Malware Analysis and Defense**

(cross-leveled with CMP\_SC 7440). Malicious software or 'malware' is a security threat. This course teaches students to understand the nature and types of viruses and how they are threats; teaches techniques used to prevent, detect, repair and defend against viruses and worms; teaches program binary examination tools to detect malicious code; and teaches ethical issues surrounding computer security violations.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 3280 or ECE 3210

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**CMP\_SC 4450: Principles of Programming Languages**

(cross-leveled with CMP\_SC 7450). An introduction to the structure, design and implementation of programming languages. Topics include syntax, semantics, data types, control structures, parameter passing, run-time structures, and functional and logic programming. May not be counted toward Computer Science MS/PHD.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2050

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**CMP\_SC 4460: Introduction to Cryptography**

(cross-leveled with CMP\_SC 7460). Cryptography is an important technique used to achieve security goals in an untrusted and possibly adversarial environment. The goals of this course are: (1) to provide students with a solid background with basic cryptographic techniques and their applications, (2) to impart knowledge of standard cryptographic algorithms and (3) to foster understanding of the correct use of cryptographic techniques.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 3050 and MATH 2320

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**CMP\_SC 4520: Operating Systems I**

(cross-leveled with CMP\_SC 7520). Basic concepts, theories and implementation of modern operating systems including process and memory management, synchronization, CPU and disk scheduling, file

systems, I/O systems, security and protection, and distributed operating systems.

**Credit Hours:** 3

**Prerequisites:** C or higher in CMP\_SC 3050, CMP\_SC 3280 and MATH 1700

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#### **CMP\_SC 4530: Cloud Computing**

(cross-leveled with CMP\_SC 7530). This course covers principles that integrate computing theories and information technologies with the design, programming and application of distributed systems. The course topics will familiarize students with distributed system models and enabling technologies; virtual machines and virtualization of clusters, networks and data centers; cloud platform architecture with security over virtualized data centers; service-oriented architectures for distributed computing; and cloud programming and software environments. Additionally, students will learn how to conduct some parallel and distributed programming and performance evaluation experiments on applications within available cloud platforms. Finally we will survey research literature and latest technology trends that are shaping the future of high performance, distributed and cloud computing.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 3330 or instructor's consent

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#### **CMP\_SC 4540: Neural Models and Machine Learning**

(same as ECE 4540, BME 4540, BIOL\_EN 4540; cross-leveled with CMP\_SC 7540, ECE 7540, BIOL\_EN 7540). The projects-based course has three inter-linked components: (I) math models of neurons and neural networks, (II) machine learning in neuroscience, after a brief introduction to python and (III) software automation and cyberinfrastructure to support neuroscience. Extensive projects focusing on software automation and machine learning components, with brief in-class presentations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1500 or consent of instructor

**Recommended:** Introductory software programming, and introductory cell biology or consent of instructor

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#### **CMP\_SC 4590: Computational Neuroscience**

(same as BIO\_SC 4590, BIOL\_EN 4590, ECE 4590, BME 4590; cross-leveled with BIO\_SC 7590, ECE 7590, BIOL\_EN 7590). Interdisciplinary course in biology and quantitative sciences with laboratory and modeling components. Explores basic computational and neurobiological concepts at the cellular and network level. Introduction to neuronal processing and experimental methods in neurobiology; modeling of neurons and neuron-networks. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** MATH 1500 or equivalent

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#### **CMP\_SC 4610: Computer Graphics I**

(cross-leveled with CMP\_SC 7610). Basic concepts and techniques of interactive computer graphics including hardware, software, data structures, mathematical manipulation of graphical objects, the user interface, and fundamental implementation algorithms.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 3050 and MATH 1500 or C- or higher in CMP\_SC 3050 and MATH 1300 and MATH 1400

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#### **CMP\_SC 4620: Physically Based Modeling and Animation**

(cross-leveled with CMP\_SC 7620). This course introduces students to physically based modeling and animation methodology for computer graphics and related fields such as computer vision, visualization, biomedical imaging and virtual reality. We will explore current research issues and will cover associated computational methods for simulating various visually interesting physical phenomena. This course should be appropriate for graduate students in all areas as well as advanced undergraduate students.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 4610

**Recommended:** Good knowledge of C or C++ programming, no physics background necessary

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#### **CMP\_SC 4630: Game Development**

(same as INFOTC 4630). The course focuses on rapid game prototyping and development utilizing the Unity game engine and C#. tools. You will learn the fundamentals of game programming and also a platform which is actually used to make published games across multiple platforms (Mac, PC, web, iOS, Android etc). Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOTC 3630 or CMP\_SC 2050 with a C- or Higher

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#### **CMP\_SC 4650: Digital Image Processing**

(same as ECE 4655; cross-leveled with CMP\_SC 7650, ECE 7655). Fundamentals of digital image processing hardware and software including digital image acquisition, image display, image enhancement, image transforms and segmentation.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2050 and STAT 4710 or instructor's consent

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#### **CMP\_SC 4670: Digital Image Compression**

(same as ECE 4675; cross-leveled with ECE 7675, CMP\_SC 7670). Covers digital image formation, information theory concepts, and fundamental lossless and lossy image compression techniques including bit plane encoding, predictive coding, transform coding, block truncation coding, vector quantization, subband coding and hierarchical coding.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2050

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#### **CMP\_SC 4720: Introduction to Machine Learning and Pattern Recognition**

(same as ECE 4720; cross-leveled with ECE 7720, CMP\_SC 7720) This course provides foundations and methods in machine learning and pattern recognition that address the problem of programming computers to optimize performance by learning from example data or expert knowledge. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2050 and STAT 4710 or instructor consent

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#### **CMP\_SC 4730: Building Intelligent Robots**

(same as ECE 4340; cross-leveled with CMP\_SC 7730, ECE 7340). Covers the design and development of intelligent machines, emphasizing

topics related to sensor-based control of mobile robots. Includes mechanics and motor control, sensor characterization, reactive behaviors and control architectures.

**Credit Hours:** 4

**Prerequisites:** junior standing

**Recommended:** programming experience in one of the following programming languages - Basic, C, C++, or Java

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**CMP\_SC 4740: Interdisciplinary Introduction to NLP**

(same as LINGST 4740; cross-leveled with CMP\_SC 7740; LINGST 7740). The goal of this course is to enable students to develop substantive NLP applications. Focus on current structural and statistical techniques for the parsing and interpretation of texts.

**Credit Hours:** 3

**Prerequisites:** senior standing

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**CMP\_SC 4750: Artificial Intelligence I**

(cross-leveled with CMP\_SC 7750). This course is intended to be a general introduction to the field of Artificial Intelligence (AI). It will provide exposure to a range of core AI topics including intelligent agent, problem solving by search and game playing, constraint satisfaction problems, propositional and first-order logic, probability in AI, and machine learning. The topics covered in this course are closely related to the common core of Computing & Information education -- about C&I know-how and the ways of thinking and problem solving that characterize C&I community: a system view of the world, a focus on mathematical and computational representation of systems, information representation and transformation, and so forth.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 3050 and junior standing

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**CMP\_SC 4770: Introduction to Computational Intelligence**

(same as ECE 4870; cross-leveled with CMP\_SC 7770, ECE 7870). Introduction to the concepts, models and algorithms for the development of intelligent systems from the standpoint of the computational paradigms of neural networks, fuzzy set theory and fuzzy logic, evolutionary computation and swarm optimization.

**Credit Hours:** 3

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**CMP\_SC 4830: Web Application Development II**

(same as INFOTC 4830; cross-leveled with CMP\_SC 7830). This course will study the science and engineering of the World Wide Web. We will study the languages, protocols, services and tools that enable the web. Emphasis will be placed on basics and technologies.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2830

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**CMP\_SC 4850: Computer Networks I**

(cross-leveled with CMP\_SC 7850). Introduction to concepts and terminology of data communications and computer networking. Basic protocols and standards, applications of networking, routing algorithms, congestion avoidance, long-haul and local networks.

**Credit Hours:** 3

**Prerequisites:** C or higher in CMP\_SC 2270 or ECE 2210 and C- or higher in MATH 2320

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**CMP\_SC 4910: Digital Forensics**

(same as INFOTC 4910). This course introduces an overview of basic Digital Forensics procedures and techniques to enable students to perform a digital investigation of physical storage media and volume analysis, including preservation, analysis and acquisition of artifacts that resides in hard disk and random access memory, for Linux and Windows systems. Work is completed in Unix/Linux environments and in Microsoft Windows environment. Students will need to setup a virtual private infrastructure to perform multiple tasks. The course emphasizes 'learning by doing' and has a 90% hands-on and 10% theory. Much of this information consists of skills and abilities that employers want and expect in the real world of IT - in a small to medium size organization. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOTC 2910 and INFOTC 3910

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**CMP\_SC 4970: Senior Capstone Design I**

Communication skills, and prototyping. Covers professional ethics, intellectual property/patenting, knowledge of engineering literature, safety, economic and environmental impact of technology. Essays, oral and written reports.

**Credit Hours:** 3

**Prerequisites:** C or higher in CMP\_SC 4320 and senior standing

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**CMP\_SC 4970W: Senior Capstone Design I - Writing Intensive**

Communication skills, and prototyping. Covers professional ethics, intellectual property/patenting, knowledge of engineering literature, safety, economic and environmental impact of technology. Essays, oral and written reports.

**Credit Hours:** 3

**Prerequisites:** C or higher in CMP\_SC 4320 and senior standing

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**CMP\_SC 4980: Senior Capstone Design II**

Course entails completion of CMP\_SC 4970 design project. Design prototyping, testing, evaluation, presentation, and preparation of documentation.

**Credit Hours:** 3

**Prerequisites:** C or higher in CMP\_SC 4970

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**CMP\_SC 4990: Undergraduate Research in Computer Science**

Independent investigation or project in Computer Science. May be repeated to 6 hours.

**Credit Hour:** 0-6

**Prerequisites:** senior standing in Computer Science

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**CMP\_SC 4995: Undergraduate Research in Computer Science - Honors**

Independent investigation to be presented as an undergraduate honors thesis.

**Credit Hour:** 1-6

**Prerequisites:** honors student in Computer Science

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**CMP\_SC 7001: Topics in Computer Science**

Topic and credit may vary from semester to semester. May be repeated upon consent of department.

**Credit Hour:** 1-99

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**CMP\_SC 7010: Computational Methods in Bioinformatics**

(same as INFOINST 7010) Introduces the fundamental concepts and basic computational techniques for mainstream bioinformatics problems. Emphasis will be placed on the computational aspect of bioinformatics, including formulation of a biological problem in a computable problem, design of scoring functions and algorithms, confidence assessment of prediction results and software development.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4050 and STAT 4710

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**CMP\_SC 7050: Design and Analysis of Algorithms I**

(cross-leveled with CMP\_SC 4050). This course reviews and extends earlier work with linked structures, sorting and searching algorithms, and recursion. Graph algorithms, string matching, combinatorial search, geometrical algorithms and related topics are also studied. Cannot be counted toward CS MS/PHD.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 3050 and MATH 2320

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**CMP\_SC 7060: String Algorithms**

(cross-leveled with CMP\_SC 4060). This course provides an introduction to algorithms that efficiently compute patterns in strings. Topics covered include basic properties of strings, data structures for processing strings, string decomposition, exact and approximate string matching algorithms.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4050

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**CMP\_SC 7070: Numerical Methods for Science and Engineering**

(cross-leveled with CMP\_SC 4070). This course introduces the basic numerical methods that are widely used by computer scientists and engineers. Students will learn how to use the MATLAB platform to find the computational solution of various problems arising in many real world applications. By completing this course, students will be able to master algorithms, compare their performances and critically assess which ones are viable options for the particular problem at hand. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2050 or instructor's consent

**Recommended:** Students are expected to have basic knowledge in discrete math and algorithms

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**CMP\_SC 7080: Parallel Programming for High Performance Computing**

(cross-leveled with CMP\_SC 4080). This course will provide in-depth treatment of the evolution high performance computing architectures and parallel programming techniques for those architectures. We will cover topics such as: multi-process and multi-threaded programming; multi-node system architectures (clusters, grids, and clouds) and distributed programming; and general purpose GPU programming. To reinforce lecture topics, programming projects will be completed using multi-process and multi-threaded techniques for modern multicore,

multiprocessor workstations; parallel and distributed programming techniques for modern multi-node systems; and general purpose GPU programming. Parallel algorithms will be investigated, selected, and then developed for various scientific data processing problems. Programming projects will be completed using C and C++ APIs and language extensions, e.g. threads (pthreads, Boost/C++), TBB, CILK, OpenMP, OpenMPI, CUDA and OpenCL.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 3280 or ECE 3210 and CMP\_SC 3050 or ECE 3220

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**CMP\_SC 7270: Computer Architecture**

(same as ECE 7270; cross-leveled with CMP\_SC 4270, ECE 4270). Advanced computer architectures and programming; memory, memory management and cache organizations, parallel processing, graphical processor units for general programming.

**Credit Hours:** 4

**Prerequisites:** C or higher in CMP\_SC 2050 and CMP\_SC 3280 or ECE 3280

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**CMP\_SC 7320: Software Engineering I**

(cross-leveled with CMP\_SC 4320). Overview of software life cycle, including topics in systems analysis and requirements specification, design, implementation testing and maintenance. Uses modeling techniques, project management, peer review, quality assurance, and system acquisition. May not be counted toward CS MS/PHD.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 3380

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**CMP\_SC 7330: Object Oriented Design I**

(cross-leveled with CMP\_SC 4330). Building on a prior knowledge of program design and data structures, this course covers object-oriented design, including classes, objects, inheritance, polymorphism, and information hiding. Students will apply techniques using a modern object-oriented implementation language.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 3330

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**CMP\_SC 7350: Big Data Analytics**

(cross-leveled with CMP\_SC 4350). Big Data Analytics represents a new era of computing, where data in any format maybe processed and exploited to extract insights for industries and organizations to make informed decisions, whether that data is in-place, in-motion or at-rest, in large volume, structured or unstructured. More and more companies are embracing open source Big Data technologies, such as Hadoop and extending it into an enterprise ready Big Data Platform. This course will cover advanced analytics technologies and techniques that enable industries to extract insights from data with sophistication, speed and accuracy. You will learn practical industry best practices to bridge the gap between classroom learning and real world; and have access to cloud services for labs/projects.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 3330 and CMP\_SC 3380

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**CMP\_SC 7380: Database Management Systems I**

(cross-leveled with CMP\_SC 4380). Fundamental concepts of current database systems with emphasis on the relational model. Topics include entity-relationship model, relational algebra, query by example, indexing, query optimization, normal forms, crash recovery, web-based database access, and case studies. Project work involves a modern DBMS, such as Oracle, using SQL.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050

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**CMP\_SC 7410: Theory of Computation I**

(cross-leveled with CMP\_SC 4410). An introductory study of computation and formal languages by means of automata and related grammars. The theory and applications of finite automata, regular expressions, context free grammars, pushdown automata and Turing machines are examined. May not be counted toward CS MS/PHD.

**Credit Hours:** 3

**Prerequisites:** MATH 2320

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**CMP\_SC 7430: Compilers I**

(cross-leveled with CMP\_SC 4430). Introduction to the translation of programming languages by means of interpreters and compilers. Lexical analysis, syntax specification, parsing, error-recovery, syntax-directed translation, semantic analysis, symbol tables for blockstructured languages, and run-time storage organization. May not be counted toward CS MS/PHD.

**Credit Hours:** 3

**Prerequisites:** MATH 2320 and CMP\_SC 3280 and CMP\_SC 4450

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**CMP\_SC 7440: Malware Analysis and Defense**

(cross-leveled with CMP\_SC 4440). Malicious software or 'malware' is a security threat. This course teaches students to understand the nature and types of viruses and how they are threats; teaches techniques used to prevent, detect, repair and defend against viruses and worms; teaches program binary examination tools to detect malicious code; and ethical issues surround computer security violations.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 3280, ECE 3210 or equivalent

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**CMP\_SC 7450: Principles of Programming Languages**

(cross-leveled with CMP\_SC 4450). An introduction to the structure, design and implementation of programming languages. Topics include syntax, semantics, data types, control structures, parameter passing, run-time structures, and functional and logic programming. May not be counted toward CS MS/PHD.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050

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**CMP\_SC 7460: Introduction to Cryptography**

(cross-leveled with CMP\_SC 4460). Cryptography is an important technique used to achieve security goals in an untrusted and (possibly) adversarial environment. The goals of this course are: (1) to provide students with a solid back-ground with basic cryptographic techniques and their applications, (2) impart knowledge of standard cryptographic algorithms and (3) foster understanding of the correct use of cryptographic techniques.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 3050 and MATH 2320

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**CMP\_SC 7520: Operating Systems I**

(cross-leveled with CMP\_SC 4520). Basic concepts, theories and implementation of modern operating systems including process and memory management, synchronization, CPU and disk scheduling, file systems, I/O systems, security and protection, and distributed operating systems. Cannot be counted toward CS MS/PHD.

**Credit Hours:** 3

**Prerequisites:** C or higher in CMP\_SC 3050, CMP\_SC 3280 and MATH 1700

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**CMP\_SC 7530: Cloud Computing**

(cross-leveled with CMP\_SC 4530). This course covers principles that integrate computing theories and information technologies with the design, programming and application of distributed systems. The course topics will familiarize students with distributed system models and enabling technologies; virtual machines and virtualization of clusters, networks and data centers; cloud platform architecture with security over virtualized data centers; service-oriented architectures for distributed computing; and cloud programming and software environments. Additionally, students will learn how to conduct some parallel and distributed programming and performance evaluation experiments on applications within available cloud platforms. Finally we will survey research literature and latest technology trends that are shaping the future of high performance, distributed and cloud computing.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 3330 or instructor's consent

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**CMP\_SC 7540: Neural Models and Machine Learning**

(same as ECE 7540, BIOL\_EN 7540; cross-leveled with ECE 4540). The projects-based course has three inter-linked components: (I) math models of neurons and neural networks, (II) machine learning in neuroscience, after a brief introduction to python and (III) software automation and cyberinfrastructure to support neuroscience. Extensive projects focusing on software automation and machine learning components, with brief in-class presentations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1500 or consent of instructor

**Recommended:** Introductory software programming, and introductory cell biology or consent of instructor

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**CMP\_SC 7590: Computational Neuroscience**

(same as BIOL\_EN 7590, BIO\_SC 7590, ECE 7590; cross-leveled with BIO\_SC 4590). Interdisciplinary course in biology and quantitative sciences with laboratory and modeling components. Explores basic computational and neurobiological concepts at the cellular and network level. Introduction to neuronal processing and experimental methods in neurobiology; modeling of neurons and neuron-networks. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** MATH 1500 or equivalent

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**CMP\_SC 7610: Computer Graphics I**

(cross-leveled with CMP\_SC 4610). Basic concepts and techniques of interactive computer graphics including hardware, software, data structures, mathematical manipulation of graphical objects, the user interface, and fundamental implementation algorithms.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 3050 and either MATH 1500 or MATH 1300 and MATH 1400

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**CMP\_SC 7620: Physically Based Modeling and Animation**

(cross-leveled with CMP\_SC 4620). Introduces fundamental algorithms and techniques including interpolation, quaternions, rigid body dynamics, kinematics, particle systems, free form and dynamic deformations, spring and damper systems and computational natural phenomena simulation.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4610 or CMP\_SC 7610

**Recommended:** Good knowledge of C or C++ programming, no physics background necessary

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**CMP\_SC 7650: Digital Image Processing**

(same as ECE 7655; cross-leveled with CMP\_SC 4650, ECE 4655). Fundamentals of digital image processing hardware and software including digital image acquisition, image display, image enhancement, image transforms and segmentation.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050, STAT 7710 or instructor's consent

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**CMP\_SC 7670: Digital Image Compression**

(same as ECE 7675; cross-leveled with CMP\_SC 4670, ECE 4675). Covers digital image formation, information theory concepts, and fundamental lossless and lossy image compression techniques including bit plane encoding, predictive coding, transform coding, block truncation coding, vector quantization, subband coding and hierarchical coding.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050

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**CMP\_SC 7720: Introduction to Machine Learning and Pattern Recognition**

(same as ECE 7720; cross-leveled with CMP\_SC 4720, ECE 4720). This course provides foundation knowledge and methods in machine learning and pattern recognition that address the problem of programming computers to optimize performance by learning from example data or expert knowledge. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050 and STAT 4710 or instructor's consent

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**CMP\_SC 7730: Building Intelligent Robots**

(same as ECE 7340; cross-leveled with CMP\_SC 4730, ECE 4730). Covers the design and development of intelligent machines, emphasizing topics related to sensor-based control of mobile robots. Includes mechanics and motor control, sensor characterization, reactive behaviors and control architectures. Prerequisites: programming experience in one of the following programming languages: Basic, C, C++, or Java.

**Credit Hours:** 4

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**CMP\_SC 7740: Interdisciplinary Introduction to Natural Language Processing**

(same as LINGST 7740; cross-leveled with CMP\_SC 4740; LINGST 4740). The goal of this course is to enable students to develop substantive NLP applications. Focus on current structural and statistical techniques for the parsing and interpretation of text.

**Credit Hours:** 3

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**CMP\_SC 7750: Artificial Intelligence I**

(cross-leveled with CMP\_SC 4750). This course is intended to be a general introduction to the field of Artificial Intelligence (AI). It will provide exposure to a range of core AI topics including intelligent agent, problem solving by search and game playing, constraint satisfaction problems, propositional and first-order logic, probability in AI, and machine learning. The topics covered in this course are closely related to the common core of Computing & Information education -- about C&I know-how and the ways of thinking and problem solving that characterize C&I community: a system view to the world, a focus on mathematical and computational representation of systems, information representation and transformation, and so forth.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 3050

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**CMP\_SC 7770: Introduction to Computational Intelligence**

(same as ECE 7870; cross-leveled with CMP\_SC 4770, ECE 4870). Introduction to the concepts, models and algorithms for the development of intelligent systems from the standpoint of the computational paradigms of neural networks, fuzzy set theory and fuzzy logic, evolutionary computation and swarm optimization.

**Credit Hours:** 3

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**CMP\_SC 7830: Web Application Development II**

(cross-leveled with CMP\_SC 4830). This course will study the science and engineering of the World Wide Web. We will study the languages, protocols, services and tools that enable the web. Emphasis will be placed on basics and technologies.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 3330 and CMP\_SC 2830

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**CMP\_SC 7850: Computer Networks I**

(cross-leveled with CMP\_SC 4850). Introduction to concepts and terminology of data communications and computer networking. Basic protocols and standards, applications of networking, routing algorithms, congestion avoidance, long-haul and local networks.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2270 or ECE 1210 and MATH 2320

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**CMP\_SC 8001: Advanced Topics in Computer Science**

Topic may vary from semester to semester. May be repeated upon consent of department.

**Credit Hours:** 3

**Prerequisites:** varies by topic

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**CMP\_SC 8050: Design and Analysis of Algorithms II**

Techniques for the design and analysis of correct, efficient algorithms. Topics include graph, geometric, and algebraic/ numeric algorithms, NP-completeness, and parallel algorithms.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4050

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**CMP\_SC 8060: Survey of Advanced Algorithm Techniques**

This class provides a survey of important algorithmic techniques, some of which are emerging right now, and show that they are much easier to understand than they first appear. The class will create a renewed appreciation for what makes Computer Science such a fun/interesting discipline.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4050

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**CMP\_SC 8085: Problems in Computer Science**

Independent study project work with a professor in computer science.

**Credit Hour:** 1-4

**Prerequisites:** instructor consent

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**CMP\_SC 8130: Computational Genomics**

(same as INFOINST 8310). This course introduces computational concepts and methods of genomics to students. The course covers genome structure, database, sequencing, assembly, annotation, gene and RNA finding, motif and repeats identification, single nucleotide polymorphism, and epigenomics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOINST 7010 or CMP\_SC 7010

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**CMP\_SC 8150: Integrative Methods in Bioinformatics**

(same as INFOINST 8150). Introduces the most popular experimental methods from the point of view of the information sources that can be used. Students will use data obtained directly from biological experiments and learn how to suggest new experiments to improve results. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOINST 7010 or CMP\_SC 7010

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**CMP\_SC 8160: Content Management in Biomedical Informatics**

(same as INFOINST 8860). This course introduces theory and techniques for content extraction, indexing, and retrieval of biomedical media databases. Topics include biomedical media databases, feature extraction methods, advanced database indexing structures, query methods, and result visualization. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 7380, INFOINST 7010

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**CMP\_SC 8170: Computational Modeling of Molecular Structures**

This course uses a problem solving paradigm to investigate common principles, data structures, algorithms, challenges, and solutions in computationally modeling (constructing) 3D structures of proteins, RNAs, chromosomes, and genomes.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 7010

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**CMP\_SC 8180: Machine Learning Methods for Biomedical Informatics**

(same as INFOINST 8880). Teaches statistical machine learning methods and applications in biomedical informatics. Covers theories of advanced statistical machine learning methods and how to develop machine learning methods to solve biomedical problems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 7050 and INFOINST 7010 or CMP\_SC 7010 or INFOINST 7005

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**CMP\_SC 8190: Computational Systems Biology**

(same as INFOINST 8390). This course covers current theories and methods in the modeling and analysis of high-throughput experiments such as microarrays, proteomics, and metabolomics. Topics include the inference of causal relations from experimental data and reverse engineering of cellular systems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOINST 7010 or CMP\_SC 7010; INFOINST 8010

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**CMP\_SC 8370: Data Mining and Knowledge Discovery**

Course topics include an introduction to fundamental concepts, data mining techniques from machine learning and pattern recognition areas, association rules, web mining, spatial mining, temporal mining, multimedia/multimodal database mining, and database mining, and geospatial information mining.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 7380

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**CMP\_SC 8440: Information Security: A Language-Based Approach**

This course focuses on language-based techniques for information flow security. Students will gain a solid background in information security, be encouraged to do further research and be exposed to important/promising trends in state-of-the-art computer security.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4450 or CMP\_SC 7450

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**CMP\_SC 8450: Formal Engineering Methods for Software and Security**

Designing scalable exhaustive methods to ensure reliability of computer systems is an important challenge in computer science as even simple errors can have serious socio-economic-political consequences. This challenge is the focus of the field of automated verification techniques which draws techniques from complexity theory, automata theory, programming languages and logic, and provides tools to ensure that the computer systems are reliable. Computer-assisted techniques for verifying hardware implementations are regularly employed in the industry, and are also being increasingly adopted in the software industry as the costs of software bugs and security flaws escalate. The goals of this course are: (1) to provide students with a solid background in the fundamental techniques used in this field, (2) to encourage further research in software and security verification, and (3) to introduce students to important upcoming trends in verifying security protocols. The students will get theoretical background as well as learn to use some standard tools in this field. Students will also explore topics of particular

interest to them through the performance of a significant semester project.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4450 or CMP\_SC 7450 or CMP\_SC 4430 or CMP\_SC 7430 or instructor's consent. A reasonable level of mathematical maturity and significant programming experience is expected

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### **CMP\_SC 8530: Cloud Computing II**

This course covers advanced principles of distributed system models and enabling technologies relating to cloud computing; latest advances in management and security of virtual machines and virtualization of clusters, networks, and data centers will be studied; additionally, students will survey research literature and perform cloud programming as well as performance evaluation experiments on applications within available cloud platforms. Students will learn project-based: problem solving, collaborative programming, technical writing and presentation skills. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4530 or CMP\_SC 7530 or instructor's consent

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### **CMP\_SC 8570: Neural Dynamics and Communication**

(same as ECE 8570). Properties of nerve cells including membrane potential, action potential, ion channel dynamics, GHK equation, dynamical properties of excitable membranes, neuronal communication and plasticity. Entrainment, synchronization and oscillations in neuronal networks, and their functional significance. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 4590/CMP\_SC 4590 or consent of instructor

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### **CMP\_SC 8580: Machine Learning in Neuroscience**

(same as ECE 8580). Basics of neuronal and network dynamics including spikes and communication between regions, including via competing hypotheses. Machine learning fundamentals including linear, logistic and artificial neural network mappings. Integration of data-driven and theory-driven models, with emphasis on insights into neuroscience via XAI approaches. Software automation in neuroscience including python notebooks and cyberinfrastructure tools for interacting with software repositories and HPC resources. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 4590/CMP\_SC 4590 or consent of instructor

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### **CMP\_SC 8610: Computer Graphics II**

Further study of computer graphics, focused on 3-D graphics, transformations, geometric and surface modeling, color models, visible surface determination, lighting and shading, standard graphics software (Phigs/OpenGL). Selected current topics in graphics such as visualization, animation and realism.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 7610

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### **CMP\_SC 8620: Physically Based Modeling and Animation II**

This course introduces students to physical based modeling and animation methodology for computer graphics and related fields such as computer vision, visualization, biomedical imaging and virtual reality. We will explore current research issues and will cover associated

computational methods for simulating various visually interesting physical phenomena. This course should be appropriate for graduate students in all areas as well as advanced undergraduate students.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4610 or CMP\_SC 7610

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### **CMP\_SC 8630: Data Visualization**

Data visualization broadly covers transforming multidimensional and timevarying datasets to dynamic visual representations and encodings that facilitate exploratory data mining, knowledge discovery, improved understanding, summarization, structural modeling, collaboration and decision making using interactive methods.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4610 or CMP\_SC 7610 or instructor's consent

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### **CMP\_SC 8650: Advanced Image Processing**

(same as ECE 8855). This course covers advanced topics in image understanding including multispectral multimodal imaging, motion estimation, texture analysis, geometric level set methods.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4650 or CMP\_SC 7650 or instructor's consent

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### **CMP\_SC 8660: Multimedia Security**

This course offers a comprehensive coverage of the theoretical foundation of multimedia security technologies, including encryption, authentication, digital watermarking, key management, copy control, fingerprinting/tracing, digital media forensics, and biometrics, provides an in-depth study of the state-of-the-art digital rights management systems and the underlying security technologies. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4670 or CMP\_SC 4650; instructor's consent

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### **CMP\_SC 8675: Biomedical Image Processing**

(same as ECE 8675). This course introduces students to the fundamentals of biomedical image processing and analysis with an emphasis on cellular and tissue microscopy along with anatomical imaging. The course will cover image and video processing techniques and pipelines for image enhancement, restoration, registration, detection, segmentation, classification, and motion analysis that are tailored for biomedical image informatics. This course will provide a rich exposure to a broad range of imaging datasets from the molecular to the anatomical; and train students to implement algorithms for moderately complex tasks in biomedical image analysis. This course is suitable for graduate students in all fields of engineering and science who are interested in understanding and implementing biomedical and biological image analytics and are seeking pointers to the broad literature in the field.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4650 or CMP\_SC 7650, ECE 4655 or ECE 7655 or instructor's consent

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### **CMP\_SC 8680: 3-D Computer Vision**

This course introduces students to a central problem in computer vision - how to recover 3-D structure and motion from a collection of 2-D images, using techniques drawn mainly from linear algebra and matrix theory. The main focus is on developing a unified framework for studying the geometry of multiple images of a 3-D scene and reconstructing geometric

models from those images. The course also covers relevant aspects of image formation, basic image processing, and feature extraction.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4650 or CMP\_SC 7650

**Recommended:** Good knowledge of C or C++ programming, linear algebra and data structures

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#### **CMP\_SC 8690: Computer Vision**

(same as ECE 8690). This course introduces students to the fundamental problems of computer vision, the main concepts and the techniques used to solve such problems. It will enable graduate and advanced undergraduate students to solve complex problems and make sense of the literature in the area. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 4655 or ECE 7655 or CMP\_SC 4650 or CMP\_SC 7650 or instructor's consent

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#### **CMP\_SC 8725: Supervised Learning**

(same as ECE 8725). This course introduces the theories and applications of advanced supervised machine learning methods. It covers hidden Markov model and expectation maximization (EM) algorithms, probabilistic graphical models, non-linear support vector machine and kernel methods. The course emphasizes both the theoretical underpinnings of the advanced supervised learning methods and their applications in the real world. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4720 or CMP\_SC 7720 or ECE 4720 or ECE 7720 or instructor's consent

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#### **CMP\_SC 8735: Unsupervised Learning**

(same as ECE 8735). Theoretical and practical aspects of unsupervised learning including topics of expectation maximization (EM), mixture decomposition, clustering algorithms, cluster visualization, and cluster validity. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4720 or CMP\_SC 7720 or ECE 4720 or ECE 7720 or instructor's consent

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#### **CMP\_SC 8740: Advanced Natural Language Processing**

What do Google, the New York Times, Facebook, Cerner, and other big companies know that you don't? Natural language processing. This course considers open and compelling problems in contemporary research in the processing and analysis of text, focusing on both the underlying theory and its practical application. The goal is to help students understand the nature of these problems, the current approaches to them, the strengths and weaknesses of those approaches, and other possible ways forward.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4740 or CMP\_SC 7740

**Recommended:** CMP\_SC 2050; students should be facile in programming at least one high-level language. Good knowledge of univariate, parametric statistics

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#### **CMP\_SC 8750: Artificial Intelligence II**

Further discussion of theories and techniques of artificial intelligence. Investigating state-of-the-art systems with capabilities to perceive, reason, learn and react intelligently to their environment.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4750 or CMP\_SC 7750 or instructor's consent

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#### **CMP\_SC 8770: Neural Networks**

(same as ECE 8890). The course will consider computing systems based on neural networks and learning models along with implementations and applications of such systems.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4870 or CMP\_SC 7870 or instructor's consent

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#### **CMP\_SC 8780: Advanced Topics in Computational Intelligence**

(same as ECE 8875). This course is a continuation of ECE 7870/ CMP\_SC 7770 Introduction to Computational Intelligence in the concepts, models, and algorithms for the development of intelligent systems from the standpoint of the computational paradigms of neural networks, fuzzy set theory and fuzzy logic, evolutionary computation, and swarm intelligence. Advanced topics in these areas will be discussed with a focus on applications of these technologies.

**Credit Hours:** 3

**Prerequisites:** ECE 4870 or ECE 7870 or CMP\_SC 4770 or CMP\_SC 7770

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#### **CMP\_SC 8790: Filtering, Tracking and Data Fusion**

This course will cover theory and applications of rigorous and efficient techniques for determining the state of an observed system from a series of imperfect observations or measurements. Specific topics to be covered include semidefinite matrix theory, the Kalman filter, the Unscented Transform, Covariance Intersection and related techniques. Applications of these techniques include head and hand tracking in virtual reality systems, robotics, and distributed information fusion.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050, MATH 2300 or Linear Algebra or Matrix Theory

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#### **CMP\_SC 8850: Computer Networks II**

In-depth analysis and evaluation of computer networking architectures, protocols and algorithms, network security, distributed database and computational networks, routing and congestion control, domains and internetworking.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 7850

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#### **CMP\_SC 8860: Parallel and Distributed Processing**

This course covers basic issues of parallel and distributed processing, including parallel and distributed architectures and models, parallel programming, and parallel algorithms and applications.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4050

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**CMP\_SC 8870: Modeling and Management of Uncertainty**

(same as ECE 8870). Theoretical and practical issues in the modeling and management of uncertainty. Topics include probabilistic uncertainty, belief theory and fuzzy set theory. Applications to computer vision, pattern recognition and expert systems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 4870 or ECE 7870 or CMP\_SC 4770 or CMP\_SC 7770 or instructor's consent

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**CMP\_SC 8980: Research Masters Project in Computer Science**

Investigation and research of a topic, not leading to a thesis. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** departmental consent

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**CMP\_SC 8990: Research-Masters Thesis Computer Science**

Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** advisor's consent

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**CMP\_SC 9990: Research-Doctoral Dissertation Computer Science**

Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** advisor's consent

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## Constitutional Democracy (CNST\_DEM)

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**CNST\_DEM 2004: Topics in Constitutional Democracy - Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent. Graded on A-F basis only.

**Credit Hour:** 1-6

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**CNST\_DEM 2100: The Revolutionary Transformation of Early America**

(same as HIST 2100). In the broadest of terms, this is a course on origins. On one hand, we will devote significant class time to discussing 'the causes which impelled' the colonies to throw off the yoke of British rule. We will examine this on both a practical and a more abstract level, focusing first on writings that delineate why colonists grew to perceive the economic, social, and political conditions of British rule as insufferable, and then on how they translated these practical concerns into a more ideological justification of violent revolution.

**Credit Hours:** 3

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**CNST\_DEM 2100H: The Revolutionary Transformation of Early America - Honors**

(same as HIST 2100H). In the broadest of terms, this is a course on origins. On one hand, we will devote significant class time to discussing 'the causes which impelled' the colonies to throw off the yoke of British rule. We will examine this on both a practical and a more abstract level, focusing first on writings that delineate why colonists grew to perceive the

economic, social, and political conditions of British rule as insufferable, and then on how they translated these practical concerns into a more ideological justification of violent revolution.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**CNST\_DEM 2120: The Young Republic**

(same as CNST\_DEM 2120). This course examines the early years of the United States under the (then) new Constitution, an important historical period with which present-day Americans are increasingly unfamiliar. Our focus will be on abandoning our preconceptions about the nation's early history and thoroughly understanding the choices that were posed and made in the years after 1789 and that would determine what type of nation the U.S. would become.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**CNST\_DEM 2120H: The Young Republic - Honors**

(same as HIST 2120H). This course examines the early years of the United States under the (then) new Constitution, an important historical period with which present-day Americans are increasingly unfamiliar. Our focus will be on abandoning our preconceptions about the nation's early history and thoroughly understanding the choices that were posed and made in the years after 1789 and that would determine what type of nation the U.S. would become.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**CNST\_DEM 2150: The American Civil War: A Global History**

(same as HIST 2150). In this class students will study the American Civil War from the perspective of global history. The familiar actors and events will be covered - the debate over slavery, the secession of the South, the rise of Abraham Lincoln, the great battles and generals, etc. But these familiar episodes will take on different meanings when viewed in relation to global structures of politics, economics, social relations, and ideology. The 1860s was at once a formative moment in the history of globalization and the key decade for the formation and consolidation of modern nations.

**Credit Hours:** 3

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**CNST\_DEM 2210: Twentieth Century America**

(same as HIST 2210). Survey of American development from 1900 to present. For students who have not taken advanced courses in American history, especially HIST 4210, HIST 4220, or HIST 4230.

**Credit Hours:** 3

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**CNST\_DEM 2425: Race and the American Story**

(same as BL\_STU 2425, POL\_SC 2425). This course represents a collaboration between the University of Missouri's Department of Black Studies and the Kinder Institute on Constitutional Democracy. Building upon the existing Citizenship@Mizzou program, the course aims to carry forward the goals of the Citizenship program and to further solidify and magnify its impact on campus. In so doing, the course will also serve as a model for improving diversity education on campuses across the country and contribute to a more informed and unified national culture. The core syllabus will consist in readings that tell the story of the confrontation

between American political principles and the practice of racial injustice throughout our history. Students will read and discuss the Declaration of Independence, the slavery clauses in the Constitution, the poetry of Phillis Wheatley, and the speeches of Frederick Douglass, Abraham Lincoln, and Martin Luther King, Jr., among others. They will achieve a greater understanding of how diversity relates to humanity, and will learn to dialogue productively and civilly with others who may not share their background or opinions.

**Credit Hours:** 3

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**CNST\_DEM 2445: American Constitutional Democracy**

(same as POL\_SC 2445, HIST 2445). This course offers an introduction to American constitutional democracy. On the one hand, this course will strive to set the development of America's constitutional democracy into its historical context and to explain it in relation to larger social, political, military, and economic events. A second emphasis is on the nature and character of the American democratic system. Graded on A-F basis only.

**Credit Hours:** 3

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**CNST\_DEM 2450: The Intellectual World of the American Founders**

(same as POL\_SC 2450). This course demonstrates that truly understanding the American constitutional and democratic traditions begins with acknowledging and studying how, in framing the Constitution and in imagining the new nation, the Founders drew on the work and cobbled together the ideas of thinkers from multiple eras and continents and, moreover, thinkers of vastly different political ideologies and disciplinary expertise.

**Credit Hours:** 3

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**CNST\_DEM 2450H: The Intellectual World of the American Founders - Honors**

(same as POL\_SC 2450H). This course demonstrates that truly understanding the American constitutional and democratic traditions begins with acknowledging and studying how, in framing the Constitution and in imagining the new nation, the Founders drew on the work and cobbled together the ideas of thinkers from multiple eras and continents and, moreover, thinkers of vastly different political ideologies and disciplinary expertise.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**CNST\_DEM 2455: Constitutional Debates**

(same as POL\_SC 2455). While we will make reference to the work of canonical political thinkers from the Western tradition during the semester - and while we will also, at times, take a broadly philosophical approach to describing certain of the Founders' theses on governance--this is not a course in 'high theory.' Instead, our examination of the process of drafting and ratifying the United States Constitution will be more pragmatic in nature, focusing on the practical problems and questions concerning national governance that shaped the final design of the Constitution. At the same time, this description of the class as one that addresses the Constitution in terms of the practical problems that the Founders saw it solving drastically understates the complexity and contentiousness of the subject matter that we will be examining. Specifically, the readings for the course will allow us to identify the ways in which, and reasons for which, the Founders disagreed not only on how to solve the problems of governance that the nation faced in 1787 but, moreover, on what these

problems actually were. With regard to this task of understanding the principles underlying the heated debates that arose during the drafting and ratification process, it should be noted that this is not a class in Framer-worship. While we will discuss why the Federalists ultimately 'won the day,' we will also devote significant attention to how the Anti-Federalists both profoundly influenced how we understand constitutional democracy in the United States and provided an intellectual lineage that still informs contemporary political debate. We will, that is, give each side their due. In addition, we will conclude the semester by considering the Constitution's post-ratification history, looking at a handful of Supreme Court decisions and constitutional amendments in order to think about some of the questions that the 1787 Constitution left un-answered and some of the problems that it left un-solved.

**Credit Hours:** 3

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**CNST\_DEM 2455H: Constitutional Debates - Honors**

(same as POL\_SC 2455H). While we will make reference to the work of canonical political thinkers from the Western tradition during the semester--and while we will also, at times, take a broadly philosophical approach to describing certain of the Founders' theses on governance--this is not a course in 'high theory'. Instead, our examination of the process of drafting and ratifying the United States Constitution will be more pragmatic in nature, focusing on the practical problems and questions concerning national governance that shaped the final design of the Constitution. At the same time, this description of the class as one that addresses the Constitution in terms of the practical problems that the Founders saw it solving drastically understates the complexity and contentiousness of the subject matter that we will be examining. Specifically, the readings for the course will allow us to identify the ways in which, and reasons for which, the Founders disagreed not only on how to solve the problems of governance that the nation faced in 1787 but, moreover, on what these problems actually were. With regard to this task of understanding the principles underlying the heated debates that arose during the drafting and ratification process, it should be noted that this is not a class in Framer-worship. While we will discuss why the Federalists ultimately 'won the day,' we will also devote significant attention to how the Anti-Federalists both profoundly influenced how we understand constitutional democracy in the United States and provided an intellectual lineage that still informs contemporary political debate. We will, that is, give each side their due. In addition, we will conclude the semester by considering the Constitution's post-ratification history, looking at a handful of Supreme Court decisions and constitutional amendments in order to think about some of the questions that the 1787 Constitution left un-answered and some of the problems that it left un-solved.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required; POL\_SC 1100

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**CNST\_DEM 2570: The First World War and its Aftermath**

(same as HIST 2570). This course examines the experience of Europeans in the turbulent years during and immediately following the First World War. After investigating the origins and nature of WWI, we will then examine the political, social and cultural climate of the interwar years.

**Credit Hours:** 3

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**CNST\_DEM 2800: Liberty, Justice and the Common Good**

(same as POL\_SC 2800). Selected great political theorists and their contemporary relevance. How to think critically about political ideas and ideologies.

**Credit Hours:** 3

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**CNST\_DEM 4000: Age of Jefferson**

(same as HIST 4000). Political, constitutional, cultural, and economic developments in United States during formative period of Republic, 1787-1828. Special attention to Constitutional Convention, formation of national political institutions.

**Credit Hours:** 3

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**CNST\_DEM 4040: Slavery and the Crisis of the Union: The American Civil War Era**

(same as BL\_STU 4040, HIST 4040; cross-leveled with HIST 7040). This class explores the history of the Civil War era, a transformative moment in both U.S. and world history. Our goal is to explore and answer a number of questions of great historical significance: How and why did slavery persist in an age of liberal democracy? Why did the pre-war Union prove unable to tolerate the plural visions and diverse institutions of its people? Was the descent into war more a measure of institutional weakness than of the intensity of moral conflict? What were the constituent elements of the competing wartime 'nationalisms' that evolved in both north and south? How and why did a war that began to restore the Union become one for emancipation? How was it the forerunner of modern, 'total' warfare? Did the governmental, socio-economic and racial changes wrought by war constitute a 'second American revolution'? Were the limits or the achievements of post-war Reconstruction more notable? And, last but certainly not least, how did the triumph of the Union condition the political and economic development of a rapidly globalizing world?

**Credit Hours:** 3

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**CNST\_DEM 4075: Global History in Oxford**

(same as HIST 4075). This course examines global and transnational history in the 'modern' period since 1400. It includes an embedded week of study abroad at Oxford University (United Kingdom) over spring break.

**Credit Hours:** 4

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**CNST\_DEM 4080: American Foreign Policy from Colonial Times to 1898**

(same as HIST 4080, PEA\_ST 4080). This class probes the entwined development of the U.S. nation and empire, to the backdrop of accelerating structures of global economic integration, technological innovation, and the hardening of national, racial, and ideological formations.

**Credit Hours:** 3

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**CNST\_DEM 4100: American Cultural and Intellectual History to 1865**

(same as HIST 4100). Origins and growth of American values and ideas considered in their social context. Topics include: the work ethic, republican politics, revivalism, reform movements, sexual attitudes, literature in the marketplace, Afro-American and slave-holding subcultures.

**Credit Hours:** 3

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**CNST\_DEM 4130: African-American Politics**

(same as POL\_SC 4130, BL\_STU 4130). Surveys political participation of African-Americans in American politics. Analyzes their public lives in the context of elections, behavior of political organizations, social movements, parties, and level of government.

**Credit Hours:** 3

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**CNST\_DEM 4400: History of American Law**

(same as HIST 4400). American law from English origins to present. Reviews common law, codification, legal reform movements, slavery law, administrative state, formalism, legal realism, jurisprudential questions concerning rule of law.

**Credit Hours:** 3

**Recommended:** HIST 1100, HIST 1200, or HIST 1400

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**CNST\_DEM 4800: Political Thought in Classical and Christian Antiquity**

(same as POL\_SC 4800, AMS 4800). Reading and discussion of Greek, Roman, and Early Christian treatises on politics and political life. Survey of the political institutions and procedures of the Greek city states and Roman Republic and Empire. Examination of contemporary Christian responses and adaptations.

**Credit Hours:** 3

**Recommended:** AMS 1060 and junior standing

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**CNST\_DEM 4810: Modern Political Theory**

(same as POL\_SC 4810). Great political theorists from Machiavelli through Marx on the nation state, capitalism, liberalism, conservatism, and Marxism.

**Credit Hours:** 3

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**CNST\_DEM 4830: Democracy in America (and Elsewhere)**

(same as POL\_SC 4830). This course focuses on the dynamics of democracy. We will explore various topics in the history, development, and practice of democracy through an examination of the writings of Alexis de Tocqueville, one of the most insightful and prescient observers of American political culture.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**CNST\_DEM 4840: Developing Dynamics of Democracy**

(same as POL\_SC 4840). This course examines developments in the theory and practice of democracy from the ancient Greeks to the present. Beginning with the origins of democracy in the Hellenic city states, we consider the transformation of democratic concepts in the classical liberal period, review the development of democratic institutions in the United States and Europe, examine the emergence of supra-national democratic institutions such as the European Union, and assess the future of democratization in the 21st century.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**CNST\_DEM 4850: Scots and the Making of America**

(same as POL\_SC 4850). This class is on the influence of the Scottish Enlightenment on the founding of the United States. The Scottish Enlightenment refers to uniquely Scottish advances in social, political, scientific and literary thought that transpired in the 18th and early 19th centuries. This line of thought, especially in its social and political dimensions, was especially influential in shaping the founding of the United States.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**CNST\_DEM 4900: Beltway History and Politics: American Constitutional Democracy in Theory and Practice**

(same as HIST 4900, POL\_SC 4900). This course is an experiential overview of American political history for students participating in the Kinder Forum's Washington internship program, showing how American constitutional democracy was developed and implemented right here on the Potomac, as much as possible in the actual places where the events occurred. Emphasis will be placed on the interplay between constitutional theory and actual political experience over time, and the tensions and institutional changes that emerged as Americans and their government coped with cataclysmic social changes, unparalleled economic development, and fearsome international challenges.

**Credit Hours:** 3

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**CNST\_DEM 4975: Journal on Constitutional Democracy**

(same as HIST 4975, POL\_SC 4975). The Journal is sponsored by the Kinder Institute on Constitutional Democracy and staffed by current and former participants in the Institute's undergraduate Society of Fellows program. Each volume of the Journal is organized around a student-selected idea or era central to the historical development and philosophical foundations of constitutional democracy in the United States. Student-authored essays address this theme via arguments and historical overviews crafted from the close reading and analysis of primary source documents, with the exception being that participating in the Journal will relate back to and advance students' study of American political thought and history.

**Credit Hour:** 1-3

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**CNST\_DEM 4996: Thesis in Constitutional Democracy**

At the end of their junior year, students majoring in Constitutional Democracy can apply to be a part of one of two, ten-person thesis cohorts who enroll in CNST\_DEM 4996 during the following fall semester (for two credit hours) and the following spring semester (for one credit hour). Students will complete their thesis over the course of this year by hitting certain writing benchmarks along the way and meeting on a consistent basis with their individual advisors as well as their thesis cohort and course instructor. Course meetings will happen once per month during both the fall and spring semesters, at a to be determined time that fits with all thesis cohort members. Graded on A-F basis only.

**Credit Hour:** 1-2

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**CNST\_DEM 7004: Topics in Constitutional Democracy - Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent. Graded on A-F basis only.

**Credit Hour:** 1-6

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**CNST\_DEM 8041: The Making of the Atlantic World**

(same as HIST 8041). Commerce, colonization, enslavement, and warfare connected western Europe, West Africa, and the Americas into an Atlantic world from the fifteenth to the eighteenth century. This course introduces students to several key themes in the scholarship of the Atlantic world: contact and imperial conquest, migration, slavery, servitude, and race, and the interaction of law and society. We will focus on the British Atlantic, and also engage with other framings, including the Iberian and African Atlantics. Graded on A-F basis only.

**Credit Hours:** 3

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**CNST\_DEM 8042: From the Age of Revolutions to the Age of Nation-States, 1760-1900**

(same as HIST 8042). This course will immerse students in the history and historiography of the nineteenth century Atlantic World. The key arc that students will trace is the move from the age of revolutions to the formation of modern, bureaucratic nation-states, a process which unfolded across the Atlantic basin. Graded on A-F basis only.

**Credit Hours:** 3

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**CNST\_DEM 8045: Atlantic History and Politics**

(same as HIST 8045). In this interdisciplinary graduate course, students will examine some of the most significant texts of the Atlantic world c. 1750-present. They will track the evolution of ideas of liberty, natural rights, politics, and empire that have conditioned the historical development of the Atlantic basin. Graded on A-F basis only.

**Credit Hours:** 3

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**CNST\_DEM 8050: Britain and the World**

(same as HIST 8050). In this course students will engage with the rich and dynamic global history of Great Britain. The core of the course will be daily guest lectures delivered by faculty members of Oxford University. The course also includes three excursions to sites of historical significance within England. Graded on A-F basis only.

**Credit Hours:** 3

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**CNST\_DEM 8060: Kinder Institute Colloquia**

(same as HIST 8060). In this year-long course, students will actively participate in the regular events put on by the Kinder Institute on Constitutional Democracy. The core of the course will be the public lectures, seminar presentations/discussions, workshops, and annual conference sponsored by the Kinder Institute. In addition to actively participating in these events, students will produce reaction papers that provide their assessment and analysis. Graded on A-F only.

**Credit Hours:** 3

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## Data Science (DATA\_SCI)

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**DATA\_SCI 4001: Topic in Data Science and Analytics**

This course will act as a placeholder for departmental topics course in Data Science and Analytics. The topics and credits may vary, but will

pertain to core instructional or emphasis area topics. Graded on A-F basis only.

**Credit Hour:** 1-6

**Prerequisites:** Instructor consent

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**DATA\_SCI 4085: Problems in Data Science and Analytics**

Directed study on a topic in data science and analytics.

**Credit Hour:** 1-6

**Prerequisites:** Instructor's consent

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**DATA\_SCI 4087: Seminar in Data Science and Analytics**

Directed study on a topic in data science and analytics.

**Credit Hour:** 1-6

**Prerequisites:** Instructor's consent

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**DATA\_SCI 7001: Topics in Data Science and Analytics**

Topics and credit may vary from semester to semester. Can be repeated with departmental approval. Graded on A-F basis only.

**Credit Hour:** 1-6

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**DATA\_SCI 7002: Python Programming Boot Camp**

This course teaches students how to program in Python, including use of auxiliary libraries various Python ecosystems. Students are introduced to the iPython notebooks from the SciPy ecosystem, as well Python's use across the spectrum of Data Science courses and topics. Many activities are focus on data ingestion, cleaning, manipulation, and restructuring (e.g., ETL). Graded on A-F basis only.

**Credit Hour:** 1

**Recommended:** Instructor consent

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**DATA\_SCI 7003: Database Basics and SQL Boot Camp**

This course covers a core concepts to heterogeneous data management, including relational databases, NoSQL databases, and other data storage systems. The focus is on making students quickly productive in the use of multiple types of database management systems available on the market for data science work. This includes traditional relational databases, NOSQL databases and graph databases. This course is a 1 credit hour course using the JupyterHub learning environment. Graded on A-F basis only.

**Credit Hour:** 1

**Recommended:** Instructor consent

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**DATA\_SCI 7004: R Statistical Programming Boot Camp**

This course teaches students how to program in R, including use of auxiliary libraries in R focused on various statistical and visualization oriented techniques. Students are introduced to R's use across the spectrum of Data Science courses and topics. Many activities focus on the development of statistical tests, and the use of R for statistical exploration. This course teaches students how to program in R, including use of auxiliary libraries in R focused on various statistical and visualization oriented techniques. Students are introduced to R's use across the spectrum of Data Science courses and topics. Many activities focus on the development of statistical tests, and the use of R for statistical exploration. Graded on A-F basis only.

**Credit Hour:** 1

**Recommended:** Instructor consent

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**DATA\_SCI 7005: Introduction to Statistics for Data Analytics Boot Camp**

This course explores the use of inferential and predictive statistics for data modeling and analytics. Single-variate and multivariate statistical concepts are discussed, as well as intermediate exposure to statistical modeling. Students learn to evaluate model effectiveness and conduct results driven model selection. Statistical and modeling techniques focus on high dimensional data analytics. Topics related to dimensionality reduction are also covered, such as principal component analysis and factor analysis. Graded on A-F basis only.

**Credit Hours:** 2

**Recommended:** Instructor consent

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**DATA\_SCI 7010: Introduction to Data Analytics**

(cross-leveled with DATA\_SCI 4010). An introductory course in data science and analytics. The objective of the course is to give students a broad overview of the various aspects of data analytics such as accessing, cleansing, modeling, visualizing, and interpreting data. Students will perform hands-on learning of data analytic topics, using technologies such as Python, R, and open source analytic tools. Two Big Data cyberinfrastructure platforms will be introduced through case studies, allowing students to perform data analytical learning modules on modern cloud infrastructure and other relevant technologies. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Basic programming and basic database experience including R, Python, and SQL

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**DATA\_SCI 7011: Introduction to Data Science**

This course is an introduction to the NGA Program of Study in Data Science (PSDS), the concentration areas, and the role of each concentration area in data science. Participants will learn how to receive, if desired, an accredited Graduate Certificate and/or a Master of Science degree in Data Science and Analytics from the University of Missouri. Participants will receive an introduction to software, tools, and resources to be utilized throughout the program. Participants will learn of systematic methodologies for data science projects and the data science pipeline through review of case studies. Graded on S/U basis only.

**Credit Hours:** 2

**Recommended:** Enrollment in NGA Training Program or instructor consent

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**DATA\_SCI 7020: Statistical and Mathematical Foundations for Data Analytics**

(cross-leveled with DATA\_SCI 4020). An intermediate statistics class designed to build the mathematical foundation for students dealing with Big Data phenomena. Topics include discussions of probability, data sampling, data summarization, sampling distributions, statistical inference, statistical pattern analysis, hypothesis testing, regression, and nonparametric inference over multidimensional data collections. Students will engage in Big Data projects using various publicly available data sets and leveraging modern Data Science tools, techniques, and cyberinfrastructure. Graded on A-F basis only.

**Credit Hours:** 3



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**Recommended:** Basic understanding of mathematical principles of vectors and matrices, and basic course in probability and statistics

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**DATA\_SCI 7030: Database and Analytics**

(cross-leveled with DATA\_SCI 4030). Covers the Fundamental concepts of current database systems and query methods with emphasis on relational model and non-relational techniques in Big Data environments. Topics include entity-relationship model, relational algebra, indexing, query optimization, normal forms, tuning, security, NoSQL, and data analytics skills in both relational and non-relational environments. Project work involves modern relational DBMS systems and NoSQL environments. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Basic understanding of mathematical principles of vectors and matrices, and basic course in probability and statistics

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**DATA\_SCI 7040: Big Data Visualization**

(cross-leveled with DATA\_SCI 4040). Covers the fundamental concepts of current visualization concepts and technologies. Unlike many data visualization courses, this one focuses on principles of visualization design and the grammar of graphics. These principles are then implemented in popular contemporary visualization technologies. Students will develop an advanced knowledge of the appropriate selection, modeling, and evaluation of data visualizations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DATA\_SCI 7010 and DATA\_SCI 7030 or instructor's consent

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**DATA\_SCI 7263: Digital Strategy II**

This course provides hands on experience using several digital platforms such as Facebook Insights, Google AdWords, Google Analytics, Adobe Analytics, Clarabridge and Topsy. In this course you'll learn digital advertising terminology and jargon, the importance of digital analytics, the role of analysts, qualities of effective analysts, the digital optimization process, web metrics and key performance indicators, as well as the essentials of collaboration and generating support and buy-in while gaining your executive's attention. Graded on A-F basis only.

**Credit Hours:** 3

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**DATA\_SCI 8000: Data and Information Ethics**

Introduces the ethics related to Big Data in industry, business, academia, and research settings. Students will learn the social, ethical, legal and policy issues that underpin the big data phenomenon. Discussions and case studies will help guard against the repetition of known mistakes and inadequate preparation. The course content will follow the guidelines to be developed by the Council for Big Data, Ethics, and Society. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** DATA\_SCI 7010 and DATA\_SCI 7040 or instructor's consent

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**DATA\_SCI 8001: Advanced Topics in Data Science and Analytics**

Topics and credit may vary from semester to semester. Can be repeated with departmental approval. Graded on A-F basis only.

**Credit Hour:** 1-6

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**DATA\_SCI 8010: Data Analytics from Applied Machine Learning**

This course leverages the foundations in statistics and modeling to teach applied concepts in machine learning. Participants will learn various classes of machine learning and modeling techniques, and gain an in-depth understanding how to select appropriate techniques for various data science tasks. Topics cover a spectrum from simple Bayesian modeling to more advanced algorithms such as support vector machines, decision trees/forests, and neural networks. Students learn to incorporate machine learning workflows into data-intensive analytical processes. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DATA\_SCI 7020 or instructor's consent

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**DATA\_SCI 8020: Big Data Security**

This course provides an overview of state-of-the-art topics in Big Data Security, looking at data collection (smartphones, sensors, the Web), data storage and processing (scalable relational databases, Hadoop, Spark, etc.), extracting structured data from unstructured data, systems issues (exploiting multicore, security). Securing sensitive data, personal data and behavioral data while ensuring a respect for privacy will be a focus point in the course Graded on A-F only.

**Credit Hours:** 3

**Prerequisites:** DATA\_SCI 7010 and DATA\_SCI 7030 or instructor's consent

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**DATA\_SCI 8080: Big Data Analysis Case Study**

Using a case-study approach, students will engage in discussions on a variety of big data topics relevant to their emphasis area and the realm of Big Data. This course will help students generate ideas and prepare them for the Big Data Capstone. Course work will be performed in small teams, mentored by faculty and/or industry advisors. Teams will research, cultivate, curate, and leverage large data sets. Students will gain hands-on experience applying relevant data science and analytical technology and techniques to gain insight and information from these real-world data sets. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DATA\_SCI 8410, DATA\_SCI 8020, and DATA\_SCI 7040 or instructor's consent

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**DATA\_SCI 8085: Problems in Data Science and Analytics**

Directed study on a topic in data science and analytics. Graded on A-F basis only.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**DATA\_SCI 8090: Big Data Capstone**

This course provides an opportunity for participants to tackle a real-world data science project, delivered as a problem-based exercise. Participants will perform the full data science lifecycle methodology on a relevant challenge problem as final learning activity that draws upon all the foundational data science concepts and technologies, as well as specialized technologies and concepts relative to a particular concentration area. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DATA\_SCI 8080 or instructor's consent

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**DATA\_SCI 8110: Genomics Analytics**

This course will introduce the foundational concepts of genomics and bioinformatics. Genomics is a combination of biological and computational methods that explore the roles of DNA, genes, and proteins on a very large scale. However, understanding how to interpret and understand the results depends (at least) on a basic understanding of biology. The course does not assume a student has a biological background and it will cover the concepts necessary to implement genomics methods. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DATA\_SCI 7010 or instructor's consent

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**DATA\_SCI 8120: Multi-Omics Analytics**

The integration of multiple types of omics data set such as genomics, epigenomics, transcriptomic, proteomic and metabolomics are very important to understand the pathophysiology of human complex diseases. This course will describe the basic concepts of Multiple types of Omics datasets and databases. This course will also focus on various tools and its application in knowledge discovery from multi-omics data set and its challenges related to preprocessing, analysis and visualization. Hands-on computer experience will be provided through web resources and Jupyter notebook environment. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DATA\_SCI 8110 or instructor's consent

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**DATA\_SCI 8130: Data Science for Health Care**

This course covers the basic concepts surrounding the analysis of health data. Topics include ethics and regulations of protected health data, healthcare data standards, and statistical analysis and dissemination techniques suitable for health care settings. Project work involves accessing and analyzing real (de-identified) health care data. This course focuses on health data analysis that is done in industry, insurance, hospitals and research. Practical, hands-on course with focus on fundamental data science skillsets such as programming in Python and data carpentry. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DATA\_SCI 7010, DATA\_SCI 7030, DATA\_SCI 7040, or instructor's consent

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**DATA\_SCI 8140: Advanced Methods in Health Data Science**

This course covers advanced topics in health data analysis. Students will learn about research informatics and clinical trials, and advanced statistical methods used in health data analysis. Additionally, students will be exposed to new forms of health data processing such as free text data, image data, and longitudinal data. Students will explore the use of machine learning and AI in health care settings, and applied clinical informatics in the form of decision support. Project work involves accessing and analyzing real (de-identified) health care data. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DATA\_SCI 8130 or instructor's consent

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**DATA\_SCI 8150: Precision Medicine Analytics**

This course will provide a wealth of knowledge about understanding translational research and its application in precision medicine. Students

will also learn how to leverage the multi-omics data set to improve the clinical outcome and advance the precision medicine strategies by accounting individuals' biological variability. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DATA\_SCI 8110 and DATA\_SCI 8130 or instructor's consent

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**DATA\_SCI 8160: Population Health Analytics**

This course provides an introduction to population health analytics, with a focus on Big Data ecosystem skillsets. Students will gain hands-on experience with large-scale population health data and will prepare original quantitative analysis for presentation. Instructors' lectures are delivered by video and face-to-face interaction. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DATA\_SCI 8130 or instructor's consent

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**DATA\_SCI 8220: Communication Network Analytics**

This course is intended to review theoretical, conceptual, and analytic issues associated with network perspectives on communicating and organizing. The course will review scholarship on the science of networks in communication across a wide array of disciplines in order to take an in-depth look at theories, methods, and tools to examine the structure and dynamics of networks. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DATA\_SCI 7010 or instructor's consent

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**DATA\_SCI 8230: Streaming Social Media Data Management and Analytics**

An intermediate data wrangling and analysis class designed to provide students with an in-depth overview of collecting and analyzing Twitter data. Computational topics include composing, sending, and receiving Hypertext Transfer Protocol (HTTP) messages. Data wrangling topics include parsing json files, navigating recursively nested structures, and processing textual data. Analysis methods include machine learning, network analysis, topic modeling, time series, etc. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DATA\_SCI 7010 or Instructor's consent

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**DATA\_SCI 8310: Advanced Visualization I**

Covers the fundamental concepts of current visualization concepts and technologies, adding in Infographic and Interactive Visualization Design. Unlike many data visualization courses, this one focuses on principles of visualization design and the grammar of graphics as they can be applied to combining art and technology to tell data stories. These principles are then implemented in popular contemporary visualization technologies. Students will develop an advanced knowledge of the appropriate selection, modeling, and evaluation of data visualizations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DATA\_SCI 7010 or instructor's consent

**Recommended:** Instructor consent

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**DATA\_SCI 8320: Advanced Visualization II**

Covers the fundamental concepts of animated visualization design that build on Infographic and Interactive Visualization Design techniques. Unlike many data visualization courses, this one focuses building animations and highly interactive representations of data. These principles are then implemented in popular contemporary visualization technologies. Students will develop an advanced knowledge of the appropriate selection, modeling, and evaluation of data visualizations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DATA\_SCI 8310 or instructor's consent

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**DATA\_SCI 8410: Data Mining and Information Retrieval**

The course introduces the main concepts and techniques of data mining and information retrieval. It covers a variety of data mining topics and methods to extract hidden and predictive patterns from large data collections. Furthermore, theory and techniques for the modeling, indexing, and retrieval of relational, nonrelational, textbased and multimedia databases is covered. Topics include introduction to data mining process, mining frequent patterns, and pattern analysis, as well as different information retrieval models and evaluation, query languages and operations, and indexing/searching methods. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DATA\_SCI 7010 and DATA\_SCI 7030 or instructor's consent

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**DATA\_SCI 8420: Cloud Computing for Data Analytics**

This course introduces students to cluster and cloud computing big data ecosystems. Topics include a survey of cloud computing platforms, architectures, and use-cases. Students will examine scaling data science techniques and algorithms using a variety of cluster and cloud paradigms, such as those built atop Hadoop (Map-Reduce) concepts, and others. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DATA\_SCI 7020 and DATA\_SCI 7030 or instructor's consent

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**DATA\_SCI 8430: Parallel Computing for Data Analytics**

This course will provide in-depth treatment of the evolution of high performance, parallel computing architectures and how these architectures and computational ecosystems support data science. We will cover topics such as: parallel algorithms for numerical processing, parallel data search, and other parallel computing algorithms which facilitate advanced analytics. To reinforce lecture topics, learning activities will be completed using parallel computing techniques for modern multicore and multi-node systems. Parallel algorithms will be investigated, selected, and then developed for various scientific data analytics problems. Programming projects will be completed using Python and R, leveraging various parallel and distributed computing infrastructure such as AWS Elastic Map Reduce and Google Big Query. Students will research emerging parallel and scalable architectures for data analytics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DATA\_SCI 7020 and DATA\_SCI 7030 or instructor's consent

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**DATA\_SCI 8510: Geospatial Data Engineering**

This course provides an overview of theoretical and practical issues encountered when working with geospatial data for both the vector and raster data models with a focus on incorporating geospatial data into the data science lifecycle. Data access, indexing, retrieval, and other technical concepts are investigated. Important data storage paradigms such as enterprise geospatial databases and desktop GIS systems are explored along with scalable computational tools beyond desktop computing for Geospatial Big Data. Core issues in geospatial data storage, management, exploitation, and multi-data set entity resolution / correlation are examined. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DATA\_SCI 7030 or instructor's consent

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**DATA\_SCI 8520: Spatial and Geostatistical Analysis**

This course will provide a practical overview of key issues encountered when working with and analyzing spatial data as well as an overview of major spatial analysis approaches. Discussions and laboratory work will focus on implementation, analysis, and interpretive issues given constraining factors that commonly arise in practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DATA\_SCI 8510 or instructor's consent

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**DATA\_SCI 8530: Remote Sensing Data Analytics**

Introduction to the principles of remote sensing of the environment leading to information extraction from remote sensing geospatial raster data sets. Examines theoretical and practical issues associated with digital imagery from spacecraft and airborne systems, thermal imaging, and microwave remote sensing. Covers standard processing techniques, including preprocessing and normalization, pixel-level feature extraction, information extraction, and structural/object extraction. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DATA\_SCI 8510 or instructor's consent

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## Dermatology (DERM)

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**DERM 6047: SCC Dermatology Elective**

The Dermatology rotation is designed to provide the medical student with a broad general base in clinical dermatology. Dermatology Clinic is an integral part of the student's experience on this rotation. Students participate in the evaluation of patients with skin disease at a community based clinic. Students may participate in the evaluation and management of patients with complex, often serious, dermatologic conditions under the supervision of the attending physician. Students may also participate in Dermatologic inpatient consultations. Students may also assist in Dermatologic procedures.

**Credit Hours:** 5

**Prerequisites:** Successful completion of the first two years of medical school. Successful completion of the Medicine Clerkship

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**DERM 6233: ABS Dermatology Research**

ABS Dermatology Research

**Credit Hours:** 5

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**DERM 6450: Dermatology I**

The Dermatology rotation is designed to provide the medical student with a broad general base in clinical dermatology for the non-dermatologist. During the rotation the student should: Enhance the visual diagnostic skills and related reasoning used in dermatology; Become familiar with a select list of dermatologic conditions commonly seen and best treated by the non-dermatologist; Gain familiarity with certain dermatologic conditions which require a high index of suspicion by all physicians because of their danger to life or risks to public health; Become familiar with dermatologic treatment regimens for the non-dermatologist and guidelines for appropriate referral of cases; Learn appropriate use of both systemic and topical dermatologic medications; Learn basic punch, shave, and excisional biopsy techniques; Become proficient in skin surveillance, especially early detection of skin cancer. Students are evaluated using a standard evaluation. The student's knowledge of subject matter is evaluated in the following settings: informal discussion during clinics, ward rounds, inpatient consultation rounds and scheduled conferences.

**Credit Hours:** 5

**Prerequisites:** Internal Medicine Clerkship

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**DERM 6750: Dermatology I - Rural**

The Dermatology rotation is designed to provide the medical student with a broad general base in clinical dermatology for the non-dermatologist. During the rotation the student should: Enhance the visual diagnostic skills and related reasoning used in dermatology. Become familiar with a select list of dermatologic conditions commonly seen and best treated by the non-dermatologist. Gain familiarity with certain dermatologic conditions which require a high index of suspicion by all physicians because of their danger to life or risks to public health. Become familiar with dermatologic treatment regimens for the non-dermatologist and guidelines for appropriate referral of cases. Learn appropriate use of both systemic and topical dermatologic medications. Learn basic punch, shave, and excisional biopsy techniques. Become proficient in skin surveillance, especially early detection of skin cancer.

**Credit Hours:** 5

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**DERM 6856: Dermatology II**

This elective rotation is an expansion of the objective goals outlined for Dermatology I. The student is expected to expand the depth and breadth of his/her dermatology experiences and knowledge. Enhance the visual diagnostic skills and related reasoning used in dermatology. Become familiar with a select list of dermatologic conditions commonly seen and best treated by the non-dermatologist. Gain familiarity with certain dermatologic conditions which require a high index of suspicion by all physicians because of their danger to life or risks to public health. Become familiar with dermatologic treatment regimens for the non-dermatologist and guidelines for appropriate referral of cases. Learn appropriate use of both systemic and topical dermatologic medications. Learn basic punch, shave, and excisional biopsy techniques. Become proficient in skin surveillance, especially early detection of skin cancer. As Dermatology II is an extension of the Dermatology I curriculum, Dermatology II students are expected to master the above objectives. In addition, they are expected to expand their clinical skills related to the diagnosis and treatment of dermatologic diseases and they will have increased responsibilities for patient education. It is expected that they will further their surgical skills including biopsies, simple excisions, and

basic cryotherapy. They will also become proficient in basic laboratory procedures including KOH and scabies prep.

**Credit Hours:** 5

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**DERM 6901: SCC Dermatology 2-week**

The two-week elective in Dermatology will allow students to participate in a wide breadth of general, pediatric, and surgical dermatology. Students will also complete the American Academy of Dermatology online student modules and the self-evaluation that is provided.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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**DERM 6910: Clinical Dermatology Elective**

The 2 week elective in Dermatology will allow students to participate in a wide breadth of general, pediatric, and surgical dermatology. Students will participate in clinics and in weekly didactic sessions. Students will also complete the American Academy of Dermatology online student modules and the self-evaluation that is provided.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school. Must have completed at least 1 core clinical rotation

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## Diagnostic Medical Ultrasound (DMU)

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**DMU 1000: Introduction to Diagnostic Medical Ultrasound**

Introduction to the profession of diagnostic medical ultrasound. Imaging characteristics, educational requirements, professional trends. Observation opportunities. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Departmental consent required

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**DMU 3212: Sectional Anatomy**

A study of human anatomy using the sectional approach; anatomical structures will be related to modern medical imaging techniques. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 3309: Normal Ultrasound Clinical**

Integration of ultrasound instrumentation and clinical practice in a laboratory setting. Interaction between the sonographer, equipment and patient.

**Credit Hours:** 5

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 3313: Ultrasound Physics**

Principles of diagnostic ultrasound physics. Sound wave characteristics, tissue interaction, power intensity, and Doppler physics.

**Credit Hours:** 3

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 3315: Ultrasound Instrumentation**

Integration of ultrasound physics and instrumentation components in a laboratory setting. Practice in modes of operation and safety.

**Credit Hours:** 3

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 3322: Superficial Organs Ultrasound**

Ultrasound evaluation and diagnosis of normal and abnormal superficial organs; thyroid gland, testes, breasts, soft tissues and musculoskeletal.

**Credit Hours:** 3

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 4001: Topics in Diagnostic Medical Ultrasound**

Organized study of selected topics in medical ultrasound. Topics may vary. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1-99

**Prerequisites:** restricted to Diagnostic Medical Ultrasound undergraduate students

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**DMU 4001W: Topics in Diagnostic Medical Ultrasound - Writing Intensive**

Organized study of selected topics in medical ultrasound. Topics may vary. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1-99

**Prerequisites:** restricted to Diagnostic Medical Ultrasound undergraduate students

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**DMU 4085: Problems in Diagnostic Medical Ultrasound**

Independent study leading to a special project or paper. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1-99

**Prerequisites:** restricted to Diagnostic Medical Ultrasound undergraduate students only

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**DMU 4085W: Problems in Diagnostic Medical Ultrasound - Writing Intensive**

Independent study leading to a special project or paper. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1-99

**Prerequisites:** restricted to Diagnostic Medical Ultrasound undergraduate students only

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**DMU 4200: Principles of Diagnostic Medical Ultrasound**

Principles and history of ultrasound, ultrasound equipment, sonographic techniques, aspects of patient care.

**Credit Hours:** 3

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students only

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**DMU 4234: Clinical Pathophysiology**

(cross-leveled with DMU 7234). Abnormal function of organ systems in the presence of disease; clinical manifestations and medical management.

**Credit Hours:** 3

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**DMU 4234W: Clinical Pathophysiology - Writing Intensive**

Abnormal function of organ systems in the presence of disease; clinical manifestations and medical management.

**Credit Hours:** 3

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**DMU 4311: Pathological Images of Ultrasound**

(cross-leveled with DMU 7311). Disease presentation in ultrasound imaging. Practical aspects of ultrasound scanning techniques in pathology.

**Credit Hours:** 3

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 4314: Abdominal Ultrasound**

(cross-leveled with DMU 7314). Differentiation between normal and pathological ultrasound studies of the abdomen. Differential diagnosis of pathological states.

**Credit Hours:** 5

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 4318: Gynecology Ultrasound**

(cross-leveled with DMU 7318). Study of normal and abnormal gynecological ultrasound anatomy. Distinction between normal and pathological states and ultrasound differential diagnosis.

**Credit Hours:** 3

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 4320: Obstetrics Ultrasound**

(cross-leveled with DMU 7320). Study of normal and abnormal obstetrical ultrasound anatomy. Distinction between normal and pathological OB ultrasound studies with emphasis on differential diagnosis.

**Credit Hours:** 3

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 4325: Ultrasound Clinical Pharmacology and Contrast Agents**

(cross-leveled with DMU 7325). Study of the biophysical, biochemical and complete action of ultrasound contrast agents and other drugs used in Diagnostic Medical Ultrasound and their pharmacodynamics.

**Credit Hours:** 3

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound

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**DMU 4326: Vascular Ultrasound Physics, Instrumentation and Hemodynamics**

(cross-leveled with DMU 7326). Study of vascular principles and fundamentals including physics and instrumentation. Emphasis on ultrasound wave characteristics, Doppler principles, tissue interaction and hemodynamics.

**Credit Hours:** 3

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 4330: Vascular Ultrasound Lab**

(cross-leveled with DMU 7330). Vascular ultrasound scanning techniques, protocols, measurements, film/video critique, and Plethysmography in a clinical lab setting.

**Credit Hours:** 3

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**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 4332: Vascular Ultrasound**

(cross-leveled with DMU 7332). Vascular ultrasound for normal and pathological processes: study of disease, correlation of patients' clinical data and ultrasound findings used in differential diagnosis.

**Credit Hours:** 4

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 4342: Adult Cardiac Ultrasound**

(cross-leveled with DMU 7342). Provides principles of diagnostic adult cardiac ultrasound in relation to pathology, further presenting the practical aspects of scanning techniques, exam critique, patient care in relation to cardiac US exams. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites:** DMU 3313, DMU 3315 and DMU 4338; instructor's consent

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**DMU 4941: Ultrasound Clinical I**

(cross-leveled with DMU 7941). Application of medical ultrasound in supervised clinical settings. Decisions regarding diagnosis, patient handling and imaging.

**Credit Hours:** 7

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 4943: Ultrasound Clinical III**

(cross-leveled with DMU 7943). Final clinical application of general medical ultrasound practicum in supervised clinical settings. Further enhancement of practice, decision making, patient handling, image processing and case studies.

**Credit Hours:** 6

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 4944: Vascular Ultrasound Clinical IV**

(cross-leveled with DMU 7944). Application of diagnostic vascular ultrasound in supervised clinical settings: practice, decision making, patient handling and image processing.

**Credit Hours:** 7

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 4945: Cardiac Ultrasound Clinical V**

(cross-leveled with DMU 7945). Application of ultrasonography in real clinical settings for learning, practicing and decision making regarding, patient handling and imaging process with students supervised in a clinical setting. Graded on A-F basis only.

**Credit Hours:** 6

**Prerequisites:** DMU 3313, DMU 3315, and DMU 4944. Instructor and Departmental permission required

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**DMU 4946: Cardiac Ultrasound Clinical VI**

(cross-leveled with DMU 7946). Further application of ultrasonography for continuation of learning, practicing and decision making, patient handling and imaging process with students supervised in a clinical setting. Graded on A-F basis only.

**Credit Hours:** 6

**Prerequisites:** DMU 3313, DMU 3315, DMU 4338 and DMU 4945. Instructor and Departmental permission required

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**DMU 4993: Ultrasound Clinical II**

(cross-leveled with DMU 7993). Application of medical ultrasound in supervised clinical settings with practice and decision making related to ultrasound diagnosis, patient handling and image processing.

**Credit Hours:** 8

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 7200: Diagnostic Medical Ultrasound Principles and Patient Care**

Introduction diagnostic medical ultrasound principles including history, development, ultrasound physics - equipment fundamentals. Provides introduction to concepts of sonographic techniques, positioning, image critique, aspects of patient care and professional organizations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Graduate Diagnostic Medical Ultrasound students

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**DMU 7234: Clinical Pathophysiology**

(cross-leveled with DMU 4234). Abnormal function of organ systems in the presence of disease; clinical manifestations and medical management.

**Credit Hours:** 3

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**DMU 7309: Normal Ultrasound Clinical**

Integration of ultrasound instrumentation and clinical practice in a laboratory setting. Interaction between the sonographer, equipment and patient.

**Credit Hours:** 5

**Prerequisites:** admitted to the DMU program

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**DMU 7311: Pathological Images Ultrasound**

(cross-leveled with DMU 4311). Disease presentation in ultrasound imaging. Practical aspects of ultrasound scanning techniques in pathology.

**Credit Hours:** 3

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 7312: Sectional Anatomy**

(same as RA\_SCI 7110; cross-leveled with RA\_SCI 4110). A study of human anatomy using the sectional approach; anatomical structures will be related to modern medical imaging techniques.

**Credit Hours:** 3

**Prerequisites:** Restricted to Graduate Diagnostic Medical Ultrasound students

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**DMU 7313: Ultrasound Physics**

Principles of diagnostic ultrasound physics. Sound wave characteristics, tissue interaction, power intensity, and Doppler physics.

**Credit Hours:** 3

---

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

---

**DMU 7314: Abdominal Ultrasound**

(cross-leveled with DMU 4314). Differentiation between normal and pathological ultrasound studies of the abdomen. Differential diagnosis of pathological states.

**Credit Hours:** 5

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

---

**DMU 7315: Ultrasound Instrumentation**

Integration of ultrasound physics and instrumentation components in a laboratory setting. Practice in modes of operation and safety.

**Credit Hours:** 3

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 7318: Gynecology Ultrasound**

(cross-leveled with DMU 4318). Study of normal and abnormal gynecological ultrasound anatomy. Distinction between normal and pathological states and ultrasound differential diagnosis.

**Credit Hours:** 3

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 7320: Obstetrics Ultrasound**

(cross-leveled with DMU 4320). Study of normal and abnormal obstetrical ultrasound anatomy. Distinction between normal and pathological OB ultrasound studies with emphasis on differential diagnosis.

**Credit Hours:** 3

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

---

**DMU 7322: Superficial Organs Ultrasound**

Ultrasound evaluation and diagnosis of normal and abnormal superficial organs; thyroid gland, testes, breasts, soft tissues and musculoskeletal.

**Credit Hours:** 3

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

---

**DMU 7325: Ultrasound Clinical Pharmacology and Contrast Agents**

(cross-leveled with DMU 4325). Study of the biophysical, biochemical and complete action of ultrasound contrast agents and other drugs used in DMU and their pharmacodynamics.

**Credit Hours:** 3

**Prerequisites:** Restricted to Graduate Diagnostic Medical Ultrasound majors

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**DMU 7326: Vascular Ultrasound Physics, Instrumentation and Hemodynamics**

(cross-leveled with DMU 4326). Study of vascular principles and fundamentals including physics and instrumentation. Emphasis on ultrasound wave characteristics, Doppler principles, tissue interaction and hemodynamics.

**Credit Hours:** 3

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

---

**DMU 7330: Vascular Ultrasound Lab**

(cross-leveled with DMU 4330). Vascular ultrasound scanning techniques, protocols, measurements, film/video critique, and Plethysmography in a clinical lab setting.

**Credit Hours:** 3

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

---

**DMU 7332: Vascular Ultrasound**

(cross-leveled with DMU 4332). Vascular ultrasound for normal and pathological processes: study of disease, correlation of patients' clinical data and ultrasound findings used in differential diagnosis.

**Credit Hours:** 4

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 7338: Cardiac Ultrasound, Principles and Hemodynamics**

(cross-leveled with DMU 4338). Study of cardiac ultrasound fundamentals including: wave characteristics, principles of 2-D/3-D/4-D imaging, M-mode, and Doppler, cardiac anatomy and physiology, embryology, evaluation methods and hemodynamics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 7342: Adult Cardiac Ultrasound**

(cross-leveled with DMU 4342). Study of adult cardiac ultrasound for normal and pathological processes. Differential diagnosis of cardiac disease through correlation of patients' clinical data and ultrasound findings.

**Credit Hours:** 5

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 7941: Ultrasound Clinical I**

(cross-leveled with DMU 4941). Application of medical ultrasound in supervised clinical settings. Decisions regarding diagnosis, patient handling and imaging.

**Credit Hours:** 7

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

---

**DMU 7943: Ultrasound Clinical III**

(cross-leveled with DMU 4943). Final clinical application of general medical ultrasound practicum in supervised clinical settings. Further enhancement of practice, decision making, patient handling, image processing and case studies.

**Credit Hours:** 6

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 7944: Vascular Ultrasound Clinical IV**

(cross-leveled with DMU 4944). Application of diagnostic vascular ultrasound in supervised clinical settings: practice, decision making, patient handling and image processing.

**Credit Hours:** 7

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 7945: Cardiac Ultrasound Clinical V**

(cross-leveled with DMU 4945). Application of diagnostic cardiac ultrasound in supervised clinical settings: practice and decision making regarding echocardiography, patient handling and image processing.

**Credit Hours:** 6

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 7946: Cardiac Ultrasound Clinical VI**

(cross-leveled with DMU 4946). Further enhancement of diagnostic cardiac ultrasound in supervised clinical settings: practice and decision making regarding echocardiography, patient handling and image processing.

**Credit Hours:** 6

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 7993: Ultrasound Clinical II**

(cross-leveled with DMU 4993). Application of medical ultrasound in supervised clinical settings with practice and decision making related to ultrasound diagnosis, patient handling and image processing.

**Credit Hours:** 8

**Prerequisites:** Restricted to Graduate Diagnostic Medical Ultrasound students

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**DMU 8001: Topics in Diagnostic Medical Ultrasound**

Organized study of selected topics. Topic may vary.

**Credit Hour:** 1-3

**Prerequisites:** restricted to students enrolled in the Diagnostic Medical Ultrasound program only

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**DMU 8050: Research in Diagnostic Medical Ultrasound**

Research not leading to a thesis or dissertation. Graded on an A-F basis only.

**Credit Hour:** 1-99

**Prerequisites:** restricted to students enrolled in the Diagnostic Medical Ultrasound program only

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**DMU 8085: Problems in Diagnostic Medical Ultrasound**

Independent study of a special project involving clinical applications or research. Topic may vary.

**Credit Hour:** 1-99

**Prerequisites:** restricted to students enrolled in the Diagnostic Medical Ultrasound program only

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**DMU 8346: Pediatric Cardiac Ultrasound**

Study of pediatric cardiac ultrasound for normal and pathological processes. Differential diagnosis of cardiac disease through correlation of patients' clinical data and ultrasound findings.

**Credit Hours:** 4

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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**DMU 8947: Applied Clinical Research & Practicum**

Clinical research application of cardiovascular & general ultrasound in clinical environment: clinical research, practicum, decision making, patient handling, and image processing. Graded on A-F basis only.

**Credit Hour:** 5-8

**Prerequisites:** Restricted to Diagnostic Medical Ultrasound students

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## Digital Storytelling-Visual Studies (DST\_VS)

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**DST\_VS 1800: Introduction to Film Studies**

(same as FILMS\_VS 1800, ENGLSH 1800). Introduction to terms and concepts for film analysis, including mise-en-scene, cinematography, editing, sound, narrative, genre, and other elements. No credit for students who have completed FILMS\_VS 2810. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Freshmen and sophomores only or instructor's consent

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**DST\_VS 1880: Introduction to Digital Media Production**

(same as ENGLSH 1880, FILMS\_VS 1880, ARTGE\_VS 1920, COMMUN 1880). Introduction to concepts and skills for Digital Storytelling, including media literacy and forms of narrative manifested historically and currently across a range of media. This course focuses on theories and concepts that support the critical analysis and creation of contemporary narrative in digital form with particular attention to audio, visual and written communication. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Enrollment limited to declared DST majors during early registration

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**DST\_VS 1880H: Introduction to Digital Media Production - Honors**

(same as ENGLSH 1880, FILM\_S 1880, ARTGE\_VS 1920, COMMUN 1880). Introduction to concepts and skills for Digital Storytelling, including media literacy and forms of narrative manifested historically and currently across a range of media. This course focuses on theories and concepts that support the critical analysis and creation of contemporary narrative in digital form with particular attention to audio, visual and written communication. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Enrollment limited to declared DST majors during early registration; Honors eligibility required

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**DST\_VS 2001: Topics in Digital Storytelling**

Organized study of selected topics in Digital Storytelling. Subject may vary from semester to semester. May be repeated with consent of instructor. Graded on A-F basis only.

**Credit Hours:** 3

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**DST\_VS 2005: Topics in Digital Storytelling**

Organized study of selected topics in Digital Storytelling. Subject may vary from semester to semester. May be repeated with consent of instructor. Graded on A-F basis only.

**Credit Hours:** 3

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**DST\_VS 2005H: Topics in Digital Storytelling - Honors**

Organized study of selected topics in Digital Storytelling. Subject may vary from semester to semester. May be repeated with consent of



instructor. Graded on A-F basis only. Prerequisites: Honors eligibility required

**Credit Hours:** 3

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#### **DST\_VS 2810: Story Development**

(same as COMMUN 2810). In this course students will learn about storytelling across time and media, beginning with definitions and fundamentals of narrative and oral storytelling, theories of narrative and its cultural functions, and basic narrative analysis. The course then turns to the close study of structure, narration, character, plot, action, dialogue, and other narrative elements, with a wide variety of examples and prompts. Throughout the course, students practice the development of their own stories in multiple versions and formats, with attention to the ways that formal structures such as blogs, tweets, podcasts, and scripts affect their storytelling strategies. By the end of the course, students will produce a short shooting script or equivalent project ready for production. Thus, the course functions as preparation for audio-visual production courses in Film Studies, Media Studies, Film and Media Arts, and Digital Storytelling degree programs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Enrollment limited to declared DST majors during early registration

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#### **DST\_VS 2820: Immersive Storytelling**

(same as THEATR 2220). This class introduces the student to the basic principles of immersive theatre and immersive storytelling. Students learn about the history, practice, theory, and critical issues related to immersive theatre and immersive storytelling, including performance art, environmental theatre, happenings, interactive theatre, site specific performance, installation art, video art, projection art, multimedia, intermediality, mediatization, 3D video, 360 video, augmented reality, virtual reality, and mixed reality. Projects provide opportunities for experiences in immersive theatre and immersive storytelling.

**Credit Hours:** 3

**Recommended:** DST\_VS 1880

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#### **DST\_VS 2830: Video Art I**

Video as a fine art form intersecting with sculpture, experimental filmmaking, and Internet culture. Theoretical and historical knowledge is integrated with studio practice. Students create video works in Adobe Premiere Pro, demonstrating technical ability and aesthetic vision. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DST\_VS 1880, FILMS\_VS 1880, ENGLISH 1880 or ARTGE\_VS 1920

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#### **DST\_VS 2860: Film Themes and Genres**

(same as ENGLISH 2860, FILMS\_VS 2860). Topics (e.g. film noir, African-American filmmakers, food and film, the western) announced at time of registration.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1800 or FILMS\_VS 1800

**Recommended:** ENGLISH 1000

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#### **DST\_VS 2880: Digital Storytelling Production I**

(same as ENGLISH 2880, COMMUN 2880). Digital Storytelling Production I teaches agility with digital video technology through applied experiences. Assignments in digital video production emphasize how video narratives are created and how images and audio enhance the structure, mood, and theme of the narrative. Instruction will focus on planning a video production and developing the tools and practices in lighting, sound recording, image capturing, and editing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DST\_VS 1880 or ENGLISH 1880 or FILMS\_VS 1880 or ARTGE\_VS 1920 or consent of instructor. Enrollment limited to declared DST majors during early registration

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#### **DST\_VS 2885: Digital Storytelling Animation Production I**

(same as ENGLISH 2885). Introduction to all aspects of digital animation and elements of the 3D computer animation production pipeline, including story drafting and production planning, polygonal modeling and texturing, rigging, key framing, lighting, compositing rendered images, and editing into a short finished film. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DST\_VS 1880 or ENGLISH 1880 or FILMS\_VS 1880 or ARTGE\_VS 1920 or instructor consent. Enrollment limited to declared DST majors during early enrollment

**Recommended:** ENGLISH 1000

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#### **DST\_VS 3001: Topics in Digital Storytelling**

Organized study of selected topics in Digital Storytelling. Subject may vary from semester to semester. May be repeated with consent of instructor. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Sophomore standing

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#### **DST\_VS 3005: Topics in Digital Storytelling**

Organized study of selected topics in Digital Storytelling. Subject may vary from semester to semester. May be repeated with consent of instructor. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Sophomore standing

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#### **DST\_VS 3005W: Topics in Digital Storytelling**

Organized study of selected topics in Digital Storytelling. Subject may vary from semester to semester. May be repeated with consent of instructor. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Sophomore standing

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#### **DST\_VS 3510: Think Global: Fundamentals of Globalization and Digital Technology**

(same as GERMAN 3510, JOURN 3510, PEA\_ST 3510, T\_A\_M 3010).

This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

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**DST\_VS 3510H: Think Global: Fundamentals of Globalization and Digital Technologies - Honors**

(same as GERMAN 3510H, JOURN 3510H, PEA\_ST 3510H, T\_A\_M 3010H). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing; 2.75 GPA or instructor's consent. Honors eligibility required

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**DST\_VS 3510HW: Think Global: Fundamentals of Globalization and Digital Technologies - Honors/Writing Intensive**

(same as JOURN 3510HW, T\_A\_M 3010HW, PEA\_ST 3510HW, GERMAN 3510HW). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing; 2.75 GPA or instructor's consent. Honors eligibility required

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**DST\_VS 3510W: Think Global: Fundamentals of Globalization and Digital Technology - Writing Intensive**

(same as GERMAN 3510W, JOURN 3510W, PEA\_ST 3510W, T\_A\_M 3010W). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

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**DST\_VS 3855: Documentary Film**

(same as ENGLISH 3855, FILMS\_VS 3855). Surveys the history of documentary film including the development of subgenres, sound and voice over in documentary, re-enactment, ethical issues in documentary film production, and more. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**DST\_VS 3860: Special Themes in Digital Storytelling**

Themes (e.g., Indigenous digital studies, folklore and the internet) announced at time of registration. No more than six hours may be taken in the Special Themes in Digital Storytelling. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**DST\_VS 3880: Writing and Theory for Digital Media**

(same as ENGLISH 3880). Writing and Theory for Digital Media teaches the skills, methods and theoretical frameworks needed to write for new media. Students will study and practice writing for web-based and digital media platforms, including short-form modes such as Twitter and various social media sites; longer-form modes such as blogs, vlogs and podcasts; and the emerging possibilities of locative and interactive media. Assignments emphasize the professional and creative possibilities of new media production. In addition to the hands-on creation for audio, screen-based, networked, and hybrid forms of digital media, students will also read, discuss, and write about work by new media theorists. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DST 1880 or ENGLISH 1880 or FILM\_S 1880 or ART\_GNRL 1920 or instructor consent. Enrollment limited to declared DST majors during early enrollment

**Recommended:** Sophomore standing or above; ENGLISH 1000

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**DST\_VS 3880W: Writing and Theory for Digital Media - Writing Intensive**

(same as ENGLISH 3880W). Writing and Theory for Digital Media teaches the skills, methods and theoretical frameworks needed to write for new media. Students will study and practice writing for web-based and digital media platforms, including blogs, podcasts, vlogs, and the emerging possibilities of locative and interactive media. Assignments emphasize the professional and creative possibilities of new media production. In addition to the hands-on creation for audio, screen-based, networked, and hybrid forms of digital media, students will also read, discuss, and write about work by new media theorists. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DST\_VS 1880 or ENGLISH 1880 or FILMS\_VS 1880 or ARTGE\_VS 1920 or instructor consent. Enrollment limited to declared DST majors during early enrollment

**Recommended:** Sophomore standing or above; ENGLISH 1000

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**DST\_VS 3885: Audio Storytelling**

Students in this course explore the skills, methods and theoretical frameworks needed to produce audio for new media and to understand the relationship between audio and digital culture. Students will study and practice writing and producing for web-based and digital media platforms. Assignments emphasize the professional and creative possibilities of new media production with an emphasis on audio. In addition to the hands-on creation of audio for radio, podcast, as well as screen-based, networked, and hybrid forms of digital media, students will also read, discuss, and write about work by producers and radio historians and theorists. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DST\_VS 1880/ENGLISH 1880/FILMS\_VS 1880/ARTGE\_VS 1920 or consent of instructor

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**DST\_VS 3885W: Audio Storytelling - Writing Intensive**

Students in this course explore the skills, methods and theoretical frameworks needed to produce audio for new media and to understand the relationship between audio and digital culture. Students will study and practice writing and producing for web-based and digital media platforms. Assignments emphasize the professional and creative possibilities of new media production with an emphasis on audio. In addition to the hands-on creation of audio for radio, podcast, as well as screen-based, networked,

and hybrid forms of digital media, students will also read, discuss, and write about work by producers and radio historians and theorists. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DST\_VS 1880/ENGLISH 1880/FILMS\_VS 1880/ARTGE\_VS 1920 or consent of instructor

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#### **DST\_VS 4005: Topics in Digital Storytelling**

Advanced study of selected topics in Digital Storytelling. Subject may vary from semester to semester. May be repeated with consent of instructor. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Sophomore standing

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#### **DST\_VS 4005W: Topics in Digital Storytelling - Humanities - Writing Intensive**

Advanced study of selected topics in Digital Storytelling. Subject may vary from semester to semester. May be repeated with consent of instructor. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Sophomore standing

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#### **DST\_VS 4805: Case Studies in an Inter/Multicultural World**

(same as GERMAN 4810, PEA\_ST 4810, T\_A\_M 4810). This inter-departmental course examines the ways in which people across the globe are affected every day by an unprecedented array of linkages that defy geographic and political boundaries. Also serves as one of the seminars for the certificate in Digital Global Studies. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing

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#### **DST\_VS 4810: Film Theory**

(same as ENGLISH 4810, FILMS\_VS 4810). This course explores contemporary trends in film theory. Topics may include: psychoanalysis, feminism, Marxism, cultural studies, queer theory, audience and star studies, post colonialism, among others.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and ENGLISH 1800 or FILMS\_VS 1800; junior standing

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#### **DST\_VS 4830: Video Art II**

Video as a fine art form intersecting with sculpture, experimental filmmaking, and Internet culture. Theoretical and historical knowledge is integrated with studio practice. Students create more advanced video works in Adobe Premiere Pro, demonstrating technical ability and aesthetic vision. Projections and video installation works will be emphasized. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DST\_VS 1880, FILMS\_VS 1880, ENGLISH 1880 or ARTGE\_VS 1920 and DST\_VS 2830 or ARTGE\_VS 4030

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#### **DST\_VS 4840: Culture and Media**

(same as ENGLISH 4840, FILMS\_VS 4840). Topics (e.g. Cinema and Imperialism, Indigenous Media, Ethnographic Documentary) announced at time of registration.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and ENGLISH 1800 or FILMS\_VS 1800; junior standing or instructor's consent required

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#### **DST\_VS 4880: Digital Storytelling Production II**

(same as ENGLISH 4880, COMMUN 4880). Digital Storytelling Production II introduces students to advanced techniques in digital storytelling production, while further developing skills in script writing, storyboarding, Adobe Premiere Pro, and video production with DSLR cameras. Assignments in digital video production emphasize how video narratives are created and how images and audio enhance the structure, mood, and theme of the narrative. Instruction will focus on planning a video production and developing the tools and practices in lighting, sound recording, image capturing, and editing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and DST\_VS 1880 or ENGLISH 1880 or FILMS\_VS 1880 or ARTGE\_VS 1920 and DST\_VS 2880 or ENGLISH 2880 and sophomore standing, or consent of instructor. Enrollment is limited to declared DST majors during early registration

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#### **DST\_VS 4885: Digital Storytelling Animation Production II**

Advanced instruction in various aspects of digital animation and elements of the 3D computer animation production pipeline, including story drafting and production planning, polygonal modeling and texturing, rigging, key framing, lighting, compositing rendered images, and editing into a short finished film. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and DST 1880 or ENGLISH 1880 or FILM\_S 1880 or ART\_GNRL 1920 and DST 2885 or ENGLISH 2885 and sophomore standing, or consent of instructor. Enrollment limited to DST majors during early registration

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#### **DST\_VS 4930: Digital Storytelling Practicum**

This course provides an opportunity for experiential learning in digital storytelling practice. Students will receive hands-on training through an intensive master class. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** Instructor's consent

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#### **DST\_VS 4940: Digital Storytelling Internship**

Students work in an agency or institution using their digital storytelling skills for one to three credit hours. Graded on an S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** Program consent

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#### **DST\_VS 4955: Independent Research in Digital Storytelling**

Development of a carefully considered research project under close supervision of a faculty member. Open to undergraduate students only. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** Instructor consent required

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### **DST\_VS 4970: Digital Storytelling Capstone**

For students in their senior year who have completed the core requirements for the Digital Storytelling program, this course focuses on advanced studies in the field and a major project involving the processes of selection, research, and production or writing leading to its completion. May include a professional component. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DST\_VS 1880, and DST\_VS 2880 or DST\_VS 2885, and DST\_VS 4880 or DST\_VS 4885

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## **Economics (ECONOM)**

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### **ECONOM 1000: General Economics for Journalists**

One semester course covering similar material as ECONOM 1014 and ECONOM 1015, but for Journalism majors. Topics include opportunity costs, gains from trade, efficiency and markets, non-competitive markets, game theory, government spending and taxation, economic growth, monetary and fiscal policy, unemployment and inflation, exchange rates. Includes applications for Journalism students. Not open to students who have completed ECONOM 1014, ECONOM 1024, or ECONOM 1051. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites:** Open to majors and pre-majors in Journalism; also open to majors outside of Arts and Sciences and Business

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### **ECONOM 1014: Principles of Microeconomics**

A broad survey of microeconomics, from the basic market model and its many applications to market failures and policy responses. Topics include potential trade offs between efficiency and equity in competition and trade policy; determinants of wage differentials, poverty and inequality; and evaluation of the benefits and costs of government interventions in markets. Not open to students who have completed ECONOM 1000, ECONOM 1024 or ECONOM 1051.

**Credit Hours:** 3

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### **ECONOM 1014H: Principles of Microeconomics-Honors**

A broad introduction to microeconomics that is similar in coverage to ECONOM 1014, but with a more rigorous and quantitative approach. Not open to students who have completed ECONOM 1000, ECONOM 1024, or ECONOM 1051. Math Reasoning Proficiency Course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required and a grade of 'C' or higher in MATH 1050, MATH 1100, MATH 1400, MATH 1500 or earn sufficient MyMathTest College Algebra score of 70% or higher

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### **ECONOM 1015: Principles of Macroeconomics**

An introduction to the study of how macroeconomic forces and public policy affect the welfare of a nation. Topics include understanding the business cycle, economic growth, inflation, interest rates, and unemployment, as well as the effects of fiscal and monetary policy. Not open to students who have completed ECONOM 1000 or ECONOM 1051. Graded on A-F basis only.

**Credit Hours:** 3

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**Prerequisites:** ECONOM 1014 or ABM 1041

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### **ECONOM 1015H: Principles of Macroeconomics - Honors**

A broad introduction to macroeconomics that is similar in coverage to ECONOM 1015, but with a more rigorous approach. Not open to students who have completed ECONOM 1000 or ECONOM 1051. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1014, ECONOM 1024, or ABM 1041 or equivalent; Honors eligibility required

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### **ECONOM 1051H: General Economics - Honors**

One semester course covering similar material as covered in ECONOM 1014 and ECONOM 1015. Topics include opportunity costs, gains from trade, efficiency and markets, non-competitive markets, game theory, government spending and taxation, economic growth, monetary and fiscal policy, unemployment and inflation, exchange rates. Not open to students who have completed ECONOM 1014 or ECONOM 1024 and ECONOM 1015. Math Reasoning Proficiency Course.

**Credit Hours:** 5

**Prerequisites:** Honors eligibility required and C- or higher in MATH 1050 or MATH 1100

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### **ECONOM 2004: Undergraduate Topics in Economics - Social Science**

Organized study of selected topics in Economics; applied or theoretical economics; covers subjects not included in regularly offered courses.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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### **ECONOM 2004H: Undergraduate Topics in Economics - Social Science - Honors**

Organized study of selected topics in Economics; applied or theoretical economics; covers subjects not included in regularly offered courses.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent; honors eligibility required

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### **ECONOM 2004W: Undergraduate Topics in Economics - Social Science - Writing Intensive**

Organized study of selected topics in Economics; applied or theoretical economics; covers subjects not included in regularly offered courses.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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### **ECONOM 3224: Introduction to International Economics**

A topical course which emphasizes the application of basic economic analysis to real and current international economic issues. Topics include free trade, protectionism, free trade areas, multilateral trade negotiations, trade and development, exchange rates, the International Monetary System, and economic integration.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1000, ECONOM 1014, ECONOM 1024 or ECONOM 1051

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**ECONOM 3229: Money, Banking and Financial Markets**

Operation of the U.S. financial and economic system. Covers interest rates, banking regulation, the money supply process and the conduct of the Federal Reserve, inflation and the macroeconomy, exchange rates and the international financial system, rational expectations, and efficient markets.

**Credit Hours:** 3

**Prerequisites:** (ECONOM 1014 or ABM 1041) and (ECONOM 1015 or ABM 1042); or ECONOM 1000 or ECONOM 1051

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**ECONOM 3229H: Money, Banking and Financial Markets - Honors**

Operation of the U.S. financial and economic system. Covers interest rates, banking regulation, the money supply process and the conduct of the Federal Reserve, inflation and the macroeconomy, exchange rates and the international financial system, rational expectations, and efficient markets.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1014 and ECONOM 1015; or ECONOM 1000; or ECONOM 1051; or ABM 1041 and ABM 1042. Honors eligibility required

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**ECONOM 3251: Managerial Economics**

Theory of rational behavior in consumption, production, and pricing decisions of households and firms. Topics include the economics of the firm in the context of partial equilibria in product and factor markets under competition, monopoly, oligopoly and monopolistic competition as well as game theory. No credit for students who have completed ECONOM 4351.

**Credit Hours:** 3

**Prerequisites:** MATH 1400 or MATH 1500 or equivalent and (ECONOM 1000 or ECONOM 1014 or ABM 1041)

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**ECONOM 3271: Introduction to Applied Econometric Practice**

Introduction to the use of regression analysis of economic data, including simple and multiple regression, dummy variables. Econometric problems considered include heteroscedasticity, autocorrelation, multicollinearity and simultaneous equation issues.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1014 or ECONOM 1024 and ECONOM 1015, or ECONOM 1051H and STAT 2500

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**ECONOM 3323: Capitalism, Democracy and Society**

This is a one-credit seminar course for students interested in careers involving social science research and analysis; topics covered will be a selection of classic and contemporary debates in the social sciences.

**Credit Hour:** 1

**Prerequisites:** ECONOM 1014 and ECONOM 1015, or ECONOM 1051

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**ECONOM 3367: Law and Economics**

This course is a survey of economic analyses of American legal institutions. Students will apply basic microeconomics, game theoretic and statistical concepts to the study of property, contracts, torts, the legal process, crime, and the judiciary.

**Credit Hours:** 3

**Prerequisites:** (ECONOM 1014 or ECONOM 1024 or ABM 1041) and (STAT 1200 or STAT 2500) or equivalent

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**ECONOM 3367W: Law and Economics - Writing Intensive**

This course is a survey of economic analyses of American legal institutions. Students will apply basic microeconomics, game theoretic and statistical concepts to the study of property, contracts, torts, the legal process, crime, and the judiciary.

**Credit Hours:** 3

**Prerequisites:** (ECONOM 1014 or ECONOM 1024 or ABM 1041) and (STAT 1200 or STAT 2500) or equivalent

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**ECONOM 3940: Internship**

Internship experience for students interested in economics. Supervised internship work with approval of Director of Undergraduate Studies and academic adviser. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** ECONOM 1014 or ECONOM 1000 or ECONOM 1051

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**ECONOM 3950: Practicum in Economics**

Practical experience in consulting, teaching or research guided by faculty advisor. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** consent of Director of Undergraduate Studies and faculty advisor

**Recommended:** Grade of B or higher in ECONOM 4351 and ECONOM 4371

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**ECONOM 4004: Topics in Economics- Social Science**

Study in applied or theoretical economics; covers subjects not included in regularly offered courses.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ECONOM 4004W: Topics in Economics- Social Science - Writing Intensive**

Study in applied or theoretical economics; covers subjects not included in regularly offered courses.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ECONOM 4311: Labor Economics**

(cross-leveled with ECONOM 7311). Surveys theoretical explanations of wage and employment determination in contemporary labor markets.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351

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**ECONOM 4311W: Labor Economics - Writing Intensive**

Surveys theoretical explanations of wage and employment determination in contemporary labor markets.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351

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**ECONOM 4315: Public Economics**

(cross-leveled with ECONOM 4315). Analyzes economic effects of government expenditures, taxes and debt. Expenditure and taxation principles, tax reform, cost-benefit analysis, fiscal policy.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351

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**ECONOM 4315W: Public Economics - Writing Intensive**

Analyzes economic effects of government expenditures, taxes and debt. Expenditure and taxation principles, tax reform, cost-benefit analysis, fiscal policy.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351

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**ECONOM 4317: Urban Economics**

(cross-leveled with ECONOM 7317). This is a class in urban economics. Topics covered include: formation of cities, land markets, housing markets, economics of transportation and commuting, cities as engines of growth and issues affecting cities such as crime, poverty and migration. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351

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**ECONOM 4317W: Urban Economics - Writing Intensive**

(cross-leveled with ECONOM 7317). This is a class in urban economics. Topics covered include: formation of cities, land markets, housing markets, economics of transportation and commuting, cities as engines of growth and issues affecting cities such as crime, poverty and migration. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351

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**ECONOM 4320: History of Economic Thought**

(cross-leveled with ECONOM 7320). Origins of modern economic thought in the context of social and intellectual environment of the time in which they originated, their contribution to their period and to modern thought.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1014 and ECONOM 1015; or ECONOM 1000 or ECONOM 1051

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**ECONOM 4320W: History of Economic Thought**

Origins of modern economic thought in the context of social and intellectual environment of the time in which they originated, their contribution to their period and to modern thought.

**Credit Hours:** 3

**Prerequisites:** (ECONOM 1014 or ECONOM 1024) and ECONOM 1015, or ECONOM 1051

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**ECONOM 4326: Economics of International Trade**

(cross-leveled with ECONOM 7326). The microeconomic theory of international trade. Topics include comparative advantage, the theory of commercial policy, economic integration, trade with less developed countries and the trade effects of economic growth.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351

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**ECONOM 4326W: Economics of International Trade - Writing Intensive**

(cross-leveled with ECONOM 7326). The microeconomic theory of international trade. Topics include comparative advantage, the theory of commercial policy, economic integration, trade with less developed countries and the trade effects of economic growth.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351

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**ECONOM 4329: The Banking System and the Money Market**

(cross-leveled with ECONOM 7329). Organization of the money market; credit control procedures and aims, effect of bank expansion and contraction on money market and national income deregulation.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1015 or ABM 1042 or ECONOM 1000 or ECONOM 1051

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**ECONOM 4329W: The Banking System and the Money Market - Writing Intensive**

Organization of the money market; credit control procedures and aims, effect of bank expansion and contraction on money market and national income deregulation.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1015 or ABM 1042 or ECONOM 1000 or ECONOM 1051

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**ECONOM 4340: Introduction to Game Theory**

(cross-leveled with ECONOM 7340). An introduction to the theory of games, viewed as a set of tools used widely in economics to study situations in which decision-makers (consumers, firms, governments, etc.) interact. The course introduces the basic theory, emphasizing the concepts and their economic applications.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351

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**ECONOM 4345: Economics of Education**

(cross-leveled with ECONOM 7345). Economic theory is used to analyze the market for educational services and education policy. Topics include: human capital theory, cost and performance measures for public and private schools, market based approaches to school reform, school finance, higher education cost and access.

**Credit Hours:** 3

**Prerequisites:** (ECONOM 1014 or ECONOM 1024 or ABM 1041 or ECONOM 1000) and (STAT 2200 or STAT 2500) or equivalent

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**ECONOM 4345W: Economics of Education - Writing Intensive**

Economic theory is used to analyze the market for educational services and education policy. Topics include: human capital theory, cost and performance measures for public and private schools, market based approaches to school reform, school finance, higher education cost and access.

**Credit Hours:** 3

**Prerequisites:** (ECONOM 1014 or ECONOM 1024 or ABM 1041 or ECONOM 1000) and (STAT 2200 or STAT 2500) or equivalent

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**ECONOM 4351: Intermediate Microeconomics**

(cross-leveled with ECONOM 7351). Theory of rational behavior in consumption, production, and pricing decisions of households and firms. Partial equilibria in product and factor markets under competition, monopoly, oligopoly and monopolistic competition. A brief introduction to general equilibrium and welfare economics is provided. Calculus is employed. No credit for students who have completed ECONOM 3251.

**Credit Hours:** 3

**Prerequisites:** (ECONOM 1014 or ABM 1041 or ECONOM 1000 or ECONOM 1051) and (MATH 1400 or MATH 1500) or equivalent

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**ECONOM 4351H: Intermediate Microeconomics - Honors**

Theory of rational behavior in consumption, production, and pricing decisions of households and firms. Partial equilibria in product and factor markets under competition, monopoly, oligopoly and monopolistic competition. A brief introduction to general equilibrium and welfare economics is provided. Calculus is employed. No credit for students who have completed ECONOM 3251.

**Credit Hours:** 3

**Prerequisites:** (ECONOM 1014 or ECONOM 1024 or ABM 1041) and MATH 1400 or equivalent. Honors eligibility required

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**ECONOM 4353: Intermediate Macroeconomics**

(cross-leveled with ECONOM 7353). The study of the structure and performance of national economics. Topics include: long-term economic growth, aggregate economic fluctuations, unemployment, and inflation; consequences for national economies of being part of the global economic system; government policies and macroeconomic performance.

**Credit Hours:** 3

**Prerequisites:** (ECONOM 1000 or ECONOM 1015 or ABM 1042) and (MATH 1400 or MATH 1500) or equivalent

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**ECONOM 4355: Industrial Organization and Competitive Strategy**

(cross-leveled with ECONOM 7355). Analyzes the structure of industry, its impact on the operations of the firm and significance for public policy. The focus is on strategic interaction among firms with market power. Topics include oligopoly, competition, collusion, price discrimination, product differentiation, advertising, entry and exit.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351

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**ECONOM 4355W: Industrial Organization and Competitive Strategy - Writing Intensive**

Analyzes the structure of industry, its impact on the operations of the firm and significance for public policy. The focus is on strategic interaction among firms with market power. Topics include oligopoly, competition, collusion, price discrimination, product differentiation, advertising, entry and exit.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351

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**ECONOM 4357: Health Economics**

(cross-leveled with ECONOM 7357, PUB\_AF 7357). Analyzes the economics of health care in the United States with particular attention paid to the role of government. It examines the demand for health

care and the structure and consequences of public and private health insurance; the supply of health care, including professional training, licensure, specialization and compensation, hospital competition and finance, and the determinants and consequences of technical change in medicine and health care reform.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351 and (STAT 2200 or STAT 2500) or equivalent

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**ECONOM 4357W: Health Economics - Writing Intensive**

Analyzes the economics of health care in the United States with particular attention paid to the role of government. It examines the demand for health care and the structure and consequences of public and private health insurance; the supply of health care, including professional training, licensure, specialization and compensation, hospital competition and finance, and the determinants and consequences of technical change in medicine and health care reform.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351 and (STAT 2200 or STAT 2500) or equivalent

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**ECONOM 4370: Quantitative Economics**

(cross-leveled with ECONOM 7370). The aim of this course is to provide an introduction to the mathematical language of economic theory. Topics include linear models, matrix algebra, rules of differentiation and comparative static analysis, optimization.

**Credit Hours:** 3

**Prerequisites:** MATH 1300 and MATH 1400 or MATH 1500 or equivalent

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**ECONOM 4371: Introductory Econometrics**

(cross-leveled with ECONOM 7371). Study methods for quantitative analysis of economic data. Estimation techniques, tests of significance, prediction and forecasting reviewed with respect to problems presented by economic data and information demands of economic decision models.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351 and (STAT 2200 or STAT 2500) or equivalent

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**ECONOM 4385: Problems in Economics**

Directed readings in advanced economics. Students develop and complete a directed readings program on a focused economics topic that covers content appropriate for an advanced undergraduate economics course under the guidance of a faculty mentor. Credit arranged by the instructor.

**Credit Hour:** 1-3

**Prerequisites:** ECONOM 4351, ECONOM 4371, and instructor's consent. Not open to non-majors

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**ECONOM 4775: Dynamic Optimization and its Applications to the Natural Sciences and Economics**

(cross-leveled with ECONOM 7775). Development of Calculus of Variations and Optimal Control Theory. Applications. Extensions to stochastic and robust control.

**Credit Hour:** 1-3

**Prerequisites:** ECONOM 4370 or instructor's consent

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**ECONOM 4940: Internship in Economics**

Internship experience for Economics majors. 40 hours of supervised internship work with approval of Director of Undergraduate Studies and academic advisor. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** C or higher in ECONOM 4351 and ECONOM 4371; Declared economics majors who have a minimum overall CUM GPA of 2.75 and have junior or senior standing

**Recommended:** Students must have completed at least 15 credit hours at MU

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**ECONOM 4965: Independent Research in Economics**

Development of a carefully considered research project under close supervision of a faculty member. Credit arranged by instructor.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ECONOM 4970: Senior Seminar in Economics**

Seminar for graduating seniors who are majoring in economics. Multiple writing assignments will emphasize synthesis of theoretical, empirical, and institutional economics. Not open to non-majors.

**Credit Hours:** 3

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**ECONOM 4995: Honors Thesis**

Not open to non-majors. Capstone course required for Economics honors students.

**Credit Hours:** 3

**Prerequisites:** ECONOM 4351

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**ECONOM 7001: Topics in Economics - General**

Study in applied or theoretical economics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ECONOM 7311: Labor Economics**

(cross-leveled with ECONOM 4311). Surveys theoretical explanations of wage and employment determination in contemporary labor markets.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 7351

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**ECONOM 7315: Public Economics**

(cross-leveled with ECONOM 4315). Analyzes economic effects of government expenditures, taxes and debt. Expenditure and taxation principles, tax reform, cost-benefit analysis, fiscal policy.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351

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**ECONOM 7317: Urban Economics**

(cross-leveled with ECONOM 4317). This is a class in urban economics. Topics covered include: formation of cities, land markets, housing markets, economics of transportation and commuting, cities as engines of

growth and issues affecting cities such as crime, poverty and migration. Graded on A-F basis only.

**Credit Hours:** 3

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**ECONOM 7320: History of Economic Thought**

(cross-leveled with ECONOM 4320). Origins of modern economic thought in the context of social and intellectual environment of the time in which they originated, their contribution to their period and to modern thought.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1014 or ECONOM 1024 and ECONOM 1015 or ECONOM 1051H

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**ECONOM 7326: Economics of International Trade**

(cross-leveled with ECONOM 4326). The microeconomic theory of international trade. Topics include comparative advantage, the theory of commercial policy, economic integration, trade with LDC's and the trade effects of economic growth.

**Credit Hours:** 3

**Prerequisites:** ECONOM 7351 or instructor's consent

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**ECONOM 7329: The Banking System and the Money Market**

(cross-leveled with ECONOM 4329) Organization of the money market; credit control procedures and aims, effect of bank expansion and contraction on money market and national income deregulation.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1015 or ABM 1042 or ECONOM 1000 or ECONOM 1051

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**ECONOM 7340: Introduction to Game Theory**

(cross-leveled with ECONOM 4340). An introduction to the theory of games, viewed as a set of tools used widely in economics to study situations in which decision-makers (consumers, firms, governments, etc.) interact. The course introduces the basic theory, emphasizing the concepts and their economic applications.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 7351 or instructor's consent

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**ECONOM 7345: Economics of Education**

(cross-leveled with ECONOM 4345). Economic theory is used to analyze the market for educational services and education policy. Topics include: human capital theory, cost and performance measures for public and private schools, market based approaches to school reform, school finance, higher education cost and access.

**Credit Hours:** 3

**Prerequisites:** (ECONOM 1014 or ECONOM 1024 or ABM 1041 or ECONOM 1000) and (STAT 2200 or STAT 2500) or equivalent

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**ECONOM 7351: Intermediate Microeconomics**

(cross-leveled with ECONOM 4351). Theory of rational behavior in consumption, production, and pricing decisions of households and firms. Partial equilibria in product and factor markets under competition, monopoly, oligopoly and monopolistic competition. A brief introduction to general equilibrium and welfare economics is provided. Calculus is employed. No credit for students who have completed 3251.

**Credit Hours:** 3



**Prerequisites:** (ECONOM 1014 or ECONOM 1051) and MATH 1400 or equivalent

---

**ECONOM 7353: Intermediate Macroeconomics**

(cross-leveled with ECONOM 4353). The study of the structure and performance of national economics. Topics include: long-term economic growth, aggregate economic fluctuations, unemployment, and inflation; consequences for national economies of being part of the global economic system; government policies and macroeconomic performance.

**Credit Hours:** 3

**Prerequisites:** (ECONOM 1000 or ECONOM 1015 or ABM 1042) and (MATH 1400 or MATH 1500) or equivalent

---

**ECONOM 7355: Industrial Organization and Competitive Strategy**

(cross-leveled with ECONOM 4355). Analyzes the structure of industry, its impact on the operations of the firm and significance for public policy. The focus is on strategic interaction among firms with market power. Topics include oligopoly, competition, collusion, price discrimination, product differentiation, advertising, entry and exit.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 7351

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**ECONOM 7357: Health Economics**

(same as PUB\_AF 7357; cross-leveled with ECONOM 4357). Analyzes the economics of health care in the United States with particular attention paid to the role of government. It examines the demand for health care and the structure and consequences of public and private health insurance; the supply of health care, including professional training, licensure, specialization and compensation, hospital competition and finance, and the determinants and consequences of technical change in medicine: and examination of recent proposals and initiatives for health care reform.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351 and (STAT 2200 or STAT 2500) or equivalent

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**ECONOM 7361: Comparative Economic Systems**

(cross-leveled with Econom 4361). Study of capitalism, market socialism, and central planning.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3229 and ECONOM 3251 or ECONOM 4351

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**ECONOM 7370: Quantitative Economics**

(cross-leveled with ECONOM 4370). The aim of this course is to provide an introduction to the mathematical language of economic theory. Topics include linear models, matrix algebra, rules of differentiation and comparative static analysis, optimization.

**Credit Hours:** 3

**Prerequisites:** MATH 1300 and MATH 1400 or MATH 1500 or equivalent

---

**ECONOM 7371: Introductory Econometrics**

(cross-leveled with ECONOM 4371). Study methods for quantitative analysis of economic data. Estimating techniques, tests of significance, prediction and forecasting reviewed with respect to problems presented by economic data and information demands of economic decision models.

**Credit Hours:** 3

**Prerequisites:** ECONOM 3251 or ECONOM 4351 and (STAT 2200 or STAT 2500) or equivalent

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**ECONOM 7775: Dynamic Optimization and its Applications to the Natural Sciences and Economics**

(cross-leveled with ECONOM 4775). Development of Calculus of Variations and Optimal Control Theory. Applications. Extensions to stochastic and robust control.

**Credit Hour:** 1-3

**Prerequisites:** ECONOM 7370 or instructor's consent

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**ECONOM 8001: Topics in Economics- General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ECONOM 8085: Problems in Economics**

Graduate students may select topics for study and investigation subject to approval by supervising faculty.

**Credit Hour:** 1-99

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**ECONOM 8340: Game Theory**

Game theory is the study of strategic behavior by agents who perceive themselves as 'large' relative to the market and who therefore consider the effect of their behavior on others. This course examines the rigorous theory of strategic interaction of rational agents. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** ECONOM 4351 or equivalent; MATH 1320 or equivalent. . Graded on A-F basis only

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**ECONOM 8370: Mathematics for Economics**

The aim of this course is to cover essential mathematics used in economics. Topics include introductory linear algebra, multivariate calculus, comparative statics analysis, unconstrained optimization, and equality constrained optimization. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** ECONOM 4351 or equivalent; MATH 1320 or equivalent. Graded on A-F basis only

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**ECONOM 8413: Research Workshop I**

Required course for economics MA students. Combines instruction, student presentations, and seminar participation to introduce research methods and practice. A major research paper are required.

**Credit Hours:** 3

**Prerequisites:** ECONOM 8451, ECONOM 8453, and ECONOM 8473 or instructor's consent

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**ECONOM 8451: Microeconomic Theory**

MA-level course in microeconomic theory. The course relies extensively on calculus to survey theories of: rational behavior in consumption, production, and pricing decisions of households and firms; partial

equilibria in product and factor markets under competition, monopoly, oligopoly and monopolistic competition; and general equilibrium and welfare.

**Credit Hours:** 3

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**ECONOM 8453: Macroeconomic Theory**

Basic models in macroeconomics will be covered with emphasis on assumptions and on how hypotheses can be tested. Course is an introductory survey for students intending to develop ability for research in macroeconomics.

**Credit Hours:** 3

**Prerequisites:** ECONOM 4353 or equivalent; at least concurrent enrollment in ECONOM 8451. Instructor's consent required for non graduate level students

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**ECONOM 8472: Econometric Methods I**

Familiarizes students with fundamental techniques found and used in applied economic research. Topics include: ordinary least squares, generalized least square, instrumental variables, maximum likelihood estimation, and generalized methods of moments.

**Credit Hours:** 3

**Prerequisites:** STAT 7710 or instructor's consent

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**ECONOM 8473: Applied Econometrics**

Topics include: nonlinear least squares, numerical optimization, maximum likelihood and basic panel data and time series methods. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECONOM 7371 and MATH 7140 or equivalent, or instructor's consent

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**ECONOM 9001: Topics in Economics**

Selected current topics in economics.

**Credit Hours:** 3

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**ECONOM 9085: Problems in Economics**

Graduate students may select topics for study and investigation subject to approval by supervising faculty.

**Credit Hour:** 1-99

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**ECONOM 9090: Research in Economics**

Thesis research for Ph.D. degree. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**ECONOM 9413: Research Workshop II**

Introduces doctoral students to practices of preparing scholarly economic research by moving through the process of selecting a topic, identifying relevant literature, and communicating results. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** ECONOM 9452, ECONOM 9454 and ECONOM 9474; PhD standing

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**ECONOM 9430: Advanced Money and Banking**

The working and structure of institutional arrangements, welfare aspects of structural policies, operation of money and credit markets, and behavior of returns on assets.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9452 or instructor's consent

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**ECONOM 9431: Central Banking Policies**

Examines central banking procedures, policies and the role they play in maintaining economic stability. Special attention to connection of Federal Reserve System with money and capital markets.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9452 or instructor's consent

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**ECONOM 9446: Advanced Empirical Methods**

Empirical and modeling techniques for evaluation of microeconomic policy questions.

**Credit Hours:** 3

**Prerequisites:** ECONOM 8451, ECONOM 8473

**Recommended:** Concurrent enrollment in ECONOM 8473 or ECONOM 9473

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**ECONOM 9447: Topics in Microeconomic Policy Analysis**

(same as PUB\_AF 9447). Applies the methods and techniques of microeconomics and to specific timely policy questions. Taught by applied-microeconomics faculty and focuses on current topics in labor economics, public economics, the economics of education, health economics, and other applied areas of microeconomics.

**Credit Hours:** 3

**Prerequisites:** ECONOM 8451, ECONOM 8473

**Recommended:** Concurrent enrollment in ECONOM 8473 or ECONOM 9473

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**ECONOM 9451: Advanced Microeconomic Theory I**

The theory of rational behavior and partial equilibrium in markets. Topics include consumer behavior, theory of the firm, decisions making under uncertainty, perfect competition, monopoly and monopsony, and imperfect competition. Graded on A/F basis only.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9451 or instructor's consent; PhD standing

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**ECONOM 9452: Advanced Microeconomic Theory II**

Survey of equilibrium theory and market failures in economics. Topics include the structure and modeling of games, and cooperative and non-cooperative equilibrium concepts.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9451 or instructor's consent

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**ECONOM 9453: Advanced Macroeconomic Theory I**

Aggregate models of life-cycle microfoundations, of macroeconomics fluctuations and growth. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** departmental consent; PhD standing

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**ECONOM 9454: Advanced Macroeconomic Theory II**

Analyzes topics in income analysis, including capital theory and economic dynamics.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9453 or instructor's consent

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**ECONOM 9455: Monopoly and Competition**

A survey of the theoretical and empirical literature on the organization of industries. Includes study of monopolized markets, competitive markets, and strategic interaction among firms in imperfectly competitive markets. Both the rationale and practice of anti-trust policy are studied.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9452 and ECONOM 9471 or instructor's consent

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**ECONOM 9457: Computational Economics**

Covers numerical and computational methods to solve economic models at the research frontier. Emphasis is on practical applications to prepare students for independent research. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECONOM 8451 and ECONOM 8453 and ECONOM 8472

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**ECONOM 9471: Advanced Game Theory**

Presents core concepts in game theory and illustrates their uses with a range of applications.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9452 or instructor's consent

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**ECONOM 9472: Econometric Theory I**

Analysis of linear regression models from an advanced statistical perspective.

**Credit Hours:** 3

**Prerequisites:** Department consent required

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**ECONOM 9473: Econometric Theory II**

Analysis of nonlinear regression models and other essential econometric tools not covered in ECONOM 9472 from an advanced statistical perspective.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9472 or instructor's consent

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**ECONOM 9474: Advanced Topics in Econometrics I**

Equips students with some essential tools for conducting publishable econometric research. Topics at the discretion of the instructor - typically time series analysis. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9473 or instructor's consent

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**ECONOM 9476: Advanced Topics in Econometrics II**

Equips students with some essential tools for conducting publishable econometric research. Topics at the discretion of the instructor - typically microeconometrics.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9473 or instructor's consent

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**ECONOM 9477: Advanced Topics in Econometrics III**

Equips students with some essential tools for conducting publishable econometric research. Topics at the discretion of the instructor - typically the second semester of a two-semester time series sequence beginning with ECONOM 9474 or a two-semester microeconometrics sequence beginning with ECONOM 9476.

**Credit Hours:** 3

**Prerequisites:** ECONOM 9473 or instructor's consent

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## Education Honors (EDUC\_H)

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**EDUC\_H 4996H: Undergraduate Reading Honors**

This course is designed to introduce students to a variety of readings from a broad array of research, historical, contemporary and philosophical documents and writings. Selection of topics and additional readings are determined by the faculty instructor for the course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent; Honors eligibility required

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**EDUC\_H 4997H: Honors Undergraduate Seminar I**

This class will consist of a 1 credit hour seminar. The class is designed to allow undergraduates to develop the skills necessary to engage in practical research for application within the field of teaching and education. The cumulating assignment for the class is a proposal for a research poster or presentation to be presented at the undergraduate research fair held each year in May. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** instructor's consent; Honors eligibility required

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**EDUC\_H 4998H: Honors Undergraduate Seminar II**

The class will consist of a 1 credit hour seminar. The class is designed to allow undergraduates to develop the skills necessary to engage in practical research for application within the field of teaching and education. The cumulating assignment for the class is the production of a research poster or presentation at the undergraduate research fair held each year in May. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** instructor's consent; GPA of 3.5 or higher. Honors eligibility required

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**EDUC\_H 4999H: Honors Undergraduate Research Seminar**

This class will be offered over 2 academic semesters and will consist of a 1-2 credit hour lab each semester with a College of Education faculty member working on an undergraduate research project. This course is designed as part of the Honors sequence. Graded on A-F only. Corequisites: EDUC\_H 4997H and EDUC\_H 4998H

**Credit Hour:** 1-2

**Prerequisites:** instructor's consent; Honors eligibility required

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## Educational Leadership and Policy Analysis (ED\_LPA)

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### ED\_LPA 3100: Foundations of Education

Focus on developing a theoretical and conceptual knowledge of leadership. In addition, skill building-exercises will take place through group case studies and role playing exercises allowing each student to identify and achieve methods for personal development.

**Credit Hour:** 1-3

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### ED\_LPA 3450: Introduction to Research in Educational Settings

(same as IS\_LT 3450). This course provides an introduction to quantitative, qualitative, and mixed methods research, with an emphasis on how various forms of data collection and prior research can inform and improve practice. Students will: (1) develop skills in locating research relevant to their professional interests; (2) understand multiple forms of data collection strategies; and (3) identify ethical considerations associated with research. Graded on A-F basis only.

**Credit Hours:** 3

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### ED\_LPA 4060: Inquiring into Schools, Community and Society II

(same as ED\_LPA 7060). Required 3 hour course for students pursuing teacher certification. Designed to transition students into the teaching internship through study of teacher roles, school organizations and cultures, and community contexts.

**Credit Hours:** 3

**Prerequisites:** LTC 2040

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### ED\_LPA 4100: ELPA Undergraduate Seminar

Seminar in ELPA on a special topic. Graded on A-F basis only.

**Credit Hours:** 3

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### ED\_LPA 4115: Introduction to Learning Spaces

(cross-leveled with ED\_LPA 7115). Learning takes place in a variety of settings beyond the classroom. This course highlights the teaching and learning at play within professional, community, educational, and organizational spaces. Students will explore the interaction between individuals and their learning environments to determine how the learning environments vary based upon how the organization transmits knowledge and the opportunities that individuals have within the environment for understanding. Graded on A-F basis only.

**Credit Hours:** 3

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### ED\_LPA 4151: Leading Educational Organizations in Global Contexts

(cross-leveled with ED\_LPA 7151). Through equity-focused, critical and comparative analyses, this course centers on developing locally relevant understandings of educational organizations in the global context. The course will cover theories of effective leadership; organizational theory, structure, and analysis; and leading reform and innovation in response to changes in culture, technology, and globalization in various national and regional contexts. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 4152: Leadership for Student Learning in a Global Context** (cross-leveled with ED\_LPA 7152). This course explores learning, curriculum, and assessment for globally-minded, multicultural, and equitable education. Topics include curriculum design and articulation, integration of state standards with international curricular frameworks, globally-minded instructional design, authentic assessment, and reporting student learning and progress to diverse students. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** ED\_LPA 4151

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### ED\_LPA 4153: Leading Professional Development in Global Contexts

(cross-leveled with ED\_LPA 7153). This course examines the role of professional development in the continuous improvement of educational organizations from a global perspective. Inquiry activities and readings will explore equitable practices for building collaborative learning communities; planning professional development; and developing leadership capacity, inclusive decision-making processes, and performance evaluations in globally-minded schools. Students will be asked to contribute locally relevant theories and best practices to enhance the scope of cross-cultural understanding. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** ED\_LPA 4151

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### ED\_LPA 4154: Leadership for School-Community Partnerships in a Global Context

(cross-leveled with ED\_LPA 7154). This course develops globally-minded leadership capacity by building knowledge in five interrelated domains: 1) school-home relationships; 2) locally relevant legal and political environments; 3) external relations and communications; 4) community participation; and 5) inter-institutional alliances. Authentic inquiry assignments will prepare students to build effective and equitable community partnerships based on reciprocity and mutual respect. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** ED\_LPA 4151

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### ED\_LPA 4428: Curriculum Leadership

(cross-leveled with ED\_LPA 7428). This course is a study of research, theory, and skills necessary for curriculum leadership in educational organizations. This course includes generic curriculum management processes, design trends, controversial curriculum, issues, multimedia, innovative instructional techniques, and program evaluation. Graded on A-F basis only.

**Credit Hours:** 3

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### ED\_LPA 4481: Undergraduate Administrative Internships

(cross-leveled with ED\_LPA 7481). These administrative internships are designed for students in the Bachelor's of Educational Studies (BES) degree program and those students who are a part of the Dean of Students Internship Program. It may also serve as an elective for any undergraduate student at the University of Missouri. The intent of this course is to integrate practice, theory, and ethical standards within a supervised education setting called an internship. Specific activities during the internship may vary greatly from one field placement to

another in that different students may have different learning needs and desires, and different settings will offer different learning opportunities. In some circumstances and situations, an off-campus/off-site setting for an internship is also possible. The course may be repeated depending on student interests, internship site availability, and additional experiences needed by the student. Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**ED\_LPA 4975: Educational Studies Senior Capstone**

The senior capstone course is designed to allow a rigorous and in depth study area of inquiry within the field of education. The area of inquiry is cumulative and includes critical analysis and theoretical and/or pragmatic integration of scholarly materials. The course of study is individualized under the guidance of a faculty member. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Senior Standing, 90+ credit hours, Bachelor of Educational Studies major

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**ED\_LPA 7060: Inquiring into Schools, Community and Society II**

(same as ED\_LPA 4060). Required 3 hours course for students pursuing teacher certification. Designed to transition students into the teaching internship through study of teacher roles, school organizations and cultures, and community contexts.

**Credit Hours:** 3

**Prerequisites:** LTC 2040 and LTC 7040

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**ED\_LPA 7115: Introduction to Learning Spaces**

(cross-leveled with ED\_LPA 4115). Learning takes place in a variety of settings beyond the classroom. This course highlights the teaching and learning at play within professional, community, educational, and organizational spaces. Students will explore the interaction between individuals and their learning environments to determine how the learning environments vary based upon how the organization transmits knowledge and the opportunities that individuals have within the environment for understanding. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 7151: Leading Educational Organizations in Global Contexts**

(cross-leveled with ED\_LPA 4151). Through equity-focused, critical and comparative analyses, this course centers on developing locally relevant understandings of educational organizations in the global context. The course will cover theories of effective leadership; organizational theory, structure, and analysis; and leading reform and innovation in response to changes in culture, technology, and globalization in various national and regional contexts. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 7152: Leadership for Student Learning in a Global Context**

(cross-leveled with ED\_LPA 4152). This course explores learning, curriculum, and assessment for globally-minded, multicultural, and equitable education. Topics include curriculum design and articulation, integration of state standards with international curricular frameworks, globally-minded instructional design, authentic assessment, and reporting

student learning and progress to diverse students. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** ED\_LPA 7151

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**ED\_LPA 7153: Leading Professional Development in Global Contexts**

(cross-leveled with ED\_LPA 4153). This course examines the role of professional development in the continuous improvement of educational organizations from a global perspective. Inquiry activities and readings will explore equitable practices for building collaborative learning communities; planning professional development; and developing leadership capacity, inclusive decision-making processes, and performance evaluations in globally-minded schools. Students will be asked to contribute locally relevant theories and best practices to enhance the scope of cross-cultural understanding. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** ED\_LPA 7151

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**ED\_LPA 7154: Leadership for School-Community Partnerships in a Global Context**

(cross-leveled with ED\_LPA 4154). This course develops globally-minded leadership capacity by building knowledge in five interrelated domains: 1) school-home relationships; 2) locally relevant legal and political environments; 3) external relations and communications; 4) community participation; and 5) inter-institutional alliances. Authentic inquiry assignments will prepare students to build effective and equitable community partnerships based on reciprocity and mutual respect. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** ED\_LPA 7151

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**ED\_LPA 7428: Curriculum Leadership**

(cross-leveled with ED\_LPA 4428). A study of research, theory, and skills necessary for curriculum leadership in educational organizations. Course includes generic curriculum management processes, design trends, controversial issues multi-media, innovative instructional techniques, and program evaluation. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 7439: Applying Higher Education Research to Practice**

This course introduces quantitative, qualitative, and mixed within a student affairs context. Students will become familiar with, and able to critique research. Course graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 7452: Overview of Higher Education**

This course provides an overview of American Higher education. Emphasis is placed on how these institutions currently operate and what issues dominate current discussions of academe. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 7458: Sociology of Education**

(same as SOCIOL 7410; cross-leveled with SOCIOL 4410). Contexts, structures and processes of schooling; effects on class, race, ethnicity and gender; social change, educational policy, and organizational dynamics; higher education and the economy.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 1000 or equivalent

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**ED\_LPA 7481: Graduate Administrative Internships**

(cross-leveled with ED\_LPA 4481). For students pursuing the MEd with a concentration in Student Affairs Leadership, the Council for the Advancement of Standards in Higher Education requires students to complete 300 hours of practical experience. To meet this requirement, students must take a 150-hour internship course and either work in a higher education position or have an assistantship. If students are not working in higher education during their academic program, they must complete a second 150-hour internship course. The base time commitment is one credit for 50 clock hours of internship experience. This course may also serve as an elective for graduate students from around the university, and particularly those in the Higher Education Administration graduate certificate and the MEd with a concentration in Higher Education Leadership. The intent of this course is to integrate professional practice, theory, and ethical standards within a supervised student affairs leadership setting called an internship. Specific activities during the internship may vary greatly from one field placement to another in that different students may have different learning needs and desires, and different settings will offer different learning opportunities. In some circumstances and situations, an off-campus/off-site setting for an internship is also possible. The course may be repeated depending on student interests, internship site availability, and additional experiences needed by the student. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** departmental consent

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**ED\_LPA 8408: Introduction to Ethics and PK-12 Policymaking**

This course examines the interplay of ethics and Pk-12 policymaking. Educational leaders today are practicing in a policy environment that continues to grow in complexity. Within this environment, leaders make choices that have ethical implications for richly diverse school communities. Values drive both ethical choices and the setting of policy goals. The intentions behind a policy may be 'good,' or 'right,' but are policies and how they are implemented unequivocally ethical? Are ethics and ethical policy conflated? History is replete with examples of policy, laws, and programs that haven't necessarily been ethical (e.g. doctrine of 'separate but equal') - and have had to be changed. Together, we will examine the intersections of ethics and policy. We will start at the beginning with a bit of philosophy for this introductory course, asking ourselves, 'what is the purpose of education?' From there, we will move toward defining our own personal and professional ethical leadership approaches and put it in relation to understandings of policy, questioning the values steering modern-day education policy. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 8409: Learning, Curriculum and Assessment for School Leaders**

Addresses assessment, learning and curriculum and the integration of the instructional and assessment processes. Topics include authentic

assessment, curriculum alignment, cognition and learning, instructional approaches, and application of student learning theory to the curriculum.

**Credit Hours:** 3

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**ED\_LPA 8410: Learning Cultures**

Integrates the themes of building a common purpose to enhance school culture, empowering teachers and students, and diversity. Topics include importance of shared mission and vision, the use of group processes and collaboration, the intricacies of school culture, and ethical and moral leadership.

**Credit Hours:** 3

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**ED\_LPA 8411: Professional Development for Learning**

Focuses on the professional development and reflection on practice. Topics include organizational actions and personal responsibility, life-long learning, and public education in a democratic society.

**Credit Hours:** 3

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**ED\_LPA 8412: School Improvement**

This course addresses the topics of organizational management and personal inquiry. It covers issues such as organizational effectiveness, organizing for an effective school environment, legal and fiscal decision-making and responsibilities of school leaders, creating an environment where stakeholders acquire and utilized data to inform decisions and practice, and where action research methods are utilized to evaluate and inform practice.

**Credit Hours:** 3

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**ED\_LPA 8416: Foundations of School Leadership**

School leader knowledge of student learning theory and related instructional practices is the focus of this course. The problem-based learning format will include topics on school culture, leadership communication, technology, and conflict resolution. Issues concerning professional relationships are also addressed.

**Credit Hours:** 3

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**ED\_LPA 8417: Site-Level Organization and Leadership**

Student will study state and national regulations that affect Missouri school policies. The student will develop a database on various legal issues. A study of middle level education will conclude with on-site evaluation of a local middle school.

**Credit Hours:** 3

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**ED\_LPA 8418: Supervision for Learning Environments**

Students are prepared to articulate, recognize, and support classroom practices that reflect the most current principles of learning. Effective instructional strategies that link this knowledge to practice will be entered into a computer database.

**Credit Hours:** 3

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**ED\_LPA 8419: Structures and Processes for Effective Schools**

Emphasis is placed on the Missouri Comprehensive Guidance Program and positive strategies for working with challenging students. A

continuation of the study of state and national legal and policy issues will focus on special programs and services.

**Credit Hours:** 3

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**ED\_LPA 8423: Advanced Leadership for Learning Environments**

Students will demonstrate their understanding of instructional improvement for all teachers and students by designing and defending a comprehensive strategy for instructional changes in a simulated school. The ongoing study of learning principles and effective instructional practices will be concluded.

**Credit Hours:** 3

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**ED\_LPA 8424: Education Politics and Policymaking**

This course examines the politics and policymaking process of education in the United States, paying particular attention to the influence of various institutions and actors at local, state, and federal levels. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 8430: School Law and Finance for Principal Leadership**

Designed to engage learners in examination of the legal (judicial and legislative) system, school law, and finance policies that govern public schools and their fiscal resources in the United States and the State of Missouri. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 8431: Leadership for Data-Driven Change**

This course instructs school leaders on how to use data for school improvement. Students will: identify reliable sources of data; develop, implement, and monitor strategic School Improvement Plans using data; analyze data using technology; and describe evidence-based strategies that respond to data analysis. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 8653: Education Toward Bi/Multilingualism: Theory, Policy, and Practice**

(same as LTC 8653). Overview of the theory, policy, and practice of using at least two languages in education to develop children's bi/multilingualism. Key topics include: (1) models of bilingual/multilingual education; (2) policy and politics of language education in the U.S. and international contexts; (3) psycholinguistic and sociocultural perspectives on bi/multilingual language development, as related to schooling; and (4) evaluation and assessment issues in bi/multilingual education.

**Credit Hours:** 3

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**ED\_LPA 8951: Grounded Theory and Situated Inquiry**

(same as LTC 8951). For qualitative researchers attempting to understand social processes, Grounded Theory (GT) offers a way of developing theory empirically, 'from the bottom up.' In fact, this is what most distinguishes GT from other methods. It is explicitly emergent. It does not test a hypothesis. It provides useful tools to learn about participants' understandings and experiences of a social issue, process, or phenomena and to discover and construct theory to account for the social processes being studied. In this course, we will consider the theoretical underpinnings and practices of classic and contemporary GT

methodologies. Importantly, we will conduct research and a GT analysis of data. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ED\_LPA 8957, LTC 8957, or ESC\_PS 8957

**Recommended:** ED\_LPA 9620, LTC 9620, or ESC\_PS 9620

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**ED\_LPA 8955: Discourse Analysis in Education**

(same as LTC 8955). This course introduces the theories and methods of discourse analysis, including conversation, critical discourse, and multimodal. Students will analyze the role of context and ethics, as they transcribe and analyze discourse, especially from analytical settings. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8957 and ESC\_PS 9620

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**ED\_LPA 8957: Qualitative Methods in Educational Research I**

(same as LTC 8957 and ESC\_PS 8957). This course provides a practical introduction to qualitative research and its applications in education and social sciences. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 9000: ELPA EdD Outgoing Visiting Student**

This class is a placeholder for students in their Statewide Cooperative EdD Program who take classes at their regional site during the fall and spring. There is 0 billing hours and it is not term finalized.

**Credit Hours:** 4

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**ED\_LPA 9090: Research in Educational Leadership and Policy Analysis**

Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** departmental consent

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**ED\_LPA 9095: Problems in Educational Leadership and Policy Analysis**

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**ED\_LPA 9400: Social Theory in Education**

Students will examine the relationship of society and education through a variety of theoretical perspectives and empirical studies. These theories deal with the relation of education to society as a whole, and the relation between education and the state. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 9401: Educational Leadership**

Critical examination of key leadership theories and their application to various educational contexts. Includes consideration of research methods and designs appropriate for the study of leadership and the spectrum of lenses through which educational leadership is studied.

**Credit Hours:** 3

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**ED\_LPA 9402: Educational Policy Analysis**

Course centers on developing multiple understandings of the education policy making process. Theoretical constructs used to advance those understandings are eclectic in nature, drawing from the fields of political science, history, sociology and economics.

**Credit Hours:** 3

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**ED\_LPA 9403: Organizational Analysis**

Analysis of organizational characteristics and principles in educational organizations. Topics include: Organizational theories and models, organizational culture, communication, innovation, planning, leadership, power and influence, and external environment influences.

**Credit Hours:** 3

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**ED\_LPA 9404: Inquiry into Educational Leadership and Policy Analysis**

A critical overview of theory development, research paradigms, and research ethics in the department of Educational Leadership and Policy Analysis. Required for all ELPA Ph.D. students.

**Credit Hours:** 3

**Recommended:** for students who have completed at least 2 semesters of coursework

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**ED\_LPA 9405: Seminar in Educational Leadership and Policy Analysis**

Seminar in Educational Leadership and Policy Analysis

**Credit Hour:** 1-99

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**ED\_LPA 9406: Seminar in Educational Administration**

Seminar in Educational Administration

**Credit Hour:** 1-99

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**ED\_LPA 9407: Seminar in Educational Policy**

Seminar in Educational Policy

**Credit Hour:** 1-99

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**ED\_LPA 9408: Seminar in Higher Education**

Seminar in Higher Education

**Credit Hour:** 1-99

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**ED\_LPA 9409: Introduction to Research Design**

This course provides an introduction to quantitative, qualitative, and mixed methods research, with an emphasis on the epistemological and ontological issues that inform our choice of research methods. This course is intended for first year doctoral students. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 9410: Proseminar in Educational Leadership and Policy Analysis**

The purpose of the proseminar course is twofold. First, students will gain an understanding of the systems, processes, and procedures associated with graduate studies, particularly the ELPA department's PhD program. Students will gain experience with critical writing and analysis, using

library and electronic resources, and engaging faculty and peers in scholarly dialogues. Second, the course will allow students to engage in preliminary discussions around educational research, including literature, theories, and methodologies related to educational leadership and policy. Students will have the opportunity to begin working on their own research and sharpen their analytic skills through academic writing. We will also discuss educational topics, problems, and policies of current importance. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** This course is required and appropriate for all ELPA PhD students

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**ED\_LPA 9420: Superintendent: Fiscal Leadership and Management**

This course focuses on a critical task for superintendents and school leaders: managing district revenues, expenditures, and facilities. This course covers the history of school finance, state funding formula, school district budgeting, development of facility plans, and the impact of financial decisions. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 9424: Superintendent: Instructional Leadership**

Effective superintendents understand educational core knowledge of curriculum, instructional and assessment. They establish an exception for the use of best instructional practices for all students among both the educational and public communities. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 9429: Superintendent: Communication, Team Leadership**

Effective superintendents negotiate political and cultural challenges to lead diverse, socially-just school systems. Reflective practices that enhance competence in public board member, and district personnel relationships are essential skills. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 9430: Superintendent: Fiscal, Legal Leadership**

Effective superintendents efficiently manage finances and ensure that rules, regulations, and policies adhere to statutory/case law. Fiscal and legal practices ensure equity of educational experiences for all students. Open to all graduate students. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 9435: Superintendent: Legal Leadership and Management**

This course focuses on the necessary legal knowledge superintendents must have to guide their school districts in adherence to statutory and case law. This course examines the legal system, lawful and wise use and allocation of district resources, management and evaluation of personnel, and equity issues. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 9440: Race, Gender, and Ethnicity in Higher Education**

(same as WGST 9440). Historical and current issues of race, gender, and ethnicity in colleges and universities in the U.S. Issues include: students, faculty, and staff experiences of diversity, access and equity, and salience of diversity in a higher education setting.

**Credit Hours:** 3



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**ED\_LPA 9442: Curriculum Philosophy and Development in Higher Education**

A study of the philosophical foundations of postsecondary curricula, current trends and issues, and approaches to curriculum reforms and revisions.

**Credit Hours:** 3

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**ED\_LPA 9444: Program Planning in Higher Education**

Analysis of program planning and evaluation in higher education. Topics include: conceptualizations of program planning, situational analysis, needs assessment, priority setting, marketing and promotion, and program evaluation.

**Credit Hours:** 3

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**ED\_LPA 9445: College Student Development**

Emphasis on college student development theory and its application in student affairs work.

**Credit Hours:** 3

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**ED\_LPA 9446: Student Affairs Administration**

History, philosophy, theory, and issues pertinent to student affairs work.

**Credit Hours:** 3

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**ED\_LPA 9447: College Student Culture and Environment**

This course examines the characteristics and outcomes of American undergraduates, and the aspects of the college environment the differentially influence students. Topics include: theoretical models of students change, campus climate and cultures, learning communities, institutional differences, and conditions for success.

**Credit Hours:** 3

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**ED\_LPA 9448: College Teaching**

Designed to introduce students to theories and practices central to teaching in a higher education setting. Teaching related to institutional contexts and disciplines will be considered. Teaching and learning theories will be introduced.

**Credit Hours:** 3

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**ED\_LPA 9449: History of Higher Education in the United States**

A study of the transformation of the English college tradition to what higher education is currently in the United States. The emphasis is on how institutions of higher learning changed to meet the needs of the nation or failed to do so.

**Credit Hours:** 3

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**ED\_LPA 9450: Administration and Governance of Higher Education**

Principles of administration, academic culture and environment, and structures of governance of higher education will be explored.

**Credit Hours:** 3

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**ED\_LPA 9451: Higher Education Finance**

How students pay for college and how institutions finance their operations is explored through the lens of economics. Topics include: Theories of student access, tuition and financial aid policy, institutional costs and revenue patterns, and resource allocation models.

**Credit Hours:** 3

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**ED\_LPA 9454: Introduction to Post-Secondary Law**

Examination of the legal structure within which higher education operates. Includes consideration of legal analysis of case law, institutional responsibilities under the law, and analysis of legal issues within postsecondary education.

**Credit Hours:** 3

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**ED\_LPA 9455: The Community College**

An overview of the community college. Topics include historical roots and development of the community college, organization and governance, finance, students, faculty, administrators, curriculum, social role, and recurring and emerging issues.

**Credit Hours:** 3

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**ED\_LPA 9456: The Professoriate**

Overview of faculty roles and work in U.S. colleges and universities. Explores institutional and disciplinary differences and seeks to prepare future faculty for academic life.

**Credit Hours:** 3

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**ED\_LPA 9457: Higher Education Policy**

An overview of current higher education policy issues facing governmental bodies and institutions. An emphasis is placed on investigating both the policy-making and policy-evaluation processes through multiple theoretical lenses. Specific topics explored include access, equity, and accountability within the higher education setting.

**Credit Hours:** 3

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**ED\_LPA 9458: Helping Skills for Student Affairs**

This course is designed to prepare student affairs professionals with the basic awareness, knowledge, and helping skills needed to respond appropriately and effectively with students experiencing distress. The course will introduce students to general helping skills that are appropriate for the types of relationships, interactions, and contexts that they will commonly encounter in their work. Thus, students in this course will learn how to identify students experiencing different types of distress, consider and respond to immediate needs, and make appropriate referrals. The course will provide opportunities for students to observe and practice individual helping skills. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 9459: Comparative and International Education**

Theories, methods and issues in the field of comparative and international education. Topics cover PK-16 education and include globalization, centralization and decentralization, equity and equity, teaching and student learning, and social context of education.

**Credit Hours:** 3

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**ED\_LPA 9461: Ethics in Education**

Explores the ethical dimensions of work within and related to educational settings focusing on dilemmas that occur in professional practice, theories that inform thinking about ethical issues, and frameworks that guide ethical decision making.

**Credit Hours:** 3

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**ED\_LPA 9462: History of U.S. Education Policy**

Provides overview of major US education issues (primary K-12), explores analytic tools for studying history of education and introduces multiple ways of constructing the history of a particular movement reform or era in education.

**Credit Hours:** 3

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**ED\_LPA 9463: Politics of Education**

Focuses on politics of education in the United States, attending to the influence of various institutions and actors at local, state, and federal levels. Students will examine current reforms in PK-12 education and their impact on the future of education.

**Credit Hours:** 3

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**ED\_LPA 9465: Policy Analysis Using Large Data Bases**

Intends to develop students' capacity to process national level large databases and to conduct policy-related research.

**Credit Hours:** 3

**Prerequisites:** an understanding of inferential statistics and experience with SPSS and SAS program

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**ED\_LPA 9466: College Access**

This course examines theories and research on issues related to college going behaviors and inequalities in college access. The course will address college access through different levels of analyses: individual levels (e.g. race, ethnicity, gender, status, ability, social class, and transnational), organizational levels (e.g., geography, K-12 schools, postsecondary institutions), and field levels (e.g., policy, media, admissions). Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 9467: International Higher Education**

The purpose of this class is to learn the major trends and issues facing postsecondary education around the world and critically engage in comparative analysis with emphasis on lessons for the U.S. higher education system. In particular, this course will cover global trends around governance, accountability, funding, and internationalization. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 9468: Educational Policy Implementation**

This course provides the theories and tools to understand and study the implementation of educational policies in K-12 schools and higher education. Drawing from various disciplinary perspectives, students will analyze and apply multiple approaches, including but not limited to technical-rational, street-level bureaucracy, sense-making, and policy enactment. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** ED\_LPA 9402 or the equivalent (including prior courses or relevant experiences) is recommended as a prerequisite

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**ED\_LPA 9469: Education Leadership Inquiry IV**

Developing and writing research proposals and conducting pilot studies. Knowledge and skills in writing the research report and sharing research with others.

**Credit Hour:** 1

**Prerequisites:** ED\_LPA 9471, ED\_LPA 9472 and ED\_LPA 9473. Open only to students in Ed.D. Program in Educational Leadership

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**ED\_LPA 9470: Organizational Analysis for Educational Leadership**

Schools of organizational theory, six frames to analyze organizations and their underlying concepts, organizational change and leadership for change, and rationale for reframing organizations.

**Credit Hours:** 4

**Prerequisites:** Open only to students in Ed.D. program in Educational Leadership

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**ED\_LPA 9471: Educational Leadership Inquiry I**

Introductory seminar on evaluating research using, APA Publication guidelines, writing scholarly publications, and using computer technology for literature searches.

**Credit Hours:** 2

**Prerequisites:** Open only to students in Ed.D. Program in Educational Leadership

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**ED\_LPA 9472: Educational Leadership Inquiry II**

MU Graduate School policies related to doctoral research, use of multiple search sources, human subjects review process, and research ethics.

**Credit Hour:** 1

**Prerequisites:** Open only to students in Ed.D. program in Educational Leadership

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**ED\_LPA 9473: Educational Leadership Inquiry III**

This advanced seminar assists scholarly practitioners in developing strategies for collecting, organizing, and outlining literature reviews. This course builds upon previous instruction in identifying problems of practice and the development of research questions. Course topics include selecting topics, searching databases, organizing resources, writing summaries, critiquing research, and crafting arguments. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Open only to students in EdD Program in Educational Leadership

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**ED\_LPA 9474: Professional Seminar I**

Focuses on diversity and ethics in educational leadership and educational organizations. Students learn about professional development, professional practice, and professional service. May be repeated for credit.

**Credit Hour:** 1

**Prerequisites:** Open only to students in Ed.D. Program in Educational Leadership

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**ED\_LPA 9475: Professional Seminar II**

This advanced course builds on previous coursework related to leaders and data to include considerations such as survey development, effective communication of findings, and data-driven decision making. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Open only to students in EdD Program in Educational Leadership

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**ED\_LPA 9476: Leadership Theory and Practice**

An advanced study of leadership theories, concepts, and inquiry as applied to educational organizations. Explores power and authority in organizations, leader effectiveness, and organizational reform.

**Credit Hours:** 3

**Prerequisites:** Open only to students in Ed.D. Program in Educational Leadership

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**ED\_LPA 9477: Leadership Theory and Practice Application**

Focuses on building understanding of the conduct of leadership in organizations through application and extension of leadership theories in practice.

**Credit Hour:** 1

**Prerequisites:** Open only to students in Ed.D. Program in Educational Leadership

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**ED\_LPA 9478: Policy Analysis for Educational Leadership**

Analysis and investigation of educational policy utilizing various knowledge bases; organizational politics and culture's impact on policy processes; interpretation and application of policy-making activities.

**Credit Hours:** 4

**Prerequisites:** Open only to students in Ed.D. Program in Ed. Leadership

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**ED\_LPA 9479: Content and Context of Learning**

Students develop the knowledge and skills for examining designing, and implementing organizational, classroom, and training conditions that support quality learning experiences for learners.

**Credit Hours:** 3

**Prerequisites:** Open only to students in Ed.D. Program in Educational Leadership

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**ED\_LPA 9480: Team Building and Group Dynamics**

Stages of group development, team building and maintenance, team/group structures, team performance, problem-based learning as team process, and empowerment through development of self-managed teams.

**Credit Hour:** 1

**Prerequisites:** Open only to students in Ed.D. Program in Educational Leadership

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**ED\_LPA 9481: Internship in Educational Leadership and Policy Analysis**

Some sections may be graded on A-F or S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** departmental consent

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**ED\_LPA 9482: Quantitative Tools for Applied Research in Educational Leadership**

General introduction to quantitative methods of data analysis. Develop concepts of measurement, design, and analysis. The focus is on data driven decision making and using various quantitative methods to investigate problems of educational leadership practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Only students in the Statewide Cooperative Ed.D. program in Educational Leadership can enroll

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**ED\_LPA 9483: Qualitative Tools for Applied Research in Educational Leadership**

Students will learn about a number of qualitative research designs that leaders can use to critically examine research questions in their practice. They will also learn to analyze educational issues and execute processes to effectively explore those issues. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to students in the Statewide Cooperative Ed.D. Program in Educational Leadership

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**ED\_LPA 9484: Program Evaluation and Planning for Educational Leaders**

Participants develop thorough knowledge of theoretical underpinnings of selected approaches to program planning and evaluation and their necessary integration. Affords participants the opportunity to plan, conduct and deliver the results of a program evaluation to actual client. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Only students in the Statewide Cooperative Ed.D. Program in Educational Leadership can enroll

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**ED\_LPA 9485: Assessment in Higher Education**

Accountability and accreditation on the local, state, and national levels make understanding how institutions work more important than ever. Higher education leaders need strong data to support decision making. Assessment and program planning live at the intersection of higher education policy and applied research design, analysis, and presentation. Assessment supports organizational effectiveness by providing timely and accurate information to both internal and external constituencies. This course is designed to help students understand the vital role of assessment, and planning and evaluation in the contemporary landscape of higher education by providing an introduction to the theoretical underpinnings and practical applications of the work. The course is relevant for students across higher education functions, particularly those interested in pursuing careers in institutional research and assessment and evaluation. Graded on A-F basis only.

**Credit Hours:** 3

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**ED\_LPA 9620: Qualitative Methods in Educational Research II**

(same as ESC\_PS 9620 and LTC 9620). This course constructs a conceptual and methodological bridge between the understandings of qualitative research developed in Qualitative Methods I and more

advanced study of theories, designs, and methods. The focus is on theory, approaches to data analysis, and interpretation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8957

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## **Educational, School and Counseling Psychology (ESC\_PS)**

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### **ESC\_PS 2000: Experiencing Cultural Diversity in the United States**

The purpose of this course is to examine cultural diversity in U.S. Society, to increase self-awareness related to worldviews and beliefs about diversity issues, and to increase understanding of the intersections of multiple group identities. Graded on A-F basis only.

**Credit Hours:** 3

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### **ESC\_PS 2010: Inquiry Into Learning I**

This course is designed to focus students on the central themes of learning and teaching. Emphasis will be placed on the interaction of theory, philosophy and practice as related to the field of education. Required for Phase II of the certification program.

**Credit Hours:** 3

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### **ESC\_PS 2014: Inquiry into Learning I - Field Experience**

This field experience course supports the Inquiry into Learning I, component of Phase I. Graded on S/U basis only.

**Credit Hour:** 1

**Recommended:** departmental consent

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### **ESC\_PS 2014H: Inquiry into Learning I - Field Experience - Honors**

This field experience course supports the Inquiry into Learning I, component of Phase I. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Honors eligibility required

**Recommended:** Departmental consent

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### **ESC\_PS 2100: Career Explorations**

Contribution of career development theory to choice of career and/or major. Exploration of personal and social determinants of career choice. Class consists of lecture, laboratory experiences, and use of facilities at the Career Planning and Placement Center. Some sections may be graded on either A-F basis or S/U basis only.

**Credit Hour:** 1-3

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### **ESC\_PS 2400: Learning and Instruction**

The nature of human learning processes with implications for instruction. Emphasis on bases of and readiness for learning, types of learning, memory forgetting and transfer, and related topics.

**Credit Hours:** 2

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### **ESC\_PS 2500: Child Development**

The psychological, intellectual, social, and physical development of children.

**Credit Hours:** 3

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### **ESC\_PS 2700: Psychological Perspectives in Sport**

Survey of sport psychology literature with focus upon such topics as personality, positive and negative affect, cognitive and behavioral intervention, motivation, aggression, audience effects, team cohesion, team building, leadership, exercise, and multicultural issues.

**Credit Hours:** 3

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### **ESC\_PS 3085: Problems in Educational, School, and Counseling Psychology**

**Credit Hour:** 1-3

**Recommended:** instructor's consent

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### **ESC\_PS 3100: African-American Psychology**

(same as BL\_STU 3100 and PSYCH 3880). The research, theories and paradigms developed to understand the attitudes, behaviors and psychosocial realities of African-Americans are discussed.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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### **ESC\_PS 3200: Black Feminism**

This course outlines the basic principles and practices of Black feminism in the United States. Examination of the multiple systems of oppression on Black women's lives and Black women's collective actions against social structures will occur.

**Credit Hours:** 3

**Recommended:** PSYCH 1000 or instructor's consent

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### **ESC\_PS 4087: Seminar in Educational, School, and Counseling Psychology**

**Credit Hour:** 1-3

**Recommended:** instructor's consent

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### **ESC\_PS 4115: Human Learning**

An introduction to the basic principles of learning. Focus is on principles of learning which have the greatest utility for professional educators. This course provides a foundation for more advanced courses in human learning.

**Credit Hours:** 3

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### **ESC\_PS 4170: Introduction to Applied Statistics**

Introduces statistical techniques including descriptive statistics, correlation, simple regression and hypothesis testing. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Recommended:** College Algebra or equivalent

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### **ESC\_PS 4185: Health Behavior: Drug and Sexuality Education**

Psychological, social, and physical factors related to drug taking and sexuality behaviors.

**Credit Hours:** 3

**Recommended:** instructor's consent

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**ESC\_PS 4200: Positive Psychology**

Using self-actualization and self-determination theory, the course builds on identifying personal strengths in people. An emphasis is placed on developing interventions that promote positive thinking. Some sections graded on either A-F or S/U basis only.

**Credit Hours:** 3

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**ESC\_PS 4460: Exploring Mental Health Issues in Schools**

This course is an introduction to the mental health challenges found in schools. It provides education professionals with the knowledge and basic skills to promote positive mental health practices in the schools.

**Credit Hours:** 3

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**ESC\_PS 4575: MU Youth Development Academy: Positive Youth Development in Practice**

(cross-leveled with ESC\_PS 7575). This course prepares students to apply principles of positive youth development to practice, including leading youth programs, developing organizational and community systems that support youth, and engaging others to create positive environments in which youth ages 5-19 grow, thrive, and make successful transitions to adulthood. Course topics include ages and stages of development, experiential learning, program planning, diversity and inclusion, youth/adult partnerships, volunteer systems, risk management, community partnerships, and creating environments for healthy relationships. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to upper level (junior/senior standing) students

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**ESC\_PS 7000: Foundation of Teacher Prep I**

Designed for graduate students seeking teacher certification, this course addresses content and application in comprehensive classroom management, development, behavior management, and diversity. Field work is required and integrated with course content.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**ESC\_PS 7087: Seminar in Educational, School, and Counseling Psychology**

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ESC\_PS 7115: Human Learning**

An introduction to the basic principles of learning. Focus is on principles of learning which have the greatest utility for professional educators. This course provides a foundation for more advanced courses in human learning. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 4100 or ESC\_PS 7100

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**ESC\_PS 7120: Theories and Techniques of Counseling**

Survey of contemporary theories underlying individual, feminist, family systems, and multicultural approaches to counseling. Introduction to professional and ethical issues in Counseling Psychology.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**ESC\_PS 7130: Parent Counseling and Consultation**

For personnel working with parents in professional settings. Examines current family needs and child-rearing practices. Basic skills in diagnosis, counseling, consultation, parent education are developed.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 4120 or ESC\_PS 7120

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**ESC\_PS 7160: Developmental Aspects of Human Learning**

Investigates aspects of human development that affect classroom learning. Topics include parenting style, divorce, friendship, mental health, attachment, play aggression, culture, and media. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 7170: Introduction to Applied Statistics**

Introduces statistical techniques including descriptive statistics, correlation, simple regression and hypothesis testing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** College Algebra or equivalent

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**ESC\_PS 7185: Health Behaviors: Drug and Sexuality Education**

Psychological, social and physical factors related to drug taking and sexuality behaviors.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7195; Restricted Positive Coaching degree seeking students (distance students) or permission of department

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**ESC\_PS 7195: Sport and Applied Coaching Psychology**

Sport and Applied Coaching Psychology is a fusion of positive psychology and sport psychology. Positive psychology teaches coaches a healthy approach based in positive motivation and behavior modeling. Sport psychology helps coaches identify with the mental training of athletes and its role in delivering maximum performance. Course focus is on helping coaches maximize the potential of their athletes and teams, while also building upon their emotional and psychological wellbeing.

**Credit Hours:** 3

**Prerequisites:** Restricted Positive Coaching degree seeking students (distance students) or permission of department

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**ESC\_PS 7200: Positive Psychology**

Positive psychology explores what is positive, creative, and fulfilling in human behavior. It is the scientific study of well-being and flourishing: what people do right. This course will examine cornerstones and key concepts such as emotions, engagement, relationships, strengths, virtues, meaning, and purpose. Proven as a very effective application in the realms of organizations, governments, businesses, education, counseling, etc., it is best originally understood by applying it to oneself.

**Credit Hours:** 3

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**ESC\_PS 7260: Development of Character and Talent Strengths**

This course will explore the development and application of psychological strengths through the lens of positive psychology theory, research, and intervention. Lessons feature strengths topics including identification,

leadership, flow and engagement, regulation, goal-setting and motivation. At the end of the course, students will be proficient in the languages of the StrengthsFinder and VIA Character Strengths assessments, exploration and development oriented activities, and basic facilitator techniques. Graded on A-F basis only.

**Credit Hour:** 1

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**ESC\_PS 7270: Motivation and Positive Psychology**

This course is designed to give you a better understanding of your own motivation and the motivations of others. We will explore the whether, the what, the why, and the how of motivation through the study of Self-Determination, Self-Concordance and Goal Systems, as well as Attribution and Achievement goal theories. In addition to conceptual knowledge, it is our hope that you broaden your personal knowledge, such as gain new insights on how to set and select self-appropriate goals. Additionally, we will explore techniques and recommendations for motivating others towards better performance, learning, and development. Graded on A-F basis only.

**Credit Hour:** 1

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**ESC\_PS 7280: Mindfulness, Meditation and Wellbeing**

This class explores both the historical roots and contemporary research related to mindfulness, meditation, and their impacts on wellbeing. Through readings, video presentations and applied practices students will expand their knowledge of meditation and Eastern influences on psychology. Students will also be encouraged to increase their personal awareness of the relationships between stress reduction, present moment and mind/ body awareness, and mindfulness practices. Students will be challenged to integrate a regular meditation practice into their daily routine and, through diverse readings, be introduced to cross-cultural perspectives on human health, psychology, and wellbeing. Graded on A-F basis only.

**Credit Hour:** 1

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**ESC\_PS 7460: Foundations of School Mental Health**

Explores the history, foundations, and implementation of an expanded framework of school mental health focusing on collaborative and interdisciplinary approaches to supporting the wellness and school success of youth. Introduces professional working in or with schools to the school mental health framework emphasizing a behavioral health continuum of care, links between mental health and academic performance, a comprehensive system of learning supports, and data-based decision-making.

**Credit Hours:** 3

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**ESC\_PS 7575: MU Youth Development Academy: Positive Youth Development in Practice**

(cross-leveled with ESC\_PS 4575). This course prepares students to apply principles of positive youth development to practice, including leading youth programs, developing organizational and community systems that support youth, and engaging others to create positive environments in which youth ages 5-19 grow, thrive, and make successful transitions to adulthood. Course topics include ages and stages of development, experiential learning, program planning, diversity and inclusion, youth/adult partnerships, volunteer systems, risk management, community partnerships, and creating environments for healthy relationships. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** restricted to graduate students (Master's and PhD)

**Recommended:** Prior course work in education, human development, family studies, sociology, social work, or other child and youth-related programs is highly preferred

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**ESC\_PS 8020: Overview of Research Methods**

Survey of research design and methods of data collection for masters, educational specialists, and doctoral students.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7170 or instructor's consent

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**ESC\_PS 8040: Counseling Methods and Practices**

Introduction to counseling microskills and techniques, with attention to case conceptualization, therapeutic alliance, and counseling process. Laboratory experience in demonstrating skills and the ability to form an effective counseling relationship is required.

**Credit Hours:** 3

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**ESC\_PS 8060: Lifespan Development**

A comprehensive analysis of normal development across the lifespan with a primary focus on children and adolescents. Will investigate the cognitive, affective, academic, physical, moral, social/cultural/racial, religious/spiritual and sexual domains. Examples of atypical development will be discussed.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 4100 or equivalent. Consent of instructor required

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**ESC\_PS 8070: Ethical and Legal Issues in Psychological Practice**

Legal and ethical concepts and issues relevant to the practice of psychology and student personnel services.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 4120 or ESC\_PS 7120 or instructor's consent

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**ESC\_PS 8082: Foundations of Educational and Psychological Measurement**

Basic principles of educational and psychological measurement including test construction, validity, reliability, item analysis, and derived scores.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 4170 or ESC\_PS 7170 or instructor's consent

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**ESC\_PS 8085: Problems in Educational, School, and Counseling Psychology**

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ESC\_PS 8087: Seminar in Educational, School, and Counseling Psychology**

Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ESC\_PS 8090: Master's Thesis in Educational, School, and Counseling Psychology**

Independent research leading to Master's Thesis. Graded on S/U basis only. Prerequisites: advisor's consent

**Credit Hour:** 3-6

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**ESC\_PS 8095: Research in Educational, School, and Counseling Psychology**

Supervised research that is independent of master's thesis or doctoral dissertation. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** advisor's consent

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**ESC\_PS 8100: Psychological Assessment of Children and Adolescents: Cognitive Assessment**

Basic principles in intelligence theory and intermediate measurement concepts. Practice in administering, scoring, and interpretation of data from individually administered intelligence tests with school aged children and adolescents. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ESC\_PS 8110: Methods in Group Counseling**

Study of group counseling methods and techniques. Participation in a group is required.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8040, demonstrated knowledge of ethical principles and departmental consent

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**ESC\_PS 8120: Psychological Assessment of Children and Adolescents: Psychoeducational Assessment**

Practice in administering, scoring, and interpretation of data from academic achievement, nonverbal intelligence, memory, adaptive behavior, and perceptual/motor assessments with school-age youth and adolescents.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8100 and instructor's consent

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**ESC\_PS 8125: Professional Iss. in Sch. Psych. I: Hist., Trends & Ethical Pract.**

For first-year doctoral students in school psychology. History, current issues, trends, professional organizations, legal-ethical standards of doctoral level school psychology are discussed. The scientist-practitioner model and scientific reasoning process as they apply to both science and practice are reviewed.

**Credit Hours:** 3

**Prerequisites:** Must be admitted to school psychology program

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**ESC\_PS 8130: Psychological Assessment of Adults**

Students develop and practice skills in writing psychological reports with special emphasis on assessing psychological social-vocational functioning.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8100

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**ESC\_PS 8135: Foundations of Career Psychology**

Theoretical orientations to counseling for career development; nature and structure of work, education, and leisure; work and family issues; career concerns of special populations; use of career information in counseling.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**ESC\_PS 8140: Psychological Assessment in Children and Adolescents: Behavior and Social Emotional Assessment**

This course introduces behavior theory, behavioral and social-emotional assessment techniques (including observations, interviewing, rating scales, and projective techniques) and their link to relevant interventions, with a primary focus on school-age youth and adolescents.

**Credit Hours:** 3

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**ESC\_PS 8145: Psychological Interventions with Children and Adolescents: Behavioral Intervention**

This course will emphasize behavioral theory, assessment, and intervention, including functional behavior assessment, positive behavior supports, and the conceptualization from an individual, systems, and public health perspective. Graded on A-F basis only

**Credit Hours:** 3

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**ESC\_PS 8155: Crisis Prevention, Intervention, and Response in Schools**

The course provides students with basic knowledge, theoretical frameworks, and skills/strategies for crisis prevention, intervention, response, and recovery in school and community settings, with a primary focus on addressing the mental health needs.

**Credit Hours:** 3

**Prerequisites:** Instructor consent

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**ESC\_PS 8160: Psychological Interventions with Children and Adolescents: Educational Instruction**

This course investigates models of school instruction in both general and special education, and how instruction can be adapted for learners who exhibit a range of academic and psychological problems and disabling conditions.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8100, ESC\_PS 8120 and instructor's consent

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**ESC\_PS 8165: Psychological Interventions with Children and Adolescents: Evidence-Based Therapies**

An introduction to evidence-based child and adolescent psychotherapies, including individual and group interventions. Various aspects will be considered including assessment, diagnosis, and treatment planning. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8175: Applied Behavior Analysis: Principles, Assessment, and Evaluation**

This course is designed to provide students with an understanding of operant conditioning principles and concepts, single-case design

methodology, and behavior analytic assessments and evaluation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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#### **ESC\_PS 8185: Health Promotion**

An overview of the important concepts of health promotion. Emphasis on specific health-related problems and issues, health behavior change, and the design, development implementation, and evaluation of comprehensive health promotion programs.

**Credit Hours:** 3

**Prerequisites:** LTC 1310 or equivalent or instructor's consent

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#### **ESC\_PS 8195: Applied Positive Coaching**

Explores concepts of sport, coaching and positive psychology, particularly the interventions and applications designed to further develop a coach's philosophy, communication skills, understanding of motivation, leadership skills, and the coach's and athlete's well-being.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7195; Restricted Positive Coaching degree seeking students (distance students) or permission of department

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#### **ESC\_PS 8200: Applied Positive Psychology**

This course will require students to implement positive psychology concepts from the introductory course into their personal, professional, and/or social lives. We will also study specific ways in which these concepts and theories are being applied throughout various realms of well-being. Among the topics in this course are therapeutic lifestyles, goal-setting and attainment, self-care, meaning making, transformational leadership, influence and sustainable happiness theory.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7200

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#### **ESC\_PS 8232: Foundations of Sport Performance**

Focuses on principles and methods to become an effective sport performance coach. Examines the development of athletes and education of basic sports nutrition, strength, and conditioning.

**Credit Hours:** 3

**Prerequisites:** Restricted Positive Coaching degree seeking students (distance students) or permission of department

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#### **ESC\_PS 8240: Sport in America**

Sociological perspectives of sport in America. Attention given to the influence of society on sport as in institution, and the role of sport as an agent of social change.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 1000 or PSYCH 1000

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#### **ESC\_PS 8250: School Psychology Practicum: Introduction**

This course is an intro practicum that exposes students to the organization and functions of schools. Students work with psychologists and other school personnel on academic and behavioral interventions to learn how schools serve children and their families. Graded on S/U basis only. May be repeated for credit.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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#### **ESC\_PS 8255: Legal Aspects of Sport and Coaching**

Emphasis is to provide insight about how the law is applied in sport settings, the types of litigation involved, and the standard of care required. Fundamental terminology and concepts, and contemporary issues in sport law will be addressed.

**Credit Hours:** 3

**Prerequisites:** Restricted Positive Coaching degree seeking students (distance students) or permission of department

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#### **ESC\_PS 8260: School Psychology Practicum: Intermediate**

Intermediate School Psychology Practicum provides students with experience in school-based psychological service delivery. Students gain experience with psychoeducational assessment and diagnosis, intervention planning and delivery, consultation, and serving on multidisciplinary teams. Graded S/U basis only. May be repeated for credit.

**Credit Hour:** 1-6

**Prerequisites:** Instructor's consent

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#### **ESC\_PS 8265: Administration of Athletic Programs**

Examines methods, principles, and roles of athletic administrators. Also, examines the job responsibilities and competencies required of sport leaders in athletic administration.

**Credit Hours:** 3

**Prerequisites:** Restricted Positive Coaching degree seeking students (distance students) or permission of department

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#### **ESC\_PS 8270: Student-Athlete Wellbeing**

As a positive coach and career educator, your knowledge of student wellbeing is critical to support your students' physical, mental, and social health alongside their academic success and development beyond school. Although our semester will focus largely on the most critical components of student welfare, we will also frame our study of student wellbeing using the tenets of Positive Psychology, a discipline that champions a strengths-based approach to guide positive behaviors associated with health and wellbeing. Health promotion theory will also guide our course of study as we examine: (a) individual student-athlete wellbeing with a focus on physical, mental, and social health (b) wellbeing in the context of student services provided by the school or organization, and (c) program evaluation methodology to identify strengths and opportunities for program improvement to enhance wellbeing and welfare for all student-athletes. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted Positive Coaching degree seeking students (distance students) or permission of department

**Recommended:** ESC\_PS 7200 Positive Psychology

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#### **ESC\_PS 8280: Gender Issues in Sport**

Through a study of theory and applied practice, students will explore personal biases, understand intersecting identities and explore privilege and oppression at the individual, interpersonal, structural, and cultural level when considering gender awareness in sport.

**Credit Hours:** 3



**Prerequisites:** Restricted Positive Coaching degree seeking students (distance students) or permission of department

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**ESC\_PS 8290: Multicultural Issues in Sport**

The purpose of this course is to increase the level of multicultural awareness, knowledge, skills, and relationship of athletic coaches working with diverse student populations. Activities and assignments are designed to assist, encourage, and challenge each student to more fully develop awareness and knowledge of self, and to use this information to improve intercultural interactions with others in professional settings as well as other settings.

**Credit Hours:** 3

**Prerequisites:** Restricted Positive Coaching degree seeking students (distance students) or permission of department

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**ESC\_PS 8300: Positive Leadership in Sport**

A Positive Leadership philosophy requires Positive Leadership delivery. Course is designed to prepare leaders to bridge content knowledge to practical application. Students will use core competencies learned throughout their program to develop their leadership approach.

**Credit Hours:** 3

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**ESC\_PS 8320: Advanced Human Learning**

A study of behavioral and cognitive theories of learning with an emphasis on those greatest utility for educators. Experimental evidence forming the theoretical base for educational practice is examined.

**Credit Hours:** 3

**Recommended:** ESC\_PS 2400 or ESC\_PS 7100

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**ESC\_PS 8330: Motivating At-Risk and Diverse Students**

This course examines motivational concepts that apply to students of all ages. The course is designed to help teachers design classrooms and assignments that would improve the motivation of students, especially at-risk students. The course pays special attention to issues of diversity relevant to motivation. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8340: Cultural Backgrounds and Learning**

The course explores the influence of culture on the process of learning. Topics and discussions will center on learning within the K-12 classroom. Readings and assignments are tailored to engage students in practical classroom applications of the information and discussions within the course. At the conclusion of the course students will have a deep understanding of how culture shapes thinking, learning, behavior, and the classroom environment. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8350: Cognition, Learning and Instruction**

Examines the topics of memory and cognition as they apply to the process of learning and instruction.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8320 or instructor's consent

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**ESC\_PS 8355: Cognition and Emotion**

This course looks at human cognition and emotions and their influence on learning, self-control, motivation, executive processes, and behavior change. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8360: Advanced Counseling Theories and Interventions**

Contemporary theories and interventions of counseling. Advanced study of efficacious techniques. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8040 or ESC\_PS 8342

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**ESC\_PS 8370: Social Emotional Learning**

The development and support of social emotional learning will be examined for K-12 age students. The course is both theoretical and application based and is appropriate for all levels of graduate students. Research strongly supports the importance of social emotional regulation in increasing and supporting academic achievement and well-being. Specific topics covered in the class include: the integration of SEL with related prevention approaches, SEL and student-teacher relationships, SEL in connection with PBIS, and accountability in SEL programs. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8380: Data-Driven Instructional Decisions**

This course explores the uses of assessments and evaluation techniques for practical applications within the classroom. Focus is on use of data gathering techniques to increase student academic performance and inform classroom instruction. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8400: Analysis of Research in Career Psychology**

Examination of career development theories, the research supporting the theories, and the practical application of these ideas in career counseling and career programs.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8135

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**ESC\_PS 8410: School Guidance Programs**

Provides knowledge and skills in the development and management of school guidance programs including program planning, structuring, implementing, and evaluating.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7120

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**ESC\_PS 8415: Program Evaluation for School Counselors**

Program Evaluation is a graduate seminar intended to provide students with the skills needed to evaluate comprehensive guidance and counseling programs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7120

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**ESC\_PS 8425: Effects of Maltreatment on Child and Adolescent Development**

Course topics to be covered include 1) definitions of child maltreatment, 2) incidence and prevalence rates, 3) possible causes and consequences associated with child maltreatment, 4) treatment of survivors and perpetrators, and 5) prevention efforts. Important legal and ethical issues will be discussed, such as children's competence and eyewitness abilities, false allegations of abuse, mandated reporting, and investigative interviewing of children. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8430: Mental, Emotional, and Behavioral Disorders in Youth**

The course will include an overview of normal development and an investigation into specific deviations in intensity, frequency, and/or duration of normal development which impact the individual in his or her home, school, and community.

**Credit Hours:** 3

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**ESC\_PS 8435: Wellness Management for School Personnel**

The current climate in schools places considerable demands on teachers and other school personnel. Often, those working in schools find themselves under enormous stress and pressure. In this course, school personnel will examine a variety of topics related to both identifying and effectively dealing with these pressures. Topics include communication skills, dealing with challenging individuals in the school system, recognizing and effectively managing stress, and recognizing burnout and re-energizing. The course will provide an overview of the research on these topics, as well as numerous effective strategies to deal with these pressures. Students in the course will have opportunities to apply learned strategies to real-life situations in the schools. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8440: School Mental Health: Policy, Law and Ethics**

This course is designed to familiarize school-based professionals with policies, laws and ethics associated with children and youth and schools.

**Credit Hours:** 3

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**ESC\_PS 8445: Building Resiliency and Optimism in Youth**

Examines risk and resiliency processes during childhood and adolescence. Focuses on defining resilience; sources of risks and protective factors within families, schools, and communities; prevention programs targeting early, middle childhood and adolescence. Promotion of one's own resilience and well-being discussed. Special topics include strengths-based models of resiliency, resilience and family difficulties, violence and maltreatment, poverty, dropout, and school/community-based prevention and intervention.

**Credit Hours:** 3

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**ESC\_PS 8450: Diversity Issues in School Mental Health**

The purpose of this course is to increase the level of multicultural awareness, knowledge, skills, and relationship of school personnel working with diverse student populations.

**Credit Hours:** 3

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**ESC\_PS 8455: Bully and Youth Violence: Prevention and Reduction**

This course is a survey of current issues in bullying and youth violence with an emphasis on applications in the school environment. The course will present effective strategies for bullying and violence prevention within the school and in collaboration with the community at large. Students are encouraged to apply the course concepts to their work environment and develop tools for future practice in schools and other youth-serving settings. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8460: Communication and Collaboration with Children and Families**

This course will provide education professionals with the knowledge and basic skills to address common mental health issues through positive and solution focused communication and collaboration.

**Credit Hours:** 3

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**ESC\_PS 8465: Vital Issues in School Mental Health**

The course is highly individualized in that students, as a group, will choose the specific topics to be covered. Readings and assignments have three foci: 1) improve understanding of each issue within a broader context of public mental health policy, prevention, intervention, and maintenance; 2) deepen student knowledge of the topic from practice and research-based sources; and 3) enable students to deal more effectively with those issues within relevant settings. Topics may include, but are not limited to: school dropout, substance use, self-injury/cutting, relational aggression, management of extreme behaviors, homelessness, divorce/death, eating disorders, pregnancy, ADHD, and many others. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8470: Preventions and Interventions in School Mental Health**

This course explores the role that educators and school mental health professionals play in promoting, prevention and early intervention practices for mental, emotional, and behavioral disorders in youth and considers the basic steps for designing, implementing and evaluating evidence based interventions.

**Credit Hours:** 3

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**ESC\_PS 8475: Proactive Behavior Management**

This course provides a framework to a prevention-focused model of classroom support and behavior management. Prevention is less time-consuming in the long run and leads to more opportunities for learning and social engagement because discipline problems are not interfering with teaching. This course will include evidence based strategies to structure proactive learning environments that promote students' academic skills and competencies as well as their social and emotional development. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8490: Mental Health in Schools Capstone Paper**

Course focuses on writing a capstone integration paper that is intended to be a culminating experience. Allows students to reflect on the content of their course work, evaluate the knowledge and skills acquired, and apply what they have learned into their professional practice.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**ESC\_PS 8515: Sport Psychology**

Current topics of research in sport psychology are examined. Topics include: sport personality, attention, activation and anxiety intervention, motivation, sport aggression, audience effects, team cohesion, leadership, and health psychology.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**ESC\_PS 8530: Developmental Psychopathology and Exceptionality**

An investigation into the presentation, diagnosis, and treatment of psychopathologies in individuals, emphasizing causal pathways, risks/resiliency, prevalence, incidence, and continuity/discontinuity of the disorders from research in the field of developmental psychopathology. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8550: Diversity and Multiculturalism II - Practical Application**

This course is part two in the Multicultural Education Certificate series of online courses designed for students working in a broad range of professions, such as health care, social work, education, school counseling, administration, etc. Students will examine various topics on diversity and multiculturalism to enhance their personal and professional development. To this end, the milieu of this course will be a safe online environment that is conducive to open dialogue, self-reflection, critical thinking, and questioning, and one in which students can actively engage in the learning process through affective and cognitive approaches. Postings, along with relevant readings and assignments, will be used as the primary tools and resources for this collective learning experience. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** ESC\_PS 8450

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**ESC\_PS 8555: African American Education - Historic and Current Issues**

Critical examination of the deculturalization of American educational system. Concepts of race, culture, and 'post racial society' are juxtaposed with social and systemic trends impacting African American students both in and out of the classroom. Pedagogical strategies are discussed. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** ESC\_PS 8450

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**ESC\_PS 8560: Immigrant Issues in Education**

The purpose of this course is to increase the level of cross-cultural awareness, knowledge, and skills of school personnel working with students who are immigrants. It is designed to be practically and experientially oriented. Activities and assignments in the class are designed to assist, encourage, and challenge each student to more fully develop awareness and knowledge of self, and to use this information to improve intercultural interactions with others in professional settings as well as other settings. The anticipated outcome includes improved skills in conceptualizing the unique needs of and responding with appropriate

approaches to effectively assist students who are immigrants. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** ESC\_PS 8450

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**ESC\_PS 8565: Gay, Lesbian and Bisexual Issues in the Schools**

This online course seeks to expand your perspective, worldview, and knowledge of GLB individuals and in your work environments as well as an invitation to promote social justice to make positive changes for the benefit of GLB individuals. Individuals who identify as GLB face many unique experiences, challenges, and opportunities during their developmental life span including issues related to coming out, psychological well-being and mental health development, heterosexism and homophobia, stereotypes and myths, and sexual identity. These issues and more are discussed in the course. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** ESC\_PS 8450

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**ESC\_PS 8590: Multicultural Counseling Competencies: Theory and Research**

This course will introduce students to the current status of multicultural counseling theories and research issues and help students to increase their knowledge of cultural differences in counseling and psychology. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8640: Interviewing, Diagnosis, and Assessment**

Introduction to clinical, psychometric assessment, and diagnosis. Data-gathering methods include interviews and tests/inventories of intellectual functioning, abilities, personality, and interests. Students utilize psychological reports to inform assessment, diagnosis and treatment.

**Credit Hours:** 3

**Prerequisites or Corequisites:** ESC\_PS 8082

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**ESC\_PS 8655: Item Response Theory**

Introduces modern scaling with Item Response Theory, and includes how it can be used to statistically specify information about latent variables and the stimuli (e.g., tests) used to represent them.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 9640 and ESC\_PS 9650

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**ESC\_PS 8690: Educational Planning and Evaluation**

This course addresses major issues and models used in educational program planning and evaluation, including the appropriate use of various evaluation models and different types of data.

**Credit Hours:** 3

**Prerequisites:** departmental inquiry course, ESC\_PS 8830 and/or ESC\_PS 8957

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**ESC\_PS 8700: Life/Career Coaching and Development**

Designed to teach life and career coaching strategies with roots in career psychology and positive psychology. It provides the tools and knowledge on how to coach people to achieve their personal and professional goals.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7200

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**ESC\_PS 8710: Meaning In Work**

Covers a broad look at meaning and vocation using theoretical and empirical frameworks. Also explores the influence of culture, environment, relationships and personal values on meaning development while providing a framework for working from a coaching/counseling standpoint to help others identify or develop meaningful vocations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7200

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**ESC\_PS 8720: Community and Stewardship**

Examines the concepts of community and stewardship, explores the literal roots of the word (common-unity) and our ability to respond (responsibility) to and build our communities. Also explores the connections between altruism, personal well-being, and social stewardship.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7200

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**ESC\_PS 8730: Positive Organizational Psychology**

Surveys the impact of positive organizational psychology research throughout professional organizations. Students will learn empirically defined elements of positive work environments and learn the building blocks associated with this field including: Appreciative Inquiry, the Abundance Approach, Strengths-Based Organizations, Positive Work Environments, and Employee Engagement and Satisfaction.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7200

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**ESC\_PS 8850: Quantitative Foundations in Educational Research**

This course is designed to provide students the fundamental and necessary quantitative methods skills in educational research. Topics include one-way and factorial analysis of variance (ANOVA), analysis of covariance (ANCOVA), repeated measures ANOVA, random-effects ANOVA, simple linear regression, multiple regression, regression diagnostics, introduction to logistic regression, and statistical power analysis. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7170

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**ESC\_PS 8860: Statistical Data Management and Analysis in Educational Research**

Good data management is a prerequisite for successful research, needed for reproducibility of results, and essential when collaborating with others. The focus of this course is the application of various techniques with different educational databases using R. By the end of the class, students should feel comfortable importing data using different formats, recoding/renaming variables, merging data from different sources, reshaping data, handling missing values, and creating graphs/tables/plots. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8940: Counseling Psychology Practicum**

Supervised practice of counseling in an approved counseling setting. May be repeated. Graded on S/U basis only.

**Credit Hour:** 3-9

**Prerequisites:** ESC\_PS 8040, ESC\_PS 8135, and ESC\_PS 8640 and consent of counseling area faculty

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**ESC\_PS 8943: Practicum in Multicultural Counseling Interventions**

Supervised practice of applied multicultural counseling interventions in a wide variety of approved community and university settings. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** ESC\_PS 8040 and either ESC\_PS 8570 or ESC\_PS 8590

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**ESC\_PS 8948: Field Placement in Counseling/Supervision**

Students will conduct counseling and/or supervision in approved community agencies under the supervision of licensed practitioners. Graded on S/U basis only.

**Credit Hour:** 1-12

**Prerequisites:** completion of 9 credit hours of ESC\_PS 8040, and consent of the Counseling Area Faculty

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**ESC\_PS 8957: Qualitative Methods in Educational Research I**

(same as LTC 8957 and ED\_LPA 8957). This course provides a practical introduction to qualitative research and its applications in education and social sciences. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 8960: Interdisciplinary Child and Family Practicum**

This class includes a focus on child/family services with a systems/interdisciplinary approach. Students provide services via a mentorship model (strong supervision initially moving toward autonomy). Services include evaluations, therapy, consultation, psychiatric cross-training, and others. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** ESC\_PS 8040 and instructor's consent

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**ESC\_PS 8990: Career Development Theory for Women**

Consideration of the relevance of theories of career development for women, and their application to the counseling of women. Supervised clinical experience in the application of theories to counseling high school age women.

**Credit Hours:** 3

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**ESC\_PS 9000: Multicultural Issues in Counseling**

This course covers the research and theories of counseling racial/ethnic minorities and gays, lesbians, and bisexuals in the U.S. Examination of personal values and education about the interrelationship between race, class, gender, and sexuality are accomplished via structured activities.

**Credit Hours:** 3

**Recommended:** ESC\_PS 8340

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**ESC\_PS 9020: Psychology of Crossing Cultural Borders**

The primary purpose of the course is to promote the development of cross-cultural knowledge, awareness, and skills for applied psychologists. Students acquire knowledge of psychological processes associated with crossing cultural borders, and translate that knowledge into practical applications. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 9030: Social Bases of Behavior**

This course provides an advanced level, broad overview of the field of social psychology in relation to applied psychology. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 9060: Advanced History and Systems of Psychology**

This course explores the origins of psychology in philosophy and the sciences, the development of the science of psychology in the 19th and 20th centuries, and current theoretical perspectives and research in relation to the enduring issues in psychology. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 9080: Biological Basis of Behavior**

This course is an advanced level doctoral seminar that provides a broad overview of biological bases for human behavior. It will examine the neurophysiological bases of 'normal' and 'abnormal' behavior using a developmental perspective. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 9090: Doctoral Dissertation Educational School & Counseling Psychology**

Independent research leading to dissertation. Graded on S/U basis only.

**Credit Hour:** 1-12

**Prerequisites:** departmental consent

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**ESC\_PS 9091: Internship in Counseling Psychology**

Supervised experience in counseling psychology on half- or full-time basis in approved internship station. May be repeated. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** departmental consent

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**ESC\_PS 9092: Internship in School Psychology**

Supervised practice in school psychology in an educational setting. May be repeated. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** departmental consent

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**ESC\_PS 9093: Doctoral Internship in School Psychology**

Supervised practice in doctoral-level school psychology in an institutional or applied setting. May be repeated. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** departmental consent

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**ESC\_PS 9100: Advanced Psychological Measurement and Assessment**

Introduction to the scientific and psychometric foundations of clinical assessment, including measurement theory, reliability, validity, and scale/test construction. Primary focus on the development and validation of evidence-based, psychometrically-sound assessment tools. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor consent

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**ESC\_PS 9125: Professional Iss. in Sch. Psych. II: Rsrch. Design & Application**

For first-year doctoral students in school psychology. Includes study of research design and methodological issues in the field of school psychology.

**Credit Hours:** 3

**Prerequisites:** Must be admitted to school psychology doctoral program

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**ESC\_PS 9126: Prevention Science Research Design and Analysis**

Prevention Science Research is a graduate seminar intended to provide students with the theoretical and empirical foundations of prevention science. In particular, students will learn how to conceptualize problems from a prevention science perspective and design and evaluate preventive interventions using advanced methodologies. Opportunities for community based participatory research including research design and analysis, papers and briefs, grantwriting, and community collaborations regarding prevention programming particularly pertaining to children's mental health.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ESC\_PS 9250: School Psychology Practicum: Advanced**

This course is an advanced practicum for students providing school psychology services. Students develop higher-level skills in the areas of case coordination, diagnostic decision-making, intervention, and systems change. Graded S/U basis only. May be repeated for credit.

**Credit Hour:** 1-6

**Prerequisites:** Instructor's consent

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**ESC\_PS 9260: Policy Practicum in Professional Psychology**

Policy Practicum is an advanced practicum focused on macro level skills for shaping policy and systems-level intervention. Students work within agencies that establish policy for special education, mental health, and other education/psychology-related issues. May be repeated for credit.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ESC\_PS 9400: Theories and Practices in Supervision**

Instruction and practice in the supervision of psychological services conducted in appropriate laboratories and agencies. Sections titled Counseling Psychology are graded on S/U basis only. Sections titled School Psychology are on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8940 or ESC\_PS 8944 and instructor's consent

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**ESC\_PS 9450: Motivation**

Investigates human motivation applied to performance in schools, athletics, and personal life. Topics include goals, attributions, self-efficacy, interest, cultural differences, and rewards. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8320 or equivalent

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**ESC\_PS 9530: Scientific Fdns of Counseling Psych I: Prof Iss &**

For first-year doctoral students in counseling psychology. This course focuses on the history of counseling psychology, in and scientific reasoning processes as they apply to both science and practice.

**Credit Hours:** 3

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**ESC\_PS 9540: Scientific Foundations of Counseling Psych II: Rsrch, Dsgn & Appl**

For first-year doctoral students in applied psychology. Includes study of research design and methodological issues in the field of counseling psychology.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 9530

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**ESC\_PS 9550: Scientific Writing in Counseling Psychology**

This course focuses on the technical skills needed for developing a scientific research proposal in counseling psychology.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 9530 and ESC\_PS 9540 and instructor's consent

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**ESC\_PS 9560: Psychological Consultation: Schools**

The individual psychological consultation process between the mental health professional and school personnel. Techniques, models, research roles, and responsibilities are discussed. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 9570: Psychological Consultation: Organizations**

This course provides an introduction to the theory and practical skills required to effectively consult at the organizational level in a variety of settings and contexts. Graded on A-F basis only.

**Credit Hours:** 3

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**ESC\_PS 9610: Applied Sport Psychology**

Building upon the knowledge base of sport psychology, this course integrates and synthesizes student's understandings of the wide array of concepts and theories of the field into meaningful applications and strategies aimed at enhancing the sport experience of others. A case study approach will be employed.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8515

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**ESC\_PS 9620: Qualitative Methods in Educational Research II**

(same as ED\_LPA 9620 and LTC 9620). This course constructs a conceptual and methodological bridge between the understandings of qualitative research developed in Qualitative Methods I and more

advanced study of theories, designs, and methods. The focus is on theory, approaches to data analysis, and interpretation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8957

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**ESC\_PS 9640: Introduction to Theory of Educational Measurement**

Classical and modern test theory, including IRT, generalizability theory and test bias. Also covered are advanced strategies for investigating reliability and validity.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7170 and ESC\_PS 8082

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**ESC\_PS 9650: Application of Multivariate Analysis in Educational Research**

The focus of this course will be on applications of multivariate analysis in educational research.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8830 and ESC\_PS 8840 or equivalent and instructor's consent

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**ESC\_PS 9660: Generalized Linear Modeling**

This course is designed to introduce students to the theory and application of generalized linear models (GLMs). GLMs provide a flexible generalization of the ordinary linear regression model. While the latter is restricted to continuous dependent variables (with normal error term), the GLM framework has been developed to analyze dependent variables that are, e.g., binary, polytomous nominal, ordinal, counted, censored, or bounded continuous. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8850

**Recommended:** Familiarity with the basics of the R statistical programming environment (see [www.r-project.org](http://www.r-project.org)) is assumed

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**ESC\_PS 9710: Structural Equation Modeling**

Simultaneous analysis of relationships among variables. Topics included are path analysis, confirmatory factor analysis, hybrid models, and special types of structural models involving longitudinal data, multiple groups and analysis of means. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7170, ESC\_PS 8830, ESC\_PS 8840, ESC\_PS 9650

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**ESC\_PS 9720: Hierarchical Linear Modeling**

Hierarchical Linear Modeling (HLM), including multilevel and longitudinal approaches, in applied research settings for the social, educational psychological, and health-related sciences. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7170, ESC\_PS 8830, ESC\_PS 8840, ESC\_PS 9650; consent required

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## Electrical And Computer Engineering (ECE)

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### **ECE 1000: Introduction to Electrical and Computer Engineering**

Introduction to the basic principles of electrical and computer engineering through hands-on activity. Course includes fundamentals of programming using Matlab, applied to electrical and computer engineering problems.

**Credit Hours:** 2

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### **ECE 2001: Experimental Course**

For sophomore-level students. Content and number of credit hours to be listed in Schedule of Courses.

**Credit Hour:** 1-99

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### **ECE 2007: World of Neuroscience**

(same as BIOL\_EN 2007, BME 2007, CMP\_SC 2007). This in-class course will introduce undergraduates to the growing area of neuroscience from the perspectives of three disciplines: engineering, biology and psychology. Topics in the course will span multiple levels of neuroscience including genomic, genetic, molecular, cellular, systems, behavioral and clinical levels. Due to the interdisciplinary nature of the neuroscience, the classes will cover diverse topics. The topics will range from overviews of the key neurobiology areas, to lab sessions involving how to analyze your own brain signals (EEG), and to visits to brain imaging center and EEG lab. The overall goal is to provide a broad exposure to the fascinating world of interdisciplinary neuroscience. Graded on A-F basis only.

**Credit Hour:** 1

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### **ECE 2100: Circuit Theory I**

DC circuit analysis, inductors and capacitors, first order response, AC circuit analysis, single-phase AC power. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** A grade of C- or better in MATH 1700

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### **ECE 2210: Introduction to Logic Systems**

(same as CMP\_SC 2270). Introduces basic tools, methods and procedures to design combinational and sequential digital circuits and systems. Topics include number systems, Boolean algebra, logic minimization, circuit design, memory elements, and finite state machine design. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C or higher in CMP\_SC 1050 or INFOTC 1040

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### **ECE 3210: Microprocessor Engineering for Electrical Engineers**

Introduction to microprocessor architectures and programming; memory, memory management and cache organizations, bus configurations and timing implications; parallel I/O and serial communication interfaces.

**Credit Hours:** 4

**Prerequisites:** A grade of C or better in CMP\_SC 1050 and ECE 2210 or CMP\_SC 2270

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### **ECE 3220: Software Design in C and C++**

Software/Hardware development for embedded systems, including memory, I/O and interrupts; an overview of C and C++, class structures

in object oriented programming; software development with UML and testing and debugging strategies. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 3280 or CMP\_SC 3280 or ECE 3210 with a grade of C or better

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### **ECE 3280: Computer Organization and Assembly Language**

(same as CMP\_SC 3280). Introduces computer architectures, programming concepts including parameter passing, I/O interrupt handling, DMA, memory systems, cache, and virtual memory. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C or higher in CMP\_SC 2270 or ECE 2210, and C or higher in CMP\_SC 2050

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### **ECE 3410: Electronic Circuits and Signals I**

Electron Devices, modeling and applications to basic electronic circuits, including RC amplifiers and power supplies.

**Credit Hours:** 4

**Corequisites:** ECE 3810

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### **ECE 3510: Electromagnetic Fields**

Elements of vector analysis, transmission line theory, electrostatics, magnetostatics, time varying fields and plane waves. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** A grade of C- or better in PHYSCS 2760 and a grade of C or better in ECE 2100

**Corequisites:** MATH 4100

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### **ECE 3610: Semiconductors and Devices**

Crystal structure; quantum aspects of energy, radiation and matter; quantum mechanics and energy bands in solids; electronic and optical properties of semiconductors; p-n junctions and diodes; bipolar and field-effect transistors.

**Credit Hours:** 3

**Prerequisites:** A grade of C or better in ECE 3510

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### **ECE 3810: Circuit Theory II**

Impulse and step responses, RLC circuits, classical differential equations solutions, complex plane stability, frequency and Bode Analysis, Resonance, Laplace transforms, two-port networks, mutual inductance and transformers. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** A grade of C or better in ECE 2100

**Corequisites:** MATH 4100

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### **ECE 3830: Signals and Linear Systems**

Transform Analysis of Signals and Linear Systems. Laplace transforms, z-transforms, Fourier series and transforms.

**Credit Hours:** 3

**Prerequisites:** A grade of C or better in ECE 3810

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**ECE 3840: Measurement and Instrumentation**

Covers 1) theory and applications of measurement and instrumentation systems; 2) signal conditioning circuits; 3) software-controlled automatic test equipment (ATE); and 4) software-controlled data acquisition systems. Graded on an A-F basis only.

**Credit Hours:** 3

**Prerequisites:** A grade of C or better ECE 3210 or ECE 3280, ECE 3410, ECE 3830, and a grade of C- or better in STAT 4710

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**ECE 4001: Topics in Electrical and Computer Engineering**

Current and new technical developments in electrical engineering.

**Credit Hour:** 1-4

**Prerequisites:** senior standing

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**ECE 4020: Energy Systems and Resources**

(same as NU\_ENG 4315, MAE 4371; cross-leveled with ECE 7020, NU\_ENG 7315). Analysis of present energy usage in Missouri, USA and the world, evaluation of emerging energy technologies and trends for the future. Economics and environmental impact of the developed technologies.

**Credit Hours:** 3

**Prerequisites:** ENGINR 2300

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**ECE 4030: Introduction to Nuclear Reactor Engineering**

(same as NU\_ENG 4346; cross-leveled with ECE 7030, NU\_ENG 7346). Engineering principles of nuclear power systems, primarily for the production of electrical energy.

**Credit Hours:** 3

**Prerequisites:** ENGINR 1200, ENGINR 2300

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**ECE 4040: Introduction to Nuclear Physics**

(cross-leveled with ECE 7040). Introduction of Quantum mechanics for non-physics majors. Course topics include nuclear properties; alpha, beta and gamma radioactive decay; and nuclear reactions. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** senior standing or graduate standing in engineering or equivalent mathematical preparation

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**ECE 4070: Numerical Methods for Science and Engineering**

(same as CMP\_SC 4070; cross-leveled with ECE 7070, CMP\_SC 7070). This course introduces the basic numerical methods that are widely used by computer scientists and engineers. Students will learn how to use the MATLAB platform to find the computational solution of various problems arising in many real world applications. By completing this course, students will be able to master algorithms, compare their performances and critically assess which ones are viable options for the particular problem at hand. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050, junior standing, or Instructor's consent  
**Recommended:** Students are expected to have basic knowledge in discrete math and algorithms

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**ECE 4085: Problems in Electrical and Computer Engineering**

Analytical or experimental problems pertaining to electric circuits, machines, fields or electronics.

**Credit Hour:** 1-3

**Recommended:** 12 hours Electrical and Computer Engineering credit or instructor's consent

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**ECE 4220: Real Time Embedded Computing**

(cross-leveled with ECE 7220). Embedded systems development with real time constraints including RTOS, task management and synchronization, real time scheduling algorithms, deadlocks, performance analysis and optimization, interfacing to external devices, and device drivers. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 3220

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**ECE 4250: VHDL and Programmable Logic Devices**

(cross-leveled with ECE 7250). Design techniques including module definition, functional partitioning, hardware design language descriptions and microprogramming; design examples include arithmetic units, programmable controllers, and microprocessors.

**Credit Hours:** 4

**Prerequisites:** ECE 3210 or ECE 3280 or CMP\_SC 3280 with a grade of C or better

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**ECE 4270: Computer Architecture**

(same as CMP\_SC 4270; cross-leveled with ECE 7270, CMP\_SC 7270). Advanced computer architectures and programming; memory, memory management and cache organizations, parallel processing, graphical processor units for general programming.

**Credit Hours:** 4

**Prerequisites:** CMP\_SC 2050 and ECE 3280 or CMP\_SC 3280 or ECE 3210 with a grade of C or better

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**ECE 4280: Network Systems Architecture**

(same as CMP\_SC 4280; cross-leveled with ECE 7280, CMP\_SC 7280). The course covers network systems interconnects and switch fabrics, network considerations: and relevant networking applications at the network, transport and application layer. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** C- or higher in CMP\_SC 2050 or ECE 3220 and C- or higher in CMP\_SC 3280 or ECE 3210

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**ECE 4310: Feedback Control Systems**

(same as BIOL\_EN 4310, MAE 4750; cross-leveled with BIOL\_EN 7310, ECE 7310, MAE 7750). System modeling and time and frequency response, closed loop control, stability, continuous system design, introduction to discrete time control, software and hardware experiments on compensator design and PID control. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 4100

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**ECE 4320: Architectural Robotics**

(cross-leveled with ECE 7320). Architectural robotics has been defined as 'intelligent and adaptable built environments (featuring embedded robotic



components) that sense, plan, and act'. This course will cover the basic concepts required for understanding, developing, and testing embedded robotic systems for the built environment. Students will work together in teams in a studio-style format which emphasizes hands-on projects to develop working prototypes. The goal is to offer students an opportunity for creativity in an interdisciplinary setting. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** junior or senior standing

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**ECE 4330: Introduction to Mechatronics and Robotic Vision**

(cross-leveled with ECE 7330). Covers 1) mechatronic systems; 2) the mathematical tools used to model industrial and mobile robots; and 3) vision sensors, their underlying models and algorithms that allow us to control and interact with robots.

**Credit Hours:** 4

**Prerequisites:** ECE 3220 or ECE 4220

**Recommended:** a C/C++ languages

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**ECE 4340: Building Intelligent Robots**

(same as CMP\_SC 4730; cross-leveled with ECE 7340, CMP\_SC 7740). Covers the design and development of intelligent machines, emphasizing topics related to sensor-based control of mobile robots. Includes mechanics and motor control, sensor characterization, reactive behaviors and control architectures. Recommended: programming experience in one of the following programming languages: Basic, C, C++, or Java.

**Credit Hours:** 4

**Prerequisites:** junior standing

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**ECE 4350: Programmable Logic Controllers**

(cross-leveled with ECE 7350). Hardware and software aspects of PLC's; computer/PLC Communications; developing ladder logic programs; interfacing I/O devices, including sensors, to the PLC; labeling and documentation; utilizing analog capabilities; applications; developing Supervisory Control and Data Acquisitions (SCADA) applications.

**Credit Hours:** 4

**Prerequisites:** junior standing

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**ECE 4410: Power Electronics I**

(cross-leveled with ECE 7410). Power electronic device characteristics, important circuit and component concepts, loss mechanisms and thermal analysis, phase controlled rectifiers, dc-dc converters, and dc-ac inverters. Includes laboratory projects.

**Credit Hours:** 4

**Prerequisites:** ECE 3410

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**ECE 4430: Electronic Circuits and Signals II**

(cross-leveled with ECE 7430). Advanced study of electronic devices including frequency response of amplifiers, nonlinear effects in transistor amplifiers, oscillators, and feedback amplifiers.

**Credit Hours:** 3

**Prerequisites:** ECE 3830 and ECE 3410

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**ECE 4440: Power Systems Analysis**

(cross-leveled with ECE 7440). Selected topics related to modern power system analysis. Single and three-phase balanced power; Transformers and the per unit concept; Properties and analysis of transmission lines; power flow analysis; symmetrical and asymmetrical faults; system stability; power distribution; use of Powerworld software. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 3810 and MATH 4100 or instructor's consent

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**ECE 4460: Energy and Machines**

(cross-leveled with ECE 7460). Theory and applications of electric machines. Performance analysis of AC Synchronous, Induction and DC machines with emphasis on modern efficiency improvements. Fundamentals of electronic speed controls.

**Credit Hours:** 3

**Prerequisites:** ECE 3510

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**ECE 4470: Sustainable Electrical Energy Resources**

(cross-leveled with ECE 7470). Analysis of renewable electrical energy resources from both the utility and distributed resource perspective. Covers safety, metering and power quality issues associated with coupling distributed resources to the utility grid.

**Credit Hours:** 3

**Prerequisites:** ECE 2100 or ENGINR 2100

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**ECE 4510: Pulsed Power Engineering**

(cross-leveled with ECE 7510). Concepts of energy generation and storage systems used in pulse power engineering, high power opening and closing switches, high voltage engineering, grounding and shielding, high voltage safety.

**Credit Hours:** 3

**Prerequisites:** ECE 3510

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**ECE 4550: Introduction to Plasmas**

(same as NU\_ENG 4375; cross-leveled with ECE 7550, NU\_ENG 7375). Equations of plasma physics, interaction of waves and plasmas; plasma sheaths and oscillations; measurements and applications.

**Credit Hours:** 3

**Prerequisites:** ECE 3510

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**ECE 4590: Computational Neuroscience**

(same as BIOL\_EN 4590, BIO\_SC 4590, BME 4590; cross-leveled with ECE 7590, BIOL\_EN 7590, BIO\_SC 7590). Interdisciplinary course in biology and quantitative sciences with laboratory and modeling components. Explores basic computational and neurobiological concepts at the cellular and network level. Introduction to neuronal processing and experimental methods in neurobiology; modeling of neurons and neuron networks. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** MATH 1500 or equivalent

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**ECE 4620: Introduction to BioMEMS**

(cross-leveled with ECE 7620). Study of BioMEMS devices and applications. Topics cover BioMEMS including overview of

microfabrication techniques, common bioMEMS material, microfluidic principles, microfluidic devices, drug delivery, biomedical microdevices for neural implants, patch-clamping and single cell based analysis systems, microelectroporation, DNA microarrays, Polymerase Chain Reaction and biopolymers, chemical and gas sensors and biosensors. Graded on A-F basis only.

**Credit Hours:** 3

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**ECE 4630: Introduction to Optical Electronics**

(cross-leveled with ECE 7640). Principles, devices and materials used to generate, modulate, and detect optical radiation. Review of important properties of light and semiconductors. Light-emitting diodes and lasers. Electro-optic modulation. Thermal and quantum detection. Emphasis on semiconductor-based devices and application to fiber-optical communications.

**Credit Hours:** 3

**Prerequisites:** ECE 3610

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**ECE 4640: MEMS Laboratory**

(cross-leveled with ECE 7640). The main objective of this course is to provide hands-on skills for the interdisciplinary Microelectromechanical Systems (MEMS). It puts emphasis on the practical aspects of design, fabrication, test, and characterization of micro/nano devices and systems. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** PHYSCS 2760, CHEM 1320, or ECE 2100

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**ECE 4650: Semiconductor Device Theory**

(cross-leveled with ECE 7650). Band theory, equilibrium and non-equilibrium semiconductor electronics, junction theory, p-n junction devices, bipolar and field effect transistors including SPICE simulation.

**Credit Hours:** 3

**Prerequisites:** ECE 3610

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**ECE 4655: Digital image Processing**

(same as CMP\_SC 4650; cross-leveled with ECE 7655, CMP\_SC 7650). This course provides fundamentals of digital image processing hardware and software including digital image acquisition, image display, image enhancement, image transforms and segmentation.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2050 and STAT 4710 or instructor's consent

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**ECE 4670: Microelectronic Fabrication**

(cross-leveled with ECE 7670). Basic silicon integrated circuit fabrication processes, basic techniques of wafer processing, economics of fabrication and resulting devices properties, interdependence of process flow and device design. Accompanying laboratory.

**Credit Hours:** 4

**Prerequisites:** ECE 3610

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**ECE 4675: Digital Image Compression**

(same as CMP\_SC 4670; cross-leveled with ECE 7675, CMP\_SC 7670). This course provides basic concepts and theorems in information theory, discrete cosine transform, discrete wavelet transform, quantizer

design, bit allocation, and rate-distortion analysis and practical coding and communication system design, (such as Huffman coding, arithmetic coding, variable length coding, motion estimation, JPEG.)

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2050

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**ECE 4710: Communications Systems**

(cross-leveled with ECE 7710). Concepts of communication systems, signal analysis and power spectrum density, signal transmission and filtering, linear modulation, exponential modulation, sampling, baseband digital communication, modulated digital communication, spread spectrum communication.

**Credit Hours:** 3

**Prerequisites:** ECE 3830

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**ECE 4720: Introduction to Machine Learning and Pattern Recognition**

(Same as CMP\_SC 4720; cross-leveled with ECE 7720, CMP\_SC 7720) This course provides foundation knowledge to the basic methods in machine learning and pattern recognition (MLPR). MLPR addresses the problems of programming computers to optimize certain performance criteria by using example data or expert knowledge and it has wide applications.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2050 and STAT 4710 or instructor consent

---

**ECE 4730: Introduction to Wireless Communication System**

(cross-leveled with ECE 7730). Principles of wireless communication analysis and design. Digital communication basics, cellular radio, wireless PCS communications, multiple access techniques, channel coding and equalization, and standards of digital cellular/PCS systems.

**Credit Hours:** 3

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**ECE 4830: Introduction to Digital Signal Processing**

(cross-leveled with ECE 7830). Concepts, analytical tools, design techniques used in computer processing of signals; signal representation, sampling, discrete-time systems analysis, recursive and non-recursive filters, design/implementation, discrete Fourier transform.

**Credit Hours:** 4

**Prerequisites:** ECE 2210, ECE 3830

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**ECE 4870: Introduction to Computational Intelligence**

(same as CMP\_SC 4770; cross-leveled with ECE 7870, CMP\_SC 7770). Introduction to the concepts, models, and algorithms for the development of intelligent systems from the standpoint of the computational paradigms of neural networks, fuzzy set theory and fuzzy logic, evolutionary computation and swarm optimization. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** some exposure to rigorous axiomatic mathematical development of a topic (as can be found in most senior/graduate level math or statistics courses) is needed to appreciate some of the development of the theory. Also, the ability to program (well) in some high level language is essential to perform the computer projects

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**ECE 4880: Micro/Nano Systems**

(cross-leveled with ECE 7880). Micro/nano systems covers various micro/nanotechnologies, micro sensors and actuators including digital light processors, accelerometers, gyroscopes, micro optical switches and components, micro speakers, RF switches, inertial/mechanical and acoustic M/NEMS and M/Nanofluidic systems. Major mechanisms/principles for micro/Nano devices and systems are also covered. The Micro/Nano Systems focuses on the miniaturization technologies that have important roles in materials, mechanical, and biomedical engineering practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 3610 or instructor's consent

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**ECE 4930: Intermediate Electromagnetics**

(cross-leveled with ECE 7930). Course covers transmission lines, waveguides, microstrip electromagnetic circuits, and radiating systems.

**Credit Hours:** 4

**Prerequisites:** ECE 3510

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**ECE 4940: Antenna Theory, Design and Laboratory**

(cross-leveled with ECE 7940). Introduction to antenna theory, design and laboratory. Emphasis on engineering aspects of antenna systems, transmitting and receiving antenna parameters, various antennas.

**Credit Hours:** 4

**Prerequisites:** ECE 3510

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**ECE 4960W: Senior Capstone Design I - Writing Intensive**

Lectures on safety, ethics, professionalism, intellectual property, product liability, contemporary issues, and project management. Provides the senior Capstone project proposal experience, incorporating multidisciplinary project design and project management skills. Oral presentations and written reports. Not for graduate credit. Graded A-F only. Recommended: Post-requisite: ECE 4980.

**Credit Hours:** 3

**Prerequisites:** Restricted to EECS Department students only, or instructor's consent

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**ECE 4970: Senior Capstone Design**

Group Design Projects. Design methodology, project management, development of specifications, examination of alternatives, preparation of proposal. Lectures on safety, ethics, professionalism, and economics. Oral and written reports. Not for graduate credit.

**Credit Hours:** 3

**Prerequisites:** A grade of C or better in ECE 3110 or ECE 3840 and senior standing. Restricted to Electrical and Computer Engineering students only or instructor's consent

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**ECE 4970W: Senior Capstone Design - WI**

Group Design Projects. Design methodology, project management, development of specifications, examination of alternatives, preparation of proposal. Lectures on safety, ethics, professionalism, and economics. Oral and written reports. Not for graduate credit.

**Credit Hours:** 3

**Prerequisites:** A grade of C or better in ECE 3110 or ECE 3840 and senior standing. Restricted to Electrical and Computer Engineering students only or instructor's consent

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**ECE 4980: Senior Capstone Design II**

Provides the senior Capstone design experience where multidisciplinary teams reduce to practice a proposed product. Oral and written reports. Not for graduate credit. Graded A-F only.

**Credit Hours:** 3

**Prerequisites:** ECE 3840, ECE 4960, Senior standing, Restricted to EECS Department students only, or instructor's consent

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**ECE 4990: Undergraduate Research in Electrical Computer Engineering**

Supervised independent study or project in electrical or computer engineering, culminating in a written report.

**Credit Hour:** 1-3

**Prerequisites:** Undergraduate Program Director's consent

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**ECE 4995: Undergraduate Honors Research in Electrical Computer Engineering**

Independent investigation or project in electrical or computer engineering to be presented as an undergraduate honors thesis. Enrollment is limited to students participation in the Electrical and Computer Engineering Honors Program.

**Credit Hour:** 1-3

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**ECE 7001: Advanced Topics in Electrical and Computer Engineering**

Current and new technical developments in electrical engineering.

**Credit Hour:** 1-4

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**ECE 7010: Digital Computer Applications in Engineering**

Use of digital computer for solution of engineering problems involving roots of equations, simultaneous equations, curve fitting, integration, differentiation and differential equations.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

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**ECE 7020: Energy Systems and Resources**

(same as NU\_ENG 7315, MAE 7371; cross-leveled with ECE 4020, NU\_ENG 4315, MAE 4371). Analysis of present energy usage in Missouri, USA and the world, evaluation of emerging energy technologies and trends for the future. Economics and environmental impact of the developed technologies.

**Credit Hours:** 3

**Prerequisites:** ENGINR 2300

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**ECE 7030: Introduction to Nuclear Reactor Engineering**

(same as NU\_ENG 7346; cross-leveled with ECE 4030, NU\_ENG 4346). Engineering principles of nuclear power systems, primarily for the production of electrical energy.

**Credit Hours:** 3

**Prerequisites:** graduate ENGINR 1200, ENGINR 2300

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**ECE 7040: Introduction to Nuclear Physics**

(cross-leveled with ECE 4040). Introduction of Quantum mechanics for non-physics majors. Course topics include nuclear properties; alpha, beta

and gamma radioactive decay; and nuclear reactions. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** senior standing or graduate standing in engineering or equivalent mathematical preparation

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**ECE 7070: Numerical Methods for Science and Engineering**

(same as CMP\_SC 7070; cross-leveled with ECE 4070, CMP\_SC 4070). This course introduces the basic numerical methods that are widely used by computer scientists and engineers. Students will learn how to use the MATLAB platform to find the computational solution of various problems arising in many real world applications. By completing this course, students will be able to master algorithms, compare their performances and critically assess which ones are viable options for the particular problem at hand. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050, junior standing, or Instructor's consent

**Recommended:** Students are expected to have basic knowledge in discrete math and algorithms

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**ECE 7220: Real Time Embedded Computing**

(cross-level with ECE 4220). Embedded systems development with real time constraints including RTOS, task management and synchronization, realtime scheduling algorithms, deadlocks, performance analysis and optimization, interfacing to external devices, and device drivers. Graded A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 3220

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**ECE 7250: VHDL and Programmable Logic Devices**

(cross-leveled with ECE 4250). Design techniques including module definition, functional partitioning, hardware design language descriptions and microprogramming; design examples include arithmetic units, programmable controllers, and microprocessors.

**Credit Hours:** 4

**Prerequisites:** ECE 3210 or ECE 3280 or CMP\_SC 3280 with a grade of C or better

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**ECE 7270: Computer Architecture**

(same as CMP\_SC 7270; cross-leveled with ECE 4270, CMP\_SC 4270). Advanced computer architectures and programming; memory, memory management and cache organizations, parallel processing, graphical processor units for general programming.

**Credit Hours:** 4

**Prerequisites:** CMP\_SC 2050 and ECE 3280 or CMP\_SC 3280 or ECE 3210 with a grade of C or better

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**ECE 7280: Network Systems Architecture**

(same as CMP\_SC 7280; cross-leveled with ECE 4280, CMP\_SC 4280). The course covers network systems interconnects and switch fabrics, network considerations and relevant networking applications at the network, transport and application layer. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** CMP\_SC 2050 or ECE 3200 and CMP\_SC 3280 or ECE 3210

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**ECE 7310: Feedback Control Systems**

(same as BIOL\_EN 7310, MAE 7750; cross-leveled with ECE 4310, BIOL\_EN 4310, MAE 4750). System modeling and time and frequency response, closed loop control, stability, continuous system design, introduction to discrete time control, software and hardware experiments on compensator design and PID control.

**Credit Hours:** 3

**Prerequisites:** MATH 4100

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**ECE 7320: Architectural Robotics**

(cross-leveled with ECE 4320). Architectural robotics has been defined as 'intelligent and adaptable built environments (featuring embedded robotic components) that sense, plan, and act'. This course will cover the basic concepts required for understanding, developing, and testing embedded robotic systems for the built environment. Students will work together in teams in a studio-style format which emphasizes hands-on projects to develop working prototypes. The goal is to offer students an opportunity for creativity in an interdisciplinary setting. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** ECE 4970 or equivalent

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**ECE 7330: Introduction to Mechatronics and Robotic Vision**

(cross-leveled with ECE 4330). Introduces robotics; robot system characteristics; robot motive power systems; geometric structure of robots; sensors and feedback; control applications and algorithms; data acquisition and output actuation function; robots and AI; microprocessor applications. Lecture and Laboratory. Recommended: a C/C++ Language course.

**Credit Hours:** 4

**Prerequisites:** ECE 3220 or ECE 4220

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**ECE 7335: Nuclear Safeguards Science and Technology**

(same as NU\_ENG 7335). This course provides an overview of nuclear materials management and safeguards, including physical protection systems, material accounting and control, monitoring, and regulatory issues.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 4303 or NU\_ENG 7303

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**ECE 7340: Building Intelligent Robots**

(same as CMP\_SC 7730; cross-leveled with ECE 4340, CMP\_SC 4730). Covers the design and development of intelligent machines, emphasizing topics related to sensor-based control of mobile robots. Includes mechanics and motor control, sensor characterization, reactive behaviors and control architectures.

**Credit Hours:** 4

**Recommended:** some programming experience

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**ECE 7350: Programmable Logic Controllers**

(cross-leveled with ECE 4350). Hardware and software aspects of PLC's; computer/PLC Communications; developing ladder logic programs; interfacing I/O devices, including sensors, to the PLC; labeling and documentation; utilizing analog capabilities; applications; developing Supervisory Control and Data Acquisitions (SCADA) applications.

**Credit Hours:** 4

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**ECE 7370: Automatic Control System Design**

(cross-leveled with ECE 4370). Techniques for feedback system design and analysis; compensation using root locus and frequency-domain methods; state-variable design methods; techniques for nonlinear systems analysis and design; sample-data control systems.

**Credit Hours:** 3

**Prerequisites:** ECE 4310

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**ECE 7410: Power Electronics I**

(cross-leveled with ECE 4410). Power electronic device characteristics, important circuit and component concepts, loss mechanisms and thermal analysis, phase controlled rectifiers, dc-dc converters, and dc-ac inverters. Includes laboratory projects.

**Credit Hours:** 4

**Prerequisites:** ECE 3410

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**ECE 7430: Electronic Circuits and Signals II**

(cross-leveled with ECE 4430). Advanced study of electronic devices including frequency response of amplifiers, nonlinear effects in transistor amplifiers, oscillators, and feedback amplifiers.

**Credit Hours:** 3

**Prerequisites:** ECE 3830 and ECE 3410

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**ECE 7440: Power Systems Analysis**

(cross-leveled with ECE 4440). Selected Topics related to modern power system analysis. Single and three-phase balanced power; Transformers and the per unit concept; Properties and analysis of transmission lines; power flow analysis; symmetrical and asymmetrical faults; system stability; power distribution; use of Powerworld software. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 3810 and MATH 4100 or instructor's consent

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**ECE 7460: Energy and Machines**

(cross-leveled with ECE 4460). Theory and applications of electric machines. Performance analysis of AC synchronous induction and DC machines with emphasis on modern efficiency improvements. Fundamentals of electronic speed controls.

**Credit Hours:** 3

**Prerequisites:** ECE 3510

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**ECE 7470: Sustainable Electrical Energy Resources**

(cross-leveled with ECE 4470). Analysis of renewable electrical energy resources from both the utility and distributed resource perspective. Covers safety, metering and power quality issues associated with coupling distributed resources to the utility grid.

**Credit Hours:** 3

**Prerequisites:** ECE 2100 or ENGINR 2100

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**ECE 7510: Pulsed Power Engineering**

(cross-leveled with ECE 4510). Concepts of energy generation and storage systems used in pulse power engineering, high power opening

and closing switches, high voltage engineering, grounding and shielding, high voltage safety.

**Credit Hours:** 3

**Prerequisites:** ECE 3510

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**ECE 7540: Neural Models and Machine Learning**

(same as CMP\_SC 7540, BIOL\_en 7540; cross-leveled with BME 4540, CMP\_SC 4540, ECE 4540, BIOL\_EN 4540). The projects-based course has three inter-linked components: (I) math models of neurons and neural networks, (II) machine learning in neuroscience, after a brief introduction to python and (III) software automation and cyberinfrastructure to support neuroscience. Extensive projects focusing on software automation and machine learning components, with brief in-class presentations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1500 or consent of instructor

**Recommended:** Introductory software programming, and introductory cell biology or consent of instructor

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**ECE 7550: Introduction to Plasmas**

(same as NU\_ENG 7375; cross-leveled with ECE 4550, NU\_ENG 4375). Equations of plasma physics, interaction of waves and plasmas; plasma sheaths and oscillations; measurements and applications.

**Credit Hours:** 3

**Prerequisites:** ECE 4930

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**ECE 7590: Computational Neuroscience**

(same as BIOL\_EN 7590, BIO\_SC 7590; cross-leveled with BIOL\_EN 4590, BIO\_SC 4590, ECE 4590, BME 4590). Interdisciplinary course in biology and quantitative sciences with laboratory and modeling components. Explores basic computational and neurobiological concepts at the cellular and network level. Introduction to neuronal processing and experimental methods in neurobiology; modeling of neurons and neuron-networks. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** MATH 1500 or equivalent

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**ECE 7620: Introduction to BioMEMS**

(cross-leveled ECE 4620). BioMEMS materials, fabrication techniques, micro-fluidic principles and devices, drug delivery, biomedical micro-devices for neural implants, patch clamping and single cell based systems, micro-electroporation, DNA microarrays, Polymerase Chain Reaction, chemical/gas/bio-sensors. Graded on A-F basis only.

**Credit Hours:** 3

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**ECE 7630: Introduction to Optical Electronics**

(cross-leveled with ECE 4630). Principles, devices and materials used to generate, modulate, and detect optical radiation. Review of important properties of light and semiconductors. Light-emitting diodes and lasers. Electro-optic modulation. Thermal and quantum detection. Emphasis on semiconductor-based devices and application to fiber-optical communications.

**Credit Hours:** 3

**Prerequisites:** ECE 3610

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**ECE 7640: MEMS Laboratory**

(cross-leveled with ECE 4640). The main objective of this course is to provide hands-on skills for the interdisciplinary Microelectromechanical systems (MEMS). It puts emphasis on the practical aspects of design, fabrication, test, and characterization of micro/nano devices and systems. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** PHYSCS 2760, CHEM 1320 or ECE 2100; instructor's consent

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**ECE 7650: Semiconductor Device Theory**

(cross-leveled with ECE 7650). Band theory, equilibrium and non-equilibrium semiconductor electronics, junction theory, p-n junction devices, bipolar and field effect transistors including SPICE simulation.

**Credit Hours:** 3

**Prerequisites:** ECE 3610

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**ECE 7655: Digital Image Processing**

(same as CMP\_SC 7650; cross-leveled with ECE 4655, CMP\_SC 4650). The course provides fundamentals of digital image processing hardware and software including digital image acquisition, image display, image enhancement, image transforms and segmentation.

**Credit Hours:** 3

**Prerequisites:** STAT 4710 and CMP\_SC 2050 or instructor's consent

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**ECE 7670: Microelectronic Fabrication**

(cross-leveled with ECE 4670). Basic silicon integrated circuit fabrication processes, basic techniques of wafer processing, economics of fabrication and resulting devices properties, interdependence of process flow and device design. Accompanying laboratory.

**Credit Hours:** 4

**Prerequisites:** ECE 3610

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**ECE 7675: Digital Image Compression**

(same as CMP\_SC 7670; cross-leveled with ECE 4675, CMP\_SC 4670). This course provides basic concepts and theorems in information theory, discrete cosine transform, discrete wavelet transform, quantizer design, bit allocation, and rate-distortion analysis and practical coding and communication system design, (such as Huffman coding, arithmetic coding, variable length coding, motion estimation, JPEG.)

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050

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**ECE 7690: Design and Simulation of VLSI Circuits**

(cross-leveled with ECE 4690). Design of CMOS integrated circuits with emphasis on analog applications. Device models are developed for circuit simulation. Lecture and laboratory.

**Credit Hours:** 4

**Prerequisites:** ECE 4670

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**ECE 7710: Communications Systems**

(cross-leveled with ECE 4710). Concepts of communication systems, signal analysis and power spectrum density, signal transmission and filtering, linear modulation, exponential modulation, sampling, baseband

digital communication, modulated digital communication, spread spectrum communication.

**Credit Hours:** 3

**Prerequisites:** ECE 3830

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**ECE 7720: Introduction to Machine Learning and Pattern Recognition**

(same as CMP\_SC 7720; cross-leveled with ECE 4720, CMP\_SC 4720). This course provides foundation knowledge to the basic methods in machine learning and pattern recognition (MLPR). MLPR addresses the problem of programming computers to optimize certain performance criteria by using example data or expert knowledge and it has wide applications.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050 and STAT 4710 or instructor's consent

---

**ECE 7730: Introduction to Wireless Communication System**

(cross-leveled with ECE 4730). Principles of wireless communication analysis and design. Digital communication basics, cellular radio, wireless PCS communications, multiple access techniques, channel coding and equalization, and standards of digital cellular/PCS systems.

**Credit Hours:** 3

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**ECE 7810: Multimedia Engineering and Technology**

(same as CMP\_SC 7810). Survey of multimedia applications. Capture, coding, storage, transmission, and software tools for developing productions involving text, graphics, images, animation, sound and video. Term projects. Lecture and laboratory.

**Credit Hours:** 4

**Prerequisites:** ECE 3210 and ECE 3830

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**ECE 7830: Introduction to Digital Signal Processing**

(cross-leveled with ECE 4830). Concepts, analytical tools, design techniques used in computer processing of signals; signal representation, sampling, discrete-time systems analysis, recursive and non-recursive filters, design/implementation, discrete Fourier transform.

**Credit Hours:** 4

**Prerequisites:** ECE 2210, ECE 3830

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**ECE 7870: Introduction to Computational Intelligence**

(same as CMP\_SC 7770; cross-leveled with ECE 4870, CMP\_SC 4770). Introduction to the concepts, models, and algorithms for the development of intelligent systems from the standpoint of the computational paradigms of neural networks, fuzzy set theory and fuzzy logic, evolutionary computation and swarm optimization. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** some exposure to rigorous axiomatic mathematical development of a topic (as can be found in most senior/graduate level math or statistics courses) is needed to appreciate some of the development of the theory. Also, the ability to program (well) in some high level language is essential to perform the computer projects

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**ECE 7880: Micro/Nano Systems**

(cross-leveled with ECE 4880). Micro/Nano systems covers various micro/nanotechnologies, micro sensors and actuators including digital

light processors, accelerometers, gyroscopes, micro optical switches and components, micro speakers, RF switches, inertial/mechanical and acoustic M/NEMS and M/Nanofluidic systems. Major mechanisms/principles for micro/Nano devices and systems are also covered. The Micro/Nano Systems focuses on the miniaturization technologies that have important roles in materials, mechanical, and biomedical engineering practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 3610 or instructor's approval

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**ECE 7930: Intermediate Electromagnetics**

(cross-leveled with ECE 4930). Course covers transmission lines, waveguides, microstrip electromagnetic circuits, and radiating systems

**Credit Hours:** 4

**Prerequisites:** ECE 3510

---

**ECE 7940: Antenna Theory, Design and Laboratory**

(cross-leveled with ECE 4940). Introduction to antenna theory, design and laboratory. Emphasis on engineering aspects of antenna systems, transmitting and receiving antenna parameters, and various wire antennas.

**Credit Hours:** 4

**Prerequisites:** ECE 3510

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**ECE 7950: Microwave Principles**

(cross-leveled with ECE 4950). Maxwell's Equations, transmission lines, plane wave propagation and reflection, waveguides, resonant cavities, microwave devices and components, radiation, radio wave propagation. Lecture and laboratory.

**Credit Hours:** 4

**Prerequisites:** ECE 3510 and ECE 3410

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**ECE 8001: Advanced Topics in Electrical and Computer Engineering**

Advanced Topics in Electrical and Computer Engineering. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** may vary from semester to semester depending on topic

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**ECE 8010: Supervised Study in Electrical Engineering**

Supervised individual study at the graduate level to be completed within the course of one semester in the form of a brief report. Graded on S/U basis only

**Credit Hour:** 1-3

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**ECE 8011: Software and Cyber Automation in Neuroscience**

This seminar course will emphasize software and cyber automation tools in neuroscience to address the emerging needs of big data in neuroscience. Students will work in pairs to address such needs of various neuroscience Labs both within MU and with collaborators outside MU. The students pairs will be provided a list of automation projects to work on (one or maximum two) during the semester, under close supervision of the instructors. They will also be provided access to local cyberinfrastructure at MU, national cyberinfrastructure resources such as CyVerse ([www.cyverse.org](http://www.cyverse.org)) and Neuroscience Gateway (<https://>

[www.nsgportal.org](http://www.nsgportal.org)), as well as public clouds such as XSEDE and Amazon Web Services. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Basic software programming, basic cell biology, or consent of instructor

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**ECE 8085: Problems in Electrical and Computer Engineering**

Supervised investigation of an electrical engineering problem for an MS project. Study culminates in a project report. Graded on a S/U basis only.

**Credit Hour:** 2-5

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**ECE 8110: Preparing Advanced Professionals - I**

Discussions on a variety of topics: Pedagogy - latest from cognitive science and learning theory, effective teaching, how a university functions, engineering teaching and research; how leading industries perform research and the importance of soft skills, etc. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** restricted to graduate Engineering majors only

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**ECE 8120: Preparing Advanced Professionals - II**

Continues format of ECE 8110 with group discussions and seminars by experts on how to write an effective proposal, including a review of model proposals, model proposal reviews, and a 'hands-on' proposal writing followed by globalization and its effects on professionals. Graded on A-F only.

**Credit Hour:** 1

**Prerequisites:** graduate engineering majors only

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**ECE 8270: Parallel Computer Architecture**

The course covers parallel computer architecture (general purpose multi-core and many-core processors, shared and distributed memory systems, clusters). Emphasis will be given to both architectural and programmability aspects. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 4270 or ECE 7270, ECE 4220 or ECE 7220 or CMP\_SC 4250 or CMP\_SC 7250

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**ECE 8320: Nonlinear Systems**

Nonlinear systems including topics such as limit cycles, phase plane analysis, bifurcation, Lyapunov stability, input-output stability, passivity. Topics from control such as feedback linearization, sliding control, and Lyapunov redesign. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 4310

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**ECE 8510: Advanced Electromagnetics**

Advanced theoretical electromagnetic theory. Investigation of summation problems with general boundary conditions, time varying fields, and time harmonic currents. Basic applications and relationships in classical and relativistic physics.

**Credit Hours:** 3

**Prerequisites:** ECE 3510

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**ECE 8520: Direct Energy Conversion Technologies**

Study of direct energy conversion technology and research trends in this area. Topics include energy storage techniques (mechanical, chemical, thermal, inductive, capacitive), thermoelectric generators, photovoltaic generators, thermionic generators, magnetohydrodynamic generators, piezoelectric generators, wind generators, fuel cells. Current research trends in this area will also be examined. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE Majors or instructors consent

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**ECE 8530: Advanced Photonics**

Concentrated study of optical system design, including integrated optics, semiconductor lasers, quantum wells, optical materials, and electro-optical effects used in modern optical systems.

**Credit Hours:** 3

**Prerequisites:** ECE 4530

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**ECE 8540: Advanced Network Theory and Applications**

Advanced study of network theorems including compensation, reciprocity, duality, and maximum power. Theory and application of N-port parameters. Linear and non-linear network synthesis techniques. Analysis of ordinary and partial differential equations to develop electrical analogs for mechanical, pneumatic, thermal, hydraulic systems. Study of non-linear circuit analysis and modeling techniques. Current research trends in this area will also be examined. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE Majors or instructors consent

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**ECE 8570: Neural Dynamics and Communication**

(same as CMP\_SC 8570). Properties of nerve cells including membrane potential, action potential, ion channel dynamics, GHK equation, dynamical properties of excitable membranes, neuronal communication and plasticity. Entrainment, synchronization and oscillations in neuronal networks, and their functional significance. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE4590/CMP\_SC 4590/BIOL\_EN 4590/BME 4590 or consent of instructor

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**ECE 8580: Machine Learning in Neuroscience**

(same as CMP\_SC 8580). Basics of neuronal and network dynamics including spikes and communication between regions, including via competing hypotheses. Machine learning fundamentals including linear, logistic and artificial neural network mappings. Integration of data-driven and theory-driven models, with emphasis on insights into neuroscience via XAI approaches. Software automation in neuroscience including python notebooks and cyberinfrastructure tools for interacting with repositories and HPC resources. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 4590/CMP\_SC 4590 or consent of instructor

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**ECE 8610: Power Semiconductor Devices**

A study of the semiconductor devices used in switch-mode power converter circuits. Course surveys the field and discusses selected devices in depth.

**Credit Hours:** 3

**Prerequisites:** ECE 3610, ECE 4630 and ECE 4650

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**ECE 8620: Advanced Microelectromechanical Systems**

MEMS development cycle, overview of microfabrication, microsystem modeling, mechanical analysis, thermal analysis, transduction mechanism, case studies; Micromirror, accelerometers, pressure sensors, force sensors, RF MEMS switches, Infrared sensors, and Microsystem packaging.

**Credit Hours:** 3

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**ECE 8675: Biomedical Image Processing**

(same as CMP\_SC 8675). This course introduces students to the fundamentals of biomedical image processing and analysis with an emphasis on cellular and tissue microscopy along with anatomical imaging. The course will cover image and video processing techniques and pipelines for image enhancement, restoration, registration, detection, segmentation, classification, and motion analysis that are tailored for biomedical image informatics. This course will provide a rich exposure to a broad range of imaging datasets from the molecular to the anatomical; and train students to implement algorithms for moderately complex tasks in biomedical image analysis. This course is suitable for graduate students in all fields of engineering and science who are interested in understanding and implementing biomedical and biological image analytics and are seeking pointers to the broad literature in the field. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 4655/ECE 7655 or CMP\_SC 4650/CMP\_SC 7650 or instructor's consent

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**ECE 8690: Computer Vision**

(same as CMP\_SC 8690). This course introduces students to the fundamental problems of computer vision, the main concepts and the techniques used to solve such problems. It will enable graduate and advanced undergraduate students to solve complex problems and make sense of the literature in the area. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 4655 or ECE 7655 or CMP\_SC 4650 or CMP\_SC 7650 or instructor's consent

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**ECE 8695: Cognitive Computer Vision**

One of the more recent trends in computer vision research in the pursuit of human-like capability is the coupling of cognition and vision into cognitive computer vision. This course will emphasize the advanced topics in applying machine learning techniques in computer vision.

**Credit Hours:** 3

**Prerequisites:** ECE 4850 or ECE 7850 or CMP\_SC 4650 or CMP\_SC 7650 or consent of instructor

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**ECE 8725: Supervised Learning**

(same as CMP\_SC 8725). This course introduces the theories and applications of advanced supervised machine learning methods. It covers hidden Markov model and expectation maximization (EM) algorithms, probabilistic graphical models, non-linear support vector machine and kernel methods. The course emphasizes both the theoretical underpinnings of the advanced supervised learning methods and their applications in the real world. Graded on A-F basis only.

**Credit Hours:** 3



**Prerequisites:** CMP\_SC 4720 or CMP\_SC 7720 or ECE 4720 or ECE 7720 or instructor's consent

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**ECE 8730: Fundamentals of Radar Signal Processing**

Study of radar signal processing fundamentals. Topics include radar systems, signal models, sampling and quantization of radar signals, radar waveforms, Doppler processing, detection fundamentals, radar imaging.

**Credit Hours:** 3

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**ECE 8735: Unsupervised Learning**

(same as CMP\_SC 8735). Theoretical and practical aspects of unsupervised learning including topics of expectation maximization (EM), mixture decomposition, clustering algorithms, cluster visualization, and cluster validity. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4720 or CMP\_SC 7720 or ECE 4720 or ECE 7720 or instructor's consent

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**ECE 8790: Digital Processing of SAR Data**

Study of digital processing of synthetic aperture radar (SAR) data. Topics cover SAR data fundamentals including concepts, signal processing, pulse compression, signal properties, processing algorithms, and image processing.

**Credit Hours:** 3

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**ECE 8800: Sensor Array and Statistical Signal Processing**

Introduce the basics on sensor array processing, signal detection and parameter estimation, with their applications in communications and signal processing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECE 7830 and ECE 8860 or with instructor consent

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**ECE 8810: Advanced Digital Signal Processing**

Topics in digital signal analysis and filtering. Including hardware implementation, speech synthesis and recognition, multi-dimensional transforms, random-signal concepts, design methods and computer aids to analysis and design.

**Credit Hours:** 3

**Prerequisites:** ECE 4830

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**ECE 8830: Visual Signal Processing and Communications**

Threats visual digital signal processing and network communications covering both theory and application of coding, compression and communications via the web. Covers such standards as JPEG, MPEG-2 and MPEG-4 as well as motion detection. Graded on A-F basis only.

**Credit Hours:** 3

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**ECE 8855: Advanced Image Processing**

(same as CMP\_SC 8650). This course covers advanced topics in image understanding including multispectral multimodal imaging, motion estimation, texture analysis, geometric level set methods.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4650 or CMP\_SC 7650 or instructor's consent

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**ECE 8860: Probability and Stochastic Processes for Engineers**

Introduction to probability, multidimensional complex (phaser) random variables and stochastic processes in electrical engineering.

**Credit Hours:** 3

**Prerequisites:** ECE 4830, ECE 4710, or ECE 8620

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**ECE 8875: Advanced Topics in Computational Intelligence**

(same as CMP\_SC 8780). This course is a continuation of ECE 7870 in the concepts, models, and algorithms for the development of intelligent systems from the standpoint of the computational paradigms of neural networks, fuzzy set theory and fuzzy logic, evolutionary computation, and swarm intelligence. Advanced topics in these areas will be discussed with a focus on applications of these technologies.

**Credit Hours:** 3

**Prerequisites:** ECE 4870 or ECE 7870

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**ECE 8890: Neural Networks**

(same as CMP\_SC 8770). The course will consider computing systems based on neural networks and learning models along with implementations and applications of such systems.

**Credit Hours:** 3

**Prerequisites:** ECE 4870 or ECE 7870 or instructor's consent

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**ECE 8990: Research-Master Thesis in Electrical and Computer Engineering**

Independent investigation in a field of electrical engineering to be presented as thesis or dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**ECE 9001: Advanced Topics in Electrical and Computer Engineering**

Advanced Topics in Electrical and Computer Engineering

**Credit Hours:** 3

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**ECE 9990: Research-Doctoral Dissertation Electrical & Computer Engineering**

Independent investigation in a field of electrical engineering to be presented as thesis or dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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## **Emergency Medicine (EMR\_ME)**

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**EMR\_ME 6034: SCC Emergency Medicine Selective**

This selective is designed to offer an introductory experience in Emergency Medicine, including all levels of acuity and pre-hospital emergency care. The student will work 15-16 (~140 hours) rotating shifts in the Emergency Department. During that time, the student will have free access to all patient care activities. The student will assist with patient evaluations and procedures under the close supervision of the Emergency attending physicians, residents, or physician assistants. Specific time will be devoted to learning basic skills needed in emergency medicine. An orientation skills lab will be provided early in the rotation to cover suturing, splinting, etc. Teaching will be primarily a one-on-one exchange with the residents and PA's/Attendings. There are night shifts in this rotation.

**Credit Hours:** 5

**Prerequisites:** Successful completion of the first two years of medical school. Successful completion of 5 of the 7 core clerkships. Three of the 5 must be the Surgery Clerkship, Internal Medicine Clerkship, and either the Pediatrics or Family Medicine Clerkship

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**EMR\_ME 6245: ABS Emergency Medicine Research and Review**  
ABS Emergency Medicine Research and Review

**Credit Hour:** 5-10

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**EMR\_ME 6461: Emergency Medicine-Ultrasound**

The purpose of this rotation is to provide M4 students the opportunity to understand the indications for and the physics behind Point of Care Ultrasound (POCUS) in the Emergency Department (ED). Additionally students will develop the mechanical skills necessary to obtain adequate images through real-time bedside image acquisition, as well as learn how to interpret the images and apply them to patients clinically. POCUS applications that will be of particular focus include some or all of the following: FAST, Early pregnancy, Abdominal aorta, Focused cardiac, Biliary, Renal/bladder, DVT evaluation, Lung, Soft tissue/musculoskeletal, Procedures.

**Credit Hours:** 5

**Prerequisites:** Successful completion of Emergency Medicine course 6860 (or equivalent) and faculty approval prior to enrollment

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**EMR\_ME 6760: Emergency Medicine - Rural**  
Emergency Medicine - Rural

**Credit Hours:** 5

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**EMR\_ME 6860: EMERGENCY MEDICINE**  
Emergency Medicine

**Credit Hours:** 5

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**EMR\_ME 6919: Introduction to Emergency Medicine**

This elective is designed to offer an introductory experience in Emergency Medicine, including all levels of acuity and pre-hospital emergency care.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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**EMR\_ME 6920: Introduction to Pediatric Emergency Medicine**

This elective is designed to offer an introductory experience in Pediatric Emergency Medicine (PEM) including all levels of acuity and pre-hospital emergency care.

**Credit Hours:** 2

**Prerequisites:** successful completion of the first two years of medical school

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**EMR\_ME 6943: SCC Emergency Medicine 2-week**

This elective is designed to offer an introductory experience in Emergency Medicine, including all levels of acuity and pre-hospital emergency care. The student will work rotating shifts of 10 hours each in the Emergency Department at Cox South or Mercy Hospital. During that time, the student will have access to all patient care activities. The

student will assist with patient evaluations and select procedures under the close supervision of the Emergency Medicine attending physician. Specific time will be devoted to learning basic skills needed in Emergency Medicine. Teaching will be primarily a one-on-one exchange with the attending physicians.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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## Engineering (ENGINR)

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**ENGINR 1000: Introduction to Engineering**

This course will help students identify a field of engineering that they will pursue during their studies at MU. This objective will be achieved by exposing students to design in the different engineering disciplines, overviews of the individual departments, and guest lecturers from industry. Other lectures will be given to help acclimate students to university life. Graded on A-F basis only.

**Credit Hour:** 1

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**ENGINR 1100: Engineering Graphics Fundamentals**

Introduction to computer-aided design and drafting. Topics include visualization methods and standards techniques for communication and presenting engineering design graphics information.

**Credit Hours:** 2

**Prerequisites or Corequisites:** MATH 1500

**Prerequisites:** Restricted to Engineering Students only, or by departmental consent

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**ENGINR 1100H: Engineering Graphics Fundamentals - Honors**

Introduction to computer-aided design and drafting. Topics include visualization methods and standards techniques for communication and presenting engineering design graphics information.

**Credit Hours:** 2

**Prerequisites or Corequisites:** MATH 1500

**Prerequisites:** Restricted to Engineering Students only, or by departmental consent. Honors Eligibility required

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**ENGINR 1110: Solid Modeling for Engineering Design**

Introduction to 3D (three dimensional) modeling techniques using computer aided design software. Topics include model creation techniques and advanced graphical presentation practices. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** ENGINR 1100 or instructor's consent. Restricted to Engineering Students Only or by departmental consent

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**ENGINR 1200: Statics and Elementary Strength of Materials**

Fundamentals of statics; static equilibrium and introduction to elements of mechanics of elastic materials.

**Credit Hours:** 3

**Prerequisites or Corequisites:** PHYSICS 2750 C- or higher. Restricted to Engineering Students only or with departmental consent

**Prerequisites:** MATH 1500 C- or higher

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**ENGINR 1200H: Statics and Elementary Strength of Materials - Honors**

Fundamentals of statics; static equilibrium and introduction to elements of mechanics of elastic materials.

**Credit Hours:** 3

**Prerequisites or Corequisites:** PHYSCS 2750 C- or higher. Restricted to Engineering Students only or with departmental consent

**Prerequisites:** MATH 1500 C- or higher. Honors eligibility required

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**ENGINR 2001: Experimental Course**

For sophomore-level students. Content and number of credit hours to be listed in Schedule of Courses.

**Credit Hour:** 1-99

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**ENGINR 2001W: Experimental Course - Writing Intensive**

For sophomore-level students. Content and number of credit hours to be listed in Schedule of Courses.

**Credit Hour:** 1-99

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**ENGINR 2100: Circuit Theory for Engineers**

DC circuit analysis, inductors and capacitors, first-order response, AC circuit analysis, single-phase AC power and three-phase, transformers.

**Credit Hours:** 3

**Prerequisites:** MATH 1700. For Non-Electrical and Computer Engineering Majors. Restricted to Engineering Students only or with departmental consent

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**ENGINR 2100H: Circuit Theory for Engineers - Honors**

DC circuit analysis, inductors and capacitors, first order response, AC circuit analysis, single-phase AC power.

**Credit Hours:** 3

**Prerequisites:** MATH 1700. Honors eligibility required

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**ENGINR 2200: Intermediate Strength of Materials**

Elements of mechanics of elastic materials.

**Credit Hours:** 3

**Prerequisites:** ENGINR 1200 C- or higher. Restricted to Engineering Students only or with departmental consent

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**ENGINR 2300: Engineering Thermodynamics**

(same as MAE 2300). Fluid properties, work and heat, first law, second law, entropy, applications to vapor and ideal gas processes.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2750. Restricted to Engineering Students Only or departmental consent

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**ENGINR 2500: A History of Modern Engineering**

This course will introduce the student to significant engineering events that have shaped the late modern-era from the French Revolution to the end of World War II (1789-1945). Radical inventions and their dates will be used as historical landmarks throughout the course. Graded on A-F basis only.

**Credit Hours:** 3

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**ENGINR 2600H: History of Human Spaceflight - Honors**

This course will provide an overview of the history of human spaceflight, including early efforts up through the present for the three countries that have flown humans in space (U.S., Russian, and China). Special topics will include a discussion of the major space accidents. Finally, the future of human space exploration will be discussed. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**ENGINR 2600HW: History of Human Spaceflight - Honors/ Writing Intensive**

This course will provide an overview of the history of human spaceflight, including early efforts up through the present for the three countries that have flown humans in space (U.S., Russian, and China). Special topics will include a discussion of the major space accidents. Finally, the future of human space exploration will be discussed. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**ENGINR 3000: Short Term Education Abroad**

Introduction to history and culture of country and/or cities in specified country. Students will make engineering profession and corporate site visits. Lecture activities will focus on industry and society, with country and/or cities compared and contrasted to U.S. engineering. Graded A-F only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required. Students must be in Academic Good Standing

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**ENGINR 3000H: Short Term Education Abroad - Honors**

Introduction to history and culture of country and/or cities in specified country. Students will make engineering profession and corporate site visits. Lecture activities will focus on industry and society, with country and/or cities compared and contrasted to U.S. engineering. Graded A-F only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required. Students must be in Academic Good Standing

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**ENGINR 4000: Study Abroad Technical Elective**

This course is designed to provide students with an international experience while also potentially fulfilling a required engineering technical elective course. Engineering technical electives are courses that are relevant or related to engineering from a broad range of fields including math and science as well as the various engineering departments. This course will be used as the umbrella course for all Engineering Technical Elective Study Abroad Opportunities and each course will provide a separate section number.

**Credit Hour:** 3-6

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**ENGINR 4050: Cooperative Education Program**

For Engineering Cooperative Education Program Students. No billing hours, No term finalization.

**Credit Hours:** 0

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**ENGINR 4890: Multi-disciplinary Senior Engineering Capstone Design**

Engineering design and prototyping including reliability, testing, evaluation, preparation of documentation, safety, ethics, manufacturing, intellectual property, economic and environmental constraints. Oral and written reports. Graded A-F only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent. Student's department consent also required

**Recommended:** Senior standing

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**ENGINR 4890W: Multi-disciplinary Senior Engineering Capstone Design - Writing Intensive**

Engineering design and prototyping including reliability, testing, evaluation, preparation of documentation, safety, ethics, manufacturing, intellectual property, economic and environmental constraints. Oral and written reports. Graded A-F only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent. Student's department consent also required

**Recommended:** Senior standing

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**ENGINR 8100: Design and Development of Biomedical Innovations**

(same as BIOL\_EN 8100, MPP 8100). The overarching goal of this course is to help participants understand the design and development (drug or device) process in biomedical innovation. This course will help participants to understand the process of choosing unmet clinical needs, articulate a need statement without integrating solution, design and develop a solution. Participants will learn to assess the commercial potential of clinical needs by performing market analysis and valuing customer needs. A conceptual understanding about development of a prototype for a device and also drug development by different brainstorming process will be provided. Details of regulatory, reimbursement, patenting process required for product development will be explained with examples. An overview about how to evaluate preliminary designs, define product specifications, comply with manufacturing principles and methods, costs, cGMP requirements will be explained. Quality control and Quality assurance necessities for drug/device will be elucidated with case studies. Participants will gain knowledge about different business models for drug and devices, estimate market penetration and how to make profitable, patient-driven products. Graded on A-F basis only.

**Credit Hours:** 3

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## English (ENGLISH)

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**ENGLISH 1000: Exposition and Argumentation**

Stresses writing as a process, with due attention given to critical reading and thinking skills applicable to all college classes, as well as to invention, drafting, revising, and rewriting. English 1000 is a prerequisite for any Writing Intensive course.

**Credit Hours:** 3

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**ENGLISH 1000H: Honors Exposition English**

Stresses writing as a process, with due attention given to critical reading and thinking skills applicable to all college classes, as well as to invention, drafting, revising, and rewriting. English 1000 is a prerequisite for any Writing Intensive course.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**ENGLISH 1010W: Missouri Transfer Equivalent to Comp 1**

Equivalent to COMP 1 taken at a Missouri Institutions. For transfer purposes only in accordance with the Missouri Department of Higher Education standards for the 42 general education block. Guaranteed transfer course as part of Missouri transfer policies. Fulfills MU lower division Writing Intensive.

**Credit Hour:** 1-10

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**ENGLISH 1060: Human Language**

(same as ANTHRO 1060, SLHS 1060 and LINGST 1060). General introduction of various aspects of linguistic study. Elementary analysis of language data, with some attention to application of linguistic study to other disciplines.

**Credit Hours:** 3

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**ENGLISH 1100: Reading Literature**

Introduces the student to the values, rigors, and pleasures of reading literature. Intended for first-year, non-English majors. No more than six hours may be taken in the Reading Literature Series.

**Credit Hours:** 3

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**ENGLISH 1100H: Reading Literature - Honors**

Introduces the student to the values, rigors, and pleasures of reading literature. Intended for first-year, non-English majors. No more than six hours may be taken in the Reading Literature Series.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**ENGLISH 1106: Reading Literature, Beginnings to 1603**

See ENGLISH 1100 course for description.

**Credit Hours:** 3

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**ENGLISH 1107: Reading Literature, 1603 to 1789**

See ENGLISH 1100 course for description.

**Credit Hours:** 3

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**ENGLISH 1108: Reading Literature, 1789-1890**

See ENGLISH 1100 course for description.

**Credit Hours:** 3

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**ENGLISH 1109: Reading Literature, 1890 to Present**

See ENGLISH 1100 course for description.

**Credit Hours:** 3

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**ENGLISH 1160: Themes in Literature**

Topics (e.g., The Idea of Progress, Images of Women) announced at time of registration. No more than six hours may be taken in the Themes in Literature series.

**Credit Hours:** 3

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**ENGLISH 1160H: Themes in Literature - Honors**

Topics (e.g., The Idea of Progress, Images of Women) announced at time of registration. No more than six hours may be taken in the Themes in Literature series.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**ENGLISH 1166: Themes in Literature, Beginnings to 1603**

See ENGLISH 1160 for course description.

**Credit Hours:** 3

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**ENGLISH 1167: Themes in Literature, 1603 to 1789**

See ENGLISH 1160 for course description.

**Credit Hours:** 3

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**ENGLISH 1168: Themes in Literature, 1789 to 1890**

See ENGLISH 1160 for course description.

**Credit Hours:** 3

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**ENGLISH 1169: Themes in Literature, 1890 to Present**

See ENGLISH 1160 for course description.

**Credit Hours:** 3

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**ENGLISH 1169H: Themes in Literature, 1890 to Present - Honors**

See ENGLISH 1160 for course description.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**ENGLISH 1206: Readings in British Literature, Beginning to 1603**

See ENGLISH 1200 for course description.

**Credit Hours:** 3

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**ENGLISH 1207: Readings in British Literature, 1603 to 1789**

See ENGLISH 1200 for course description.

**Credit Hours:** 3

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**ENGLISH 1208: Readings in British Literature, 1789 to 1890**

See ENGLISH 1200 for course description.

**Credit Hours:** 3

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**ENGLISH 1209: Readings in British Literature, 1890 to Present**

See ENGLISH 1200 for course description.

**Credit Hours:** 3

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**ENGLISH 1210: Introduction to British Literature**

A basic introduction to the concepts, terms, and practices commonly encountered in literary study, presented by way of texts from the history of British literature that appropriately demonstrate such concepts, terms, and practices. Graded on A-F basis only.

**Credit Hours:** 3

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**ENGLISH 1210H: Introduction to British Literature - Honors**

A basic introduction to the concepts, terms, and practices commonly encountered in literary study, presented by way of texts from the history of British literature that appropriately demonstrate such concepts, terms, and practices. This course is recommended for prospective majors. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** honors eligibility required

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**ENGLISH 1300: Readings in American Literature**

Focuses on reading and interpreting selected texts in American literature. No more than six hours may be taken in the Readings in American Literature series.

**Credit Hours:** 3

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**ENGLISH 1307: Readings in American Literature, 1603 to 1789**

See ENGLISH 1300 for course description.

**Credit Hours:** 3

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**ENGLISH 1308: Readings in American Literature, 1789 to 1890**

See ENGLISH 1300 for course description.

**Credit Hours:** 3

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**ENGLISH 1309: Readings in American Literature, 1890 to Present**

See ENGLISH 1300 for course description.

**Credit Hours:** 3

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**ENGLISH 1310: Introduction to American Literature**

A basic introduction to the concepts, terms, and practices commonly encountered in literary study, presented by way of texts from the history of American literature that appropriately demonstrate such concepts, terms, and practices. Graded on A/F basis only.

**Credit Hours:** 3

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**ENGLISH 1310H: Introduction to American Literature - Honors**

A basic introduction to the concepts, terms, and practices commonly encountered in literary study, presented by way of texts from the history of American literature that appropriately demonstrates such concepts, terms, and practices. Graded A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**ENGLISH 1400: Themes in African Diaspora Studies**

Topic (e.g. Writing Early Black Women's Spiritual Identity) announced at time of registration. No more than six hours may be taken in ENGLISH 1400.

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**Credit Hours:** 3

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**ENGLISH 1500: Creative Writing: Introduction to Multiple Genres**

Introduces basic techniques of writing fiction, creative nonfiction, and poetry, including writing original works.

**Credit Hours:** 3

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**ENGLISH 1510: Creative Writing: Introduction to Fiction**

Introduces basic narrative techniques, including writing original stories.

**Credit Hours:** 3

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**ENGLISH 1520: Creative Writing: Introduction to Nonfiction Prose**

Introduces the range and basic techniques of creative nonfiction, including composing original work in the genre.

**Credit Hours:** 3

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**ENGLISH 1530: Creative Writing: Introduction to Poetry**

Introduces basic poetic techniques, including writing original poems.

**Credit Hours:** 3

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**ENGLISH 1700: Introduction to Folklore Genres**

(same as ANTHRO 1150). Course focus is on genres of folklore in both historic and contemporary contexts, as well as in people's daily lives. Genres include narrative, proverbs, oral poetry and rhyme, riddles, jokes, legends, epics, material culture and intangible expressive culture. Graded on A/F basis only.

**Credit Hours:** 3

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**ENGLISH 1700W: Introduction to Folklore Genres - Writing Intensive**

(same as ANTHRO 1150). Course focus is on genres of folklore in both historic and contemporary contexts, as well as in people's daily lives. Genres include narrative, proverbs, oral poetry and rhyme, riddles, jokes, legends, epics, material culture and intangible expressive culture. Graded on A/F basis only.

**Credit Hours:** 3

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**ENGLISH 1800: Introduction to Film Studies**

(same as FILMS\_VS 1800, DST\_FS 1800). Introduction to terms and concepts for film analysis, including mise-en-scene, cinematography, editing, sound narrative, genre, and other elements. No credit for students who have completed FILMS\_VS 2810. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** freshman and sophomores only or instructor's consent

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**ENGLISH 1880: Introduction to Digital Media Production**

(same as DST\_VS 1880, FILMS\_VS 1880, ARTGE\_VS 1920, COMMUN 1880). Introduction to concepts and skills for Digital Storytelling, including media literacy and forms of narrative manifested historically and currently across a range of media. This course focuses on theories and concepts that support the critical analysis and creation of contemporary narrative in digital form with particular attention to audio, visual and written communication. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Enrollment limited to declared English majors during early registration

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**ENGLISH 2000: Studies in English**

Underclass topics. Subjects vary from semester to semester. No more than six hours may be taken in the Topics in English Studies series.

**Credit Hours:** 3

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**ENGLISH 2000H: Studies in English - Honors**

Underclass topics. Subjects vary from semester to semester. No more than six hours may be taken in the Topics in English Studies series.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**ENGLISH 2000HW: Studies in English - Honors/Writing Intensive**

Underclass topics. Subjects vary from semester to semester. No more than six hours may be taken in the Topics in English Studies series.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**ENGLISH 2000W: Studies in English - Writing Intensive**

Underclass topics. Subjects vary from semester to semester. No more than six hours may be taken in the Topics in English Studies series.

**Credit Hours:** 3

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**ENGLISH 2005: Topics in English - Humanities**

Underclass topics. Subjects vary from semester to semester. May be repeated to 6 hours maximum.

**Credit Hours:** 3

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**ENGLISH 2006: Studies in English, Beginning to 1603**

See ENGLISH 2000 for course description.

**Credit Hour:** 1-3

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**ENGLISH 2006W: Studies in English, Beginning to 1603 - Writing Intensive**

See ENGLISH 2000 for course description.

**Credit Hour:** 1-3

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**ENGLISH 2009: Studies in English, 1890 to Present**

See ENGLISH 2000 for course description.

**Credit Hour:** 1-3

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**ENGLISH 2010: Intermediate Composition**

Provides intensive guided practice in expository and persuasive writing.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 2015H: Theory and Practice of Tutoring Writing Seminar - Honors**

(same as GN\_HON 2015H). Addresses both the theory and practice of tutoring and the foundations of good writing. This course also qualifies

students for a part-time job working as Writing Lab/Online Writery tutors in future semester.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000; instructor's consent. Honors eligibility required

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**ENGLISH 2015HW: Theory and Practice of Tutoring Writing Seminar - Honors/Writing Intensive**

(same as GN\_HON 2015H). Addresses both the theory and practice of tutoring and the foundations of good writing. This course also qualifies students for a part-time job working as Writing Lab/Online Writery tutors in future semester.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000; instructor's consent. Honors eligibility required

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**ENGLISH 2030: Professional Writing**

Introduction to the communication required in any professional field, including basic letters and resumes, reviews, reports, and electronic networking, culminating in an extensive report and a related oral presentation.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 2100: Writing About Literature**

Introduces the student to reading in three or four genres (fiction, poetry, drama, and non-fiction) and to literary concepts and terms and their application in literary analysis.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 2100H: Writing About Literature - Honors**

Introduces the student to reading in three or four genres (fiction, poetry, drama, and non-fiction) and to literary concepts and terms and their application in literary analysis.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000. Honors eligibility required

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**ENGLISH 2140: Twentieth-Century Literature**

A multi-genre survey emphasizing American and British works within the intellectual and cultural context of our time.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2140W: Twentieth-Century Literature - Writing Intensive**

A multi-genre survey emphasizing American and British works within the intellectual and cultural context of our time.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2150: Popular Literature**

Study of literary genres, such as science fiction and the detective novel, that may be overlooked in traditional literature classes.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2150W: Popular Literature - Writing Intensive**

Study of literary genres, such as science fiction and the detective novel, that may be overlooked in traditional literature classes.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2155: Introduction to World Literatures**

Presents and puts into context works by writers from different nations or ethnic backgrounds; includes works in two or more literary genres. No more than six hours may be taken in the Introduction to World Literature series.

**Credit Hours:** 3

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**ENGLISH 2159: Introduction to World Literatures, 1890 to Present**

Presents and puts into context works by writers from different nations or ethnic backgrounds, includes works in two or more literary genres. No more than six hours may be taken in the Introduction to World Literature series.

**Credit Hours:** 3

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**ENGLISH 2160: Major Authors**

Focuses on the works of a single writer (e.g., Shakespeare) or set of writers (e.g., William Faulkner and Flannery O'Connor). Topic announced at time of registration. No more than six hours may be taken in the Major Authors series.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2167: Major Authors, 1603 TO 1789**

See ENGLISH 2160 for course description.

**Credit Hours:** 3

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**ENGLISH 2168: Major Authors, 1789 to 1890**

See ENGLISH 2160 for course description.

**Credit Hours:** 3

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**ENGLISH 2169: Major Authors, 1890 to Present**

See ENGLISH 2160 for course description.

**Credit Hours:** 3

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**ENGLISH 2180: Introduction to Women's Literature**

(same as WGST 2180). A study of traditional and nontraditional literature written by women from the perspective of feminist themes-love, power, work, family and other relations. No more than six hours may be taken in the Introduction to Women's Literature series.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2180W: Introduction to Women's Literature - Writing Intensive**

(same as WGST 2180W). A study of traditional and nontraditional literature written by women from the perspective of feminist themes-love, power, work, family and other relations. No more than six hours may be taken in the Introduction to Women's Literature series.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2186: Introduction to Women's Literature, Beginning to 1603**

(same as WGST 2186). See ENGLISH 2180 for course description.

**Credit Hours:** 3

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**ENGLISH 2187: Introduction to Women's Literature, 1603 to 1789**

(same as WGST 2187). See ENGLISH 2180 for course description.

**Credit Hours:** 3

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**ENGLISH 2188: Introduction to Women's Literature, 1789 to 1890**

(same as WGST 2188). See ENGLISH 2180 for course description.

**Credit Hours:** 3

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**ENGLISH 2189W: Introduction to Women's Literature, 1890 to Present - Writing Intensive**

(same as WGST 2189). See ENGLISH 2180 for course description.

**Credit Hour:** 1-3

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**ENGLISH 2200: Studies in British Literature**

Topic (e.g., Gothic Literature, The Domestic Novel) announced at time of registration. No more than six hours may be taken in the Topics in British Literature series.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2200H: Studies in British Literature - Honors**

Topic (e.g., Gothic Literature, The Domestic Novel) announced at time of registration. No more than six hours may be taken in the Topics in British Literature series.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** ENGLISH 1000

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**ENGLISH 2200W: Studies in British Literature - Writing Intensive**

Topic (e.g., Gothic Literature, The Domestic Novel) announced at time of registration. No more than six hours may be taken in the Topics in British Literature series.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2206: Studies in British Literature, Beginning to 1603**

See ENGLISH 2200 for course description.

**Credit Hours:** 3

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**ENGLISH 2207: Studies in British Literature, 1603 to 1789**

See ENGLISH 2200 for course description.

**Credit Hours:** 3

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**ENGLISH 2208: Studies in British Literature, 1789 to 1890**

See ENGLISH 2200 for course description.

**Credit Hours:** 3

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**ENGLISH 2209W: Studies in British Literature, 1890 to Present - Writing Intensive**

See ENGLISH 2200 for course description.

**Credit Hours:** 3

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**ENGLISH 2300: Studies in American Literature**

Topic (e.g., American Culture, The Frontier) announced at time of registration. No more than six hours may be taken in the Topics in American Literature series.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2300W: Studies in American Literature - Writing Intensive**

Topic (e.g., American Culture, The Frontier) announced at time of registration. No more than six hours may be taken in the Topics in American Literature series.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2306: Studies in American Literature, Beginning to 1603**

See ENGLISH 2300 for course description.

**Credit Hours:** 3

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**ENGLISH 2307: Studies in American Literature, 1603 to 1789**

See ENGLISH 2300 for course description.

**Credit Hours:** 3

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**ENGLISH 2308: Studies in American Literature, 1789-1890**

See ENGLISH 2300 for course description.

**Credit Hours:** 3

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**ENGLISH 2309: Studies in American Literature, 1890 to Present**

See ENGLISH 2300 for course description.

**Credit Hours:** 3

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**ENGLISH 2309W: Studies in American Literature, 1890 to Present - Writing Intensive**

See ENGLISH 2300 for course description.

**Credit Hours:** 3

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**ENGLISH 2310: Missouri Writers**

A survey of literature written by Missourians. Graded on A-F basis only.

**Credit Hours:** 3

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**Recommended:** ENGLISH 1000

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**ENGLISH 2310H: Missouri Writers - Honors**

A survey of literature written by Missourians. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** ENGLISH 1000

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**ENGLISH 2400: Introduction to African Diaspora Literature**

(same as BL\_STU 2400). Introduces students to African Diaspora literature with an emphasis on literature written originally in English. No more than six hours may be taken in the Introduction to African Diaspora Literature series.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2407: Introduction to African Diaspora Literature, 1603 to 1789**

(same as BL\_STU 2407). See ENGLISH 2400 for course description.

**Credit Hours:** 3

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**ENGLISH 2408: Introduction to African Diaspora Literature, 1789 to 1890**

(same as BL\_STU 2408). See ENGLISH 2400 for course description.

**Credit Hours:** 3

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**ENGLISH 2490: Introduction to Indigenous Literatures**

(same as PEA\_ST 2490). Introduces students to global indigenous literatures in English and translation. Graded on A-F basis only.

**Credit Hours:** 3

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**ENGLISH 2510: Creative Writing: Intermediate Fiction**

Provides intensive guided practice in the writing of short fiction.

**Credit Hours:** 3

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**ENGLISH 2520: Creative Writing: Intermediate Nonfiction Prose**

Provides guided practice in the writing of creative nonfiction.

**Credit Hours:** 3

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**ENGLISH 2530: Creative Writing: Intermediate Poetry**

Provides intensive guided practice in the writing of poetry.

**Credit Hours:** 3

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**ENGLISH 2560: Beginning Playwriting**

(same as THEATR 2920). Study and practice of playwriting fundamentals; emphasizes the one-act play.

**Credit Hours:** 3

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**ENGLISH 2601: Languages of Africa**

(same as BL\_STU 2601, LINGST 2601). Introduction to the diversity of the 2000+ African languages, including first-hand experience exploring a few in detail with native speakers. Features of African languages

are compared with others of the world. Political and social aspects of language in Africa are discussed.

**Credit Hours:** 3

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**ENGLISH 2700: Introduction to Folklore Field Research**

(same as ANTHRO 2150). Course will focus on the specifics of how to identify, collect, preserve and document folklore within communities.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2830: American Film History I, 1895-1950**

(same as FILMS\_VS 2830). Examines the development of American cinema in relation to other national cinemas, from 1895-1950. No credit for students who have completed ENGLISH 1810 or FILM\_S 1810.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1800 or FILMS\_VS 1800

**Recommended:** ENGLISH 1000

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**ENGLISH 2840: American Film History II, 1950-Present**

(same as FILMS\_VS 2840). Examines American film history in an international context, from 1950-present. No credit for students who have completed ENGLISH 1820 or FILM\_S 1820.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1800 or FILMS\_VS 1800

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**ENGLISH 2860: Film Themes and Genres**

(same as FILMS\_VS 2860, DST\_VS 2860). Topics (e.g. Film noir, African-American filmmakers, Food and Film, The Western) announced at time of registration. No more than six hours may be taken in ENGLISH 2680.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**ENGLISH 2870W: Film and Literature - Writing Intensive**

(same as FILMS\_VS 2870). Explores the complex interplay between film and literature in order to gain an understanding of the possibilities - and problems - involved in the transposition from literature to film. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 2885: Digital Storytelling Animation Production I**

(same as DST\_VS 2885). Introduction to all aspects of digital animation and elements of the 3D computer animation production pipeline, including story drafting and production planning, polygonal modeling and texturing, rigging, key framing, lighting, compositing rendered images, and editing into a short finished film. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DST\_VS 1880 or ENGLISH 1880 or FILMS\_VS 1880 or ARTGE\_VS 1920 or instructor consent. Enrollment limited to declared English majors during early enrollment

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**ENGLISH 3000: Intermediate Studies in English**

An intermediate examination of subjects within English studies. Subjects vary from semester to semester.

**Credit Hour:** 1-3

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**ENGLISH 3010: Advanced Composition**

An intensive writing workshop in which student essays and related texts receive close reading and analysis. Focus (e.g. The Essay, The Research Paper) announced at time of registration.

**Credit Hours:** 3

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**ENGLISH 3080: Sexuality and Gender Theory**

(same as WGST 3080). Examination of major theoretical approaches and debates in the study of gender and sexuality, with particular attention to the intersection of culture, representation, and identity. May be repeated to 6 hours with department consent.

**Credit Hours:** 3

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**ENGLISH 3100: Introduction to Literary Theory**

Introduction to the range of theoretical approaches to the study of literature; intended as a broad survey of literary theory, whether from the Classical era onward or 20th century literary theory and beyond.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3110: Special Themes in Literature**

Topics (e.g., Postmodernism, Representations of Nature) announced at time of registration. No more than six hours may be taken in the Special Themes in Literature series.

**Credit Hour:** 1-3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3110H: Special Themes in Literature - Honors**

Topics (e.g., Postmodernism, Representations of Nature) announced at time of registration. No more than six hours may be taken in the Special Themes in Literature series.

**Credit Hour:** 1-3

**Prerequisites:** ENGLISH 1000, Honors eligibility required

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**ENGLISH 3110W: Special Themes in Literature - Writing Intensive**

Topics (e.g., Postmodernism, Representations of Nature) announced at time of registration. No more than six hours may be taken in the Special Themes in Literature series.

**Credit Hour:** 1-3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3116: Special Themes in Literature, Beginning to 1603**

See ENGLISH 3110 for course descriptions.

**Credit Hours:** 3

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**ENGLISH 3116W: Special Themes in Literature, Beginning to 1603 - Writing Intensive**

See ENGLISH 3110 for course descriptions.

**Credit Hours:** 3

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**ENGLISH 3118H: Special Themes in Literature, 1789 to 1890 - Honors**

See ENGLISH 3110H for course descriptions.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**ENGLISH 3119: Special Themes in Literature, 1890 to Present**

See ENGLISH 3110 for course descriptions.

**Credit Hours:** 3

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**ENGLISH 3170: World Dramatic Literature**

(same as THEATR 3700). Survey of world drama from Greeks to present, focusing on structure, theory, and performance. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** sophomore standing

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**ENGLISH 3170W: World Dramatic Literature - Writing Intensive**

(same as THEATR 3700). Survey of world drama from Greeks to present, focusing on structure, theory, and performance. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** sophomore standing

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**ENGLISH 3180: Survey of Women Writers**

(same as WGST 3180). A study of writing by women from the Middle Ages to the present.

**Credit Hours:** 3

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**ENGLISH 3180H: Survey of Women Writers - Honors**

A study of writing by women from the Middle Ages to the present.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**ENGLISH 3180W: Survey of Women Writers - Writing Intensive**

(same as WGST 3180). A study of writing by women from the Middle Ages to the present.

**Credit Hours:** 3

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**ENGLISH 3200: Survey of British Literature: Beginnings to 1784**

Historical survey from beginnings of British literature through the age of Johnson, with readings representing significant writers, works and currents of thought.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3200W: Survey of British Literature: Beginnings to 1784 - Writing Intensive**

Historical survey from beginnings of British literature through the age of Johnson, with readings representing significant writers, works and currents of thought.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

---

**ENGLISH 3210: Survey of British Literature: Romanticism to the Present**

Historical survey of British literature from the Romantic period to the present, emphasizing important writers and significant intellectual and cultural movements.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

---

**ENGLISH 3210H: Survey of British Literature: Romanticism to the Present - Honors**

Historical survey of British literature from the Romantic period to the present, emphasizing important writers and significant intellectual and cultural movements.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000; Honors eligibility required

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**ENGLISH 3210W: Survey of British Literature: Romanticism to the Present - Writing Intensive**

Historical survey of British literature from the Romantic period to the present, emphasizing important writers and significant intellectual and cultural movements.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3300: Survey of American Literature: Beginnings to 1865**

A survey of major writers and movements in American literature from Colonialism to Romanticism.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3300W: Survey of American Literature: Beginnings to 1865 - Writing Intensive**

A survey of major writers and movements in American literature from Colonialism to Romanticism.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3310: Survey of American Literature: 1865-Present**

A survey of major writers and movements in American literature from realism to postmodernism.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3310W: Survey of American Literature: 1865-Present - Writing Intensive**

A survey of major writers and movements in American literature from realism to postmodernism.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3400: Survey of African American Literature, Beginnings to 1900**

(same as BL\_STU 3400). A survey of major authors and movements in African American literature from its beginnings to 1900.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3400W: Survey of African American Literature, Beginnings to 1900 - Writing Intensive**

(same as BL\_STU 3400). A survey of major authors and movements in African American literature from its beginnings to 1900.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3410: Survey of African American Literature, 1900-Present**

(same as BL\_STU 3410). A survey of major authors and movements in African American literature from 1900 to the present.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3430: Introduction to African Diaspora Literary Theory**

Introduction to the range of theoretical approaches to the study of African Diaspora literature, with particular attention to the diverse socio-political contexts that undergird range of literary, historical, and cultural theories; intended as a broad survey of African Diaspora literary theory, whether from the Slavery era onward or 20th century literary theory and beyond. May be repeated for credit with consent.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3490: Special Themes in Native American and Indigenous Studies**

(same as PEA\_ST 3490). Topics (e.g., Indigenous Novel; Oral Tradition; Indigenous Science Fiction; Law and Indigenous Literature) announced at the time of registration. Graded on A-F basis only.

**Credit Hours:** 3

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**ENGLISH 3560: Intermediate Playwriting**

(same as THEATR 3920). Intermediate study of the writing process as applied to theatre, leading to the creation of a full-length play to be considered for production.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 2560

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**ENGLISH 3560W: Intermediate Playwriting - Writing Intensive**

(same as THEATR 3920W). Intermediate study of the writing process as applied to theatre, leading to the creation of a full-length play to be considered for production.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 2560

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**ENGLISH 3570: Performance of Literature**

(same as COMMUN 3570 and THEATR 3200). Analysis and oral interpretation of literary works. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** sophomore standing

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**ENGLISH 3620: Languages of the World**

(same as LINGST 3620). Introduction to the diversity of the world's languages emphasizing historical relations and structural similarities and differences.

**Credit Hours:** 3

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**ENGLISH 3700: American Folklore**

(same as ANTHRO 3150). Focus on regional and ethnic folklore; emphasis on analysis of folklore in context. Requirements include book reports and two analytical papers based on student field research. May be repeated for a maximum of six hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 3820: Major Directors**

(same as FILMS\_VS 3820, RM\_LAN 3820). Topics (e.g. Hitchcock, Kubrick, Fellini, Allen, Kurosawa, Wilder) announced at time of registration. Only 6 hours may be taken for credit toward major. Graded on A/F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3850: Studies in Film History**

(same as FILMS\_VS 3850). Topics (e.g. Classical Period of Hollywood cinema, silent era, Post-WWII American film, German Weimar cinema, French New Wave) announced at time of registration. Only 6 hours count as credit toward major.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3855: Documentary Film**

(same as FILMS\_VS 3855, DST\_VS 3855). Surveys the history of documentary film including the development of subgenres, sound and voice over in documentary, re-enactment, ethical issues in documentary film production, and more. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**ENGLISH 3880W: Writing and Theory for Digital Media - Writing Intensive**

(same as DST\_VS 3880W). Writing and Theory for Digital Media teaches the skills, methods and theoretical frameworks needed to write for new media. Students will study and practice writing for web-based and digital media platforms, including blogs, podcasts, vlogs, and the emerging possibilities of locative and interactive media. Assignments emphasize the professional and creative possibilities of new media production. In addition to the hands-on creation for audio, screen-based, networked, and hybrid forms of digital media, students will also read, discuss, and write about work by new media theorists. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** DST\_VS 1880 or ENGLISH 1880 or FILMS\_VS 1880 or ARTGE\_VS 1920 or instructor consent. Enrollment limited to declared English majors during early enrollment

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**Recommended:** Sophomore standing or above; ENGLISH 1000

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**ENGLISH 4000: Advanced Studies in English**

Advanced examination of subjects within English studies. Subjects vary from semester to semester. May repeat to six hours.

**Credit Hour:** 1-3

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**ENGLISH 4000W: Advanced Studies in English - Writing Intensive**

Advanced examination of subjects within English studies. Subjects vary from semester to semester. May repeat to six hours.

**Credit Hour:** 1-3

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**ENGLISH 4040: Studies in Writing**

(cross-leveled with ENGLISH 7040). A hybrid reading/writing course that focuses on a form of nonfiction prose, such as the experimental essay, art criticism, book reviews, spiritual writing, nature writing, etc. This course is not a workshop, although it may incorporate workshop elements. Designed for English majors who may or may not have taken creative writing courses. May repeat to six hours with departmental consent.

**Credit Hours:** 3

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**ENGLISH 4040W: Studies in Writing - Writing Intensive**

A hybrid reading/writing course that focuses on a form of nonfiction prose, such as the experimental essay, art criticism, book reviews, spiritual writing, nature writing, etc. This course is not a workshop, although it may incorporate workshop elements. Designed for English majors who may or may not have taken creative writing courses. May repeat to six hours with departmental consent.

**Credit Hours:** 3

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**ENGLISH 4045: Rhetorical Studies**

(cross-leveled with ENGLISH 7045). Examines questions related to rhetoric, the study of symbols used for persuasion, justification, or communication. Specific topics are announced at time of registration and may involve the rhetorical study of fiction or nonfiction, oral or written texts, verbal or visual modes.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

**Recommended:** junior standing

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**ENGLISH 4060: Studies in Critical Theory**

(cross-leveled with ENGLISH 7060). Focuses on questions raised by various critical theories, includes practice writing criticism that applies the theories to particular works. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** junior standing

---

**ENGLISH 4100: Genres**

(cross-leveled with ENGLISH 7100). Advanced survey of major movements and writers. Topics (e.g., American Poetry, The Development of the British Novel) announced at time of registration. No more than six hours may be taken in the Genres series.

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**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4100H: Genres - Honors**

Advanced survey of major movements and writers. Topics (e.g., American Poetry, The Development of the British Novel) announced at time of registration. No more than six hours may be taken in the Genres series.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** junior standing

---

**ENGLISH 4100HW: Genres - Honors/Writing Intensive**

Advanced survey of major movements and writers. Topics (e.g., American Poetry, The Development of the British Novel) announced at time of registration. No more than six hours may be taken in the Genres series.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** junior standing

---

**ENGLISH 4100W: Genres - Writing Intensive**

Advanced survey of major movements and writers. Topics (e.g., American Poetry, The Development of the British Novel) announced at time of registration. No more than six hours may be taken in the Genres series.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4106: Genres, Beginning to 1603**

(cross-leveled with ENGLISH 7106). See ENGLISH 4100 for course description.

**Credit Hours:** 3

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**ENGLISH 4107: Genres, 1603 to 1789**

(cross-leveled with ENGLISH 7107). See ENGLISH 4100 for course description.

**Credit Hours:** 3

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**ENGLISH 4108: Genres, 1789 to 1890**

(cross-leveled with ENGLISH 7108). See ENGLISH 4100 for course description.

**Credit Hours:** 3

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**ENGLISH 4109: Genres, 1890 to Present**

(cross-leveled with ENGLISH 7109). See ENGLISH 4100 for course description.

**Credit Hours:** 3

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**ENGLISH 4109W: Genres, 1890 to Present - Writing Intensive**

See ENGLISH 4100 for course description.

**Credit Hours:** 3

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**ENGLISH 4129: Ethnic Literature, 1890 to Present**

(cross-leveled with ENGLISH 7129). See ENGLISH 4120 for course description.

**Credit Hours:** 3

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**ENGLISH 4140: Modern Literature**

(cross-leveled with ENGLISH 7140). A study of selected twentieth-century literature within the intellectual and cultural contexts of the modern era.

**Credit Hours:** 3

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**ENGLISH 4159: World Literatures, 1890 to Present**

(cross-leveled with ENGLISH 7159). See ENGLISH 4150 for course description.

**Credit Hours:** 3

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**ENGLISH 4159W: World Literatures, 1890 to Present - Writing Intensive**

See ENGLISH 4150 for course description.

**Credit Hours:** 3

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**ENGLISH 4166: Major Authors, Beginning to 1603**

(cross-leveled with ENGLISH 7166). See ENGLISH 4160 for course description.

**Credit Hours:** 3

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**ENGLISH 4166W: Major Authors, Beginning to 1603 - Writing Intensive**

See ENGLISH 4160 for course description.

**Credit Hours:** 3

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**ENGLISH 4167: Major Authors, 1603-1789**

(cross-leveled with ENGLISH 7167). See ENGLISH 4160 for course description.

**Credit Hours:** 3

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**ENGLISH 4167W: Major Authors, 1603-1789 - Writing Intensive**

See ENGLISH 4160 for course description.

**Credit Hours:** 3

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**ENGLISH 4168: Major Authors, 1789-1890**

(cross-leveled with ENGLISH 7168). See ENGLISH 4160 for course description.

**Credit Hours:** 3

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**ENGLISH 4169: Major Authors, 1890-Present**

(cross-leveled with ENGLISH 7169). See ENGLISH 4160 for course description.

**Credit Hours:** 3

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**ENGLISH 4169W: Major Authors, 1890-Present - Writing Intensive**

See ENGLISH 4160 for course description.

**Credit Hours:** 3

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**ENGLISH 4170W: Comparative Approaches to Literature - Writing Intensive**

Study of works separated by the places or eras of their composition, but united by themes or traditions. Topics (e.g., Poets of African Diaspora, Literatures of Exile) announced at time of registration. No more than six hours may be taken in the Comparative Approaches to Literature.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4179: Comparative Approaches to Literature, 1890-Present**

(cross-leveled with ENGLISH 7179). See ENGLISH 4170 for course description.

**Credit Hours:** 3

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**ENGLISH 4180: Major Women Writers**

(same as WGST 4180; cross-leveled with ENGLISH 7180, WGST 7180). Study of a limited number (1-3) of significant writers to be read intensively using contemporary feminist critical theory. No more than six hours may be taken in the Major Women Writers series.

**Credit Hours:** 3

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**ENGLISH 4186: Major Women Writers, Beginning to 1603**

(same as WGST 4186; cross-leveled with ENGLISH 7186; WGST 7186). See ENGLISH 4180 for course description.

**Credit Hours:** 3

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**ENGLISH 4188: Major Women Writers, 1789-1890**

(same as WGST 4188; cross-leveled with ENGLISH 7188, WGST 7188). See ENGLISH 4180 for course description.

**Credit Hours:** 3

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**ENGLISH 4188W: Major Women Writers, 1789-1890 - Writing Intensive**

(same as WGST 4188). See ENGLISH 4180 for course description.

**Credit Hours:** 3

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**ENGLISH 4189: Major Women Writers, 1890-Present**

(same as WGST 4189; cross-leveled with ENGLISH 7189, WGST 7189). See ENGLISH 4180 for course description.

**Credit Hours:** 3

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**ENGLISH 4200: Introduction to Old English**

(same as LINGST 4200; cross-leveled with LINGST 7200, ENGLISH 7200). A beginning study of the Old English or Anglo-Saxon language in its cultural context, with emphasis on gaining a reading knowledge.

**Credit Hours:** 3

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**ENGLISH 4206: Anglo-Saxon Literature**

(cross-leveled with ENGLISH 7206). Readings in the literature of Anglo-Saxon England (ca.500-ca.1100 C.E.). Specific topics (e.g., Women in

the Early Middle Ages, Beowulf, Old English Heroic Poetry) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Prerequisites:** Junior standing

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**ENGLISH 4206W: Anglo-Saxon Literature - Writing Intensive**

(cross-leveled with ENGLISH 7206). Readings in the literature of Anglo-Saxon England (ca.500-ca.1100 C.E.). Specific topics (e.g., Women in the Early Middle Ages, Beowulf, Old English Heroic Poetry) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Prerequisites:** Junior standing

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**ENGLISH 4210: Medieval Literature**

(cross-leveled with ENGLISH 7210). Topics (e.g., Age of Chaucer, Chivalry and Courtly Love, Allegory and Satire) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** Junior standing

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**ENGLISH 4220: Renaissance and Seventeenth Century Literature**

(cross-leveled with ENGLISH 7220). Topics (e.g., The Metaphysical Poets, Themes in Shakespeare) announced at time of registration. No more than six hours may be taken in the Renaissance and Seventeenth Century Literature.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4240: Restoration and 18th-Century English Literature**

(cross-leveled with ENGLISH 7240). Topics (e.g., Restoration Drama, Johnson and his Circle) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4250: 19th-Century English Literature**

(cross-leveled with ENGLISH 7250). Topics (e.g., Victorian Poetry, Non-Fiction Prose) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4250W: 19th-Century English Literature - Writing Intensive**

(cross-leveled with ENGLISH 7250). Topics (e.g., Victorian Poetry, Non-Fiction Prose) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4260: 20th-Century British Literature**

(cross-leveled with ENGLISH 7260). Topics (e.g. Contemporary British Poets, The Post-War Novel) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

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**Recommended:** junior standing

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**ENGLISH 4260H: 20th-Century British Literature - Honors**

Topics (e.g. Contemporary British Poets, The Post-War Novel) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** junior standing

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**ENGLISH 4260HW: 20th-Century British Literature - Honors/Writing Intensive**

Topics (e.g. Contemporary British Poets, The Post-War Novel) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** junior standing

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**ENGLISH 4260W: 20th-Century British Literature - Writing Intensive**

(cross-leveled with ENGLISH 7260). Topics (e.g. Contemporary British Poets, The Post-War Novel) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4300: Early American Literature**

(cross-leveled with ENGLISH 7300). Topics (e.g., Narratives of Discovery and Exploration, The Puritan Heritage) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4310: 19th-Century American Literature**

(cross-leveled with ENGLISH 7310). Topics (e.g., American Romanticism, Regionalism) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4310W: 19th-Century American Literature - Writing Intensive**

(cross-leveled with ENGLISH 7310). Topics (e.g., American Romanticism, Regionalism) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4320: 20th-Century American Literature**

(cross-leveled with ENGLISH 7320). Topics (e.g., American Poetry since T. S. Eliot, The Short Story) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4320W: 20th-Century American Literature - Writing Intensive**

(cross-leveled with ENGLISH 7320). Topics (e.g., American Poetry since T. S. Eliot, The Short Story) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4400: Studies in African Diaspora Literature**

(same as BL\_STU 4400; cross-leveled with ENGLISH 7400, BL\_STU 7400). Topics (e.g., African American Poetry, Africana Diaspora Drama) announced at time of registration. No more than six hours may be taken in the Studies in Africana Literature series.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4409: Studies in African Diaspora Literature, 1890 to Present**

(same as BL\_STU 4409; cross-leveled with ENGLISH 7409, BL\_STU 7409). See ENGLISH 4400 for course description.

**Credit Hours:** 3

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**ENGLISH 4410: Major Africana Diaspora Writers**

(same as BL\_STU 4410; cross-leveled with ENGLISH 7410, BL\_STU 7410). An intensive study of selected writers of African Diaspora literature focusing on texts originally in English. No more than six hours may be taken in the Major African Diaspora Writers series.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4420: Africana Womanism**

(same as BL\_STU 4420; cross-leveled with ENGLISH 7420, BL\_STU 7420). An intensive study of Africana Womanism, focusing on selected Africana women writers. May be repeated to six hours with departmental consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4480: Major African Diaspora Women Writers**

(same as WGST 4480, BL\_STU 4480; cross-leveled with ENGLISH 7480, BL\_STU 7480, WGST 7480). Study of selected Africana Diaspora women writers, focusing on texts originally in English. Maybe repeated for credit with departmental consent. Maximum of 6 hours for ENGLISH 4180 and ENGLISH 4480.

**Credit Hours:** 3

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**ENGLISH 4480W: Major African Diaspora Women Writers - Writing Intensive**

(same as WGST 4480 and BL\_STU 4480). Study of selected Africana Diaspora women writers, focusing on texts originally in English. Maybe repeated for credit with departmental consent. Maximum of 6 hours for ENGLISH 4180 and ENGLISH 4480.

**Credit Hours:** 3

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**ENGLISH 4488: Major African Diaspora Women Writers, 1789 to 1890**  
(same as WGST 4488, BL\_STU 4488; cross-leveled with ENGLISH 7488, BL\_STU 7488, WGST 7488). See ENGLISH 4480 for course description.

**Credit Hours:** 3

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**ENGLISH 4489: Major African Diaspora Women Writers, 1890 to Present**  
(same as WGST 4489, BL\_STU 4489; cross-leveled with ENGLISH 7489, BL\_STU 7489, WGST 7489). See ENGLISH 4480 for course description.

**Credit Hours:** 3

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**ENGLISH 4489W: Major African Diaspora Women Writers, 1890 to Present - Writing Intensive**  
(same as WGST 4489W, BL\_STU 4489W; cross-leveled with ENGLISH 7489, BL\_STU 7489, WGST 7489). See ENGLISH 4480 for course description.

**Credit Hours:** 3

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**ENGLISH 4490: Studies in Native American and Indigenous Studies**  
In-depth study of topics in Native American and Indigenous Studies, such as tribal intellectual histories, defined historical periods, or specific genres or media. Examples of course titles include Ojibwe Writing, Native Film and Video, and Contemporary Native Literature.

**Credit Hours:** 3

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**ENGLISH 4510: Creative Writing: Advanced Fiction**  
(cross-leveled with ENGLISH 7510). An intensive writing workshop in which student stories and related literary texts receive close reading and analysis. Prerequisites: Any ONE of the following: ENGLISH 1510, ENGLISH 1520, ENGLISH 1530, ENGLISH 2510, ENGLISH 2520, or ENGLISH 2530.

**Credit Hours:** 3

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**ENGLISH 4520: Creative Writing: Advanced Nonfiction Prose**  
(cross-leveled with ENGLISH 7520). An intensive writing workshop in which a student's creative nonfiction receives close reading and analysis. Prerequisites: Any ONE of the following: ENGLISH 1510, ENGLISH 1520, ENGLISH 1530, ENGLISH 2510, ENGLISH 2520, or ENGLISH 2530.

**Credit Hours:** 3

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**ENGLISH 4530: Creative Writing: Advanced Poetry**  
(cross-leveled with ENGLISH 7530). Poetry regarded as a mode of understanding. Poetic values related to other values. Practical consideration of verse techniques. Prerequisites: Any ONE of the following: ENGLISH 1510, ENGLISH 1520, ENGLISH 1530, ENGLISH 2510, ENGLISH 2520, or ENGLISH 2530.

**Credit Hours:** 3

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**ENGLISH 4560: Advanced Playwriting: Problems**  
(same as THEATR 4920; cross-leveled with ENGLISH 7560 and THEATR 7920). Advanced study of the writing process as applied to theatre, including theory and practice. Special playwriting problems and techniques.

**Credit Hours:** 3  
**Prerequisites:** ENGLISH 3560

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**ENGLISH 4560W: Advanced Playwriting: Problems - Writing Intensive**  
(same as THEATR 4920; cross-leveled with ENGLISH 7560 and THEATR 7920). Advanced study of the writing process as applied to theatre, including theory and practice. Special playwriting problems and techniques.

**Credit Hours:** 3  
**Prerequisites:** ENGLISH 3560

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**ENGLISH 4570: Adaptation of Literature for the Stage**  
(same as THEATR 4930; cross-leveled with ENGLISH 7570 and THEATR 7930). Explores adaptation principles and practices with literature not originally written for the stage. Graded on A-F basis only.

**Credit Hours:** 3

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**ENGLISH 4600: Structure of American English**  
(same as LINGST 4600; cross-leveled with LINGST 7600, ENGLISH 7600). Introduction to English linguistics. Study of the grammar and pronunciation of contemporary English, with the major focus on syntax.

**Credit Hours:** 3  
**Recommended:** junior standing

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**ENGLISH 4610: History of the English Language**  
(same as LINGST 4610; cross-leveled with ENGLISH 7610, LINGST 7610). Historical changes in the grammar and pronunciation of the English language from Old English to the present. Introduction to Indo-European origins of English.

**Credit Hours:** 3  
**Recommended:** junior standing

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**ENGLISH 4620: Regional and Social Dialects of American English**  
(same as LINGST 4620; cross-leveled with ENGLISH 7620, LINGST 7620). The study of regional and social variation in pronunciation, vocabulary, and grammar of American English.

**Credit Hours:** 3  
**Recommended:** ENGLISH 4600 and ENGLISH 4610 or equivalent

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**ENGLISH 4630: Phonology**  
(same as LINGST 4630; cross-leveled with ENGLISH 7630, LINGST 7630). Survey of the sound patterns of English and other languages.

**Credit Hours:** 3  
**Recommended:** ENGLISH 1060 or ENGLISH 4600 or equivalent

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**ENGLISH 4640: Syntax**  
(same as LINGST 4640; cross-leveled with ENGLISH 7640, LINGST 7640). Study of the properties of phrase-and sentence-level grammar, emphasizing English, with some comparison to other languages.

**Credit Hours:** 3  
**Recommended:** ENGLISH 1060 or ENGLISH 4600 or equivalent

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**ENGLISH 4660: Historical Linguistics**

(same as LINGST 4420, ANTHRO 4420; cross-leveled with ENGLISH 7660, ANTHRO 7420, LINGST 7420). Methods of tracing the history of languages by glottochronology, and by comparative and internal reconstructions; cultural and linguistic implications of such reconstructions and of areal linguistics.

**Credit Hours:** 3

**Recommended:** junior/senior standing

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**ENGLISH 4670: Field Methods in Linguistics**

(same as LINGST 4870, ANTHRO 4870; cross-leveled with ENGLISH 7670, LINGST 7870, ANTHRO 7870). Intensive training in collection and analysis of data elicited from a native speaker of a non-Indo-European language. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Contact the Linguistics advisor to request permission

**Recommended:** 9 hours of linguistics

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**ENGLISH 4670W: Field Methods in Linguistics - Writing Intensive**

(same as LINGST 4870 and ANTHRO 4870). Intensive training in collection and analysis of data elicited from a native speaker of a non-Indo-European language. May be repeated for credit. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Contact Linguistics advisor to request permission

**Recommended:** 9 hours of linguistics

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**ENGLISH 4700: Special Themes in Folklore**

(same as ANTHRO 4150; cross-leveled with ENGLISH 7700). Intensive study in a selected area of folklore: folk narrative, folk song, myth, proverb, etc., folklore of a particular group. May be repeated for a maximum of six hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 4710: Themes in African Diaspora Folklore**

(same as ANTHRO 4160 and BL\_STU 4710; cross-leveled with ENGLISH 7710, ANTHRO 7160, BL\_STU 7710). Intensive study in a selected area of African Diaspora folklore: folk narrative, folk song, myth, proverb, etc., folklore and literature; or the folklore of a particular group. ENGLISH 4700 and ENGLISH 4710 may be repeated for a maximum of six hours with instructor's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4770: Oral Tradition**

(same as ANTHRO 4170; cross-leveled with ENGLISH 7770, ANTHRO 7170). Study of oral tradition from living cultures as well as literary works and mass media with roots in verbal art. Oral tradition is a form of human communication through which ideas, knowledge, art, and cultural material is received, preserved, and transmitted orally from one generation to another or from one person to another. May include such folklore genres as ballads, chants, folktales, jokes, legends, myths, proverbs, prose, or verses.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and sophomore standing

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**ENGLISH 4770H: Oral Tradition - Honors**

(same as ANTHRO 4170; cross-leveled with ENGLISH 7770, ANTHRO 7170). Study of oral tradition from living cultures as well as literary works and mass media with roots in verbal art. Oral tradition is a form of human communication through which ideas, knowledge, art, and cultural material is received, preserved, and transmitted orally from one generation to another or from one person to another. May include such folklore genres as ballads, chants, folktales, jokes, legends, myths, proverbs, prose, or verses. Prerequisites: ENGLISH 1000 and sophomore standing; Honors eligibility required

**Credit Hours:** 3

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**ENGLISH 4780: Women's Folklore and Feminist Theory**

(same as WGST 4780; cross-leveled with ENGLISH 7780, WGST 7780). Examines folklore and artistic expression of women in relation to feminist theory and in multicultural contexts. Includes verbal genres (narrative/song) as well as material genres (quilting/arts).

**Credit Hours:** 3

**Recommended:** junior standing

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**ENGLISH 4810: Film Theory**

(same as FILMS\_VS 4810, DST\_VS 4810; cross-leveled with ENGLISH 7810, FILMS\_VS 7810, DST\_VS 7810). This course explores contemporary trends in film theory. Topics may include: psychoanalysis, feminism, Marxism, cultural studies, queer theory, audience and star studies, postcolonialism, among others.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

**Recommended:** Junior standing

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**ENGLISH 4820: Studies in Film Genre**

(same as FILMS\_VS 4820; cross-leveled with ENGLISH 7820). Topics (e.g. The Western, Film Noir) announced at time of registration. No more than six hours may be taken for credit toward the major.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

**Recommended:** junior standing

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**ENGLISH 4840: Culture and Media**

(same as FILMS\_VS 4840, DST\_VS 4840). Topics (e.g. Cinema and Imperialism, Indigenous Media, Ethnographic Documentary) announced at time of registration. No more than six hours may be taken for credit toward the major.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

**Recommended:** Junior standing

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**ENGLISH 4935: Adaptation of Literature for Film**

(same as FILMS\_VS 4935 and THEATR 4935; cross-leveled with ENGLISH 7580, FILMS\_VS 7935 and THEATR 7935). This upper-division course will explore adaptation principles and practices with a variety of forms of literature that were not originally written for film.

**Credit Hours:** 3

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**ENGLISH 4938: Advanced Screenwriting: Styles**

(same as THEATR 4938; cross-leveled with ENGLISH 7938, THEATR 7938). Students develop advanced skills of screenwriting through a focus on non-realistic, non-linear dramatic writing styles in development of a full-length screenplay. Areas of study will include techniques of magic realism, symbolism, expressionism, absurdism, surrealism/dada, mythic/fantasy, musicals, political docudrama, and science fiction.

**Credit Hours:** 3

**Prerequisites:** THEATR 2920 or ENGLISH 2560

**Recommended:** THEATR 3930

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**ENGLISH 4938W: Advanced Screenwriting: Styles - Writing Intensive**

(same as THEATR 4938; cross-leveled with ENGLISH 7938, THEATR 7938). Students develop advanced skills of screenwriting through a focus on non-realistic, non-linear dramatic writing styles in development of a full-length screenplay. Areas of study will include techniques of magic realism, symbolism, expressionism, absurdism, surrealism/dada, mythic/fantasy, musicals, political docudrama, and science fiction.

**Credit Hours:** 3

**Prerequisites:** THEATR 2920 or ENGLISH 2560

**Recommended:** THEATR 3930

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**ENGLISH 4940: Internship in English**

Students work in an agency or institution using their English-related skills for one to three credit hours. Graded on an S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** Department consent

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**ENGLISH 4950: Internship in Publishing**

Offers practical experience working with a literary or scholarly publication edited or sponsored by faculty members. Graduate students in English must take the course two semesters in order to count three hours toward the completion of their program.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ENGLISH 4955: Independent Research in English**

Development of a carefully considered research project under close supervision of a faculty member. Open to undergraduate students only.

**Credit Hour:** 1-3

**Prerequisites:** junior standing and departmental consent

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**ENGLISH 4960: Special Readings in English**

Individual work with conferences adjusted to needs of student.

**Credit Hour:** 1-99

**Prerequisites:** Consent of instructor

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**ENGLISH 4970: Capstone Experience**

For students in their last semester, this course focuses on a major project and the processes of selection, research, and writing leading to its completion. Includes a professional component (resume, cover letter).

**Credit Hours:** 3

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**ENGLISH 4970W: Capstone Experience - Writing Intensive**

For students in their last semester, this course focuses on a major project and the processes of selection, research, and writing leading to its completion. Includes a professional component (resume, cover letter).

**Credit Hours:** 3

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**ENGLISH 4995: Senior Honors Thesis**

Independent research under direction of faculty. Second course of two part Honors Sequence. Students must have successfully completed English 4996 before taking English 4995.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 4996

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**ENGLISH 4996: Honors Seminar in English**

First of two major semester Honors sequence. Studies literary topic, critical approaches and advanced literary research methodology in preparation for Honors Senior Thesis.

**Credit Hours:** 3

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**ENGLISH 4996W: Honors Seminar in English - Writing Intensive**

First of two major semester Honors sequence. Studies literary topic, critical approaches and advanced literary research methodology in preparation for Honors Senior Thesis.

**Credit Hours:** 3

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**ENGLISH 7040: Studies in Writing**

(cross-leveled with ENGLISH 4040). A hybrid reading/writing course that focuses on a form of nonfiction prose, such as the experimental essay, art criticism, book reviews, spiritual writing, nature writing, etc. This course is not a workshop, although it may incorporate workshop elements. Designed for students who may or may not have taken previous creative writing courses. May repeat to six hours with departmental consent.

**Credit Hours:** 3

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**ENGLISH 7045: Rhetorical Studies**

(cross-leveled with ENGLISH 4045). Examines questions related to rhetoric, the study of symbols used for persuasion, justification, or communication. Specific topics are announced at time of registration and may involve the rhetorical study of fiction or nonfiction, oral or written texts, verbal or visual modes.

**Credit Hours:** 3

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**ENGLISH 7060: Studies in Critical Theory**

(cross-leveled with ENGLISH 4060). Focuses on questions raised by various critical theories, includes practice writing criticism that applies the theories to particular works. May repeat to six hours with departmental consent.

**Credit Hours:** 3

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**ENGLISH 7100: Genres**

(cross-leveled with ENGLISH 4100). Advanced survey of major movements and writers. Topics (e.g., American Poetry, The Development

of the British Novel) announced at time of registration. No more than six hours may be taken in the Genres series.

**Credit Hours:** 3

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**ENGLISH 7106: Genres, Beginning to 1603**

(cross-leveled with ENGLISH 4106). See ENGLISH 7100 for course description.

**Credit Hours:** 3

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**ENGLISH 7107: Genres, 1603 to 1789**

(cross-leveled with ENGLISH 4107). See ENGLISH 7100 for course description.

**Credit Hours:** 3

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**ENGLISH 7109: Genres, 1890 to Present**

(cross-leveled with ENGLISH 4109). See ENGLISH 7100 for course description.

**Credit Hours:** 3

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**ENGLISH 7129: Ethnic Literature, 1890 to Present**

(cross-leveled with ENGLISH 4129). See ENGLISH 7120 for course description.

**Credit Hours:** 3

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**ENGLISH 7140: Modern Literature**

(cross-leveled with ENGLISH 4140). A study of selected twentieth-century literature within the intellectual and cultural contexts of the modern era.

**Credit Hours:** 3

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**ENGLISH 7159: World Literatures, 1890 to Present**

(cross-leveled with ENGLISH 4159). See ENGLISH 7150 for course description.

**Credit Hours:** 3

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**ENGLISH 7166: Major Authors, Beginning to 1603**

(cross-leveled with ENGLISH 7166). See ENGLISH 7160 for course description.

**Credit Hours:** 3

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**ENGLISH 7167: Major Authors, 1603-1789**

(cross-leveled with ENGLISH 4167). See ENGLISH 7160 for course description.

**Credit Hours:** 3

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**ENGLISH 7168: Major Authors, 1789-1890**

(cross-leveled with ENGLISH 4168). See ENGLISH 7160 for course description.

**Credit Hours:** 3

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**ENGLISH 7169: Major Authors, 1890-Present**

(cross-leveled with ENGLISH 4169). See ENGLISH 7160 for course description.

**Credit Hours:** 3

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**ENGLISH 7179: Comparative Approaches to Literature, 1890-Present**

(cross-leveled with ENGLISH 4179). See ENGLISH 7170 for course description.

**Credit Hours:** 3

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**ENGLISH 7180: Major Women Writers**

(same as WGST 7180; cross-leveled with ENGLISH 4180, WGST 4180). Study of a limited number (1-3) of significant writers to be read intensively using contemporary feminist critical theory. No more than six hours may be taken in the Major Women Writers series.

**Credit Hours:** 3

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**ENGLISH 7188: Major Women Writers, 1789-1890**

(same as WGST 7188; cross-leveled with ENGLISH 4188, WGST 4188). See ENGLISH 7180 for course description.

**Credit Hours:** 3

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**ENGLISH 7200: Introduction to Old English**

(same as LINGST 7200; cross-leveled with ENGLISH 4200, LINGST 4200). A beginning study of the Old English or Anglo-Saxon language in its cultural context, with emphasis on gaining a reading knowledge.

**Credit Hours:** 3

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**ENGLISH 7206: Anglo-Saxon Literature**

(cross-leveled with ENGLISH 4206). Readings in the literature of Anglo-Saxon England (ca.500-ca.1100 C.E.). Specific topics (e.g., Women in the Early Middle Ages, Beowulf, Old English Heroic Poetry) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 7210: Medieval Literature**

(cross-leveled with ENGLISH 4210). Topics (e.g., Age of Chaucer, Chivalry and Courtly Love, Allegory and Satire) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 7220: Renaissance and 17th-Century English Literature**

(cross-leveled with ENGLISH 4220). Topics (e.g., The Metaphysical Poets, Themes in Shakespeare) announced at time of registration. No more than six hours may be taken in the Renaissance and Seventeenth Century Literature series.

**Credit Hours:** 3

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**ENGLISH 7240: Restoration and 18th-Century English Literature**

(cross-leveled with ENGLISH 4240). Topics (e.g., Restoration Drama, Johnson and his Circle) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 7250: 19th-Century English Literature**

(cross-leveled with ENGLISH 4250). Topics (e.g., Victorian Poetry, Non-Fiction Prose) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 7260: 20th-Century British Literature**

(cross-leveled with ENGLISH 4260). Topics (e.g. Contemporary British Poets, The Post-War Novel) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 7300: Early American Literature**

(cross-leveled with ENGLISH 4300). Topics (e.g., Narratives of Discovery and Exploration, The Puritan Heritage) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 7310: 19th-Century American Literature**

(cross-leveled with ENGLISH 4310). Topics (e.g., American Romanticism, Regionalism) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 7320: 20th-Century American Literature**

(cross-leveled with ENGLISH 4320). Topics (e.g., American Poetry since T. S. Eliot, The Short Story) announced at time of registration. May repeat to six hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 7400: Studies in African Diaspora Literature**

(same as BL\_STU 7400; cross-level with ENGLISH 4400, BL\_STU 4400). Topics (e.g., African American Poetry, African Diaspora Drama) announced at time of registration. No more than six hours may be taken in the Studies in African Diaspora Literature series.

**Credit Hours:** 3

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**ENGLISH 7409: Studies in African Diaspora Literature, 1890-to Present**

(same as BL\_STU 7409; cross-leveled with ENGLISH 4409, BL\_STU 4409). See ENGLISH 7400 for course description.

**Credit Hours:** 3

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**ENGLISH 7420: Africana Womanism**

(same as BL\_STU 7420; cross-leveled with ENGLISH 4420, BL\_STU 4420). An intensive study of Africana Womanism, focusing on selected Africana women writers.

**Credit Hours:** 3

**Prerequisites:** graduate standing or instructor's consent. May be repeated to six hours with departmental consent

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**ENGLISH 7480: Major African Diaspora Women Writers**

(same as WGST 7480, BL\_STU 7480; cross-leveled with ENGLISH 4480, BL\_STU 4480, WGST 4480). Study of selected African Diaspora women

writers, focusing on texts originally in English. May be repeated for credit with departmental consent. Maximum of 6 hours for ENGLISH 7180 and ENGLISH 7480

**Credit Hours:** 3

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**ENGLISH 7489: Major African Diaspora Women Writers, 1789 to 1890**

(same as WGST 7489, BL\_STU 7489; cross-leveled with ENGLISH 4489, BL\_STU 4489, WGST 4489). See ENGLISH 7480 for course description.

**Credit Hours:** 3

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**ENGLISH 7510: Creative Writing: Advanced Fiction**

(cross-leveled with ENGLISH 4510). An intensive writing workshop in which student stories and related literary texts receive close reading and analysis. Prerequisites: Any ONE of the following: ENGLISH 1510, ENGLISH 1520, ENGLISH 1530, ENGLISH 2510, ENGLISH 2520, or ENGLISH 2530.

**Credit Hours:** 3

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**ENGLISH 7520: Creative Writing: Advanced Nonfiction Prose**

(cross-leveled with ENGLISH 4520). An intensive writing workshop in which a student's creative nonfiction receives close reading and analysis. Prerequisites: Any ONE of the following: ENGLISH 1510, ENGLISH 1520, ENGLISH 1530, ENGLISH 2510, ENGLISH 2520, or ENGLISH 2530.

**Credit Hours:** 3

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**ENGLISH 7530: Creative Writing: Advanced Poetry**

(cross-leveled with ENGLISH 7530). Poetry regarded as a mode of understanding. Poetic values related to other values. Practical consideration of verse techniques. Prerequisites: Any ONE of the following: ENGLISH 1510, ENGLISH 1520, ENGLISH 1530, ENGLISH 2510, ENGLISH 2520, or ENGLISH 2530.

**Credit Hours:** 3

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**ENGLISH 7560: Advanced Playwriting: Problems**

(same as THEATR 7920; cross-leveled with ENGLISH 4650 and THEATR 4920). Advanced study of the writing process as applied to theatre, including theory and practice. Special playwriting problems and techniques.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 3560

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**ENGLISH 7580: Adaptation of Literature for Film**

(same as FILMS\_V S 7935 and THEATR 7935; cross-leveled with ENGLISH 4935, FILMS\_VS 4935 and THEATR 4935). This upper division course will explore adaptation principles and practices with a variety of forms of literature that were not originally written for film.

**Credit Hours:** 3

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**ENGLISH 7600: Structure of American English**

(same as LINGST 7600; cross-leveled with ENGLISH 4600, LINGST 4600). Introduction to English linguistics. Study of the grammar and pronunciation of contemporary English, with the major focus on syntax.

**Credit Hours:** 3

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**ENGLISH 7610: History of the English Language**

(same as LINGST 7610; cross-leveled with ENGLISH 4610, LINGST 4610). Historical changes in the grammar and pronunciation of the English language from Old English to the present. Introduction to Indo-European origins of English.

**Credit Hours:** 3

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**ENGLISH 7611: The Story of English: Medieval to Modern**

History of the English language, explored through literature, with an emphasis on its development from the early Middle Ages through the Early Modern period (ca. 500-ca. 1700).

**Credit Hours:** 3

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**ENGLISH 7620: Regional and Social Dialects of American English**

(same as LINGST 7620; cross-leveled with ENGLISH 4620, LINGST 7620). The study of regional and social variation in pronunciation, vocabulary, and grammar of American English.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 4600 and ENGLISH 4610 or equivalent

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**ENGLISH 7630: Phonology**

(same as LINGST 7630; cross-leveled with LINGST 4630, ENGLISH 4630). Survey of the sound patterns of English and other languages.

**Credit Hours:** 3

**Recommended:** at least one course in linguistics

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**ENGLISH 7640: Syntax**

(same as LINGST 7640; cross-leveled with LINGST 4640, ENGLISH 4640). Study of the properties of phrase-and sentence-level grammar, emphasizing English, with some comparison to other languages.

**Credit Hours:** 3

**Recommended:** at least one course in linguistics

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**ENGLISH 7660: Historical Linguistics**

(same as LINGST 7420, ANTHRO 7420; cross-leveled with ENGLISH 4660, ANTHRO 4420, LINGST 4420). Methods of tracing the history of languages by glottochronology, and by comparative and internal reconstructions; cultural and linguistic implications of such reconstructions and of areal linguistics.

**Credit Hours:** 3

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**ENGLISH 7670: Field Methods in Linguistics**

(same as LINGST 7870, ANTHRO 7870; cross-leveled with LINGST 4870, ENGLISH 4670, ANTHRO 4870). Intensive training in collection and analysis of data elicited from a native speaker of a non-Indo-European language. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** instructor's consent

**Recommended:** 9 hours in linguistics

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**ENGLISH 7700: Special Themes in Folklore**

(same as ANTHRO 7150; cross-leveled with ENGLISH 4770, ANTHRO 4170). Study of oral tradition from living cultures as well as literary works and mass media with roots in verbal art. Oral tradition is a form of human

communication through which ideas, knowledge, art, and cultural material is received, preserved, and transmitted orally from one generation to another or from one person to another. May include such folklore genres as ballads, chants, folktales, jokes, legends, myths, proverbs, prose, or verses. Prerequisites: Instructor's consent

**Credit Hours:** 3

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**ENGLISH 7770: Oral Tradition**

(same as ANTHRO 7170; cross-leveled with ENGLISH 4770, ANTHRO 4170). Study of oral tradition from living cultures as well as literary works and mass media with roots in verbal art. Oral tradition is a form of human communication through which ideas, knowledge, art, and cultural material is received, preserved, and transmitted orally from one generation to another or from one person to another. May include such folklore genres as ballads, chants, folktales, jokes, legends, myths, proverbs, prose, or verses.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**ENGLISH 7780: Women's Folklore and Feminist Theory**

(same as WGST 7780; cross-leveled with ENGLISH 4780, WGST 4780). Examines folklore and artistic expression of women in relation to feminist theory and in multicultural contexts. Includes verbal genres (narrative/song) as well as material genres (quilting/arts).

**Credit Hours:** 3

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**ENGLISH 7820: Studies in Film Genre**

(cross-leveled with ENGLISH 4820, FILMS\_VS 4820). Topics (e.g. The Western, Film Noir) announced at time of registration. No more than six hours may be taken.

**Credit Hours:** 3

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**ENGLISH 7938: Advanced Screenwriting: Styles**

(same as THEATR 7938; cross-leveled with ENGLISH 4938, THEATR 4938). Students develop advanced skills of screenwriting through a focus on non-realistic, non-linear dramatic writing styles in development of a full-length screenplay. Areas of study will include techniques of magic realism, symbolism, expressionism, absurdism, surrealism/dada, mythic/fantasy, musicals, political docudrama, and science fiction.

**Credit Hours:** 3

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**ENGLISH 7950: Internship in Publishing**

(cross-leveled with ENGLISH 4950). Offers practical experience working with a literary or scholarly publication edited or sponsored by faculty members.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**ENGLISH 8001: Topics in English-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Some sections may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-3

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**ENGLISH 8005: Introduction to Graduate Study**

Introduces entering MA and PhD students to the profession of English and the intellectual resources needed to complete their degrees successfully.

**Credit Hour:** 1

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**ENGLISH 8006: Professional Issues in English Studies**

Introduces advanced graduate students to issues relevant to their professional training, including entering the job market and preparing work for publication. May be repeated for credit.

**Credit Hour:** 1-3

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**ENGLISH 8010: Theory and Practice of Composition**

Current and historical theories of rhetoric and composition as applied to the teaching of college composition.

**Credit Hours:** 3

**Prerequisites:** department's consent

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**ENGLISH 8020: The Theory and Practice of Teaching in English**

This course is designed to acquaint students with the history, theory, and practice of teaching in undergraduate English classrooms.

**Credit Hour:** 1-3

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**ENGLISH 8030: The Theory and Practice of Teaching Creative Writing**

Current and historical theories of Creative Writing pedagogy and its application in the creative writing classroom.

**Credit Hour:** 1-3

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**ENGLISH 8040: Seminar in Rhetoric and Composition**

Topics (e.g., The Institutionalization of Rhetoric, Writing Across the Curriculum) announced at time of registration. May repeat to twelve hours with department's approval.

**Credit Hours:** 3

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**ENGLISH 8050: Contemporary Critical Approaches**

A survey of contemporary professional critical methods, such as formalism, poststructuralism, feminism, Marxism, new historicism, psychoanalysis, identity studies, and cultural studies.

**Credit Hours:** 3

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**ENGLISH 8060: Seminar in Criticism and Theory**

Principles and practices of selected critics. May repeat to twelve hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 8070: History of Criticism and Theory**

A survey of the history of literary criticism and theory. While comprehensive in scope, the course might focus on specific topics in the history of criticism, such as the dialectic between rhetoric and poetics, the rise of aesthetics, or the relation of art and culture to society. Figures studied will extend from early philosophers such as Plato and Aristotle, through eighteenth-century thinkers such as Kant and Johnson, up to present theorists such as Derrida and Butler.

**Credit Hours:** 3

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**ENGLISH 8090: Masters Thesis Research**

Leads to preparation of masters thesis. Graded on S/U basis only.

**Credit Hour:** 1-99

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**ENGLISH 8095: Problems in English**

Individual work not leading to preparation of dissertation.

**Credit Hour:** 1-99

**Prerequisites:** departmental consent

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**ENGLISH 8110: Forms**

Topics (e.g., The Epic, The Epistolary Novel) announced at time of registration. May repeat to twelve hours with department's approval.

**Credit Hours:** 3

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**ENGLISH 8200: Seminar in Old English Literature**

Topics in Old English or Anglo-Saxon literature, such as Beowulf, the Exeter Book poems, or the genres of elegy, Biblical narrative, or wisdom poetry. May repeat to twelve hours with department's approval.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 4200 or equivalent

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**ENGLISH 8210: Seminar in Middle English Literature**

Topics (e.g., Medieval Drama, Chaucer) announced at time of registration. May repeat to twelve hours with department's approval.

**Credit Hours:** 3

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**ENGLISH 8220: Seminar in Renaissance British Literature**

Topics (e.g., Tudor and Stuart Drama, Shakespearean Tragedy) announced at time of registration. May repeat to twelve hours with department's approval.

**Credit Hours:** 3

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**ENGLISH 8230: Seminar in 17th-Century British Literature**

Topics (e.g., The Metaphysical Poets, Restoration Drama) announced at time of registration. May repeat to twelve hours with department's approval.

**Credit Hours:** 3

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**ENGLISH 8240: Seminar in 18th-Century British Literature**

Topics (e.g., The 18th-Century Novel, Historical and Biographical Prose) announced at time of registration. May repeat to twelve hours with department's approval.

**Credit Hours:** 3

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**ENGLISH 8250: Seminar in 19th-Century British Literature**

Topics (e.g., The Later Romantics, Victorian Poetry) announced at time of registration. May repeat to twelve hours with department's approval.

**Credit Hours:** 3

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**ENGLISH 8260: Seminar in 20th-Century British Literature**

Topics (e.g., Chief Contemporary Poets, Modernism and the Novel) announced at time of registration. May repeat to twelve hours with department's approval.

**Credit Hours:** 3

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**ENGLISH 8310: Seminar in 19th Century American Literature**

Topics (e.g., The Transcendentalists, American Realism) announced at time of registration. May repeat to twelve hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 8320: Seminar in 20th-Century American Literature**

Topics (e.g., The African-American Novel, Chief Contemporary Poets) announced at time of registration. May repeat to twelve hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 8400: Seminar in African Diaspora Literature**

(same as BL\_STU 8400). Topic (e.g., Autobiography, Black Women Writers) announced at time of registration. May be repeated to 12 hours with departmental consent.

**Credit Hours:** 3

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**ENGLISH 8510: Advanced Writing of Fiction**

Advanced fiction writing designed for graduate students, with the intention of producing work of professional quality. May repeat to twelve hours with consent of instructor.

**Credit Hours:** 3

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**ENGLISH 8520: Advanced Writing of Nonfiction Prose**

Advanced workshop in nonfiction prose for graduate students intending to produce professional quality work. May repeat to twelve hours with consent of instructor.

**Credit Hours:** 3

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**ENGLISH 8530: Advanced Writing of Poetry**

Advanced poetry writing designed for graduate students with the intention of producing work of professional quality. May repeat to twelve hours with consent of instructor.

**Credit Hours:** 3

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**ENGLISH 8560: Graduate Seminar in Playwriting**

(same as THEATR 8987). Seminar in theory, practice, and pedagogy of playwriting, students a mid-term in playwriting theory, a full-length play, a research paper, and a syllabus and lesson plans for an undergraduate playwriting course.

**Credit Hours:** 3

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**ENGLISH 8600: Seminar in the English Language**

(same as LINGST 8600). Descriptive and historical studies of the English language. Topics (e.g., The Germanic Origins, Modern Syntactic Analysis) announced at time of registration. May repeat to twelve hours with department's approval.

**Credit Hours:** 3

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**ENGLISH 8700: Seminar in Folklore**

(same as ANTHRO 8157 and REL\_ST 8700). Focus on the roots of folklore scholarship and methodology and their evolution in modern approaches to the study of oral, traditional verbal genres and their performance in natural folk groups. May repeat to twelve hours with department's consent.

**Credit Hours:** 3

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**ENGLISH 9090: Doctoral Dissertation Research**

Leads to preparation of dissertation. Graded on S/U basis only.

**Credit Hour:** 1-12

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## English Language Support Program (ELSP)

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**ELSP\_0100: Grammar and Composition I**

Students learn grammatical patterns and sentence construction used in academic writing and focus on improving sentence-level grammatical accuracy in the writing of coherent, well-developed paragraphs. Graded S/U only.

**Credit Hours:** 3

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**ELSP\_0200: Reading and Vocabulary**

Students develop vocabulary and reading strategies required to comprehend academic textbooks and literature in various fields of study. Graded on S/U basis only.

**Credit Hours:** 3

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**ELSP\_0300: Grammar and Composition II**

Students learn how to write clear and well-developed multi-paragraph academic essays using various methods of organization through the process of planning, drafting, revising, editing, and peer reviewing. Students also learn to work with sources. Grammatical structures relevant to the methods of organization are reviewed and practiced. Graded S/U Only.

**Credit Hours:** 3

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**ELSP\_0400: Oral Communication**

This course emphasizes the development of fluency and intelligibility in spoken English. Through individual and group activities, students work on improving pronunciation, practicing conversation strategies, and delivering oral presentations. Enrollment in ELSP\_0400 is restricted to graduate students and scholars who have attained a satisfactory score on the Test of English as a Foreign Language (TOEFL). Graded S/U Only.

**Credit Hours:** 3

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## Environmental Science (ENV\_SC)

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### ENV\_SC 1100: Introduction to Environmental Science

This class provides an opportunity to develop an understanding of environment, physical and social causes of environmental problems, their impacts, and strategies to manage these issues.

**Credit Hours:** 3

**Prerequisites:** Enrollment restricted to College of Agriculture, Food and Natural Resources undergraduates and students minoring in Environmental Science

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### ENV\_SC 2001: Topics in Environmental Science - General

Organized study of selected topics. Subjects and credit may vary from semester to semester.

**Credit Hour:** 1-99

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### ENV\_SC 2600: Sustainability Foundations: An Introduction to Sustainability

(same as BIOL\_EN 2600). This course introduces fundamental concepts of sustainability from sustainable development to sustainability science. It focuses on human-environment systems, the characteristics of these systems, and patterns of change. Course materials interrogate taken-for-granted assumptions that shape human relationships with the natural world. You will learn to identify common dynamics leading to social and environmental problems with the aim of identifying alternative actions (solutions) for transitioning towards sustainability. Sustainability integrates the social and biophysical sciences; and implementing solutions requires the integration of the social justice, the arts, and humanities. Through a variety of interdisciplinary perspectives and frameworks, you will learn about current sustainability research and be able to develop an understanding of what sustainability means to you and your field of study. Graded on A-F basis only.

**Credit Hours:** 3

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### ENV\_SC 2600H: Sustainability Foundations: An Introduction to Sustainability - Honors

(same as BIOL\_EN 2600). This course introduces fundamental concepts of sustainability from sustainable development to sustainability science. It focuses on human-environment systems, the characteristics of these systems, and patterns of change. Course materials interrogate taken-for-granted assumptions that shape human relationships with the natural world. You will learn to identify common dynamics leading to social and environmental problems with the aim of identifying alternative actions (solutions) for transitioning towards sustainability. Sustainability integrates the social and biophysical sciences; and implementing solutions requires the integration of the social justice, the arts, and humanities. Through a variety of interdisciplinary perspectives and frameworks, you will learn about current sustainability research and be able to develop an understanding of what sustainability means to you and your field of study. Graded on A-F basis only.

**Credit Hours:** 3

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### ENV\_SC 3085: Problems in Environmental Science

Special individualized projects or readings in environmental science.

**Credit Hour:** 1-99

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### ENV\_SC 3250: Pollutant Fate and Transport

(same as CV\_ENG 3250). Introduction to concepts governing pollutant fate and transport in the environment, including pollutant interactions within and migration through environmental systems, as well as analytical techniques and tools necessary to quantify conditions and movement.

**Credit Hours:** 3

**Prerequisites:** ENV\_SC 1100 or SOIL 2100 or CV\_ENG 3200; and CHEM 1320

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### ENV\_SC 3290: Soils and the Environment

(same as SOIL 3290). Addresses the role of soils and soil properties on environmental pollution and management. Emphasis will be placed on carbon, nitrogen, phosphorus, and sulfur transformations and transport in natural and disturbed ecosystems and soil management practices and technology to prevent or remediate environmental pollution.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100, ENGLISH 1000. Recommended 3 hours of CHEM courses

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### ENV\_SC 3290W: Soils and the Environment - Writing Intensive

(same as SOIL 3290W). Addresses the role of soils and soil properties on environmental pollution and management. Emphasis will be placed on carbon, nitrogen, phosphorus, and sulfur transformations and transport in natural and disturbed ecosystems and soil management practices and technology to prevent or remediate environmental pollution.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100, ENGLISH 1000. Recommended 3 hours of CHEM courses

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### ENV\_SC 3330: Environmental Land Use Management

An introduction to environmentally sustainable use and management of land.

**Credit Hours:** 3

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### ENV\_SC 3400: Water Quality and Natural Resources Management

(same as NAT\_R 3400). Introduction to broad aspects of water quality science, management, and policy. Topics include aquatic ecology, eutrophication, lake and coastal management, water supply and treatment, watershed management with respect to agriculture and urban development, and toxicology. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** CHEM 1320 and ENV\_SC 1100 or NAT\_R 1070

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### ENV\_SC 3500: Pollutant Fate and Transport

This course introduces students to concepts governing pollutant fate and transport in the environment, and it provides students with the quantitative tools necessary to estimate the fate and transport of pollutants in the environment.

**Credit Hours:** 3

**Prerequisites:** ENV\_SC 1100 or SOIL 2100, and CHEM 1320

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### ENV\_SC 4001: Topics in Environmental Science - General

Organized study of selected topics in environmental science.



**Credit Hour:** 1-99

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**ENV\_SC 4024: Foundations of Environmental Education**

(same as NAT\_R 4024; cross-leveled with NAT\_R 7024) This course provides a theoretical foundation to environmental education (EE). The purpose of this course is to develop the knowledge and skills for developing quality, age-appropriate EE for students in both formal and non-formal education setting. The emphasis is on EE curriculum materials, resources, and programs that can be used with students in settings at classrooms, nature centers, museums, and parks. This course involves training in the Missouri Department of Conservation Discover Nature School educational materials, and in observing and teaching EE lessons in a local nature center. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1010 or ENV\_SC 1100 or NAT\_R 1060 or NAT\_R 1070 or NAT\_R 2160 or Instructor's consent

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**ENV\_SC 4085: Problems in Environmental Science**

Special individualized research projects or readings in environmental science.

**Credit Hour:** 1-99

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**ENV\_SC 4100: Lake Ecology**

(same as NAT\_R 4100; cross-leveled with ENV\_SC 7100, NAT\_R 7100). Ecology of inland waters with emphasis on productivity. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** senior standing or BIO\_SC 3650

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**ENV\_SC 4200: Stream Ecology and Hydrology**

(cross-leveled with ENV\_SC 7200). This senior/grad course in stream ecology will provide students an opportunity to increase their knowledge about the ecology of flowing waters. The course will cover physical and biological elements of fluvial ecosystems, with a focus on mechanisms and processes and the discussion of critical issues associated with the conservation and management of streams and their biota. The course is built around lectures, assigned readings, and class and home activities. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** 60 credit hours, MATH 1100

**Recommended:** BIO\_SC 3650 or FOREST 4320

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**ENV\_SC 4300: Methods in Aquatic Ecology**

(same as NAT\_R 4300; cross-leveled with ENV\_SC 7300, NAT\_R 7300). Methods used for quantitative assessment of water quality and quantity in inland waters. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** senior standing or BIO\_SC 3650 and ENV\_SC 4100/ NAT\_R 4100 or ENV\_SC 3400/NAT\_R 3400 or FOREST 4390

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**ENV\_SC 4305: Environmental Soil Physics**

(same as SOIL 4305). Study of soil physical properties and processes important in solving environmental problems. Topics include soil solids, water content and energy, and transport of water, solutes, gas and heat.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100

**Recommended:** PHYSCS 1210 or equivalent

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**ENV\_SC 4306: Environmental Soil Physics Laboratory**

(same as SOIL 4306). Introduction to the methodology and equipment for measurement of soil physical properties and processes.

**Credit Hours:** 2

**Prerequisites or Corequisites:** ENV\_SC 4305

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**ENV\_SC 4312: Environmental Soil Microbiology**

(same as SOIL 4312). Microbiology/ecology of life in the soil ecosystem. Emphasis is placed on the role of microbes in nutrient cycling, microbial pesticide/xenobiotic transformation bioremediation, etc.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100

**Recommended:** general microbiology

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**ENV\_SC 4318: Environmental Soil Chemistry**

(same as SOIL 4318 and GEOL 4318). Study of chemical constituents and processes occurring in soils. Topics include soil minerals and weathering processes, organic matter, solution chemistry, oxidation-reduction reactions and adsorption processes.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100 or GEOL 2400, CHEM 1320 and CHEM 1330; junior standing or instructor's consent

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**ENV\_SC 4320: Hydrologic and Water Quality Modeling**

(same as NAT\_R 4320). Introduction to models for simulating hydrologic and water quality processes. Emphasis is placed on watersheds to provide experience with the use of simulation models for natural resource decision making.

**Credit Hours:** 3

**Prerequisites:** ENV\_SC 1100 or SOIL 2100

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**ENV\_SC 4396: Agroforestry for Watershed Restoration**

Agroforestry for watershed restoration will focus on integrated approaches for improved water quality, soil health, and economic benefits. Students will learn principles and practices, critical analysis and application of agroforestry practices to improve overall environmental quality. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FOREST 4385 or FOREST 7385

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**ENV\_SC 4400: Environmental Law, Policy, and Justice**

(cross-leveled with ENV\_SC 7400, AAE 7400). This course will examine the intersection of environmental law, policy, and justice. We will first cover the building blocks of U.S. environmental law, including common law and statutes such as the Clean Air Act and the Clean Water Act. We will then turn to international environmental policy issues such as climate change, marine pollution, and the hazardous waste trade. We will approach these laws and treaties through the lens of equity and environmental justice. The course will use a variety of teaching methods, including lecture and classroom discussion using cold calling and the Socratic Method. We will also have student presentations, guest speakers, a moot court, a negotiation simulation, and a field trip in the Columbia, Missouri area. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Junior, senior, or graduate student status

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**ENV\_SC 4400W: Environmental Law, Policy, and Justice - Writing Intensive**

(cross-leveled with ENV\_SC 7400, AAE 7400). This course will examine the intersection of environmental law, policy, and justice. We will first cover the building blocks of U.S. environmental law, including common law and statutes such as the Clean Air Act and the Clean Water Act. We will then turn to international environmental policy issues such as climate change, marine pollution, and the hazardous waste trade. We will approach these laws and treaties through the lens of equity and environmental justice. The course will use a variety of teaching methods, including lecture and classroom discussion using cold calling and the Socratic Method. We will also have student presentations, guest speakers, a moot court, a negotiation simulation, and a field trip in the Columbia, Missouri area. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Junior, senior, or graduate student status

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**ENV\_SC 4600: Sustainability Science Problem Solving**

This course introduces fundamental concepts of sustainability science. It provides a survey of perspectives, frameworks, and competencies to engage in sustainability problem-solving. Students will develop an understanding for integrating critical concepts from economics and business, social and public policy, and environmental science and law to address pressing sustainability challenges. Through student-selected and student-led individual or group projects, principles learned will be used to analyze complex social-ecological problems to design alternative pathways towards sustainability. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** ENV\_SC 2600 or BIOL\_EN 2600

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**ENV\_SC 4940: Environmental Science Internship**

Supervised professional experience with an approved public or private organization. Graded on S/U basis only.

**Credit Hour:** 1-99

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**ENV\_SC 4950: Undergraduate Research in Environmental Science**

Research apprenticeship with a faculty mentor. Students are expected to develop initial concept for the research, design experiments, collect data, and analyze data with faculty input, oversight, and guidance.

**Credit Hour:** 1-4

**Prerequisites:** ENV\_SC 1100, STAT 1200

**Recommended:** 9 hours of Environmental Science with at least 3 hours above the 3000-level

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**ENV\_SC 7001: Topics in Environmental Science**

Organized study of selected topics in environmental science. Intended for graduate students.

**Credit Hour:** 1-99

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**ENV\_SC 7100: Lake Ecology**

(same as NAT\_R 7100; cross-leveled with ENV\_SC 4100, NAT\_R 4100). Ecology of inland waters with emphasis on productivity. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** BIO\_SC 3650

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**ENV\_SC 7200: Stream Ecology and Hydrology**

(cross-leveled with ENV\_SC 4200). This senior/grad course in stream ecology will provide students an opportunity to increase their knowledge about the ecology of flowing waters. The course will cover physical and biological elements of fluvial ecosystems, with a focus on mechanisms and processes and the discussion of critical issues associated with the conservation and management of streams and their biota. The course is built around lectures, assigned readings, and class and home activities. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** 60 credit hours, MATH 1100

**Recommended:** BIO\_SC 3650 or FOREST 4320

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**ENV\_SC 7300: Methods in Aquatic Ecology**

(same as NAT\_R 7300; cross-leveled with ENV\_SC 4300, NAT\_R 4300). Methods used for quantitative assessment of water quality and quantity in inland waters. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** senior standing or BIO\_SC 3650. ENV\_SC 4100 or NAT\_R 4100 or NAT\_R 3400 or FOREST 4390

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**ENV\_SC 7305: Environmental Soil Physics**

(same as SOIL 7305). Study of soil physical properties and processes important in solving environmental problems. Topics include soil solids, water content and energy, and transport of water, solutes, gas and heat.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100, PHYSCS 1210 or equivalent

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**ENV\_SC 7306: Environmental Soil Physics Laboratory**

(same as SOIL 7306). Introduction to the methodology and equipment for measurement of soil physical properties and properties and processes. Prerequisites or Corerquisites: SOIL 4305.

**Credit Hours:** 2

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**ENV\_SC 7312: Environmental Soil Microbiology**

(same as SOIL 7312). Microbiology/ecology of life in the soil ecosystem. Emphasis is placed on the role of microbes in nutrient cycling, microbial pesticide/xenobiotic degradation and bioremediation, soil quality and pathogen regulation in the environment. Nitrogen fixation, mycorrhizal processes are discussed.

**Credit Hours:** 3

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**ENV\_SC 7318: Environmental Soil Chemistry**

(same as SOIL 7318 and GEOL 7318). Study of chemical constituents and processes occurring in soils. Topics include soil minerals, and weathering processes, organic matter, solution chemistry, oxidation-reduction reactions and adsorption processes.

**Credit Hours:** 3

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**Prerequisites:** SOIL 2100 or GEOL 2400, CHEM 1320 and CHEM 1330

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**ENV\_SC 7320: Hydrologic and Water Quality Modeling**

(same as NAT\_R 7320). Introduction to models for simulating hydrologic and water quality processes. Emphasis is placed on watersheds to provide experience with the use of simulation models for natural resource decision making.

**Credit Hours:** 3

**Prerequisites:** ENV\_SC 1100 or SOIL 2100 or equivalent

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**ENV\_SC 7396: Agroforestry for Watershed Restoration**

Agroforestry for watershed restoration will focus on integrated approaches for improved water quality, soil health, and economic benefits. Students will learn principles and practices, critical analysis and application of agroforestry practices to improve overall environmental quality. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FOREST 4385 or FOREST 7385 or permission of instructor

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**ENV\_SC 7400: Environmental Law, Policy, and Justice**

(same as with AAE 7400; cross-leveled with ENV\_SC 4400). This course will examine the intersection of environmental law, policy, and justice. We will first cover the building blocks of U.S. environmental law, including common law and statutes such as the Clean Air Act and the Clean Water Act. We will then turn to international environmental policy issues such as climate change, marine pollution, and the hazardous waste trade. We will approach these laws and treaties through the lens of equity and environmental justice. The course will use a variety of teaching methods, including lecture and classroom discussion using cold calling and the Socratic Method. We will also have student presentations, guest speakers, a moot court, a negotiation simulation, and a field trip in the Columbia, Missouri area. Graded on A-F basis only.

**Credit Hours:** 3

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**ENV\_SC 8090: Masters Research in Environmental Science**

Original investigations in environmental science for presentation in a thesis. Graded on S/U basis only.

**Credit Hour:** 1-10

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**ENV\_SC 8400: Solute Transport in the Vadose Zone**

(same as SOIL 8400). Transport of water and solutes in geomeia with emphasis on development of the equations of flow. Evaluation of analytical and numeral solutions to equations describing transport phenomena.

**Credit Hours:** 3

**Prerequisites:** ENV\_SC 7305 or SOIL 7305

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## Environmental Studies (ENV\_ST)

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**ENV\_ST 2150: Directed Independent Study**

Working with Environmental Studies you will find and develop a research project or an internship with the university, a government agency, a business or a non-profit agency. The project will be directed towards solving an environmental problem.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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## Family And Community Medicine (F\_C\_MD)

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**F\_C\_MD 6001: Family Medicine Clerkship**

Core learning experiences take place in ambulatory clinic settings. Students work with experienced clinicians and senior residents, spending time in University teaching practices and in community-based practices. Students also may spend time seeing patients in emergency room, hospital, nursing home settings and taking call with residents and practicing physicians. A high volume of patients of all ages with a wide range of problems is encountered. Many patients will have undifferentiated problems.

**Credit Hours:** 8

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**F\_C\_MD 6011: Rural Family Medicine Clerkship**

Rural Family Medicine Clerkship

**Credit Hours:** 8

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**F\_C\_MD 6021: Springfield Family Medicine Clerkship**

Core learning experiences take place in ambulatory clinic settings. Students work with experienced clinicians and senior residents, spending time in University teaching practices and in community-based practices. Students also may spend time seeing patients in emergency room, hospital, nursing home settings and taking call with residents and practicing physicians. A high volume of patients of all ages with a wide range of problems is encountered. Many patients will have undifferentiated problems.

**Credit Hours:** 8

**Prerequisites:** successful completion of the first two years of medical school

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**F\_C\_MD 6036: SCC Palliative Care Elective**

Students will learn a multidisciplinary approach to the care of the palliative care patient while working in a variety of clinical settings. This is an inpatient and outpatient experience in a variety of settings that represent different levels and types of care available to people with a terminal condition. Each week students will work with palliative care physicians at either Cox or Mercy Palliative Care Service and/or a Hospice agency. Students will have the opportunity to see patients undergoing palliative care assessment and observe nursing staff and professional therapy staff in their work with patients and families. Students will participate in various palliative care- related conferences. Students will participate in inpatient palliative care services as well as outpatient palliative care clinics. The student will work with faculty in the Departments of Family and Community Medicine as well as Internal Medicine.

**Credit Hours:** 5

**Prerequisites:** Successful completion of 5 of 7 core clerkships, one of which must be either Family Medicine or Internal Medicine. IN\_MED 6002, 6012, 6022, or 6102. F\_C\_MD 6001, 6011, 6021, or 6101

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**F\_C\_MD 6048: SCC Rural Family Medicine Selective**

The selective is designed for self-motivated students interested in rural primary care, who are willing to explore a variety of outpatient clinical and community experiences. During this block, students will primarily be working with a faculty member in an outpatient Mercy or Cox Family Medicine Clinic in Southwest Missouri. Up to a 50 mile commute from Springfield may be required. There may be opportunities to participate in the care of patients in a variety of settings including nursing home visits, home visits, and urgent care. There will be the opportunity to participate in the care of patients in all life stages (pregnancy, pediatrics, geriatrics) as well as participate in office based procedures. To gain a better understanding of community resources and needs, students will visit local agencies such as the County Health Department, WIC, Parents as Teachers, the public school system, the Chamber of Commerce, or other community resources as identified by the student and faculty. Students will also spend time with the front office, nursing, and laboratory staff to learn about practice management. During this month, students will work on a scholarly project to improve patient care and present this educational topic to the faculty and staff at the clinic.

**Credit Hours:** 5

**Prerequisites:** Successful completion of the first two years of medical school. Successful completion of five of the seven core clerkships. One of the five must be the Family Medicine Clerkship

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**F\_C\_MD 6049: SCC Palliative Care Selective**

This is an inpatient and outpatient experience in a variety of settings that represent different levels and types of care available to people with a terminal condition. The student will be expected to function at a sub-intern level and will be expected to document advance care planning and lead discussions with patients and their families. Each week students will work with palliative care physicians at either Cox or Mercy Palliative Care Service and/or a Hospice agency. Students will have the opportunity to see patients undergoing palliative care assessment and observe nursing staff and professional therapy staff in their work with patients and families. Students will participate in various palliative care-related conferences. Students will participate in inpatient palliative care services as well as outpatient palliative care clinics. The student will work with faculty in the Departments of Family and Community Medicine as well as Internal Medicine.

**Credit Hours:** 5

**Prerequisites:** Successful completion of the first two years of medical school as well as five of the seven core clerkship. Two of the five must be the Medicine Clerkship and Family Medicine Clerkship

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**F\_C\_MD 6051: SCC Primary Care Dermatology 4WK Elective**

Students participate in the evaluation of patients with skin disease Primary Care Outpatient clinic. Students will also complete the American Academy of Dermatology online student modules designed for a 4 week curriculum and the self-evaluation that is provided. Students will gain knowledge and demonstrate comprehension of a breadth of basic general dermatologic diseases. They will care for adults and pediatric patients as well as review supplied photographs for supplementation to develop their clinical diagnostic skills. The rotation is designed to provide the medical student with a broad general base in clinical dermatology for the non-dermatologist.

**Credit Hours:** 5

**Prerequisites:** Successful completion of the Family Medicine clerkship. Faculty approval is required of all Springfield electives

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**F\_C\_MD 6058: FM Federally Qualified Health Center(FQHC) Clinical Experience**

This course is designed for self-motivated students interested in working in underserved (rural or urban) settings. Students will work with physicians at a Federally Qualified Health Center (FQHC) in Missouri. The primary mission of FQHCs is to enhance primary care services in underserved urban and rural communities. Coordinating with the FQHC's medical director (or designee), the student will develop a schedule of activities including items from the educational opportunities listed below. At least 50% of the student's time should be in patient care-related activities.

**Credit Hours:** 5

**Prerequisites:** Successful completion of the first two years of medical school and the family medicine clerkship

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**F\_C\_MD 6101: Remediation Family Medicine Clerkship**

Enrolled students are those who received an unsatisfactory grade in a Family Medicine Clerkship at any Mizzou Med location or site. This course allows them the opportunity to rectify a deficiency.

**Credit Hours:** 8

**Prerequisites:** F\_C\_MD 6001 Family Medicine Clerkship, received unsatisfactory grade

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**F\_C\_MD 6253: ABS Family and Community Medicine Research**

ABS Family and Community Medicine Research

**Credit Hour:** 5-10

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**F\_C\_MD 6475: Family Medicine Elective (FP Orientation)**

This elective is for Integrated Residents in the Department of Family and Community Medicine only. Two core clinical rotations are required, including Family Medicine Clerkship. During this one year longitudinal experience, Integrated Residents will work closely with senior residents and faculty members to enhance the knowledge and skills needed to care for patients in a comprehensive family medicine continuity clinic. Integrated Residents are required to attend orientation activities during 15A. Regular attendance to Wednesday departmental Grand Rounds and Tuesday afternoon Resident Seminars is also expected.

**Credit Hours:** 5

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**F\_C\_MD 6477: Family Medicine Elective Preceptorship**

May be available as a rural offsite elective: contact the MU-AHEC Coordinator. Goals/Objectives: During this elective the student works closely with a family physician in private practice. Students both observe the preceptor's patient encounters and take primary responsibility for several patients each day, discussing diagnosis and formulating management plans with supervision by the preceptor. The Preceptorship also provides opportunities not available elsewhere in the medical school curriculum, including seeing the patient's illness in its context, assessing a community's health care system, and learning about practice management. Evaluations: Evaluation of the student is based on the preceptor's evaluation and comments. Notes: Site must be pre-approved by the Course Director.

**Credit Hours:** 5

**Prerequisites:** Students should have completed at least two clinical blocks, plus the Family Practice Clerkship

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**F\_C\_MD 6483: Preventive/Community Medicine**

Preventive/Community Medicine

**Credit Hours:** 5

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**F\_C\_MD 6485: Geriatrics-Family and Community Medicine Elective**

Goals/Objectives: This is an outpatient experience in a variety of settings. Each week students will: 1. Work with Dr. David Cravens and other health care providers at Lenoir Village, Lenoir Manor, Lenoir Health Care and Maplewood Apartments. These all represent different levels and types of care available to elders. a. Students will develop an understanding of the available care and residential options that elders utilize. 2. Work with several geriatricians in the SAGE Clinic and/or Geriatrics Clinic at Green Meadows. a. Students will improve their understanding of care of elders in the outpatient setting. b. Students will also see patients undergoing geriatric assessment and thus develop a better understanding of the multidisciplinary approach to geriatric assessment. 3. Additional experiences may be arranged depending on the student's interests. 4. Participate in the various conferences related to geriatrics. Evaluations: Final evaluation will be determined by the attending physicians supervising the student during the block.

**Credit Hours:** 5

**Prerequisites:** Must have completed all core clerkships

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**F\_C\_MD 6486: Evidence Based Medical Writing in Family Medicine**

Student will co-author a draft of an evidence-based article under the supervision of FCM faculty with evidence-based writing experience. Before writing begins, students complete an evidence-based medicine curriculum using online modules. FCM integrated residents will also participate in a departmental editorial review session.

**Credit Hours:** 5

**Prerequisites:** restricted to 4th year medical students

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**F\_C\_MD 6487: Family and Community Medicine Palliative Care Elective**

This is an inpatient and outpatient experience in a variety of settings that represent different levels and types of care available to people with terminal condition.

**Credit Hours:** 5

**Prerequisites:** F\_C\_MD 6001; restricted to 4th year medical students

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**F\_C\_MD 6488: Family Medicine Outpatient Elective**

Students will have the opportunity to work with two to four Family Medicine physicians at one of our UMHC Family Medicine clinics (South Providence Medical Building, Keene Family Medicine clinic, Smiley Family Medicine clinic, Ashland Family Medicine clinic, Callaway physicians, Fulton Family Health, or Fayette Medical clinic). Students will be paired with two to four faculty members or senior FM residents and will be responsible for seeing patients in the outpatient setting. Duties include obtaining appropriate history and performing a physical exam, medical decision making, patient education, documenting a clinic encounter, patient follow up after the visit, and reading about common acute and chronic illnesses seen in Family Medicine). If the preceptor participates in patient care in the hospital or nursing home, the student will have the opportunity to participate in hospital rounds or nursing home/hospice care.

**Credit Hours:** 5

**Prerequisites:** Successful completion of three of the seven core clerkships including Family Medicine

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**F\_C\_MD 6775: Family Medicine Preceptorship - Rural**

Family Medicine Preceptorship - Rural

**Credit Hours:** 5

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**F\_C\_MD 6777: Rural Health Policy and Legislative Advocacy**

Elective content will focus on the intersection of rural medicine, health policy, and legislative advocacy. Course Goals: 1) To inform and educate students about rural health policy issues at the local, state, and national levels. 2) To train medical students to be informed advocates of rural health policy issues at the local, state, and national levels. To apply, medical students must complete the Rural Track Elective Application posted on the MU AHEC website <http://medicine.missouri.edu/ahec/rural-track-elective.html>. In the notes section of the application, the student must document a rationale for applying for this course. (Maximum length - 1 paragraph).

**Credit Hours:** 5

**Prerequisites:** M4 status. Applicants must complete either the Rural Track Summer Community Program or the Rural Track Clerkship Program prior to enrollment. Students will share first-hand experiences from rural track placement(s) with legislators to advocate for the MU Rural Track Pipeline Program and to influence rural health policy in Missouri

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**F\_C\_MD 6875: Family Medicine Onsite Externship**

Goals/Objectives: The student who is on the onsite track of the externship will be a member of the Family Practice Inpatient Team that is responsible for providing care to Family Practice patients in the hospital. The team consists of an attending, physician, two third-year residents, and two or three first-year residents. The student will be expected to function as a member of the team, attending rounds on a daily basis and assuming responsibility, under supervision, for the care of some of the patients. Each student will have 4-5 nights of call including weekend days. Students will be responsible for providing care, with supervision, to those patients admitted while they are on call. Students will also be expected to follow their patients after discharge, making home visits or nursing home visits and seeing them in follow-up at the clinic as indicated. Students will also have exposure to ambulatory family medicine. Each student will work closely in the clinic with one of the third-year residents assigned to the inpatient team. The student will attend each of the resident's clinics whether they are at Green Meadows, Fulton, or Fayette.

**Credit Hours:** 5

**Prerequisites:** Students should have completed at least two clinical blocks, plus the Family Practice Clerkship

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**F\_C\_MD 6876: Family Medicine Offsite Externship**

Several different types of experiences are available for the offsite track of the externship. Students have the opportunity to work at selected Indian Health Service sites that provide the appropriate mix of inpatient and outpatient experiences. A list of these IHS sites and the students' evaluations are available in the course office. These offer high volume and high levels of responsibility. Planning needs to begin early in the third year. Offsite externship experiences are also available in certain

community-based family practices and in certain family practice residency programs. A list of pre-approved sites is available in the course office. All of the sites available for the offsite experience have been carefully selected by the faculty based on previous experiences of fourth-year students. These sites offer an appropriate level of patient care responsibility with supervision. Offsite practices need to be approved in advance by the course director and often require planning 6 to 12 months in advance. Students considering offsite rotations will be expected to have a clear idea of how these experiences will offer unique advantages to their personal and professional development, and how they will meet the course criteria. Many offsite locations used in the past for the Family Medicine Clerkship will not satisfy the externship requirement. They still offer excellent experiences and could be taken as electives. Students on the offsite track will be evaluated with respect to their ability to collect, process, and analyze information, engage in clinical reasoning, and formulate appropriate diagnoses and treatment plans. Sites must be pre-approved by the Course director.

**Credit Hours:** 5

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**F\_C\_MD 6877: Rural Family Medicine Elective**  
Rural Family Medicine Elective

**Credit Hours:** 5

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**F\_C\_MD 6878: Family Medicine Maternity Care-Advanced Selective**  
Family Medicine Maternity Care-Advanced Selective

**Credit Hours:** 5

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**F\_C\_MD 6879: Palliative Care Selective**

This is an inpatient and outpatient experience in a variety of settings that represent different levels and types of care available to people with a terminal condition. Each day the student will work directly with palliative care physicians, as well as the rest of the multidisciplinary team, as part of the University Hospital Supportive and Palliative Care Service. They will also have the opportunity to work with a medical director of a local Hospice agency, who is a faculty member of the University of Missouri. Students will be expected to function as a member of the Palliative Care Team. Students will have the opportunity to actively participate in the assessment and care of patients under the direction of the Palliative Care Interdisciplinary team. Students will work alongside palliative care attending physicians, nursing staff, social workers, and pastoral care team members in their work with patients and families. Students will participate in various palliative care-related conferences including Interdisciplinary Team Meetings, didactics, patient remembrance and memorial services, self-care rounds, monthly team business meetings and the monthly Palliative Care hospital committee meeting. Additional experiences will include outpatient palliative care clinics at Ellis Fischel, bi-weekly community Hospice Interdisciplinary team meetings, patient home assessments and nursing visits with hospice staff, and completion of an oral presentation to the Palliative Care Team as part of their assessment and evidence of mastery of course objectives.

**Credit Hours:** 5

**Prerequisites:** Fourth year medical student. Must have completed 6 of the 7 core clerkships

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**F\_C\_MD 6905: SCC Primary Care Dermatology 2-week Elective**

This curriculum is designed to introduce the student to common dermatologic issues that are encountered in a primary care practice

location. Students will also complete the American Academy of Dermatology online student modules designed for a 2 week curriculum and the self-evaluation that is provided. Students will gain knowledge and demonstrate comprehension of a breadth of basic general dermatologic diseases. They will care for adults and pediatric patients as well as review supplied photographs for supplementation to develop their clinical diagnostic skills.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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**F\_C\_MD 6928: Primary Care Sports Medicine Elective**

Students will work with a multi-disciplinary sports medicine team, providing hands on clinical services in an outpatient setting. Participants will gain experience working with primary care sports medicine physicians, orthopedic surgeons, physical therapists and cast technicians.

**Credit Hours:** 2

**Prerequisites:** successful completion of the first two years of medical school

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**F\_C\_MD 7310: The Health Care System**

Overview of health care system and relationship between its components. Focuses on changing nature of the system and issues confronting the future health care system.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**F\_C\_MD 7350: Special Readings in Community Health**

Extensive reading and critical analysis of classical and current studies in selected areas of community health.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**F\_C\_MD 7400: Problems in Community Health**

Intensive study of an area of community health.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**F\_C\_MD 8410: Principles and Practices in Medical Education**

An examination of the past and present influences on the education of physicians, the application of adult education principles and the future approaches to medical education.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**F\_C\_MD 8411: Learning Strategies in Preclinical & Clinical Educ. of Physicians**

Examination of curricular strategies in preclinical and clinical education of medical students and graduate medical education. Emphasis will be placed on different types of instructional strategies.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**F\_C\_MD 8420: Principles of Epidemiology**

Examines methods of study of disease frequency and distribution in populations. Utilizes small group discussions for understanding of current medical literature.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**F\_C\_MD 8422: Clinical Research Methods I**

Principles of designing, implementing and reviewing research in the health sciences.

**Credit Hours:** 3

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**F\_C\_MD 8423: Clinical Research Methods II**

This is a continuation of the Clinical Research Methods I (CRM\_I) introductory course on the multi-method approach to clinical research. Similar to the previous course, it covers both quantitative and qualitative research methods, but includes advanced applications.

**Credit Hours:** 3

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**F\_C\_MD 8424: Comparative Effectiveness Research**

Advanced research class that presents a framework for analyzing observational studies and randomized trials for comparative effectiveness. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Two recent semester-length courses in statistics such as NURSE 8020 or STAT 2500 or above; Working knowledge of managing and analyzing data in SPSS or SAS; Research methods; or consent of instructor

**Recommended:** One semester of epidemiology is strongly recommended

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**F\_C\_MD 8425: Participatory Approaches for Health and Health Systems**

(same as NURSE 8425). Focuses on the use of participatory approaches for the design of health and health-system interventions. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NURSE 8100 or F\_C\_MD 8420 or instructor consent

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**F\_C\_MD 8430: Applications of Evidence-Based Medicine I**

Students will participate in editing, presentation and publication of evidence-based reviews of current medical literature.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**F\_C\_MD 8431: Applications of Evidence-Based Medicine II**

Students will participate in editing, presentation and publication of evidence-based reviews of current medical literature.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**F\_C\_MD 8450: Research in Community Health**

Original research in community health not leading to a thesis but requiring a formal research report.

**Credit Hour:** 1-99

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**F\_C\_MD 8491: Field Experience in Family and Community Medicine**

Supervised teaching experience in the preclinical, clinical, and residency programs.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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## Film Studies - Visual Studies (FILMS\_VS)

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**FILMS\_VS 1000: Introduction to Film for Non-Majors**

Introduction to terms and concepts for film analysis, including mise-en-scene, cinematography, editing, sound narrative, genre, and other elements. No credit for students who have completed FILM\_S 1800. No credit for film majors or minors. Graded on A-F basis only.

**Credit Hours:** 3

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**FILMS\_VS 1800: Introduction to Film Studies**

(same as ENGLSH 1800, DST\_VS 1800). Introduction to terms and concepts for film analysis, including mise-en-scene, cinematography, editing, sound narrative, genre, and other elements. No credit for students who have completed FILMS\_VS 2810. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Freshmen and Sophomores only or instructor's consent

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**FILMS\_VS 1800H: Introduction to Film Studies - Honors**

(same as DST\_VS 1800, ENGLSH 1800). Introduction to terms and concepts for film analysis, including mise-en-scene, cinematography, editing, sound, narrative, genre, and other elements. No credit for students who have completed FILMS\_VS 2810. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Freshmen and sophomores only or instructor's consent; Honors eligibility required

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**FILMS\_VS 1880: Introduction to Digital Media Production**

(same as DST\_VS 1880, ENGLSH 1880, ARTGE\_VS 1920, COMMUN 1880). Introduction to concepts and skills for film making, video art, and digital storytelling, including media literacy and forms of narrative manifested historically and currently across a range of media. This course focuses on theories and concepts that support the critical analysis and creation of contemporary narrative in digital form with particular attention to audio, visual and written communication. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Enrollment limited to declared FILMS\_VS majors during early registration

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**FILMS\_VS 2001: Topics in Film Studies-General**

Organized study of selected topics. Subject may vary from semester to semester. May be repeated with consent of instructor.

**Credit Hour:** 1-3

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**FILMS\_VS 2005: Topics in Film Studies- Humanities**

Organized study of selected topics. Subject may vary from semester to semester. May be repeated with consent of instructor.

**Credit Hour:** 1-3

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**FILMS\_VS 2010: The Philosophy of Film**

(same as PHIL 2010). Philosophical problems having to do with film. Topic may include the nature of films, the differences between fiction and documentary film, ethical issues with film and filmmaking.

**Credit Hours:** 3

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**FILMS\_VS 2020: World Cinema for Non-Majors**

World Cinema introduces students to the history of international cinema. The course focuses on particular cinematic movements and national cinemas as case studies for trends and trajectories that also characterize the national and non-Hollywood cinemas not covered in the course. Examines the relationship of form and genre to individual national, or localized, cultural contexts. No credit for students who have completed FILMS\_VS 2820. No credit for film majors or minors. Graded on A-F basis only.

**Credit Hours:** 3

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**FILMS\_VS 2160: Film Adaptation of Shakespeare - Non Majors**

This course serves as an introduction to the problems and complexities that arise when adapting William Shakespeare's plays to contemporary film. One basic task of the course is to develop students' ideas about adaptation, especially with reference to contemporary adaptation theory. This course hopes both to explain and discredit the value of 'fidelity discourse,' students should be liberated from the notion of 'faithfulness' to the texts. No credit for film majors or minors. Graded on A-F basis only.

**Credit Hours:** 3

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**FILMS\_VS 2530: Screenwriting I**

(same as COMMUN 2530). Analyze various script formats and apply different writing techniques and styles to create screenplays and teleplays. Work inside a creative critique environment to craft vivid storytelling and character elements while developing viable loglines and pitches for their stories. Screenwriting concepts include the three-act structure and the timing and placement of plot points. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FILMS\_VS 1800 or ENGLISH 1800; sophomore standing or higher. May be restricted to Film Studies majors and minors during early registration

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**FILMS\_VS 2540: Introduction to Film Management**

Film Production Management is a hands-on exploration of the roles of feature film executive producers, producers and unit production managers. Creating balanced budgets, hiring personnel, creating meaningful business relationships, and managing post-production responsibilities are investigated. The feature film budget will be examined in each phase of the production; creating a sales pitch for a film, and developing a detailed approach to distribution is explored. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FILMS\_VS 1800 or ENGLISH 1800; sophomore standing or higher

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**FILMS\_VS 2820: Trends in World Cinema**

(same as GERMAN 2820 and RM\_LAN 2820). This course is a historical overview of the major trends in international cinema. It focuses on the intersection of aesthetics, industry, and ideological and social concerns in cinematic production.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing, ENGLISH 1800 or FILMS\_VS 1800

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**FILMS\_VS 2830: American Film History I, 1895-1950**

(same as ENGLISH 2830). Examines the development of American cinema in relation to other national cinemas, from 1895-1950. No credit for students who have completed ENGLISH or FILM\_S 1810.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and ENGLISH 1800 or FILMS\_VS 1800

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**FILMS\_VS 2840: American Film History II, 1950-Present**

(same as ENGLISH 2840). Examines American film history in an international context, from 1950-present. No credit for students who have completed ENGLISH or FILM\_S 1820.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and ENGLISH 1800 or FILMS\_VS 1800

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**FILMS\_VS 2850: Italian Cinema**

(same as ITAL 2850). It offers a historical overview of Italian Cinema from the silent era to the present. The course will provide the analytical skills necessary to read and critically analyze a film. Social and historical issues will be raised and examined for each film as appropriate. No knowledge of Italian required.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing

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**FILMS\_VS 2860: Film Themes and Genres**

(same as ENGLISH 2860, DST\_VS 2860) Topics (e.g. Film noir, African-American filmmakers, Food and Film, The Western) announced at time of registration. No more than six hours may be taken in Film Themes and Genres 2680.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and ENGLISH 1800 or FILMS\_VS 1800

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**FILMS\_VS 2865: The Art of Soviet and Russian Cinema**

(Same as RUSS 2865) Topics (e.g. Distorted Picture: Post-War Cinema in a Soviet State, Cinema in the Soviet Times and Beyond, etc.) announced at time of registration. Only 6 hours may be taken toward major.

**Credit Hours:** 3

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**FILMS\_VS 2865W: The Art of Soviet and Russian Cinema - Writing Intensive**

(Same as RUSS 2865) Topics (e.g. Distorted Picture: Post-War Cinema in a Soviet State, Cinema in the Soviet Times and Beyond, etc.)



announced at time of registration. Only 6 hours may be taken toward major.

**Credit Hours:** 3

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**FILMS\_VS 2870W: Film and Literature - Writing Intensive**

(same as ENGLSH 2870W). Explores the complex interplay between film and literature in order to gain an understanding of the possibilities - and problems - involved in the transposition from literature to film. Graded A-F basis only

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000 and ENGLSH 1800 or FILMS\_VS 1800

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**FILMS\_VS 3005: Topics in Film Studies - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** Sophomore standing

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**FILMS\_VS 3005W: Topics in Film Studies - Humanities - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** Sophomore standing

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**FILMS\_VS 3490: Indian Cinema**

(same as S\_A\_ST 3490, ANTHRO 3490, VS\_ARH 3790). Indian Cinema provides an overview of the key genres and themes of Indian film, including Bollywood, art cinema/parallel cinema, Indian regional cinemas, and diasporan cinema. The course combines film studies, anthropological, historical, and visual culture analyses to provide a holistic view of Indian culture and society through cinema.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or higher

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**FILMS\_VS 3520: Post Production**

Editing above all else is about feeling and rhythm. This course immerses students in the complete filmmaking editorial process from ingesting the footage to final delivery. Using non-linear editing software students will sharpen their sensibilities through hands on learning and practice. While editing scenes from both fiction and non-fiction cinema - students can expect to learn the ins and outs of media management and organization, the language of the edit, basic toolset navigation and color correction. Graded A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FILMS\_VS 1800 or ENGLSH 1800; sophomore standing or higher

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**FILMS\_VS 3530: Screenwriting II**

Builds upon principles of story arc and screenwriting techniques, while providing an in-depth study of character psyche and unique voice. Students will master the skills necessary to create vibrant, memorable characters through the exploration and development of unique character traits, physical imagery development and distinctive voice. Students will analyze dialog traits of scripts and films of industry professionals, and will

craft their own characters using industry standard technology, adhering to the principles of industry standard formatting. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FILMS\_VS 1800 and FILMS\_VS 2530 or FILMS\_VS 3930 or THEATR 3930

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**FILMS\_VS 3540: Cinematography I**

An exploration of the principles and techniques of cinematography that includes shot composition lighting styles, and storytelling, using the moving image. Students will examine historical and contemporary approaches to cinematography used in Hollywood, foreign and independent films. Analyzing cinematographic approaches of a wide range of work will help the students discriminate the quality of their own creative work. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FILMS\_VS 1800 or ENGLSH 1800, and FILMS\_VS 1880, DST\_VS 1880, ENGLSH 1880 or ARTGE\_VSL 1920, or JOURN 2150 or JOURN 1400. Sophomore standing or higher. May be restricted to Film Studies majors and minors during early registration

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**FILMS\_VS 3550: Field Production I**

Collaborating in crews of five, students are exposed to a broad range of production techniques through practical production experience and in class discussion. During the semester students will produce 3 short projects, and in class workshops. As a group member, each student may serve in rotation as Director, Producer, Camera, Sound recordist and AC/Gaffer. Students will also be developing their own short scripts and are expected to pitch the projects (for production in Field Production II) in front of faculty and industry professionals in the final weeks of the semester. Graded A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FILMS\_VS 1800 or ENGLSH 1800, FILMS\_VS 1880 or DST\_VS 1880 or ARTGE\_VS 1920, and FILMS\_VS 3540

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**FILMS\_VS 3555: Directing for the Screen**

Directing for the Screen combines previous knowledge of the cinematic frame with the power of communication. This course focuses on developing the student's ability to effectively communicate to actors, cinematographers, and art departments, while also commanding a film crew and managing relationships with producers. Students develop concise personal vision and aesthetics with respect to scripts, and will work directly with actors to achieve performances that suit the project.

**Credit Hours:** 3

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**FILMS\_VS 3560: Audio Engineering for the Screen**

This course is an intensive study of the techniques and science behind the use of audio in today's cinema. The course will focus on four major areas of study: sound in cinema, sound creation, sound manipulation, and environmental sound layering.

**Credit Hours:** 3

**Prerequisites:** FILMS\_VS 1800 or ENGLSH 1800, Sophomore standing. May be restricted to Film Studies majors and minors during early registration

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**FILMS\_VS 3775: The Ancient World on Film**

(same as AMS 3775) This course explores how classical antiquity has been represented in twentieth and twenty-first-century film, with particular emphasis on the ways in which ancient narratives and iconography have been appropriated by filmmakers to address contemporary cultural issues.

**Credit Hours:** 3

**Prerequisites:** Prior 2000 level coursework in AMS, ARH\_VS or FILMS\_VS. Instructors consent required

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**FILMS\_VS 3780: Architecture in Film**

(same as ARH\_vs 3780) Filmmakers use architecture to convey meaning on symbolic, psychological, and ideological levels. Using architectural history and theory, in conjunction with weekly film screenings from a variety of genres, this course explores how architecture operates within film.

**Credit Hours:** 3

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**FILMS\_VS 3785: Art and Artists on Film**

(same as ARH\_VS 3785) This course explores representations of art and artists in film, including documentary films, fictionalized films, and films made by artists.

**Credit Hours:** 3

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**FILMS\_VS 3820: Major Directors**

(same as ENGLISH 3820 and RM\_LAN 3820). Topics (e.g. Hitchcock, Kubrick, Fellini, Allen, Kurosawa, Wilder) announced at time of registration. Only 6 hours may be taken for credit toward major. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and ENGLISH 1800 or FILMS\_VS 1800

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**FILMS\_VS 3830: History of German Film**

(same as GERMAN 3830). Introduction to the development of the German film. Old and recent films are viewed and discussed in terms of techniques, artistry, psychology and social impact. English dubbing or subtitles. No foreign language credit.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or instructor's consent

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**FILMS\_VS 3845: Modern Israeli Film**

(same as HEBREW 3845). Examines the modern film of developing Israel. Discusses complex social relationships. Introduces concepts of Hebrew language and its use in the arts world-wide. Discusses varied communities in Israel, and universal themes such as democracy and social justice. Provides introduction to Israeli culture.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or consent of instructor required

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**FILMS\_VS 3850: Studies in Film History**

(same as ENGLISH 3850). Topics (e.g. Classical Period of Hollywood cinema, silent era, Post-WWII American film, German Weimar cinema, French New Wave) announced at time of registration. Only 6 hours count as credit toward major.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and ENGLISH 1800 or FILMS\_VS 1800

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**FILMS\_VS 3855: Documentary Film**

(same as ENGLISH 3855; DST-VS 3855). Surveys the history of documentary film including the development of subgenres, sound and voice over in documentary, re-enactment, ethical issues in documentary film production, and more. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**FILMS\_VS 3861: Film Themes and Genres**

Topics (e.g. Film noir, African-American filmmakers, Food and Film, The Western) announced at time of registration. No more than six hours may be taken in Film Themes and Genres 3861.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 or ENGLISH 1800 or FILMS\_VS 1800

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**FILMS\_VS 3865: The Holocaust on Screen**

(same as GERMAN 3865). This course explores how the Holocaust has been depicted on film in a variety of national and historical contexts. Drawing on films from 1945 to the present, from the U.S., Germany, Poland, France, and Italy, we will consider to what end images of the Holocaust have been used. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing

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**FILMS\_VS 3875: Brazilian Cinema**

(same as PORT 3875). An introduction to Brazilian cinema, culture, and society through the study of contemporary cinematic productions. Topics include: Hollywood perceptions of Brazil; redefinition of national identity and history, representations of race and gender.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**FILMS\_VS 3880: Contemporary Chinese Film**

(same as CHINSE 3880). Introduces development of 20th century Chinese film and popular genres, including review of earlier times. Explores how present day Chinese understand their own history, and issues they face in drive toward modernization in a global context. Films and readings in English or with English subtitles. No previous knowledge of the culture or language required.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or instructor's consent

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**FILMS\_VS 3885: Twenty-First Century South American Cinema**

(same as SPAN 3885, PORT 3885). Broad overview of the major national cinemas of the 21st century in South America. Approximately 14 feature films screened from Argentina, Brazil, Chile and other nations of the region. Instructor provides a thematic framework for films within the context of film theory, Latin American cinematic history and cultural studies. Course taught in English. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 or ENGLISH 1000H

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**FILMS\_VS 3890: Russian and Soviet Film**

(same as RUSS 3890). Introduces three significant genres of Russian cinema: comedy, literary adaptations, and films that explore issues of identity and autobiography. Includes examples from different epochs. Considers Soviet and post-Soviet films. Russia and Russian culture. Course conducted in English; films have English subtitles.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or instructor's consent

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**FILMS\_VS 3930: Screenwriting for Television and Film**

(same as THEATR 3930). Fundamentals of storytelling utilizing tools and structure used by television and film.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**FILMS\_VS 4001: Topics in Film-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** Sophomore standing

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**FILMS\_VS 4005: Topics in Film Studies - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing

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**FILMS\_VS 4005W: Topics in Film Studies - Humanities - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing

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**FILMS\_VS 4030: Video Art and the Moving Image**

(same as ARTGE\_VS 4030; cross-leveled with ARTGE\_VS 7030). Video as a fine art form intersecting with sculpture, experimental filmmaking, DIY and Internet culture. Theoretical and historical knowledge is integrated with studio practice. Students create video works in Adobe Premiere Pro, demonstrating technical ability and aesthetic vision. May be repeated up to 9 hours maximum.

**Credit Hours:** 3

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**FILMS\_VS 4370: Film Studies: The Intersection of Documentary Film and Journalism**

(same as JOURN 4370; cross-leveled with FILMS\_VS 7370, JOURN 7370). The popularity of documentary film in the past ten years has skyrocketed, and recent award-winning documentaries such as Inside Job (2010), Blackfish (2013), and The Invisible War (2012) are simultaneously entertaining audiences and investigating serious issues like the financial collapse, killer whale captivity, and sex crimes in the military--issues that in the past might have been covered exclusively by investigative journalism. What explains the public's growing fascination with documentary? How is documentary film reacting to recent transformations in the media landscape? Is it filling a critical need that

journalism is no longer willing or able to meet? This course will explore the intersection of these two nonfiction storytelling forms--documentary film and journalism--and examine the role played by advocacy in both modes, as well as the cultural and ethical implications of the convergence between journalism and documentary film. In that it is centered on contemporary documentary film culture, the course also takes advantage of the True/ False Film Festival, and will be host to a conference during Week 6, featuring a number of major visiting filmmakers and film critics. Attendance at some sessions is required. Graded on A-F basis only.

**Credit Hours:** 3

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**FILMS\_VS 4370W: Film Studies: The Intersection of Documentary Film and Journalism-Writing Intensive**

(same as JOURN 4370; cross-leveled with FILMS\_VS 7370, JOURN 7370). The popularity of documentary film in the past ten years has skyrocketed, and recent award-winning documentaries such as Inside Job (2010), Blackfish (2013), and The Invisible War (2012) are simultaneously entertaining audiences and investigating serious issues like the financial collapse, killer whale captivity, and sex crimes in the military--issues that in the past might have been covered exclusively by investigative journalism. What explains the public's growing fascination with documentary? How is documentary film reacting to recent transformations in the media landscape? Is it filling a critical need that journalism is no longer willing or able to meet? This course will explore the intersection of these two nonfiction storytelling forms--documentary film and journalism--and examine the role played by advocacy in both modes, as well as the cultural and ethical implications of the convergence between journalism and documentary film. In that it is centered on contemporary documentary film culture, the course also takes advantage of the True/ False Film Festival, and will be host to a conference during Week 6, featuring a number of major visiting filmmakers and film critics. Attendance at some sessions is required. Graded on A-F basis only.

**Credit Hours:** 3

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**FILMS\_VS 4540: Cinematography II**

This workshop explores advanced cinema camera systems, lighting techniques, cine lenses and rigging equipment. We will view examples of camera and lighting work, both historical and contemporary, and develop scenes with complex blocking and camera movement. Expect to spend time outside of class working to ensure a successful semester. Graded A-F basis only.

**Credit Hours:** 4

**Prerequisites:** FILMS\_VS 1800 or ENGLSH 1800; FILMS\_VS 3540; sophomore standing or higher

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**FILMS\_VS 4560: Field Production II**

This workshop is a senior level course that serves as the capstone of our production emphasis curriculum. Students entering the class must be prepared to submit a short script (no longer than 15 minutes) at the first class of the term, and complete the entire filmmaking process by close of the semester. Participants are required to assist fellow students in the production of their films. Expect to spend a significant amount of time outside of class to ensure a successful semester. Works will be screened in our senior showcase. Graded A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FILMS\_VS 1800, FILMS\_VS 1880, FILMS\_VS 3540, and FILMS\_VS 3550

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**FILMS\_VS 4580: Production Practicum**

Provides an intensive, comprehensive experience in film production. Students will receive hands-on experience in lighting and set design, camera operation, grip/electrical and sound capture. The course pits students against a rigorous industry standard shooting schedule - long hours are to be expected each day. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FILMS\_VS 3540

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**FILMS\_VS 4810: Film Theory**

(same as ENGLISH 4810, DST\_vs 4810). This course explores contemporary trends in film theory. Topics may include: psychoanalysis, feminism, Marxism, cultural studies, queer theory, audience and star studies, postcolonialism, among others.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and ENGLISH or FILMS\_VS 1800. Junior standing or above required

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**FILMS\_VS 4820: Studies in Film Genre**

(same as ENGLISH 4820). Topics (e.g. The Western, film noir) announced at time of registration. No more than six hours may be taken toward the major.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and ENGLISH 1800 or FILMS\_VS 1800; Junior Standing or instructor's consent

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**FILMS\_VS 4840: Culture and Media**

(Same as ENGLISH 4840, DST\_VS 4840). Topics (e.g. Cinema and Imperialism, Indigenous Media, Ethnographic Documentary) announced at time of registration. No more than six hours may be taken for credit toward the major.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and ENGLISH 1800 or FILMS\_VS 1800. Junior standing or instructor's consent required

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**FILMS\_VS 4860: Film Themes and Genres**

Topics (e.g. Film noir, African-American filmmakers, Food and Film., The Western) announced at time of registration. No more than six hours may be taken in Film Themes and Genres 4860.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 and ENGLISH 1800 or FILMS\_VS 1800

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**FILMS\_VS 4880: Capstone Experience**

This course is for Film Studies students who have completed their concentration requirements. The main objective is to help students independently create and complete a capstone project. The project should allow you to conceptualize and enter professional life after commencement.

**Credit Hours:** 3

**Prerequisites:** Film Studies majors only. Consent of instructor required

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**FILMS\_VS 4935: Adaptation of Literature for Film**

(same as ENGLISH 4935 and THEATR 4935; cross-leveled with FILMS\_VS 7935, ENGLISH 7580 and THEATR 7935). This upper-division

course will explore adaptation principles and practices with a variety of forms of literature that were not originally written for film.

**Credit Hours:** 3

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**FILMS\_VS 4940: Internship**

This course is for Film Studies students who have the opportunity to work in an internship position in a related industry or at a government agency where they can gain valuable on the job experience and knowledge. The student must register for the Internship course in the semester in which the work takes place. Graded S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** ENGLISH 1000 and ENGLISH 1800 or FILM\_S 1800. Must have at least 15 hours of Films Studies credit. Online courses do not count for the 15 hours of Film Credit

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**FILMS\_VS 4960: Special Readings in Film Studies**

Arranged. Individual work with conferences adjusted to needs of student.

**Credit Hour:** 1-3

**Prerequisites:** ENGLISH 1000 and ENGLISH 1800 or FILMS\_VS 1800. Consent of instructor required. Restricted to Film Studies majors in their final year

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**FILMS\_VS 4963: Latin American Cinema (in Spanish)**

(same as SPAN 4960). Subject varies according to instructor.

**Credit Hour:** 2-3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**FILMS\_VS 4995: Senior Honors Thesis**

Independent honors research under direction of faculty. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** Senior standing required, consent of instructor required, Honors eligibility required

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**FILMS\_VS 7001: Topics in Film Studies-General**

Topics in Film Studies-General

**Credit Hour:** 1-3

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**FILMS\_VS 7370: The Intersections of Documentary Film and Journalism**

(same as JOURN 7370). (cross-leveled with JOURN 4370 and FILMS\_VS 4370). The popularity of documentary film in the past ten years has skyrocketed, and recent award-winning documentaries such as *Inside Job* (2010), *Blackfish* (2013), and *The Invisible War* (2012) are simultaneously entertaining audiences and investigating serious issues like the financial collapse, killer whale captivity, and sex crimes in the military--issues that in the past might have been covered exclusively by investigative journalism. What explains the public's growing fascination with documentary? How is documentary film reacting to recent transformations in the media landscape? Is it filling a critical need that journalism is no longer willing or able to meet? This course will explore the intersection of these two nonfiction storytelling forms--documentary film and journalism--and examine the role played by advocacy in both modes, as well as the cultural and ethical implications of the convergence between journalism and documentary film. In that

it is centered on contemporary documentary film culture, the course also takes advantage of the True/ False Film Festival, and will be host to a conference during Week 6, featuring a number of major visiting filmmakers and film critics. Attendance at some sessions is required. Graded on A-F basis only.

**Credit Hours:** 3

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**FILMS\_VS 8005: Topics in Film Studies - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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## Finance (FINANC)

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**FINANC 1000: Principles of Finance**

Financing business, consumer, and government activity; stocks, bonds, real estate, and financial markets; risk; insurance; inflation; cash and income management; capital accumulation and appreciation.

**Credit Hours:** 3

**Prerequisites:** Students admitted to COB upper level degree program cannot enroll

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**FINANC 2000: Survey of Business Finance**

An overview of the global financial system, financial markets, financial institutions, and principles of financial management.

**Credit Hours:** 3

**Prerequisites:** Students admitted to COB upper level degree program cannot enroll

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**FINANC 3000: Corporate Finance**

Financial decision-making in a corporate environment. Time value of money, capital budgeting, cost of capital, working capital management and financial instruments issued by the firm.

**Credit Hours:** 3

**Prerequisites:** Completed 45 semester hours; STAT 2500 (or STAT 2200 and STAT 1200 or STAT 1300 or STAT 1400); ECONOM 1014 or ECONOM 1024; ECONOM 1015 or ECONOM 1051 or ECONOM 1051H

**Corequisites:** ACCTCY 2027 or ACCTCY 2037 or ACCTCY 2137H

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**FINANC 3300: Personal Risk Management and Insurance**

Teaches the importance of risk in personal endeavors and the intelligent handling of such risk. Life, health, auto, homeowner and liability risks are treated.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**FINANC 4010: Financial Management**

(cross-leveled with FINANC 7010). Theory and techniques of financial management, study of firm valuation, dividend policy, capital budgeting and capital asset pricing.

**Credit Hours:** 3

**Prerequisites:** FINANC 3000

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**FINANC 4020: Investments**

(cross-leveled with FINANC 7020). Security valuation and analysis, formulation of personal and professional investment programs.

**Credit Hours:** 3

**Prerequisites:** FINANC 3000

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**FINANC 4030: Financial Intermediaries and Markets**

Functions of intermediaries in the aggregation and allocation of funds, creation and transfer of assets, and distribution of risks. Regulation of financial institutions; financial institutions as instruments of public policy.

**Credit Hours:** 3

**Prerequisites:** FINANC 3000 and ECONOM 3229

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**FINANC 4110: Financial Management Policy**

Application of the concepts and tools of finance to cases in working capital management, capital budgeting analysis and capital structure decisions.

**Credit Hours:** 3

**Prerequisites:** FINANC 4010

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**FINANC 4120: Security Analysis**

Classifies and analyzes securities, markets, industries. Formulation of investment policy for institutions, aggressive personal investors.

**Credit Hours:** 3

**Prerequisites:** FINANC 4020

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**FINANC 4130: Management of Financial Institutions**

Operating principles of major financial intermediaries, including commercial banking, savings, insuring, lending and investing institutions. Analysis of cases; study of current problems. Some sections of the course may be graded on A-F or S/U graded basis only.

**Credit Hours:** 3

**Prerequisites:** FINANC 4030

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**FINANC 4185: Problems in Finance**

Independent study, reports on selected topics. Some sections of this course may be offered A-F only or S/U only.

**Credit Hour:** 1-99

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**FINANC 4201: Topics in Finance**

Selected topics in finance, insurance or real estate. Offered on an experimental basis. Some sections of this course may be offered A-F only or S/U only.

**Credit Hours:** 3

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**FINANC 4220: Portfolio Management**

Development and application of the principles of modern portfolio theory to financial assets. Analysis of the concepts of diversification, portfolio construction, portfolio revision, and use of types of financial assets in effective portfolio management.

**Credit Hours:** 3

**Prerequisites:** FINANC 4020

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**FINANC 4310: Financial Modeling and Databases**

Financial modeling and using online databases to retrieve data, data analysis, spreadsheet design, excel VBA programming, interpreting results. Graded on A-F basis only.

**Credit Hours:** 3

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**FINANC 4320: Financial Futures and Options**

A basic overview of financial futures and options markets. Topics include: theoretical pricing of financial futures contracts and stock options, institutional aspects of these markets, hedging, and speculative strategies.

**Credit Hours:** 3

**Prerequisites:** FINANC 4020

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**FINANC 4450: Financial Ethics and Professional Standards**

The course comprises an intensive study of the CFA Institute Code of Ethics and Standards of Professional Conduct and Global Investment Performance Standards. It also includes a review of corporate governance issues.

**Credit Hours:** 3

**Recommended:** FINANC 4010 or departmental consent

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**FINANC 4500: Principles of Real Estate**

Principle factors influencing land use, practices in real estate business.

**Credit Hours:** 3

**Prerequisites:** FINANC 3000

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**FINANC 4510: Real Estate Appraisal**

Procedures for valuing industrial, commercial, residential realty by market, income, replacement cost approaches. Case method, field investigations.

**Credit Hours:** 3

**Prerequisites:** FINANC 4500

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**FINANC 4520: Real Estate Finance and Investment**

Financing of residential, commercial, and industrial real estate and real estate development. Instruments, institutions, and markets; role of government agencies; investment qualities of real estate.

**Credit Hours:** 3

**Prerequisites:** FINANC 4500

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**FINANC 4530: Real Estate Portfolio Analysis and REITs**

Management of real estate portfolios and analysis of real estate investment trusts including financial statement analysis, cash flows, and valuation techniques.

**Credit Hours:** 3

**Prerequisites:** FINANC 3000

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**FINANC 4620: Investment Strategy of Warren Buffett**

(cross-leveled with FINANC 7620). Survey and application of the investment philosophy and valuation methods of Warren Buffett.

**Credit Hours:** 3

**Prerequisites:** FINANC 3000

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**Corequisites:** FINANC 4020

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**FINANC 4630: Introduction to Risk Management and Insurance**

Basic principles of risk management and insurance focusing on operational risks faced by organizations. Covers terminology, sources, dimensions, characteristics, measurement, and assessment of risk along with design and implementation of techniques to mitigate and control risk.

**Credit Hours:** 3

**Prerequisites or Corequisites:** FINANC 2000 or FINANC 3000

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**FINANC 4632: Principles of Commercial Property and Liability Insurance**

The objective of this course is to examine the principles and key elements of commercial property and liability insurance. The primary emphasis will be on the property and liability loss exposures faced by organizations and the corresponding types of insurance for covering those loss exposures. This course qualifies students who make a 'B' or better to receive credit for CPCU 552 Commercial Liability Risk Management and Insurance.

**Credit Hours:** 3

**Prerequisites:** FINANC 2000 or FINANC 3000 or FINANC 4630, or permission of the instructor

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**FINANC 4640: Enterprise Risk Management**

This course addresses the principles, concepts, key elements and applications of Enterprise Risk Management (ERM) to businesses and other organizations. The principal objective of this course is to prepare students to understand the principles of ERM and to be able to integrate sound risk management principles into their work.

**Credit Hours:** 3

**Prerequisites:** FINANC 4630, or permission of instructor

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**FINANC 4710: Topics in International Finance**

Available during study abroad session. Emphasis is on international corporate governance, foreign exchange risk management, international capital markets, balance of payments, international monetary system, and exchange rate determination. Graded on A-F basis only.

**Credit Hours:** 3

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**FINANC 4720: International Finance**

Application of domestic corporate finance to the international arena. Emphasis on international capital budgeting, working capital management, foreign exchange risk management, international capital markets, balance of payments, international monetary system, and exchange rate determination. Some sections maybe graded on A-F or S/U basis only.

**Credit Hours:** 3

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**FINANC 4820: Investment Fund Management**

Analysis and management of securities and markets by participation in the management of a student-run portfolio of publicly traded stocks and bonds. May be repeated once for credit for a total of six credits.

**Credit Hours:** 3

**Prerequisites:** FINANC 3000, FINANC 4120 or FINANC 4620, instructor's consent required each enrollment

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**FINANC 4830: Chartered Financial Analyst Exam Review Course**

(cross-leveled with FINANC 7830). A review of the content and format of the chartered financial analyst (CFA) examination. Students need to be registered for the CFA exam to enroll in the class.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**FINANC 4840: Angel Capital Education Program**

(cross-leveled with FINANC 7840). In depth understanding of investing in start up enterprises, including structuring investment deals, doing due diligence, and monitoring of prior investments. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent

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**FINANC 7010: Financial Management**

(cross-leveled with FINANC 4010). Theory and techniques of financial management, study of firm valuation, dividend policy, capital budgeting and capital asset pricing.

**Credit Hours:** 3

**Prerequisites:** FINANC 3000

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**FINANC 7020: Investments**

(cross-leveled with FINANC 4020). Security valuation and analysis, formulation of personal and professional investment programs.

**Credit Hours:** 3

**Prerequisites:** FINANC 3000

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**FINANC 7201: Special Topics in Finance**

Selected topics in Finance, insurance, or real estate. Offered on an experimental basis.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**FINANC 7210: Microeconomics for Business**

Examination of how the behavior of consumers and the business decisions of firms affect supply, demand, and the resulting prices of goods and services in the market.

**Credit Hour:** 1-3

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**FINANC 7220: Economics for Managers**

Applies the concepts and tools of economics to management issues and problems.

**Credit Hour:** 1.5-3

**Prerequisites:** FINANC 7210 or equivalent

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**FINANC 7410: Managerial Finance I**

Introduction to financial management including the time value of money capital budgeting techniques, risk measurement, and the valuation of financial securities.

**Credit Hour:** 1-3

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**FINANC 7420: Managerial Finance II**

Continuation of the study of financial management with focus on the risk-return tradeoff, capital structure, corporate layout policies, long-term financing, elementary options pricing, and mergers and acquisitions.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 7410

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**FINANC 7440: Managerial Finance**

Analyzes financial information relative to acquisition, management of assets; costs of alternative financial contracts; effect of mix of outstanding securities on entity's cost of capital; interaction between funding/ investment decisions.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 7310 or departmental consent

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**FINANC 7620: Investment Strategy of Warren Buffett**

(cross-leveled with FINANC 7620). Survey and application of the investment philosophy and valuation methods of Warren Buffett.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 3000 or FINANC 7440

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**FINANC 7820: Investment Fund Management**

(cross-leveled with FINANC 4820). Analysis and management of securities and markets by participation in the management of a student-run portfolio of publicly traded stocks and bonds. May be repeated 1 time for credit.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 3000 or FINANC 7440; instructor's consent

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**FINANC 7830: Chartered Financial Analyst Exam Review Course**

(cross-leveled with FINANC 4830). A review of the content and format of the chartered financial analyst (CFA) examination. Students need to be registered for the CFA exam to enroll in the class.

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent

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**FINANC 7840: Angel Capital Education Program**

(cross-leveled with FINANC 4840). Hands-on experiential investing in start-up enterprises from sourcing, evaluating, and investing to monitoring those investments. Students will learn about angel and venture capital investment strategies, perform pre-screening duties, complete due diligence, structure investment contracts, and monitor portfolio holdings. Graded on A-F basis only. Repeat course is allowed, participating two semesters is preferred. Application to the program is required.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**FINANC 8001: Topics in Finance**

Selected topics in finance, insurance or real estate. Offered on experimental basis.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**FINANC 8010: Multicultural and Global Finance Study Abroad**

International topical issues in finance including cultural difference, corporate governance, differential approaches to regulation across countries, and cross-risk. Includes a study abroad component with on-site visits to businesses and other organizations. May be repeated as venues change.

**Credit Hour:** 1-3

**Prerequisites:** Consent required

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**FINANC 8012: International Financial Markets**

International capital, foreign exchange, money markets, and financial institutions including exchange rates, instruments and securities, and multinational risk exposure. May include a study-abroad component with on-site visits to businesses and other organizations. May be repeated as venues change. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** Consent required

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**FINANC 8085: Problems in Finance**

For independent investigation and analysis, graduate students select topics suggested by the foregoing undergraduate courses.

**Credit Hour:** 1-3

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**FINANC 8090: Master's Thesis Research**

Advanced research leading to thesis. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** Consent required

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**FINANC 8310: Financial Databases and Analysis**

Financial modeling and using online databases to retrieve data, data analysis, spreadsheet design, excel VBA programming, interpreting results. Graded on A-F basis only.

**Credit Hour:** 1-3

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**FINANC 8312: Financial Modeling**

Financial modeling using Excel spreadsheet design and VBA programming. Includes alternative computational methods, simulation and the use of information retrieved from financial databases. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 8310

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**FINANC 8320: Financial Markets**

Operation and structure of money markets and capital markets, including markets for stocks, bonds and derivatives securities. Study of the securities that trade in those markets including characteristics, valuation and diversification.

**Credit Hour:** 1-3

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**FINANC 8330: Investment Policy and Portfolio Management**

Study of investment policies and the effects of risk and diversification on investment management including measurement of risk, identification of investment policy, and construction and maintenance of investment portfolios.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 8320

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**FINANC 8340: Derivative Financial Securities**

Comprehensive overview of derivative securities including financial futures and options, swaps, and financial engineering. Major topics: institutional aspects of these markets, advanced pricing models, pricing relationships among derivative securities, and risk shifting.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 8070

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**FINANC 8350: Financial Statement Analysis I**

An introduction to financial statement analysis with emphasis on interpretation and understanding of the balance sheet income statement, and statement of cash flows.

**Credit Hour:** 1-3

**Prerequisites:** ACCTCY 7310

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**FINANC 8352: Financial Statement Analysis II**

Analysis of company financial statements and related accounting information with emphasis on investors' decisions to invest in the company.

**Credit Hour:** 1.5-3

**Prerequisites:** FINANC 8350

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**FINANC 8360: Equity Securities Analysis**

Theory and application of models and methods for valuing common stocks.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 7420 or FINANC 7440

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**FINANC 8370: Fixed-Income Securities Analysis**

Markets for fixed-income securities and theory and application of models for valuing bonds and other fixed-income securities.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 7420

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**FINANC 8380: Investment Banking**

Topics in investment banking including types of offerings and securities, analysis of comparable companies and transactions, valuation methods, and hedge funds and private equity. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 7420 or equivalent

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**FINANC 8410: Advanced Financial Management**

Examination of the modern theory of finance. Capital budgeting capital structure, dividend theory and valuation.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 7440

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**FINANC 8430: Capital Budgeting**

An investigation of long-term financial decisions. Topics include capital budgeting, leasing, long-term financing. Extensive use of cases.

**Credit Hour:** 1-3



**Prerequisites:** FINANC 7440

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**FINANC 8440: Financing Multinational Business**

Study of foreign exchange markets, currency derivatives, global capital budgeting, and international financial decision strategy. Some sections of this course may be offered on an A-F or S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 7420

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**FINANC 8450: Ethics and Standards of Financial Practice**

Study of financial ethics with particular focus on standards of practice for investment performance standards. Recommended for students planning to take the CFA exam.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 7420

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**FINANC 8460: Mergers and Acquisitions**

Analysis of merger and acquisition transactions. Includes methods of financing, valuation and deal structure, hostile takeovers and restructuring.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 7420 or equivalent

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**FINANC 8510: Management of Financial Institutions**

Study and analysis of policies, goals, practices and organizational changes in the management of financial institutions and intermediaries.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 7440

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**FINANC 8530: Real Estate Portfolio Analysis**

Portfolio analysis applied to real estate investment including diversification, portfolio theory, and management of real estate portfolios including real estate investment trusts (REITs).

**Credit Hour:** 1.5-3

**Prerequisites:** FINANC 7420

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**FINANC 8540: Real Estate Finance**

Instruments and methods of financing real estate including fixed and variable rate mortgages, the mortgage loan underwriting process, financing investment property, and alternative financing methods. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 7420 or equivalent

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**FINANC 8550: Real Estate Valuation I**

Valuation and appraisal methods for real estate. Includes cost, comparable sales, and income capitalization approaches. Credit may not be earned for both FINANC 7510 and FINANC 8550. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 7420 or equivalent

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**FINANC 8552: Real Estate Valuation II**

A continuation of FINANC 8550. Focus is on advanced methods and the use of case analyses. Credit may not be earned for both FINANC 7510 and FINANC 8552. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 8550

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**FINANC 8560: Real Estate Securities Analysis**

Analysis of real estate securities including in-depth financial statement analysis and valuation of real estate investment trusts (REITs) and real estate operating companies (REOCs).

**Credit Hour:** 1.5-3

**Prerequisites:** FINANC 8530 or instructor's consent

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**FINANC 8570: Real Estate Development**

Developing real estate properties. Topics include organizational forms, land development, construction, and environmental issues. Includes issues specific to residential, office, industrial, and retail properties. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 7420 or equivalent

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**FINANC 8620: Investment Strategy of Warren Buffett**

This course is designed to familiarize students with the investment philosophy of Warren Buffett. Buffett's criteria for evaluating potential acquisitions and investments will be analyzed in detail.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 7420

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**FINANC 8630: Corporate Risk Management**

Principles of identifying, analyzing, assessing, and managing operational risks faced by large organizations. Sources, dimensions, and qualities of risk as well as development and implementation of methods to avoid, control, or transfer risk.

**Credit Hour:** 1-3

**Prerequisites or Corequisites:** FINANC 7420

**Recommended:** Undergraduate Business degree with major/emphasis/minor in Finance, Accounting or Economics

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**FINANC 8632: Corporate Insurance and Alternative Financing Mechanisms**

Basis and techniques for insuring hazard and operational risks encountered by large organizations. Analysis of insurance policies, determination of optimal limits and retentions, and assessment of alternative risk financing methods.

**Credit Hour:** 1-3

**Prerequisites:** FINANC 8630

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**FINANC 9001: Advanced Topics in Finance**

Selected topics in finance.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**FINANC 9090: Research in Finance**

Thesis research for Ph.D. degree. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**FINANC 9100: Seminar in Corporate Finance**

Advanced theory, investigation of current research in financial management.

**Credit Hours:** 3

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**FINANC 9101: Topics Seminar in Finance**

Reading and critical evaluation of selected current finance literature and research. Departmental consent. May be repeated. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** Ph.D. students only

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**FINANC 9200: Research in Corporate Finance**

Advanced topics in corporate finance.

**Credit Hours:** 3

**Prerequisites:** FINANC 9100

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**FINANC 9300: Financial Economics**

Utility analysis, efficient frontier mathematics, asset pricing and related topics.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**FINANC 9400: Seminar in Investment Analysis**

Develops integrated theory and analytic techniques for evaluating investment potential of financial instruments. Emphasizes corporate securities. Selected cases and readings.

**Credit Hours:** 3

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## Fisheries And Wildlife (F\_W)

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**F\_W 1012: Introduction to Captive Wild Animal Management**

(same as AN\_SCI 1012). General introduction to housing, husbandry, behavior, genetics, nutrition, reproduction, animal health, and disease control of native and exotic species in zoological parks and other animal conservation facilities; emphasizes the role of captive animals in wildlife conservation. Graded on A-F basis only.

**Credit Hours:** 3

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**F\_W 1100: Introductory Zoology with Laboratory**

(same as BIO\_SC 1100). Introduces important principles and concepts of zoology. Emphasizes cell biology; evolution; genetics; ecology; structure, function, development of the organism.

**Credit Hours:** 5

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**F\_W 2500: Introduction to Genetics and Evolution for Conservation**

Basic principles and processes of genetics and evolution and their importance for management and conservation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1100, F\_W 1100 or BIO\_SC 1500

**Recommended:** NAT\_R 1070, CHEM 1320

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**F\_W 2600: Ornithology**

(same as BIO\_SC 2600). Structure, identification, habits, importance of regional birds. Field work, lectures, lab.

**Credit Hours:** 5

**Prerequisites:** F\_W 1100

**Recommended:** 5 hours Biological Sciences

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**F\_W 2700: Ichthyology**

A broad introduction to the biology and ecology of fishes. Emphasis will be placed on understanding the adaptations fishes exhibit to aspects of their environment.

**Credit Hours:** 4

**Prerequisites:** F\_W 1100

**Recommended:** 8 hours Biological Sciences

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**F\_W 2900: Principles of Wildlife Management**

Expose students to the principles of wildlife management with emphasis on current issues faced by wildlife researchers and managers in the field. Graded on A-F basis only.

**Credit Hours:** 4

**Recommended:** NAT\_R 1070 and one other course in biological or environmental science; sophomore standing or higher

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**F\_W 3085: Problems in Fisheries and Wildlife**

Individual problems studies to supplement regularly organized undergraduate courses in Fisheries and Wildlife. Proposal for problems study must be arranged by student and supervising faculty member prior to registration.

**Credit Hour:** 1-99

**Prerequisites:** consent of supervising faculty member

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**F\_W 3600: Introduction to Conservation Biology**

Introduction to principles of conservation biology. Application of ecological concepts and conservation biology principles to management of endangered species, biodiversity and threatened ecosystems.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3650 or BIO\_SC 3400

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**F\_W 3660: Mammalogy**

Taxonomy, distribution, structure, habits, importance of mammals; emphasizes those of central United States.

**Credit Hours:** 4

**Recommended:** F\_W 1100 and Junior standing

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**F\_W 3700: Animal Behavior**

Behavior allows animals to react promptly to environmental changes, and is how they interact with others and their surroundings. Because behaving is central to an animal's life, knowing about behavior is fundamental to understanding animal ecology and to conservation efforts. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** F\_W 1100

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**F\_W 3900: Ecology of Fishes**

This course considers fishes' interactions with their environments in relation to survival, growth and population processes. The course is for mid- to upper-level undergraduates interested in fisheries science, management and fish conservation. May be repeated once for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1500 or F\_W 1100; sophomore standing

**Recommended:** STAT 2500

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**F\_W 4002: Topics in Fisheries and Wildlife - Biological**

Organized study of selected topics intended primarily for senior-level students in Fisheries and Wildlife Sciences.

**Credit Hour:** 1-99

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**F\_W 4200: Urban Wildlife Conservation**

(cross-leveled with F\_W 7200). Reviewing the theory and practice of applying ecological concepts to the management of wildlife species in urban areas.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3650 or FOREST 4320

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**F\_W 4200W: Urban Wildlife Conservation - Writing Intensive**

(cross-leveled with F\_W 7200). Reviewing the theory and practice of applying ecological concepts to the management of wildlife species in urban areas.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3650 or FOREST 4320

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**F\_W 4220: Human Dimensions of Fish and Wildlife Conservation**

Overview of human dimensions approaches and methods as they are applied to issues in fish and wildlife conservation.

**Credit Hours:** 3

**Recommended:** One 3000-level or above professional Fisheries and Wildlife management or techniques course

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**F\_W 4300: Fisheries Management**

(cross-leveled with F\_W 7300). Introduction to the scientific principles and techniques of fishery management. Integrates ecological principles with social, economic and legal considerations.

**Credit Hours:** 3

**Recommended:** BIO\_SC 3650 and STAT 2500

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**F\_W 4400: Techniques for Fisheries Management and Conservation**

Introduction to techniques (field and analytical/quantitative) used by fisheries and conservation biologists. Fosters understanding of techniques uses, advantages, limitations biases, and data interpretation. Extended weekly field outings require chest waders and life jackets. Graded on A-F basis only.

**Credit Hours:** 4

**Recommended:** BIO\_SC 3650; STAT 2500 or NAT\_R 3110; F\_W 2700 or F\_W 4300

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**F\_W 4400W: Techniques for Fisheries Management and Conservation - Writing Intensive**

Introduction to techniques (field and analytical/quantitative) used by fisheries and conservation biologists. Fosters understanding of techniques uses, advantages, limitations biases, and data interpretation. Extended weekly field outings require chest waders and life jackets. Graded on A-F basis only.

**Credit Hours:** 4

**Recommended:** BIO\_SC 3650; STAT 2500 or NAT\_R 3110; F\_W 2700 or F\_W 4300

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**F\_W 4500: Animal Population Dynamics and Management**

(cross-leveled with F\_W 7500). Quantitative modeling approach to examining principles and analysis techniques of fish and wildlife population dynamics. Emphasis on approaches useful in the management of exploited species.

**Credit Hours:** 3

**Prerequisites:** MATH 1400; STAT 2500 or NAT\_R 3110; BIO\_SC 3650 or FOREST 4320

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**F\_W 4600: Ecosystem Management**

(cross-leveled with F\_W 7600). Explores the development and implementation of large-scale approaches to restoring and maintaining ecosystems for sustainability. Incorporates ecological, socio-economic, and institutional factors that influence natural management agencies. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 3650 or FOREST 4320

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**F\_W 4600W: Ecosystem Management - Writing Intensive**

Explores the development and implementation of large-scale approaches to restoring and maintaining ecosystems for sustainability. Incorporates ecological, socio-economic, and institutional factors that influence natural management agencies. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 3650

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**F\_W 4650: Natural Resource Planning and Management**

Students will be exposed to various natural resource planning tools. Student teams will develop natural resource management plans with strategic and operational components for current conservation issues in Missouri. Plans will be critiqued by peers and outside professionals. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** FOREST 4320 or BIO\_SC 3650 and senior standing

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**F\_W 4700: Wildlife Ecology Methods**

(cross-leveled with F\_W 7700). Techniques for conducting wildlife research. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 3650 and STAT 2500

**Recommended:** F\_W 2900, NATR 3110

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**F\_W 4700W: WILDLIFE METHODS - Writing Intensive**

(cross-leveled with F\_W 7700). Techniques for conducting wildlife research. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 3650 and STAT 2500

**Recommended:** F\_W 2900, NATR 3110

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**F\_W 4800: Environmental Toxicology**

(cross-leveled with F\_W 7800). Introduction to classes of chemicals, tools, methods, and approaches used in environmental toxicology. Emphasizes fundamentals of toxicology, dose-response relationships, evaluation of contaminant issues, strategies, and exposure analysis/toxicity assessment strategies in a risk assessment.

**Credit Hours:** 3

**Prerequisites:** CHEM 1320

**Recommended:** Junior standing

---

**F\_W 4810: Wildlife Disease Ecology**

An introduction to the ecology of wildlife diseases. Topics include the definition of a disease, how to measure diseases, impacts on individuals and populations, and the role of disease in wildlife management and conservation.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3650

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**F\_W 4880: Waterfowl Ecology and Management**

Ecology and management of North American waterfowl and their habitats. Laboratory exercises focus on identification, life histories, sex and age determination, and survey methods. Lectures cover taxonomy, ecology, behavior, population dynamics, harvest management, and habitat management and conservation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** F\_W 2600; BIO\_SC 3650; instructor's consent

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**F\_W 4910: Senior Seminar in Captive Wild Animal Management**

(same as AN\_SCI 4910). Investigates key issues in captive wild animal management, focusing on the role of animal caretakers in addressing the issues. Students are required to formulate informed opinions regarding these topics and communicate effectively about the subject matter. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** AN\_SCI 1012 or F\_W 1012; junior or senior standing

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**F\_W 4940: Fisheries and Wildlife Internship**

Supervised professional experience with an approval public or private organization. May be repeated for credit. Graded on S/U basis only.

**Credit Hour:** 1-12

**Prerequisites:** Fisheries and Wildlife majors only

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**F\_W 4950: Undergraduate Research in Fisheries and Wildlife**

Individually directed field or laboratory research for students under faculty supervision. Project must be arranged by student and faculty member prior to registration.

**Credit Hour:** 1-99

**Prerequisites:** consent of supervising faculty member

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**F\_W 7002: Graduate Topics in Fisheries and Wildlife**

Organized study of selected topics intended primarily for graduate students in Fisheries and Wildlife Sciences. Graded on A-F basis only.

**Credit Hour:** 1-99

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**F\_W 7200: Urban Wildlife Conservation**

(cross-leveled with F\_W 4200). Reviewing the theory and practice of applying ecological concepts to the management of wildlife species in urban areas.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3650 or FOREST 4320

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**F\_W 7220: Human Dimensions of Fish and Wildlife Conservation**

Overview of human dimensions approaches and methods as they are applied to issues in fish and wildlife conservation.

**Credit Hours:** 3

**Prerequisites:** One 3000-level or above professional management or techniques course or instructor consent

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**F\_W 7300: Fisheries Management**

(cross-leveled with F\_W 4300). Introduction to the scientific principles and techniques of fishery management. Integrates ecological principles with social, economic and legal considerations.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3650 and STAT 2500

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**F\_W 7500: Animal Population Dynamics and Management**

(cross-leveled with F\_W 7500). Quantitative modeling approach to examining principles and analysis techniques of fish and wildlife population dynamics. Emphasis on approaches useful in the management of exploited species. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1400; STAT 2500 or NAT\_R 3110; BIO\_SC 3650 or FOREST 4320

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**F\_W 7600: Ecosystem Management**

(cross-leveled with F\_W 4600). Explores the development and implementation of large-scale approaches to restoring and maintaining ecosystems for sustainability. Incorporates ecological, social-economic, and institutional factors that influence natural resource management agencies. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 3650 or FOREST 4320

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**F\_W 7700: Wildlife Ecology Methods**

(cross-leveled with F\_W 4700). Techniques for conducting wildlife research. Graded on an A-F basis only.

**Credit Hours:** 4

**Recommended:** Ecology and basic statistics course

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**F\_W 7800: Environmental Toxicology**

(cross-leveled with F\_W 4800). Introduction to classes of chemicals, tools, methods, and approaches used in environmental toxicology. Emphasizes fundamentals of toxicology, dose-response relationships, evaluation of contaminant issues, strategies, and exposure analysis/toxicity assessment strategies in a risk assessment.

**Credit Hours:** 3**Prerequisites:** CHEM 1320**F\_W 7810: Wildlife Disease Ecology**

(cross-leveled with F\_W 7810). An introduction to the ecology of wildlife diseases. Topics include the definition of a disease, how to measure diseases, impacts on individuals and populations, and the role of disease in wildlife management and conservation.

**Credit Hours:** 3**Prerequisites:** instructor's consent**F\_W 7880: Waterfowl Ecology and Management**

(cross-leveled with F\_W 4880). Ecology and Management of North American waterfowl and their habitats. Laboratory exercises focuses on identification, life histories, sex and age determination, and survey methods. Lectures cover taxonomy, ecology, behavior, population dynamics, harvest management, and habitat management and conservation. Graded on A-F basis only.

**Credit Hours:** 3**Prerequisites:** F\_W 2600; BIO\_SC 3650; instructor's consent**F\_W 8001: Topics in Fisheries and Wildlife**

Organized study of selected topics. Subjects and credit may vary from semester to semester.

**Credit Hour:** 1-99**Prerequisites:** instructor's consent**F\_W 8050: Non-Thesis Research in Fisheries and Wildlife**

Independent research not leading to a thesis.

**Credit Hour:** 1-99**F\_W 8085: Graduate Problems in Fisheries and Wildlife**

Individualized problems studies to supplement regularly organized graduate courses in Fisheries and Wildlife.

**Credit Hour:** 1-5**Prerequisites:** consent of supervising faculty member**F\_W 8087: Masters Seminar in Fisheries and Wildlife**

Discussions of current developments in forestry, fisheries and wildlife, and critical study of research programs.

**Credit Hour:** 1**F\_W 8090: Masters Thesis Research in Fisheries and Wildlife**

Research leading to a thesis or dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99**F\_W 8300: Professional Development and Communications**

Intended to foster professional growth and development of graduate students. The course will present a rigorous introduction to professionalism, ethics, career development, and professional communications skills and techniques. Graded on A-F basis only.

**Credit Hour:** 1-3**F\_W 8460: Wetland Ecology**

A survey of the wetlands of North America; emphasis on nutrient dynamics, habitat structure, management, legislation and regulations, and man's impacts.

**Credit Hours:** 3**Prerequisites:** NAT\_R 4100, BIO\_SC 3650 and instructor's consent**F\_W 8510: Ecology, Conservation, and Environmental Justice**

The goal of this course is to introduce graduate students in natural resource management and conservation biology to the ecological and management concepts that underlie environmental justice issues, and to explain how broader environmental justice concepts are relevant to natural resource and conservation fields. Graded on A-F basis only. Prerequisites: one undergraduate course from the following list of disciplines: ecology, natural resource management, conservation biology, sociology or equivalent.

**Credit Hours:** 2**F\_W 8520: Stream Ecology**

Ecological principles applied to flowing waters. Emphasis on ecological processes within algal, invertebrate and fish communities. The influence of geomorphic processes, hydrologic principles and physical-chemical factors on the biota.

**Credit Hours:** 3**F\_W 8530: Quantitative Ecology**

Methods to assess space use patterns, animal abundance and population status are drawn into quantitative framework for making ecological inferences. Practical application and limitations of techniques are emphasized through analysis and interpretation of field and simulated data.

**Credit Hours:** 4**Recommended:** F\_W 4500 or equivalent**F\_W 9001: Selected Topics in Fisheries and Wildlife Sciences for Doctoral Students**

Organized study of selected topics for PhD students in Fisheries and Wildlife Sciences. Subjects and credits may vary from semester to semester. Graded on A-F basis only.

**Credit Hour:** 1-4**Prerequisites:** PhD standing and instructor consent**F\_W 9087: PhD Seminar in Fisheries and Wildlife**

Discussions of current developments in forestry, fisheries and wildlife, and critical study of research programs.

**Credit Hour:** 1

**F\_W 9090: Ph. D. Dissertation Research in Fisheries and Wildlife**  
Research leading to a thesis or dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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## Food Science (F\_S)

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### **F\_S 1010: Introduction to Viticulture and Enology**

This course will give a general overview of growing grapes (viticulture) and winemaking (enology) with an emphasis on Missouri wines and wineries. This course is the first course in a sequence of courses in the viticulture and enology track of the food science degree program.

**Credit Hour:** 1

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### **F\_S 1020: World Food and You**

(same as PLNT\_S 1020). Basic scientific principles involved in production agriculture, food processing, marketing and consumption. Evaluation and understanding of current agriculture issues that affect human foods and required nutrients.

**Credit Hours:** 3

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### **F\_S 1030: Food Science and Nutrition**

Basic principles of science and technology as applied to the problem of providing safe, nutritious, and desirable food for man.

**Credit Hours:** 3

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### **F\_S 2131: Dairy Products Evaluation**

(same as AN\_SCI 2131). Sensory Evaluation and judging of dairy products.

**Credit Hours:** 2

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### **F\_S 2172: Elements of Food Microbiology**

Introductory microbiology course stressing basic principles as related to foods.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing. Restricted to Food Science Students during Early Registration

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### **F\_S 2195: Grapes and Wines of the World**

(same as PLNT\_S 2195). Explores the world of wine through study of viticultural principles and practices, wine styles, classifying wine, the winemaking process and New World and Old World wine regions. Learn wine tasting skills and experience wines from around the world. World wine consumption, social and physical health benefits of moderate wine consumption.

**Credit Hours:** 3

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### **F\_S 2199: Seminar in Professional Development**

Readings and discussion related to professional development for the industry.

**Credit Hour:** 1

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**F\_S 3190: Study Abroad: International Meat, Dairy and Enology**  
(same as AN\_SCI 3190). This study abroad course introduces students to the meat, dairy and wine industries in Germany or in New Zealand (destinations are on a rotational basis). Students will visit small, medium and large-scale producers and learn about differences in comparison to the US industries. May be repeated once for credit. Prerequisites: instructor's consent

**Credit Hours:** 3

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### **F\_S 3190H: Study Abroad: International Meat, Dairy and Enology - Honors**

(same as AN\_SCI 3190). This study abroad course introduces students to the meat, dairy and wine industries in Germany or in New Zealand (destinations are on a rotational basis). Students will visit small, medium and large-scale producers and learn about differences in comparison to the US industries. May be repeated once for credit. Enrollment is limited to Honors eligible students.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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### **F\_S 3210: Kitchen Chemistry**

This course is targeted at current Food Science, Hospitality Management, Nutrition or Biochemistry students who wish to study the application of scientific principles to the practice of cooking. This on-line summer class assumes students have access to a working kitchen. Video cooking projects are submitted weekly. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CHEM 1100 or higher

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### **F\_S 3214: Principles of Meat Science**

(same as AN\_SCI 3214). Study of the principles involved in the conversion of living animals to meat and by-products; efficient utilization of meat as a food.

**Credit Hours:** 3

**Recommended:** one course in Biological Sciences

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### **F\_S 3231: Principles of Dairy Foods Science**

(same as AN\_SCI 3231). Technology, chemistry and microbiology related to milk and its transformation into fluid milk products, fermented dairy foods and spreads. (2 hours of lecture and two hours of laboratory per week.)

**Credit Hours:** 3

**Recommended:** One course in Chemistry or Biological Sciences

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### **F\_S 3240: Principles of Viticulture I**

(same as PLNT\_S 3240). Grapevine growth, development, selection, propagation, training systems, pruning, and harvesting; vineyard site selection, design, and development. Graded on A-F basis only. Prerequisites: F\_S 1010 and one of the following: F\_S 2195 or PLNT\_S 2195 or PLNT\_S 2100 or SOIL 2100 or PLNT\_S 2110 or PLNT\_S 2125.

**Credit Hours:** 4

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### **F\_S 3385: Problems in Food Science**

Supervised study in a specialized phase of food science and nutrition.

**Credit Hour:** 1-99

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**F\_S 4160: Food Process Engineering**

(same as BIOL\_EN 4160; cross-leveled with BIOL\_EN 7160). This course introduces underlying engineering principles in food processing, and unit operations in food industries. Topics include fluid flow, heat transfer in food processing, preservation process, dehydration, refrigeration, food freezing, psychrometrics, emerging technologies, food packaging, and sustainability. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 1210, AG\_S\_M 1040 or Consent of Instructor

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**F\_S 4199: Food Industry Senior Seminar**

The course explores the structure and the various branches of the food industry. Emphasis is placed on industry trends and the manufacture of specific selected food products and their ingredients. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** F\_S 1030 or equivalent, F\_S 2199 or equivalent; junior or senior standing

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**F\_S 4301: Topics in Food Science**

Instruction in specific subject matter areas in the field of food science and nutrition.

**Credit Hour:** 1-99

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**F\_S 4310: Food Chemistry and Analysis**

(cross-leveled with F\_S 7310). Structure, composition and chemical properties of food.

**Credit Hours:** 4

**Recommended:** 5 hours Chemistry or Biochemistry

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**F\_S 4311: Investigation of Food Properties**

(cross-leveled with F\_S 7311). Study of the chemical and physical properties of foods and the interaction of food components.

**Credit Hours:** 3

**Recommended:** F\_S 4310 or equivalent, or instructor's consent

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**F\_S 4315: Food Chemistry and Analysis Laboratory**

(cross-leveled with F\_S 7315). The quantitative determination of the constituents of food.

**Credit Hours:** 3

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**F\_S 4315W: Food Chemistry and Analysis Laboratory - Writing Intensive**

(cross-leveled with F\_S 7315). The quantitative determination of the constituents of food.

**Credit Hours:** 3

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**F\_S 4330: Principles of Food Processing**

(same as AG\_S\_M 4330; cross-leveled with F\_S 7330, AG\_S\_M 7330). Introduction to basic engineering concepts used to process raw materials. Principle topics include energy, material balance, fluid flow, heat transfer, refrigeration and freezing, and preservation.

**Credit Hours:** 3

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**Prerequisites:** MATH 1100 and AG\_S\_M 1040 or PHYSCS 1210

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**F\_S 4331: Technology of Dairy Products and Ingredients**

(cross-leveled with F\_S 7331). Technology, chemistry, and nutrition of dairy foods as well as functional properties of dairy ingredients.

**Credit Hours:** 3

**Prerequisites:** F\_S 3231 or equivalent

**Recommended:** one Chemistry course

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**F\_S 4340: Principles of Viticulture II**

(same as PLNT\_S 4340). Environmental and biological factors influencing vine physiology and winegrape quality. Irrigation, canopy management, pest and disease control, budgets and current trends in viticulture. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** F\_S 3240 or PLNT\_S 3240

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**F\_S 4344: Processing Muscle Foods**

(same as AN\_SCI 4344; cross-leveled with F\_S 7344, AN\_SCI 7344). Materials and technologies for the manufacture of muscle food products from red meats, poultry and seafood. Experience problem-solving through further processing of complex ingredients and develop skills by practicing operations in a pilot plant facility.

**Credit Hours:** 3

**Recommended:** One Chemistry course

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**F\_S 4345: Principles of Viticulture and Winemaking**

(same as PLNT\_S 4345; cross-leveled with PLNT\_S 7345, F\_S 7345). This course will cover the basics needed by viticulturists and winemakers to understand grape vine growth and vineyard considerations along with winemaking principles. Viticultural topics will include grapevine selection, grapevine propagation, training systems, and harvest and pruning. Winemaking topics will include sensory analysis of grapes, chemical, microbiological and technological aspects of winemaking, and the analytical methods used for juice and wine analysis. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1010 and BIO\_SC 1020 or BIO\_SC 1030 or BIO\_SC 1200 or BIO\_SC 1500

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**F\_S 4354: Physiology and Biochemistry of Muscle as Food**

(same as AN\_SCI 4354; F\_S 7354, AN\_SCI 7354). Basic concepts in muscle growth and development of livestock evaluating the effects of environment, welfare, nutrition and genetics regarding muscle metabolism, physiology, and the ultimate condition of muscle as food.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 3254 or MPP 3202 or BIO\_SC 3700; AN\_SCI 2001 or AN\_SCI 2214 or AN\_SCI 2114 or AN\_SCI 3214 or F\_S 3214 or AN\_SCI 3231 or F\_S 3231

**Recommended:** Any Biochemistry or Organic Chemistry course

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**F\_S 4370: Food Microbiology**

(cross-leveled with F\_S 7370). Study of bacteria, yeast and molds. Includes dominant flora, public health significance, characterization of

organisms, examination of foods representative of major food groups, spoilage, preservation, food fermentations and physiological groups.

**Credit Hours:** 3

**Prerequisites:** F\_S 2172

**Recommended:** one Biochemistry course

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**F\_S 4375: Food Microbiology Laboratory**

(cross-leveled with F\_S 7375). Examination of foods for microorganisms and characterization of major species.

**Credit Hours:** 2

**Prerequisites or Corequisites:** F\_S 4370

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**F\_S 4380: Sensory Analysis of Food and Beverages**

(cross-leveled with F\_S 7380). Methodological principles of the sensory analysis of food and beverages.

**Credit Hours:** 3

**Prerequisites:** F\_S 1030; junior or senior standing

**Recommended:** one statistics course

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**F\_S 4385: Problems in Food Science**

Advanced problems in a selected field of food science and nutrition.

**Credit Hour:** 1-99

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**F\_S 4390: Optimization and Management of Food and Agricultural Systems**

(same as AG\_S\_M 4390; cross-leveled with F\_S 7390; AG\_S\_M 7390). This course is designed to introduce the student to the concept of layers and interacting systems within an operation and the analytical methods of modeling and simulation to make effective management decisions for optimal system design and function.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher

**Recommended:** AG\_S\_M 1040

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**F\_S 4440: Principles of Winemaking and Wine Chemical Analysis**

(cross-leveled with F\_S 7440). The theoretical and practical basics needed by enologists/winemakers including sensory analysis of grapes; chemical, microbiological and technological aspects of winemaking; and the analytical methods used for juice and wine analysis. Graded on A-F basis only.

**Credit Hours:** 4

**Recommended:** 5 credit hours inorganic chemistry and organic chemistry or concurrent, or instructors consent

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**F\_S 4441: Cellar Operations and Special Vinifications**

(cross-leveled with F\_S 7441). The theoretical and practical basics needed by winemakers to supervise the operations of the winemaking, wine stabilization and packaging equipment. The theoretical and practical basics needed by winemakers to make special wines including rose, dessert, carbonic maceration, and sparkling wines. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** F\_S 4440

**Recommended:** 5 credit hours inorganic chemistry and organic chemistry or instructor's consent

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**F\_S 4941: Internship in Food Science**

Combines study, observation and employment in an area of food science and nutrition. Written reports, faculty evaluation.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

**Recommended:** one Food Science course

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**F\_S 4970: Food Product Development**

(cross-leveled with F\_S 7970). Capstone course integrating the various disciplines of food science to create new food products.

**Credit Hours:** 3

**Prerequisites:** Junior or Senior standing, or instructor's consent.

ENGLSH 1000 required if course is taught Writing Intensive

**Recommended:** 9 credit hours of Food Science

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**F\_S 4970W: Food Product Development - Writing Intensive**

Capstone course integrating the various disciplines of food science to create new food products.

**Credit Hours:** 3

**Prerequisites:** Junior or Senior standing, or instructor's consent.

ENGLSH 1000 required if course is taught Writing Intensive

**Recommended:** 9 credit hours of Food Science

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**F\_S 4980: Food Quality Assurance**

(cross-leveled with F\_S 7360). Capstone course integrating various food science disciplines to comply with regulations concerned with protection of the nation's food supply. Applies practices to insure consumers of healthful foods.

**Credit Hours:** 3

**Prerequisites:** Junior or Senior standing or instructor's consent

**Recommended:** 9 credit hours of food science

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**F\_S 7160: Food Process Engineering**

(same as with BIOL\_EN 7160; cross-leveled with F\_S 4160, BIOL\_EN 4160). This course introduces underlying engineering principles in food processing, and unit operations in food industries. Topics include fluid flow, heat transfer in food processing, preservation process, dehydration, refrigeration, food freezing, psychrometrics, emerging technologies, food packaging, and sustainability. Graded on A-F basis only.

**Credit Hours:** 3

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**F\_S 7310: Food Chemistry and Analysis**

(cross-leveled with F\_S 4310). Structure, composition and chemical properties of food.

**Credit Hours:** 4

**Prerequisites:** 5 hours Chemistry or Biochemistry

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**F\_S 7311: Investigation of Food Properties**

(cross-leveled with F\_S 4311). Study of the chemical and physical properties of foods and the interaction of food components. Lecture.

**Credit Hours:** 3

**Prerequisites:** F\_S 4310 or F\_S 7310 or equivalent, or instructor's consent



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**F\_S 7315: Food Chemistry and Analysis Laboratory**

(cross-leveled with F\_S 4315). The quantitative determination of the constituents of food.

**Credit Hours:** 3

**Prerequisites:** F\_S 4310 or concurrent enrollment

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**F\_S 7330: Principles of Food Processing**

(same as AG\_S\_M 7330; cross-leveled with F\_S 4330, AG\_S\_M 4330). Basic principles of food processing, with emphasis on blanching, pasteurization, commercial sterilization, refrigeration, freezing, concentration, dehydration and packing. Impacts of processing on product quality are evaluated.

**Credit Hours:** 3

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**F\_S 7331: Technology of Dairy Products and Ingredients**

(cross-leveled with F\_S 4331). Technology, chemistry, and nutrition of dairy foods as well as functional properties of dairy ingredients.

**Credit Hours:** 3

**Prerequisites:** one Chemistry course and F\_S 3231 or equivalent

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**F\_S 7344: Processing Muscle Foods**

(same as AN\_SCI 7344; cross-leveled with F\_S 4344, AN\_SCI 4344). Materials and technologies for the manufacture of muscle food products from red meats, poultry and seafood. Experience problem-solving through further processing of complex ingredients and develop skills by practicing operations in a pilot plant facility.

**Credit Hours:** 3

**Prerequisites:** one Chemistry course

---

**F\_S 7345: Principles of Viticulture and Winemaking**

(same as PLNT\_S 7345; cross-leveled with PLNT\_S 4345, F\_S 4345). This course will cover the basics needed by viticulturists and winemakers to understand grape vine growth and vineyard considerations along with winemaking principles. Viticultural topics will include grapevine growth and development, vineyard design and development, cultivar selection, grapevine propagation, training systems, and harvest and pruning. Winemaking topics will include sensory analysis of grapes, chemical, microbiological and technological aspects of winemaking, and the analytical methods used for juice and wine analysis. Graded on A-F basis only.

**Credit Hours:** 3

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**F\_S 7350: Microbiology of Fermented Foods**

Physiology, biochemistry, and genetics of microorganisms important in food fermentations. How microorganisms are used in fermentations and how raw materials are converted into finished fermented foods and beverages. Graded on A-F basis only.

**Credit Hours:** 2

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**F\_S 7351: Food Laws and Regulations**

Policy, law and regulation development related to food. Introduction to major US regulatory agencies impacting food law and discussion on major food safety and food labeling laws and regulations. Graded on A-F basis only.

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**Credit Hours:** 2

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**F\_S 7354: Physiology and Biochemistry of Muscle as Food**

(same as AN\_SCI 7354; cross-leveled with F\_S 4354, AN\_SCI 4354). Basic concepts in muscle growth and development of livestock evaluating the effects of environment, welfare, nutrition and genetics regarding muscle metabolism, physiology, and the ultimate condition of muscle as food.

**Credit Hours:** 3

**Prerequisites:** AN\_SCI 3254 or MPP 3202 or BIO\_SC 3700; AN\_SCI 2001 or AN\_SCI 2214 or AN\_SCI 2114 or AN\_SCI 3214 or F\_S 3214 or AN\_SCI 3231 or F\_S 3231

**Recommended:** Any Biochemistry or Organic Chemistry course

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**F\_S 7360: Food Quality Assurance**

(cross-leveled with F\_S 4980). Capstone course integrating various food science disciplines to comply with regulations concerned with protection of the nation's food supply. Applies practices to insure consumers of healthful foods.

**Credit Hours:** 3

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**F\_S 7370: Food Microbiology**

(cross-leveled with F\_S 4370). Study of bacteria, yeast and molds. Includes dominant flora, public health significance, characterization of organisms, examination of foods representative of major food groups, spoilage, preservation, food fermentations and physiological groups.

**Credit Hours:** 3

**Prerequisites:** F\_S 2172 and one Biochemistry course or concurrent enrollment

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**F\_S 7375: Food Microbiology Laboratory**

(cross-leveled with F\_S 4375). Examination of foods for microorganisms and characterization of major species.

**Credit Hours:** 2

**Prerequisites:** F\_S 4370 or concurrent enrollment

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**F\_S 7380: Sensory Analysis of Food and Beverages**

(cross-leveled with F\_S 4380). Methodological principles of the sensory analysis of food and beverages.

**Credit Hours:** 3

**Prerequisites:** F\_S 1030; junior or senior standing

**Recommended:** one statistics course

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**F\_S 7390: Optimization and Management of Food and Agriculture Systems**

(same as AG\_S\_M 7390; cross-leveled with F\_S 4390, AG\_S\_M 4390). This course is designed to introduce the student to the concept of layers and interacting systems within an operation and the analytical methods of modeling and simulation to make effective management decisions for optimal system design and function.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or higher

**Recommended:** AG\_S\_M 1040

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**F\_S 7440: Principles of Winemaking and Wine Chemical Analysis**  
(cross-leveled with F\_S 4440). The theoretical and practical basics needed by enologist/winemakers including sensory analysis of grapes; chemical, microbiological and technological aspects of winemaking; and the analytical methods used for juice and wine analysis. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** 5 hours inorganic chemistry and organic chemistry or concurrent, or instructor's consent

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**F\_S 7441: Cellar Operations and Special Vinifications**  
(cross-leveled with F\_S 4441). The theoretical and practical basics needed by winemakers to supervise the operations of the winemaking, wine stabilization and packaging equipment. The theoretical and practical basics needed by winemakers to make special wines including rose, dessert, carbonic maceration, and sparkling wines. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** 5 credit hours inorganic chemistry and organic chemistry and F\_S 4440 or instructor's consent

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**F\_S 7941: Internship in Food Science**  
Combines study, observation and employment in an area of food science and nutrition. Written reports, faculty evaluation.

**Credit Hour:** 1-6

**Prerequisites:** One Food Science course and instructor's consent

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**F\_S 7970: Food Product Development**  
Capstone course integrating the various disciplines of food science to create new food products.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000, and instructor's consent

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**F\_S 8085: Problems in Food Science**  
Individual studies include a minor research problems.

**Credit Hour:** 1-99

**Prerequisites:** Restricted to Food Science MS Students only

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**F\_S 8087: Seminar in Food Science**  
Provides students with opportunities for development in depth of advanced aspects of food science through reviews of research in progress and of current scientific publications.

**Credit Hour:** 1

**Prerequisites:** Masters standing

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**F\_S 8090: Research in Food Science**  
Original investigations, usually in connection with one of the research projects of Agricultural Experiment Station. Written report required. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** Restricted to Food Science MS Students Only

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**F\_S 8100: Strategic Human Resource Management in Hospitality**  
This course is designed to familiarize students with a wide range of theories, concepts, business practices and applications associated with managing human resources in business. Topics include micro-human resource issues such as recruitment, hiring, performance measurements, employee relations, and retention, macro human resource topics such as organizational performance measurement, and interrelationship between micro and macro human resources such as individual differences and job performance and organizational performance. Students will learn the key theories and applications through reading, discussion, research, and writings. Graded on A-F only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 7100

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**F\_S 8110: Advanced Hospitality Marketing**  
This course provides students with an advanced-level view of marketing strategies with the focus in hospitality and tourism. Students will be exposed to a general overview of theoretical frameworks and seminal work in this field. They will gain appreciation of the contemporary social-scientific research on marketing and persuasion. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 7110 or instructor's consent

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**F\_S 8180: Strategic Management and Competitive Strategy in the Hospitality Industries**  
This course introduces to students and enables them to develop a comprehensive understanding of the concepts and principles of strategic management and competitive strategy as applied to the hospitality industries. Students will be acquainted with the key concepts of strategic management through discussions, research, critiquing and writings. This course will cover a wide variety of topics related to environmental scanning, strategic direction, organizational structure and culture, administration and evaluation of existing and challenging business practices, concepts and theories in the management distinctive to that of hospitality, tourism and service. Emphasis will place on the identification of relevant interdisciplinary paradigms and theory and research techniques for analysis, using advanced concepts and quantitative methods in the scientific investigation problems related to hospitality. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 7180 or instructor's consent

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**F\_S 8263: Service Operations Management: Revenue Management**  
This course offers an opportunity for students to learn the theory, concepts, and knowledge applied in service operations management. Students will find them useful in trying to cope with the dilemmas faced by operating managers in the hospitality industry. Especially, the course focuses on revenue management.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 3310 or instructor's consent

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**F\_S 8301: Ethnic Foods: Food Safety, Food Protection and Defense Challenges**  
An overview of the safety concerns and risks associated with ethnic and imported ethnic foods. Graded on A-F basis only.

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**Credit Hours:** 2

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**F\_S 8302: Food Protection and Defense-Essential Concepts**

This course presents foundational concepts relevant to protecting the food supply from intentional contamination. Graded on A-F basis only.

**Credit Hours:** 2

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**F\_S 8303: A Multidisciplinary Overview of Food Safety and Security**

This course provides students with an understanding of a host of multidisciplinary aspects of food safety, particularly in the context of public health. Graded on A-F basis only.

**Credit Hours:** 2

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**F\_S 8304: HACCP**

This course focuses on procedures and processes which can affect the overall microbiological safety of food and the Hazard Analysis Critical Control Point (HACCP) system. Graded on A-F basis only.

**Credit Hours:** 2

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**F\_S 8401: Topics in Food Science**

Specialized topics in the area of food science and nutrition.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**F\_S 8402: Research Methods in Food Science**

(same as BIOL\_EN 8402). Introduction to research. Defining research problems, developing hypotheses, searching scientific literature, designing experiments, presenting data, writing scientific papers and theses, making oral presentations.

**Credit Hours:** 2

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**F\_S 8404: Advanced Food Microbiology and Biotechnology**

Covers basic principles in biotechnology and applied food microbiology, including current topics of interest in food biotechnology. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 2

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**F\_S 8405: Advanced Microbiology of Foods**

Principles of microbial physiology, taxonomy, analytical methods applied to study of microorganisms added to foods and those causing food spoilage or food-borne illness. Roles of microorganisms in manufacture/distribution of foods.

**Credit Hours:** 3

**Prerequisites:** F\_S 4370 or equivalent

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**F\_S 8406: Foodborne Toxicants**

This course covers human risks from foodborne toxicants, remediation and detoxification strategies for key foodborne toxicants and major modes of toxicity of key foodborne toxicants. Principles of food toxicology will be applied to optimize hazard analysis within HACCP for the prevention of foodborne toxicities. Graded on A-F basis only.

**Credit Hours:** 2

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**F\_S 8408: Risk Assessment for Food, Agriculture and Veterinary Medicine**

Risk assessment principles as applied to biological systems. Exposure and effects characterization in human and animal health and ecological risk assessment. Risk analysis frameworks and regulatory decision-making. Introduction to quantitative methods for risk assessment using epidemiological and distributional analysis. Uncertainty analysis. Graded on A-F basis only.

**Credit Hours:** 2

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**F\_S 8410: Food Chemistry II**

Study of chemical content of food, emphasizing aspects that exist uniquely in food.

**Credit Hours:** 4

**Prerequisites:** F\_S 4310 or equivalent

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**F\_S 8414: Meat Quality**

(same as AN\_SCI 8414). Discussion of factors affecting meat quality in beef, pork, lamb and poultry. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** F\_S 3214 or equivalent

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**F\_S 8424: Meat Investigations**

(same as AN\_SCI 8424). Discussion of literature, special reports, assigned readings, techniques, interpretation of results.

**Credit Hours:** 3

**Prerequisites:** F\_S 4344 and F\_S 4310 or equivalent

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**F\_S 8440: Functional Foods and Nutraceuticals**

Principles and challenges involved in developing foods with health benefits beyond basic nutrition; efficacy, safety, regulatory and marketing aspects of functional foods and nutraceutical; current controversies and evidence of therapeutic properties of functional foods and Dietary supplements. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 3630 or equivalent and F\_S 4310 or equivalent, or instructor's consent

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**F\_S 8460: Food Biopolymers**

Study of physical, chemical, and functional properties of food biopolymers and their applications in food and other industries. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Organic chemistry and food chemistry

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**F\_S 8470: Advanced Food Technology**

To understand the physical and chemical changes that occur during the processing and storage of food; study the quality and safety issues of foods and learn traditional and recent advances in food science and technology.

**Credit Hours:** 3

**Prerequisites:** F\_S 4310, or equivalent or instructor's consent

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**F\_S 9085: Problems in Food Science**

Individual studies includes minor research problems.

**Credit Hour:** 1-99

**Prerequisites:** Food Science PhD students

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**F\_S 9087: Seminar in Food Science**

Provides students with opportunities for development in depth of advanced aspects of food science through reviews of research in progress and of current scientific publications. Prerequisites: PhD standing

**Credit Hour:** 1

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**F\_S 9090: Research in Foods Science**

Original investigation of advanced nature, leading to dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** Food Science PhD students

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**F\_S 9402: Advanced Research Methods in Food and Hospitality Systems**

This course provides doctoral students with introduction and review of research methods available for use in the study of food science, hospitality management and agricultural system management. Hence, the emphasis of this course is on empirical studies in the field, and will examine research conducted by scholars in the academic area. This course assists as baseline preparation for graduate students' continuing work in the graduate program. Specifically, the course provides students with knowledge and research experience in regard to 1) research fundamentals and backgrounds, 2) types of research, and 3) data analysis.

**Credit Hours:** 3

**Prerequisites:** Introductory research method course or statistics course; instructor's consent required

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## Forestry (FOREST)

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**FOREST 2151: Dendrology**

An introduction to the biology of trees, emphasizing identification in the field, taxonomy, ecology, geographic distribution and economic significance of forest species.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1200 or PLNT\_S 2120

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**FOREST 2541: Forest Utilization**

Field studies of logging and milling of timber.

**Credit Hour:** 1

**Prerequisites:** SOIL 2100, FOREST 2151

**Corequisites:** FOREST 2540, FOREST 2542, FOREST 2543, FOREST 2544 and FOREST 2545

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**FOREST 2542: Forest Measurement and Inventory**

Field measurement of standing trees including diameter, height and age. Estimation of forest timber resources using a variety of sampling schemes and techniques. Introduction to Arcview and growth models.

**Credit Hour:** 1

**Prerequisites:** SOIL 2100, FOREST 2151

**Corequisites:** FOREST 2543 and FOREST 2544

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**FOREST 2543: Forest Ecology Field Studies**

Field studies of vegetation, soils, habitats and ecological units.

Application of ecological principles of natural resource management and understanding of natural and managed forested communities with an emphasis on southeastern Missouri.

**Credit Hour:** 1

**Prerequisites:** SOIL 2100 and FOREST 2151

**Corequisites:** FOREST 2542 and FOREST 2544

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**FOREST 2544: Introduction to Silviculture and Management**

Management objectives and stand prescriptions, regeneration and intermediate silvicultural treatments, management on private and federal forest lands, tree evaluation and timber marking.

**Credit Hour:** 1

**Prerequisites:** SOIL 2100 and FOREST 2151

**Corequisites:** FOREST 2542 and FOREST 2543

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**FOREST 2545: Forest Management Planning**

Preparation and presentation of a written forest management plan using material and data developed in prerequisite courses.

**Credit Hour:** 1

**Prerequisites:** SOIL 2100, FOREST 2151

**Corequisites:** FOREST 2540, FOREST 2541, FOREST 2542, FOREST 2543 and FOREST 2544 concurrently

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**FOREST 3207: Forest Fire Control and Use**

Fundamentals of all phases of fire protection. Objectives and techniques in use of fire.

**Credit Hours:** 2

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**FOREST 3212: Forest Health and Protection**

Fundamental concepts of forest pathology and forest entomology including emphasis on ecological principles and management strategies.

**Credit Hours:** 4

**Recommended:** FOREST 2151

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**FOREST 3212W: Forest Health and Protection - Writing Intensive**

Fundamental concepts of forest pathology and forest entomology including emphasis on ecological principles and management strategies.

**Credit Hours:** 4

**Recommended:** FOREST 2151

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**FOREST 3290: Urban Forestry**

The culture and management of trees in urban areas, including ownership patterns, species composition, growth environment, amenities provided and evaluation. One-day field trip required.

**Credit Hours:** 2

**Prerequisites:** FOREST 2151 or PLNT\_S 2210

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**FOREST 3300: Problems in Forestry**

Problems in Forestry

**Credit Hour:** 1-99

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**FOREST 3350: Special Readings in Forestry**

Critical review of current literature and research in forestry, fisheries and wildlife, and methods of presenting research results.

**Credit Hour:** 1-99

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**FOREST 4320: Forest Ecology**

Principles of community, ecosystem, and population ecology and examination of the influence of environmental factors and human activity on forest dynamics, composition, structure and function.

**Credit Hours:** 5

**Prerequisites:** At least Junior standing. Recommended FOREST 2151

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**FOREST 4320W: Forest Ecology - Writing Intensive**

Principles of community, ecosystem, and population ecology and examination of the influence of environmental factors and human activity on forest dynamics, composition, structure and function.

**Credit Hours:** 5

**Prerequisites:** At least Junior standing

**Recommended:** FOREST 2151

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**FOREST 4330: Practice of Silviculture**

(cross-leveled with FOREST 7330). Applied ecological principles, cultural practices, tree improvement techniques and treatments to forest stands and other lands for systematic production of goods and services.

**Credit Hours:** 4

**Prerequisites:** FOREST 4320

**Recommended:** FOREST 4375

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**FOREST 4350: Forest Economics**

Economic principles applied to production/marketing of goods and services from forest land: emphasizes capital and land factors and investment alternatives related to time.

**Credit Hours:** 3

**Prerequisites:** ABM 1042 or ABM 1041 or ABM 2070

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**FOREST 4360: Photogrammetry, Inventory and Models**

Applied course in the area of aerial photogrammetry, forest inventory, and forest growth models for developing, maintaining, and utilizing these tools in a forest management.

**Credit Hours:** 3

**Recommended:** NAT\_R 3110

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**FOREST 4375: Forest Stand Dynamics**

Examines the development of forest structure, the role of disturbance on forest change and the use of this knowledge in applying silvicultural systems. Both forest stand dynamics theories, structure diagrams, forest growth models, and long term data sets are used to understand stand dynamics.

**Credit Hours:** 3

**Recommended:** FOREST 4330

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**FOREST 4380: Forest Resource Management**

Teaches resource managers how to develop a plan for the management of forest resources using managerial, economic, silvical and wildlife techniques for its enhancement and to meet the landowner's objectives.

**Credit Hours:** 3

**Prerequisites:** FOREST 4330 and FOREST 4350; Senior Standing only

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**FOREST 4385: Agroforestry I: Theory, Practice and Adoption**

Understand biophysical, ecological, social and economic features of temperate and tropical agroforestry. Covers the basics of design, planning and implementation of agroforestry practices.

**Credit Hours:** 3

**Prerequisites:** Senior standing

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**FOREST 4390: Watershed Management and Water Quality**

(cross-leveled with FOREST 7390). Hydrologic processes on wildland watersheds. Effects of forest land management on streamflow, erosion and water quality.

**Credit Hours:** 3

**Prerequisites:** MATH 1400; Senior standing only

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**FOREST 4940: Forestry Internship**

Supervised professional experience with an approved public or private organization. May be repeated for credit. Graded on S/U basis only.

**Credit Hour:** 1-12

**Prerequisites:** Instructor's consent required

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**FOREST 4950: Forestry Undergraduate Research**

Research apprenticeship with a faculty mentor. Students are expected to develop initial concept for the research, design experiments, collect data, and analyze data with faculty input, oversight, and guidance. Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** Senior standing, STAT 2530

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**FOREST 4994: Senior Honors Research in Forestry**

**Credit Hour:** 1-3

**Prerequisites:** Instructor Consent Required

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**FOREST 4995: Senior Honors Research in Forestry**

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**FOREST 7301: Topics in Forestry**

Organized study of selected topics. Intended for upper-division and graduate students. Subjects and credit may vary from semester to semester.

**Credit Hour:** 1-99

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**FOREST 7320: Forest Ecology**

(cross-leveled with FOREST 4320). Principles of community, ecosystem, and population ecology and examination of the influence

of environmental factors and human activity on forest dynamics, composition, structure and function.

**Credit Hours:** 5

**Prerequisites:** FOREST 2151 or BIO\_SC 3210 or instructor's consent

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**FOREST 7330: Practice of Silviculture**

(cross-leveled with FOREST 4330). Applied ecological principles, cultural practices, tree improvement techniques and treatments to forest stands and other lands for systematic production of goods and services.

**Credit Hours:** 4

**Prerequisites:** FOREST 4320

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**FOREST 7350: Forest Economics**

(cross-leveled with FOREST 4350). Economic principles applied to production/marketing of goods and services from forest land: emphasizes capital and land factors and investment alternatives related to time.

**Credit Hours:** 3

**Prerequisites:** Mathematics requirement completed; AG\_EC 1041, or AG\_EC 3080

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**FOREST 7360: Photogrammetry, Inventory and Models**

(cross-leveled with FOREST 4360). Applied course in the area of aerial photogrammetry, forest inventory, and forest growth models for developing, maintaining, and utilizing these tools in a forest management.

**Credit Hours:** 3

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**FOREST 7375: Forest Stand Dynamics**

(cross-leveled with FOREST 4375). Examines the development of forest structure, the role of disturbance on forest change and the use of this knowledge in applying silvicultural systems. Both forest stand dynamics theories, structure diagrams, forest growth models, and long term data sets are used to understand stand dynamics.

**Credit Hours:** 3

**Prerequisites:** FOREST 4330 or instructor's consent

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**FOREST 7380: Forest Resource Management**

(cross-leveled with FOREST 4380). Teaches resource managers how to develop a plan for the management of forest resources using managerial, economic, silvical and wildlife techniques for its enhancement and to meet the landowner's objectives.

**Credit Hours:** 3

**Prerequisites:** FOREST 4330 and FOREST 4350

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**FOREST 7385: Agroforestry I: Theory, Practice and Adoption**

(cross-leveled with FOREST 4385). Understand biophysical, ecological social and economic features of temperate and tropical agroforestry. Covers the basics of design, planning and implementation of agroforestry practices.

**Credit Hours:** 3

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**FOREST 7390: Watershed Management and Water Quality**

(cross-leveled with FOREST 4390). Hydrologic processes on wildland watersheds. Effects of forest land management on streamflow, erosion and water quality.

**Credit Hours:** 3

**Prerequisites:** MATH 1400 or instructor's consent

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**FOREST 8050: Research in Forestry**

Original research not leading to preparation of dissertation.

**Credit Hour:** 1-99

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**FOREST 8090: Masters Thesis Research in Forestry**

Original investigation for presentation in a M.S. thesis. Graded on a S/U basis only.

**Credit Hour:** 1-10

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**FOREST 8385: Ecological Principles of Agroforestry**

The course prepares students to develop an understanding of the complexity of agroforestry. Students will critically analyze classical and contemporary ecological theories and apply them in designing agroforestry practices to solve complex production and environmental issues. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FOREST 4385 or FOREST 7385 or permission of instructor

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**FOREST 8390: Physical Hydrology**

Students will obtain an understanding of hydrologic processes in terms of the occurrence, distribution and movement of water spanning the atmosphere and lithosphere. Students will have an opportunity to develop an understanding of physical processes governing mass and energy flux in wildland and anthropogenic systems. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** College Physics and Calculus I

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**FOREST 8395: Agroforestry Economics and Policy**

This course discusses basic economic and financial principles, and their applications in agroforestry. Specifically, the discussion includes market demand and supply, market failure, non-market valuations, cost and benefit analysis, short term and long term economic analysis, economic valuation of ecosystem services, and the applications in agroforestry. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FOREST 4385 or FOREST 7385, ABM 1041 or permission of instructor

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**FOREST 8401: Topics in Forestry**

Organized study of selected topics. Subjects and credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**FOREST 8430: Applied Silviculture**

Ecological and economic factors affecting application of silviculture in each of eighteen forest regions in United States.

**Credit Hours:** 3

**Prerequisites:** FOREST 4330

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**FOREST 8450: Forest Soils**

Physical, chemical and biological properties of forest soils in relation to tree growth.

**Credit Hours:** 3

**Prerequisites:** FOREST 4330 or instructor's consent

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**FOREST 8460: Advanced Forest Ecology**

Lecture/discussion based course emphasizing contemporary and classic ecological studies and concepts in the context of current forest ecology issues and research. Prerequisites: undergraduate ecology course

**Credit Hours:** 3

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**FOREST 8490: Advanced Forest Management**

Modern quantitative methods to facilitate decision-making in harvest scheduling and regulation, land use allocation, and production planning in natural resource management.

**Credit Hours:** 3

**Prerequisites:** FOREST 4380

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**FOREST 8515: Advanced Forest Biometrics**

An introduction to the topics and philosophy of ecological modeling. The course will guide students through the process of developing a conceptual model, formalizing the model, formulating, parameterizing, and running the model as well as analyzing the results.

**Credit Hours:** 3

**Prerequisites:** STAT 7070 or instructor's consent

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**FOREST 8530: Ecosystem Management: The Human Dimension**

Overview of cultural, social, political and economic dimensions of natural resource problems and issues from an ecologically grounded management perspective.

**Credit Hours:** 3

**Prerequisites:** NAT\_R 4353 or equivalent

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**FOREST 8620: Plant-Water Relations**

Absorption, translocation, utilization and loss of water by plants . Biophysics of water movement in the soil-plant-atmosphere continuum. Effects of water deficits on physiological processes.

**Credit Hours:** 3

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**FOREST 9087: Seminar in Forestry**

Discussions of current developments in Forestry, and critical study of research programs. Graded on S/U basis only.

**Credit Hour:** 1

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**FOREST 9090: Dissertation Research in Forestry**

Original investigation for presentation in a doctoral dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-10

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## French (FRENCH)

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**FRENCH 1100: Elementary French I**

French 1100 is a beginning French course, but many students will have had 1 or 2 years of high school French. Students will learn using all four skills--listening, speaking, reading, and writing with an emphasis on communication. The class meets four days a week and will be taught in French. The pace of the course is much faster than a high school class and should be accompanied by 2 hours of study for each hour spent in class. Class time is used to integrate new structures and vocabulary.

**Credit Hours:** 4

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**FRENCH 1100H: Elementary French I - Honors**

French 1100 Honors is an introductory course that emphasizes correct pronunciation, speaking and class interaction. French is the language of instruction and students are expected to quickly grasp concepts taught in French. The class meets four days a week. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Honors eligibility required

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**FRENCH 1200: Elementary French II**

The second course of the beginning language sequence is the continuation of FRENCH 1100. It places equal emphasis on the four skills; listening, speaking, reading, and writing. Students who have prior knowledge of French are encouraged to take this course.

**Credit Hours:** 4

**Recommended:** Grade in the C range or better in FRENCH 1100 or equivalent

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**FRENCH 1200H: Elementary French II - Honors**

The second course of the beginning language sequence is the continuation of FRENCH 1100. It places equal emphasis on the four skills; listening, speaking, reading, and writing. Students who have prior knowledge of French are encouraged to take this course.

**Credit Hours:** 4

**Prerequisites:** Honors eligibility required

**Recommended:** Grade in the C range or better in FRENCH 1100 or equivalent

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**FRENCH 2001: Undergraduate Topics in French-General**

Organized study of selected topics. Subjects may vary from semester to semester. May be repeated with consent of department.

**Credit Hour:** 1-3

**Prerequisites:** FRENCH 1200 with a grade of C or better

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**FRENCH 2100: Elementary French III**

A multi-skill course following FRENCH 1200, centering on cultural/literary reading, and including a grammar review, practice of the spoken language, as well as some practice in written expression.

**Credit Hours:** 4

**Recommended:** Grade in the C range or better in FRENCH 1200, or equivalent course

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**FRENCH 2100H: Elementary French III - Honors**

A multi-skill course following FRENCH 1200, centering on cultural/literary reading, and including a grammar review, practice of the spoken language, as well as some practice in written expression.

**Credit Hours:** 4

**Prerequisites:** grade in the C range or better in FRENCH 1200, or equivalent course. Honors eligibility required

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**FRENCH 2160: Intermediate French Composition and Conversation**

A course designed to develop the ability to speak, read, and write in French via the reading of French short stories and/or a short novel. Grammar review.

**Credit Hours:** 3

**Prerequisites:** FRENCH 2100

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**FRENCH 2310: French Civilization**

Open to any student interested. No knowledge of French required. May not be included in area of concentration in French.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**FRENCH 2310W: French Civilization - Writing Intensive**

Open to any student interested. No knowledge of French required. May not be included in area of concentration in French.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**FRENCH 2320: French Literature and Thought in English Translation I**

This course examines how the masterworks of French literature, from the Middle Ages to the eighteenth century, have influenced Western literary, cultural and philosophical traditions.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent

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**FRENCH 2330: French Literature in Translation II**

This course examines how the masterworks of French literature of the nineteenth and twentieth centuries have influenced Western literary, cultural and philosophical traditions.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent

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**FRENCH 2350: New World Francophone Literature in Translation**

A survey of literature written by Caribbean writers of French expression. Writers include M. Conde, P. Chamoiseau, A. Césaire, E. Glissant, S. Bart-Schwartz, R. Depestre and G. Etienne.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**FRENCH 3001: Topics in French-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing, departmental consent for repetition

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**FRENCH 3004: Topics in French-Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing, departmental consent for repetition

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**FRENCH 3005: Topics in French-Humanities/Fine Arts**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent for repetition. Prerequisites: sophomore standing

**Credit Hour:** 1-3

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**FRENCH 3160: Advanced French Composition and Conversation I**

Development of more sophisticated skills of written and oral expression.

**Credit Hours:** 3

**Prerequisites:** FRENCH 2160 or equivalent

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**FRENCH 3180: Les Fondations de la Civilisation Française**

Overview of French civilization from its origins to French Revolution. Studies will examine key cultural objects from art, literature, and popular culture as well as political and historical movements that have shaped development of French civilization. Ideal for students interested in engaging with issues, debates, and problems that helped to define the nascent French state.

**Credit Hours:** 3

**Prerequisites:** FRENCH 2160

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**FRENCH 3280: Commercial French**

Composition and Conversation course based on materials related to the French business world. Acquisition of business-related vocabulary. Introduction to French business operations and correspondence.

**Credit Hours:** 3

**Prerequisites:** FRENCH 2160 or equivalent

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**FRENCH 3410: Introduction to Literary Analysis**

Will acquaint students with vocabulary required for analysis of literary texts. Along with the traditional French method of poetry explication, students will learn to analyze the major literary genres (poetry, theatre, prose).

**Credit Hours:** 3

**Prerequisites:** FRENCH 3160

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**FRENCH 3420: Introduction to French Literature I**

Study of selected masterpieces of French literature from the Middle Ages through the 18th century.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3160 and FRENCH 3410

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**FRENCH 3420W: Introduction to French Literature I - Writing Intensive**

Study of selected masterpieces of French literature from the Middle Ages through the 18th century..

**Credit Hours:** 3



**Prerequisites:** FRENCH 3160 and FRENCH 3410

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**FRENCH 3430: French Masterworks: Texts and Contexts**

This course will prepare students to analyze masterworks of French expression and develop an understanding of the historical and literary contexts in which they were written. It will also promote a deeper awareness of the French-speaking world's cultural specificity and diversity. Tracking texts across time periods (medieval to present) and, on occasion, across continents as well (Africa, Canada, the Caribbean), students will focus on how literary expression responds to cultural crises and consider how writers deal with issues of gender, race, ideology, class and/or self-actualization. As they make their way through a select group of works, students will have the opportunity to hone their language skills in all four fundamental areas (speaking, listening, reading comprehension, and writing). Beyond the scope of literary texts, reference to a variety of visual arts will inform and enhance class discussion.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3160

**Recommended:** FRENCH 3410

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**FRENCH 3430W: French Masterworks: Texts and Contexts - Writing Intensive**

This course will prepare students to analyze masterworks of French expression and develop an understanding of the historical and literary contexts in which they were written. It will also promote a deeper awareness of the French-speaking world's cultural specificity and diversity. Tracking texts across time periods (medieval to present) and, on occasion, across continents as well (Africa, Canada, the Caribbean), students will focus on how literary expression responds to cultural crises and consider how writers deal with issues of gender, race, ideology, class and/or self-actualization. As they make their way through a select group of works, students will have the opportunity to hone their language skills in all four fundamental areas (speaking, listening, reading comprehension, and writing). Beyond the scope of literary texts, reference to a variety of visual arts will inform and enhance class discussion.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3160

**Recommended:** FRENCH 3410

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**FRENCH 3440: Francophone Literature of North America**

A survey course of Francophone literature of New France, Louisiana territory and the French West Indies from its beginnings in the seventeenth century to the late twentieth century. Selected novels, poems and plays will be studied in their historical and social context.

**Credit Hours:** 3

**Prerequisites:** FRENCH 2160

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**FRENCH 3710: Survey of Minority and Creole Languages of the U.S. and the Caribbean**

(same as SPAN 3710 and LINGST 3710). Analysis of the state of the minority languages of the U.S. and the Creole languages of the Caribbean with particular attention to the social status of these languages and speakers' attitudes toward them in the context of ethnic, cultural and national identity (taught in English).

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**FRENCH 4004: Topics in French-Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** junior standing, departmental consent for repetition

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**FRENCH 4070: Intensive Beginning French**

Rapid acquisition of a reading knowledge of French. Cannot be taken to fulfill undergraduate language requirement.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**FRENCH 4120: Foreign Language Teaching Methodology**

(same as SPAN 4120, LATIN 4121; cross-leveled with FRENCH 7120, SPAN 7120). Theory and techniques of current foreign language methodology and their application in the classroom. Presentation of instructional projects, classroom observations, and strategies for classroom management. May not be used toward Arts and Science major.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**FRENCH 4130: Stylistics**

(cross-leveled with FRENCH 7130). A technical study of French as a means of communication and of self-expression, involving levels of meaning, rhetorical structure, and textual analysis.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3160 or FRENCH 3280

**Recommended:** FRENCH 3420, FRENCH 3430 or FRENCH 3410

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**FRENCH 4130W: Stylistics - Writing Intensive**

A technical study of French as a means of communication and of self-expression, involving levels of meaning, rhetorical structure, and textual analysis.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3160 or FRENCH 3280

**Recommended:** FRENCH 3420, FRENCH 3430 or FRENCH 3410

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**FRENCH 4410: French Medieval Literature**

(cross-leveled with FRENCH 7410). Survey of representative works from the principal literary genres of the Middle Ages: epic (La Chanson de Roland), courtly romance (Chretien de Troyes), chantefable (Aucassin et Nicolette), short story (lai, fabliau), theatre, and lyric poetry.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 4420: French Renaissance**

(cross-leveled with FRENCH 7420). Survey of prose and poetry of the sixteenth century with significant emphasis on Montaigne, Rabelais, and the poetry of the Pleiade.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 4440: Eighteenth-Century French Literature**

(cross-leveled with FRENCH 7440). Through systematic and representative readings, this course familiarizes students with the literary trends and intellectual currents of 18th century France. The course includes works by Montesquieu, Voltaire, Rousseau, Laclos, Diderot, Marivaux, Prevost, and Beaumarchais.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 4460: Twentieth-Century French Novel**

(cross-leveled with FRENCH 7460). The course is a historical survey that deals with three topics: the modernist writings of the early twentieth century. (Proust, Gide, and Colette), existentialism of the mid-century (Sartre, Camus), and contemporary forms of writing (Beckett, Robbe-Grillet, Sarraute, among others).

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 4470: Introduction to the Contemporary French Theatre**

Survey of twentieth-century French drama. Students read plays by Claudel, Giraudoux, Sartre, Anouilh, Beckett, Ionesco, Genet, and others. Strong emphasis is played on class discussions. Written analyses of two plays are assigned, and there is an hourly exam and a final.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 4490: Nineteenth-Century French Novel**

(cross-leveled with FRENCH 7490). Study of the three major currents in prose fiction: romanticism, realism, and naturalism. Representative readings from Chateaubriand, Balzac, Stendhal, Flaubert, and Zola are included.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 4710: History of the French Language**

(same as LINGST 4710). Study of the French language from its Latin origin to the present. The course includes a survey of the external social, political, and historical factors that have affected the development of French, followed by a diachronic study of the internal structural features of the language.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 4720: Structure of Modern French**

(same as LINGST 4720; cross-leveled with FRENCH 7720, LINGST 7720). An introductory presentation of the phonological and syntactic systems of contemporary standard French.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3160 or equivalent or instructor's consent

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**FRENCH 4820: Blogging the World: The Web in Cultural Context**

(same as GERMAN 4820 and RUSS 4820). Innovative interdisciplinary course addresses issues of access to international news and specific cultural context working in cross-disciplinary teams. Students in

journalism, foreign language, international studies, political science and various other disciplines track cultural developments and information on non-US Web sites, blogs and digital social networks along with exploring various historical forms of communication that preceded the digital era of the Web. Students analyze the potential and limitations/ effects of blogs and the web in specific contemporary cultural contexts and as part of the broader historical evolution of the web. The course is taught in English. The goal of this course is two-fold; students learn the particulars of web blogging, explore various features of the contemporary social network landscape while focusing on the concept of culture, in particular the cultures of Europe and the US. Questions asked are: what is culture? What is common or popular right now in other cultures? And how do new social networks amplify or alter certain features or culture across national and international contexts?

**Credit Hours:** 3

**Prerequisites:** sophomore standing required

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**FRENCH 4820W: Blogging the World: The Web in Cultural Context - Writing Intensive**

(same as GERMAN 4820 and RUSS 4820). Innovative interdisciplinary course addresses issues of access to international news and specific cultural context working in cross-disciplinary teams. Students in journalism, foreign language, international studies, political science and various other disciplines track cultural developments and information on non-US Web sites, blogs and digital social networks along with exploring various historical forms of communication that preceded the digital era of the Web. Students analyze the potential and limitations/ effects of blogs and the web in specific contemporary cultural contexts and as part of the broader historical evolution of the web. The course is taught in English. The goal of this course is two-fold; students learn the particulars of web blogging, explore various features of the contemporary social network landscape while focusing on the concept of culture, in particular the cultures of Europe and the US. Questions asked are: what is culture? What is common or popular right now in other cultures? And how do new social networks amplify or alter certain features or culture across national and international contexts?

**Credit Hours:** 3

**Prerequisites:** sophomore standing required

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**FRENCH 4960: Special Readings in French**

Independent study through readings, conferences, reports.

**Credit Hour:** 1-3

**Prerequisites:** FRENCH 3420 and FRENCH 3430 and departmental consent

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**FRENCH 4980: Special Themes in French**

Subject varies according to instructor. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 4993: The Capstone Experience in French**

This course is required of all majors. Topics vary but all courses synthesize and review essential components of the major: speaking, writing, reading in French, and the ability to think critically and analytically.

**Credit Hours:** 3

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**FRENCH 4993H: The Capstone Experience in French - Honors**

This course is required of all majors. Topics vary but all courses synthesize and review essential components of the major: speaking, writing, reading in French, and the ability to think critically and analytically.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**FRENCH 7004: Topics in French-Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent for repetition.

**Credit Hour:** 1-99

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**FRENCH 7120: Foreign Language Teaching Methodology**

(same as SPAN 7120, cross-leveled with SPAN 4120, FRENCH 4120, LATIN 4121). Theory and techniques of current foreign language methodology and their application in the classroom. Presentation of instructional projects, classroom observations, and strategies for classroom management. May not be used toward Arts and Science major.

**Credit Hours:** 3

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**FRENCH 7130: Stylistics**

(same as FRENCH 4130). A technical study of French as a means of communication and of self-expression, involving levels of meaning, rhetorical structure, and textual analysis.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3160 or FRENCH 3280 and FRENCH 3420 or FRENCH 3430

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**FRENCH 7410: French Medieval Literature**

(cross-leveled with FRENCH 4410).

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 7420: French Renaissance**

(cross-leveled with FRENCH 4420). Survey of prose and poetry of the sixteenth century with significant emphasis on Montaigne, Rabelais, and the poetry of the Pleiade.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 7440: Eighteenth-Century French Literature**

(cross-leveled with FRENCH 4440). Through systematic and representative readings, this course familiarizes students with the literary trends and intellectual currents of 18th century France. The course includes works by Montesquieu, Voltaire, Rousseau, Laclos, Diderot, Marivaux, Prevost, and Beaumarchais.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 7490: Nineteenth-Century French Novel**

(cross-leveled with FRENCH 4490). Study of the three major currents in prose fiction: romanticism, realism, and naturalism. Representative readings from Chateaubriand, Balzac, Stendhal, Flaubert, and Zola are included.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 7710: History of the French Language**

(same as LINGST 7710; cross-leveled with FRENCH 4710, LINGST 4710). Required of M.A. candidates.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**FRENCH 7720: Structure of Modern French**

(same as LINGST 7720; cross-leveled with FRENCH 4720, LINGST 4720). An introductory presentation of the phonological and syntactic systems of contemporary standard French.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3160 or equivalent or instructor's consent

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**FRENCH 7960: Special Readings in French**

Independent study through readings, conferences, reports.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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**FRENCH 7980: Special Themes in French**

Subject varies according to instructor.

**Credit Hours:** 3

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**FRENCH 7993: The Capstone Experience in French**

This course is required of all majors. Topics vary but all courses synthesize and review essential components of the major: speaking, writing, reading in French, and the ability to think critically and analytically.

**Credit Hours:** 3

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**FRENCH 8080: Readings in French**

Independent readings in preparation for MA or MALT comprehensive examination in French. Graded on A-F basis only.

**Credit Hour:** 1-3

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**FRENCH 8085: Problems in French**

Problems in French.

**Credit Hour:** 1-99

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**FRENCH 8087: Seminar in French**

Subject varies according to instructor.

**Credit Hour:** 2-3

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**FRENCH 8120: Bilingualism and Language Contact**

(same as SPAN 8120 and LINGST 8120). Global analysis of the study of Bilingualism from a combined sociocultural, sociolinguistic and

psycholinguistic perspective based on current research and examination of various phenomena of language contact (taught in English).

**Credit Hours:** 3

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**FRENCH 8411: Old French**

Old French.

**Credit Hours:** 3

**Recommended:** FRENCH 4710 or FRENCH 7710 and some knowledge of Latin

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**FRENCH 8416: Studies in the French Renaissance**

Studies in the French Renaissance.

**Credit Hours:** 3

**Recommended:** FRENCH 4420 or FRENCH 7420

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**FRENCH 8417: Studies in Seventeenth-Century French Literature**

Studies in Seventeenth-Century French Literature.

**Credit Hours:** 3

**Recommended:** FRENCH 4430 or FRENCH 7430

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**FRENCH 8418: Studies in Eighteenth-Century French Literature**

Studies in Eighteenth-Century French Literature.

**Credit Hours:** 3

**Recommended:** FRENCH 4440 or FRENCH 7440

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**FRENCH 8420: Studies in Twentieth-Century French Literature**

Studies in Twentieth-Century French Literature.

**Credit Hours:** 3

**Recommended:** FRENCH 4460 or FRENCH 7460, FRENCH 4470 or FRENCH 7470 or FRENCH 4480 or FRENCH 7480

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**FRENCH 9080: Readings in French**

Independent readings in preparation for the PhD comprehensive examination in French.

**Credit Hour:** 3-6

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**FRENCH 9090: Research in French**

Leads to preparation of PhD dissertation in French. Graded on S/U basis only.

**Credit Hour:** 1-99

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## General Human Environmental Sciences (GN\_HES)

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**GN\_HES 1100: Introduction to Human Environmental Sciences**

Introduction to Human Environmental Sciences

**Credit Hour:** 1

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**GN\_HES 1234: Successful Adulting**

Understanding what it means to be an adult; identify challenges of transition to adulthood and empower students to overcome these

challenges by developing identity and life skills; build moral capacity to guide responsible citizenship and leadership.

**Credit Hours:** 3

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## General Studies (G\_STDY)

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**G\_STDY 4940: Internship in General Studies**

Internship limited to students pursuing the Bachelor of General Studies degree. Graded on S/U basis only.

**Credit Hour:** 1-6

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**G\_STDY 4960: Readings in General Studies**

Independent readings with supervisory faculty member. May be repeated to a maximum of six hours.

**Credit Hour:** 1-6

**Prerequisites:** Open only to General Studies majors

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## Geography (GEOG)

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**GEOG 1050: Introductory Meteorology**

(same as ATM\_SC 1050). Physical processes of atmosphere in relation to day-to-day changes in weather.

**Credit Hours:** 3

**Prerequisites:** Enrollment restricted to students enrolled in the College of Arts and Science

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**GEOG 1050H: Introductory Meteorology - Honors**

(same as ATM\_SC 1050H). Physical processes of atmosphere in relation to day-to-day changes in weather.

**Credit Hours:** 3

**Prerequisites:** Enrollment restricted to students enrolled in the College of Arts and Science; Honors eligibility required

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**GEOG 1100: Regions and Nations of the World I**

Introductory analysis for general education. Regional character, spatial relationships, major problems of Europe, North America (United States and Canada) and Latin America. Organized around basic concepts in field of geography.

**Credit Hours:** 3

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**GEOG 1100H: Regions and Nations of the World I - Honors**

Introductory analysis for general education. Regional character, spatial relationships, major problems of Europe, North America (United States and Canada) and Latin America. Organized around basic concepts in field of geography.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GEOG 1200: Regions and Nations of the World II**

Introductory analysis for general education. Regional character, spatial relationships, problems of environment and development of the former Soviet Union, Pacific World, South and East Asia, Africa and Middle East.

Organized around basic concepts in the field of geography. May be taken independently of GEOG 1100.

**Credit Hours:** 3

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**GEOG 1205H: Regions and Nations General Honors**

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GEOG 1550: Introduction to the Humanized Earth**

Examines human culture as a geographical element; the power of culture and human institutions in human-environmental interaction and the creation of agriculture, folk culture, popular culture, cities, and a broad range of cultural landscapes.

**Credit Hours:** 3

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**GEOG 1600: Climate Change: Science and Public Policy**

Explores the role of physical science, environmental politics and public policy in shaping contemporary debate concerning climate change, mitigation, and adaptation strategies. Examines the scientific rationale and statistical basis underwriting the concept of climate change, why aspects of the science remain controversial, the prospects of institutional action and the difficulties inherent in developing public policies targeting mitigation and adaptation. Course includes a role-playing simulation where students will play roles based on 2009 climate negotiations in Copenhagen, Denmark. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Freshman and sophomores only

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**GEOG 1800: Digital Earth: Introduction to the Geospatial Technologies**

Introduction to technologies used to map a changing world, with an emphasis on digital mapping explorations of human and environmental interactions on Earth. Course includes lab and fieldwork to introduce geographic information data collection and analysis techniques. Graded on A/F basis only. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** Freshman and sophomore standing or instructor's consent

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**GEOG 1840: Global Environmental Change**

Course uses a geographic framework to study patterns and processes related to global environmental change. Topics include environmental reconstruction, water resources, human-environment interactions, glaciers, fire, and climate.

**Credit Hours:** 3

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**GEOG 1900: Our Dynamic Planet in Film**

Focuses on using documentary films (e.g., Planet Earth) as a medium for studying how global environmental change is impacting all spheres of our dynamic planet. To ensure a more complete understanding of course material, films are supplemented with active lectures and discussions of assigned readings from both periodicals and peer-reviewed literature that emphasize key points illustrated in the films. In doing so, this course synthesizes material from numerous fields of study that fall under the burgeoning umbrella field of global-change ecology. This synthetic approach is used to highlight the formidable linkages on Earth between

the nonliving and living, thus permitting students to gain an appreciation and holistic understanding of how global environmental change is impacting Earth processes responsible for creating both our current landscapes and the remarkable diversity of life that inhabit them.

**Credit Hours:** 3

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**GEOG 2010: Exploring Geography**

We are all explorers. As children, we grew up testing the boundaries of our known worlds and trying to understand what was beyond. Geography gives us the means to formalize this impulse to explore the world around us, both local and distant. It allows us to make sense of the ways in which space and relationships between objects drives much of human, social, and environmental interaction. In this course, we will illustrate some of the principle ways in which Geographers investigate, explain, and map meaning, pushing the boundaries of what we know as individuals and society. Using a combination of discussion and field exercises, students will be asked to engage with a number of critical societal issues that have geographical elements at their core. Examples include the Geography of crime, imagining place, the city of the future, environmental change, terrorism, human trafficking, drones, and sustainability.

**Credit Hour:** 1

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**GEOG 2120: United States and Canada**

Intensive examination of selected areas and distributions. Regional systems, problems and planning.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing

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**GEOG 2130: Geography of Missouri**

Physical, human, economic, and political geography of Missouri; regions of the state; geography applied to current state issues.

**Credit Hours:** 3

**Prerequisites:** GEOG 1100

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**GEOG 2280: Race, Democracy, and Violence in Cuba and Haiti**

(same as PEA\_ST 2280, SOCIOL 2280). A sociological approach to understand race/ethnicity, identity, citizenship, human rights, violence, and political and economic systems in the Caribbean. Comparisons of the culture, politics, and historical trajectories of Cuba and Haiti using Post-Colonial and Feminist theories. Graded on A-F basis only.

**Credit Hours:** 3

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**GEOG 2280W: Race, Democracy, and Violence in Cuba and Haiti - Writing Intensive**

(same as PEA\_ST 2280W, SOCIOL 2280W). A sociological approach to understand race/ethnicity, identity, citizenship, human rights, violence, and political and economic systems in the Caribbean. Comparisons of the culture, politics, and historical trajectories of Cuba and Haiti using Post-Colonial and Feminist theories. Graded on A-F basis only.

**Credit Hours:** 3

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**GEOG 2289: Towns in Missouri and the Midwest: Voices and Inequalities**

(same as PEA\_ST 2289, RU\_SOC 2289). Focusing on towns and communities and their regional history and cultural traditions. Examines

the issues and concerns of small-town America in the context of recent hardships and adverse economic trends. Examples of topics covered include case studies of communities such as Marceline, Missouri (Walt Disney's boyhood home), race and the immigration of non-whites in to rural areas; gender roles in small communities, the role of religion in small-town identity formation, and other current issues faced by 'middle America.' The responsiveness of government, large corporations, and institutions to the problems of diverse communities will be critically examined, with a multidisciplinary approach that draws on key theories and works in the disciplines of sociology, rural sociology, community development, and geography. Graded on A-F basis only.

**Credit Hours:** 3

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**GEOG 2293: Globalization, Identity and Citizenship**

(same as PEA\_ST 2293, POL\_SC 2293). This course examines the forces of globalization that are transforming our world, and explores the various responses - psychological, social and political -- that people have been making over the past fifty years. Part I examines globalization as an economic and geographical process, generating huge social consequences, with rapid growth, population movements, political change and a vast gap between global wealth and poverty. Part II focuses on the ways in which individuals are now seeking to find themselves in this globalizing world. Emphasis will be placed on the ways in which national identity, faith, gender and sexuality are emerging as key loci around which contemporary people (especially young people) are trying to forge new social identities for themselves. The course will conclude by examining the recently emerging (and highly contested) concept of 'global citizenship'. Graded on A-F basis only.

**Credit Hours:** 3

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**GEOG 2293W: Globalization, Identity and Citizenship - Writing Intensive**

(same as PEA\_ST 2293W, POL\_SC 2293W). This course examines the forces of globalization that are transforming our world, and explores the various responses - psychological, social and political -- that people have been making over the past fifty years. Part I examines globalization as an economic and geographical process, generating huge social consequences, with rapid growth, population movements, political change and a vast gap between global wealth and poverty. Part II focuses on the ways in which individuals are now seeking to find themselves in this globalizing world. Emphasis will be placed on the ways in which national identity, faith, gender and sexuality are emerging as key loci around which contemporary people (especially young people) are trying to forge new social identities for themselves. The course will conclude by examining the recently emerging (and highly contested) concept of 'global citizenship'. Graded on A-F basis only.

**Credit Hours:** 3

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**GEOG 2340: South America**

Physical environment and culture in the regional development of South America.

**Credit Hours:** 3

**Prerequisites:** One course in geography or instructor's consent

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**GEOG 2610: Climate, Landforms and Vegetation: Introduction to Physical Geography**

Examination of the interacting natural systems comprising the Earth's physical environment, including the atmosphere, biosphere, and land forms. Focus on relating fundamental physical, chemical and ecological processes to the global geographic patterns they produce.

**Credit Hours:** 3

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**GEOG 2660: Environmental Geography**

Historical perspectives on the human agency in transforming the earth, with emphasis on international environmental problems. Topics include basic biogeography; environmental impacts of population growth, underdevelopment and overdevelopment; and new approaches to management of global resources.

**Credit Hours:** 3

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**GEOG 2710: Economic Geography**

Geographical location and organization of world's major economic activities. Emphasizes agricultural and industrial patterns, commodity flows, transport networks, geographical principles of market and industrial location, internal spatial organization of cities, land-use models, geographic aspects of economics growth.

**Credit Hours:** 3

**Prerequisites:** GEOG 1100 or GEOG 1200 or sophomore standing

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**GEOG 2720: The City**

Study of cities: origin, development, distribution; social, economic, and demographic significance. Consideration of theories of structure, urban hierarchies, and land-use planning.

**Credit Hours:** 3

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**GEOG 2904: Topics in Geography-Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing, departmental consent for repetition

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**GEOG 2904W: Topics in Geography-Social Science - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing, departmental consent for repetition

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**GEOG 3040: Introduction to Geographic Information Systems GIS**

(same as CV\_ENG 3050). Introduces theory, concepts, and techniques related to the creation, manipulation, processing, and basic analysis of spatial data using Geographic Information Systems (GIS). Data management, current data models, GIS applications and course topics are reinforced through hands-on computer laboratory exercises.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or instructor's consent

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**GEOG 3140: Mexico, Central America, and the Caribbean**

Physical environment and culture in the regional development of Mexico, Central America, and the Caribbean.

**Credit Hours:** 3

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**GEOG 3270: Geography of the Middle East**

Cultural, physical and historical geography of Middle East, with emphasis on cultural adaptations to environments and conflicts over the resources.

**Credit Hours:** 3

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**GEOG 3385: Special Problems in Geography**

Independent investigation leading to a paper or project. May be repeated to a maximum of 6 hours.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**GEOG 3496: Digital Indigenous Studies**

(same as PEA\_ST 3496). This course introduces students to Indigenous studies in a digital world. The course begins with study of Indigenous sovereignty and representation, and moves quickly to critical and theoretical readings in new media, tracing both the historical impact of digital technologies (such as GIS) on Native communities, and the ways that both urban and rural Native communities have engaged in innovative digital projects that expand the way we understand information and storytelling in digital environments. The course materials will cover a wide range of platforms and audio-visual genres, from documentary, community video, and animation productions, to GIS, video games, and social media sites. Students will engage with both scholars and artists working with new media through a program of public lectures, classroom visits, and Skype interviews. All interview will be archived as podcasts from the course website. Students will write weekly short response papers and produce independent audio-visual projects over the course of the semester, with opportunities to revise their work leading up to substantial final projects. The course will also integrate community outreach into the curriculum through online participation of students from the Kiowa Kids, an Indigenous language immersion and storytelling program.

**Credit Hours:** 3

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**GEOG 3496W: Digital Indigenous Studies - Writing Intensive**

(same as PEA\_ST 3496). This course introduces students to Indigenous studies in a digital world. The course begins with study of Indigenous sovereignty and representation, and moves quickly to critical and theoretical readings in new media, tracing both the historical impact of digital technologies (such as GIS) on Native communities, and the ways that both urban and rural Native communities have engaged in innovative digital projects that expand the way we understand information and storytelling in digital environments. The course materials will cover a wide range of platforms and audio-visual genres, from documentary, community video, and animation productions, to GIS, video games, and social media sites. Students will engage with both scholars and artists working with new media through a program of public lectures, classroom visits, and Skype interviews. All interview will be archived as podcasts from the course website. Students will write weekly short response papers and produce independent audio-visual projects over the course of the semester, with opportunities to revise their work leading up to substantial final projects. The course will also integrate community

outreach into the curriculum through online participation of students from the Kiowa Kids, an Indigenous language immersion and storytelling program.

**Credit Hours:** 3

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**GEOG 3510: Historical Geography of North America**

Analysis of selected geographical patterns and themes in the continent's past. Focus is explicitly geographical, stressing extensive use of maps and recent scholarly work by historical geographers.

**Credit Hours:** 3

**Prerequisites:** Junior standing, or instructor's consent

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**GEOG 3560: Native American Geographies**

A survey of the Native American geographies in the United States. Historical and contemporary topics are covered employing cross-cultural perspectives, including some philosophical views of the Earth and society, sense of place, memory, sacred land, colonialism and Geographic Information Systems (GIS) representations, and natural resources.

**Credit Hours:** 3

**Recommended:** This is an upper-division course. Junior standing is recommended

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**GEOG 3560W: Native American Geographies - Writing Intensive**

A survey of the Native American geographies in the United States. Historical and contemporary topics are covered employing cross-cultural perspectives including some philosophical views of the Earth and society, sense of place, memory, sacred land, colonialism and GIS representations, and natural resources.

**Credit Hours:** 3

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**GEOG 3580: Placewriting**

This class explores creative nonfiction work that attends to the geographical dimensions of human experience and the character of place - 'placewriting'. Students will investigate how creative nonfiction evokes the human relationship with place and the geographical dimensions of personal and group identity. The class consists of two parts: discussion and critique of six creative nonfiction works on place, and a writer's workshop designed to enable students produce their own work in the genre focused on a local community or place.

**Credit Hours:** 3

**Recommended:** GEOG 1550

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**GEOG 3600: Climates of the World**

(same as ATM\_SC 3600). A study of the world distribution of climates based on 'cause and effect' relationships. Special attention is given to the impacts of climate on humanity.

**Credit Hours:** 3

**Prerequisites:** GEOG 1050 or equivalent or graduate standing

**Corequisites:** By permission, only

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**GEOG 3610: Physical Geography of the United States**

Study of natural regions of the United States by integrating topics from landforms, geology, climate, soils, vegetation, resources, and land use.

**Credit Hours:** 3

**Prerequisites:** GEOG 2610

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**GEOG 3630: Earth Surface Systems**

Systematic study of landforms geomorphic processes governing them. Provides a foundation for the theoretical, technical, and practical understanding of environmental systems.

**Credit Hours:** 3

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**GEOG 3740: Geography and Planning**

Emphasis on geographic techniques for gathering and generating environmental information for planners. Principles of land-use planning will be applied to selected regions.

**Credit Hour:** 1-3

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**GEOG 3760: Geography of the World's Religions**

(same as REL\_ST 3760). Explores the significance of place in the origin, diffusion, distribution and practice of religions, emphasizing imprints of religion on the cultural landscape and connections between culture, politics, economics, and religion.

**Credit Hours:** 3

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**GEOG 3760W: Geography of the World's Religions - Writing Intensive**

(same as REL\_ST 3760). Explores the significance of place in the origin, diffusion, distribution and practice of religions, emphasizing imprints of religion on the cultural landscape and connections between culture, politics, economics, and religion.

**Credit Hours:** 3

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**GEOG 3780: World Political Geography: Patterns and Processes**

(same as PEA\_ST 3780). Geographic factors in the development of political boundaries traditions, and societal perspectives. Spatial patterns and geopolitical processes are explored in selected regions of the world.

**Credit Hours:** 3

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**GEOG 3800: Geography of Travel and Tourism**

Examines the fundamentals of the geography of tourism and travel in both foreign and domestic contexts. During the past few decades, tourism has been a fast-growing industry around the world, although tourism can easily be negatively influenced by terrorism, natural disasters, and economic downturns. Looks at several common types of tourism and focus on the positive and negative impacts of tourism upon local cultures, the environment, and economic development. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** GEOG 1100 or GEOG 1200 or sophomore standing

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**GEOG 3830: Remote Sensing**

Introduction to the principles of remote sensing of the environment. Digital imagery from spacecraft, conventional and high-altitude aerial photography, thermal imaging, and microwave remote sensing.

**Credit Hours:** 3

**Recommended:** GEOG 2840

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**GEOG 3840: Cartography**

Principles of computer-assisted cartography. Automated cartographic display. Hands-on experience with computer-mapping software and hardware systems. Role of computers in map design. Digital encoding of geographic data.

**Credit Hours:** 3

**Prerequisites:** GEOG 2840

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**GEOG 4130: The Geospatial Sciences in National Security**

(same as CV\_ENG 4175; cross-leveled with GEOG 7130, CV\_ENG 7175). Explores the critical contribution of the geospatial sciences in the collection, processing, visualization and analysis of geospatial information related to national security. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** Junior standing or above required

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**GEOG 4200: Geopolitics**

(cross-leveled with GEOG 7200). Geopolitics examines politics, especially international relations, as influenced by geographical factors. To reveal and forecast global trends, we examine the interactions of geographical contexts and perspectives with international and domestic political processes. Our geopolitical analysis is both thematic and regional. Geographical themes are multi-disciplinary and include location and place, physical geography and natural resources, population and immigration, culture and ethnicity, religion, economics and trade, foreign policy, conflict, globalization, and development. These are examined in the context of eight world regions and the polar realms. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** GEOG 1100 or GEOG 1200

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**GEOG 4390: Special Readings in Geography**

Independent readings selected in consultation with supervisory faculty member. May be repeated to a maximum of 6 hours.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent and independent study contract

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**GEOG 4400: Geographies of Terrorism and Drugs**

(cross-leveled with GEOG 7400). The course examines the parallel and independent geographies of terrorism and drugs. Their common features include dangerous cultural landscapes that cannot sustain other forms of land use. They are typically marginal, remote, and beyond the reach of authorities. Crackdowns on terrorists and drug producers in one locale usually fails to eradicate the problems as they emerge elsewhere. The wars on terrorism and drugs often stimulate greater enrollments and production. Where poverty and alienation are common, both livelihoods offer social accommodation and ready entry into the cash economy. Alternative means of combating terrorism and drug production are explored. Grading on A-F basis only.

**Credit Hours:** 3

**Recommended:** GEOG 1100 and GEOG 1200

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**GEOG 4560: Resources and Indigenous Peoples**

(cross-leveled with GEOG 7560). Survey of Indigenous peoples' struggle to control and use natural resources, to have a say in determining the path of economic development, and to restrain the destructive tendencies



of colonialism and capitalism, challenging traditional state-to-state relations.

**Credit Hours:** 3

**Prerequisites:** Junior standing required

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**GEOG 4560W: Resources and Indigenous Peoples - Writing Intensive**

(cross-leveled with GEOG 7560). Survey of Indigenous peoples' struggle to control and use natural resources, to have a say in determining the path of economic development, and to restrain the destructive tendencies of colonialism and capitalism, challenging traditional state-to-state relations.

**Credit Hours:** 3

**Prerequisites:** Junior standing required

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**GEOG 4620: Biogeography: Global Patterns of Life**

(cross-leveled with GEOG 7620). Analysis of the patterns and processes of plant distribution in the contemporary landscape, stressing environmental influences and vegetation dynamics, particularly as they relate to North American vegetation.

**Credit Hours:** 3

**Recommended:** GEOG 2610

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**GEOG 4630: River and Stream Dynamics**

(cross-leveled with GEOG 7630). Systematic study of river mechanics, stream-channel form, river management and restoration. Provides a theoretical and practical understanding of stream systems.

**Credit Hours:** 3

**Prerequisites:** GEOG 2610 and GEOG 3630, or instructor's consent

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**GEOG 4710: Spatial Analysis in Geography**

(cross-leveled with GEOG 7710). Application of statistical methods to geographic research. Prepares students to utilize advanced methodologies and models in spatial analysis. Includes computer analysis of geographical data. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Recommended:** MATH 1100 or MATH 1120

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**GEOG 4740: Location Analysis and Site Selection**

(same as CV\_ENG 4185; cross-leveled with GEOG 7740, CV\_ENG 7185). Overview of location analysis in regional-planning and spatial-decision support. Focuses on the use of Geographic Information Science (GIS) and location analysis methods in addressing regional service needs. May be repeated for credit.

**Credit Hours:** 3

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**GEOG 4770: Migration and Immigration**

(cross-leveled with GEOG 7770). Explores demographic, economic, and social issues surrounding immigration and migration. Focuses on the global labor migration system, immigration to the United States, and internal migration within the U.S., as well as the linkages between these systems.

**Credit Hours:** 3

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**GEOG 4790: Geographic Information Systems for the Social Sciences**

(cross-leveled with GEOG 7790). Designed for social science students interested in learning about the tools available in Geographic Information Systems (GIS) for linking to and analyzing spatial qualitative data. Uses multiple data sources (qualitative and quantitative), applied within a social context, using spatial investigation procedures to detect geographical trends in data sets. Primary focus is on how GIS can enhance social science research.

**Credit Hours:** 3

**Prerequisites:** Juniors and seniors only

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**GEOG 4810: Landscape Ecology and GIS Analysis I**

(same as NAT\_R 4385). Examination of the landscape-scale approach to biodiversity, ecosystem dynamics, and habitat management. Particular emphasis on the use of Geographic Information Systems to analyze the spatial dimension of ecological patterns and processes.

**Credit Hours:** 3

**Prerequisites:** GEOG 3040, or instructor's consent

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**GEOG 4850: Transportation Geography**

(same as CV\_ENG 4155; cross-leveled with GEOG 7850, CV\_ENG 7155). Introduction to fundamental concepts and modes of analysis in transportation geography. Focus on descriptive, explanatory, as well as normative approaches. Topics reviewed include spatial organization, transportation economics, spatial interaction, network analysis, location/allocation, and urban transportation planning.

**Credit Hours:** 3

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**GEOG 4860: Advanced Remote Sensing**

(cross-leveled with GEOG 7860). Advanced remote sensing to provide digital-image processing techniques for satellite and airborne imagery; emphasis on spatial/spectral analysis, image classification and land-use/land-cover change detection. Class project heavily involved.

**Credit Hours:** 3

**Prerequisites:** GEOG 3830

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**GEOG 4904: Topics in Geography-Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Must get departmental consent for repetition.

**Credit Hour:** 1-12

**Prerequisites:** Junior standing

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**GEOG 4904W: Topics in Geography-Social Science - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Must get departmental consent for repetition.

**Credit Hour:** 1-12

**Prerequisites:** Junior standing

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**GEOG 4940: Advanced Geographic Information Systems (GIS II)**

(cross-leveled with GEOG 7940). Advanced study of geographic and spatial analysis and modeling utilizing Geographic Information Systems

(GIS) technology. Focus on project management, research applications, and geostatistical analysis through independent research projects.

**Credit Hours:** 3

**Prerequisites:** GEOG 3040 or instructor's permission

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**GEOG 4945: Internship in Applied Geography and Cartography**

Regularized individual work experience with local, regional, state or national agencies, with guidance and readings supplied by faculty coordinator. May repeat to maximum of 6 hours.

**Credit Hour:** 1-3

**Prerequisites:** Departmental consent required

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**GEOG 4990: Senior Seminar in Geography**

A seminar in selected themes in geography. Class will focus on research, writing, presenting, and discussing themes in contemporary geography. Required of all majors prior to graduation.

**Credit Hours:** 3

**Prerequisites:** Five courses in geography or instructor's consent

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**GEOG 4996H: Honors in Geography**

Special work for Honors candidates in geography. Prerequisites: Honors eligibility required

**Credit Hours:** 3

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**GEOG 4996HW: Honors in Geography - Honors/Writing Intensive**

Special work for Honors candidates in geography. Prerequisites: Honors eligibility required

**Credit Hours:** 3

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**GEOG 4997H: Honors in Geography**

Special work for Honors candidates in geography.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GEOG 7130: The Geospatial Sciences in National Security**

(same as CV\_ENG 7175; cross-leveled with GEOG 4130). Explores the critical contribution of the geospatial sciences in the collection, processing, visualization and analysis of geospatial information related to national security. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**GEOG 7200: Geopolitics**

(cross-leveled with GEOG 4200). Geopolitics examines politics, especially international relations, as influenced by geographical factors. To reveal and forecast global trends, we examine the interactions of geographical contexts and perspectives with international and domestic political processes. Our geopolitical analysis is both thematic and regional. Geographical themes are multi-disciplinary and include location and place, physical geography and natural resources, population and immigration, culture and ethnicity, religion, economics and trade, foreign policy, conflict, globalization, and development. These are examined in the context of eight world regions and the polar realms. Graded on A-F basis only.

**Credit Hours:** 3

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**GEOG 7400: Geographies of Terrorism and Drugs**

(cross-leveled with GEOG 4400). The course examines the parallel and independent geographies of terrorism and drugs. Their common features include dangerous cultural landscapes that cannot sustain other forms of land use. They are typically marginal, remote, and beyond the reach of authorities. Crackdowns on terrorists and drug producers in one locale usually fails to eradicate the problems as they emerge elsewhere. The wars on terrorism and drugs often stimulate greater enrollments and production. Where poverty and alienation are common, both livelihoods offer social accommodation and ready entry into the cash economy. Alternative means of combating terrorism and drug production are explored. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** GEOG 7200

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**GEOG 7560: Resources and Indigenous Peoples**

(cross-leveled with GEOG 4560). Survey of Indigenous peoples' struggle to control and use natural resources, to have a say in determining the path of economic development, and to restrain the destructive tendencies of colonialism and capitalism, challenging traditional state-to-state relations.

**Credit Hours:** 3

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**GEOG 7620: Biogeography: Global Patterns of Life**

(cross-leveled with GEOG 4620). Analysis of the patterns and processes of plant distribution in the contemporary landscape, stressing environmental influences and vegetation dynamics, particularly as they relate to North American vegetation.

**Credit Hours:** 3

**Prerequisites:** GEOG 2610 or instructor's consent

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**GEOG 7710: Spatial Analysis in Geography**

(cross-leveled with GEOG 4710). Application of statistical methods to geographic research. Prepares students to utilize advanced methodologies and models in spatial analysis. Includes computer analysis of geographical data.

**Credit Hours:** 3

**Recommended:** MATH 1100 or MATH 1120

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**GEOG 7740: Location Analysis and Site Selection**

(same as CV\_ENG 7185; cross-leveled with GEOG 4740, CV\_ENG 4185). Overview of location analysis in regional planning and spatial decision support. Focuses on the use of Geographic Information Science (GIS) and location analysis methods in addressing regional service needs. May be repeated for credit.

**Credit Hours:** 3

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**GEOG 7770: Migration and Immigration**

(cross-leveled with GEOG 4770). As fertility and mortality decline to record low levels, immigration and migration have become the primary components of population change. Changes brought on by immigration to a country and the internal redistribution of population via migration pose challenges to governments, economic development, social and cultural relations, and environmental sustainability. Explores issues surrounding

immigration and migration. Beginning with the demographic overview of immigration, it focuses on the challenges faced by immigrant, sending, and receiving nations in the global migration system. The second part of the course focuses on the array of issues surrounding immigration to the United States, including the socio-economic adaptation of immigrants, the economic and cultural impacts of immigration, and illegal immigration. The third part of the course focuses on internal migration within migration within the US, discussing topics such as migration to the Sunbelt, Great Plains depopulation, poverty migration, migration to the suburbs, and migration's impact on community. Linkages between domestic migration and immigration will also be explored.

**Credit Hours:** 3

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**GEOG 7790: Geographic Information Systems for the Social Sciences**

(cross-leveled with GEOG 4790). Designed for social science students interested in learning about the tools available in Geographic Information Systems (GIS) for linking to an analyzing spatial qualitative data. Uses multiple data sources (qualitative and quantitative), applied within a social context, using spatial investigation procedures to detect geographical trends in data sets. Primary focus is on how GIS can enhance social science research.

**Credit Hours:** 3

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**GEOG 7810: Landscape Ecology and GIS Analysis I**

(same as NAT\_R 7385). Examination of the landscape-scale approach to biodiversity, ecosystem dynamics, and habitat management. Particular emphasis on the use of Geographic Information Systems to analyze the spatial dimension of ecological patterns and processes.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**GEOG 7840: Geographic Information Systems I**

Introductory study of theory, concepts and techniques related to basic analysis, creation and processing of geographic and spatial data using Geographic Information Systems (GIS). Independent learning and computer-based laboratory exercises supplement theoretical lectures and discussion.

**Credit Hours:** 3

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**GEOG 7850: Transportation Geography**

(same as CV\_ENG 7155). Introduction to fundamental concepts and modes of analysis in transportation geography. Focus on descriptive, explanatory, as well as normative approaches. Topics reviewed include spatial organization, transportation economics, spatial interaction, network analysis, location/allocation, and urban transportation planning.

**Credit Hours:** 3

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**GEOG 7860: Advanced Remote Sensing**

(cross-leveled with GEOG 4860). Advanced remote sensing to provide digital-image processing techniques for satellite and airborne imagery; emphasis on spatial/spectral analysis, image classification and land-use/land-cover change detection. Class project heavily involved.

**Credit Hours:** 3

**Prerequisites:** GEOG 3830

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**GEOG 7904: Topics in Geography-Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-12

**Prerequisites:** Instructor's consent

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**GEOG 7940: Advanced Geographic Information Systems (GIS II)**

(cross-leveled with GEOG 4940). Advanced study of geographic and spatial analysis and modeling utilizing Geographic Information Systems (GIS) technology. Focus on project management, research applications, and geostatistical analysis through independent research projects.

**Credit Hours:** 3

**Prerequisites:** GEOG 7840 or instructor's consent

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**GEOG 8080: Research in Geography**

Research not leading to thesis. May be repeated to a maximum of 6 hours. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**GEOG 8085: Special Investigations in Geography**

Advanced studies to meet the needs of the individual student. May be repeated to a maximum of 6 hours.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent and independent study contract

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**GEOG 8090: Research in Geography**

Research leading to a thesis. May be repeated to a maximum of 8 hours. Graded on S/U basis only.

**Credit Hour:** 1-8

**Prerequisites:** instructor's consent and independent study contract

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**GEOG 8270: Seminar in the Geography of the Middle East**

Advanced readings and analysis of topics in the geography of the Middle East.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**GEOG 8710: Seminar**

May be repeated to a maximum of 6 hours.

**Credit Hour:** 1-3

**Prerequisites:** Departmental consent

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**GEOG 8750: Research Design**

Application of scientific methods in geographic research. Critical evaluation of current geographical methodology.

**Credit Hours:** 3

**Prerequisites:** Restricted to graduate geography majors graduate or instructor's consent

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**GEOG 8760: Geographic Thought**

Discussion of the historic roots of the discipline, especially the ideas, theories and underlying philosophies that have defined Geography in the past century and a half. Students will also explore the philosophical and theoretical ideas that shape the way geographers approach the study of the world.

**Credit Hours:** 3**Prerequisites:** Instructor's consent**GEOG 8820: Field Geography**

Techniques of geographical investigation in the field.

**Credit Hours:** 3**Prerequisites:** restricted to graduate Geography majors or instructor's consent**GEOG 8840: Seminar: Applied Remote Sensing**

Applied project in remote sensing. Data selection, image processing, land-use and land-cover change, and quantitative biophysical information extraction from remotely sensed data.

**Credit Hours:** 3**Prerequisites:** GEOG 3830 or instructor's consent**GEOG 8902: Topics in Geography-Biological/Physical/Mathematical**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3**Prerequisites:** instructor's consent

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## Geology (GEOL)

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**GEOL 1050: Planet Earth**

An introduction to Earth Science. Topics include: evidence for continental drift and plate tectonics, causes and prediction of natural hazards, the scale of geological time.

**Credit Hours:** 3**GEOL 1100: Principles of Geology with Laboratory**

Three lectures, 2-hours lab. Earth processes and products and their impact on human needs and the environment. One field trip. For the Mizzou Online sections, there will not be required lectures, lab, and field trip.

**Credit Hours:** 4**GEOL 1120: Laboratory Investigations of the Earth**

This hybrid-lab course introduces basic methods of earth science investigation and inquiry with an emphasis on earth sciences. Key concepts include basic scientific methodology, earth materials and processes, and the societal relevance of geoscience research and application. Upon completion of the course, the successful student will have learned to apply course material to improve thinking, problem solving and decision-making. Graded on A-F basis only.

**Credit Hours:** 2**Recommended:** GEOL 1050 as a corequisite (although the course will be a stand-alone introduction to the geosciences)**GEOL 1200: Environmental Geology with Laboratory**

The interaction between geologic processes and human society. Topics include mineral, water, and energy resources, volcanic hazards, earthquakes, landslides, floods, coastal erosion, pollution problems and environmental management.

**Credit Hours:** 4**GEOL 1250: The World's Oceans**

An interdisciplinary introduction to oceanography. Topics include: geologic evolution of ocean basins, properties of seawater, ocean circulation (waves, tides, and currents), marine ecosystems, instability of beaches and coastlines, coastal development and engineering.

**Credit Hours:** 3**GEOL 1400: Themes in Geology**

5-week course organized around a central theme or topic, up to 3 different sections can be taken for credit.

**Credit Hour:** 1**GEOL 2100: Independent Study in Geology**

Directed Library research in geological topics, under the supervision of faculty sponsor. May be repeated for a maximum of 3 hours credit.

**Credit Hour:** 1-3**Prerequisites:** instructor's consent**GEOL 2110: Introduction to Soil Science with Laboratory**

(same as SOIL 2110). Introduction to Soil Science with emphasis placed on physical, biological, and chemical properties and applications to land use, plant growth, and environmental problems with laboratory application of these concepts.

**Credit Hours:** 5**Prerequisites:** CHEM 1320**GEOL 2120H: Faults and Earthquakes: Past, Present, and Future - Honors**

Seminar in science and societal ramifications of earthquakes. Geologic background includes causes, behavior, and distribution of faults. Student-led discussions cover historical disasters, economic, political, psychological, and cultural perspectives.

**Credit Hours:** 3**Prerequisites:** ENGLISH 1000**Recommended:** Honors eligibility**GEOL 2130: Physical Geology for Scientists and Engineers**

Introduction to physical geology and Earth processes with a focus on applications and societal relevance. In addition to basic geologic processes, physical principles will illustrate the interactions between geology and engineering, using a calculus-based approach.

**Credit Hours:** 4**Prerequisites:** MATH 1500

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**GEOL 2150: The Age of the Dinosaurs**

Study of the evolution of dinosaurs during the Mesozoic Era. New information on dinosaur life habits, food resources, dispersal by plate tectonics, and theories of extinction will be covered.

**Credit Hours:** 3

**Prerequisites:** 1000-level science course

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**GEOL 2160H: Volcanoes and the Human Environment - Honors**

(same as GN\_HON 2450H). This course gives students an understanding of how volcanoes work, how they are studied, and how they have impacted human cultures. Students will gain appreciation of volcanology as a broad scientific discipline within geology and the role that science plays in public policy. Graded on A/F basis only.

**Credit Hours:** 3

**Recommended:** Honors eligibility required

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**GEOL 2220: Seminar: Headline Topics in the Geological Sciences**

(same as GEOL 2220H). Seminar organized around a central theme that is the focus of intense ongoing research and public debate.

**Credit Hours:** 3

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**GEOL 2220H: Honors Seminar: Headline Topics in the Geological Science**

Seminar organized around a central theme that is the focus of intense ongoing research and public debate.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

**Recommended:** Honors eligibility

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**GEOL 2300: Earth Systems and Global Change**

Study of the earth as a whole, taking into account the many interwoven components of the geosphere, hydrosphere, atmosphere and biosphere.

**Credit Hours:** 3

**Recommended:** 1000-level Science course

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**GEOL 2350: Historical Geology**

Summary of principles and techniques used in reconstructing Earth's history. Survey of major events that have affected Earth and its inhabitants. Review of geologic history of North America.

**Credit Hours:** 3

**Prerequisites:** GEOL 1100 or GEOL 2130 or GEOL 1200

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**GEOL 2360: Historical Geology Laboratory**

A laboratory course designed to improve understanding of Earth History by examination of maps and mineral, rock, sediment and fossil samples.

**Credit Hour:** 1

**Prerequisites:** GEOL 1100 or GEOL 2130 or GEOL 1200

**Corequisites:** GEOL 2350

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**GEOL 2400: Surficial Earth Processes and Products with Laboratory**

Semiquantitative analysis of geologic processes that shape the earth's surface. Includes topics in sedimentation and geomorphology.

**Credit Hours:** 4

**Prerequisites:** GEOL 1100 or GEOL 2130 or GEOL 1200, and MATH 1100

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**GEOL 2450: Global Water Cycle**

Study of environmental geochemical factors controlling the composition of natural waters, and sources of water's constituents (natural or human-produced). Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** MATH 1100

**Recommended:** 1000-level science course

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**GEOL 2500: Regional Geology Field Trip**

Field based study of a particular geologic region, including classroom preparation prior to the field trip. The trip will last 7-10 days, either during Spring Break or immediately after finals week. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** GEOL 1100 or GEOL 2130 or GEOL 1200

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**GEOL 2600: Mineral and Energy Resources of the Earth**

This course examines the geology of Earth's major mineral and energy resources--their origin, distribution, and characteristics--and societal implications of their use and abundance. Major topics: fossil fuels, nuclear energy, base & precious metals, non-metallic minerals, water.

**Credit Hours:** 3

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**GEOL 3085: Problems in Geological Sciences**

Problems in Geological Sciences.

**Credit Hour:** 1-5

**Prerequisites:** instructor's consent

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**GEOL 3110: Geology of Missouri**

The physical, historical, and environmental geology of Missouri are described, discussed and interpreted.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000 and either GEOL 1100 or GEOL 1200

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**GEOL 3250: Mineralogy**

Introduction to crystallography, crystal chemistry and crystal structures. Systematic study of mineral groups. Includes identification of minerals by physical, chemical and optical properties.

**Credit Hours:** 5

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**GEOL 3300: Introduction to Geochemistry**

Fundamentals of chemistry as applied to geology. Includes phase diagrams, thermodynamics, redox chemistry, aqueous chemistry, stable and radiogenic isotopes. Computer-based homework problems (satisfies computing requirement for Geology majors).

**Credit Hours:** 3

**Prerequisites or Corequisites:** CHEM 1330

**Prerequisites:** MATH 1400 or MATH 1500, and GEOL 1100 or GEOL 2130 or GEOL 1200

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**GEOL 3550: Introduction to Paleontology with Laboratory**

Study of the morphology, paleontology, patterns of evolution, and causes of extinction in geologically important groups of invertebrate and vertebrate fossils. Lab concentrates on identification of biostratigraphically important fossils (mostly invertebrates). Several half-day field trips.

**Credit Hours:** 4

**Prerequisites:** GEOL 1100 or GEOL 2130 or GEOL 1200

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**GEOL 3650: Structural Geology**

The mechanical behavior of earth materials. Analysis of the geometry and mechanics of faults, fractures, and folds. Laboratory includes problems on stresses and strains associated with deformation, geometric analysis of deformation structures, and interpretation of geologic maps.

**Credit Hours:** 4

**Prerequisites:** GEOL 1100 or GEOL 2130 or GEOL 1200 and MATH 1140 or MATH 1160 or MATH 1500

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**GEOL 3800: Sedimentology and Stratigraphy with Lab**

Mechanics of sediment transport by fluid flow and gravity flow, origins of stratification and sedimentary structures, facies characteristics depositional environments.

**Credit Hours:** 4

**Prerequisites:** GEOL 3250

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**GEOL 4002: Topics in Geological Sciences-Biological Science**

Organized study of selected topics. Subjects and earnable credit may vary. May be repeated with departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**GEOL 4006: Topics in Geological Sciences-Mathematical Science**

Organized study of selected topics. Subjects and earnable credit may vary. May be repeated with departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**GEOL 4007: Topics in Geological Sciences-Physical Science**

Organized study of selected topics. Subjects and earnable credit may vary. May be repeated with departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**GEOL 4100: Groundwater Hydrology**

(cross-leveled with GEOL 7100). Analysis of groundwater occurrence, flow, recovery, and solute transport within shallow levels of the Earth's crust.

**Credit Hours:** 3

**Prerequisites:** GEOL 1100 or GEOL 2130 or GEOL 1200, and PHYSICS 1210 or PHYSICS 2750, and MATH 1400 or MATH 1500

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**GEOL 4120: Engineering Geology**

(cross-leveled with GEOL 7120). Fundamentals of earth materials and geological processes and their applications in engineering works and

environmental sciences. Includes properties of minerals and rocks, rock and soil mechanics, surficial geological processes, and practice of engineering.

**Credit Hours:** 3

**Prerequisites:** GEOL 1100 or GEOL 2130 or GEOL 1200, and MATH 1500, or instructor's consent

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**GEOL 4130: Groundwater Modeling**

(cross-leveled with GEOL 7130). Use of leading groundwater flow and contamination modeling software. Theory of groundwater flow, solute transport, and selected numerical solution techniques. Applications to water resource, environmental, and geological problems.

**Credit Hours:** 3

**Prerequisites:** GEOL 4100 or equivalent

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**GEOL 4180: Solar System Science**

(same as PHYSICS 4180, ASTRON 4180; cross-leveled with GEOL 7180). Investigates physical states, interior structures and comparative geology of solar systems bodies: planets, moons, asteroids, comets, sun. Solar system formation and evolution.

**Credit Hours:** 3

**Prerequisites:** MATH 1700 and PHYSICS 1220 or PHYSICS 2760 or instructor's consent

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**GEOL 4200: Economic Geology with Laboratory**

Geochemistry of ore deposits. Introduction to types of mineral deposits, genesis of ore, and current areas of research. Laboratory emphasizes hand-specimen and polished-section studies of a wide variety of ore deposit types.

**Credit Hours:** 4

**Prerequisites:** GEOL 4900

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**GEOL 4300: Introduction to Low-Temperature Geochemistry**

Introduction to the chemical alteration of rock-forming minerals in weathering environments and to factors controlling the chemical composition of subsurface water.

**Credit Hours:** 3

**Prerequisites:** GEOL 3300 or instructor's consent

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**GEOL 4318: Environmental Soil Chemistry**

(same as SOIL 4318 and ENV\_SC 4318; cross-leveled with GEOL 7318, SOIL 7318, ENV\_SC 7318). Study of chemical constituents and processes occurring in soils. Topics include soil minerals and weathering processes, organic matter, solution chemistry, oxidation-reduction reactions and adsorption processes.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100 or GEOL 2400, CHEM 1320 and CHEM 1330. Junior standing or instructor's consent

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**GEOL 4350: Patterns and Processes in the Fossil Record**

(cross-leveled with GEOL 7350). The purposes of this course are to 1) analyze patterns in the history of life and 2) to recognize the biased processes that led to its preservation. We will accomplish these goals by examining two disparate fossil preservation pathways: 1) Konservat lagerstätten: fossil deposits that are notorious for the exceptional and

rare preservation of soft tissues and 2) Konzentrat lagerstätten: fossil deposits that are exceptional for the enormous amount of fossilized skeletal material they contain. Through careful examination of both the rare and the hyper-abundant, we can address the fundamental question of paleobiology: how literally can the fossil record be read as the history of life? Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** GEOL 2350, GEOL 2360

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#### **GEOL 4500: Organic Geochemistry**

(cross-leveled with GEOL 7500). Topics include chemistry of petroleum-forming reactions and their kinetic parameters; use of organic-chemical criteria in source-rock evaluation; carbon isotope fractionation in organic precursors of biological molecules; early history of earth's atmosphere.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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#### **GEOL 4650: Plate Tectonics**

(cross-leveled with GEOL 7650). Formation, evolution, and structure of the earth. Rules, causes, and implications of plate tectonics with emphasis on present-day features.

**Credit Hours:** 3

**Prerequisites:** GEOL 3250 or GEOL 3650 or instructor's consent

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#### **GEOL 4650W: Plate Tectonics - Writing Intensive**

Formation, evolution, and structure of the earth. Rules, causes, and implications of plate tectonics with emphasis on present-day features.

**Credit Hours:** 3

**Prerequisites:** GEOL 3250 or GEOL 3650 or instructor's consent

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#### **GEOL 4680: Neotectonics and Earthquake Geology**

(cross-leveled with GEOL 7680). Introduction to techniques and concepts of active crustal deformation from the geological and geodetic perspectives. Topics include tectonic geomorphology, paleoseismology, Quaternary dating, tectonic geodesy, numerical models of faults, and earthquake hazard assessment.

**Credit Hours:** 3

**Prerequisites:** GEOL 3650 or GEOL 4650

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#### **GEOL 4750: Microanalysis for Geological Sciences**

(cross-leveled with GEOL 7750). This course is intended to provide a working knowledge of electron and X-ray microbeam analytical instruments - both in principle and in practice. Lectures will focus on the physics of how these instruments collect data, and how these data can be interpreted. In addition, students will gain hands-on experience with operating these instruments, specifically on their own samples, as well as preparing their samples for microanalysis and interpreting/manipulating the resulting data. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's Consent (instrument time is limited so enrollment must also be limited)

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#### **GEOL 4800: Introduction to Geophysics**

(cross-leveled with GEOL 7800). Introduction to the fundamentals of geophysical methods and their applications in geology, environmental

studies, and exploration. Topics include seismic, gravity, magnetic, and electric methods.

**Credit Hours:** 3

**Prerequisites:** GEOL 1100 or GEOL 2130 or GEOL 1200 and MATH 1700 or instructor's consent

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#### **GEOL 4900: Igneous and Metamorphic Petrology with Laboratory**

Introduction to igneous and metamorphic rock associations and rock-forming processes. Emphasis on understanding the evolution of the Earth in view of igneous and metamorphic rock petrogenesis.

**Credit Hours:** 4

**Prerequisites:** GEOL 3250

**Recommended:** GEOL 3300

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#### **GEOL 4950: Senior Thesis**

Research conducted in an area of the Geological Sciences under the auspices of a member of the faculty. Under normal circumstances, this research should be completed over two semesters. May be repeated for a maximum of 3 hours credit.

**Credit Hour:** 1-3

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#### **GEOL 4992: Geology Field Camp**

Field study of sedimentary, igneous and metamorphic rocks. Facies analysis of sedimentary rocks, mapping of folded and faulted sedimentary strata and fabric analysis of an igneous-metamorphic terrane. Excursion to Yellowstone and Grand Teton National Parks.

**Credit Hours:** 6

**Recommended:** GEOL 2350, GEOL 3650, and GEOL 3800

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#### **GEOL 7002: Topics in Geological Sciences-Biological/Physical/Mathematics**

Organized study of selected topics. Subjects and earnable credit may vary. May be repeated with departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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#### **GEOL 7085: Problems in Geological Sciences**

**Credit Hour:** 1-8

**Prerequisites:** instructor's consent

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#### **GEOL 7100: Groundwater Hydrology**

(cross-leveled with GEOL 4100). Analysis of groundwater occurrence, flow, recovery, and solute transport within shallow levels of the Earth's crust.

**Credit Hours:** 3

**Prerequisites:** GEOL 1100 or GEOL 2130 or GEOL 1200, and PHYSCS 1210 or PHYSCS 2750, and MATH 1400 or MATH 1500

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#### **GEOL 7120: Engineering Geology**

(cross-leveled with GEOL 4120). Fundamentals of earth materials and geological processes and their applications in engineering works and environmental sciences. Includes properties of minerals and rocks, rock and soil mechanics, surficial geological processes, and practice of engineering.

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**Credit Hours:** 3

**Prerequisites:** GEOL 1100 or GEOL 2130 or GEOL 1200 and MATH 1500, or instructor's consent

---

**GEOL 7130: Groundwater Modeling**

(cross-leveled with GEOL 4130). Use of leading groundwater flow and contamination modeling software. Theory of groundwater flow, solute transport, and selected numerical solution techniques. Applications to water resource, environmental, and geological problems.

**Credit Hours:** 3

**Prerequisites:** GEOL 4100 or equivalent

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**GEOL 7180: Solar System Science**

(same as PHYSICS 7180 and ASTRON 7180). Investigates physical states, interior structures and comparative geology of solar systems bodies: planets, moons, asteroids, comets, sun. Solar system formation and evolution.

**Credit Hours:** 3

**Prerequisites:** MATH 1700 and PHYSICS 1220 or PHYSICS 2760 or instructor's consent

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**GEOL 7200: Economic Geology with Laboratory**

Geochemistry of ore deposits. Introduction to types of mineral deposits, genesis of ore, and current areas of research. Laboratory emphasizes hand-specimen and polished-section studies of a wide variety of ore deposit types.

**Credit Hours:** 4

**Prerequisites:** GEOL 4900

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**GEOL 7300: Introduction to Low-Temperature Geochemistry**

Introduction to the chemical alteration of rock-forming minerals in weathering environments and to factors controlling the chemical composition of subsurface water.

**Credit Hours:** 3

**Prerequisites:** GEOL 3300 or instructor's consent

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**GEOL 7318: Environmental Soil Chemistry**

(same as SOIL 7318 and ENV\_SC 7318; cross-leveled with GEOL 4318, SOIL 4318, ENV\_SC 4318). Study of chemical constituents and processes occurring in soils. Topics include soil minerals, and weathering processes organic matter, solution chemistry, oxidation-reduction reactions and adsorption processes.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100 or GEOL 2400, CHEM 1320 and CHEM 1330 or instructor's consent

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**GEOL 7350: Patterns and Processes in the Fossil Record**

(cross-leveled with GEOL 4350). The purposes of this course are to 1) analyze patterns in the history of life and 2) to recognize the biased processes that led to its preservation. We will accomplish these goals by examining two disparate fossil preservation pathways: 1) Konservat lagerstätten: fossil deposits that are notorious for the exceptional and rare preservation of soft tissues and 2) Konzentrat lagerstätten: fossil deposits that are exceptional for the enormous amount of fossilized skeletal material they contain. Through careful examination of both the rare and hyper-abundant we can address the fundamental question of

paleobiology: how literally can the fossil record be read as the history of life? Graded on A-F basis only.

**Credit Hours:** 3

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**GEOL 7500: Organic Geochemistry**

(cross-leveled with GEOL 4500). Topics include chemistry of petroleum-forming reactions and their kinetic parameters; use of organic-chemical criteria in source-rock evaluation; carbon isotope fractionation in organic precursors of biological molecules; early history of earth's atmosphere.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**GEOL 7650: Plate Tectonics**

(cross-leveled with GEOL 4650). Formation, evolution, and structure of the earth. Rules, causes, and implications of plate tectonics with emphasis on present-day features.

**Credit Hours:** 3

**Prerequisites:** GEOL 3250, GEOL 3650 or instructor's consent

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**GEOL 7680: Neotectonics and Earthquake Geology**

(cross-leveled with GEOL 4680). Introduction to techniques and concepts of active crustal deformation from the geological and geodetic perspectives. Topics include tectonic geomorphology, paleoseismology, Quaternary dating, tectonic geodesy, numerical models of faults, and earthquake hazard assessment.

**Credit Hours:** 3

**Prerequisites:** GEOL 3650 or GEOL 4650

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**GEOL 7700: Theoretical Geochemistry**

Introduction to theoretical concepts in low and high temperature geochemistry. Topics include thermodynamics of fluids, gases and solids in geological materials, phase diagrams, equilibrium constants, electrolyte theory, oxidation-reduction reactions.

**Credit Hours:** 3

**Prerequisites:** GEOL 3250, CHEM 1330 and MATH 1700

---

**GEOL 7750: Microanalysis for Geological Sciences**

(cross-leveled with GEOL 4750). This course is intended to provide a working knowledge of electron and X-ray microbeam analytical instruments - both in principle and in practice. Lectures will focus on the physics of how these instruments collect data, and how these data can be interpreted. In addition, students will gain hands-on experience with operating these instruments, specifically on their own samples, as well as preparing their samples for microanalysis and interpreting/manipulating the resulting data. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent (Instrument time is limited; graduate students who will use the instruments in their research will have priority)

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**GEOL 7800: Introduction to Geophysics**

(cross-leveled with GEOL 4800). Introduction to the fundamentals of geophysical methods and their applications in geology, environmental studies, and exploration. Topics include seismic, gravity, magnetic, and electric methods.

**Credit Hours:** 3



**Prerequisites:** GEOL 1100 or GEOL 2130 or GEOL 1200 and MATH 1700 or instructor's consent

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**GEOL 7990: Research in Geological Sciences-Masters**

Does not lead to dissertation.

**Credit Hour:** 1-8

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**GEOL 8002: Topics in Geological Sciences**

Organized study of selected topics. May be repeated with departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** PhD standing, instructor's consent

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**GEOL 8050: Research in Geological Sciences-Masters Non-Thesis**

Research leading to a non-thesis Masters project. Graded on S/U basis only.

**Credit Hour:** 1-3

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**GEOL 8085: Problems in Geological Sciences**

**Credit Hour:** 1-8

**Prerequisites:** instructor's consent

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**GEOL 8090: Research in Geological Sciences-Masters Thesis**

Preparation of dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**GEOL 8100: Continental Tectonics**

The structural, metamorphic, and igneous evolution of mountain belts and continental rifts with emphasis on convergent margin settings and terrane accretion processes and products. Case studies are considered from the Precambrian to the recent.

**Credit Hours:** 3

**Prerequisites:** GEOL 3650 and GEOL 4900

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**GEOL 8140: Metamorphic Petrology**

Petrography and petrology of metamorphic rocks. Emphasis on textures, mineral assemblages, and mineral chemistry in order to determine the physico-chemical condition of metamorphism.

**Credit Hours:** 3

**Prerequisites:** GEOL 3250 and GEOL 4900

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**GEOL 8150: Earthquake Seismology**

Theory and techniques used in analyzing earthquake seismograms and seismicity data. Ray theory and phase identification for the whole earth. Epicenter determination. Frequency-magnitude relationships. Earthquake source mechanisms and parameters.

**Credit Hours:** 3

**Prerequisites:** GEOL 8320

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**GEOL 8160: Igneous Petrology**

Studies of the origin and evolution of magmas with use of phase equilibria, physical properties, and kinetics.

**Credit Hours:** 3

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**Prerequisites:** GEOL 3250 and GEOL 4900

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**GEOL 8170: Radiogenic Isotope Geochemistry**

Studies of the application of trace element and radiogenic isotope systematics to petrogenesis of rocks.

**Credit Hours:** 3

**Prerequisites:** GEOL 4900

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**GEOL 8190: Advanced Paleontology**

Principles of taxonomy, biostratigraphy, functional morphology and paleoecology are illustrated by individual projects that combine field collecting, laboratory examination and literature research.

**Credit Hours:** 3

**Prerequisites:** GEOL 3550

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**GEOL 8200: Advanced Structural Geology**

Advanced analysis of deformation structures in rocks. Theory and techniques of stress and strain analysis and their application to the mechanics of formation of faults, folds, shear zones, and rock fabric. Techniques of multideformation structural analysis.

**Credit Hours:** 3

**Prerequisites:** GEOL 3650

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**GEOL 8240: Hydrogeologic Processes**

Quantitative analysis of role of groundwater in major geologic processes. Theory review of fluid flow, heat transport, reactive solute transport in porous media. Applications to sedimentary diagenesis, hydrothermal ore deposits, petroleum migration, earthquakes, magmatism, metamorphism.

**Credit Hours:** 3

**Prerequisites:** GEOL 4100 or GEOL 7100 or equivalent

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**GEOL 8300: Precambrian History**

Coupled evolution of the biosphere, lithosphere, hydrosphere, and atmosphere over the span of Precambrian history. Topics will be discussed largely in the context of biological evolutionary events and the fossil record, as well as with a focus on geochemical records.

**Credit Hours:** 3

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**GEOL 8320: Introduction to Seismology**

Principles of wave propagation in layered elastic media. Applications of digital signal processing to seismological problems. Emphasis on theoretical basis behind modern analysis techniques.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 2760, MATH 4500 and CMP\_SC 1050

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**GEOL 8400: Ancient Greenhouse Climate**

Will explore a wide range of data concerning greenhouse climates and different techniques used in paleoclimatology. Graded on A/F basis only.

**Credit Hours:** 3

**Prerequisites:** GEOL 3800, GEOL 3550 and GEOL 4300

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**GEOL 8450: Tectonics and Sedimentation**

Global survey of modern and ancient convergent plate boundaries with an emphasis on sedimentary facies and structural styles.

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**Credit Hours:** 3

**Prerequisites:** GEOL 3650, GEOL 3800 and instructor's consent

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**GEOL 8510: Geodynamics**

This course is designed to cover the fundamentals of the quantitative aspects of Plate Tectonics. The study of these subjects is generally referred to as Geodynamics or Geodynamic Theory. This theory revolutionized the earth sciences and the way people think of earth processes. By definition Geodynamics is an interdisciplinary paradigm therefore it is necessary to cover a wide range of topics from heat transfer to gravity. This course will overlap with subjects covered in both Plate Tectonics and Geophysics but we will emphasize the quantitative aspects of this theory in this course.

**Credit Hours:** 3

**Prerequisites:** MATH 1700, PHYSCS 2760

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**GEOL 8550: Stable Isotope Geochemistry**

Mechanisms and fundamental concepts of fractionation of light stable isotopes in nature. Emphasizes application of hydrogen, carbon, oxygen and sulfur isotopes to igneous, metamorphic and sedimentary rocks, metallic ore deposits, and to natural waters.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**GEOL 8650: Thermal Processes in the Solid Earth**

Principles of heat transfer in solid earth by conduction, advection and convection. Basic analytic and numerical solutions. Application in Earth's dynamic system, environmental sciences, and geological problems.

**Credit Hours:** 3

**Prerequisites:** MATH 1700, PHYSCS 1220 or PHYSCS 2750

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**GEOL 8750: Silicate Glasses, Liquids and Magmas**

Theory of silicate liquid viscosity, heat capacity and configurational entropy, emphasizing the role of volatile components. Applications to magma rheology and eruptive behavior. Lab instruction in viscometry techniques.

**Credit Hours:** 3

**Prerequisites:** GEOL 4900 and GEOL 4700, or instructor's consent

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**GEOL 8800: Applied Numerical Analysis**

A study of applied mathematical analysis of spatial and temporal data as applied in the geosciences.

**Credit Hours:** 3

**Prerequisites:** MATH 1700 or MATH 2300, PHYSCS 1220 or PHYSCS 2760

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**GEOL 8990: Research**

Does not lead to dissertation.

**Credit Hour:** 1-8

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**GEOL 9090: Research in Geological Sciences-Doctoral Dissertation**

Preparation of dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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## German (GERMAN)

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**GERMAN 1100: Elementary German I**

For beginners with no prior knowledge of German. This course helps learners develop the skills they need to use German as a means of communication in their personal and professional life. It covers a wide variety of vocabulary pertaining to everyday life; emphasis is on all types of communication--oral and listening skills, reading and writing.

**Credit Hours:** 5

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**GERMAN 1100H: Elementary German I - Honors**

This course is designed for Honors students with little or no German language background and will provide students with a foundation in vocabulary and grammar in order to develop communication proficiency in German. Students will be trained using the five skills: listening, speaking, writing, reading and cultural knowledge. The course will be taught as a total immersion class and thus differs from the standard elementary German sequence. Furthermore, students will be required to complete lengthier reading and writing tasks as well as present a final oral multimedia project at the end of the semester.

**Credit Hours:** 5

**Prerequisites:** Honors eligibility required

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**GERMAN 1150: Freshman Introduction to German Studies**

Introduction to German Studies as academic field. Small seminar setting with senior faculty, their favorite texts, and questions pursued in the research and teaching. Recommended for all students interested in integrating German studies into their academic career, conducted in English.

**Credit Hour:** 1

**Prerequisites:** Restricted to Freshman students only

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**GERMAN 1200: Elementary German II**

A continuation of GERMAN 1100. This course helps learners develop the skills they need to use German as a means of communication in their personal and professional life. It covers a wide variety of vocabulary pertaining to everyday life; emphasis is on all types of communication - oral and listening skills, reading and writing.

**Credit Hours:** 5

**Recommended:** C- or better in GERMAN 1100, or equivalent

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**GERMAN 1200H: Elementary German II - Honors**

This course is designed for Honors students who either took the GERMAN 1100H section or are placing into GERMAN 1200 as honors eligible students. The main focus of this course is on further development of basic communication skills in speaking, listening, reading, and writing in German adding more nuanced cultural and sociolinguistic competencies in a total immersion environment.

**Credit Hours:** 5

**Prerequisites:** Honors eligibility required

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**GERMAN 2001: Undergraduate Topics in German-General**

Organized study of selected topics. Subjects and credits may vary from semester to semester. May be repeated with departmental consent.

**Credit Hour:** 1-3

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**GERMAN 2005: Undergraduate Topics in German-Humanities**

Organized study of selected topics. Subjects and credits may vary from semester to semester. May be repeated with departmental consent. No language credit.

**Credit Hour:** 1-3

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**GERMAN 2005W: Undergraduate Topics in German-Humanities - Writing Intensive**

Organized study of selected topics. Subjects and credits may vary from semester to semester. May be repeated with departmental consent. No language credit.

**Credit Hour:** 1-3

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**GERMAN 2100: Intermediate German I**

A continuation of GERMAN 1200. This course helps learners develop the skills they need to use German as a means of communication in their personal and professional life. It covers a wide variety of vocabulary pertaining to everyday life; emphasis is on all types of communication - oral and listening skills, reading and writing.

**Credit Hours:** 3

**Recommended:** C- or better in GERMAN 1200, or equivalent

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**GERMAN 2260: Intermediate German II: Language and Culture**

This course continues to help learners develop the necessary communicative skills in German. The particular emphasis is on oral and writing skills, and texts that provide insight into contemporary German culture and social life.

**Credit Hours:** 3

**Recommended:** C- in GERMAN 2100 or equivalent

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**GERMAN 2310: German Civilization: Beginning to 1850**

Major historical, social, artistic, literary themes from beginnings to end of Revolution of 1848. Films and recordings. May be taken independently of GERMAN 2320. No foreign language credit. Some sections may enforce prerequisite of ENGLSH 1000.

**Credit Hours:** 3

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**GERMAN 2310W: German Civilization: Beginning to 1850 - Writing Intensive**

Major historical, social, artistic, literary themes from beginnings to end of Revolution of 1848. Films and recordings. May be taken independently of GERMAN 2320. No foreign language credit. Some sections may enforce prerequisite of ENGLSH 1000.

**Credit Hours:** 3

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**GERMAN 2320: German Civilization: 1850 to Present**

Second Empire, Weimar Republic, Nazi era, two Germanies after 1949. Historical, social, artistic, literary themes. Films and recordings. May be taken independently of GERMAN 2310. No foreign language credit.

**Credit Hours:** 3

**Prerequisites:** some sections may enforce prerequisite of ENGLSH 1000

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**GERMAN 2320W: German Civilization: 1850 to Present - Writing Intensive**

Second Empire, Weimar Republic, Nazi era, two Germanies after 1949. Historical, social, artistic, literary themes. Films and recordings. May be taken independently of GERMAN 2310. No foreign language credit.

**Credit Hours:** 3

**Prerequisites:** some sections may enforce prerequisite of ENGLSH 1000

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**GERMAN 2820: Trends in World Cinema**

(same as FILMS\_VS 2820 and RM\_LAN 2820). This course is a historical overview of the major trends in international cinema. It focuses on the intersection of aesthetics, industry, and ideological and social concerns in cinematic production.

**Credit Hours:** 3

**Prerequisites:** sophomore standing, ENGLSH 1800 or FILM\_S 1800 or instructor's consent

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**GERMAN 3001: Topics in German-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

**Recommended:** sophomore standing

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**GERMAN 3005: Topics in German-Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

**Recommended:** sophomore standing

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**GERMAN 3160: German Conversation and Composition**

This course expands communicative competence in German and provides a review of advanced grammar concepts. Primary emphasis is on the further development of oral and written skills, reading comprehension, vocabulary expansion, and a broad exposure to relevant topics of contemporary German culture and society. Conducted in German.

**Credit Hours:** 3

**Prerequisites:** GERMAN 2260 or equivalent

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**GERMAN 3180: Business German**

Examines language within the economic and professional context of German-speaking countries. Introduces different economic concepts of Germany's turbulent 20th century, modern-day business systems and everyday commercial activities such as job applications, professional routines, capital investment and banking. Provides students with vocabulary, cultural knowledge and communicative abilities in order to participate in the professional German-speaking world using linguistically-solid and stylistically-persuasive writing and speaking skills.

**Credit Hours:** 3

**Prerequisites:** GERMAN 2260 or equivalent

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**GERMAN 3190: Contemporary German Culture**

This content-driven course provides insights into essential subjects of 20th century German history and contemporary society, using a variety of literature, journalistic sources and film. The course will improve German conversation and literacy skills, and will strengthen critical reading and writing, as well as interpretative abilities. Significant grammatical concepts will be thoroughly reviewed throughout the semester. Conducted in German.

**Credit Hours:** 3

**Prerequisites:** GERMAN 2260 or instructor's consent

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**GERMAN 3230: Introduction to German Literature**

This course introduces students to German-language literary texts, images, and films in their cultural and historical context through exposure to major genres (poetry, drama, short stories, and the novel). It further builds their vocabulary and teaches them critical interpretive skills as preparation for the analysis of literary texts in upper-division courses - and in life.

**Credit Hours:** 3

**Prerequisites:** C- or better in either GERMAN 3160 or GERMAN 3190

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**GERMAN 3320: Readings in German Literature**

Readings in English of selected works of German literature from Goethe to the present, with a particular emphasis on writers and texts that have had a strong influence on European thought and culture.

**Credit Hours:** 3

**Prerequisites:** sophomore standing, ENGLISH 1000

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**GERMAN 3510: Think Global: Fundamentals of Globalization and Digital Technologies**

(same as PEA\_ST 3510, JOURN 3510, T\_A\_M 3010, DST\_VS 3510). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or instructor's consent

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**GERMAN 3510H: Think Global: Fundamentals of Globalization and Digital Technologies - Honors**

(same as JOURN 3510H, PEA\_ST 3510H, T\_A\_M 3010H, DST\_VS 3510H). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing; 2.75 GPA or instructor's consent. Honors eligibility required

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**GERMAN 3510HW: Think Global: Fundamentals of Globalization and Digital Technologies - Honors/Writing Intensive**

(same as JOURN 3510HW, T\_A\_M 3010HW, PEA\_ST 3510HW, DST\_VS 3510HW). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing; 2.75 GPA or instructor's consent. Honors eligibility required

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**GERMAN 3510W: Think Global: Fundamentals of Globalization and Digital Technologies - Writing Intensive**

(same as T\_A\_M 3010W, PEA\_ST 3510W, JOURN 3510W, DST\_VS 3510W). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or instructor's consent

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**GERMAN 3520: Folk and Fairytales in a Global Context**

Analyzes the most famous European collection of fairytales, namely the Kinder-und Hausmarchen (Children's and Household Tales) by the Brothers Grimm and juxtaposes them to folktales from other cultures. Looks at the genre of fairytales, studies the historical context of the genesis of the collection of tales, and modern versions of the tales. Compares and contrasts Grimm's fairytales with folktales of different cultural traditions, analyzes and identifies the formal structure of fairytales and motifs, discusses various interpretive models/perspectives and juxtaposes several historical and contemporary literary fairytales and fairytale adaptations. Cultural unit examples will be on Mongolian culture and history and the Maori culture of New Zealand. Students are expected to create their own cultural unit based on the course's units. Course is taught in English.

**Credit Hours:** 3

**Prerequisites:** sophomore standing required

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**GERMAN 3520H: Folk and Fairytales in a Global Context - Honors**

Analyzes the most famous European collection of fairytales, namely the Kinder-und Hausmarchen (Children's and Household Tales) by the Brothers Grimm and juxtaposes them to folktales from other cultures. Looks at the genre of fairytales, studies the historical context of the genesis of the collection of tales, and modern versions of the tales. Compares and contrasts Grimm's fairytales with folktales of different cultural traditions, analyzes and identifies the formal structure of fairytales and motifs, discusses various interpretive models/perspectives and juxtaposes several historical and contemporary literary fairytales and fairytale adaptations. Cultural unit examples will be on Mongolian culture and history and the Maori culture of New Zealand. Students are expected to create their own cultural unit based on the course's units. Course is taught in English.

**Credit Hours:** 3

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**Prerequisites:** sophomore standing required. Honors eligibility required

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**GERMAN 3520HW: Folk and Fairytales in a Global Context - Honors/ Writing Intensive**

Analyzes the most famous European collection of fairytales, namely the Kinder-und Hausmarchen (Children's and Household Tales) by the Brothers Grimm and juxtaposes them to folktales from other cultures. Looks at the genre of fairytales, studies the historical context of the genesis of the collection of tales, and modern versions of the tales. Compares and contrasts Grimm's fairytales with folktales of different cultural traditions, analyzes and identifies the formal structure of fairytales and motifs, discusses various interpretive models/perspectives and juxtaposes several historical and contemporary literary fairytales and fairytale adaptations. Cultural unit examples will be on Mongolian culture and history and the Maori culture of New Zealand. Students are expected to create their own cultural unit based on the course's units. Course is taught in English.

**Credit Hours:** 3

**Prerequisites:** sophomore standing required. Honors eligibility required

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**GERMAN 3520W: Folk and Fairytales in a Global Context - Writing Intensive**

Analyzes the most famous European collection of fairytales, namely the Kinder-und Hausmarchen (Children's and Household Tales) by the Brothers Grimm and juxtaposes them to folktales from other cultures. Looks at the genre of fairytales, studies the historical context of the genesis of the collection of tales, and modern versions of the tales. Compares and contrasts Grimm's fairytales with folktales of different cultural traditions, analyzes and identifies the formal structure of fairytales and motifs, discusses various interpretive models/perspectives and juxtaposes several historical and contemporary literary fairytales and fairytale adaptations. Cultural unit examples will be on Mongolian culture and history and the Maori culture of New Zealand. Students are expected to create their own cultural unit based on the course's units. Course is taught in English.

**Credit Hours:** 3

**Prerequisites:** sophomore standing required

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**GERMAN 3550: Resistance is Futile: The Advance of the Cyborg**

Contemporary culture is haunted by the image of artificial killing machine as metaphor for technology run rampant. Fears may be prompted by feelings of alienation in automated society and underlying suspicion that humans may be nothing more than sophisticated machines. Course maps history of l'homme machine, focusing on fictional representation of creatures that consist of both human and technological 'parts.' Goal is to discern source of fascination and sociopolitical mechanism behind evocation of 'human machine.'

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or consent of instructor

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**GERMAN 3605: The History of Blacks in Germany**

(same as BL\_STU 3605). This course investigates the history of Africans and African Americans in Germany and Central Europe, from Antiquity to today. Special focus on Medieval Africans in Europe, traveling African American intellectuals around 1900, and African American GIs in occupied Germany. This course will challenge your understanding of race and racism.

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**Credit Hours:** 3

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**GERMAN 3605H: The History of Blacks in Germany - Honors**

(same as BL\_STU 3605). This course investigates the history of Africans and African Americans in Germany and Central Europe, from Antiquity to today. Special focus on Medieval Africans in Europe, traveling African American intellectuals around 1900, and African American GIs in occupied Germany. This course will challenge your understanding of race and racism.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GERMAN 3830: History of the German Film**

(same as FILMS\_VS 3830). Introduction to the development of the German film. Old and recent films are viewed and discussed in terms of techniques, artistry, psychology and social impact. English dubbing or subtitles. No foreign language credit.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent

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**GERMAN 3865: The Holocaust on Screen**

(same as FILMS\_VS 3865). This course explores how the Holocaust has been depicted on film in a variety of national and historical contexts. Drawing on films from 1945 to the present, from the U.S., Germany, Poland, France, and Italy, we will consider to what end images of the Holocaust have been used. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**GERMAN 3895: Service Learning in German Studies**

Service learning offers students a chance to put into practice what they have learned in theory. Students work as teacher-aids or tutors in foreign language/culture classes at area schools. Does not meet Arts and Science foundation requirements. Graded on S/U basis only.

**Credit Hours:** 2

**Prerequisites:** GERMAN 2260, or instructor's consent

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**GERMAN 4001: Topics in German-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

**Recommended:** junior standing

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**GERMAN 4005: Topics in German-Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

**Recommended:** junior standing

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**GERMAN 4005H: Topics in German-Humanities - Honors**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** junior standing and instructor's consent. Honors eligibility required

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**GERMAN 4005W: Topics in German-Humanities - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

**Recommended:** junior standing

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**GERMAN 4070: Intensive Beginning German**

Designed to lead to a reading knowledge of German.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**GERMAN 4160: Advanced Language Proficiency**

(cross-leveled with GERMAN 7160). A course for intermediate to advanced students of German. This course helps learners develop further the necessary communicative skills in German. The particular emphasis is on oral and writing skills, and texts that provide insight into contemporary German culture and social life.

**Credit Hours:** 3

**Prerequisites:** GERMAN 3230 or equivalent

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**GERMAN 4220: Eerie Tales: Classic German Narratives**

In this class, we will read classic uncanny tales in German by major authors, and will explore the traits of this category across a variety of literary movements.

**Credit Hours:** 3

**Prerequisites:** GERMAN 3230 or equivalent language capacity

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**GERMAN 4230: Enlightenment and Revolution**

Reading and discussion of selected works by major German writers from 1740 to 1870.

**Credit Hours:** 3

**Prerequisites:** GERMAN 3230 or equivalent

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**GERMAN 4240: Modernism and Modernity**

Reading and discussion of selected works by major German writers from 1870 to the present.

**Credit Hours:** 3

**Prerequisites:** GERMAN 3230 or equivalent

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**GERMAN 4260: Recent German Literature**

This course examines 'post-unification' works (i.e. by formerly East and West German authors) of literature and film written since 1989 that addresses social and political changes leading to or resulting from unification and the experience of WWII. Students will analyze the

diverse cultural, political and economic factors that influence writers and filmmakers whose aesthetic production in turn helps shape contemporary German society.

**Credit Hours:** 3

**Prerequisites:** GERMAN 3230

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**GERMAN 4730: German Internship and Methods**

(cross-leveled with GERMAN 7730). Supervised introduction to the methodology of the teaching of elementary German; conducted in a classroom environment.

**Credit Hours:** 3

**Prerequisites:** junior standing, GERMAN 4230, or instructor's consent

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**GERMAN 4810: Case Studies in an Inter/Multicultural World**

(same as T\_A\_M 4810, PEA\_ST 4810, DST\_VS 4805). This inter-departmental course examines the ways in which people across the globe are affected every day by an unprecedented array of linkages that defy geographic and political boundaries. Also serves as one of the seminars for the certificate in Digital Global Studies. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing; 2.75 GPA or instructor's consent

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**GERMAN 4820: Blogging the World: The Web in Cultural Context**

(same as FRENCH 4820 and RUSS 4820; cross-leveled GERMAN 7820, FRENCH 7820, RUSS 7820). Innovative interdisciplinary course addresses issues of access to international news and specific cultural context working in cross-disciplinary teams. Students in journalism, foreign language, international studies, political science and various other disciplines track cultural developments and information on non-US Web sites, blogs and digital social networks along with exploring various historical forms of communication that preceded the digital era of the Web. Students analyze the potential and limitations/ effects of blogs and the web in specific contemporary cultural contexts and as part of the broader historical evolution of the web. The course is taught in English. The goal of this course is two-fold; students learn the particulars of web blogging, explore various features of the contemporary social network landscape while focusing on the concept of culture, in particular the cultures of Europe and the US. Questions asked are: what is culture? What is common or popular right now in other cultures? And how do new social networks amplify or alter certain features or culture across national and international contexts?

**Credit Hours:** 3

**Prerequisites:** sophomore standing required

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**GERMAN 4820W: Blogging the World: The Web in Cultural Context - Writing Intensive**

(same as FRENCH 4820 and RUSS 4820; cross-leveled with GERMAN 7820, FRENCH 7820, RUSS 7820). Innovative interdisciplinary course addresses issues of access to international news and specific cultural context working in cross-disciplinary teams. Students in journalism, foreign language, international studies, political science and various other disciplines track cultural developments and information on non-US Web sites, blogs and digital social networks along with exploring various historical forms of communication that preceded the digital era of the Web. Students analyze the potential and limitations/ effects of blogs and the web in specific contemporary cultural contexts and as part

of the broader historical evolution of the web. The course is taught in English. The goal of this course is two-fold; students learn the particulars of web blogging, explore various features of the contemporary social network landscape while focusing on the concept of culture, in particular the cultures of Europe and the US. Questions asked are: what is culture? What is common or popular right now in other cultures? And how do new social networks amplify or alter certain features or culture across national and international contests?

**Credit Hours:** 3

**Prerequisites:** sophomore standing required

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**GERMAN 4840: Totalitarianism and Culture**

(same as RUSS 4840; cross-leveled with GERMAN 7840, RUSS 7840). In this course, we will explore the politics and poetics of totalitarian culture by examining the paintings, music, sculptures, buildings, and films produced under the rule of these regimes. In the process, we will learn how Nazi and Soviet culture producers made carefully calibrated appeals to their respective mass audiences, drawing upon the German and Russian cultural traditions - and on scientific rhetorics of cultural history and racial destiny - in crafting their utopian visions of worlds transformed, wrongs righted, and societies perfected.

**Credit Hours:** 3

**Recommended:** Junior standing or above; students taking this course for WI should have taken a 2000- or 3000-level WI course before beginning this class

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**GERMAN 4840H: Totalitarianism and Culture - Honors**

(same as RUSS 4840H; cross-leveled with GERMAN 7840, RUSS 7840). In this course, we will explore the politics and poetics of totalitarian culture by examining the paintings, music, sculptures, buildings, and films produced under the rule of these regimes. In the process, we will learn how Nazi and Soviet culture producers made carefully calibrated appeals to their respective mass audiences, drawing upon the German and Russian cultural traditions - and on scientific rhetorics of cultural history and racial destiny - in crafting their utopian visions of worlds transformed, wrongs righted, and societies perfected.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** Junior standing or above; students taking this course for WI should have taken a 2000- or 3000-level WI course before beginning this class

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**GERMAN 4840HW: Totalitarianism and Culture - Honors/Writing Intensive**

(same as RUSS 4840HW; cross-leveled with GERMAN 7840, RUSS 7840). In this course, we will explore the politics and poetics of totalitarian culture by examining the paintings, music, sculptures, buildings, and films produced under the rule of these regimes. In the process, we will learn how Nazi and Soviet culture producers made carefully calibrated appeals to their respective mass audiences, drawing upon the German and Russian cultural traditions - and on scientific rhetorics of cultural history and racial destiny - in crafting their utopian visions of worlds transformed, wrongs righted, and societies perfected.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**Recommended:** Junior standing or above; students taking this course for WI should have taken a 2000- or 3000-level WI course before beginning this class

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**GERMAN 4840W: Totalitarianism and Culture - Writing Intensive**

(same as RUSS 4840; cross-leveled with GERMAN 7840, RUSS 7840). In this course, we will explore the politics and poetics of totalitarian culture by examining the paintings, music, sculptures, buildings, and films produced under the rule of these regimes. In the process, we will learn how Nazi and Soviet culture producers made carefully calibrated appeals to th

**Credit Hours:** 3

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**GERMAN 4850: Revolution and Media in a Global Perspective**

(same as RUSS 4850; cross-leveled with RUSS 7850). This course offers a historical and global survey of the rise of modern revolution, from France to Haiti to Russia to the Black Power movement and beyond. Drawing on media studies and cultural studies, we will explore how revolutions are tied up in specific medial environments. This entails asking how media spread revolution, whether in print and visual culture, in the broadcast media of the twentieth century, or in the digital landscapes of the twenty-first century, and how revolutions can be understood themselves as media events. In the process students will develop a critical vocabulary for discussing the role of media in political and cultural revolution and counter-revolution in a global perspective. Graded on A-F basis only.

**Credit Hours:** 3

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**GERMAN 4960: Special Readings in German**

Independent study through readings, conferences, and reports.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

**Recommended:** junior standing

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**GERMAN 4980: German Capstone Seminar**

(cross-leveled with GERMAN 7980). Required of all senior German majors; usually taken in the senior year. Focuses on contemporary Germany and brings together aspects of German literature and culture studies during the degree program.

**Credit Hours:** 3

**Prerequisites:** senior standing or departmental consent

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**GERMAN 7001: Topics in German-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 1-3

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**GERMAN 7005: Topics in German - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 1-99

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**GERMAN 7070: Intensive Beginning German**

This course is primarily designed for graduate students seeking reading knowledge of German. It is conducted in English and consequently students do not learn how to speak or write German as they typically do in language acquisition classes. The focus instead lies on grammar, vocabulary building, and translation. No previous familiarity with German is expected, but by the end of the course students will ideally be able to understand the basic gist of scholarly texts in their respective disciplines. Graded on A-F basis only.

**Credit Hours:** 3

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**GERMAN 7085: Problems in German**

**Credit Hour:** 1-3

**Prerequisites:** chairman's consent

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**GERMAN 7160: German Conversation and Composition III**

(cross-leveled with GERMAN 4160). A course for intermediate to advanced students of German. This course helps learners develop further the necessary communicative skills in German. The particular emphasis is on oral and writing skills, and texts that provide insight into contemporary German culture and social life.

**Credit Hours:** 3

**Prerequisites:** GERMAN 3230 or equivalent

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**GERMAN 7650: Faust**

(cross-leveled with GERMAN 4650). Faust.

**Credit Hours:** 3

**Prerequisites:** GERMAN 4230 or equivalent

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**GERMAN 7670: Medieval German Literature 1170-1210**

(cross-leveled with GERMAN 4670). Analysis of major narrative and lyric poetry of the Age of Chivalry.

**Credit Hours:** 3

**Prerequisites:** GERMAN 4230 or equivalent

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**GERMAN 7730: German Internship and Methods**

(cross-leveled with GERMAN 4730). Supervised introduction to the methodology of the teaching of elementary German; conducted in a classroom environment.

**Credit Hours:** 3

**Prerequisites:** GERMAN 4230 or equivalent, or instructor's consent

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**GERMAN 7840: Totalitarianism and Culture**

(same as RUSS 7840; cross-leveled with GERMAN 4840, RUSS 4840). In this course, we will explore the politics and poetics of totalitarian culture by examining the paintings, music, sculptures, buildings, and films produced under the rule of these regimes. In the process, we will learn how Nazi and Soviet culture producers made carefully calibrated appeals to their respective mass audiences, drawing upon the German and Russian cultural traditions - and on scientific rhetorics of cultural history and racial destiny - in crafting their utopian visions of worlds transformed, wrongs righted, and societies perfected.

**Credit Hours:** 3

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**GERMAN 7850: Revolution and Media in a Global Perspective**

(same as RUSS 7850; cross-leveled with RUSS 4850, GERMAN 4850).

This course offers a historical and global survey of the rise of modern revolution, from France to Haiti to Russia to the Black Power movement and beyond. Drawing on media studies and cultural studies, we will explore how revolutions are tied up in specific medial environments. This entails asking how media spread revolution, whether in print and visual culture, in the broadcast media of the twentieth century, or in the digital landscapes of the twenty-first century, and how revolutions can be understood themselves as media events. In the process students will develop a critical vocabulary for discussing the role of media in political and cultural revolution and counter-revolution in a global perspective. Graded on A-F basis only.

**Credit Hours:** 3

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**GERMAN 7960: Special Readings in German**

Independent study through readings, conferences, and reports.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**GERMAN 7980: German Capstone Seminar**

(cross-leveled with GERMAN 4980). Focuses on contemporary Germany and brings together aspects of German literature and culture studies during the degree program.

**Credit Hours:** 3

**Prerequisites:** one 3000-level literature course or equivalent, or instructor's consent

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**GERMAN 8005: Topics in German - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 1-99

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**GERMAN 8050: Research in German**

Translations or creative work not leading to thesis. Credit hours arranged.

**Credit Hour:** 1-3

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**GERMAN 8085: Problems in German**

**Credit Hour:** 1-3

**Prerequisites:** chairman's consent

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**GERMAN 8087: Seminar in German**

Course content varies.

**Credit Hours:** 3

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**GERMAN 8090: Research in German**

Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** graduate director's consent

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## Graduate School (GRAD)

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### GRAD 4000: Supporting Your Professional Goals

(Cross-Listed with GRAD 7000). This course will help you set professional goals and gain knowledge and skills by participating a series of professional development workshops to help you meet those goals.

**Credit Hour:** 1

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### GRAD 4010: Preparing To Be A Graduate Teaching Assistant

Provides an understanding of the roles and responsibilities of teaching assistants to prepare students for graduate school. Learning will take place through observation, lecture, reading and discussion. Graded on S/U basis only.

**Credit Hour:** 1

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### GRAD 7000: Supporting Your Professional Goals

(Cross-Listed with GRAD 4000). This course will help you set professional goals and gain knowledge and skills by participating a series of professional development workshops to help you meet those goals.

**Credit Hour:** 1

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### GRAD 7302: Tools for Teaching American Students

Emphasis on advanced academic listening, discrete pronunciation skills, techniques for laboratory teaching and one-to-one interactions. Integrated with a general overview of American classroom culture.

**Credit Hours:** 4

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### GRAD 7303: Communication and Culture for American College Teaching

This class will focus on the linguistic aspects of teaching, as well as specific pedagogical; and cultural aspects of the American classroom. It will emphasize fluency development at the suprasegmental level, and interactive teaching skills, like organizational, questioning and compensation strategies.

**Credit Hours:** 4

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### GRAD 9001: Topics in Graduate School

Organized study of selected professional and career development topics. Subjects and course credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** instructor's and academic advisor's consent

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### GRAD 9010: Preparing Future Faculty I

First course in a two-semester Preparing Future Faculty program that introduces Ph.D. students to a variety of faculty roles and work environments. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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### GRAD 9020: Preparing Future Faculty II

Second course in a two-semester Preparing Future Faculty program that introduces Ph.D. students to a variety of faculty roles and work environments. Topics build upon those presented in GRAD 9010 and

focus on the job search and career development processes. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** GRAD 9010

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### GRAD 9050: Preparing Future Professionals for Post-Graduate Studies Careers

Specialized leadership and transferable skills course that helps students recognize their potential and versatility for careers within and beyond the academy. Beyond leadership theory, the course is framed by 4 competency areas: 1) Analytic competencies; 2) Personal competencies; 3) Communication competencies and 4) Organizational competencies. Learning is enhanced with short text readings and videos in the course management system. Guest speakers. To pass the course, students must attend class; complete a self-assessment; complete an informational interview or job shadow with a leader of choice; and submit 3 short assignments including an Individual Development Plan with goals. Graded on S/U basis only.

**Credit Hour:** 1

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### GRAD 9072: Science Policy and Public Engagement

It is important the STEM professionals to understand the intersections between science, politics, and society to understand how the decisions that affect them are made. Junior scholars who understand the goals and implications of publicly funded science will likely have an advantage when seeking jobs and funding. This program also will explore numerous careers in the science policy realm.

**Credit Hours:** 3

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### GRAD 9080: Essentials for Public Engagement

This course will focus on understanding the role of scholarship and research in society and how to integrate public needs with research, ways to the public engages with scholarly research and how researchers can effectively engage individuals and groups. Topics covered include: different types of public engagement, public policy, ethics, broader impacts of research, extension education, public communication, theoretical rationale for engagement, historical trends in public engagement.

**Credit Hour:** 1

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### GRAD 9082: Science Policy and Public Engagement

It is important the STEM professionals to understand the intersections between science, politics, and society to understand how the decisions that affect them are made. Junior scholars who understand the goals and implications of publicly funded science will likely have an advantage when seeking jobs and funding. This program also will explore numerous careers in the science policy realm.

**Credit Hour:** 1

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### GRAD 9304: Instructional and Communication Strategies for Effective College Teaching

This class will focus on teaching and presentation strategies such as lesson design, using case studies and problem based learning, interactive learning, and classroom and course management. The linguistic emphasis will be on reduction, linking and speech patterns as will as pragmatic issues of organizing, clarifying and emphasizing ideas.

Requires an MU Oral Language Proficiency Assessment score of 3 and course consent. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** ITAP language level 3P or GRAD 7303 and level 2; consent required

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## Greek (GREEK)

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### **GREEK 1100: Elementary Ancient Greek I**

Study of forms, grammar, syntax. Early attention to reading in simple Attic prose.

**Credit Hours:** 4

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### **GREEK 1100H: Elementary Ancient Greek I - Honors**

Study of forms, grammar, syntax. Early attention to reading in simple Attic prose.

**Credit Hours:** 4

**Prerequisites:** Honors eligibility required

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### **GREEK 1200: Elementary Ancient Greek II**

Continuation of GREEK 1100. Readings in Attic prose.

**Credit Hours:** 4

**Prerequisites:** GREEK 1100

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### **GREEK 1200H: Elementary Ancient Greek II - Honors**

Continuation of GREEK 1100H. Readings in Attic prose.

**Credit Hours:** 4

**Prerequisites:** GREEK 1100, Honors eligibility required

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### **GREEK 2000: Greek Reading**

Selected works of Greek literature.

**Credit Hours:** 3

**Prerequisites:** GREEK 1200

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### **GREEK 2000H: Greek Reading - Honors**

Selected works of Greek literature.

**Credit Hours:** 3

**Prerequisites:** GREEK 1200, Honors eligibility required

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### **GREEK 4300: Intermediate Readings**

Selected advanced readings in prose and poetry. Introduction to Homer.

**Credit Hours:** 3

**Prerequisites:** GREEK 2000

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### **GREEK 4300H: Intermediate Readings - Honors**

Selected advanced readings in prose and poetry. Introduction to Homer.

**Credit Hours:** 3

**Prerequisites:** GREEK 2000; honors eligibility required

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### **GREEK 4500: Greek Stylistics**

(cross-leveled with GREEK 7500). Study and practice of Greek prose, with special consideration to basic problems: abstract expression, word order, sentence structure and use of common rhetorical devices.

**Credit Hours:** 3

**Recommended:** GREEK 4300

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### **GREEK 4510: Greek Tragedy**

(cross-leveled with GREEK 7510). Selected works of Aeschylus, Sophocles, Euripides, with special attention to language, style, ideas, and dramatic techniques.

**Credit Hours:** 3

**Recommended:** GREEK 4300

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### **GREEK 4520: Greek Comedy**

(cross-leveled with GREEK 7520). Selected plays of Aristophanes and Menander, with special attention to cultural contexts.

**Credit Hours:** 3

**Recommended:** GREEK 4300

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### **GREEK 4530: Greek Lyric Poetry**

(cross-leveled with GREEK 7530). Selected readings from lyric poets, with attention to verse forms, and dialects.

**Credit Hours:** 3

**Recommended:** GREEK 4300

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### **GREEK 4540: Greek Oratory**

(cross-leveled with GREEK 7540). Selections from Greek orators, with emphasis on Lysias and Demosthenes.

**Credit Hours:** 3

**Recommended:** GREEK 4300

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### **GREEK 4560: Greek Historians**

(cross-leveled with GREEK 7560). Reading and analysis of selected texts of major Greek historians.

**Credit Hours:** 3

**Recommended:** GREEK 4300

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### **GREEK 4700: Survey of Greek Literature**

(cross-leveled with GREEK 7700). Greek literature from origins to end of Roman period; emphasis on authors not covered in other courses, to provide general view of styles and genres.

**Credit Hours:** 3

**Recommended:** GREEK 4300

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### **GREEK 4960: Special Readings in Greek**

Readings in authors and texts not covered in other courses.

**Credit Hours:** 3

**Recommended:** GREEK 4300

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### **GREEK 7300: Intermediate Readings in Greek**

Selected advanced readings in prose and poetry. Introduction to Homer.

**Credit Hours:** 3

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**Prerequisites:** GREEK 2000 or equivalent. Available to students for graduate credit in departments other than Classical Studies

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**GREEK 7500: Greek Stylistics**

(cross-leveled with GREEK 4500). Study and practice of general Greek prose tendencies, with special consideration to basic problems: abstract expression, word order, sentence structure and use of common rhetorical devices.

**Credit Hours:** 3

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**GREEK 7510: Greek Tragedy**

(cross-leveled with GREEK 4510). Selected works of Aeschylus, Sophocles, Euripides, with special attention to language, style, ideas, and dramatic techniques.

**Credit Hours:** 3

**Prerequisites:** two years Classical Greek or equivalent

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**GREEK 7520: Greek Comedy**

(cross-leveled with GREEK 4520). Selected plays of Aristophanes and Menander, with special attention to cultural contexts.

**Credit Hours:** 3

**Prerequisites:** two years Classical Greek or equivalent

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**GREEK 7530: Greek Lyric Poetry**

(cross-leveled with GREEK 4530). Selected readings from lyric poets, with attention to verse forms, and dialects.

**Credit Hours:** 3

**Prerequisites:** two years Classical Greek or equivalent

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**GREEK 7540: Greek Oratory**

(cross-leveled with GREEK 7530). Selections from Greek orators, with emphasis on Lysias and Demosthenes.

**Credit Hours:** 3

**Prerequisites:** two years Classical Greek or equivalent

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**GREEK 7560: Greek Historians**

(cross-leveled with GREEK 7560). Reading and analysis of selected texts of major Greek historians.

**Credit Hours:** 3

**Prerequisites:** two years Classical Greek or equivalent

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**GREEK 7700: Survey of Greek Literature**

(cross-leveled with GREEK 4700). Greek literature from origins to end of Roman period; emphasis on authors not covered in other courses, to provide general view of styles and genres.

**Credit Hours:** 3

**Prerequisites:** two years Classical Greek or equivalent

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**GREEK 7960: Special Readings in Greek**

Readings in authors and texts not covered in other courses.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent and two years Classical Greek or equivalent

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**GREEK 8000: Proseminar in Greek Texts**

This is a seminar-level introduction to Greek literary and historical texts. The emphasis in this course will be on wide and intensive reading, with the objective of helping the new graduate student quickly develop a sound literary and linguistic competence.

**Credit Hours:** 3

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**GREEK 8010: Greek Rough Guide**

Intensive exploration of Greek Literature from its earliest appearance through the Roman period. Emphasis upon texts as both literary and cultural artifacts whose interpretation requires familiarity with the historical and archaeological legacy of antiquity as well as modern exegetical strategies. Graded on A-F basis only.

**Credit Hours:** 3

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**GREEK 9287: Seminar in Greek Drama**

May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**GREEK 9487: Seminar in the Greek Philosophers**

Seminar in the Greek Philosophers.

**Credit Hours:** 3

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**GREEK 9887: Seminar in Special Fields**

Seminar in Special Fields.

**Credit Hours:** 3

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## Health and Rehabilitation Science (HR\_SCI)

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**HR\_SCI 8001: Topics in Health and Rehabilitation Science**

Organized study of selected topics in health and/or healthcare. Topic and credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**HR\_SCI 8085: Problems in Health and Rehabilitation Science**

Individual study not leading to thesis or dissertation.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**HR\_SCI 8440: Health and Rehabilitation Science I**

This course focuses on major methods and techniques of research in disciplines within Health and Rehabilitation Science. It is primarily intended for students in the Health and Rehabilitation Science doctoral program.

**Credit Hour:** 2-3

**Prerequisites:** Graduate standing within the Health and Rehabilitation Science program or permission from the instructor

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### HR\_SCI 8442: Health and Rehabilitation Science II

This course focuses on major methods and techniques of research in disciplines within Health and Rehabilitation Science. It is primarily intended for students in the Health and Rehabilitation Science doctoral program.

**Credit Hour:** 2-3

**Prerequisites:** Graduate standing within the Health and Rehabilitation Science program or permission from the instructor. Completion of HR\_SCI 8440

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## Health Management and Informatics (HMI)

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### HMI 4420: Fundamentals of Bioinformatics

(cross-leveled with HMI 7420). The purpose of this course is to provide perspective on the fundamentals of exploration of biological knowledge using computers. As technologies such as microarray, sequencing, and biomarkers become more pervasive, they are impacting not only the development of science, but also domains such as health care, nutrition, and ethics. This course provides a description of fundamental bioinformatics concepts such as sequencing, proteomics, metabolomics, and biological pathways, and illustrates them with short informatics experiments. Mainly online resources will be used, so no programming is necessary. Also, the course includes a short primer of molecular biology, so background in molecular biology is not required.

**Credit Hours:** 3

**Prerequisites:** Departmental consent required

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### HMI 4440: Health Information Technology

(cross-leveled with HMI 7440). In this course, the student will learn 1) The Python programming language and how to use it for biomedical applications 2) the SQL database language and how to design and operate a database, and 3) HTML and javascript languages and how to design a web application. Applications will be healthcare focused.

**Credit Hours:** 3

**Prerequisites:** Departmental consent required

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### HMI 7410: Introduction to the US Health Care System

This is a survey course about the American health system, meant to provide a conceptual foundation for students to think critically about the US health system and to build upon in their future related courses. It includes concepts and language in health care, public health, and personal health and provides an understanding of how these domains of health interrelate. Particular focus is given to health care delivery, including how health care services are organized, delivered, paid for, and measured. Selected key, forward-looking issues are covered. The roles of management, leadership, and physicians are highlighted. A resource bank and regular flow of good information sources is developed. Business writing skills are emphasized.

**Credit Hours:** 3

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### HMI 7420: Fundamentals of Bioinformatics

(cross-leveled with HMI 4420). The purpose of this course is to provide perspective on the fundamentals of exploration of biological knowledge using computers. As technologies such as microarray, sequencing,

and biomarkers become more pervasive, they are impacting not only the development of science, but also domains such as health care, nutrition, and ethics. This course provides a description of fundamental bioinformatics concepts such as sequencing, proteomics, metabolomics, and biological pathways, and illustrates them with short informatics experiments. Mainly online resources will be used, so no programming is necessary. Also, the course includes a short primer of molecular biology, so background in molecular biology is not required.

**Credit Hours:** 3

**Prerequisites:** Open to undergraduates with dual enrollment

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### HMI 7430: Introduction to Health Informatics

Introduction to the use of clinical information systems in healthcare. Topics include clinical data, standards, electronic medical records, computerized provider order entry, decision support, telemedicine, and consumer applications.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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### HMI 7431: Foundation of Public Health Informatics

This course will cover foundational knowledge relevant to Public Health Informatics (PHI). The purpose of this course is to expose students to emerging research and application areas in the field of PHI. It will enhance abilities to know when and how to use theories, concepts, and tools of informatics applied to public health. The emphasis of the course is on the use of informatics tools and practices in public health and the existing and evolving relationship between clinical and public health systems. The focus is on PHI including topics such as data exchange and standards, interoperability, use of informatics tools, applying informatics to public health communication and dissemination, surveillance systems, public health policy and project management.

**Credit Hours:** 3

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### HMI 7432: Health Database Management and Public Health Data Systems

This course will cover foundational knowledge relevant to database management and public health data systems for Public Health Informatics (PHI). The purpose of this course is to provide students with concepts relevant to the effective use of data, information, and knowledge tools to build, manage, merge, retrieve, and analyze public health data from appropriate health data systems. The emphasis of the course is to use, develop and adapt public health information systems as needed to support public health efforts through use of public health informatics tools and practices to support existing and evolving relationships between clinical and public health systems. The focus is to plan, develop, implement, manage and evaluate database management systems and health data systems that meet the needs of public health practice through PHI.

**Credit Hours:** 3

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### HMI 7435: Scripting for Public Health Informatics

In this online course, the student will learn 1) the Python programming language and how to use it to manipulate common forms of public health data, 2) the SQL language and how to design and interact with a relational database and its contents.

**Credit Hours:** 3

**Prerequisites:** College-level Statistics; Graduate standing or permission of the instructor

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**HMI 7440: Health Information Technology**

(cross-leveled with HMI 4440). In this course, the student will learn 1) The Python programming language and how to use it for biomedical applications 2) the SQL database language and how to design and operate a database, and 3) HTML and javascript languages and how to design a web application. Applications will be healthcare focused.

**Credit Hours:** 3

**Prerequisites:** college algebra and statistics

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**HMI 7471: Introduction to Accounting and Finance in Health Care**

This course introduces the current financial environment in which providers operate and the fundamentals of financial accounting, with an emphasis on accounting and financial management principles and concepts that are critical to decision making for department-level management of health services organizations. This course provides the foundation for the second healthcare financial management course offered in the second year of this program.

**Credit Hours:** 3

**Prerequisites:** Graduate standing or consent of instructor

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**HMI 7564: Health Ethics Theory**

An introduction to health ethics theory and methodology. We discuss metaethics and normative ethics theories, normative ethics in health ethics and methods of ethics case work up.

**Credit Hours:** 3

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**HMI 7566: Health Informatics Ethics**

An introduction to how the increasing use of distance-based technologies, computers, and online communications may impact the ethical delivery of health care. Examples of questions to be addressed: Is it possible that the increasing use of computers in healthcare has made things worse? How should HIPAA be interpreted and why is there such confusion about it? Should patients be able to 'post' negative comments about providers on social media sites? What should be done about the increasing amounts of personal information healthcare corporations are collecting on patients?

**Credit Hours:** 3

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**HMI 7567: Health Organizational Ethics**

Examples of questions to be addressed: Should hospitals and doctors try to maximize profits? Do providers have a moral obligation to serve people who cannot pay? Is it okay to deceive an insurance company if it means better patient care? What should employees do if their employer is committing fraud? Is it ethical for hospitals to drug-test employees and investigate their private lives? What is the ethical way to hire and fire healthcare staff? What should you do if your supervisor is evil?

**Credit Hours:** 3

**Prerequisites:** HMI 7564 or equivalent course, or permission of instructor

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**HMI 8090: Thesis Research in Health Management and Informatics**

Research leading to a thesis. May be repeated to maximum of 9 hours. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** Advisor's consent

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**HMI 8401: Topics in Health Management and Informatics**

Organized study of selected topics. Subjects will vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hours:** 3

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**HMI 8435: Information Security, Evaluation and Policy**

The purpose of this course is to provide an extensive overview, practical applications and analyses of functionality and usability evaluations of health care information technology, and to discuss the impact of security on the present and future health care settings.

**Credit Hours:** 3

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**HMI 8437: Data Warehousing and Data/Text Mining for Health Care**

An introduction to the basic concepts of data warehouse and data/text mining, creating an understanding of why we need those technologies and how they can be applied to healthcare problems.

**Credit Hours:** 3

**Prerequisites:** HMI 8441

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**HMI 8441: Biomedical and Health Vocabularies and Ontologies**

Basic and advanced concepts of controlled terminologies and their use in the representation of biomedical information and knowledge, with emphasis on terminology management in the health care enterprise. Syntactic and semantic structure of controlled terminologies are examined and a number of representative terminologies are analyzed.

**Credit Hours:** 3

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**HMI 8443: Enterprise Information and Solutions Architecture for Strategic Healthcare Operations**

Organization and development of infrastructure necessary to support an enterprise information system for patient care. Components of architecture are introduced in a problem-based approach, case examples are presented as the basis for addressing specific attributes of the components, as well as problems facing the design of an enterprise information system for health care.

**Credit Hours:** 3

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**HMI 8450: Methods of Health Services Research**

Writing intensive course provides students with basic understanding of literature search, experimental designs, evaluation methods, ethics, reporting and application of health services research. Practical research problems are discussed and students prepare a professional, managerially relevant research proposal.

**Credit Hours:** 3

**Prerequisites:** HMI 7410; Satisfactory completion of a college-level course in statistics

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**HMI 8451: Individual Executive Management Studies**

Students will investigate and address important issues in their organizations. Students will use scientific evidence and techniques to solve applied problems. They will develop data collection protocols, collect and analyze data, draw conclusions, and develop

recommendations using basic research methods tools. They will provide actionable and feasible recommendations based on their analysis. Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites:** HMI 7410, HMI 8450 or permission of instructor

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#### **HMI 8453: Executive Management Studies**

Students will use scientific evidence and techniques to solve applied problems in health care organizations. Students will serve as professional consultants, working within small teams to develop project specifications and plans in collaboration with their clients. They will develop data collection protocols, collect and analyze data, draw conclusions and develop recommendations using basic research methods tools. They will provide actionable, feasible recommendations to their clients based on their analysis. Graded on A/F basis only.

**Credit Hours:** 3

**Prerequisites:** HMI 7410; Graduate standing or permission of the instructor

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#### **HMI 8460: Administration of Health Care Organizations**

Analyzes health care organizations, emphasizing organizational structure, and strategy, and managerial leadership. Topics include governance, adaptation, design, interorganizational networks, and organizational performance.

**Credit Hours:** 3

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#### **HMI 8461: Managing Human Resources in Health Care Organizations**

Provides a framework for understanding and thinking strategically about employee relations and management of people in organizations, drawing on insights from social sciences to explore how psychological, economic, social, and cultural forces influence human resources management in health care.

**Credit Hours:** 3

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#### **HMI 8470: Strategic Planning and Marketing for Health Care Organizations**

Analysis of strategic planning and services management and marketing concepts, techniques, and tools in the health care industry. Includes analyzing the environment, assessing the organization's strengths and weaknesses, formulating strategy to achieve competitive advantage, and implementing strategy through service management and marketing.

**Credit Hours:** 3

**Prerequisites:** HMI 7410, and HMI 8524

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#### **HMI 8472: Financial Management for Health Care Organizations**

Application of concepts, tools and techniques of financial management and their interrelationships as they apply to current and future operation of health care organizations. Prerequisites: For Residential students: HMI 7410, HMI 7471, HMI 8460, HMI 8524. For Executive students: HMI 7410, HMI 8460, HMI 8524, and satisfactory completion of college-level courses in managerial accounting and financial management or satisfactory completion of HMI's online accounting and finance module.

**Credit Hours:** 3

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#### **HMI 8478: Knowledge Management in Health Care**

Representing clinical terms, concepts and knowledge in a form for manipulation by intelligent systems. Theoretical formalisms and conceptual representations of medical information. Examination of knowledge engineering tools and decision support systems.

**Credit Hours:** 3

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#### **HMI 8485: Problems in Health Management and Informatics**

Intensive study of an area of health services management.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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#### **HMI 8515: Problems in Medical Ethics and Clinical Ethics Consultation Practicum**

The Problems in Medical Ethics Course is a practicum based course with a hands-on clinical ethics consultation component. The course will provide the student with a tailored learning experience that will encourage and develop skills and a working knowledge about health care ethics, and the ability to respond effectively when confronted with the difficult ethical dilemmas that may be encountered at multiple levels in the complex arena of health care. Specifically students will cultivate skills which will optimize their ability to work as an ethics consultant in a multidimensional and diverse society as well as an inclusive health care environment. The course is designed with flexibility in mind, however there are mandatory onsite components which will require the student to attend structured meetings, consultations and presentations.

**Credit Hours:** 5

**Prerequisites:** M-4 status for medical students. For Graduate students, HMI 7564 - Health Ethics Theory and HMI 8565 - Health Care Ethics and permission of instructor

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#### **HMI 8524: Health Economics**

Building upon previous knowledge of basic economic theories, concepts, and tools, the structure, organization, activities, functions, and problems of health and medical care are considered from an economics perspective.

**Credit Hours:** 3

**Prerequisites:** microeconomics

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#### **HMI 8544: Managerial Epidemiology (Population Health Management)**

Examination of basic epidemiological concepts and methods as they apply to health services management. Lectures and discussions focus on the most useful measures of occurrence of health events, methods of data collection, research study design, the interpretation of epidemiological data, and the limitations of epidemiological methods, providing the background needed by students to critically review, draw conclusions from, and use information encountered in their roles as healthcare managers. Emphasis is placed on practical applications of epidemiology to health services planning, problem solving, policy development, and systems-thinking.

**Credit Hours:** 3

**Prerequisites:** Restricted to HMI students only

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**HMI 8545: Methods in Public Health Informatics/Biostatistics**

This course will cover foundational statistical knowledge and methods relevant to Public Health Informatics (PHI). The purpose of this course is to teach students to identify and perform appropriate statistical methods for the data analysis of data from many commonly used experimental designs in the field of PHI. The emphasis of the course is on the understanding of theoretical assumptions underlying these statistical methods. The focus of this course is to perform selected statistical analyses using SPSS and/or R and to interpret statistical results, in a manner relevant to public health informatics in the context of public health. This course builds upon previous knowledge of basic statistics, concepts, and tools by applying them specifically to the public health field.

**Credit Hours:** 3

**Recommended:** college algebra

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**HMI 8546: Public Health Information and Visualization (GIS) in Public Health**

This course will cover foundational knowledge of Geographic Information Systems (GIS) relevant to Public Health Informatics (PHI). The purpose of this course is to learn basic descriptive and analytical functions of GIS for research and application areas in the field of PHI. The course emphasis is for students to gain hands-on experience in the use of GIS, mapping, and spatial data analysis software such as ArcGIS, R, and Instant Atlas. The focus is on the use of geographic information systems (GISs) in the analysis of public health data. No previous knowledge of mapping or GIS is required, but one is expected to have a working knowledge of MS Office, Windows operating systems, and Biostatistics (prerequisites Methods in Public Health Informatics/Biostatistics). This course builds upon previous knowledge of basic statistics, concepts, and tools by applying them in a GIS context specific to Public Health Informatics.

**Credit Hours:** 3

**Prerequisites:** HMI 8545

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**HMI 8550: Health Data Analytics**

The purpose of this course is to provide you with an applied approach to analyze healthcare data. It will enhance abilities to know when and how to use theories, concepts, and tools of data analysis and statistics to evaluate and analyze health care data systematically. The emphasis of the course is on the use of data analysis in the health care field. The focus is on applying data analysis to health care data, problems and issues in the health care system, and on the data application necessary to make decisions based on the analysis. This course builds upon previous knowledge of basic statistics and analytics, concepts, and tools by applying them specifically to the health care system.

**Credit Hours:** 3

**Prerequisites:** college algebra and statistics or permission of instructor

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**HMI 8565: Health Care Ethics**

Explores ethics issues and controversies facing clinicians and healthcare administrators. Topics may include end-of-life care, imperiled newborns, maternal-fetal conflict, procreative liberty, genetic screening and enhancement, organ procurement and allocation, rationing, public health, workplace relationships, and conflicts of interest.

**Credit Hours:** 3

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**HMI 8571: Decision Support in Health Care Systems**

Applies principles and techniques of computer-assisted decision making to solve health care problems. Clinical and managerial applications of artificial intelligence, including expert systems reviewed. Advantages of integrating decision support programs with databases are discussed.

**Credit Hours:** 3

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**HMI 8573: Decision Making for Health Care Organizations**

Applies and integrates data and decision making techniques with process analytic and improvement tools and techniques. Also includes applications of spread sheets and relational databases in healthcare settings.

**Credit Hours:** 3

**Prerequisites:** Restricted to HMI students

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**HMI 8574: Health Care Law**

Survey of the function and methods of law as applied to health care administration and health care.

**Credit Hours:** 3

**Prerequisites:** HMI 7410, HMI 7471, HMI 8460, HMI 8524. Non HMI students with a Graduate or professional school career may be able to take the course with instructor consent

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**HMI 8575: Health Policy and Politics**

Overview and critical analysis of health policy issues in the United States, including how the dynamics of the policy making process have shaped outcomes, successful and unsuccessful, of a number of important policy initiatives.

**Credit Hours:** 3

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**HMI 8580: Project Management**

This course is designed to provide an in-depth understanding of the fundamentals of project management and its application to the provision of health care. A problem-based approach is used to frame both the theoretical underpinnings of project management and hands-on practical application. Students will develop an understanding of the foundations of project management designed to enable them to successfully complete the certification exam to become a certified project manager. Course content includes project scope development, project work breakdown, financial control, and human resources management for projects.

**Credit Hours:** 3

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**HMI 8610: Consumer Health Informatics**

Consumer health informatics explores the branch of medical informatics that analyzes consumers' needs for information; studies and implements methods of making information accessible to consumers; and models and integrates consumers' preferences into medical information systems.

**Credit Hours:** 3

**Prerequisites:** HMI 7430 or instructor's consent

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**HMI 8689: Field Experience in Health Management and Informatics**

Supervised field experience in approved health agencies and institutions. Opportunity for observation and service participation in various fields of health. Graded on an A-F basis only.

**Credit Hours:** 3

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**HMI 8810: Research Methods in Informatics**

Research Methods in Health and Bioinformatics is a writing intensive course that provides students with an understanding of research proposal development, literature searching, research synthesis, research designs, evaluation methods, and ethics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Second semester or later in PhD program or instructor's consent

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**HMI 8870: Knowledge Representation in Biology and Medicine**

The main topics presented in the course are: logic systems, knowledge representation methods, production systems and representation of statistical and uncertain knowledge. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HMI 7430 and HMI 7440

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**HMI 8880: Agile Project Management in Healthcare**

Overview of the theory and methods associated with agile project management within the context of healthcare operations. Focus of the course is on knowledge of agile principles and agile techniques and the use of appropriate analysis tools. Course encompasses many approaches to agile project management including Scrum, Kanban, Lean, extreme programming (XP) and test driven development (TDD), and appropriate construction and management of information projects that are supportive of best practice clinical, administrative, and strategic policy and procedure in the delivery of health. A problem-based approach is used to provide the basis for addressing issues and solutions specific to the health delivery environment. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HMI 8580

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## Health Professions (HTH\_PR)

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**HTH\_PR 1001: Topics in Health Professions**

Organized study of selected topics in Health Professions. Particular topics and credit may vary each semester.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**HTH\_PR 1100: Introductory Topics in Pharmacy**

The course includes presentations and discussions on the profession of pharmacy including: the roles and responsibilities of the pharmacist, educational requirements to obtain the degree, career opportunities, student life, legal and ethical issues, and study skills development. Enrollment limited to Freshman enrolled in Early Assurance Program. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Instructor's consent

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**HTH\_PR 2000: Leadership in Health Care**

This course will cover a broad range of concepts in leadership and professional development. Focus will be placed on knowledge and skills necessary for effective leadership in the Health Professions. The first of two semesters series. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** instructors consent

**Recommended:** to students in specified leadership programs

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**HTH\_PR 2001: Topics in Health Professions**

Organized study of selected topics in health professions. Particular topics and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** sophomore standing and instructor's consent

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**HTH\_PR 2960: Special Readings in Health Professions**

Directed study of literature and research reports in the health-related professions.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**HTH\_PR 4085: Problems in Health Professions**

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**HTH\_PR 4100: Introduction to Interprofessional Practice**

(cross-leveled with HTH\_PR 7100) This course serves as a foundation and introduction to interprofessional education and collaboration. Students who enroll in this course will be assigned to mini-teams of students from a range of disciplines. Through this course, students will develop an understanding of their own unique role as a healthcare provider and the importance of client- and community-centered care and effective teamwork, as well as communication skills. Graded on A-F basis only. Recommended: Students must be enrolled in one of the following programs in order to take this course: Communication Sciences, Athletic Training, Respiratory therapy, Radiography, Clinical Laboratory Sciences, Diagnostic Ultrasound. Undeclared/non-professional program students may not enroll.

**Credit Hour:** 1

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**HTH\_PR 4250: Human Kinesiology**

(same as PH\_THR 4250). Study of principles of physical laws, biomechanics and anatomic structure relative to human movement. Application through analysis of daily functional performance, exercise and sport.

**Credit Hours:** 3

**Prerequisites:** PTH\_AS 2201

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**HTH\_PR 4950: Research Apprenticeship in Health Professions**

This course provides undergraduate students in the health professions and related disciplines experience with research in the health professions and related disciplines experience with research in the health professions. Students will assist in the development and execution of research projects under the supervision of an SHP faculty member.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**HTH\_PR 7001: Topics in Health Professions**

Organized study of selected topics in health and/or healthcare. Topic and credit may vary from semester to semester.



**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**HTH\_PR 7100: Introduction to Interprofessional Practice**

(cross-leveled with HTH\_PR 4100). This course serves as a foundation and introduction to interprofessional education and collaboration. Students will develop an understanding of their own unique role as a healthcare provider and the importance of client- and community-centered care and effective teamwork, as well as communication skills. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Students must be enrolled in a professional graduate program (Occupational therapy, Physical Therapy, Communication Sciences and Disorders, Athletic Training within the School of Health Professions or other approved programs (Applied Behavioral Analysis)

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**HTH\_PR 7300: Health Care in the United States**

Overview of financing, structure, and outcomes in the U.S. health care system. Contemporary health care issues, policy, and politics will be addressed. Graded on A-F basis only.

**Credit Hours:** 3

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**HTH\_PR 8001: Topics in Health Professions**

Organized study of selected topics in health and/or healthcare. Topic and credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**HTH\_PR 8085: Problems in Health Professions**

Individual study not leading to thesis or dissertation.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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## Health Psychology (HLTHPSYC)

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**HLTHPSYC 8200: Advanced Applied Behavior Analysis**

This course provides students with a basic understanding of the fundamentals of behavior analysis and behavioral interventions designed to establish, shape, strengthen and maintain desirable behavior and reduce aberrant behavior. The course focuses on the application of behavioral principles using procedures such as differential reinforcement, extinction, antecedent interventions, and punishment. Graded on A-F basis only.

**Credit Hours:** 3

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**HLTHPSYC 8250: Methods in Applied Behavior Analysis**

This course provides students with a basic understanding of systematic data collection and analysis methods used in applied behavior analysis to make informed (data-driven) clinical decisions. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** One of the following - HLTHPSYC 8200, ESC\_PS 8087 or SPC\_ED 8440

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## Health Sciences (HLTH\_SCI)

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**HLTH\_SCI 1000: Introduction to the Health Professions**

Overview of clinical/non-clinical health careers; aptitudes/abilities needed for each; the history, current and future state of health care in the U.S.; introduction to diverse populations and patient/family issues; Assists with career planning/selection of appropriate majors. Graded on A-F basis only.

**Credit Hours:** 3

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**HLTH\_SCI 1000H: Introduction to the Health Professions - Honors**

Overview of clinical/non-clinical health careers; aptitudes/abilities needed for each; the history, current and future state of health care in the U.S.; introduction to diverse populations and patient/family issues; Assists with career planning/selection of appropriate majors. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors Eligibility required

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**HLTH\_SCI 2100: Health Sciences Seminar**

Professional Development course for Health Science Majors. Topics include resume development/ revision , interviewing skills, applying to graduate/professional programs and/or jobs, professional communication, etc. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** sophomore standing required; restricted to Health Science majors only

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**HLTH\_SCI 2200: Nuclear Weapons: Environmental, Health and Social Effects**

(same as SOCIOL 2281 and PEA\_ST 2200). Environmental consequences of the nuclear arms race, 'regional' nuclear war, and weapons testing for human health, agriculture, and society. Examining 'a world without nuclear weapons'; political dialogue on proliferation; Iran, North Korea, and nuclear weapons conventions. Graded on A-F basis only.

**Credit Hours:** 3

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**HLTH\_SCI 2200W: Nuclear Weapons: Environmental, Health and Social Effects - Writing Intensive**

(same as SOCIOL 2281 and PEA\_ST 2200). Environmental consequences of the nuclear arms race, 'regional' nuclear war, and weapons testing for human health, agriculture, and society. Examining 'a world without nuclear weapons'; political dialogue on proliferation; Iran, North Korea, and nuclear weapons conventions. Graded on A-F basis only.

**Credit Hours:** 3

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**HLTH\_SCI 2300: Health Care In Missouri**

This course focuses primarily on application of general health concepts and tools specifically from the perspective of the State of Missouri. It is known for its mixture of large urban areas with rural regions and an extensive farming culture. Missouri has a population of six million people. The state's capitol is in Jefferson City and the most populated cities are: Kansas City-459,787; St. Louis-319,294; Springfield-159,498;

Independence-116,830 and Columbia-108,500. Thirty-seven percent of Missouri's population is rural (MO Health Assessment). This course will assist the 69% of Department of Health Science majors, who stay in Missouri after graduation, to better understand the unique issues facing their future patients and clientele. Students will be exposed to specific challenges and successes in Missouri as they relate to health care and public health from a variety of perspectives. This course will examine the health of all Missourians; however, the course will highlight the challenges facing vulnerable populations within the state (minorities, women, LGBT and rural/urban community members) in order to increase cultural competence. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Health Sciences Majors only

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#### **HLTH\_SCI 2300H: Health Care In Missouri - Honors**

This course focuses primarily on application of general health concepts and tools specifically from the perspective of the State of Missouri.

It is known for its mixture of large urban areas with rural regions and an extensive farming culture. Missouri has a population of six million people. The state's capitol is in Jefferson City and the most populated cities are: Kansas City-459,787; St. Louis-319,294; Springfield-159,498; Independence-116,830 and Columbia-108,500. Thirty-seven percent of Missouri's population is rural (MO Health Assessment). This course will assist the 69% of Department of Health Science majors, who stay in Missouri after graduation, to better understand the unique issues facing their future patients and clientele. Students will be exposed to specific challenges and successes in Missouri as they relate to health care and public health from a variety of perspectives. This course will examine the health of all Missourians; however, the course will highlight the challenges facing vulnerable populations within the state (minorities, women, LGBT and rural/urban community members) in order to increase cultural competence. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Health Sciences Majors only; Honors eligibility required

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#### **HLTH\_SCI 2500: Introduction to Rehabilitation Science**

This course provides a comprehensive introduction to health care rehabilitation. Topics explored will provide foundational knowledge for future rehabilitation professionals and will facilitate the development of skills necessary for success in rehabilitation science graduate and professional degree programs. These topics include the development of the field of rehabilitation, models of disablement/enableness, interprofessional collaboration among rehabilitation providers, and development and growth of critical thinking skills in the rehabilitation sciences. Graded on A-F basis only.

**Credit Hours:** 3

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#### **HLTH\_SCI 2800: Social Justice in Health**

This course introduces the social justice framework and the building of inclusive classrooms and clinics. It includes weekly topics on inclusion, social identities, implicit bias, socioeconomic status, allyship and intrusion. Tools examined include: good personal communication, understanding an inclusive culture, how to be an ally, strategies to recognize and mitigate bias in health situations. Experiential activities and dialogue are the main avenues of learning in this course. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Restricted to Health Sciences Majors during preregistration

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#### **HLTH\_SCI 2850: Introduction to The Impact of Bias, Prejudice and Discrimination on Health Care**

The course is an introduction to concepts of bias, prejudice and discrimination that occurs within health care settings in the United States. We will examine the problem from multiple disciplines, including evidence from sociology, psychology, anthropology, history, and health sciences. Examining these materials will help students better understand the impact of bias, prejudice, and discrimination on access to health care, and on the overall health of people and populations who are impacted by prejudice and discrimination. With the completion of this course, students will be better equipped to provide quality person-centered care and be able to think critically about how to begin the process of ending harmful discriminatory practices. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Sciences Majors

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#### **HLTH\_SCI 2850H: Introduction to The Impact of Bias, Prejudice and Discrimination on Health Care - Honors**

The course is an introduction to concepts of bias, prejudice and discrimination that occurs within health care settings in the United States. We will examine the problem from multiple disciplines, including evidence from sociology, psychology, anthropology, history, and health sciences. Examining these materials will help students better understand the impact of bias, prejudice, and discrimination on access to health care, and on the overall health of people and populations who are impacted by prejudice and discrimination. With the completion of this course, students will be better equipped to provide quality person-centered care and be able to think critically about how to begin the process of ending harmful discriminatory practices. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Sciences Majors. Honors eligibility required

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#### **HLTH\_SCI 3300: Public Health Principles, Practice, and Education**

Public Health is the science and practice of protecting and improving the health of communities through education, promotion of healthy lifestyles, and research for disease and injury prevention. This course focuses on the basic structures of the Public Health system in the U.S. and provides an introduction to the factors that influence and shape that system. Among others, factors include socioeconomic, financing, politics and global issues. Students in this course will be challenged to consider the complex web of factors affecting the health of communities. The course will explore: health needs assessments, examining relationships among behavioral, environmental and genetic factors that enhance or compromise health, examining factors that influence the learning process, and examining factors that enhance or compromise the process of health education. Graded on an A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Sciences Majors during pre-registration

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**HLTH\_SCI 3300H: Public Health Principles, Practice, & Education - Honors**

Public Health is the science and practice of protecting and improving the health of communities through education, promotion of healthy lifestyles, and research for disease and injury prevention. This course focuses on the basic structures of the Public Health system in the U.S. and provides an introduction to the factors that influence and shape that system. Among others, factors include socioeconomic, financing, politics and global issues. Students in this course will be challenged to consider the complex web of factors affecting the health of communities. The course will explore: health needs assessments, examining relationships among behavioral, environmental and genetic factors that enhance or compromise health, examining factors that influence the learning process, and examining factors that enhance or compromise the process of health education. Graded on an A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**HLTH\_SCI 3300W: Public Health Principles, Practice, and Education - Writing Intensive**

Public Health is the science and practice of protecting and improving the health of communities through education, promotion of healthy lifestyles, and research for disease and injury prevention. This course focuses on the basic structures of the Public Health system in the U.S. and provides an introduction to the factors that influence and shape that system. Among others, factors include socioeconomic, financing, politics and global issues. Students in this course will be challenged to consider the complex web of factors affecting the health of communities. The course will explore: health needs assessments, examining relationships among behavioral, environmental and genetic factors that enhance or compromise health, examining factors that influence the learning process, and examining factors that enhance or compromise the process of health education. Graded on an A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Sciences Majors during pre-registration

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**HLTH\_SCI 3310: Social and Behavioral Health Theory and Practice**

Social and Behavioral Health (SBH) is the core discipline of public health that focuses on the factors that influence individuals' and communities health actions and decisions. This course will take both a theoretical and a practical approach to understanding SBH. Students will gain an understanding of theory and develop practical skills to apply theories to real world health issues. Readings, assignments, and discussions will focus largely on ways to understand and change health behaviors and various individual, relational, community, and social-level influences on health. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Sciences Majors during pre-registration. Sophomore standing required

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**HLTH\_SCI 3400: Global Public Health and Health Care Systems**

(same as PEA\_ST 3401). An introduction to public health in a global context, with an emphasis on understanding how disparities in socioeconomic status, differences in political and national health care systems and the work of international organizations impact health in communities around the world. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Science majors only, in junior or senior status

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**HLTH\_SCI 3450: Introduction to Epidemiology**

(same as P\_HLTH 3450). Epidemiology is the basic science of Public Health, focusing on the study of distribution and determinants of health-related states and events. The purpose of this course is to gain a basic understand of Epidemiology principles and methods and how to use these as a framework in assessing and addressing population health issues. Employing a mix of lecture, discussion, and assignments, students will explore the epidemiological investigation process, the etiology of disease, disability, and death, how to identify population subgroups with increased risk of disease, disability, and death and how to contribute to the development and evaluation of public health programs and services that improve the health of subgroups at risk and the general population. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Acceptance into the Public Health Undergraduate Program or by Department Consent

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**HLTH\_SCI 3500: Mental Health**

This course provides a look at mental health problems with regard to influences, etiology, diagnosis, and treatment. Students learn theories of mental health, diagnostic criteria, treatment modalities, and community issues concerning the mental health system. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HLTH\_SCI 2100

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**HLTH\_SCI 3600: Health Promotion Programs I: Assessment and Planning**

(same as P\_HLTH 3600). Health promotion planning is the development and implementation of a well-researched and tailored intervention to increase the health status of an individual and population. This course will provide a comprehensive introduction to health promotion planning and assessment by integrating a solid theoretical foundation of the discipline with hands-on experience in assessing needs, assets and capacity for health education, health education and project planning, funding, intervention development, implementation of health education projects, and evaluation. Special attention placed on implementing health education and promotion programs that are tailored to the particular population in need as well as specialized for the appropriate setting be it school, work, health care clinic, or the community. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Science majors

**Corequisites:** HLTH\_SCI 3610

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**HLTH\_SCI 3610: Health Promotion Programs II: Implementation, Evaluation, and Communication**

(same as P\_HLTH 3610). This course builds on topics covered in Health Promotion Programs I: Assessment and Planning. It will provide a comprehensive introduction to the implementation, evaluation and communication required for successful health promotion programs by integrating a solid theoretical foundation of the discipline with hands-on experience in the implementation of health promotion program, developing an evaluation and communication strategies for successful

health education and health promotion programs in a variety of community-based settings. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Sciences Majors only

**Corequisites:** HLTH\_SCI 3600

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**HLTH\_SCI 3680: Autism Spectrum Disorder and Public Health**

This class is designed to help students think critically about the identification and treatment of autism spectrum disorder (ASD) in the United States. Students will explore current research and debates surrounding the definition, prevention and treatment of ASD in the United States. In addition to learning about the presentation and treatment of ASD, they will also be introduced to concepts in public health, psychology, psychiatry, and health services research. We will also discuss the history of our beliefs about ASD and how these beliefs have influenced policy, systems, services and treatment over the last century. Graded on A-F basis only.

**Credit Hours:** 3

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**HLTH\_SCI 3800: Holistic Health Systems for the Health Professions**

This course will explore the various aspects of the holistic health movement and how they interact with American health care. Topics will include complementary and alternative medicine, or CAM, acupuncture, chiropractic, herbal remedies, naturopathy, traditional Chinese medicine, Ayurveda, midwifery, New Age healing, and others. Students will learn about the underlying philosophical principles of these practices, cultures of origin, treatments offered, and what consumers of health care as well as members of the health care workforce need to know about them. Graded on A-F basis only. Recommended: The most successful students will have taken other Health Sciences courses, particularly HLTH\_SCI 3300: Public Health, prior to enrolling in this course.

**Credit Hours:** 3

**Prerequisites:** Restricted to students in junior or senior status. Restricted to Health Sciences Majors during pre-registration

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**HLTH\_SCI 3900: Introduction to The Research Process and Evidence Base**

This course provides an introduction to the basic quantitative and qualitative research techniques used in public health, health education and promotion, and the health professions. Conducting research, making medical decisions based on research findings, and using and interpreting research and evidence in practice settings all represent potential outcomes for students selecting a career in public health or the health professions. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Sciences Majors with junior or senior standing

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**HLTH\_SCI 3900H: Introduction to The Research Process and Evidence Base - Honors**

This course provides an introduction to the basic quantitative and qualitative research techniques used in public health, health education and promotion, and the health professions. Conducting research, making medical decisions based on research findings, and using and interpreting research and evidence in practice settings all represent potential outcomes for students selecting a career in public health or the health professions. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Sciences Majors with junior or senior standing. Honors eligibility required

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**HLTH\_SCI 3900HW: Introduction to The Research Process and Evidence Base - Honors/Writing Intensive**

This course provides an introduction to the basic quantitative and qualitative research techniques used in public health, health education and promotion, and the health professions. Conducting research, making medical decisions based on research findings, and using and interpreting research and evidence in practice settings all represent potential outcomes for students selecting a career in public health or the health professions. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Sciences Majors with junior or senior standing. Honors eligibility required

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**HLTH\_SCI 3900W: Introduction to The Research Process and Evidence Base - Writing Intensive**

(same as P\_HLTH 3900W). This course provides an introduction to the basic quantitative and qualitative research techniques used in public health, health education and promotion, and the health professions. Conducting research, making medical decisions based on research findings, and using and interpreting research and evidence in practice settings all represent potential outcomes for students selecting a career in public health or the health professions. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Sciences Majors with junior or senior standing

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**HLTH\_SCI 3965: Strategies for Effective Peer Education in Health Sciences**

(same as WGST 3960, P\_HLTH 3965). Course designed to promote effective presentation skills on a variety of health topics, specifically sexual health. Students will engage in experiential practice and skill building surrounding cultural competency, difficult discourses, discussion facilitation and behavior management. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Instructor's consent

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**HLTH\_SCI 4001: Topics in Health Science**

Organized study of selected topics. Subjects will vary from semester to semester. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** Restricted to Health Sciences Majors during preregistration

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**HLTH\_SCI 4002: Health Sciences Study Abroad - not for capstone**

This course gives students the opportunity to apply critical thinking and analysis to various health issues through the global lens of a study abroad experience. Health issues are affected and complicated by cultural, educational, political, and environmental systems. This program is designed to allow students to gain firsthand knowledge in disease prevention and disability, compliance, health education, and the specific health issues in a local community. Course work will vary based on the

study abroad location. This section is not eligible for Health Sciences major's internship/capstone credit. Graded A-F only.

**Credit Hour:** 1-6

**Prerequisites:** Sophomore Standing Required

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**HLTH\_SCI 4085: Problems in Health Sciences**

Students will individually examine a specific health related problem, conduct research, and pose solutions to the problem as related to a health science course or a health field. Course work and content will vary based on the subject and may supplement regular course enrollment. Communication with instructor on topic, progress, and feedback should be timely for successful completion of course. Graded on A-F basis only.

**Credit Hour:** 1-6

**Prerequisites:** Instructor consent

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**HLTH\_SCI 4300: Health Care in the United States**

Overview of financing, structure, and outcomes in the U.S. health care system. Contemporary health care issues, policy, and politics will be addressed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing; Restricted to Health Sciences Majors during pre-registration

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**HLTH\_SCI 4300H: Health Care in the United States - Honors**

Overview of financing, structure, and outcomes in the U.S. health care system. Contemporary health care issues, policy, and politics will be addressed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**HLTH\_SCI 4400: Culture and Health Literacy for the Health Professions**

This course will explore differences and attitudes towards the health care industry across various social, cultural and ability groups. This exploration will result in more culturally competent health professionals by promoting self-awareness and challenging the existing assumptions and biases of the health care system. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** junior or senior standing or instructor's consent. Restricted to Health Sciences Majors

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**HLTH\_SCI 4410: Humanism and Health Literacy**

This class will teach how the humanities can help students become better health professionals. Topics include: spirituality and health; non-medical factors that impact health; representation of disability in art history; and literature and health. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Sciences Majors during pre-registration

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**HLTH\_SCI 4420: Health Literacy and Behavioral Compliance**

Students will learn about the behavioral, psychological, and cognitive factors that impact health literacy and the ability to follow healthcare recommendations.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Sciences Majors during pre-registration

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**HLTH\_SCI 4480: Clinical Ethics**

(same as CDS 4480). Exploration of bioethics issues in health care with emphasis on issues related to patient choice and provider responsibility. Topics include philosophical theories, principles and models for ethical and lawful decision making in healthcare.

**Credit Hours:** 3

**Prerequisites:** junior or senior standing; Restricted to Health Science majors only

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**HLTH\_SCI 4480W: Clinical Ethics - Writing Intensive**

(same as CDS 4480W). Exploration of bioethics issues in health care with emphasis on issues related to patient choice and provider responsibility. Topics include philosophical theories, principles and models for ethical and lawful decision making in healthcare.

**Credit Hours:** 3

**Prerequisites:** junior or senior standing; Restricted to Health Science majors only

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**HLTH\_SCI 4500: Health Care Management**

(same as P\_HLTH 4500). Examines various management concepts as they relate to the unique environment of health care. Concepts include planning, decision making, budgeting, staffing, organizing, and motivating for working with individuals or teams. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Science majors only with junior or senior status

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**HLTH\_SCI 4510: Essential Tools for the Health Care Leader: A Problem-Based Approach**

This course is designed to increase students' ability to evaluate, synthesize, and perform tasks in the areas of business intelligence, business analysis, performance and process improvement, data management and mining, information security and privacy, and project management. Graded A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Science majors only in junior or senior status

**Recommended:** Access to and experience using Microsoft Excel 2010

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**HLTH\_SCI 4520: Health Care Project Management**

Examines various project management concepts, both universal and as they relate to the unique environment of health care. Concepts include project, program and portfolio management, initiating projects, planning projects, executing projects, monitoring and controlling projects, closing projects, and using industry best practices and tools. This course will enable you to work with other project management professionals across various industries and in the changing health care setting. You will learn how good project, program, and portfolio management can help you achieve organizational and individual success. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Health Science majors only in junior or senior status

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**HLTH\_SCI 4900: Seminar in Health Education**

(cross-leveled with P\_HLTH 7900). This course provides students pursuing careers in health education/promotion and public health with the opportunity to synthesize their relevant coursework and prepare for the Certified Health Education Specialist (CHES) examination. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Instructor consent required

**Recommended:** Intended as preparation for the Certified Health Education Specialist (CHES) Exam

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**HLTH\_SCI 4975: Internship in Health Sciences**

Focuses on knowledge, skills and attitudes that enhance personal effectiveness and professional success. Opportunities to research selected career paths and related topics in health sciences and participate in directed service learning projects or internships in selected emphasis area. Graded on A-F basis only.

**Credit Hour:** 1-6

**Prerequisites:** HLTH\_SCI 2100

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**HLTH\_SCI 4985: Healthcare Organization and Leadership**

In this course, students will explore leadership principles as they relate to the student's focus area, combining previous expertise in the field with an interdisciplinary perspective within the healthcare community. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HLTH\_SCI 2100; senior standing required

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**Hebrew (HEBREW)**

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**HEBREW 1100: Elementary Hebrew I**

For beginners with no prior knowledge of Hebrew. Five hours of classroom instruction, with one hour lab work weekly.

**Credit Hours:** 6

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**HEBREW 1200: Elementary Hebrew II**

Five hours of classroom instruction, with one hour lab work weekly.

**Credit Hours:** 6

**Prerequisites:** C- or better in HEBREW 1100, or equivalent

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**HEBREW 3085: Problems in Hebrew**

Supervised study of Hebrew language and/or culture.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**HEBREW 3845: Modern Israeli Film**

(same as FILMS\_VS 3845). Examines the modern film of developing Israel. Discusses complex social relationships. Introduces concepts of Hebrew language and its use in the arts world-wide. Discusses varied communities in Israel, and universal themes such as democracy and social justice. Provides introduction to Israeli culture. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent required

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**History (HIST)**

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**HIST 1004: Undergraduate Topics in History-Social Science**

Organized study of selected topics. Subjects and credits may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

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**HIST 1100: Survey of American History to 1865**

Introduction to U.S. history through the Civil War, surveying political, economic, social and cultural development of the American people. No credit will be given to students who have received credit in HIST 1400 (AP credit for US History).

**Credit Hours:** 3

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**HIST 1100H: Survey of American History to 1865 - Honors**

Introduction to U.S. history through the Civil War, surveying political, economic, social and cultural development of the American people. No credit will be given to students who have received credit in HIST 1400 (AP credit for US History).

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**HIST 1200: Survey of American History Since 1865**

Introduction to U.S. history since 1865, surveying political, economic, social, and cultural development of the American people. No credit will be given to students who have received credit in HIST 1400 (AP credit for US History).

**Credit Hours:** 3

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**HIST 1200H: Survey of American History Since 1865 - Honors**

Introduction to U.S. history since 1865, surveying political, economic, social, and cultural development of the American people. No credit will be given to students who have received credit in HIST 1400 (AP credit for US History).

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**HIST 1400: American History**

Broad survey of political, economic, social, intellectual, diplomatic and constitutional development of American people from first English settlements to present day; emphasizes evolution of American culture and institutions. Students may not receive additional credit for HIST 1100 and/or HIST 1200.

**Credit Hours:** 5

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**HIST 1410: African American History**

(same as BL\_STU 1410). Survey of social, political and economic development to the African American people in American life from 1619 to the present.

**Credit Hours:** 3

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**HIST 1500: Origins of European History**

(same as HIST 1500H). The roots and development of European culture, society, and institutions in the ancient, medieval, and early modern periods.

**Credit Hours:** 3

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**HIST 1500H: Origins of European History - Honors**

(same as HIST 1500) The roots and development of European culture, society, and institutions in the ancient, medieval, and early modern periods.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**HIST 1510: History of Modern Europe**

Selected major themes in European history from French Revolution to recent times. Breakdown of traditional institutions, ideas; political, social revolution; industrialization, nationalism, imperialism, world wars; democratic, totalitarian ideologies, movements; quest for international order, European unity.

**Credit Hours:** 3

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**HIST 1510H: History of Modern Europe - Honors**

Selected major themes in European history from French Revolution to recent times. Breakdown of traditional institutions, ideas; political, social revolution; industrialization, nationalism, imperialism, world wars; democratic, totalitarian ideologies, movements; quest for international order, European unity.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**HIST 1510HW: History of Modern Europe - Honors/Writing Intensive**

Selected major themes in European history from French Revolution to recent times. Breakdown of traditional institutions, ideas; political, social revolution; industrialization, nationalism, imperialism, world wars; democratic, totalitarian ideologies, movements; quest for international order, European unity.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**HIST 1520: The Ancient World**

Survey of institutional and cultural development of ancient Near East, Greece, Rome, and Asia.

**Credit Hours:** 3

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**HIST 1540: England Before the Glorious Revolution**

Survey of English institutions, culture and politics from the Roman invasion to the Revolution of 1688.

**Credit Hours:** 3

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**HIST 1550: Britain 1688 to the Present**

Surveys British history from 1688 to present. Emphasizes social and economic change.

**Credit Hours:** 3

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**HIST 1570: Survey of Early Modern Europe, 1350-1650**

Survey of Western and Central Europe (including Britain) from the Black Death to the end of the Thirty Years' War. This period comprises late medieval crises, the Renaissance, Reformation, Counter-Reformation, Exploration and the New World, the Confessional Age, early modern state-building, and the Thirty Years' War.

**Credit Hours:** 3

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**HIST 1590: Women and the Family in the Pre-Modern West**

Examines the changing roles of women and familial structures from the Ancient Mediterranean World to the Protestant Reformation and the effects of religious, political and economic change on the family.

**Credit Hours:** 3

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**HIST 1600: Foundations of Russian History**

A survey of the Kievan and Muscovite period to the end of the 17th century.

**Credit Hours:** 3

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**HIST 1790: History of Early Africa**

(same as BL\_STU 1790). This course introduces students to the early history of Africa. It focuses on political, social, economic and cultural developments based on primary and secondary sources available in print and online.

**Credit Hours:** 3

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**HIST 1800: History of Modern Africa**

(same as BL\_STU 1800). This course introduces students to the recent history of Africa. It provides them with an opportunity to understand the main challenges Africans faced since colonial times based on primary and secondary sources.

**Credit Hours:** 3

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**HIST 1830: Survey of East Asian History**

(same as KOREAN 1830). Introductory survey of the history of East Asian countries (China, Korea, Vietnam, and Japan) in the past two thousand years, focusing on their cultural, economic, and political traditions as well as their transformations in the modern era.

**Credit Hours:** 3

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**HIST 1840: Colonial Latin America**

Survey of Latin America, 1492-1825; Exploration and conquest; European settlement; colonial government and institutions; economy and society; cultural and intellectual life, independence movements.

**Credit Hours:** 3

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**HIST 1850: Latin America Since Independence**

Political, social and economic developments; nationalism; revolutionary movements; U.S. influence.

**Credit Hours:** 3

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**HIST 1861: History of Modern India**

(same as S\_A\_ST 1861). This course surveys the history of the South Asian subcontinent from the early seventeenth through the twentieth

century. Emphasis will be placed on cultural and social history, religion, arts and literature, imperialism and colonialism, and the sources used for the study of modern civilizations. Students will develop a basic knowledge and vocabulary necessary to pursue additional South Asian courses.

**Credit Hours:** 3

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**HIST 1871: History of China in Modern Times**

This is a lecture course designed to introduce to beginning level students the epic journey of China's historical transformation since c. 1600. This survey provides a basis for understanding the painstaking transition from 'tradition' to 'modernity' in China.

**Credit Hours:** 3

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**HIST 1872: Mao's China and Beyond: China Since 1949**

Through a series of readings, images, and film we will look at the dramatic cultural, economic, social and intellectual changes the People's Republic of China has experienced since 1949, and look at the interrelated, yet often contradictory, challenges facing Beijing in regards to the task of furthering economic prosperity while promoting policies of integrating with the international society.

**Credit Hours:** 3

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**HIST 2004: Topics in History-Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-6

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**HIST 2100: The Revolutionary Transformation of America**

(same as CNST\_DEM 2100). In the broadest of terms, this is a course on origins. On one hand, we will devote significant class time to discussing 'the causes which impelled' the colonies to throw off the yoke of British rule. We will examine this on both a practical and a more abstract level, focusing first on writings that delineate why colonists grew to perceive the economic, social, and political conditions of British rule as insufferable, and then on how they translated these practical concerns into a more ideological justification of violent revolution.

**Credit Hours:** 3

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**HIST 2100H: The Revolutionary Transformation of America - Honors**

(same as CNST\_DEM 2100H). In the broadest of terms, this is a course on origins. On one hand, we will devote significant class time to discussing 'the causes which impelled' the colonies to throw off the yoke of British rule. We will examine this on both a practical and a more abstract level, focusing first on writings that delineate why colonists grew to perceive the economic, social, and political conditions of British rule as insufferable, and then on how they translated these practical concerns into a more ideological justification of violent revolution.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**HIST 2120: The Young Republic**

(same as CNST\_DEM 2120). This course examines the early years of the United States under the (then) new Constitution, an important historical period with which present-day Americans are increasingly unfamiliar.

Our focus will be on abandoning our preconceptions about the nation's early history and thoroughly understanding the choices that were posed and made in the years after 1789 and that would determine what type of nation the U.S. would become.

**Credit Hours:** 3

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**HIST 2120H: The Young Republic - Honors**

(same as CNST\_DEM 2120H). This course examines the early years of the United States under the (then) new Constitution, an important historical period with which present-day Americans are increasingly unfamiliar. Our focus will be on abandoning our preconceptions about the nation's early history and thoroughly understanding the choices that were posed and made in the years after 1789 and that would determine what type of nation the U.S. would become.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**HIST 2150: The American Civil War: A Global History**

(same as CNST\_DEM 2150). In this class students will study the American Civil War from the perspective of global history. The familiar actors and events will be covered - the debate over slavery, the secession of the South, the rise of Abraham Lincoln, the great battles and generals, etc. But these familiar episodes will take on different meanings when viewed in relation to global structures of politics, economics, social relations, and ideology. The 1860s was at once a formative moment in the history of globalization and the key decade for the formation and consolidation of modern nations.

**Credit Hours:** 3

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**HIST 2210: Twentieth Century America**

(same as CNST\_DEM 2210). Survey of American development from 1900 to present. For students who have not taken advanced courses in American history, especially HIST 4210, HIST 4220, or HIST 4230.

**Credit Hours:** 3

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**HIST 2220: America in the 1960's**

(same as PEA\_ST 2220). Examines the political and cultural main currents of the 1960s. Emphasizes the challenges mounted by protest groups and the responses of America's political leadership to the ferment of the period.

**Credit Hours:** 3

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**HIST 2230: Walt Disney and American Culture**

Examines Walt Disney's influence on shaping of modern American culture.

**Credit Hours:** 3

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**HIST 2240: Flight in America: From the Wright Brothers to the Space Age**

This course focuses on the history of flying in the U.S. from its beginnings to the Apollo moon missions. In a little over a century, aviation and space flight have transformed our world in deep and enduring ways. We will focus on key innovations and the people behind them. This is an exciting story, full of fascinating men and women.

**Credit Hours:** 3



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**HIST 2400: Social History of U.S. Women**

(same as WGST 2400). This course, the social History of US Women, offers a general overview of US Women, beginning with the colonial period up to the present day.

**Credit Hours:** 3

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**HIST 2410: African American Women in History**

(same as BL\_STU 2410 and WGST 2410). African American Women in history is a topics course covering major issues affecting black women since their introduction into english-speaking North America to the present.

**Credit Hours:** 3

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**HIST 2430: History of American Religion**

This course focuses on the overall development of American religion from the 17th century to the present. Students will be invited to think about the larger questions concerning American religion, including why religion in America has developed in the way that it has, and how and why it continues to thrive in American popular culture.

**Credit Hours:** 3

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**HIST 2440: History of Missouri**

Survey of Missouri's development from the beginning of settlement to present.

**Credit Hours:** 3

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**HIST 2445: American Constitutional Democracy**

(same as POL\_SC 2445, CNST\_DEM 2445). This course offers an introduction to American constitutional democracy. On the one hand, this course will strive to set the development of America's constitutional democracy into its historical context and to explain it in relation to larger social, political, military, and economic events. A second emphasis is on the nature and character of the American democratic system. Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 2520: From Waterloo to Sarajevo: European History, 1815-1914**

Political, social, economic, and cultural development of Europe from French Revolution to outbreak of World War I.

**Credit Hours:** 3

**Prerequisites:** sophomore standing required

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**HIST 2520W: From Waterloo to Sarajevo: European History, 1815-1914 - Writing Intensive**

Political, social, economic, and cultural development of Europe from French Revolution to outbreak of World War I.

**Credit Hours:** 3

**Prerequisites:** sophomore standing required

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**HIST 2530: Ukrainian History from Medieval to Modern Times**

A successor state of the former Soviet Union, Ukraine occupies a strategic position in Eastern Europe. The course will trace the long,

turbulent history of this East Slavic nation, culminating the independence in 1991.

**Credit Hours:** 3

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**HIST 2570: The First World War and its Aftermath**

(same as CNST\_DEM 2570). This course examines the experience of Europeans in the turbulent years during and immediately following the First World War. After investigating the origins and nature of WWI, we will then examine the political, social and cultural climate of the interwar years.

**Credit Hours:** 3

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**HIST 2580: Mafia Myth and Reality: The Italian Mafia and the Nation-State, 1860 to the Present**

This course explores contemporary cultural representations of the Mafia in film and literature and grounds these fictional representations in the history of modern Italy. We trace the emergence of the various Mafia networks during the wars of the Risorgimento and the construction of the 'southern problem', and the impact transnational Italian migration, the rise of Fascism and the postwar reconstruction had on the form and function of these networks.

**Credit Hours:** 3

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**HIST 2590: Epidemics and Society**

This course is an interdisciplinary survey of epidemic diseases from the ancient to modern eras. We will focus on the conditions that have given rise to epidemics and how different societies have understood and responded to them. We will trace the connections of epidemic diseases to increased globalization, examining links between epidemics and warfare, exploration, colonization, and trade networks. This course will conclude with a discussion of newly emerging diseases in the contemporary world.

**Credit Hours:** 3

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**HIST 2630: History of Christian Traditions**

(same as REL\_ST 2630). An overview of the origins and development of Christianities from the first century of the Common Era to the present day. Topics will include competing Christian theologies, colonialism, conversion narratives, globalization, religious violence, and heresy.

**Credit Hours:** 3

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**HIST 2700: History of Pirates: Maritime Raiding From the Ancient to the Modern Eras**

This course examines piracy from the ancient to the modern world, with a particular focus on the Mediterranean and Atlantic from the 15th through the 18th centuries. We'll look at a variety of firsthand accounts of piracy as well as historical interpretations of the motivations for and impact of piracy.

**Credit Hours:** 3

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**HIST 2810: History of Korea: Premodern to Hypermodern**

(same as KOREAN 2810). This course examines Korea historically. The area known as Korea and the people identified as Korean are considered temporally from the ancient times to the contemporary period. This course begins with the questions of what is Korea and when it became a distinct place in world history.

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**Credit Hours: 3**

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**HIST 2820: Taiwan: The First Chinese Democracy**

This course is an introduction to the history of Taiwan, from the seventeenth century to the present day. This course examines historical development leading to the contemporary situation. It problematizes the notion that 'democracy is not suitable for Chinese society.'

**Credit Hours: 3**

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**HIST 2904: Black Studies in Slavery and Freedom**

(same as BL\_STU 2904). This course provides study of historical background, economic, political and social implications of slavery and freedom in the African Diaspora (Americas, Africa, Europe, Asia) as well as the legal and extralegal struggles for and meaning of (global, local, and national) freedom.

**Credit Hours: 3**

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**HIST 2950: Sophomore Seminar**

This course is designed to introduce history majors to the experience of doing original research early in their undergraduate career. Topic will vary.

**Credit Hours: 3**

**Prerequisites:** departmental consent required

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**HIST 2950W: Sophomore Seminar - Writing Intensive**

This course is designed to introduce history majors to the experience of doing original research early in their undergraduate career. Topic will vary.

**Credit Hours: 3**

**Prerequisites:** departmental consent required

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**HIST 3000: History of Religion in America to the Civil War**

(same as REL\_ST 3000). Studies major American religious traditions from the Age of Discovery to the Civil War, especially the evolution of religious practices and institutions and their influence upon American social, intellectual and political developments.

**Credit Hours: 3**

**Prerequisites:** sophomore standing

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**HIST 3010: Colonial America**

This course will examine major colonial American events from a cultural history standpoint. We will explore the ways in which the famous and not so famous shaped and were shaped by events of the seventeenth and eighteenth centuries and how these people understood the changing meaning of American liberty.

**Credit Hours: 3**

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**HIST 3200: Black Freedom Movement, 1955-1973**

(same as BL\_STU 3200). Examines the dismantling of American apartheid and its transformation into a new racial control system. It also explores how and why the Civil Rights Movement was converted into a struggle for Black Power.

**Credit Hours: 3**

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**HIST 3210: History of Religion in Post-Civil War America**

(same as REL\_ST 3210). Surveys major American religious traditions from 1865 to the present. Focuses on the evaluation of religious practices and institutions and their interaction with and influence upon American social, intellectual and political developments.

**Credit Hours: 3**

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**HIST 3220: U.S. Women's Political History, 1880-Present**

(same as WGST 3220). This course explores American women's engagement with American politics (broadly defined) over the course of the twentieth century. It addresses issues of political identity, organization, ideology, and division.

**Credit Hours: 3**

**Prerequisites:** sophomore standing

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**HIST 3230: Individualism and Success in Modern America, 1830-Present**

This course explores changing notions of individualism and success in American culture during the 19th and 20th centuries. Standards defining achievement, gain, and happiness for the individual citizen have evolved over time, and we will examine a wide variety of sources - advice literature, essays, novels, historical texts, plays and movies, political and religious texts, social criticism - to analyze this broad evolution. The resulting insights into a variety of historical issues and values, problems and possibilities, promise to forge a deeper understanding of what it has meant to be a successful individual in the United States over the last two hundred years.

**Credit Hours: 3**

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**HIST 3485: The United States and the Middle East**

This course will explore the history of American relations with the Middle East. How have U.S. Policy-makers defined American interests in this region? How have they sought to protect and advance those interests? We will consider the cultural stereotypes and assumptions Americans have brought to their relations with the Middle East, and the images of the Middle East that have been projected in American popular culture. Finally, we will explore the ways in which the current political situations in the Middle East reflects the results of past U.S.

**Credit Hours: 3**

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**HIST 3510: The Ancient Greek World**

Political and social institutions, intellectual life of Greek city-states to time of Alexander.

**Credit Hours: 3**

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**HIST 3520: The Roman World**

Rise and development of Roman institutions, Rome's imperialism and culture through reign of Marcus Aurelius.

**Credit Hours: 3**

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**HIST 3530: The Hellenistic World: From Alexander to Rome**

The achievements of Alexander the Great; political, social, economic development of Hellenistic kingdoms from his death to 31 B. C.

**Credit Hours: 3**

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**HIST 3540: 20th Century Europe**

Political, social, and economic development of Europe from 1900 to the present, with emphasis on the period between the two world wars.

**Credit Hours:** 3

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**HIST 3540W: 20th Century Europe - Writing Intensive**

Political, social, and economic development of Europe from 1900 to the present, with emphasis on the period between the two world wars.

**Credit Hours:** 3

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**HIST 3550: Science and Medicine in Ancient and Medieval Europe**

This course explores how ancient observations and theories about the natural world and the human body led to the development of 'natural philosophy' and medicine as fields of expertise. We will be examining attitudes and beliefs about the natural world and man's place within it from Egyptian-Babylonian roots through the Middle Ages.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**HIST 3555: Galileo and His World**

(same as GN\_HON 3230H). The purpose of this course is to evaluate Galileo's contribution to modern science on the basis, primarily, of his actual writings. In the process, we will examine the 'Galileo Myth', focusing on the problem of scientific truth and freedom of thought.

**Credit Hours:** 3

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**HIST 3560: The Scientific Revolution**

We will examine changing scientific beliefs and practices from 1500 to 1800, a time often referred to as the Scientific Revolution and as the birth of modern science. At the core, this is an examination of how knowledge itself changed: how it was gathered, tested and disseminated. We will also examine how the study of the natural world branched from one subject ('natural philosophy') into multiple specialized disciplines including astronomy, physics, botany, biology, geology and chemistry.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**HIST 3570: European Women in the 19th Century**

(same as WGST 3570). Examines the history of European women from 1750 to 1900. The course focuses on how industrialization, the French Revolution and nation-formation changed women's roles in the family, workplace and the state. Grading: exams, papers and discussions.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**HIST 3580: Modern Italy, 1815 to the Present**

Political, cultural and social history of Italy since 1815. Looks at how Unification, World War, Fascism, the Cold War, Student protests, the women's movement and the end of the USSR shaped contemporary Italy.

**Credit Hours:** 3

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**HIST 3590: The Early Middle Ages**

This course will focus on the social, political, economic, and cultural development of Europe from roughly 300 to 1050.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**HIST 3600: The Later Middle Ages**

This course will focus on the social, political, economic, and cultural development of Europe from roughly 1050 to 1500. Prerequisites: sophomore standing

**Credit Hours:** 3

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**HIST 3610: Ireland, 1100s to 1850**

(same as PEA\_ST 3610). Ireland, from Conquest to Famine: Ireland's history as the first British Colony, from the conquests of the 1100s and 1500s-1600s to the Irish rebellion of 1798 and the Great Famine and mass emigration of 1845-50.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**HIST 3611: Ireland, 1850-1923**

(same as PEA\_ST 3611). Ireland, from Famine to Partition: Irish history from the Great Famine of 1845-50 to the revolutions of 1916-23 that brought partial independence from Britain but partitioned Ireland into two hostile and trouble states.

**Credit Hours:** 3

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**HIST 3612: Ireland, 1920-Present**

(same as PEA\_ST 3612). Ireland, from Partition to the Present: After surveying the conflicts that led to Irish revolution and partition in 1916-23, the course focuses on the development of post partition Ireland and Northern Ireland, and on the violence that has scarred Northern Ireland since the 1960s.

**Credit Hours:** 3

**Prerequisites:** May be restricted to History majors only during preregistration

**Recommended:** HIST 3610 and/or HIST 3611

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**HIST 3624: Comparative Approaches to Black Studies in History**

(same as BL\_STU 3624). Comparative approach to the study of Black Diaspora history that focuses on the theory, method, structure, and application of modes of cultural production within the history of Black Diaspora cultures. Program consent for repetition.

**Credit Hours:** 3

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**HIST 3624W: Comparative Approaches to Black Studies in History - Writing Intensive**

(same as BL\_STU 3624). Comparative approach to the study of Black Diaspora history that focuses on the theory, method, structure, and application of modes of cultural production within the history of Black Diaspora cultures. Program consent for repetition.

**Credit Hours:** 3

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**HIST 3820: Twentieth Century China**

History of China from Nationalist Revolution of 1911 to present. A problem-oriented course: special emphasis on Mao and Maoist ideology, social, literary and cultural history also receive attention.

**Credit Hours:** 3

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**HIST 3850: Islam and the West**

(same as PEA\_ST 3850). This course provides a historical intellectual context for the raging debate on Islam and the West. It will discuss how Muslims conceived and reacted variously to the political and cultural challenge the West posed in the nineteenth and twentieth century. It will focus on the discourse on the reception of modernization in Islam. It will highlight the political and cultural energies invested by various Muslim elite communities to distinguish between modernization and Westernization. Islamic fundamentalism, the dominant Islamic expression of our time, will be usefully discussed in the context of this debate and praxis about modernization, authenticity, and Westernization.

**Credit Hours:** 3

**Prerequisites:** junior/senior standing

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**HIST 3860: History of Mexico**

Survey of Mexican history from Cortes to present day.

**Credit Hours:** 3

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**HIST 3870: Social Revolution in Latin America**

(same as PEA\_ST 3870). Twentieth century social revolutions in selected Latin American countries.

**Credit Hours:** 3

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**HIST 4000: Age of Jefferson**

(same as CNST\_DEM 4000; cross-leveled with HIST 7000). Political, constitutional, cultural, and economic developments in United States during formative period of Republic, 1787-1828. Special attention to Constitutional Convention, formation of national political institutions.

**Credit Hours:** 3

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**HIST 4004: Topics in History-Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-6

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**HIST 4004H: Topics in History-Social Science - Honors**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-6

**Prerequisites:** Honors eligibility required

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**HIST 4004W: Topics in History-Social Science - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-6

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**HIST 4010: The Age of Jackson**

(cross-leveled with HIST 7010). This course will examine American Politics, society and culture in the 1820's, 1830's, and 1840's. Considerable attention will be devoted to Andrew Jackson himself, as a figure who both shaped and represented his era, for better or worse.

**Credit Hours:** 3

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**HIST 4030: History of the Old South**

(cross-leveled with HIST 4030). Study of the South to 1860.

**Credit Hours:** 3

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**HIST 4040: Slavery and the Crisis of the Union: The American Civil War Era**

(same as BL\_STU 4040, CNST\_DEM 4040; cross-leveled with HIST 7040). This class explores the history of the Civil War era, a transformative moment in both U.S. and world history. Our goal is to explore and answer a number of questions of great historical significance: How and why did slavery persist in an age of liberal democracy? Why did the pre-war Union prove unable to tolerate the plural visions and diverse institutions of its people? Was the descent into war more a measure of institutional weakness than of the intensity of moral conflict? What were the constituent elements of the competing wartime 'nationalisms' that evolved in both north and south? How and why did a war that began to restore the Union become one for emancipation? How was it the forerunner of modern, 'total' warfare? Did the governmental, socio-economic and racial changes wrought by war constitute a 'second American revolution'? Were the limits or the achievements of post-war Reconstruction more notable? And, last but certainly not least, how did the triumph of the Union condition the political and economic development of a rapidly globalizing world?

**Credit Hours:** 3

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**HIST 4060: The Period of the American Revolution, 1760-1789**

Analysis of the Revolution, its causes and consequences, through establishment of the new government in 1789.

**Credit Hours:** 3

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**HIST 4070: Indians and Europeans in Early America**

(cross-leveled with HIST 7070). A study of the cultural, political and often military struggle that took place for control of North America from contact through mid 19th century emphasizing native efforts to resist European domination and expansion in areas that became the U.S. and Canada.

**Credit Hours:** 3

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**HIST 4075: Global History in Oxford**

(same as CNST\_DEM 4075). This course examines global and transnational history in the 'modern' period since 1400. It includes an embedded week of study abroad at Oxford University (United Kingdom) over spring break.

**Credit Hours:** 4

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**HIST 4075H: Global History in Oxford - Honors**

This course examines global and transnational history in the 'modern' period since 1400. It includes an embedded week of study abroad at Oxford University (United Kingdom) over spring break.

**Credit Hours:** 4

**Prerequisites:** Honors eligibility required

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**HIST 4080: American Foreign Policy from Colonial Times to 1898**

(same as PEA\_ST 4080, CNST\_DEM 4080; cross-leveled with PEA\_ST 7080, HIST 7080). This class probes the entwined development of the U.S. nation and empire, to the backdrop of accelerating structures of global economic integration, technological innovation, and the hardening of national, racial, and ideological formations.

**Credit Hours:** 3

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**HIST 4085: Special Problems in History**

Independent investigation leading to a paper or project.

**Credit Hour:** 1-6

**Prerequisites:** Department consent required

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**HIST 4085H: Special Problems in History - Honors**

Independent investigation leading to a paper or project.

**Credit Hour:** 1-99

**Prerequisites:** Honors eligibility required

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**HIST 4085W: Special Problems in History - Writing Intensive**

Independent investigation leading to a paper or project.

**Credit Hour:** 1-6

**Prerequisites:** Department consent required

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**HIST 4100: American Cultural and Intellectual History to 1865**

(same as CNST\_DEM 4100; cross-level with HIST 7100). Origins and growth of American values and ideas considered in their social context. Topics include: the work ethic, republican politics, revivalism, reform movements, sexual attitudes, literature in the marketplace, Afro-American and slave-holding subcultures.

**Credit Hours:** 3

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**HIST 4200: American Cultural and Intellectual History Since 1865**

Tensions and transformations in American culture to the present. Topics include: spiritual crisis in Christianity; rise of welfare state liberalism; socialist and feminist alternatives; literature and the arts.

**Credit Hours:** 3

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**HIST 4220: U.S. Society Between the Wars 1918-1945**

(cross-leveled with HIST 7220). Detailed examination of American history from end of World War I to end of World War II.

**Credit Hours:** 3

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**HIST 4230: Our Times: United States Since 1945**

(cross-leveled with HIST 7230). Detailed examination of American history from end of World War II to the present.

**Credit Hours:** 3

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**HIST 4235: The Wire: Race, Urban Inequality, and the 'Crisis' of the American City**

(cross-leveled with HIST 7235). The HBO series 'The Wire', a crime drama based on the border city of Baltimore, exposed the interlocking, structural realities giving shape to the landscapes, neighborhoods, and lived experiences of urban America during the early twenty-first century. Through vivid storytelling, 'The Wire' complicates understandings of the 'urban crisis' through a focus on the inner workings of major institutions such as the media, public schools, politics, underground economies, public housing, and the criminal justice system and on the ways in which poor and working-class black residents negotiate power and survival. Using the cable series as a lens, this class offers students the opportunity to critically examine the historical, economic, social, and political dimensions of urban inequality.

**Credit Hours:** 3

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**HIST 4240: History of the New South**

(cross-leveled with HIST 7240). Study of the South since 1860.

**Credit Hours:** 3

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**HIST 4250: U.S. Foreign Relations, 1898-1945**

(cross-leveled with HIST 4250). A history of American Foreign Policy from the Spanish American War to the end of World War II.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**HIST 4260: The Age of Ascendancy: U.S. Foreign Relations, 1945 - Present**

(same as PEA\_ST 4260; cross-leveled with HIST 7260). Surveys the Cold War in Europe and Asia, the Korean and Vietnam Wars, and Middle East policy.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**HIST 4270: African-Americans in the Twentieth Century**

(same as BL\_STU 4270; cross-leveled with HIST 7270, BL\_STU 7270). Surveys the African-American experience from 1900 to the present. Attention is given to economic, political, social, and cultural trends.

**Credit Hours:** 3

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**HIST 4280: America in the Reagan Years**

(cross-leveled with HIST 7280). Examines the major political, economic, social, and cultural currents and developments of the 'Long Eighties,' from Jimmy Carter's 'malaise speech' of July 1979 to Bill Clinton's mid-1990s embrace of welfare reform and pronouncement that the era of big government was over.

**Credit Hours:** 3

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**HIST 4290: Innovation in 20th and 21st Century America**

(cross-leveled with HIST 7290). This course focuses on innovations that have shaped our world and the people behind them, from Edison and the introduction of electric light to airplanes, transistors, semiconductors, fracking, subprime mortgages, televangelism, Uber, and Airbnb. The idea is not to determine which innovations are most important, but to examine

how innovations are created and why some are successful and others are not.

**Credit Hours:** 3

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**HIST 4303: Black Studies in Race, Class, Gender and U.S. Policy** (same as BL\_STU 4303; cross-leveled with HIST 7303, BL\_STU 7303). Examines the causes and effects of the vast social and economic inequalities that exist between blacks and whites in US society, including the role federal, state and local government plays in creating and addressing such inequalities as financial, tax, environmental, trade, and foreign policies as well as issues of human and social welfare.

**Credit Hours:** 3

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**HIST 4310: Adoption, Child Welfare and the Family, 1850-Present** (same as WGST 4310; cross-leveled with HIST 7310 and WGST 7310). This interdisciplinary U.S. history course will address topics such as: changing legal and social meaning of adoption since 1850; historical connections between adoption and poverty, family, gender race, sexuality, class, fertility, identity; and more recent issues such as transnational adoption.

**Credit Hours:** 3

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**HIST 4400: History of American Law** (same as CNST\_DEM 4400; cross-leveled with HIST 7400). American law from English origins to present. Reviews common law, codification, legal reform movements, slavery law, administrative state, formalism, legal realism, jurisprudential questions concerning rule of law.

**Credit Hours:** 3

**Recommended:** HIST 1100, HIST 1200, or HIST 1400

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**HIST 4415: African Americans and American Justice** (same as BL\_STU 4415; cross-leveled with HIST 7415, BL\_STU 7415). This course provides opportunities to review and discuss selected court cases and legislation in which black men, women, or children were plaintiffs and defendants or affected by the laws.

**Credit Hours:** 3

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**HIST 4415W: African Americans and American Justice - Writing Intensive** (same as BL\_STU 4415W; cross-leveled with HIST 7415, BL\_STU 7415). This course provides opportunities to review and discuss selected court cases and legislation in which black men, women, or children were plaintiffs and defendants or affected by the laws.

**Credit Hours:** 3

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**HIST 4425: The Superhero in American Culture From Washington to Wolverine**  
This course aims to help students become better informed and more critical consumers of popular culture by situating a selection of important American works and genres within the historical context of their creation, and in the history of American culture. Students will be challenged to look for historical patterns in popular culture and to consider the particular habits of thought and action that American popular culture seems to reinforce.

**Credit Hours:** 3

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**Prerequisites:** HIST 1100 or HIST 1200 or HIST 1400 or HIST 2210

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**HIST 4430: The Great West in American History** (cross-leveled with HIST 7430). Historical development of major regions, with emphasis on response to environment, public land policy, role of government in economic and resource development, citizen action, and cultural pluralism.

**Credit Hours:** 3

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**HIST 4440: History of the American Environment** (cross-leveled with HIST 7440). A reading and discussion course exploring diverse responses to the changing American environment from early man to the present, including ecological, institutional, and philosophical aspects.

**Credit Hours:** 3

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**HIST 4445: American Political Economy from the Commerce Clause to the Great Recession**

This course examines the history of the American political economy from the founding of the United States to the recent Great Recession. Scholars of political economy explore the ways in which politics and public policy intersect with economics, such as the operation of the institutions like the tax system, the first and second Banks of the United States in the late 18th and early 19th centuries, and the Federal Reserve after 1913. We will focus on efforts by the U.S. federal government to regulate the American economy and bring economic affairs under the control of the American people and their representatives through a wide variety of political, legal, and institutional mechanisms. A specialized knowledge of economics is not required for this course.

**Credit Hours:** 3

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**HIST 4445W: American Political Economy from the Commerce Clause to the Great Recession - Writing Intensive**

This course examines the history of the American political economy from the founding of the United States to the recent Great Recession. Scholars of political economy explore the ways in which politics and public policy intersect with economics, such as the operation of the institutions like the tax system, the first and second Banks of the United States in the late 18th and early 19th centuries, and the Federal Reserve after 1913. We will focus on efforts by the U.S. federal government to regulate the American economy and bring economic affairs under the control of the American people and their representatives through a wide variety of political, legal, and institutional mechanisms. A specialized knowledge of economics is not required for this course.

**Credit Hours:** 3

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**HIST 4500: Philip II and Alexander the Great of Macadonia** (cross-leveled with HIST 7500). Concentrates on the history and politics of Greece during reigns of these two kings along with Alexander's military conquests and various controversies from the period.

**Credit Hours:** 3

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**HIST 4510: Crime and Punishment: Law in Classical Athens** (cross-leveled with HIST 7510). Examines the main principles of Athenian law and judicial procedures including history of law code and study of actual speeches from a variety of law suits and procedures.

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**Credit Hours:** 3

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**HIST 4515: Power and Oratory in Ancient Greece**

(cross-leveled with HIST 7515). Concentrates on the rise of oratory in Greece and how oratory was exploited for political ends. Special attention will be paid to the Athenian Democracy in the fifth and fourth centuries BC.

**Credit Hours:** 3

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**HIST 4520: The Rise and Fall of the Roman Republic**

(cross-leveled with HIST 7520). Analysis of the downfall of Republican institutions and the origins of autocracy, from the Gracchi to the death of Augustus in A.D. 14.

**Credit Hours:** 3

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**HIST 4530: The Roman Empire**

(cross-leveled with HIST 7530). Roman imperialism; management of, and rebellion in, the Empire; cultural exchange between Rome and its provinces.

**Credit Hours:** 3

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**HIST 4535: Monastic Worlds**

(same as REL\_ST 4535, MDVL\_REN 4535; cross-leveled with REL\_ST 7535, MDVL\_REN 7535). Monastic Worlds is an experiential learning course designed to serve as a Humanities Field School in medieval and early modern studies. It will be taught by faculty from UMKC and UMC through the Intercampus Course Sharing initiative. The class introduces students to humanities research methodology and the religious history and culture of premodern Europe and the contemporary Midwest by using the monastic communities as a focal point to learn about musicology, history, art history, literature, and religion. Following two weeks of online course modules, students will travel to the Benedictine communities of Conception Abbey in Conception, Missouri and Mount Saint Scholastica's in Atchison, Kansas, for additional face-to-face classes and research projects. On-site, students will participate in communal living and attend face-to-face classes on the historical and cultural worlds of medieval and early modern Europe. They will practice ethnography through observation of and participation in communal life of prayer, study, book production, and labor. Students will also have the opportunity to work with the manuscripts and rare books owned by these communities and visit the largest reliquary collection in North America, housed at the nearby Benedictine community of the Sisters of Perpetual Adoration in Clyde, MO. This course has an associated fee. Contact teaching faculty for this year's fee details. Graded on A/F basis only.

**Credit Hours:** 3

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**HIST 4540: The Later Roman Empire**

(cross-leveled with HIST 7540). Political, religious and cultural life in Late Antiquity, from the 'soldier emperors,' to the barbarian kingdoms and early Byzantium.

**Credit Hours:** 3

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**HIST 4550: Age of the Vikings**

(cross-leveled with HIST 7550). Scandinavia and Scandinavian expansion in the Central Middle Ages. Covers political, economic, religious, and cultural effects of the Viking movement.

**Credit Hours:** 3

**Prerequisites:** junior standing required

**Recommended:** HIST 1500, HIST 1540, HIST 1600 or HIST 2560

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**HIST 4550W: Age of the Vikings - Writing Intensive**

(cross-leveled with HIST 7550). Scandinavia and Scandinavian expansion in the Central Middle Ages. Covers political, economic, religious, and cultural effects of the Viking movement.

**Credit Hours:** 3

**Prerequisites:** junior standing required

**Recommended:** HIST 1500, HIST 1540, HIST 1600 or HIST 2560

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**HIST 4555W: Medieval France - Writing Intensive**

(cross-leveled with HIST 7555). This course covers the area that became the kingdom of France from the end of the Roman era until the end of the Hundred Years War; emphasis on political and cultural developments.

**Credit Hours:** 3

**Prerequisites:** junior standing

**Recommended:** Previous coursework in medieval history

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**HIST 4560: The Crusades**

(cross-leveled with HIST 4560). Survey of the European crusading movement from its inception in the late eleventh century to its decline during the later Middle Ages.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**HIST 4580: The 'Making' of Modern Europe: Identity, Culture, Empire**

(cross-leveled with HIST 7580). This course will explore some of the ideas, institutions and events that shaped modern Western civilization and thought, focusing on Western Europe, but also giving attention to the relationship between the West and the rest of the world. The course will introduce topics such as the rise of, nationalism, the cult of science, scientific racism and sexism, consumer mass culture, fascist ideology, existentialism, psychoanalysis, the modern city, gender and sexuality.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**HIST 4585: Rome from Fascism to Liberation, 1922-1944**

In this course we will explore the history of Fascism and German occupation in Italy through the city of Rome. We will study how fascism remade Rome, the arrival of the Germans, the history of the Jewish community and the deportations and the resistance.

**Credit Hours:** 3

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**HIST 4605: Early Modern Spain, 1450-1750**

(cross-leveled with HIST 7605). In this course, we begin with Fernando and Isabel, whose marriage brought together the two principle territories of Castile and Aragon, leading to the beginnings of a 'united' Spain. As we trace the political and social history of Spain through the early modern era, we'll also be examining the many myths surrounding Spanish history

including topics such as the Columbus' voyages, the Spanish Inquisition and the Black Legend.

**Credit Hours:** 3

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**HIST 4620: Modern England**

(cross-leveled with HIST 7620). Surveys British history in the 18th and 19th centuries. Emphasizes social and economic change.

**Credit Hours:** 3

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**HIST 4625: Nature vs. Nurture: The History of a Debate**

(cross-leveled with HIST 7625). The purpose of this course is to explore the debate on nature vs. nurture in human society from the late eighteenth century to the present. The goal of this course is to give biology, history, and social science (including journalism) majors a better understanding of how this debate between nature and culture has played out over the past 250 years, and what impact it has left on biology, the social sciences, and public discourse today.

**Credit Hours:** 3

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**HIST 4630: The Age of the Renaissance**

(cross-leveled with HIST 7630). Major changes in European economic, social, political, religious, and intellectual life between 1250-1500. Humanism and Renaissance. The 'Renaissance problem'.

**Credit Hours:** 3

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**HIST 4640: The Age of the Reformation**

(cross-leveled with HIST 7640). State of Europe about 1500. Political, diplomatic, social, and intellectual changes to 1648. Humanistic reform movements. Protestant-Catholic Reformation. Development of the modern state and international relations.

**Credit Hours:** 3

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**HIST 4645: Witchcraft and Witch Hunting in Pre-Modern Europe**

(cross-leveled with HIST 7645). The surviving evidence indicates that between 1400 and 1700, at least 50,000 women, men, and children were executed for practicing witchcraft. Is there an explanation for this? Does it make any sense in terms of the intellectual, religious, social, political, and economic contexts of this period in European history? Fundamental to this course are the assumptions that there are many, not one, reasonable explanations for witchcraft beliefs and persecutions, and that when studied in terms of the various historical contexts this phenomenon must be understood as an integral part of European society during these centuries.

**Credit Hours:** 3

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**HIST 4650: Revolutionary France, 1789-1815**

(cross-leveled with HIST 7650). Revolutionary upheavals of the revolutionary-Napoleonic era, which destroyed traditional French society and laid the basis for modern France.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**HIST 4660: Gender, War, and Migration: Europe, 1914 to the Present**  
(same as WGST 4660; cross-leveled with HIST 7660, WGST 7660).

Scholars have long recognized the fundamental ways that war and migration marked the lives of European women and men in the 20th century, and yet, rarely have they focused on the interrelations between mobilities, violence and gender. This class explores how war and mass migrations inscribed new gendered, racial and class hierarchies into the European landscape, and created new kinds of political and social divides. The total wars of World War I and World War II, requiring the participation of civilians and soldiers, erasing lines separating the home front from the battlefield, forcing millions to flee their homes, and drawing men and women from the colonies into the war effort reshaped notions of gender, work, family, nation and citizenship within Europe. The subsequent wars of decolonization and post war migrations, followed by the conflicts that erupted at the end of the Cold War challenged the postwar gender ideals underpinning the European welfare state and the European Union, and fueled the rise of contemporary xenophobic and racist populist movements. Course materials will include historical monographs, articles, novels, memoirs and films.

**Credit Hours:** 3

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**HIST 4670: From the Holy Roman Empire to the First World War: German History, 1750-1918**

(cross-leveled with HIST 7670). Cultural, social and political history of Central Europe from 1800 to 1914. A case study in incomplete modernization, focused on industrialization, unification, cultural crisis and imperialism.

**Credit Hours:** 3

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**HIST 4670W: From the Holy Roman Empire to the First World War: German History, 1750-1918 - Writing Intensive**

(cross-leveled with HIST 7670). Cultural, social and political history of Central Europe from 1800 to 1914. A case study in incomplete modernization, focused on industrialization, unification, cultural crisis and imperialism.

**Credit Hours:** 3

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**HIST 4680: From the Rise of the Nazis to the Fall of the Wall: German History in the Twentieth Century**

(cross-leveled with HIST 7680). Cultural, social and political history from 1914 to present day. Focus on world wars, national socialism, the holocaust, the cold war and the emergence of East and West Germany.

**Credit Hours:** 3

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**HIST 4700: Imperial Russia, 1682-1825**

(cross-leveled with HIST 7700). Russia in the 18th and early 19th centuries, with special emphasis on the reigns of Peter I, Catherine II, and Alexander I.

**Credit Hours:** 3

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**HIST 4710: The Russian Revolution**

(cross-leveled with HIST 7710). Analyzes the transformation of Russian society that produced the collapse of autocracy, efforts to create a parliamentary government, the Bolshevik seizure of power in 1917, and the civil war that followed.

**Credit Hours:** 3



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**HIST 4800: Modern China and Japan: War, Imperialism and Memory** (cross-leveled with HIST 7800). This course examines the interaction between Japan and China since the late nineteenth century in an effort to understand deeper historical reasons behind the rising tension in East Asia at the present time.

**Credit Hours:** 3

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**HIST 4815: African History Through the Digital Medium** (cross-leveled with HIST 7815). This course invites students to explore the history of Africa through the digital medium. It offers a hands-on approach to understand how knowledge about African history, culture, and society is produced and disseminated over the World Wide Web.

**Credit Hours:** 3

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**HIST 4815W: African History Through the Digital Medium - Writing Intensive**

(cross-leveled with HIST 7815). This course invites students to explore the history of Africa through the digital medium. It offers a hands-on approach to understand how knowledge about African history, culture, and society is produced and disseminated over the World Wide Web.

**Credit Hours:** 3

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**HIST 4821: Constitutionalism in the Americas**

(cross-leveled with HIST 7821). This course looks at the history of constitutions and constitutional democracy in the Americas as a whole - the United States and Latin America. The U.S. Constitution was a pioneering document in the Americas, and this course examines the international influence of the United States' experiment with constitutional democracy. While the course will examine the inspiration of the U.S. Constitution, it will also examine republics that drew upon the same philosophical antecedents that inspired the founders of the United States but may have opted for different forms and practices.

**Credit Hours:** 3

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**HIST 4821W: Constitutionalism in the Americas - Writing Intensive**

(cross-leveled with HIST 7821). This course looks at the history of constitutions and constitutional democracy in the Americas as a whole - the United States and Latin America. The U.S. Constitution was a pioneering document in the Americas, and this course examines the international influence of the United States' experiment with constitutional democracy. While the course will examine the inspiration of the U.S. Constitution, it will also examine republics that drew upon the same philosophical antecedents that inspired the founders of the United States but may have opted for different forms and practices.

**Credit Hours:** 3

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**HIST 4840: History of the Mongols**

(cross-leveled with HIST 7840). In the 13th century, the Mongols went from warring tribes to the largest Eurasian empire in history. This course examines the Mongol tribes, Chinggis Khan's unification of the tribes, the Mongols rapid military victories across Eurasian and their equally rapid decline.

**Credit Hours:** 3

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**HIST 4850: Traversing the Muslim World**

(same as S\_A\_ST 4850; cross-leveled with HIST 7850). The traveler's tale formed an important part of the medieval world's system of knowledge. This writing intensive seminar-style course examines a wide array of the most influential travelers in Muslim lands such as Ibn Fadlan, Ibn Battuta, Benjamin of Tudela and Marco Polo.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**HIST 4850W: Traversing the Muslim World - Writing Intensive**

(same as S\_A\_ST 4850; cross-leveled with HIST 7850). The traveler's tale formed an important part of the medieval world's system of knowledge. This writing intensive seminar-style course examines a wide array of the most influential travelers in Muslim lands such as Ibn Fadlan, Ibn Battuta, Benjamin of Tudela and Marco Polo.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**HIST 4860: Colonial Masculinity/Colonial Frontier**

(same as S\_A\_ST 4860; cross-leveled with HIST 7860). This writing intensive seminar-style course examines how the Indian Army acted as a colonial army in the British Empire, including Africa, the Boxer Rebellion, and the World Wars. Focus is on the role of the Indian Army, impact of the Sepoy Mutiny, and martial race ideology.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**HIST 4865: Buying Desire: History of Consumption**

(cross-leveled with HIST 7865). This course explores the history of consumption practice in various cultural contexts. The course is divided into four parts: 'Masses As Consumers', 'Selling/Consuming Cultures', 'Consumption as (Postcolonial) Modernity', and 'Consumption and the Nation'. Under each section are thematically related texts on particular cultural contexts. The reading of ethnographic texts on consumption is to be accompanied by critical discussions that locate consumption within the practices of the nation-state-making and global product-marketing.

**Credit Hours:** 3

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**HIST 4867: North Korea: History, Political Economy, Culture**

(same as KOREAN 4867; cross-leveled with HIST 7867). The aim of this course is to survey North Korea's history, especially in terms of political economy and culture. Through several themes, we will examine the historical situations of North Korea from its beginnings in the postliberation period to the present, as North Korea undergoes monumental changes.

**Credit Hours:** 3

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**HIST 4870: Southeast Asia Since the Eighteenth Century**

The general objective of this course is to introduce students to the fascinating world of Southeast Asia. We will look at the shared history of commodity, cultural, and religious exchanges that gave this region a collective character, as well as explore the historical conditions from which individual modern Southeast Asian state emerged.

**Credit Hours:** 3

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**HIST 4880: Chinese Migration: From Yellow Peril to Model Minority** (cross-leveled with HIST 7880). This course surveys Chinese emigration in the global context over the span of five centuries. We will pay special attention to the changing relationships between China and Chinese migrants. Our emphasis will be on history as a process of negotiation and contestation of heterogeneous groups or individuals through creative and selective activities.

**Credit Hours:** 3

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**HIST 4900: Beltway History: American Constitutional Democracy in Theory and Practice**

(same as POL\_SC 4900, CNST\_DEM 4900). This course is an experiential overview of American political history for students participating in the Kinder Forum's Washington internship program, showing how American constitutional democracy was developed and implemented right here on the Potomac, as much as possible in the actual places where the events occurred. Emphasis will be placed on the interplay between constitutional theory and actual political experience over time, and the tensions and institutional changes that emerged as Americans and their government coped with cataclysmic social changes, unparalleled economic development, and fearsome international challenges.

**Credit Hours:** 3

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**HIST 4904: Historical and Contemporary Slavery**

(same as BL\_STU 4904). An exploration of slavery in both its historical and contemporary context, focusing on the origins, characteristics, and struggles to abolish the practice. Historical slavery examined using African enslavement in the Americas, and contemporary slavery using human trafficking and forced labor in the developed and developing world.

**Credit Hours:** 3

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**HIST 4910: History in the Public: An Introduction to the Theory and Practice of Public History**

(cross-leveled with HIST 7910). The purpose of this course is to introduce students to the world of public history, the central questions and debates in the field, and to offer students the opportunity to practice public history.

**Credit Hours:** 3

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**HIST 4910W: History in the Public An Introduction to the Theory & Practice of Public History - Writing Intensive**

(cross-leveled with HIST 7910). The purpose of this course is to introduce students to the world of public history, the central questions and debates in the field, and to offer students the opportunity to practice public history.

**Credit Hours:** 3

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**HIST 4940: Internship in History**

Professional training in history and archive-related fields. Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HIST 4970: Undergraduate Seminar in Third World History**

Readings in selected problems in the history of Africa, Asia or Latin America with reports and discussion.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HIST 4970W: Undergraduate Seminar in Third World History - Writing Intensive**

Readings in selected problems in the history of Africa, Asia or Latin America with reports and discussion.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HIST 4971: Undergraduate Seminar in European History**

Readings in problems in European history with reports and discussion.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HIST 4971W: Undergraduate Seminar in European History - Writing Intensive**

Readings in problems in European history with reports and discussion.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HIST 4972: Undergraduate Seminar in American History**

Readings in selected problems in American history with reports and discussion on selected topics.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HIST 4972W: Undergraduate Seminar in American History - Writing Intensive**

Readings in selected problems in American history with reports and discussion on selected topics.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HIST 4975: Journal on Constitutional Democracy**

(same as POL\_SC 4975, CNST\_DEM 4975). The Journal is sponsored by the Kinder Institute on Constitutional Democracy and staffed by current and former participants in the Institute's undergraduate Society of Fellows program. Each volume of the Journal is organized around a student-selected idea or era central to the historical development and philosophical foundations of constitutional democracy in the United States. Student-authored essays address this theme via arguments and historical overviews crafted from the close reading and analysis of primary source documents, with the exception being that participating in the Journal will relate back to and advance students' study of American political thought and history.

**Credit Hour:** 1-3

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**HIST 4980: Undergraduate Thesis in History**

Individually directed research leading to a senior thesis.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HIST 4981: Undergraduate Thesis in History**

Continuation of HIST 4980.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HIST 4981W: Undergraduate Thesis in History - Writing Intensive**

Continuation of HIST 4980.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HIST 4995: Honors Thesis in History**

Research and completion of the thesis required for graduation with Honors in History.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HIST 4995W: Honors Thesis in History - Writing Intensive**

Research and completion of the thesis required for graduation with Honors in History.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HIST 4996: Honors Thesis in History**

Continuation of HIST 4995.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HIST 4996W: Honors Thesis in History - Writing Intensive**

Continuation of HIST 4995.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HIST 7000: Age of Jefferson**

(cross-leveled with HIST 4000, CNST\_DEM 4000). Political, constitutional, cultural, and economic developments in United States during formative period of Republic, 1787-1828. Special attention to Constitutional Convention, formation of national political institutions.

**Credit Hours:** 3

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**HIST 7004: Topics in History - Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Graduate students will be expected to complete additional reading and writing assignments commiserate with graduate level course requirements. May be repeated to maximum of 6 hours.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HIST 7010: The Age of Jackson**

(cross-leveled with HIST 4010). This course will examine American politics, society and culture in the 1820's, 1830's, and 1840's.

Considerable attention will be devoted to Andrew Jackson himself, as a figure who both shaped and represented his era, for better or worse.

**Credit Hours:** 3

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**HIST 7030: History of the Old South**

(cross-leveled with HIST 4030). Study of the South to 1860.

**Credit Hours:** 3

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**HIST 7040: Slavery and the Crisis of the Union: The American Civil War Era**

(cross-leveled with HIST 4040). This class explores the history of the Civil War era, a transformative moment in both U.S. and world history. Our goal is to explore and answer a number of questions of great historical significance: How and why did slavery persist in an age of liberal democracy? Why did the pre-war Union prove unable to tolerate the plural visions and diverse institutions of its people? Was the descent into war more a measure of institutional weakness than of the intensity of moral conflict? What were the constituent elements of the competing wartime 'nationalisms' that evolved in both north and south? How and why did a war that began to restore the Union become one for emancipation? How was it the forerunner of modern, 'total' warfare? Did the governmental, socio-economic and racial changes wrought by war constitute a 'second American revolution'? Were the limits or the achievements of post-war Reconstruction more notable? And, last but certainly not least, how did the triumph of the Union condition the political and economic development of a rapidly globalizing world? Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 7060: The Period of the American Revolution, 1760-1789**

Analysis of the Revolution, its causes and consequences, through establishment of the new government in 1789.

**Credit Hours:** 3

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**HIST 7070: Indians and Europeans in Early America**

(cross-leveled with HIST 4070). A study of the cultural, political and often military struggle that took place for control of North America from contact through mid 19th century emphasizing native efforts to resist European domination and expansion in areas that became the U.S. and Canada.

**Credit Hours:** 3

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**HIST 7080: American Foreign Policy from Colonial Times to 1898**

(same as PEA\_ST 7080; cross-leveled PEA\_ST 4080, HIST 4080, CNST\_DEM 4080). This class probes the entwined development of the U.S. nation and empire, to the backdrop of accelerating structures of global economic integration, technological innovation, and the hardening of national, racial, and ideological formations.

**Credit Hours:** 3

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**HIST 7100: American Cultural and Intellectual History to 1865**

(cross-leveled with HIST 4100, CNST\_DEM 4100). Origins and growth of American values and ideas considered in their social context. Topics include: the work ethic, republican politics, revivalism, reform movements, sexual attitudes, literature in the marketplace, Afro-American and slave-holding subcultures.

**Credit Hours:** 3

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**HIST 7220: U.S. Society Between the Wars 1918-1945**

(cross-leveled with HIST 4220). Detailed examination of American history from end of World War I to end of World War II.

**Credit Hours:** 3

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**HIST 7230: Our Times: United States Since 1945**

(cross-leveled with HIST 4230). Detailed examination of American history from end of World War II to the present.

**Credit Hours:** 3

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**HIST 7235: The Wire: Race, Urban Inequality, and the 'Crisis' of the American City**

(cross-leveled with HIST 4235). The HBO series 'The Wire', a crime drama based on the border city of Baltimore, exposed the interlocking, structural realities giving shape to the landscapes, neighborhoods, and lived experiences of urban America during the early twenty-first century. Through vivid storytelling, 'The Wire' complicates understandings of the 'urban crisis' through a focus on the inner workings of major institutions such as the media, public schools, politics, underground economies, public housing, and the criminal justice system and on the ways in which poor and working-class black residents negotiate power and survival. Using the cable series as a lens, this class offers students the opportunity to critically examine the historical, economic, social, and political dimensions of urban inequality. Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 7240: History of the New South**

(cross-leveled with HIST 4240). Study of the South since 1860.

**Credit Hours:** 3

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**HIST 7260: The Age of Ascendancy: U.S. Foreign Relations, 1945-Present**

(same as PEA\_ST 7260; cross-leveled with HIST 4260). Surveys the Cold War in Europe and Asia, the Korean and Vietnam Wars, and Middle East policy.

**Credit Hours:** 3

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**HIST 7270: African-Americans in the Twentieth Century**

(same as BL\_STU 7270; cross-leveled with HIST 4270, BL\_STU 4270). Surveys the African-American experience from 1900 to the present. Attention is given to economic, political, social, and cultural trends.

**Credit Hours:** 3

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**HIST 7280: America in the Reagan Years**

(cross-leveled with HIST 4280). Examines the major political, economic, social, and cultural currents and developments of the 'Long Eighties,' from Jimmy Carter's 'malaise speech' of July 1979 to Bill Clinton's mid-1990s embrace of welfare reform and pronouncement that the era of big government was over.

**Credit Hours:** 3

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**HIST 7290: Innovation in 20th and 21st Century America**

(cross-leveled with HIST 4290). This course focuses on innovations that have shaped our world and the people behind them, from Edison and the introduction of electric light to airplanes, transistors, semiconductors, fracking, subprime mortgages, televangelism, Uber, and Airbnb. The idea is not to determine which innovations are most important, but to examine how innovations are created and why some are successful and others are not.

**Credit Hours:** 3

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**HIST 7303: Black Studies in Race, Class, Gender and US Policy**

(same as BL\_STU 7303; cross-leveled with HIST 4303, BL\_STU 4303). Examines the causes and effects of the vast social and economic inequalities that exist between blacks and whites in US society, including the role federal, state and local government plays in creating and addressing such inequalities as financial, tax, environmental, trade, and foreign policies as well as issues of human and social welfare. Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 7310: Adoption Child Welfare and the Family, 1850-present**

(same as WGST 7310; cross-leveled with HIST 4310, WGST 4310). This interdisciplinary U.S. history course will address topics such as: changing legal and social meanings of adoption since 1850; historical connections between adoption and poverty, family, gender, race, sexuality, class, fertility, identity; and more recent issues such as transnational adoption.

**Credit Hours:** 3

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**HIST 7400: History of American Law**

(cross-leveled with HIST 4400, CNST\_DEM 4400). American law from English origins to present. Reviews common law, codification, legal reform movements, slavery law, administrative state, formalism, legal realism, jurisprudential questions concerning rule of law.

**Credit Hours:** 3

**Prerequisites:** HIST 1100, HIST 1200, or HIST 1400

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**HIST 7415: African Americans and American Justice**

(same as BL\_STU 7415; cross-leveled with HIST 4415, BL\_STU 4415). This course provides opportunities to review and discuss selected court cases and legislation in which black men, women, or children were plaintiffs and defendants or affected by the laws.

**Credit Hours:** 3

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**HIST 7500: Philip II and Alexander the Great of Macedonia**

(cross-leveled with HIST 7500). Concentrates on the history and politics of Greece during reigns of these two kings along with Alexander's military conquests and various controversies from the period.

**Credit Hours:** 3

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**HIST 7510: Crime and Punishment: Law in Classical Athens**

(cross-leveled with HIST 4510). Examines the main principles of Athenian law and judicial procedures including history of law code and study of actual speeches from a variety of law suits and procedures.

**Credit Hours:** 3

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**HIST 7515: Power and Oratory in Ancient Greece**

(cross-leveled with HIST 4515). Concentrates on the rise of oratory in Greece and how oratory was exploited for political ends. Special attention will be paid to the Athenian Democracy in the fifth and fourth centuries BC.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**HIST 7520: The Rise and Fall of the Roman Republic**

(cross-leveled with HIST 7520). Analysis of the downfall of Republican institutions and the origins of autocracy, from the Gracchi to the death of Augustus in A.D. 14.

**Credit Hours:** 3

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**HIST 7530: The Roman Empire**

(cross-leveled with HIST 4530). Roman imperialism; management of, and rebellion in, the Empire; cultural exchange between Rome and its provinces.

**Credit Hours:** 3

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**HIST 7540: The Later Roman Empire**

(cross-leveled with HIST 4540). Political, religious and cultural life in Late Antiquity, from the 'soldier emperors,' to the barbarian kingdoms and early Byzantium.

**Credit Hours:** 3

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**HIST 7550: Age of the Vikings**

(cross-leveled with HIST 4550). Scandinavia and Scandinavian expansion in the Central Middle Ages. Covers political, economic, religious, and cultural effects of the Viking movement.

**Credit Hours:** 3

**Prerequisites:** consent required

**Recommended:** HIST 1500, HIST 1540, HIST 1600 or HIST 2560

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**HIST 7555: Medieval France**

(cross-leveled with HIST 4555). This course covers the area that became the kingdom of France from the end of the Roman era until the end of the Hundred Years War; emphasize on political and cultural developments.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**HIST 7560: The Crusades**

(cross-leveled with HIST 4560). Survey of the European crusading movement from its inception in the late eleventh century to its decline during the later Middle Ages.

**Credit Hours:** 3

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**HIST 7580: The 'Making' of Modern Europe: Identity, Culture, Empire**

(cross-leveled with HIST 4580). This course will explore some of the ideas, institutions and events that shaped modern Western civilization and thought, focusing on Western Europe, but also giving attention to the relationship between the West and the rest of the world. The course will introduce topics such as the rise of, nationalism, the cult of science,

scientific racism and sexism, consumer mass culture, fascist ideology, existentialism, psychoanalysis, the modern city, gender and sexuality. Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 7605: Early Modern Spain, 1450-1750**

(cross-leveled with HIST 4605). In this course, we begin with Fernando and Isabel, whose marriage brought together the two principle territories of Castile and Aragon, leading to the beginnings of a 'united' Spain. As we trace the political and social history of Spain through the early modern era, we'll also be examining the many myths surrounding Spanish history including topics such as the Columbus' voyages, the Spanish Inquisition and the Black Legend. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Department consent required

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**HIST 7620: Modern England**

(cross-leveled with HIST 4620). Surveys British history in the 18th and 19th centuries. Emphasizes social and economic change.

**Credit Hours:** 3

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**HIST 7625: Nature vs. Nurture: The History of a Debate**

(cross-leveled with HIST 4625). The purpose of this course is to explore the debate on nature vs. nurture in human society from the late eighteenth century to the present. The goal of the course is to give biology, history, and social science (including journalism) majors a better understanding of how this debate between nature and culture has played out over the past 250 years, and what impact it has left on biology, the social sciences, and public discourse today. Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 7630: The Age of the Renaissance**

(cross-leveled with HIST 4630). Major changes in European economic, social, political, religious, and intellectual life between 1250-1500. Humanism and Renaissance. The 'Renaissance problem.'

**Credit Hours:** 3

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**HIST 7640: The Age of the Reformation**

(cross-leveled with HIST 4640). State of Europe about 1500. Political, diplomatic, social, and intellectual changes to 1648. Humanistic reform movements. Protestant-Catholic Reformation. Development of the modern state and international relations.

**Credit Hours:** 3

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**HIST 7645: Witchcraft and Witch Hunting in Pre-Modern Europe**

(cross-leveled with HIST 4645). The surviving evidence indicates that between 1400 and 1700, at least 50,000 women, men, and children were executed for practicing witchcraft. Is there an explanation for this? Does it make any sense in terms of the intellectual, religious, social, political, and economic contexts of this period in European history? Fundamental to this course are the assumptions that there are many, not one, reasonable explanations for witchcraft beliefs and persecutions, and that when studied in terms of the various historical contexts this phenomenon must be understood as an integral part of European society during these centuries. Graded on A-F basis only.

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**Credit Hours:** 3

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**HIST 7650: Revolutionary France, 1789-1851**

(cross-leveled with HIST 4650). Revolutionary upheavals of the revolutionary-Napoleonic era, which destroyed traditional French society and laid the basis for modern France.

**Credit Hours:** 3

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**HIST 7670: From the Holy Roman Empire to the First World War: German History, 1750-1918**

(cross-leveled with HIST 4670). Cultural, social and political history of Central Europe from 1800 to 1914. A case study in incomplete modernization, focused on industrialization, unification, cultural crisis and imperialism.

**Credit Hours:** 3

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**HIST 7680: From the Rise of the Nazis to the Fall of the Wall: German History in the Twentieth Century**

(cross-leveled with HIST 4680). Cultural, social and political history from 1914 to present day. Focus on world wars, national socialism, the holocaust, the cold war and the emergence of East and West Germany.

**Credit Hours:** 3

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**HIST 7700: Imperial Russia, 1682-1825**

(cross-leveled with HIST 4700). Russia in the 18th and early 19th centuries, with special emphasis on the reigns of Peter I, Catherine II, and Alexander I.

**Credit Hours:** 3

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**HIST 7710: The Russian Revolution**

(cross-leveled with HIST 4710). Analyzes the transformation of Russian society that produced the collapse of autocracy, efforts to create a parliamentary government, the Bolshevik seizure of power in 1917, and the civil war that followed.

**Credit Hours:** 3

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**HIST 7800: Modern China and Japan: War, Imperialism and Memory**

(cross-leveled with HIST 4800). This course examines the interaction between Japan and China since the late nineteenth century in an effort to understand deeper historical reasons behind the rising tension in East Asia at the present time.

**Credit Hours:** 3

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**HIST 7821: Constitutionalism in the Americas**

(cross-leveled with HIST 4821). This course looks at the history of constitutions and constitutional democracy in the Americas as a whole - the United States and Latin America. The U.S. Constitution was a pioneering document in the Americas, and this course examines the international influence of the United States' experiment with constitutional democracy. While the course will examine the inspiration of the U.S. Constitution, it will also examine republics that drew upon the same philosophical antecedents that inspired the founders of the United States but may have opted for different forms and practices. Graded on A-F basis only.

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**Credit Hours:** 3

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**HIST 7850: Traversing the Muslim World**

(cross-leveled with HIST 4850, S\_A\_ST 4850). The traveler's tale formed an important part of the medieval world's system of knowledge. This writing intensive discussion-based course examines a wide array of the most influential travelers in Muslim lands such as Ibn Fadlan, Ibn Battuta, Benjamin of Tudela and Marco Polo.

**Credit Hours:** 3

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**HIST 7865: Buying Desire: History of Consumption**

(cross-leveled with HIST 4865). This course explores the history of consumption practice in various cultural contexts. The course is divided into four parts: 'Masses As Consumers', 'Selling/Consuming Cultures', 'Consumption as (Postcolonial) Modernity', and 'Consumption and the Nation'. Under each section are thematically related texts on particular cultural contexts. The reading of ethnographic texts on consumption is to be accompanied by critical discussions that locate consumption within the practices of the nation-state-making and global product-marketing. Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 7867: North Korea: History, Political Economy, Culture**

(cross-leveled with HIST 4867). The aim of this course is to survey North Korea's history, especially in terms of political economy and culture. Through several themes, we will examine the historical situations of North Korea from its beginnings in the postliberation period to the present, as North Korea undergoes monumental changes. Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 7880: Chinese Migration: From Yellow Peril to Model Minority**

(cross-leveled with HIST 4880). This course surveys Chinese emigration in the global context over the span of five centuries. We will pay special attention to the changing relationships between China and Chinese migrants. Our emphasis will be on history as a process of negotiation and contestation of heterogeneous groups or individuals through creative and selective activities.

**Credit Hours:** 3

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**HIST 7910: History in the Public: An Introduction to the Theory and Practice of Public History**

(cross-leveled with HIST 4910). The purpose of this course is to introduce students to the world of public history, the central questions and debates in the field, and to offer students the opportunity to practice public history. Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 7940: Internship in History**

(cross-leveled with HIST 4940). Professional training in history and archive-related fields. Graded on S/U basis only.

**Credit Hours:** 3

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**HIST 7990: Economic Analysis of Policy & Regulation**

(cross-leveled with ABM 4990). Apply economic concepts and tools to analyze the policy-making process and the implications of policy for

individuals, firms, markets and society. Policy topics include, among other things, agricultural support programs, environmental policy, international trade, international development, and agribusiness regulation.

**Credit Hours:** 3

**Recommended:** Graduate students should have previous coursework in basic econometrics and at least intermediate-level micro economic theory

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**HIST 8000: Studies in American Colonial History**

Readings in American history from beginning of English settlements to adoption of the Constitution. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8001: Seminar in the History of Colonial America**

Directed research in the colonial and revolutionary period of American history. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8004: Topics in History-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to maximum of 6 hours.

**Credit Hour:** 1-99

**Prerequisites:** department consent

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**HIST 8010: Studies in American Religious History, 1750-1850**

This class will examine important ideas and trends in the field, with an emphasis on popular religious movements. This is a reading-based seminar, revolving around discussion of influential recent books. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8020: Seminar in the Early American Republic**

Directed research in the period 1787-1861. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8021: Studies in the Early American Republic**

This is an intense reading and discussion course designed to give students a crash course in the historiography of this period (emphasizing political culture) as well as practical experience in assimilating themselves quickly to a field. Students must attend and be prepared to participate knowledgeably in each class section. Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 8030: Studies in Sectional Controversy, Civil War and Reconstruction**

Directed readings and discussions of major issues in the period of national unification of the United States, from 1850 through 1877. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8040: Seminar in Imperial History**

Empires have been the predominant organizing political structure in modern world history (c. 1500-2000). Yet historians mostly structure historical inquiry around nations. This graduate class seeks to redress this imbalance by acquainting students with a diverse selection of the modern Anglophone historiography on empire, as well as giving them the opportunity to develop their own research project on an aspect of imperial history of their choosing. This class is reading and writing intensive, as should be expected of graduate students. Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 8041: The Making of the Atlantic World**

(same as CNST\_DEM 8041). Commerce, colonization, enslavement, and warfare connected western Europe, West Africa, and the Americas into an Atlantic world from the fifteenth to the eighteenth century. This course introduces students to several key themes in the scholarship of the Atlantic world: contact and imperial conquest, migration, slavery, servitude, and race, and the interaction of law and society. We will focus on the British Atlantic, and also engage with other framings, including the Iberian and African Atlantics. Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 8042: From the Age of Revolutions to the Age of Nation-States, 1760-1900**

(same as CNST\_DEM 8042). This course will immerse students in the history and historiography of the nineteenth century Atlantic World. The key arc that students will trace is the move from the age of revolutions to the formation of modern, bureaucratic nation-states, a process which unfolded across the Atlantic basin. Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 8045: Atlantic History and Politics**

(same as CNST\_DEM 8045). In this interdisciplinary graduate course, students will examine some of the most significant texts of the Atlantic world c. 1750-present. They will track the evolution of ideas of liberty, natural rights, politics, and empire that have conditioned the historical development of the Atlantic basin. Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 8050: Britain and the World**

(same as CNST\_DEM 8050). In this course students will engage with the rich and dynamic global history of Great Britain. The core of the course will be daily guest lectures delivered by faculty members of Oxford University. The course also includes three excursions to sites of historical significance within England. Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 8060: Kinder Institute Colloquia**

(same as CNST\_DEM 8060). In this year-long course, students will actively participate in the regular events put on by the Kinder Institute on Constitutional Democracy. The core of the course will be the public lectures, seminar presentations/discussions, workshops, and annual conference sponsored by the Kinder Institute. In addition to actively participating in these events, students will produce reaction papers that provide their assessment and analysis. Graded on A-F only.

**Credit Hours:** 3

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**HIST 8085: Problems in History**

Individual work not leading to dissertation.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**HIST 8089: Masters Research in History**

Work equal to research done for a dissertation, but not leading to thesis.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**HIST 8090: Masters Research in History**

Graded on a S/U basis only.

**Credit Hour:** 1-99

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**HIST 8210: Studies in Recent United States History**

Critical evaluation of writing in American history in period 1929-present. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8211: Seminar in Recent United States History**

Advanced seminar in American history from 1929 to present. May be repeated to a maximum of 12 hours.

**Credit Hour:** 1-12

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**HIST 8405: Studies in Gender**

Studies in recent research material focused on the analysis of the intersections of gender, race and class in particular times and places. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8406: The Politics of the Body in Historical Perspective**

This graduate seminar will launch an investigative inquiry into how the body has been conceptualized in the historical past and how it continues to serve as a site of contention. This course will offer an opportunity to introduce students to the major intellectual debates that guide the study of the body and body-related processes in current scholarship. Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 8410: Independent Readings for History Ph.D. Comprehensive Examination**

Independent readings for Ph.D. Comprehensives.

**Credit Hour:** 1-99

**Prerequisites:** Open only to graduate students formally admitted to candidacy for Ph.D. in history

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**HIST 8415: Studies in African-American History**

(same as BL\_STU 8415). Readings on selected topics in African-American history from 1619 to the present, with emphasis on conflicting interpretations. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8416: Seminar in African-American History**

(same as BL\_STU 8416). Directed research in selected topics in African-American history. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8440: Studies in American Western and Environmental History**

Readings, class discussion, and written analysis on topics in American Western and environmental history from early settlement to the present. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8450: Studies in the History of the South**

Group readings and appraisal of controversial interpretations in Southern history. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8455: Studies in the History of American Diplomacy**

Readings in evolution of American diplomacy from the Revolution to present. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8457: Studies in the History of the United States and the World**

This graduate seminar will explore the emerging historiographical field known as 'The United States and the World', broadly defined to encompass both the history of U.S. foreign policy and other topics like the history of trade, immigration, and cultural exchange. This course will focus on historiography and methodology in order to introduce students to the existing literature, assist in preparation for comprehensive examinations, identify major trends in the field, and suggest directions for future research. Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 8460: Studies in Trans-Atlantic History**

This course examines important historical themes in a trans-Atlantic context. Readings will invite exploration of changes, continuities, contrasts, and causation of similar phenomena on both side of the ocean, in the Americas, Europe, and/or Africa.

**Credit Hours:** 3

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**HIST 8480: Historiography**

Acquaints graduate students with examples of modern historical thought and practice by examining various conceptual approaches to the study of history. May be repeated to a maximum of six hours.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**HIST 8510: Seminar in Ancient History**

Readings and research on selected problems in ancient history. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8531: Studies in English History**

Readings in historical literature covering period since 1660; particular reference to new interpretations of political, social developments. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8540: Seminar in Medieval Culture**

Investigates cultural developments in the medieval period. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8541: Studies in Medieval History**

Readings in medieval history and historiography with emphasis on current scholarship. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8542: Seminar in Medieval Paleography**

This course provides an introduction to medieval and Renaissance manuscript-sources and their use as research-tools in a fairly wide variety of sub-fields (e.g., archival study, scholastic text-analysis, vernacular literature). Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** departmental consent and competence in Latin grammar required

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**HIST 8550: Seminar in the Renaissance and Reformation**

Analyzes problems of the period 1300-1600; emphasizes intellectual history. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8551: Studies in Early Modern European History**

Readings in historical classics and current scholarship on Renaissance, Reformation, Baroque, and Enlightenment periods. Problem of modernity. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8565: Studies in the History of Medicine**

This course will focus on interpretations on the impact of disease on western society at various times through history. Chronic diseases play an important role in shaping societies, but it is generally in response to epidemics that we see significant social reactions and changes. As a thematic course, this covers a broad sweep of time, from medieval to modern. Graded on A-F basis only.

**Credit Hours:** 3

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**HIST 8570: Studies in Modern European History**

Readings in recent research material on selected topics. May be repeated to a maximum of 6 hours.

**Credit Hours:** 3

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**HIST 8571: Seminar in Modern European History**

Explores Modern European History. Graded on A-F basis only. Repeatable for credit.

**Credit Hours:** 3

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**HIST 8800: Studies in Latin American History**

Readings in standard and recent historical literature, with critical discussion of reports on special topics. May be repeated to a maximum of 6 hours.

**Credit Hour:** 1-6

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**HIST 9090: PhD Research in History**

Graded on a S/U basis only.

**Credit Hour:** 1-99

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## Honors-General (GN\_HON)

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**GN\_HON 1010H: Career Explorations**

Colloquia in which experts from both the University and the Columbia communities discuss their specialties and answer students' questions on the nature and current status of their disciplines. Open primarily to freshmen. Graded on an S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Honors eligibility required

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**GN\_HON 1030H: Honors Discussion Groups**

Informal discussion between students and faculty on various academic topics. Graded S/U only.

**Credit Hour:** 1-2

**Prerequisites:** Honors eligibility required

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**GN\_HON 1050H: Honors Seminar**

Freshman-sophomore seminar offering a small group opportunity to write about and discuss basic works chosen by instructor.

**Credit Hour:** 1-3

**Prerequisites:** Honors eligibility required

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**GN\_HON 1070H: Honors Elective Colloquium**

**Credit Hour:** 2-3

**Prerequisites:** Honors eligibility required

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**GN\_HON 1080H: Honors Internship**

Independent study under the supervision of a regular faculty member.

**Credit Hour:** 1-3

**Prerequisites:** written proposal with professor's approval submitted in advance to Director of the Honors College. Honors eligibility required

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**GN\_HON 2010H: Honors Tutorial**

Small group of students (2-5) engage in collaborative work under faculty guidance. The focus is determined in advance by a faculty member and shaped through discussion with the enrolled students. Course may be repeated for credit. Honors eligibility required

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**GN\_HON 2011H: Unbound: Reading Without Limits**

Joining forces with the Unbound Book Festival, held late April each year here in Columbia, the Unbound tutorial seeks to engage students in the life-long learning approach to reading for pleasure, for the pursuit of engagement, and as a social construct (rather than simply an isolated act). Students will read no fewer than four works of fiction, non-fiction, poetry, and essays, and discuss them as a reading circle but also have the opportunity to meet the authors during the Unbound Book Festival and discuss with them their ideas and skills. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Honors eligibility required

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**GN\_HON 2012H: BBQ: Culture, Cuts, and Consumption - Honors**

This course will focus on providing you with a sound understanding of the culture, context, culinary, and commercial aspects of Barbecue. We will explore how the meat industry plays a role in BBQ, the environmental implications (of both meat and wood usage), the culture (from your backyard to the national competitions, and even BBQ abroad), and look into how and why BBQ has become such a phenomenon. We will spend some time with a local (KC) author who has written a novel on BBQ that is currently being turned into a TV series. And then we will spend time visiting local BBQ 'joints', speaking with owners and pitmasters, customers and devotees, about their business models, their culinary decisions, and their traditions - yes, we will taste, but we will also learn, and use what we have learned, to understand the world of BBQ and its intersections in our daily and national lives. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Honors eligibility required

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**GN\_HON 2015H: Theory and Practice of Tutoring Writing Seminar**

(same as ENGLSH 2015H). Addresses both the theory and practice of tutoring and the foundations of good writing. This course also qualifies students for a part-time job working as Writing Lab/Online Writery tutors in future semesters.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000; instructor's consent

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**GN\_HON 2015HW: Theory and Practice of Tutoring Writing Seminar - Honors/Writing Intensive**

(same as ENGLSH 2015H). Addresses both the theory and practice of tutoring and the foundations of good writing. This course also qualifies students for a part-time job working as Writing Lab/Online Writery tutors in future semesters.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000; instructor's consent

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**GN\_HON 2085H: Honors Problems**

Independent study under the supervision of a regular faculty member.

**Credit Hour:** 1-3

**Prerequisites:** written proposal with professor's approval submitted in advance to Director of the Honors College. Honors eligibility required

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**GN\_HON 2111H: The Ancient World**

The reading list is comprised of the great writers of classical Greece and Rome such as Homer, Sophocles, Plato, Aristotle, Virgil and Apuleius,

and of the biblical period, the authors of the Book of Job and the Gospel of Mark.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2111HW: The Ancient World - Honors/Writing Intensive**

The reading list is comprised of the great writers of classical Greece and Rome such as Homer, Sophocles, Plato, Aristotle, Virgil and Apuleius, and of the biblical period, the authors of the Book of Job and the Gospel of Mark.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2112H: The Middle Ages and the Renaissance**

The literature, art and philosophy which reflect the interaction of biblical thought with the classical past, and ultimately an emerging humanism, form the contents of the second semester. Readings include selections from such central figures as Aquinas, Chaucer, Dante, and Shakespeare. Special lectures are presented on the art, architecture and music of these eras.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2112HW: Here Be Monsters - Honors/Writing Intensive**

Exploring the art, literature, music and philosophy of the Medieval and Renaissance periods, this course opens in North Africa during the late Roman Empire on the threshold between the classical and medieval eras, and it closes in Shakespeare's London during the English Renaissance. In between, we'll explore the fens of Beowulf's Denmark, the battlefields of Roland and Charlemagne, and Hell itself in Dante's Inferno; meet werewolves and dragons and pilgrims; navigate the intellectual, political, and religious turmoil of medieval Europe; and encounter the glory of Renaissance Italy. This is the second course in the long-running Honors Humanities Sequence.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2113H: The Early Modern World: The 17th-19th Centuries Enlightenment**

The third segment of the Sequence treats the cultural developments in the West from the Baroque to the Enlightenment through Romanticism. The works of Cervantes, Descartes, Milton, Voltaire, Kant, Austen, Goethe, and Dickinson are among those studied. The music and visual arts of these periods are also included.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2114H: The Modern Era**

The final semester of the Humanities Sequence deals with the intellectual and cultural developments from the mid-nineteenth to the late twentieth century. Lectures and discussions will be held on the philosophy of Marx, Nietzsche, Sartre and Hannah Arendt; on the literary works of Dickens, Dostoevsky, James Joyce, Virginia Woolf, T.S. Eliot, and Toni Morrison. Special lectures are presented on the music of the period.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2114HW: The Modern Era - Honors/Writing Intensive**

The final semester of the Humanities Sequence deals with the intellectual and cultural developments from the mid-nineteenth to the late twentieth century. Lectures and discussions will be held on the philosophy of Marx, Nietzsche, Sartre and Hannah Arendt; on the literary works of Dickens, Dostoevsky, James Joyce, Virginia Woolf, T.S. Eliot, and Toni Morrison. Special lectures are presented on the music of the period.

**Credit Hours:** 3**Prerequisites:** Honors eligibility required

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**GN\_HON 2120H: Honors Humanities Colloquium****Credit Hour:** 2-3**Prerequisites:** Honors eligibility required

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**GN\_HON 2230H: Honors Social Science Colloquium****Credit Hour:** 2-3**Prerequisites:** Honors eligibility required

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**GN\_HON 2230HW: Honors Social Science Colloquium - Honors/Writing Intensive****Credit Hour:** 2-3**Prerequisites:** Honors eligibility required

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**GN\_HON 2231H: Genocide in the Modern World: An Introduction**

This course examines the multitude of genocide's facets - its causes, course of events, consequences, and the pursuit of prevention and punishment - since the advent of the Twentieth Century (with some examination of historical antecedents). Specific historical and conceptual aspects of various case studies will be examined and a framework for the study of genocide will be developed and applied, starting with the legal definition of genocide and ending with very nuanced theories, behaviors, and components of specific events. The class will use foundational case studies to understand the place of genocide throughout history and end with an investigation into current and on-going genocides, as well as the international pursuit of justice in the wake of these events. Graded on A-F basis only.

**Credit Hours:** 3**Prerequisites:** Honors eligibility required

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**GN\_HON 2243H: Human Sciences Sequence I: Personal Identity**

This interdisciplinary course approached the perennial but fascinating question of how we define, develop, and present ourselves. It considers this question from a range of disciplinary, regional, and thematic perspectives.

**Credit Hours:** 3**Prerequisites:** Honors eligibility required

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**GN\_HON 2244H: Social Relations**

This interdisciplinary course explores the construction of human identity as it related to social groups (these groups might include anything from the family to fan clubs, sports teams to college students).

**Credit Hours:** 3**Prerequisites:** Honors eligibility required

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**GN\_HON 2245H: Social Organization**

This course examines various forms of social organization from an interdisciplinary perspective. The course will examine small organizations (such as families and kin networks) that are grounded in face-to-face relationships and then consider the impact of large-scale organizations (such as markets and states). The class will also explore how these larger organizations can hold together in the absence of direct personal connections between members.

**Credit Hours:** 3**Prerequisites:** Honors eligibility required

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**GN\_HON 2246H: Global Citizenship**

This course continues our introduction to the fundamental problems and concepts of social science by concentrating on today's emerging global society and the ways in which it shapes social identity. The course also aims at encouraging students to think of themselves as global citizens - people who possess a sense of their own role as citizens of the world.

**Credit Hours:** 3**Prerequisites:** Honors eligibility required

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**GN\_HON 2246HW: Global Citizenship - Honors/Writing Intensive**

This course continues our introduction to the fundamental problems and concepts of social science by concentrating on today's emerging global society and the ways in which it shapes social identity. The course also aims at encouraging students to think of themselves as global citizens - people who possess a sense of their own role as citizens of the world.

**Credit Hours:** 3**Prerequisites:** Honors eligibility required

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**GN\_HON 2310H: Honors Behavioral Science Colloquium**

This course meets a general education behavioral science requirement.

**Credit Hours:** 3**Prerequisites:** Honors eligibility required

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**GN\_HON 2450H: Honors Biological, Physical, Math (Computer Science) Science Colloquium**

Open to all honors-eligible students. These courses may be cross-listed with Biological, Physical or Mathematical Science Departments. Interdisciplinary or experimental courses are encouraged.

**Credit Hour:** 1-3**Prerequisites:** Honors eligibility required

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**GN\_HON 2452H: Honors Biological Science Colloquium**

Open to all honors-eligible students. These courses may be cross-listed with Biological Science Departments. Interdisciplinary or experimental courses are encouraged.

**Credit Hour:** 1-3**Prerequisites:** Honors eligibility required

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**GN\_HON 2456H: Honors Math (Computer Science) Science Colloquium**

Open to all honors-eligible students. These courses may be cross-listed with Mathematical Science Departments. Interdisciplinary or experimental courses are encouraged.

**Credit Hour:** 1-3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2457H: Honors Physical Science Colloquium**

Open to all honors-eligible students. These courses may be cross-listed with Physical Science Departments. Interdisciplinary or experimental courses are encouraged.

**Credit Hour:** 1-3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2461H: Environment: From Molecules to the Cosmos**

Inquiry-based exploration of how the world was made, environments formed, life evolved, and how it works together to sustain life on Earth. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2462H: Energy: From Particles to Civilizations**

Inquiry based exploration of energy, what it is, how it is used, and how it sustains our life on Earth. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 2950H: Honors Preceptorship**

Active participation in a professor's research for up to six hours a week.

**Credit Hour:** 1-3

**Prerequisites:** written description of the work with professor's approval submitted in advance to Director of the Honors College. Honors eligibility required

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**GN\_HON 3070H: Honors Electives Colloquium**

**Credit Hour:** 2-3

**Prerequisites:** Honors eligibility required

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**GN\_HON 3070HW: Honors Electives Colloquium - Honors/Writing Intensive**

Honors Electives Colloquium - Honors/Writing Intensive.

**Credit Hour:** 2-3

**Prerequisites:** Honors eligibility required

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**GN\_HON 3112H: Interdisciplinary Topics in the Humanities: Aesthetics and Performance**

Aesthetics and Performance is the 2nd course offered in a four-semester, upper-level Humanities Series. It takes an Interdisciplinary approach to a variety of topics relevant to such disciplines as Art History, Art, Theater, English, and Film Studies. Students will be introduced to key figures, ideas, and texts in aesthetics and performance. The course format will be a combination of guest lectures, small-group discussion, and when possible, team-teaching. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** junior or senior standing. Honors eligibility required

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**GN\_HON 3113H: Interdisciplinary Topics in the Humanities: Big Ideas, Big Questions**

Big Ideas, Big Questions is the third course offered in a four-semester, upper-level Humanities Series. It takes an interdisciplinary approach to concepts, theories, debates, and questions central to our understanding of the humanities.

**Credit Hours:** 3

**Prerequisites:** upper-level standing or permission of instructor; Honors eligibility required

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**GN\_HON 3120H: Honors Humanities Colloquium**

**Credit Hour:** 2-3

**Prerequisites:** junior standing. Honors eligibility required

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**GN\_HON 3120HW: Honors Humanities Colloquium - Honors/Writing Intensive**

**Credit Hour:** 2-3

**Prerequisites:** junior standing. Honors eligibility required

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**GN\_HON 3210H: Honors Behavioral Colloquium**

**Credit Hour:** 2-3

**Prerequisites:** junior standing. Honors eligibility required

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**GN\_HON 3210HW: Honors Behavioral Colloquium - Honors/Writing Intensive**

**Credit Hour:** 2-3

**Prerequisites:** junior standing. Honors eligibility required

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**GN\_HON 3230H: Honors Social Science Colloquium**

**Credit Hour:** 2-3

**Prerequisites:** junior standing required. Honors eligibility required

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**GN\_HON 3230HW: Honors Social Science Colloquium - Honors/Writing Intensive**

**Credit Hour:** 2-3

**Prerequisites:** junior standing required. Honors eligibility required

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**GN\_HON 3241H: Evolution of Human Nature**

(same as ANTHRO 3340H). We will investigate the topic of human nature, asking such questions as: What are we like? Why do we behave the way we do? Are we inherently selfish or social? Do we have a unitary 'self' or are we made up of many (and sometimes contradictory) selves? Is there a single 'human' nature or are there distinct 'male' and 'female' natures? Does human nature vary across cultures? Insights come from fields ranging from genetics to literature. The concept of 'human nature' is fiercely contested and debated both within and between academic disciplines. We will be focusing on the scientific study of human nature, seeking naturalistic explanations by formulating and testing hypotheses. In particular, we will use evolutionary theory to unify explanations from disparate disciplines like biology, psychology, and anthropology. In each class, we will discuss one specific topic like sex or violence and seek to make sense of it from both the proximate level (what triggers the behavior and how does it develop?) and the ultimate level (why and how did our evolutionary history imbue us with this capacity?). Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**GN\_HON 3241HW: Evolution of Human Nature - Honors/Writing Intensive**

We will investigate the topic of human nature, asking such questions as: What are we like? Why do we behave the way we do? Are we inherently selfish or social? Do we have a unitary 'self' or are we made up of many (and sometimes contradictory) selves? Is there a single 'human' nature or are there distinct 'male' and 'female' natures? Does human nature vary across cultures? Insights come from fields ranging from genetics to literature. The concept of 'human nature' is fiercely contested and debated both within and between academic disciplines. We will be focusing on the scientific study of human nature, seeking naturalistic explanations by formulating and testing hypotheses. In particular, we will use evolutionary theory to unify explanations from disparate disciplines like biology, psychology, and anthropology. In each class, we will discuss one specific topic like sex or violence and seek to make sense of it from both the proximate level (what triggers the behavior and how does it develop?) and the ultimate level (why and how did our evolutionary history imbue us with this capacity?). Graded on A-F basis only.

**Credit Hours:** 3**Prerequisites:** Honors eligibility required

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**GN\_HON 3242H: The Future Is Indigenous! - Honors**

Today, Indigenous peoples around the world are reasserting an ancient idea that our human responsibilities to the planet come through place, and that our planetary responsibilities are fulfilled by investing in and learning from place. Place-based Indigenous thought and activism give us new ways of thinking about global citizenship within a more-than-human democracy of beings - a 'pluriverse' - and changes our understanding of what it means to be human in the twenty-first century. After looking at the limitations of the system of global ethics in cosmopolitan philosophy, we will get acquainted with the 'place thought' of three Indigenous peoples: the Western Apache of the USA, the Maori of Aotearoa/New Zealand, and the Huaorani of the Ecuadorian Amazon. This course satisfies three credit hours of general education requirements in the behavioral and social sciences and is part of the Honors College's Interdisciplinary Topics in the Human Sciences series. Graded on A-F basis only.

**Credit Hours:** 3**Prerequisites:** Honors eligibility required

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**GN\_HON 3242HW: The Future Is Indigenous! - Honors/Writing Intensive**

Today, Indigenous peoples around the world are reasserting an ancient idea that our human responsibilities to the planet come through place, and that our planetary responsibilities are fulfilled by investing in and learning from place. Place-based Indigenous thought and activism give us new ways of thinking about global citizenship within a more-than-human democracy of beings - a 'pluriverse' - and changes our understanding of what it means to be human in the twenty-first century. After looking at the limitations of the system of global ethics in cosmopolitan philosophy, we will get acquainted with the 'place thought' of three Indigenous peoples: the Western Apache of the USA, the Maori of Aotearoa/New Zealand, and the Huaorani of the Ecuadorian Amazon. This course satisfies three credit hours of general education requirements in the behavioral and social sciences and is part of the Honors College's Interdisciplinary Topics in the Human Sciences series. Graded on A-F basis only.

**Credit Hours:** 3**Prerequisites:** Honors eligibility required

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**GN\_HON 3450H: Honors Colloquium****Credit Hour:** 2-3**Prerequisites:** junior standing required. Honors eligibility required

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**GN\_HON 3452H: Honors Biological Science Colloquium****Credit Hour:** 2-3**Prerequisites:** junior standing required. Honors eligibility required

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**GN\_HON 3456H: Honors Math (Computer Sci.) Science Colloquium****Credit Hour:** 2-3**Prerequisites:** junior standing required. Honors eligibility required

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**GN\_HON 3457H: Honors Physical Science Colloquium****Credit Hour:** 2-3**Prerequisites:** junior standing required. Honors eligibility required

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**GN\_HON 4070H: Advanced Honors Elective Colloquium**

These courses may be cross-listed with courses in graduate or professional programs or one-of-a-kind courses which may have no other more appropriate academic home. Interdisciplinary or experimental courses are encouraged.

**Credit Hour:** 1-3**Prerequisites:** Restricted to juniors and seniors. Honors eligibility required

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**GN\_HON 4070HW: Advanced Honors Elective Colloquium - Writing Intensive**

These courses may be cross-listed with courses in graduate or professional programs or one-of-a-kind courses which may have no other more appropriate academic home. Interdisciplinary or experimental courses are encouraged.

**Credit Hour:** 1-3**Prerequisites:** Restricted to juniors and seniors. Honors eligibility required

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**GN\_HON 4950H: Honors Preceptorship**

Active participation in a professor's research for up to six hours a week.

**Credit Hour:** 2-3**Prerequisites:** written description of the work with professor's approval submitted in advance to Director of the Honors College. Junior standing required. Honors eligibility required

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## Hospitality Management (HSP\_MGMT)

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**HSP\_MGMT 1100: Introduction to Hospitality Management**

An overview of the size, scope, form, analysis and development of various sectors in the hospitality industry. These include hotel, tourism, food and beverage, convention and events, club, cruise, gaming, managed services, and sport venue management. Emphasis will be on the global nature of the industry and its impact on economy and

employment. Students will be exposed to career opportunities, cultural diversity, ethical consideration and current trends facing industry. Graded on A-F basis only.

**Credit Hours:** 3

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**HSP\_MGMT 2100: Hospitality Law**

Provides an integrated analysis of the legal system as it applies to the hospitality industry. Topics include: theories of recover/liability; employment laws, property rights and contracts, lawsuits and their prevention; familiarization with legal arguments, litigation, ethical issues and the tort of negligence in professional context. Relevant federal and state cases, statutes, and regulations will be examined. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 1100

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**HSP\_MGMT 2115: Club Management and Operations**

Examines aspects of club operations from a managerial perspective. Topics include: history, types of club and membership systems, club management structure, charter, by-laws; athletic activities, master and club calendars; unique features of club operations including food and beverage operations, human resources management, finances, building and facilities management, external and governmental factors, trends and the future of clubs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 1100

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**HSP\_MGMT 2190: Seminar in Professional Development**

A systematic approach to expose students to a journey of self assessment and to develop life-long skills for their careers in the hospitality industry. Using professionalism as a framework, students are made aware of the foundation of effective workplace relationship and how to appropriately manage these relationships toward career success. Topics include self management, workplace relationship, and career planning tools. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** HSP\_MGMT 1100; restricted to Hospitality Management majors only

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**HSP\_MGMT 2200: Fundamentals of Conference and Events Industry**

Overview of the Meeting, Incentive, Convention and Exhibition (MICE) management industry in hospitality and tourism from a macro perspective. The knowledge and information available to conference and meeting business are described and evaluated, including the trend and issues facing the industry, the characteristics of the size and scope of the market, key players, and different sectors in the meeting industry. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** HSP\_MGMT 1100 or Instructor Consent

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**HSP\_MGMT 2300: Fundamentals of the Food and Beverage Industry**

An introduction to the macro aspects and a comprehensive overview of the Food and Beverage industry. The course begins with a history of meals away from home and an overview of commercial versus noncommercial food and beverage operations. Detailed considerations are given to components of the food service businesses: size and scope

of the industry, major classifications, ownership types, key players, consumer purchasing behavior, quality assurance, trends, challenges, cultural diversity, ethical consideration, and impact of globalization. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** HSP\_MGMT 1100 or Instructor Consent

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**HSP\_MGMT 2400: Fundamentals of Lodging Industry**

Explores the foundations of the global lodging industry. The history of the industry, relationship of tourism, size and scope, classification and types, major global players will be examined. Issues related to the impact of globalization, international hotel investment, development and operations, global competitions, political aspects, human resources and cultural diversity will be discussed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** HSP\_MGMT 1100 or Instructor's Consent

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**HSP\_MGMT 2500: Fundamentals of Sport Venue Industry**

An overview of the Sport Venue Industry from a macro perspective. Students will be exposed to the major aspects regarding management of athletic and recreational facilities. Topics will include: history, trends and globalization of sport and venue development, types of sport facilities and major key players, construction and finance, facility systems and operations, sales and marketing, liability and risk management, ticket and box office operation, and event management. Cultural diversity, ethical issues and career opportunities in Sport Venue Management will also be explored. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** HSP\_MGMT 1100 or instructor consent

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**HSP\_MGMT 3100: Guest Service Management**

Addresses the essence of delivering memorable guest experience through high-quality guest service management. Topics include concepts of guest service quality, guest behavior, perceptions and satisfaction, guest service assessment methods, and guest recovery strategies. Students will then learn how to leverage their understanding of these concepts to establish guest service culture and strategies to meet organizational goals within the context of hospitality businesses. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to junior and senior level students only

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**HSP\_MGMT 3104: Topics in Hospitality Management**

An examination of specific subject matter areas in the field of hospitality management will be addressed. Current issues, trends and challenges will also be discussed. Graded on A-F basis only

**Credit Hour:** 1-3

**Prerequisites:** HSP\_MGMT 1100; Restricted to Hospitality Management junior and senior students

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**HSP\_MGMT 3105: Problems in Hospitality Management**

Students develop problem solving, analytical skills by engaging in a supervised study of a selected field in the hospitality industry. Challenges and issues will be identified and probable solutions will be weighed and evaluated. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**HSP\_MGMT 3115: Management of Gaming Operations**

An overview, analysis of gaming management and financial elements unique to operating gaming businesses. Topics include: History and development of gaming, economic relationships, social impact, legal and changing competitive environments, consumer behavior and psychological forces, corporate culture and technology, revenue control, and promotion and marketing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 1100; 60 credit hours, 21 yrs old. Restricted to Hospitality Management students during early registration. Other students meeting pre-reqs can register after early registration

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**HSP\_MGMT 3200: Conference and Meeting Management**

Addresses the different operational aspects regarding convention and meeting planning management. Students will be exposed to skill-based knowledge pertaining to meeting and event planning, implementation and management. Topics discussed to include group business market, the role of the event planner, the various techniques and services used to meet their needs. Food and beverage, technology used, legal issues, social responsibility, and international aspects in the convention and meeting industry will be addressed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 1100; 60 credit hours. Restricted to Hospitality Management students during early registration

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**HSP\_MGMT 3300: Food Production Management**

Explore the production and service aspects of the food and beverage businesses. It will examine principles of concept development, menu planning, pricing and costing, forecasting, standardize recipe and testing, purchasing, food sanitation and safety, quantity food production, delivery of service, inventory control, quality assurance, professionalism and team work. Students will rotate through the different functions of the 'front' and 'back of the house' of a food facility. This supervised student-operated facility enables students to apply theories to the actual food service operation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 2300; HSP\_MGMT 3310, 60 credit hours, ServSafe Cert Req. Restricted to Hospitality Management students during early registration

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**HSP\_MGMT 3310: Food Service Budgeting and Controls**

Examines management systems and techniques in the food and beverage industry. Topics include: effective use and control of food, beverage, and labor costs to manage a company's operations, with emphasis on computer applications, problems solving and analytical skills, making sound financial decisions, and excellence in customer service. This is a Math Reasoning Proficiency course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 1100; MATH 1100. Restricted to HM students during early registration. Other students meeting pre-reqs may register after early registration

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**HSP\_MGMT 3315: Banquet and Catering Management**

Engage in the management of service and production systems in catering operations and banquet facilities. An emphasis will be placed on the fundamentals of communication and planning with event coordinators, menu planning, sales and marketing, food and beverage cost control, guest service standards, quantity food productions, food safety, needs and challenges of catering both on and off premises. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 2300; 60 credit hours, Restricted to Hospitality Management students during early registration

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**HSP\_MGMT 3320: Beverage Management**

Explore and analyze operational and managerial elements of the bar and beverage industry. Topics include: alcoholic versus non-alcoholic beverage, beverage menu development, pricing strategy and costing, sensory evaluation, food and beverage pairing, marketing and promotion, inventory control, training of personnel, legal aspects of responsible service of alcohol. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 2300; 60 credit hours, 21 yrs old. Restricted to Hospitality Management students during early registration

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**HSP\_MGMT 3400: Lodging Operations and Management**

Exposes students to the principles of managing lodging businesses regarding the fundamental principles, hows and whys of management. Topics include: Analysis of the functions of each department, organization structure, inter-relationship among various departments of a lodging facility, property management system, safety and security, guest service and satisfaction, and total quality issues. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 2400; 60 credit hours. Restricted to Hospitality Management students during early registration

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**HSP\_MGMT 3420: Technology Applications in the Lodging Industry**

Survey of the technology applications, issues, and trends in the lodging industry. The role of technology in operations and as a strategic tool to achieve competitive advantage will be examined. Students will need to have a good grasp of how to best implement information technology that will impact the future of their organizations. Current technology issues of interest and importance to the industry will also be explored. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 2400. Open to Hospitality Management junior and senior students only

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**HSP\_MGMT 3500: Sport Venue Operation Management**

Examines the various operational dynamics and management of sport venues and facilities. Topics such as public versus private ownership and governance structures, facility planning and feasibility study, design and construction, event planning, programming and execution, sales and marketing, box office operations, and financial management will be addressed. Ethical issues, legal responsibilities, risk and security management will also be discussed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 2500; 60 credit hours. Restricted to HM students during early registration. Other students meeting pre-reqs may register after early registration

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**HSP\_MGMT 3993: Field Training in Hospitality Management**

Applies theories into actual industry setting. Aspects such as career paths, team work, inter-relationship in the workplace and professionalism are explored. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**HSP\_MGMT 4100: Hospitality Human Resources Management**

(cross-leveled with HSP\_MGMT 7100). Examines effective management of human resources issues in hospitality businesses. It addresses issues related to managing subordinates through hiring the right person for the position, training properly, evaluating employees' performance accurately and promptly, rewarding good behaviors, and motivating and coaching them. Manpower planning, equal employment practices and employee relations, quality of work life, compensation and reward structure, and how to make sound human resource management decisions will also be discussed. This is a writing intensive course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** 60 credit hours. Restricted to HM students during early registration. Other students meeting pre-req may register after early registration

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**HSP\_MGMT 4100W: Hospitality Human Resources Management - Writing Intensive**

(cross-leveled with HSP\_MGMT 7100). Examines effective management of human resources issues in hospitality businesses. It addresses issues related to managing subordinates through hiring the right person for the position, training properly, evaluating employees' performance accurately and promptly, rewarding good behaviors, and motivating and coaching them. Manpower planning, equal employment practices and employee relations, quality of work life, compensation and reward structure, and how to make sound human resource management decisions will also be discussed. This is a writing intensive course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 1100; 60 credit hours. Restricted to HM students during early registration. Other students meeting prereqs may register after early registration

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**HSP\_MGMT 4110: Hospitality and Tourism Marketing**

(cross-leveled with HSP\_MGMT 7110). Application of a customer-oriented approach to sales and marketing management in hospitality and tourism industry. The marketing techniques available to hospitality businesses are described and evaluated, including service marketing mix, packaging, travel trade, advertising, sales promotion, merchandising, and personal selling. Marketing of hospitality services regarding human factors, consumer demand, planning, professional considerations are also discussed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 1100; 60 credit hours. Restricted to HM students during early registration. Other students meeting pre-reqs may register after early registration

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**HSP\_MGMT 4180: Strategic Management in the Hospitality Industry**

(cross-leveled with HSP\_MGMT 7180) Focuses on developing conceptual skills and application of the principles of strategic management in the context of the hospitality industry. It involves handling and analyzing ambiguous facts as well as relevant industry problems and issues facing management personnel in the global hospitality markets. Topics include: Business environments, mission statement, corporate and business strategies, evaluation and control. It requires that students to apply functions of management, finance, human resources, and marketing, learn how to engage in planning by examining situations from the perspectives of customer, employee, and management. The ultimate goal is to encourage students to think 'out-of-the-box' in order to find innovative solutions that will reshape the hospitality industry and define how the hospitality company of tomorrow will create value. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 3100; MANGMT 3000; 60 credit hours. Restricted to Hospitality Management students during early registration

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**HSP\_MGMT 4190: Trends in Hospitality Management**

To keep abreast of the development that affects current managerial practices, this course is a survey of key trends and critical issues that impact the hospitality industry. Best practices, opportunities and challenges facing the industry will also be discussed. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** HSP\_MGMT 1100 and open to Hospitality Management students only

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**HSP\_MGMT 4200: Destination Management**

(cross-leveled with HSP\_MGMT 7200). An overview of hospitality and tourism destination management using a system approach that integrates a variety of hospitality and tourism organizations and businesses. Destination management will be examined from the perspectives of travelers and destination communities in the context of economic, socio-cultural, and environmental impacts. Optimal planning, development, marketing of destination image and position in the context of the overall management plan will be addressed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 1100. 60 credit hours. Restricted to HM students during early registration

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**HSP\_MGMT 4280W: Special Events Management - Writing Intensive**

Synthesis of theories and a comprehensive guide in understanding, planning, promoting and producing and managing special events. Topics include: Event design, feasibility studies, legal compliance, promotion, safety and security, logistics, staffing, financial control and technology. It is based on a systematic, step-by-step approach to event planning, implementation, and management. This course requires a considerable amount of teamwork. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 3200. Open Hospitality Management senior students only

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**HSP\_MGMT 4380W: Managing Food Service Businesses - Writing Intensive**

Students explore the market positioning and the management of the student-run food service operation from concept development to execution. Students will apply knowledge gained from marketing, human resources and operational budgeting to develop their themes and execute their meals. Students will hone their problem solving, leadership and interpersonal skills while engaging in team building. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 3300. Open to Hospitality Management senior students only

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**HSP\_MGMT 4400: Hospitality Finance Management**

(cross-leveled with HSP\_MGMT 7400). Application of financial principles to the hospitality industry. The focus is to provide students a foundation on how to use numbers and fundamental financial analysis to operate a successful hospitality business. Topics include forecasting, profit and loss statement, balance sheet, capital budgeting, and revenue management related to the hospitality industry. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FINANC 2000; 60 credit hours

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**HSP\_MGMT 4480W: Advanced Lodging Management - Writing Intensive**

Apply, integrate, and synthesize previously learned knowledge, skills, and experience to solve real problems that the lodging industry faces. Specifically, managerial responsibilities, organizational structures and current trends will be examined. Throughout the class students will develop their professional identity, leadership skills and confidence to participate in the workforce. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 3400. Open to Hospitality Management senior students only

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**HSP\_MGMT 4500: Management and Promotion of Live Entertainment**

Examines the various media used to promote venues, events and live entertainment. Topics include: Artist management, budgets and financial management, insurance, liabilities, contracts and riders, event production and tour scheduling, sport communication, and community relations. In particular, emphasis will be on the use of social media platforms in promotions, public relations, and other revenue generating activities of the industry. The principles of organizational advocacy, press conferences, and crisis communication plans will also be discussed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 1100; 60 credit hours. Restricted to Hospitality Management students during early registration

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**HSP\_MGMT 4515: The Business of Sport Venue Management**

Focuses on the business aspects of managing athletic and recreational venues. The course examines the management and financial tools that managers use to run their sport venues and businesses. Traditional and innovative methods of revenue acquisition, financial business structure, sponsorship and forecasting processes as it pertains to the effective

management of venues and sport organizations are discussed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 2500. Open to Hospitality Management junior and senior students only

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**HSP\_MGMT 4580W: Sport Venue and Facility Management - Writing Intensive**

Applies previously learned principles and concepts of sport venue management and develop critical planning and organizational skills required of sport venue managers. The course will address three main modules: Security and risk management, the sport venue, and the sport event. The security and risk management module will examine efficient best practices and how they can significantly reduce the occurrence of injury and loss at sports venues and events. The sport venue and event modules will integrate concepts of venue planning, construction and operations; and event conception, planning, execution and reconciliation through case study analysis. Ethical considerations will also be stressed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HSP\_MGMT 3500. Open to Hospitality Management seniors only

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**HSP\_MGMT 4993: Internship in Hospitality Management**

Students apply concepts and theories from their coursework to practical work experiences in the hospitality industry, under the direction of industry professionals and faculty evaluation. It is the student's responsibility to secure an internship position and all internship experience must have prior approval from his/her advisor. In addition to the field experience, students will develop their problem solving and analytical skills through projects that are operational in nature. Graded on A-F basis only. Enrollment is limited to students who have completed a minimum of 75 credits and completed HSP\_MGMT 1100, HSP\_MGMT 2190 and one of the courses from students designated emphasis areas: HSP\_MGMT 3200, HSP\_MGMT 3300, HSP\_MGMT 3400 or HSP\_MGMT 3500. Enrollment limited to Hospitality Management students with a minimum of 75 credits; HSP\_MGMT 1100; HSP\_MGMT 2190 and one of the courses from students designated emphasis areas: HSP\_MGMT 3200, HSP\_MGMT 3300, HSP\_MGMT 3400 or HSP\_MGMT 3500.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required

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**HSP\_MGMT 7100: Hospitality Human Resources Management**

(cross-leveled with HSP\_MGMT 4100). Examines effective management of human resources issues in hospitality businesses. It addresses issues related to managing subordinates through hiring the right person for the position, training properly, evaluating employees' performance accurately and promptly, rewarding good behaviors, and motivating and coaching them. Manpower planning, equal employment practices and employee relations, quality of work life, compensation and reward structure, and how to make sound human resource management decisions will also be discussed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**HSP\_MGMT 7110: Hospitality and Tourism Marketing**

(cross-leveled with HSP\_MGMT 4110). Application of a customer-oriented approach to sales and marketing management in hospitality and tourism industry. The marketing techniques available to hospitality businesses are described and evaluated, including service marketing mix, packaging, travel trade, advertising, sales promotion, merchandising, and personal selling. Marketing of hospitality services regarding human factors, consumer demand, planning, professional considerations are also discussed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**HSP\_MGMT 7180: Strategic Management in the Hospitality Industry**

(cross-leveled with HSP\_MGMT 4180). Focuses on developing conceptual skills and application of the principles of strategic management in the context of the hospitality industry. It involves handling and analyzing ambiguous facts as well as relevant industry problems and issues facing management personnel in the global hospitality markets. Topics include: Business environments, mission statement, corporate and business strategies, evaluation and control. It requires that students to apply functions of management, finance, human resources, and marketing, learn how to engage in planning by examining situations from the perspectives of customer, employee, and management. The ultimate goal is to encourage students to think 'out-of-the-box' in order to find innovative solutions that will reshape the hospitality industry and define how the hospitality company of tomorrow will create value. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**HSP\_MGMT 7200: Destination Management**

(cross-leveled with HSP\_MGMT 4200). An overview of hospitality and tourism destination management using a system approach that integrates a variety of hospitality and tourism organizations and businesses. Destination management will be examined from the perspectives of travelers and destination communities in the context of economic, socio-cultural, and environmental impacts. Optimal planning, development, marketing of destination image and position in the context of the overall management plan will be addressed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**HSP\_MGMT 7400: Hospitality Finance Management**

(cross-leveled with HSP\_MGMT 4400). Application of financial principles to the hospitality industry. The focus is to provide students a foundation on how to use numbers and fundamental financial analysis to operate a successful hospitality business. Topics include forecasting, profit and loss statement, balance sheet, capital budgeting, and revenue management related to the hospitality industry. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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## Human Development And Family Science (H\_D\_FS)

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**H\_D\_FS 1600: Foundations of Family Science**

Introduction to family science discipline and profession. Introduces historical changes in families, diversity by race, ethnicity, class, life stage and sexual orientation, and interaction of families with neighborhoods, schools, the workplace, and larger systems.

**Credit Hours:** 3

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**H\_D\_FS 1610: Intimate Relationships and Marriage**

Examination of historical and contemporary issues pertaining to intimate and marital relationships such as relationship formation and dissolution processes, love, sex, behavioral scripts, and conflict. Diversity related to race, ethnicity, gender, age, and sexual orientation is explored.

**Credit Hours:** 3

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**H\_D\_FS 2200: Research Methods in Human Development and Family Science**

Introduction to research methods in the social sciences. Emphasis on both qualitative and quantitative methods, as well as applied research and program evaluation.

**Credit Hours:** 3

**Prerequisites:** STAT 1200 or STAT 1300 or STAT 1400 or ESC\_PS 4170; sophomore standing

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**H\_D\_FS 2250: Child Life Volunteer Experience**

Introductory experience in a children's hospital child life program. Designed to expose the prospective child life student to, and encourage exploration of, the health care environment. Introduction to hospitalized children and their families, child life programming, environmental issues, value of volunteerism within the healthcare setting, and development of pre-professional interpersonal skills. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites or Corequisites:** H\_D\_FS 2400 or H\_D\_FS 2400W

**Recommended:** Students in the HDFFS - Child Life emphasis should complete this course no later than the 2nd semester of the Sophomore year

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**H\_D\_FS 2300: Multicultural Study of Children and Families**

Study of cultural variation in family life around the world and within America (e.g.: African-American, Hispanic American). Attention is paid to the external conditions that affect the internal workings of these families.

**Credit Hours:** 3

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**H\_D\_FS 2400: Principles of Human Development**

Concepts and principles basic to an understanding of human development and learning throughout the life span.

**Credit Hours:** 3

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**H\_D\_FS 2400H: Principles of Human Development - Honors**

Concepts and principles basic to an understanding of human development and learning throughout the life span.

**Credit Hours:** 4

**Prerequisites:** ENGLSH 1000. Honors eligibility required

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**H\_D\_FS 2400HW: Principles of Human Development - Honors/ Writing Intensive**

Concepts and principles basic to an understanding of human development and learning throughout the life span.

**Credit Hours:** 4

**Prerequisites:** ENGLSH 1000. Honors eligibility required

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**H\_D\_FS 2400W: Principles of Human Development - Writing Intensive**

Concepts and principles basic to an understanding of human development and learning throughout the life span.

**Credit Hours:** 4

**Prerequisites:** ENGLSH 1000

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**H\_D\_FS 2450: Human Sexuality Across the Life Span**

An introductory survey of human sexuality including gender, love and intimacy, sexual expression and variation, sexual orientation, contraception, pregnancy and birth, sexually transmitted infections, sexual coercion, and sex in society. Sexuality within the context of intimate relationships across the life course will be emphasized.

**Credit Hours:** 3

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**H\_D\_FS 2510: Observation, Assessment, and Curriculum Planning**

Fundamental course for students in the Child Development and Education emphasis area, and for other students planning to engage in work that requires observation and assessment of young children's development, as well as planning, implementation and evaluation of developmentally appropriate curriculum.

**Credit Hours:** 4

**Prerequisites:** H\_D\_FS 2400 or H\_D\_FS 2400W

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**H\_D\_FS 3050: Child Development: Birth to 3 (Infant/Toddler)**

Child development from birth to age 3. Topics include growth patterns; influences of disabilities and risk factors; environmental factors and attachment; language acquisition; brain development; cognitive and social-emotional development; and perceptual and sensory motor skills. Some course content overlaps with H\_D\_FS 3500.

**Credit Hours:** 3

**Prerequisites:** Some sections may be restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI-ECE). Some sections may be restricted to HDFFS, Pre-HDFFS, and Education majors during Early Registration

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**H\_D\_FS 3085: Problems in Human Development and Family Science**

Independent work on special problems in human development and family science. Graded on S/U basis only.

**Credit Hour:** 1-30

**Prerequisites:** instructor's consent

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**H\_D\_FS 3090: Research Experience in Human Development and Family Science**

Student training and engagement in research with a H\_D\_FS faculty member. Students learn about the research process and methods, and develop research skills (e.g., data collection, entry, coding, analysis) through hands-on work. Graded on S/U basis only. May be repeated for credit.

**Credit Hour:** 1-30

**Prerequisites:** H\_D\_FS 2200; instructor's consent

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**H\_D\_FS 3150: Child Development 4-8 (Early Childhood)**

Physical, cognitive, social/emotional and personality growth and development during early childhood. Topics include major theories of development and current research and ideas in conjunction with historical approaches to examining growth and development in ages 4-8.

**Credit Hours:** 3

**Prerequisites:** Some sections may be restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI-ECE). Some sections may be restricted to HDFFS, Pre-HDFFS, and Education majors during Early Registration

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**H\_D\_FS 3150W: Child Development 4-8 (Early Childhood) - Writing Intensive**

Physical, cognitive, social/emotional and personality growth and development during early childhood. Topics include major theories of development and current research and ideas in conjunction with historical approaches to examining growth and development in ages 4-8.

**Credit Hours:** 3

**Prerequisites:** Some sections may be restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI-ECE). Some sections may be restricted to HDFFS, Pre-HDFFS, and Education majors during Early Registration

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**H\_D\_FS 3250: Introduction to Early Childhood Education in a Mobile Society**

Role of a professional as a teacher, administrator, or advocate in early childhood programming. Topics include professionalism and ethics; identifying child abuse; the role of an early childhood educator; program models and working with children and professional colleagues.

**Credit Hours:** 3

**Prerequisites:** enrollment restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI\_ECE)

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**H\_D\_FS 3350: Child Guidance and Classroom Environments**

Examines developmentally appropriate practice in child guidance. Current guidance methods and programs will be covered. Students will develop their own approach to guidance based upon course content.

**Credit Hours:** 3

**Prerequisites:** enrollment is restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI\_ECE)

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**H\_D\_FS 3420: Early and Middle Childhood**

Emotional, cognitive, and physical development of the child before puberty. Observation is integral part of course. Cannot receive credit for more than one of the following: PSYCH 2410, H\_D\_FS 3420, or ESC\_PS 2500.

**Credit Hours:** 3

**Prerequisites:** Restricted to Education, HDFS and Pre-HDFS majors during preregistration period

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**H\_D\_FS 3420W: Early and Middle Childhood - Writing Intensive**

Emotional, cognitive, and physical development of the child before puberty. Observation is integral part of course. Cannot receive credit for more than one of the following: PSYCH 2410, H\_D\_FS 3420, or ESC\_PS 2500.

**Credit Hours:** 3

**Prerequisites:** Restricted to Education, HDFS and Pre-HDFS majors during preregistration period

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**H\_D\_FS 3430: Adolescence and Young Adulthood**

Physical, intellectual, and psychosocial maturation of adolescents and young adults within the context of life long developmental sequelae.

**Credit Hours:** 3

**Prerequisites:** Restricted to HDFS and Pre-HDFS majors during pre-registration period

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**H\_D\_FS 3430H: Adolescence and Young Adulthood - Honors**

Physical, intellectual, and psychosocial maturation of adolescents and young adults within the context of life long developmental sequelae.

**Credit Hours:** 3

**Prerequisites:** Restricted to HDFS and Pre-HDFS majors during pre-registration period. Honors eligibility required

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**H\_D\_FS 3440: Adulthood and Aging**

Examination of biological, cognitive, psychological and social changes experienced across adulthood.

**Credit Hours:** 3

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**H\_D\_FS 3450: Health, Safety and Nutrition**

Topics include planning, promoting, and maintaining health and safe learning/care environments; understanding childhood illnesses and establishing healthy lifestyles; performing first aid; and maintaining care providers' health and safe relationships with others; identifying and reporting child abuse; nutrients for life; and safe food preparations.

**Credit Hours:** 3

**Prerequisites:** enrollment is restricted to students admitted to the Great Plains Idea Early Childhood Education Program (GPI\_ECE)

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**H\_D\_FS 3500: Infant-Toddler Practicum**

Practical experience working with infants and toddlers, applying developmentally appropriate practice and theoretical perspectives. Emphasizes cognitive, social/emotional, creative and motor development; and staff and family relationships in child care settings. Graded on A-F basis only.

**Credit Hours:** 6

**Prerequisites or Corequisites:** H\_D\_FS 3050 or H\_D\_FS 3420/H\_D\_FS 3420W or instructor's consent

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**H\_D\_FS 3530: Foundations of Community-Based Programs for Children and Youth**

Examines non-academic community-based programming for children and youth. Experience working with these age groups. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 3420 or equivalent or instructor's consent

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**H\_D\_FS 3550: Technology and Young Children**

Students will learn how electronic technology impacts the development of young children in educational, home and community environments, and how technology can be used to enhance teaching and learning.

**Credit Hours:** 3

**Prerequisites:** enrollment is restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI\_ECE)

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**H\_D\_FS 3600: Partnering with Parents and Families**

Examination of stages of parenthood, caregiving styles, and the impact of relationships and culture on caregiving and its challenges. Development of applied skills working with parents and families in a service learning experience. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 1600 and H\_D\_FS 2400/H\_D\_FS 2400W

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**H\_D\_FS 3650: Diversity in the Lives of Young Children and Families**

In this course, students will explore cultural diversity in daily life and beliefs in families with young children. The focus is on U.S. families, with attention to the multiple cultures from which they come.

**Credit Hours:** 3

**Prerequisites:** Restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI-ECE), or by instructor consent

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**H\_D\_FS 3700: Preschool Practicum**

Practical experience working with children ages 2.5-5 years of age, applying developmentally appropriate practice and theoretical perspectives. Emphasizes cognitive, social and emotional, creative, and motor development, and family and staff relationships in a child care setting. Graded on A-F basis only.

**Credit Hours:** 6

**Prerequisites or Corequisites:** H\_D\_FS 3150/H\_D\_FS 3150W, or H\_D\_FS 3420/H\_D\_FS 3420W, or instructor's consent

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**H\_D\_FS 3720: Student Teaching Prekindergarten**

Experience working with children (2-5 years), using general guidance principles and methods for fostering creativity.

**Credit Hours:** 6

**Prerequisites:** H\_D\_FS 3420 or equivalent and instructor's consent

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**H\_D\_FS 3730: Field Training Practicum**

Field training experiences under supervision. May be repeated for credit. Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites:** advisor's consent

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**H\_D\_FS 3750: Working with Families**

This course focuses on application of an ecological model to the understanding of variation in parental roles, perspectives, approaches, and challenges. The course also provides an overview of effective communication strategies and parent education programs. Course content overlaps with H\_D\_FS 3600 thus students may not enroll in both courses. Students will NOT receive credit for both H\_D\_FS 3600 and H\_D\_FS 3750.

**Credit Hours:** 3

**Prerequisites:** Restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI-ECE) or by instructor consent

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**H\_D\_FS 3800: Children's Play**

This course is an examination of the complex phenomenon of play in children's lives. Emphasis is placed on the value of play in developmental, social, and cultural contexts. Topics include the exploration of play theories and supporting empirical evidence, play materials, various environments, violence and conflict resolution, and therapeutic uses of play. Observation and assessment of children at play and analysis of play environments is required.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 2400/H\_D\_FS 2400W, H\_D\_FS 3050 and H\_D\_FS 3150/H\_D\_FS 3150W, or instructor's consent, junior standing. Enrollment is restricted to H\_D\_FS and Pre H\_D\_FS majors during preregistration period

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**H\_D\_FS 3950: Practicum I: Child Observations in Classroom Environment**

Opportunity for Early Childhood Education teacher candidates to have a guided learning experience in a professional agency that provides services to children and families. Some course content overlaps with LTC 4110.

**Credit Hours:** 3

**Prerequisites:** restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI-ECE); H\_D\_FS 3050, H\_D\_FS 3150, H\_D\_FS 3250, H\_D\_FS 3350 and H\_D\_FS 3450

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**H\_D\_FS 3960: Readings in Human Development and Family Science**

Readings in recent research; critical discussions.

**Credit Hour:** 1-30

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**H\_D\_FS 4001: Topics in Human Development and Family Science**

Selected current topics in field of interest.

**Credit Hour:** 1-6

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**H\_D\_FS 4085: Problems in Human Development and Family Science**

Independent work on special problems in human development and family science. Graded on S/U basis only.

**Credit Hour:** 1-30

**Prerequisites:** instructor's consent

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**H\_D\_FS 4090: Advanced Research in Human Development and Family Science**

Advanced training and engagement in research with a H\_D\_FS faculty member. Student develops research skills (e.g., data collection, entry,

coding, analysis) and works semi-independently on own research project. Graded on S/U basis only. May be repeated for credit.

**Credit Hour:** 1-30

**Prerequisites:** H\_D\_FS 2200 and H\_D\_FS 3090; instructor's consent

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**H\_D\_FS 4100: Children in Healthcare Settings**

(cross-leveled with H\_D\_FS 7100). Overview of the medical conditions and treatments commonly encountered by children and adolescents in healthcare settings and their typical reactions to healthcare experiences. Introduction to the philosophy and the role of the child life specialist in the healthcare setting.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 2200, H\_D\_FS 2400/H\_D\_FS 2400W, H\_D\_FS 3050, H\_D\_FS 3150/H\_D\_FS 3150W, or instructor's consent. Restricted to H\_D\_FS and Pre-H\_D\_FS majors

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**H\_D\_FS 4110: Child Life Theory and Practice**

(cross-leveled with H\_D\_FS 7110). Focuses on theoretical foundations and principal intervention strategies used in Child Life professional practice.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 2200, H\_D\_FS 3050, H\_D\_FS 3150/H\_D\_FS 3150W, and H\_D\_FS 3500 or H\_D\_FS 3700, or instructor's consent

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**H\_D\_FS 4130: Child Life Practicum**

(cross-leveled with H\_D\_FS 7130). Observation of Child Life staff at Children's Hospital and experience helping children and adolescents cope with hospitalization.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 3500 and H\_D\_FS 3700, consent required

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**H\_D\_FS 4150: Development of Curriculum for Children Ages Birth to 3**

Students will learn and use assessment and documentation to inform curriculum; plan and evaluate developmentally appropriate activities; and learn about effective ways to share curriculum information with families. Focus is on children ages birth to 3.

**Credit Hours:** 3

**Prerequisites:** enrollment is restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI\_ECE)

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**H\_D\_FS 4200: Latino/a Youth and Families**

Current issues in theory, methods, and research in U.S. Latino/a youth and families are examined from a social and developmental psychological perspective. The course is an advanced level study, with a particular focus on history, theories, methods, research, and applied social issues. Topics will include, parenting, siblings, youth development and adjustment, stress, risky behaviors, gender issues, assessment, study design, cultural values, intervention programs, and immigration issues.

**Credit Hours:** 3

**Prerequisites:** Pre-H\_D\_FS and H\_D\_FS majors must complete H\_D\_FS 1600, H\_D\_FS 2200, H\_D\_FS 2300, H\_D\_FS 2400/H\_D\_FS 2400W

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**H\_D\_FS 4250: Development of Curriculum for Children 4-8**

Students will learn and use assessment and documentation to inform curriculum, plan and evaluate developmentally appropriate activities; and learn about effective ways to share curriculum information with families. Focus is on children ages 4-8.

**Credit Hours:** 3

**Prerequisites:** enrollment is restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI\_ECE)

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**H\_D\_FS 4300: Black Families**

(same as BL\_STU 4300). Emphasis is on the unique social, economic, religious, educational, and political environments that have affected the structure and function of the Black family.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 2200 or equivalent, and junior standing

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**H\_D\_FS 4350: Assessing Young Children and their Environments**

Use of appropriate assessment tools for children birth to 8. Using data to inform decisions about teaching and intervention. Emphasis on the ethical use of assessments, validity of assessments, multicultural sensitivity and assessment for children with special needs.

**Credit Hours:** 3

**Prerequisites:** enrollment is restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI\_ECE)

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**H\_D\_FS 4400: Childhood Death and Bereavement**

(cross-leveled with H\_D\_FS 7400). An exploration of issues that arise for children and families when facing life-threatening illness and death. The course also includes an examination of coping and helping strategies for dying and grieving children.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 2200, H\_D\_FS 2400/H\_D\_FS 2400W, H\_D\_FS 3050 and H\_D\_FS 3150/H\_D\_FS 3150W (or H\_D\_FS 3420/H\_D\_FS 3420W) or instructor's consent. Restricted to HDFS majors during early registration period

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**H\_D\_FS 4420: Environmental Influences on Lifespan Cognition**

This course covers the change and growth of cognition through the lifespan with particular attention to how the environment influences cognition (including perception, language memory, attention executive functions, and problem solving).

**Credit Hours:** 3

**Prerequisites:** Pre-HDFS and HDFS Majors must complete H\_D\_FS 1600, H\_D\_FS 2200, H\_D\_FS 2300, H\_D\_FS 2400/H\_D\_FS 2400W, H\_D\_FS 3050, H\_D\_FS 3150/H\_D\_FS 3150W (or H\_D\_FS 3420/H\_D\_FS 3420W instead of H\_D\_FS 3050 and H\_D\_FS 3150/H\_D\_FS 3150W)

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**H\_D\_FS 4450: Understanding and Adapting for Developmental Differences**

This course focuses on knowledge of disability conditions, assessment and identification, interventions in inclusive environments, and collaborations among service providers.

**Credit Hours:** 3

**Prerequisites:** enrollment is restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI\_ECE)

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**H\_D\_FS 4550: Practicum II: Curriculum Development and Implementation**

Practicum in ECE is an opportunity for teacher candidates to have a guided learning experience in a professional agency that provides services to children and families, and allows teacher candidates to have the opportunity to use and implement theories and practices. Course content overlaps with LTC 4110. Not recommended for students to enroll in both courses.

**Credit Hours:** 3

**Prerequisites:** restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI-ECE)

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**H\_D\_FS 4570: Administration of Programs for Children and Families**

(cross-leveled with H\_D\_FS 7570). The development of leadership and management skills for administering community-based early childhood programs for children and their families. Includes an overview of early childhood standards; budgeting, funding and financial matters; developing, equipping, and staffing a center; recruiting children and families; curriculum; health, safety, and nutrition; volunteer and staff development, and program evaluation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 1600, H\_D\_FS 2200 or equivalent, H\_D\_FS 2300, H\_D\_FS 2400/2400W, H\_D\_FS 2510, H\_D\_FS 3500 or H\_D\_FS 3700, or instructor's consent

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**H\_D\_FS 4610: Stress and Resilience in Families**

(cross-leveled with H\_D\_FS 7610). Introduction to the study of stressor events in families, such as poverty, violence within families, substance abuse, and health problems. Emphasis is on both prevention and coping.

**Credit Hours:** 3

**Prerequisites:** Pre-HDFS and HDFS majors must complete H\_D\_FS 1600, H\_D\_FS 2200, H\_D\_FS 2300 and H\_D\_FS 2400/H\_D\_FS 2400W

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**H\_D\_FS 4620: Family Interaction**

Analysis of intrafamilial interaction from a systems perspective; includes comparative study of family paradigms, family subsystems, goals, and resources, boundaries, and patterns of feedback.

**Credit Hours:** 3

**Prerequisites:** Pre-HDFS and HDFS majors must complete H\_D\_FS 1600, H\_D\_FS 2200, H\_D\_FS 2300 and H\_D\_FS 2400/H\_D\_FS 2400W

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**H\_D\_FS 4630: The Process of Divorce**

(cross-leveled with H\_D\_FS 7630). Examination of theory and research related to marital dissolution. The impact of divorce on children and adults, and divorce intervention strategies are considered.

**Credit Hours:** 3

**Prerequisites:** Pre-HDFS and HDFS majors must complete H\_D\_FS 1600, H\_D\_FS 2200, H\_D\_FS 2300 and H\_D\_FS 2400/H\_D\_FS 2400W

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**H\_D\_FS 4640: Interpersonal Relationships**

In-depth examination of interpersonal relationships, including theoretical perspectives, research methods, relationship forms, relationship processes, and how context affects relationships. Students are introduced to the field of close relationships.

**Credit Hours:** 3

**Prerequisites:** Pre-HDFS and HDFS majors must complete H\_D\_FS 1600, H\_D\_FS 2200, H\_D\_FS 2300 and H\_D\_FS 2400/H\_D\_FS 2400W

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**H\_D\_FS 4650: Administration/Supervision in Early Childhood Settings**

Exploration of issues surrounding the administration of ECE programs including identification of community needs, analysis of business opportunities, evaluation and appropriate use of quality programming, consideration of policy and equal responsibilities, and professionalism. Course content overlaps with H\_D\_FS 4570. Students may NOT enroll in both courses. Students will not receive credit for both H\_D\_FS 4650 and H\_D\_FS 4570.

**Credit Hours:** 3

**Prerequisites:** Restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI-ECE)

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**H\_D\_FS 4680: Family Communication**

(same as COMMUN 4520; cross-leveled with H\_D\_FS 7680). Analysis of the functions and processes of communication within families.

**Credit Hours:** 3

**Prerequisites:** junior standing or departmental consent. May be restricted to Communication majors only during early registration

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**H\_D\_FS 4700: Children and Families in Poverty**

Study of the extent, distribution, and implications of poverty on children and families. Examination of myths and realities, social conditions, policies, and programs that contribute to or reduce poverty and its consequences.

**Credit Hours:** 3

**Prerequisites:** Pre-HDFS and HDFS majors must complete H\_D\_FS 1600, H\_D\_FS 2200, H\_D\_FS 2300 and H\_D\_FS 2400/H\_D\_FS 2400W

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**H\_D\_FS 4720: Child and Family Advocacy**

(cross-leveled with H\_D\_FS 7720). Study of the processes of social policies, legislation, and regulations affecting children and families at the local, state and federal levels. The course emphasizes current issues and need for citizen involvement.

**Credit Hours:** 3

**Prerequisites:** Restricted to HDFS and Pre-HDFS majors during pre-registration period; Pre-HDFS and HDFS majors must complete H\_D\_FS 1600, H\_D\_FS 2200, H\_D\_FS 2300 and H\_D\_FS 2400/H\_D\_FS 2400W

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**H\_D\_FS 4740: Parent-Child Relations Over the Life Course**

Examines the development, continuities, transitions, and discontinuities of parent-child relationships over the life course. Considers the influence of parents on children and children on parents.

**Credit Hours:** 3

**Recommended:** H\_D\_FS 1600 and H\_D\_FS 2200

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**H\_D\_FS 4750: Practicum III: Capstone Experience**

This experience allows the student to demonstrate practical application of developmentally appropriate early childhood teaching techniques and skills, teaching experience and developmental feedback. Includes observation and evaluation of classroom experience. Course content overlaps with H\_D\_FS 3700 and LTC 4170. Not recommended for

students to enroll in both courses. Students will not receive credit for both H\_D\_FS 4750 and H\_D\_FS 3700 or H\_D\_FS 4750 and LTC 4170.

**Credit Hours:** 6

**Prerequisites:** restricted to students admitted to the Great Plains IDEA Early Childhood Education Program (GPI-ECE). H\_D\_FS 3950, H\_D\_FS 4150, H\_D\_FS 4250, H\_D\_FS 4350, H\_D\_FS 4450 and H\_D\_FS 4550

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**H\_D\_FS 4800: Program and Curriculum Design for FACS Education in Middle and Secondary Schools**

(cross-leveled with H\_D\_FS 7800). What should a teacher do about planning for student learning in FACS? Includes objectives, lesson designs, resources, learner diversity, thinking skills, reasoning processes, articulation, legislation.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 2010 and SPC\_ED 2020 or equivalent. Admission to Phase II, and instructor's consent

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**H\_D\_FS 4820: Assessment in Family and Consumer Sciences Education**

(cross-leveled with H\_D\_FS 7820). What should a teacher do to determine the extent to which program/lesson objectives have been achieved? Includes the selection, design, and use of a wide variety of assessment tools and techniques, and the impact of assessment on the evaluation of learners and program design.

**Credit Hours:** 2

**Prerequisites:** admission into Phase II, H\_D\_FS 4800, and instructor's consent

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**H\_D\_FS 4830: Methods of Teaching FACS in Middle and Secondary Schools**

(cross-leveled with H\_D\_FS 7830). What should a teacher do to help students achieve learner objectives? Includes classroom management strategies, choosing and using instructional methods to stimulate thinking skills and reasoning processes, communication skills, professionalism, and public relations.

**Credit Hours:** 3

**Prerequisites:** admission into Phase II, and instructor's consent

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**H\_D\_FS 4940: Field Experience in Family and Consumer Sciences**

Students will observe and assist in FACS classroom.

**Credit Hour:** 1

**Prerequisites:** to be taken concurrently with H\_D\_FS 4800, and instructor's consent

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**H\_D\_FS 4941: Field Experience in Family and Consumer Sciences**

Students will be involved in real-world experiences in a FACS classroom.

**Credit Hour:** 1

**Prerequisites:** to be taken concurrently with H\_D\_FS 4830; requires instructor's consent

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**H\_D\_FS 4942: Student Teaching FACS in Middle and Secondary Schools**

What guided practicum experiences will directly contribute to success as a classroom teacher? Students will teach for sixteen weeks within the state of Missouri under the supervision of an experienced FACS teacher.

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**Credit Hour:** 1-15

**Prerequisites:** H\_D\_FS 4800, H\_D\_FS 4820, H\_D\_FS 4830, ENGLISH 1000, admittance to Phase III, and instructor's consent

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**H\_D\_FS 4942W: Student Teaching FACS in Middle and Secondary Schools - Writing Intensive**

What guided practicum experiences will directly contribute to success as a classroom teacher? Students will teach for sixteen weeks within the state of Missouri under the supervision of an experienced FACS teacher.

**Credit Hour:** 1-15

**Prerequisites:** H\_D\_FS 4800, H\_D\_FS 4820, H\_D\_FS 4830, ENGLISH 1000, admittance to Phase III, and instructor's consent

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**H\_D\_FS 4970: Families and Lifespan Development Capstone**

Focus on integrating, extending, critiquing, and applying knowledge gained in the Families and Lifespan Development option within a family and lifespan development educational framework. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** senior standing and instructor's consent

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**H\_D\_FS 4970W: Families and Lifespan Development Capstone - Writing Intensive**

Focus on integrating, extending, critiquing, and applying knowledge gained in the Families and Lifespan Development option within a family and lifespan development educational framework. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** senior standing and instructor's consent

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**H\_D\_FS 4971: Child Development and Education Capstone**

Practical experience working with young children (up to 10) in out-of-home care facilities. Program planning for children and working with parents. Lab hours required.

**Credit Hours:** 9

**Prerequisites:** H\_D\_FS 2200, H\_D\_FS 3500 and H\_D\_FS 3700, or equivalent and instructor's consent

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**H\_D\_FS 4993: Internship in Human Development and Family Science**

Internships or field training experiences under supervision. Graded on S/U basis only.

**Credit Hour:** 1-30

**Prerequisites:** H\_D\_FS 2200 or equivalent and instructor's consent

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**H\_D\_FS 7001: Topics in Human Development and Family Science**

Selected current topics in field of interest.

**Credit Hour:** 1-99

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**H\_D\_FS 7085: Problems**

Independent work on special problems in human development and family studies. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**H\_D\_FS 7100: Children in Healthcare Settings**

(cross-leveled with H\_D\_FS 4100). Overview of the medical conditions and treatments commonly encountered by children and adolescents in healthcare settings and their typical reactions to healthcare experiences. Introduction to the philosophy and the role of the child life specialist in the healthcare setting. H\_D\_FS 2200, H\_D\_FS 2400/H\_D\_FS 2400W, H\_D\_FS 3050, H\_D\_FS 3150/H\_D\_FS 3150W, or instructor's consent. Restricted to H\_D\_FS and Pre-H\_D\_FS majors.

**Credit Hours:** 3

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**H\_D\_FS 7110: Child Life Theory and Practice**

Focuses on theoretical foundations and principal intervention strategies used in Child Life professional practice.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 2200, H\_D\_FS 3050, H\_D\_FS 3150/H\_D\_FS 3150W, and H\_D\_FS 3500 or H\_D\_FS 3700, or instructor's consent

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**H\_D\_FS 7130: Child Life Practicum**

(cross-leveled with H\_D\_FS 4130). Observation of Child Life staff at Children's Hospital and experience helping children and adolescents cope with hospitalization.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 3500 and H\_D\_FS 3700, consent required

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**H\_D\_FS 7200: Latino Families and Youth**

This course will cover the critical integration of theoretical, methodological, and empirical issues in Latino psychology using a cross-cultural, cross-ethnic perspective, including the increased sensitivity to issues and challenges facing Latino families and youth from a social science perspective. There will be a particular focus on selected topics in social and developmental psychology, as well as, understanding the relevance to other areas of study, to policy contexts, and to applied settings. Students will provide a written, integrative literature review and research proposal related to the course topic. The course will consist primarily of seminar discussions based on the textbook and additional readings. Students will lead class discussions based on the readings and their QRCs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**H\_D\_FS 7231: Foundations of Youth Development**

This course provides an introduction to the field of youth development and the professions that include youth work. This course is designed to provide a foundation of knowledge that students will need to begin any course in the Great Plains IDEA Youth Development programs. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hour:** 1

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**H\_D\_FS 7233: Basic Grant Development and Management**

This course introduces students to grant development and management. This short-course is not intended to cover all aspects of grant development and management, but it will help students gain confidence in their grant development abilities and inspire them to learn more.



Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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#### **H\_D\_FS 7252: Adult Development**

This course presents a life-span, multidisciplinary developmental framework that considers sociohistorical influences, individual differences, and concern for promoting optimal functioning. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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#### **H\_D\_FS 7255: Aging Policy**

Policy development in the context of the economic status of the elderly populations. Retirement planning and the retirement decision; Social Security and public transfer programs for the elderly; intrafamily transfers to/from the elderly; private pensions; financing medical care for the elderly; prospects and issues for the future. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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#### **H\_D\_FS 7256: Environments and Aging**

Examination of attributes of physical environments that support special needs of older people and application of this knowledge to the design and management of housing, institutional settings, neighborhoods and communities. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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#### **H\_D\_FS 7257: Aging and the Family**

Theories and research related to personal and family adjustments in later life affecting older persons and their inter-generational relationships. Related issues including demographics are also examined through the use of current literature. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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#### **H\_D\_FS 7259: Mental Health and Aging**

Student is introduced to the range of issues utilizing several theoretical perspectives and the systems framework. Major mental, emotional, and psychiatric problems encountered in old age are examined, along with normal processes of aging individual's personality, mental and brain functions. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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#### **H\_D\_FS 7260: Women and Aging**

Women and aging is the study of theory, research and application of issues related to women and the aging experience. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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#### **H\_D\_FS 7261: Biological Principles of Aging**

This course will give an overview of the normal aging process of the human body systems, environmental factors influencing normal aging, diseases and disorders associated with aging. A special topics unit will include but is not limited to interviews and observations dealing with the aging process in humans. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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#### **H\_D\_FS 7262: Long-Term Care Administration**

Provides information for persons interested in leadership role in long-term care, or for those considering careers intersecting with senior living organizations. Also considers long-term care options. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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#### **H\_D\_FS 7300: Black Families**

(same as BL\_STU 7300). Emphasis is on the unique social, economic, religious, educational, and political environments that have affected the structure and function of the black families.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 2200 or equivalent

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#### **H\_D\_FS 7400: Childhood Death and Bereavement**

(cross-leveled with H\_D\_FS 4400). An exploration of issues that arise for children and families when families when facing terminal illness or death. The course also includes an examination of coping and helping strategies for dying and grieving children.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 2200, H\_D\_FS 2400/H\_D\_FS 2400W, H\_D\_FS 3150 and H\_D\_FS 3150/H\_D\_FS 3150W (or H\_D\_FS 3420/H\_D\_FS 3420W) and instructor's consent. Restricted to HDFS and Pre-HDFS majors during pre-registration period

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#### **H\_D\_FS 7570: Administration of Programs for Children and Families**

(cross-leveled with H\_D\_FS 4570). The development of leadership and management skills for administering community-based early childhood programs for children and their families. Includes an overview of early childhood standards; budgeting, funding and financial matters; developing, equipping, and staffing a center; recruiting children and families; curriculum; health, safety, and nutrition; volunteer and staff development, and program evaluation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 1600, H\_D\_FS 2200 or equivalent, H\_D\_FS 2300, H\_D\_FS 2400/2400W, H\_D\_FS 2510, H\_D\_FS 3500 or H\_D\_FS 3700, or instructors consent

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#### **H\_D\_FS 7600: Resilience in Families**

Exploration of the evolution of a resilience approach to the study of families and human development. Using a lifespan approach, students will explore resilience across time as well as within special populations such as families experiencing crisis and trauma, culturally diverse families, and military families. Graded on A-F basis only.

**Credit Hours:** 3

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**H\_D\_FS 7610: Stress and Resilience in Families**

(cross-leveled with H\_D\_FS 4610). Introduction to the study of stressor events in families, such as poverty, violence within families, substance abuse, and health problems. Emphasis is on both prevention and coping.

**Credit Hours:** 3

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**H\_D\_FS 7630: The Process of Divorce**

(cross-leveled with H\_D\_FS 4630). Examination of theory and research related to marital dissolution. The impact of divorce on children and adults, and divorce intervention strategies will be considered.

**Credit Hours:** 3

**Prerequisites:** Pre-HDFS and HDFS majors must complete H\_D\_FS 1600, H\_D\_FS 2200, H\_D\_FS 2300 and H\_D\_FS 2400/H\_D\_FS 2400W

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**H\_D\_FS 7640: Interpersonal Relationships**

(cross-leveled with H\_D\_FS 4640). In-depth examination of interpersonal relationships, including theoretical perspectives, research methods, relationship forms, relationship processes, and how context affects relationships. Students will also be introduced to the field of close relationships.

**Credit Hours:** 3

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**H\_D\_FS 7650: Family Crisis Intervention**

Individuals and families in crises are examined. Focus is on grief and loss, substance abuse, family violence, and suicidal ideation. Examination of evidence-based preventions and treatments and community resources for those affected by stress, trauma, and crises. Graded on A-F basis only.

**Credit Hours:** 3

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**H\_D\_FS 7690: Family Resource Management**

Survey course of personal finance and family resource management literature to provide an overview of how individual and family members develop and exercise their capacity to obtain and manage resources to meet life needs. Resources include the self, other people, time, money, energy, material assets, space, and environment. Graded on A-F basis only.

**Credit Hours:** 3

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**H\_D\_FS 8001: Topics in Human Development and Family Science**

Selected current topics in field of interest.

**Credit Hour:** 1-99

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**H\_D\_FS 8012: Family Dynamics and Intervention**

(same as NURSE 8010). Theories of family function and dysfunction; techniques of assessment; models of family intervention. Practicum with selected families.

**Credit Hours:** 3

**Prerequisites:** NURSE 7100

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**H\_D\_FS 8085: Problems in Human Development and Family Science**

Independent work on special problems in human development and family science. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**H\_D\_FS 8087: Seminar in Human Development and Family Science**

Seminar in selected topics in human development and family science.

**Credit Hour:** 1-99

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**H\_D\_FS 8090: Research in Human Development and Family Science**

Independent research not leading to a thesis. Report required. Graded on S/U basis only.

**Credit Hour:** 1-99

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**H\_D\_FS 8100: Foundations and Principles of Family and Community Services**

This course provides an introduction to the field of family studies and related professions that involve working with individuals and families in communities. This course is designed to provide a foundation of knowledge that students will need in the Great Plains IDEA family and Community Services program. This course is organized around theory, research, and practice of Family Studies. Graded on A-F basis only.

**Credit Hours:** 3

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**H\_D\_FS 8110: Developmental Perspectives on Health and Illness**

Seminar on child and adolescent development as applied to illness and hospitalization, with a focus on applying psychosocial research and theory in work with pediatric populations. Graded on A-F only. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** instructor consent; coursework in human development and experience with pediatric populations

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**H\_D\_FS 8200: Research Methods in Human Development and Family Science**

Examination of the rationale for conducting scientific research; various research methods pertinent to the study of individuals over the life span, close relationships, marriages, and families; hypothesis formulation; selection of appropriate designs, instrumentation, and analysis.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**H\_D\_FS 8210: Theories of Human Development**

Major theories of life span human development. Attention given to structure, content, and major research critiqued for theoretical strengths.

**Credit Hours:** 3

**Prerequisites:** 6 hours of 300-level Behavioral Sciences courses or instructor's consent

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**H\_D\_FS 8220: Family Theories**

Reviews existing family theories, their assumptions, values, propositions, and applications. Examines processes of theory testing and construction and linkages between theory and research.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**H\_D\_FS 8221: Gerontechnology**

Population aging is combining with technological advancement to create and change the world of modern older people, their families, and their communities. This course takes an interdisciplinary approach to the understanding of the biological, environmental, and social spheres where technology and gerontology meet. Graded on A-F basis only.

**Credit Hours:** 3

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**H\_D\_FS 8222: Creativity and Aging**

What happens to creativity as a person ages? This unique class will help students to understand developmental and pathological changes in the brain that can lead to changes in creative output over time. Through hands-on experiences and direct association with older adults, students will grow an appreciation for creativity produced and inspired by older people. This course is intended to provide experiences that will help the student to be able to create art programs for older adults. Graded on A-F basis only.

**Credit Hours:** 3

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**H\_D\_FS 8232: Youth Professionals as Consumers of Research**

This course will help youth development professionals understand and evaluate the quality of research reports. Students will learn the basics of quantitative and qualitative research approaches that will enable them to understand, evaluate, and critique research articles reported in newspaper, journals or other sources. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 8234: Adolescents and their Families**

This course explores adolescent development in the context of the family. The bi-directional influences between adolescents and their families will be examined. Implications for professionals working with youth and families will be explored and highlighted. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 8235: Administration and Program Management**

This course introduces students to the development, administration and management of youth-serving organizations. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 8236: Federal and State Policies that Impact Youth Development**

This course examines various federal and state policies that effect developmental opportunities for youth. Course participants will also examine not only how policies are developed, but also why. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 8237: Youth Cultures and the Cultures of Youth**

This course examines the cultural contexts that affect youth from within and outside the family. Students will study social, ethnic, and educational processes that affect youth, and they will examine how history has

shaped the current cultural climate of the U.S. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 8238: Program Design, Implementation and Evaluation**

The course will discuss program design, implementation, and outcome evaluation. This course will focus on planning, designing logic models, and evaluating program. Students will evaluate a community-based project.

**Credit Hours:** 3

**Prerequisites:** Priority given to students in the Great Plains Idea Group master's and certificate programs

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**H\_D\_FS 8239: Community Youth Development**

This course focuses on community youth development from a strength-based or developmental asset approach. This approach encompasses both individual development and interrelationships with social environments. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 8240: Youth Development**

This course introduces the developmental period of adolescence. Emphasis will be on developmental tasks of this life stage and influences of family and home, school, peers and other contextual forces. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 8251: Perspectives in Gerontology**

An overview of current aging issues including the prevailing focus of gerontology theory and research, critical social and political issues in aging, the interdisciplinary focus of gerontology, career opportunities, and aging in the future. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 8253: Physical Health in Aging**

This course identifies the basic physiologic changes during aging and their effects on health and disease. The focus will be on successful aging with special emphasis on physical activity and nutrition. Practical application to community settings is addressed. Priority given to students in the Great Plains Idea Group master's and certificate program.

**Credit Hours:** 3

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**H\_D\_FS 8254: Gerontology Research Methods and Program Evaluation**

Overview of program evaluation, research methods and grant writing in gerontology. Includes application of quantitative and qualitative methods in professional settings. Priority given to students in the Great Plains Idea Group master's and certificate programs.

**Credit Hours:** 3

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**H\_D\_FS 8258: Professional Seminar in Gerontology**

An integrative experience for gerontology students designed to be taken near the end of the degree program. By applying knowledge gained in earlier course work, students strengthen skills in ethical decision-making behavior, apply these skills in gerontology-related areas such as advocacy, professionalism, family and workplace issues.

**Credit Hours:** 3

**Prerequisites:** Completion of all other gerontology program coursework. Priority given to students in the Great Plains Idea Group master's and certificate programs

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**H\_D\_FS 8300: Advanced Seminar on Multicultural Families**

Advanced study of multicultural (racial, ethnic, social) families within American society. Attention is focused on each group's unique cultural heritage and social environment.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**H\_D\_FS 8420: Cognitive Development**

(same as PSYCH 8420). Study of the development of reasoning, perception and language.

**Credit Hours:** 3

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**H\_D\_FS 8440: Social and Emotional Development**

(same as PSYCH 8440). Seminar on emotional and social development in children, with focus on research and theory on the impact of various family, school, and societal factors.

**Credit Hours:** 3

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**H\_D\_FS 8450: Adolescence and Emerging Adulthood**

Seminar on development during adolescence and emerging adulthood from biological, cognitive, psychsocial, and cultural perspectives, and with a focus on health-related attitudes and behaviors.

**Credit Hours:** 3

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**H\_D\_FS 8460: Life Course Perspective**

Seminar on the life course perspective, an interdisciplinary approach to the study of lives over time and the interplay between human lives and social institutions. Deals with how individual lives are shaped by social change and social structure.

**Credit Hours:** 3

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**H\_D\_FS 8500: Prosocial and Moral Development**

The course objective is to increase the understanding of the study of morality from psychological and developmental perspectives and the critical integration of theoretical, methodological, and empirical issues in moral psychology. It will also cover understanding the relevance of moral concepts and findings to other areas of study, policy contexts, and applied settings. Students will provide a written, integrative literature review and research proposal related to the course topic. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**H\_D\_FS 8510: Parenting Education**

Study of theories, models, research and skills regarding parenting effectiveness and parent-child relations in the context of Western and Eastern cultures. Included are comparisons of the relative strengths and weaknesses of various parenting approaches, historical perspective on parenthood and children, parenting roles, strategies for contemporary parenting, developmental interaction from infancy through adulthood and selected special concerns of parents. A Bio-Ecological Systems approach will be utilized in this course. Graded on A-F basis only.

**Credit Hours:** 3

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**H\_D\_FS 8520: Lifespan Development**

This course covers the human development including the cognitive, social-emotional, motor, language, and moral domains from both a lifespan and a bio-ecological perspective. Course content focuses on the major theories of development as well as current research on the micro-macro interrelationship. Students who complete this course will have a better understanding of individual human developmental processes and their relationship with context and within family and community matters. Graded on A-F basis only.

**Credit Hours:** 3

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**H\_D\_FS 8610: Remarriage & Stepfamilies: Development, Dynamics, & Intervention**

The processes of remarriage and reconstituted family dynamics; special developmental needs and intervention models will be studied. The impact on children is considered.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**H\_D\_FS 8630: Gendered Relations in Families**

(same as WGST 8630). From a feminist perspective, the roles of gender in shaping family life experience and of family life experience in shaping gender will be explored. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**H\_D\_FS 8640: Family Interaction**

Examination of intrafamilial interaction. Includes an overview of theories used to study family interaction, critical review of the assessment of family interaction; and examination of contemporary research on family interaction focusing on intra and inter-generational relationships.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 1600 and H\_D\_FS 2200 or equivalent; or instructor's consent

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**H\_D\_FS 8710: Children, Families and Public Policy**

Seminar on societal issues relating to children and families, with focus on the development of public policies.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**H\_D\_FS 8770: Poverty**

Implications of poverty for child, adult, and family functioning. Poverty-related policies and programs.

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**Credit Hours:** 3

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**H\_D\_FS 8960: Readings in Human Development and Family Science**  
Readings in recent research; critical evaluation.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**H\_D\_FS 8972: Internship in Human Development and Family Science**

Internships and/or field training experiences under supervision. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**H\_D\_FS 9090: Research in Human Development and Family Science**  
Independent research leading to thesis or dissertation. Graded on S/U basis only.

**Credit Hour:** 1-99

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**H\_D\_FS 9100: Teaching Practicum**

Supervised experience in teaching various audiences, including college students, professionals, and community residents. Graded on S/U basis only.

**Credit Hour:** 2-6

**Prerequisites:** instructor's consent

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**H\_D\_FS 9200: Advanced Research Methods in Human Development and Family Science**

(same as NURSE 9410). Examination of issues related to the study of individuals and their families: measurement, designs, and interpretation of statistical analyses. Statistics are placed in perspective through readings and discussions of the relationships between theory, research design, and data analyses.

**Credit Hours:** 3

**Prerequisites:** H\_D\_FS 8200 or instructor's consent

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**H\_D\_FS 9210: Research Practicum in Human Development and Family Science**

Independent research activities in conjunction with faculty. Graded on S/U basis only.

**Credit Hour:** 2-6

**Prerequisites:** instructor's consent

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**H\_D\_FS 9420: Qualitative Methods**

(same as NURSE 9420). Examines the following selected qualitative research approaches appropriate for the study of nursing phenomena and the extension or modification of scientific knowledge so as to be relevant to nursing: case study research methods, verbal qualitative approaches, and nonverbal qualitative approaches. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NURSE 7150 and doctoral status (or permission of faculty)

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## Industrial And Manufacturing Systems (IMSE)

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## Information Science And Learning Technologies (IS\_LT)

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**IS\_LT 1111: Information Use and Student Success**

In this course, students will learn to frame meaningful questions, gain knowledge and skills to succeed academically, understand the structure and content of information resources, evaluate information, and use information resources as genuine learning tools.

**Credit Hour:** 1

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**IS\_LT 2222: Information Management and the Successful Scholar**

This course will help students determine what information is needed for a project; access and critically evaluate information in the library and the internet; understand intellectual property, develop skills for lifelong learning, and learn to use a variety of technological tools that can help them succeed in college. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 2467: Inquiry into Empowering Learners with Technology**

This course examines models and strategies for integrating technology into the teaching and learning process, with a focus on transformative, meaningful learning instead of passive technology use. Topics include digital citizenship, professional online presence, and designing and facilitating learning with technology. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent required (students must be admitted to College of Education's Teacher Education program)

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**IS\_LT 3450: Introduction to Research in Educational Settings**

(same as ED\_LPA 3450). This course provides an introduction to quantitative, qualitative, and mixed methods research, with an emphasis on how various forms of data collection and prior research can inform and improve practice. Students will: (1) develop skills in locating research relevant to their professional interests; (2) understand multiple forms of data collection strategies; and (3) identify ethical considerations associated with research. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 4099: Making and Education (3D printing)**

(cross-leveled with IS\_LT 7099). This course - via hands-on activities and projects - will immerse you into the making and 3D printing culture. You will learn how to design and redesign 3D objects, learn 3D modeling software 3D printing. You will learn how to teach STEM concepts through 3D modeling and 3D printing.

**Credit Hour:** 1-3

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**IS\_LT 4310: Seminar in Information Science and Learning Technologies**

Discussion and critical study of current developments in the field of information science and learning technologies.

**Credit Hour:** 1-3

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**IS\_LT 4356: Interactive Web Design with JavaScript**

(cross-leveled with IS\_LT 7356). Attain skills in designing/developing interactive web sites/applications using JavaScript, JavaScript libraries, AJAX, plugins, widgets, user interface themes. Add effects, animations to photo galleries, slide shows, carousels to support instruction. Integrate Google Maps and application API's in learning activities. Dynamically modify web pages based on user actions.

**Credit Hours:** 3

**Prerequisites:** IS\_LT 4370

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**IS\_LT 4360: Introduction to Web Development**

(cross-leveled with IS\_LT 7360). Basic web design and HTML. Covers file transfer and UNIX/LINUX servers management. Develops understanding of web graphic formats. Emphasizes user interface, navigation, and instructional design in building web sites. Online. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 4361: Introduction to Digital Media**

(cross-leveled with IS\_LT 7361). Hands-on approach to multimedia production techniques. Develops understanding of technical and conceptual tools for the basics of digital media, video editing, still image and audio file manipulation. Students create web portfolio to present their digital products. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 4370: Intermediate Web Development**

(cross-leveled with IS\_LT 7370). Development of design and web authoring skills. Topics include CSS, HTML, web interactivity through the use of JavaScript, Dreamweaver and usability practices. Upon completion, students will be ready to create high-impact and highly functional web pages.

**Credit Hours:** 3

**Prerequisites:** IS\_LT 4360 or instructor's consent

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**IS\_LT 4372: Exploring CourseSites**

(cross-leveled with IS\_LT 7372). This course will prepare you to work within the CourseSites Learning Management System (LMS) to set up and manage an online course. As a student in this course, you will investigate and manipulate components of CourseSites from an instructor's perspective. Graded on A-F basis only.

**Credit Hour:** 1

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**IS\_LT 4373: Exploring Moodle**

(cross-leveled with IS\_LT 7373). This course will prepare students to work within the Moodle Learning Management System (LMS) to set up and manage an online course. Students in the course will investigate and manipulate components of Moodle from an instructor's perspective. Graded on A-F basis only.

**Credit Hour:** 1

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**IS\_LT 4374: Exploring Canvas**

(cross-leveled with IS\_LT 7374). This course will prepare students to work within the Canvas Learning Management System (LMS) to set up and manage an online course. Students will investigate and manipulate components of Canvas from an instructor's perspective. Graded on A-F basis only.

**Credit Hour:** 1

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**IS\_LT 4383: Rapid Development Tools for Online Learning**

(cross-leveled with IS\_LT 7383). Students will apply principles of rapid development and use rapid development tools to create a prototype of an e-learning module that uses technology features that can enhance learning (e.g. learner interactions). Specific competencies include: Storyboard and 'rapidly' develop an e-learning module using software designed to support this process; Use software tools that develop specific elements of e-learning (e.g. video, animation, gaming), and incorporate those elements into an e-learning module; Evaluate rapidly developed e-learning products; Compare and contrast features of rapid development software packages. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 4384: Designing Games for Learning**

(cross-leveled with IS\_LT 7384). Learn why games can be useful in learning and how to design them. Play some exemplary games that will help you understand the mechanics of game design and work incrementally towards designing and developing your own educational game prototype via game modifications ('mods'), engaging in gaming communities, evaluating existing games, building learning plans using games and learning the basics of a simple gaming shell language. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Junior or senior standing required

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**IS\_LT 4473: Introduction to Project Management**

Knowledge and tools for major phases of project management life cycle: project initiation, planning, execution, and closure. Integrated online discussions focus on application and resources. Includes discussions of Lean Project Management techniques and the role of Project Managers. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 7099: Making and Education (3D printing)**

(cross-leveled with IS\_LT 4099). This course--via hands-on activities and projects--will immerse you into the making and 3D printing culture. You will learn how to design and redesign 3D objects, learn 3D modeling software 3D printing. You will learn how to teach STEM concepts through 3D modeling and 3D printing.

**Credit Hours:** 3

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**IS\_LT 7301: Introduction to Information Technology**

The nature of information and information transfer in the institutional setting; covers the culture of information in society, standards for information processing and transfer, and networking in communications perspectives of information providing agencies.

**Credit Hours:** 3

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**IS\_LT 7302: Organization of Information**

In order to retrieve and use information, that information must first be organized. This course investigates systems and structures for organizing information in a variety of contexts.

**Credit Hours:** 3

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**IS\_LT 7305: Foundations of Library and Information Science**

An introduction to the background, contexts, organizations, issues, ethics, values, and terms of information science, the information professions, and the library as an idea, space, institution, and repository of the cultural record.

**Credit Hours:** 3

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**IS\_LT 7306: School Library Early Field Experience**

30-50 clock hours of early field experience in K-12 school libraries. Students will observe an experienced school librarian and have limited interactions with students. Emphasis to include professional library skills in program management and administration (e.g., managing collections and technology) and working with the school community. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Instructor permission and enrollment in the school library media specialist emphasis area

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**IS\_LT 7307: School Library Mid-Level Field Experience**

45-60 clock hours of mid-level field experience in K-12 school libraries. Students will observe an experienced school librarian and have structured interactions with students. Emphasis to include professional library skills in information and knowledge (e.g., preparing and leading instruction, classroom management) and teaching for learning (e.g., collaborating with the school community). Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Instructor permission and enrollment in the school library media specialist emphasis area. Enrollment in or successful completion of IS\_LT 7306

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**IS\_LT 7310: Seminar in Information Science and Learning Technology**

Discussion and critical study of current developments in the field of information science and learning technologies.

**Credit Hour:** 1-3

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**IS\_LT 7312: Principles of Cataloging and Classification**

Theory and practice of cataloging and classification of library materials using current standards and tools. Principles, developments, and trends in cataloging and access to library data.

**Credit Hours:** 3

**Prerequisites:** IS\_LT 7305

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**IS\_LT 7313: Collection and Access Management**

Selection of materials for libraries and information agencies, policies for collection management, freedom and diversity of information, access to information and evaluation of collections and access.

**Credit Hours:** 3

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**IS\_LT 7314: Reference Sources and Services**

General reference sources with emphasis on print sources. principles, developments and trends in reference services and reference service organization.

**Credit Hours:** 3

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**IS\_LT 7315: Management of Information Agencies**

Concepts of management applied to libraries and information systems; management tools, programming, models and simulation in an environment of an information producing or disseminating agency.

**Credit Hours:** 3

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**IS\_LT 7320: Emerging Technologies in Libraries**

Critically examines web technologies, devices, and methods used to access collections and services, promote social interaction, and facilitate communication. Focuses on new and emerging software, resources, and communication methods including their discovery and implementation. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 7334: Library Information Systems**

Focuses on the automated library systems marketplace. Covers integrated online library systems from the systems, functional and user perspective. Includes management approaches for procurement and operation of such systems.

**Credit Hours:** 3

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**IS\_LT 7356: Interactive Web Design with JavaScript**

(cross-leveled with IS\_LT 4356). Attain skills in designing/developing interactive web sites/applications using JavaScript, JavaScript libraries, AJAX, plugins, widgets, user interface themes. Add effects, animations to photo galleries, slide shows, carousels to support instruction. Integrate Google Maps and application API's in learning activities. Dynamically modify web pages based on user actions.

**Credit Hours:** 3

**Prerequisites:** IS\_LT 4370 or IS\_LT 7370

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**IS\_LT 7360: Introduction to Web Development**

(cross-leveled with IS\_LT 4360). Basic web design and HTML. Covers file transfer and UNIX/LINUX servers management. Develops understanding of web graphic formats. Emphasizes user interface, navigation, and instructional design in building web sites. Online. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 7361: Introduction to Digital Media**

(cross-leveled with IS\_LT 4361). Hands-on approach to multimedia production techniques. Develops understanding of technical and conceptual tools for the basics of digital media, video editing, still image and audio file manipulation. Students create web portfolio to present their digital products. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 7366: Technology Leadership**

Develop skills, knowledge, and values needed to provide leadership in schools. Analyzes characteristics of effective leaders, focusing on staff development. Explores technology and school reform, technology integration, and current issues. Online. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 7370: Intermediate Web Development**

(cross-leveled with IS\_LT 4370). Development of design and web authoring skills. Topics include CSS, HTML, web interactivity through the use of JavaScript, Dreamweaver and usability practices. Upon completion, students will be ready to create high-impact and highly functional web pages.

**Credit Hours:** 3

**Prerequisites:** IS\_LT 7360 or instructor's consent

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**IS\_LT 7372: Exploring CourseSites**

(cross-leveled with IS\_LT 4372). This course will prepare you to work within the CourseSites Learning Management System (LMS) to set up and manage an online course. As a student in this course, you will investigate and manipulate components of CourseSites from an instructor's perspective. Graded on A-F basis only.

**Credit Hour:** 1

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**IS\_LT 7373: Exploring Moodle**

(cross-leveled with IS\_LT 4373). This course will prepare you to work within the Moodle Learning Management System (LMS) to set up and manage an online course. As a student in this course, you will investigate and manipulate components of Moodle from an instructor's perspective. Graded on A-F basis only.

**Credit Hour:** 1

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**IS\_LT 7374: Exploring Canvas**

(cross-leveled with IS\_LT 4374). This course will prepare students to work within the Canvas Learning Management System (LMS) to set up and manage an online course. Students will investigate and manipulate components of Canvas from an instructor's perspective. Graded on A-F basis only.

**Credit Hour:** 1

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**IS\_LT 7375: Mobile Web App Development**

(cross-leveled with IS\_LT 4375). The purpose of this course is to provide students with knowledge necessary to create a mobile app with basic functions using HTML 5, JavaScript, and CSS3. Through this course, students will obtain knowledge of mobile web app development including both design and development phases. Upon the completion of this course, students will produce a mobile web app that can be operated via a mobile device. Graded on A-F basis only. Recommended: Students must be able to hand code: html, Styling and positioning web pages using CSS & JavaScript, and JavaScript basic functions.

**Credit Hours:** 3

**Prerequisites:** IS\_LT 4370 or IS\_LT 7370 or permission of instructor

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**IS\_LT 7378: Electronic Portfolio Development**

This course provides an overview of electronic portfolio development. Students will select, categorize and document their accomplishments in the Technology in Schools emphasis area for review and assessment. Students will demonstrate mastery of the ISTE Standards and commitment to ongoing learning. Web development skills are required. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Restricted to students admitted into the Technology in Schools emphasis

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**IS\_LT 7380: School Library Practicum**

Directed, project-based experience in school libraries. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** admission to MA, initial certification or 24 completed LIS credit hours taken at MU; instructor's consent

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**IS\_LT 7381: Practicum in Information Agencies**

Provides a supervised work experience for master's degree students in a public, academic, or special library. Graded on S/U basis only.

**Credit Hour:** 2-3

**Prerequisites:** IS\_LT 7301, IS\_LT 7302 or IS\_LT 7312, IS\_LT 7314, IS\_LT 7315

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**IS\_LT 7383: Rapid Development Tools for Online Learning**

(cross-leveled with IS\_LT 4383). Students will apply principles of rapid development and use rapid development tools to create a prototype of an e-learning module that uses technology features that can enhance learning (e.g. learner interactions). Specific competencies include: Storyboard and 'rapidly' develop an e-learning module using software designed to support this process; Use software tools that develop specific elements of e-learning (e.g. video, animation, gaming), and incorporate those elements into an e-learning module; Evaluate rapidly developed e-learning products; Compare and contrast features of rapid development software packages. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 7384: Designing Games for Learning**

(cross-leveled with IS\_LT 4384). Learn why games can be useful in learning and how to design them. Play some exemplary games that will help you understand the mechanics of game design and work incrementally towards designing and developing your own educational game prototype via game modifications ('mods'), engaging in gaming communities, evaluating existing games, building learning plans using games and learning the basics of a simple gaming shell language. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9012: Public Library Community Partnerships**

This is a service learning course. Students will have the opportunity to work with local community leaders on a project. Students will learn about partnerships and advocacy for the library, developing leadership skills through action and reflection.

**Credit Hours:** 3

**Prerequisites:** IS\_LT 7305 and IS\_LT 9444



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**IS\_LT 9013: Public Library Administration**

This class covers three main components: planning, human resources, and budgeting, focusing on public libraries.

**Credit Hours:** 3

**Prerequisites:** IS\_LT 7305

**Recommended:** IS\_LT 9444

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**IS\_LT 9085: Problems in Information Science and Learning Technology**

Independent, directed study on a topic in the areas of information science and learning technologies.

**Credit Hour:** 1-99

**Prerequisites:** departmental consent

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**IS\_LT 9090: Research in Information Science and Learning Technologies**

Dissertation research. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** Doctoral Committee Chair's consent

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**IS\_LT 9403: Gender Construction in Children's/Adolescent Literature and Media**

This course will cover some of the theoretical concepts about the construction of gender in our culture and how that construction is enabled by literature and media for children and adolescents. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9404: School Library Administration**

Emphasizes school library administration: program development, implementation, evaluation; planning cycle; budget process; services for diverse school constituencies. Effects of national, state, district guidelines, standards and policies on library media programs.

**Credit Hours:** 3

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**IS\_LT 9405: Sociocultural Aspects of Literacy**

This course will cover sociocultural and social constructionist theory as they relate to literacy. Sociocultural theory, in terms of literacy, looks at how both social elements and cultural elements interact to impact literacy behaviors and outcomes. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9406: Curriculum and the School Library**

Focuses on the library media specialist as teacher and instructional partner. Emphasizes negotiating instructional partnerships, integrating information problem-solving models into the curriculum, curriculum mapping, and resource-based learning models.

**Credit Hours:** 3

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**IS\_LT 9407: Intellectual Freedom and Its Discontents**

The course examines principles and contradictions of intellectual freedom and their relation to librarianship. The nature of free speech, the First

Amendment, sources of censorship, and professional disputes about intellectual freedom practice in libraries will be important topics.

**Credit Hours:** 3

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**IS\_LT 9408: Information Policy**

Examination of the roles of private and public sectors in information policy formation. Includes consideration of social, economic, political and technological issues.

**Credit Hours:** 3

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**IS\_LT 9409: Seminar in Digital Libraries**

This course is a project-based learning environment that combines Instructor-prepared content, group-based student projects, and threaded asynchronous discussions on selected topics relating to the design, development, and implementation of practical digital libraries. Research directives within the broad domain of digital library development are also covered.

**Credit Hours:** 3

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**IS\_LT 9410: Seminar in Information Science and Learning Technology**

Discussion and critical study of current developments in information science and learning technologies.

**Credit Hour:** 1-3

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**IS\_LT 9411: Doctoral Seminar in Information Science and Learning Technologies**

Discussion and critical study of current developments in information science and learning technologies. Graded on A-F basis only.

**Credit Hour:** 1-3

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**IS\_LT 9413: Electronic Resource Management**

This course explores electronic resources (primarily subscription journals and databases) in terms of products, pricing, in-house management of resources, both technical and organizational, licensing, configuring databases and organizing websites for the end user, statistical reporting, and future trends.

**Credit Hours:** 3

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**IS\_LT 9417: Action Research**

Study of concepts associated with action research; and the processes and procedures for conducting action research. Culminating project is the development of an action research project.

**Credit Hours:** 3

**Prerequisites:** 12 credit hours completed prior to enrolling

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**IS\_LT 9419: American Library History**

Students in this course will learn about the history of libraries in America, reading about and analyzing the political, cultural, and social roles of particular libraries and the library as an institution. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9420: Scholarly Communication**

Exploration of the production and communication of information and knowledge in the disciplines.

**Credit Hours:** 3

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**IS\_LT 9421: Usability of Information Systems and Services**

Introduction to concepts and methods of usability testing and research and user-centered design strategy. Course takes a process approach to define target audiences and usability problems, create and administer investigative procedures, analyze results, and report findings effectively. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9423: Ethics, Data, and Information**

Critical inquiry into perennial and emerging issues in the ethics of data and information.

**Credit Hour:** 1-3

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**IS\_LT 9426: Diversity in the Information Professions**

Leadership to promote employment, organizational, collection and program diversity within libraries and information agencies in the U.S. This course includes management and diversity theories, discussions of workplace climate, and discussions of discrimination and hostility issues. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9427: The Information Society**

This class critically examines the control, dissemination, and effects of information on the modern world. We will study the complex relationship between information and society, looking at how each is a reflection and shaper of the other. The relationship of libraries and other information agencies to the state, and the role of information professionals in the political and cultural spheres are central themes in the course. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9428: History of Books and Media**

Examines the history and philosophy of books and media from the beginnings of writing to the Internet, emphasizing the effects of changes in communication and information technologies. The focus is on the social, cultural, intellectual, scientific, and religious impacts of shifts in the media for preserving and transmitting information. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9429: Metadata**

The contacts in your phone, the embedded GPS information in the photo you took on vacation, and the information that allows you to track down an article in a database are all metadata. Today more than ever, metadata is at the heart of what information professionals do as we organize, teach about, search for, and analyze information. This class explores a variety of kinds of metadata, and the tools and systems for working with it, from the point of view of the information professional. Graded on A-F basis only.

**Credit Hours:** 3

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**Prerequisites:** IS\_LT 7302 or IS\_LT 7312

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**IS\_LT 9431: Children's Library Materials**

Evaluation and selection of materials for children birth-age 13 (Grade 6). Early literacy, emergent readers, reader response theory; social, cultural contexts of readers and reading, trends in publishing.

**Credit Hours:** 3

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**IS\_LT 9433: Youth Services in Libraries**

Examines physical, mental, and emotional development of youth birth through high school. Emphasis on community analysis, outreach services, program design and techniques. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9434: Teen Library Materials**

Evaluation, selection of print, alternate formats for teens, 13-18 (Grades 7-12). Personal, social, popular culture contexts of teen readers and texts; emphasizes reader response; challenges common assumptions about teens and reading.

**Credit Hours:** 3

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**IS\_LT 9435: Adult Services in Libraries**

Library services to adults, including special populations. Emphasis on information needs of adults, organization and management of adult services.

**Credit Hours:** 3

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**IS\_LT 9437: Reader Advisory Services**

Examination of value and role of leisure reading and leisure reading materials. Coverage of reader advisory techniques, support processes, and resources for providing reader advisory services to various audiences. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9438: Marketing and Libraries**

This course provides an introduction to marketing - concepts, planning, strategies and evaluation - as related to libraries and information agencies. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9439: Digital Humanities and Information**

This course on history, philosophy, and methods in the emerging field of 'digital humanities' focuses on topics at the nexus of information, the humanities disciplines, technology, and culture, as well as the contexts of the academy, libraries/archives, museums, and media. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9440: Learning with Web-based Technologies**

Explores the potential of the Internet to support inquiry-based learning through collaborative activities, research, and authoring/publishing. Investigates goals and methods of online learning. Examines learning theories and models of teaching/learning in relation to selected Internet

activities for K-12, undergraduate students and learners in other fields outside education (e.g., work placed learning, non-formal learning).

**Credit Hours:** 3

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**IS\_LT 9443: The Academic Library**

Development, objectives, organization and structure, nature of the collections and responsibility for their development, philosophy of library services, measurement and standards of library effectiveness.

**Credit Hours:** 3

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**IS\_LT 9444: The Public Library**

An overview of public library history, missions, and societal roles. Includes public library funding, organization, and management.

**Credit Hours:** 3

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**IS\_LT 9445: Special Libraries and Information Centers**

Goals of special librarianship including information provision, management styles. Library functions as performed in special libraries. Contributions of special libraries, such as information analysis centers, information brokering, and accountability for and evaluation of services.

**Credit Hours:** 3

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**IS\_LT 9446: International and Comparative Librarianship**

International libraries, intercultural information concerns, how information agencies differ between nations and global information issues. Course presents various countries, their information infrastructures and the influence of information and communication technologies.

**Credit Hours:** 3

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**IS\_LT 9447: Human Centered Design**

Provides an overview of iterative design and project management methodologies that develop solutions to interactive systems and tools. Students will learn how to implement rapid prototyping and evaluation techniques by focusing on the user and task needs, along with human factors. The methods and techniques in this course will enhance understanding of task performance, user satisfaction, and design research. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9448: International Libraries in Context**

Study Abroad course. Visit and study international libraries and related institutions. Covers the political, cultural, social, and economic context in which they operate.

**Credit Hours:** 3

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**IS\_LT 9449: Services for Business Communities and Entrepreneurs**

The course covers the introduction to and application of basic concepts of business information in academic, public and special library environments, and the information searching techniques used for specific business information needs (finding company information, industry information, investment information, statistical information, marketing information, etc.) Course includes service to entrepreneurs. Content covers company, investment, industry, statistical and marketing information and includes use of GIS systems.

**Credit Hours:** 3

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**IS\_LT 9450: Research Methods in Information Science and Learning Technologies**

Research methods and ethics of research in the social sciences, focusing on the information professions and learning technologies.

**Credit Hours:** 3

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**IS\_LT 9452: Information Literacy Instruction**

This course is designed to prepare Library Science students/Information professionals for the variety of teaching situations they will encounter in library and information agency settings. Students will consider learning theory applicable to library instruction, learning styles, teaching methods, and appropriate evaluation of library instruction. Students will also learn strategies for incorporating library instruction into the institutional curriculum. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9453: Planning and Evaluation of Information Services**

The course focuses on the complexity of the planning process in libraries and other information agencies, including the influence of external environments (upper administrations, user communities, information producers) on planning. Internal elements of the organization (staffing, services, finances) are discussed, as are external elements (requirements of a parent organization, legal constraints, etc.). The role of evaluation of personnel, budgets, facilities, access to information, and services is integrated into the process of providing service.

**Credit Hours:** 3

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**IS\_LT 9454: Copyright in Libraries**

An introductory and practical course covering the foundations of copyright, fair use, e-reserves, related laws including DMCA and TEACH and managing copyright in the public and school environments.

**Credit Hours:** 3

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**IS\_LT 9455: Formative and Summative Evaluation**

Study of the process of gathering data and making judgments about the effectiveness of instructional programs that uses technology. Covers techniques of a formative evaluation process to revise instruction. Culminating project is planning and conducting a portion of a summative evaluation of instructional program.

**Credit Hours:** 3

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**IS\_LT 9456: Designing Computer Support for Collaborative Learning**

Students will examine the theoretical bases for using collaboration and social interaction as methods for learning, and learn key methods and approaches for designing computer supported collaborative learning. Graded A-F only.

**Credit Hours:** 3

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**IS\_LT 9457: Designing Computer Support for Cooperative Work**

Study of the tools and methods of groupware and communities of practice, including their psychological, social and organizational effects. Students focus on designing and developing improved tools and methods. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9458: Technology and Assessment**

Learn how to assess specific types of knowledge, using technology to enhance the process. Topics include use of tools/strategies for data collection to guide instructional decision-making and investigating technologies to improve assessment of student learning. Emphasis on aligning learning objectives, activities, and assessments and developing performance assessments to measure higher-order thinking. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9460: Human Computer Interaction Research and Analysis**

Human Computer Interaction (HCI) is a discipline concerned with the design, evaluation, and implementation of interactive computing systems for human use and with the study of major phenomena surrounding these systems. This course provides an overview of the interdisciplinary HCI field while focusing on the theories and research. Students will apply principles and research methods to a range of interface design problems that impact learning, information retrieval, and performance tools. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9461: Interaction Design**

Students will learn the basic concepts of interaction design, then focus on usability engineering and prototyping principles to support the design process for learning and performance based technologies.

**Credit Hours:** 3

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**IS\_LT 9466: Learning Analytics**

Learn how to discover, interpret, and communicate meaningful data patterns in this introductory course. Explore models and applications of learning analytics, as well as privacy and ethical considerations related to the collection and dissemination of learning data. Gain hands-on experience with analytics technologies (e.g., Tableau or Python) that can be used to prepare, visualize, and share data pertaining to learning. Graded on A-F basis only. Note: No programming background required for Tableau option.

**Credit Hours:** 3

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**IS\_LT 9467: Technology to Enhance Learning**

Strategies for integrating technology into the teaching and learning process, with a focus on enhancing how students think rather than what they think. Special attention given to supporting higher order thinking and problem solving with technology.

**Credit Hours:** 3

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**IS\_LT 9468: Learning and Task Analysis**

Multiple methods for conducting task analysis for learning to identify learning processes, learning topics, and learning experiences, including procedural, prerequisites, cognitive simulations, case libraries, environmental analysis, and decision making.

**Credit Hours:** 3

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**IS\_LT 9469: Designing Electronic Performance Support Systems**

Performance support systems (PSS) are technology systems that support human activity within the complexities of organizational requirements and processes. Students build competency for designing PSS.

**Credit Hours:** 3

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**IS\_LT 9471: Instructional Systems Design**

Develop knowledge and skills related to the systematic design of instruction. Learn to analyze, design, develop, implement, and evaluate learning systems and instruction. Identify appropriate technologies to support learning and explore alternative models of instructional design.

**Credit Hours:** 3

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**IS\_LT 9473: Project Management**

This course introduces the learner to the necessary and practical project management concepts and skills that lead to reductions in project cycle time while maintaining control over budget, resources, risk, and delivered value. This course proposes to integrate practical project management skills within the project management lifecycle (i.e., initiating, planning, executing, controlling, and closing).

**Credit Hours:** 3

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**IS\_LT 9474: Front End Analysis of Systems**

Develop skills for systematically analyzing learning, or other types of systems, that need to be improved. Develop data collection instruments (e.g. surveys, observation protocols, interviews); analyze secondary data; analyze tasks or activities in the system, and interpret data to make recommendations for system improvement. Skills will be learned by doing and applying to real systems that need improvement.

**Credit Hours:** 3

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**IS\_LT 9475: Diffusion of Educational Innovations**

In-depth analysis of innovation development and adoption processes in educational organizations, including schools, universities, and training centers.

**Credit Hours:** 3

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**IS\_LT 9480: Internship in Information Science and Learning Technologies**

Provides internship experience under supervision in advanced levels of practical experience in Information Science and Learning Technology Research and Teaching. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** School director's consent

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**IS\_LT 9481: School Library Internship**

12 weeks of guided practice in K-12 school libraries. Strengthens, extends effective professional skills, attitudes, dispositions, essential to supporting student learning and achievement. Graded on S/U basis only.

**Credit Hour:** 1-8

**Prerequisites:** Instructor permission and enrollment in library media specialist emphasis area; satisfactory completion of IS\_LT 7306 and IS\_LT 7307

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**IS\_LT 9483: Capstone: Online Education Emphasis Area**

Culminating course for Online Education emphasis area in Information Science and Learning Technologies graduate degree. Design/develop/evaluate an online course or rework existing course. Analyze evaluation data from two external reviewers (novice/expert). Write paper describing results and modifications. To be taken during last semester of student's program. Graded on S/U basis only.

**Credit Hour:** 1

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**IS\_LT 9484: Teaching Online Courses**

Learn to be an effective online instructor! Examine issues in teaching and learning online; instructor and student roles; instructional strategies for supporting diverse learners; methods of student assessment; online communication; classroom management; characteristics of online learning management systems. Projects put you in the role of instructor to practice what you learn.

**Credit Hours:** 3

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**IS\_LT 9485: Designing Online Learning**

Online learning is everywhere! This online course will teach you how to leverage existing software tools to design and develop online learning activities in multiple domains that are grounded in sound learning principles. Course will focus on developing online learning for meaningful learning outcomes such as problem solving, building communities, and developing collaboration skills.

**Credit Hours:** 3

**Prerequisites:** Instructor consent

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**IS\_LT 9490: Archival Practice**

Students address evidence, memory, and power dynamics while defining the archival profession, principles, and core archival knowledge guiding professional practice. Explore the archival profession through original research centered on the social responsibilities of archivists. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9491: Appraisal and Archival Systems**

Students discuss appraisal theory, documentation strategies, and microappraisal applications. Learn strategies for collection preservation and access using ArchivesSpace, and relate the records continuum and lifecycle theories to the archival mission. Graded on A-F basis only.

**Credit Hours:** 3

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**IS\_LT 9492: Data and Records Management**

Examine societal recordkeeping and professional work to identify, manage, preserve, and provide multimedia records access for evidential, legal, leisure, and informational purposes. Study trust and transparency in records, and apply archival ethics through project-based learning. Graded on A-F basis only.

**Credit Hours:** 3

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## Information Technology (INFOTC)

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**INFOTC 1000: Introduction to Information Technology**

This course introduces the field of Information Technology including foundation experiences and knowledge, the history of digital technologies, emphasis areas in the program, career opportunities, and ethical/social issues. Students participate in activities that introduce students to digital media, digital systems, and software engineering. Students learn to use distributed version control systems and how to work on collaborative teams.

**Credit Hours:** 3

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**INFOTC 1001: Topics in Information Technology**

Topics may vary from semester to semester. May be repeated upon consent of department.

**Credit Hours:** 3

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**INFOTC 1040: Introduction to Problem Solving and Programming**

An introduction to problem solving methods and programming concepts, providing experience in designing, developing, implementing, and testing programs. Cannot be taken for credit after CMP\_SC 1050.

**Credit Hours:** 3

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**INFOTC 1600: Digital Systems**

This course provides a foundation of knowledge of digital systems including terminology, concepts, architecture, processes, tools, hardware, and software.

**Credit Hours:** 3

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**INFOTC 1610: Introduction to Digital Media Design**

This project-based course is an introduction to the concepts and practices of audio design, graphic design, motion media design and basic video editing. Current technologies are employed to examine design fundamentals and applications of media design that apply to audio and video production and new media production.

**Credit Hours:** 3

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**INFOTC 2001: Topics in Information Technology**

Topics may vary from semester to semester. May be repeated upon consent of department.

**Credit Hours:** 3

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**INFOTC 2040: Programming Languages and Paradigms**

This course presents programming principles and their syntactical representation and implementation across languages including those that are compiled and interpreted. The course shows how to implement algorithms and data structures to solve problems while utilizing paradigms offered by the programming languages such as procedural, object-oriented, protocol-oriented, functional, and declarative. Language support for strong and weak typing and type safety are covered along with support for optional values. Provides experience in developing algorithms and determining their efficiency, designing application architecture, and developing applications. Building and using libraries/application programming interfaces is covered. Git and GitHub are used for code versioning and collaboration. Integrated development

environments (IDEs) are used for managing, building, debugging, and testing applications.

**Credit Hours:** 3

**Prerequisites:** INFOTC 1040 or CMP\_SC 1050, or prior experience with programming and consent of instructor

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#### **INFOTC 2610: Digital Media Design I**

This project-based course examines the fundamentals of media technology, from capture devices to the software and hardware that processes data. Through hands-on experience with capturing technology, audio recording devices, and the software and hardware components needed to manipulate the recordings, students will process big-data files to create meaningful manipulations in assembly, engineering, and colorization. Students will utilize a spectrum of camera equipment, recording devices and facilities to achieve an understanding of audio/video capture, project planning and implementation, hardware assessment, optimization practices through hardware acceleration, and video processing. This course also focuses on basic editing theory and industry trends. This is done through in-class demonstrations, online modules, and supplementary material hosted on online.

**Credit Hours:** 3

**Prerequisites:** C- or higher in INFOTC 1610 or FILMS\_VS 1880 or DST\_VS 1880, or instructor content through course equivalencies

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#### **INFOTC 2615: Color Processing and Design**

This course is an intensive study of the techniques, software, principles, technology, data management practices, sciences, problems and theories of color processing for video in media. The course will prepare students for work in industries related to color processing and delivery, while providing further enrichment to technology related to media production, including camera and sensor science, computer hardware, and peripherals. Graded on A-F basis only.

**Credit Hours:** 3

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#### **INFOTC 2620: Computer Modeling and Animation I**

Introduction to the field of computer modeling and animation with an emphasis on tools. Learn programming methods for developing customized modeling and animation algorithms. Graded on A-F basis only.

**Credit Hours:** 3

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#### **INFOTC 2630: Introduction to Game Theory and Design**

Students will develop foundational skills in game design and theory, and become proficient in the tools used to develop conceptual gaming environments. The student will develop skills to discuss, develop, and demonstrate the design process in cooperation with current game theories and practices. The student will develop collaborative and cooperative design techniques mirroring that of the industry. Graded on A-F basis only.

**Credit Hours:** 3

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#### **INFOTC 2810: Fundamentals of Network Technology**

This course includes an overview of networking and the common wireless standards. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOTC 1040 or CMP\_SC 1050 with C- or higher

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#### **INFOTC 2830: Web Application Development I**

(same as CMP\_SC 2830). This course will attempt to provide a comprehensive understanding of the evolution, the technologies, and the tools of the Internet. In particular, issues pertaining to the World Wide Web and Multimedia (HTML, CGI, Web based applications) will be discussed in detail.

**Credit Hours:** 3

**Prerequisites:** INFOTC 2040 or CMP\_SC 2050 with a C- or higher

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#### **INFOTC 2910: Cyber Security**

This course covers numerous platform-independent security topics including threats, problem ports and services, theory and practice of defense in security, intrusion detection, data security, securing remote access, user education and support, designing a secure network and security management. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOTC 1040 or CMP\_SC 1050, and INFOTC 2810

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#### **INFOTC 3001: Topics in Information Technology**

Topics may vary from semester to semester. May be repeated upon consent of department. Graded on A-F basis only.

**Credit Hours:** 3

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#### **INFOTC 3330: Object Oriented Programming**

(same as CMP\_SC 3330). This course focuses on object-oriented programming concepts such as: Abstraction, Polymorphism, Encapsulation, Inheritance, Interfaces, Abstract Classes, Files, Streams, and Object Serialization. Topics such as GUI and event-driven programming, APIs, and design patterns are also tackled. Java SE 8, NetBeans 8 IDE, and JavaFX Scene Builder 2.0 are used to build Java SE applications that include user interfaces developed using JavaFX. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOTC 2040 or CMP\_SC 2050 with C- or higher

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#### **INFOTC 3380: Database Systems and Applications**

This course covers database management systems (DBMS) and the development of applications that utilize databases including relational/SQL and NoSQL types. Topics include the evolution of data storage and databases, data modeling, relational and NoSQL databases, SQL, document, graph and key-value storage and retrieval, application development using databases, database scaling, database trends, and popular database systems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or higher in CMP\_SC 2050 or INFOTC 2040; or experience developing applications and permission of the instructor

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#### **INFOTC 3530: UNIX Operating System**

(same as CMP\_SC 3530). This course is an introduction to UNIX and UNIX-like operating systems and interfaces, to include the file system, command shells, text editors, pipes and filters, input/output system, shell scripting and Regular Expressions. The course will also incorporate an aspect of programming in a UNIX environment, cloud computing, containers and an introduction to System Administration. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOTC 2040, or CMP\_SC 2050, or Instructor Consent

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**INFOTC 3600: User Experience Design I**

This course is a first in a series that focuses on User Experience (UX) Design for software applications. This course introduces the beginner to processes, techniques and methods of evaluation to design, model and evaluate application designs and user interfaces.

**Credit Hours:** 3

**Prerequisites:** May be restricted to Information Technology majors during early registration

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**INFOTC 3610: Digital Media Design II**

This project-based course builds upon the fundamentals of production and media processing learned in INFOTC 2610 and introduces industry standard advanced video and audio capture technology, software, and data management systems. The course is designed to provide further hands-on experience with digital video capturing technology, non-linear editing software, Digital Audio Workstations, and broadcast technology through three large-scale collaborative media projects. These projects build upon the principles of data management and software, while introducing project management, team management, and direct-to-market media strategies. Students will utilize a spectrum of industry standard camera equipment, recording devices and facilities to achieve a fuller understanding of audio/video capture and post production.

**Credit Hours:** 3

**Prerequisites:** C- or higher in INFOTC 2610. Instructor consent with approved equivalencies

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**INFOTC 3620: Computer Modeling and Animation II**

This course covers advanced methods for modeling and animation with an emphasis on computer science theory and virtual reality. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or higher in INFOTC 2620

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**INFOTC 3630: Introduction to Virtual Reality**

The course will provide students with a good understanding of the fundamentals of virtual reality and practical hands on VR experience development skills. It will introduce students to the software, hardware, and concepts involved with the current state of the art in virtual reality. This course will focus on using the recent consumer-grade equipment to design and construct virtual environment and experience.

**Credit Hours:** 3

**Prerequisites:** INFOTC 1040 or CMP\_SC 1050 with C- or higher

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**INFOTC 3640: Motion Graphics and Visual Effects I**

This advanced media creation course is an introduction to the fundamentals of motion graphic design, 2-D animation, and visual effects creation. It is a project based course that requires understanding of NLEs, experience in media creation and design, understanding of basic audio/video compression, and understanding of basic media design and concepts. Computer programs designed for graphic design, motion graphics, 2-D animation, and visual effects are integrated throughout the course. Starting media will be provided for each project.

**Credit Hours:** 3

**Prerequisites:** C- or higher in INFOTC 1610

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**INFOTC 3650: Project and Team Management**

This course focuses on the business analysis, development tools, communication skills, and management techniques required to successfully lead personnel, meet deadlines, and create digital media projects in today's media production industry. May be taken as Writing Intensive.

**Credit Hours:** 3

**Prerequisites:** C- or higher in INFOTC 1610 or FILMS\_VS 1880 or DST\_VS 1880

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**INFOTC 3650W: Project and Team Management - Writing Intensive**

This course focuses on the business analysis, development tools, communication skills, and management techniques required to successfully lead personnel, meet deadlines, and create digital media projects in today's media production industry.

**Credit Hours:** 3

**Prerequisites:** C- or higher in INFOTC 1610 or FILMS\_VS 1880 or DST\_VS 1880

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**INFOTC 3660: Audio Engineering**

This course is an intensive study of the techniques and art behind the use of audio in today's media design environments. From the theater to television, from tablet and mobile device to computer, this course will focus on the four major sound design areas: sound in cinema, sound creation, sound manipulation, and environmental sound layering.

**Credit Hours:** 3

**Prerequisites:** C- or higher in INFOTC 1610 or FILMS\_VS 1880 or DST\_VS 1880

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**INFOTC 3810: Computer Network Security**

This course covers principles of networking configuration and security authentication, IP security, network management security, wireless security, and system security by studying attacks on computer systems, network, and the Web as well as detection and prevention. Work is completed in Unix/Linux environments and in Microsoft Windows environment. Students will need to setup a virtual private infrastructure to perform multiple tasks; additionally unlimited AWS cloud resources will be available for them. The course emphasizes 'learning by doing' and has a 90% hands-on and 10% theory. Much of this information consists of skills and abilities that employers want and expect in the real world of IT - in a small to medium size organization. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOTC 2810

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**INFOTC 3850: Computer System Administration**

This course will cover network management tools, network maintenance, data management, remote access management, management tasks, responsibilities and ethics, required plans and policies, design of a well-managed network. Some work will be done in both Windows and Linux environments. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOTC 2040 or CMP\_SC 2050, junior standing. May be restricted to Information Technology majors during early registration

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**INFOTC 3910: Advanced Cyber Security**

Students develop a deeper understanding of modern information and system protection technology and methods, including examining the various areas of network security including intrusion detection, reconnaissance, exploitation, and defense against cyber-attacks, as well as principles and techniques for digital forensics investigation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOTC 2910

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**INFOTC 3940: Internship in Information Technology**

Information Technology-related experience in business or industry jointly supervised by faculty and IT professionals. Students should apply one semester in advance for consent of the supervising professor. Graded on an S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** Instructor Consent

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**INFOTC 4001: Topics in Information Technology**

Topics may vary from semester to semester. May be repeated upon consent of department. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** May be restricted to Information Technology majors during early registration

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**INFOTC 4001W: Topics in Information Technology - Writing Intensive**

Topics may vary from semester to semester. May be repeated upon consent of department. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** May be restricted to Information Technology majors during early registration

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**INFOTC 4085: Independent Projects**

A student interested in doing an independent study project should first choose an area and instructor to work with. The student and instructor decide on a suitable Information Technology topic. The student writes up a detailed description of the project, including references, deadlines and deliverables. The instructor and student decide on details for completing the project during the semester for a grade.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor

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**INFOTC 4320: Software Engineering**

Software Engineering covers the principles, processes, and professional practices used to design, develop, test, deploy, and manage software systems in a team-based, collaborative environment. A range of software engineering methodologies are covered with an emphasis on agile software development using incremental methods of managing the development activities.

**Credit Hours:** 3

**Prerequisites:** INFOTC 2040 or CMP\_SC 2050 or permission of the instructor

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**INFOTC 4390: Database Administration**

This course is designed to give a firm foundation in Database Administrators' tasks. The primary goal is to give necessary knowledge and skills to setup, maintain and troubleshoot an Oracle database. This is an instructor-led course featuring lecture and hands-on exercises. Online demonstration and written practice sessions reinforce the concepts and skills introduced. The course defined objectives are designed to support preparation for the Oracle Certified Professional examination.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4380

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**INFOTC 4400: C#.NET Development**

Learn how to develop and debug multi-threaded Windows desktop applications based on the object-oriented (OO), Model-View-Controller (MVC), and Model View ViewModel (MVVM) paradigms using C#, .NET, Windows Presentation Foundations (WPF), and Visual Studio. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOTC 2040 or CMP\_SC 2050

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**INFOTC 4405: iOS App Development I**

(same as CMP\_SC 4405). This is a first in a series of courses on developing iOS applications using Xcode, and the Swift programming language on the macOS platform.

**Credit Hours:** 3

**Prerequisites:** INFOTC 1040 or CMP\_SC 1050, or consent of instructor

**Recommended:** Prior experience programming in any programming language. The student should understand basic language concepts such as variables, data structures, control structures, and functions

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**INFOTC 4410: Android App Development I**

This is the first in a series of courses on developing Android applications using Android Studio and the Java and Kotlin programming languages.

**Credit Hours:** 3

**Prerequisites:** INFOTC 1040 or CMP\_SC 1050, or consent of instructor

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**INFOTC 4420: Android App Development II**

This is the second course in a series on developing Android applications using Android Studio and the Java and Kotlin programming languages. This course covers intermediate-level topics in application design, more complex UI implementations, and data persistence.

**Credit Hours:** 3

**Prerequisites:** INFOTC 4410, or consent of instructor

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**INFOTC 4425: iOS App Development II**

This is the second in a series of courses on developing iOS applications using Xcode and Swift programming language on the macOS platform. This course covers intermediate-level topics in application design, more complex UI implementations, and data persistence.

**Credit Hours:** 3

**Prerequisites:** INFOTC 4405 with C- or higher

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**INFOTC 4440: Android App Development III**

This is a third in a series of courses on developing Android applications using Android Studio and the Java and Kotlin programming languages.



This course covers advanced topics in application architecture, application design, data persistence, and client-server architecture.

**Credit Hours:** 3

**Prerequisites:** INFOTC 4420 or permission of the instructor

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#### **INFOTC 4445: iOS App Development III**

This is the third in a series of courses on developing iOS applications using Xcode and Swift programming language on the macOS platform. This course covers advanced topics in application architecture, application design, complex UI designs, data persistence, and client-server architecture.

**Credit Hours:** 3

**Prerequisites:** INFOTC 4425

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#### **INFOTC 4500: Team-Based Mobile Device Application Development**

This is a multi-disciplinary, team-based course on developing applications for mobile devices. Teams will be comprised of students who are software developers and students who are designers. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOTC 2040; or CMP\_SC 2050; or permission of instructor with applicable experience

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#### **INFOTC 4600: User Experience Design II**

This course is the second in a series that focuses on User Experience (UX) Design for software applications. This course further develops the processes, techniques and methods of evaluation to design, model, and evaluate application designs and user interfaces.

**Credit Hours:** 3

**Prerequisites:** INFOTC 1600

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#### **INFOTC 4610: Advanced Multimedia Design and Technology**

Students enrolled in INFOTC 4610 are immersed in upper level study of media technology, software, and trends in the industry, with focus on advanced media design, motion media capture techniques, portfolio development, and industry standard technology and software. Students will work both independently and in small focus groups to produce industry results in narrative, non-fiction, and commercial media design projects. This course may be taken as INFOTC 4610W for WI credit. If IT majors take this course as WI, it will serve as Capstone. This is a Study Abroad course.

**Credit Hours:** 3

**Prerequisites:** IT Majors must complete INFOTC 2610; other majors may seek instructor consent

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#### **INFOTC 4610W: Advanced Multimedia Design and Technology - Writing Intensive**

Students enrolled in INFOTC 4610 are immersed in upper level study of media technology, software, and trends in the industry, with focus on advanced media design, motion media capture techniques, portfolio development, and industry standard technology and software. Students will work both independently and in small focus groups to produce industry results in narrative, non-fiction, and commercial media design projects. This course may be taken as INFOTC 4610W for WI credit. If IT majors take this course as WI, it will serve as Capstone. This is a Study Abroad course.

**Credit Hours:** 3

**Prerequisites:** IT Majors must complete INFOTC 2610; other majors may seek instructor consent

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#### **INFOTC 4630: Game Development**

(same as CMP\_SC 4630). The course focuses on rapid game prototyping and development utilizing the Unity game engine and C#. You will learn the fundamentals of game programming and also a platform which is actually used to make published games across multiple platforms (Mac, PC, web, iOS, Android etc). Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOTC 3630 or CMP\_SC 2050 or INFOTC 2040 with C- or higher

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#### **INFOTC 4640: Motion Graphics and Visual Effects II**

This course builds on fundamentals of digital motion picture effects technology learned in Digital Effects I. Computer programs designed for digital visual special effects in film and broadcast are integrated throughout the course.

**Credit Hours:** 3

**Prerequisites:** C- or higher in INFOTC 3640

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#### **INFOTC 4650: Shader Programing**

The focus of this course is modern computer graphics algorithms and programming, with an emphasis on games, shader languages, (GLSL and Cg) and Graphical Processor Units (GPUs).

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2050, INFOTC 2620

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#### **INFOTC 4830: Web Application Development II**

(same as CMP\_SC 4830; cross-leveled with CMP\_SC 7830). This course will study the science and engineering of the World Wide Web. We will study the languages, protocols, services and tools that enable the web. Emphasis will be placed on basics and technologies.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 2830 with a C- or higher

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#### **INFOTC 4910: Digital Forensics**

(same as CMP\_SC 4910). This course introduces an overview of basic Digital Forensics procedures and techniques to enable students to perform a digital investigation of physical storage media and volume analysis, including preservation, analysis and acquisition of artifacts that resides in hard disk and random access memory, for Linux and Windows systems. Work is completed in Unix/Linux environments and in Microsoft Windows environment. Students will need to setup a virtual private infrastructure to perform multiple tasks. The course emphasizes 'learning by doing' and has a 90% hands-on and 10% theory. Much of this information consists of skills and abilities that employers want and expect in the real world of IT - in a small to medium size organization. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOTC 2910 and INFOTC 3910

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#### **INFOTC 4970W: Senior Capstone Design - Writing Intensive**

This course is an opportunity for you to demonstrate that you have achieved the goals established by the Information Technology (IT)

program. You will do this through a series of writing exercises, class activities, and a team-based project. You will demonstrate your ability to synthesize various methods and skills, apply them to new, novel, complex, and integrated project requirements in real-world IT problems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or higher in INFOTC 4320, or CMP\_SC 4320, or INFOTC 3650. Must have senior standing. Restricted to INFOTC majors

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**INFOTC 4990: Undergraduate Research in Information Technology**  
Research topics as defined by instructor and student.

**Credit Hour:** 1-6

**Prerequisites:** Instructor's consent

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**INFOTC 4995: Undergraduate Research in Information Technology - Honors**

Research topics as defined by instructor and student.

**Credit Hour:** 1-6

**Prerequisites:** Instructor's consent

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## Integrative Neuroscience (NEUROSCI)

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**NEUROSCI 7990: Non-Thesis Research in Neuroscience**

The course is intended primarily for post-baccalaureate students who have not entered a formal graduate program but who are performing neuroscience research. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent required

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**NEUROSCI 8020: Advances in Neuroscience and Neuropathology**

In depth review of recent advances in basic neuroscience research as well as pathological conditions affecting nervous systems at the cellular and systems level, and the methods and techniques used to study the nervous system. Graded on A-F basis only.

**Credit Hour:** 1-3

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**NEUROSCI 8187: Neuroscience Journal Club**

In depth readings and presentations/discussions of neuroscience journal articles including recent advances in basic neuroscience research, pathological conditions affecting nervous systems, and neuroscience techniques. Graded on S/U basis only. May be repeated for credit.

**Credit Hour:** 1

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**NEUROSCI 8440: Integrative Neuroscience 1**

(same as BIO\_SC 8440). Organization and function of the nervous system focusing on cellular and molecular processes. Graded on A-F basis only.

**Credit Hours:** 3

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**NEUROSCI 8442: Integrative Neuroscience II**

(same as BIO\_SC 8442). Organization and function of the nervous system at the systems level to examine processes of behavior and cognition. Graded on A-F basis only.

**Credit Hours:** 3

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**NEUROSCI 9090: Thesis Research in Neuroscience**

The course is intended primarily for graduate students who are working with mentors in departments that do not offer courses (e.g. Radiology). Graded on A-F basis only.

**Credit Hour:** 1-6

**Prerequisites:** Instructor's consent required

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## Grammar (Intensive English Program) (IEPG)

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**IEPG\_0001: Grammar with Writing I**

Students will learn to recognize and use basic grammatical structures. Students will use these structures to produce basic sentences and short paragraphs on topics from daily life. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required

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**IEPG\_0002: Grammar II**

Students will learn low-intermediate grammatical structures including modals, simple and progressive verb tenses, and expressions of quantity. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required

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**IEPG\_0030: Grammar for Academic Purposes III**

Students will learn intermediate grammatical structures including present perfect tense, simple gerunds and infinitives, comparatives and superlatives, and restrictive adjective clauses. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required

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**IEPG\_0040: Grammar for Academic Purposes IV**

Students will learn high-intermediate grammatical structures including past perfect tense, passive voice, noun clauses, adjective clauses, and adverb clauses. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required

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**IEPG\_0050: Grammar for Academic Purposes V**

Students will learn advanced grammatical structures including passive and perfect modals, passive gerunds and infinitives, conditionals, and

reported speech. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required

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## Listening and Speaking (Intensive English Program) (IEPL)

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### IEPL \_0001: Listening and Speaking I

Students will develop the listening and speaking skills required to comprehend and talk about basic information and everyday situations. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required

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### IEPL \_0002: Listening and Speaking II

Students will develop the listening and speaking skills required to comprehend and talk about simple familiar topics. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required

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### IEPL \_0030: Listening and Speaking for Academic Purposes III

Students will develop the listening and speaking skills required to comprehend and discuss adapted academic topics. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required

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### IEPL \_0040: Listening and Speaking for Academic Purposes IV

Students will develop the listening and speaking skills required to comprehend and discuss academic topics and adapted university lectures. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required

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### IEPL \_0050: Listening and Speaking for Academic Purposes V

Students will develop the listening and speaking skills required to comprehend and discuss university lectures and academic interactions. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required

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## Reading (Intensive English Program) (IEPR)

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### IEPR \_0001: Reading I

Students will develop the reading skills and vocabulary required to comprehend short, simple texts on general interest topics. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required

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### IEPR \_0002: Reading II

Students will develop the reading skills and vocabulary required to comprehend short, predictable texts on general interest topics. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required

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### IEPR \_0030: Reading for Academic Purposes III

Students will develop the reading skills and vocabulary required to comprehend pre-academic and adapted academic texts. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required

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### IEPR \_0040: Reading for Academic Purposes IV

Students will develop the reading skills and vocabulary required to comprehend adapted university-level texts. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required

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### IEPR \_0050: Reading for Academic Purposes V

Students will develop the reading skills and vocabulary required to comprehend and analyze university-level texts. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required; concurrent enrollment in IEPW \_0050 Writing for Academic Purposes required

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## Special Topics (Intensive English Program) (IEPS)

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### IEPS \_0001: Level I Guided Reading and Vocabulary

Students will increase reading fluency and vocabulary in beginning-level texts while developing independence and an appreciation of reading. Not open to native speakers of English. No college credit.

**Credit Hours:** 3

**Prerequisites:** must be admitted to the IEP program and placed into the course by the IEP; consent of department required

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## Interdisciplinary Studies (INTDSC)

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### INTDSC 1001: Proseminar in Interdisciplinary Studies

Lecture/discussion survey of time-management, note taking techniques, in the context of the three courses that are part of a Freshman Interest Group. Regular use of library, electronic mail and computing facilities is stressed. Elective credit only; students cannot receive credit for INTDSC 2001 and INTDSC 1001 or INTDSC 1150. Graded on S/U basis only.

**Credit Hour:** 1

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### INTDSC 1020: University Freshmen Seminar

(same as SSC 1020). To maximize student's potential to achieve academic success and to adjust responsibly to the individual and interpersonal challenges presented by collegiate life. Attainment of an appropriate balance between personal freedom and social responsibility underlies all seminar activities. No credit for students who have earned credit for AFNR 1115, INTDSC 1001, IS\_LT 1110, ED\_LPA 3100 or an equivalent first year orientation course at another institution. Credit restrictions that apply to orientation classes apply to this course. Students are not allowed to be enrolled in SSC 1020 and SSC 1150 in the same semester.

**Credit Hour:** 1

**Prerequisites:** Restricted to freshman only

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### INTDSC 1940: Internship

Limited to freshmen/sophomores who are 'undecided' or otherwise not accepted into a major. Graded on S/U basis only.

**Credit Hour:** 0-1

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### INTDSC 2001: Proseminar in Interdisciplinary Studies

Lecture/discussion survey of a range of issues of special importance for transfer students new to the University. Elective credit only; no credit for INTDSC 1001 and/or SSC 1150. Graded on A-F basis only.

**Credit Hour:** 1

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### INTDSC 2942: Internship and Career Exploration in Arts and Science

This course is designed to develop skills required to successfully apply for, and be successful in, internships and employment.

**Credit Hour:** 1

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### INTDSC 4940: Internship in Interdisciplinary Studies

Internship limited to students pursuing the BA in Interdisciplinary Studies degree. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** departmental Consent Required

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### INTDSC 4942: Arts and Science Internship

Internship limited to students in the College of Arts and Science.

**Credit Hour:** 1-6

**Prerequisites:** Consent of instructor required

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### INTDSC 4960: Readings in Interdisciplinary Studies

Independent readings with supervisory faculty member. Open only to Interdisciplinary Studies majors. May be repeated up to a maximum of 6 hours.

**Credit Hour:** 1-6

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### INTDSC 4970: Service Learning Project.

Independent readings with supervisory faculty member; Students will engage in service activities, directly relevant to their areas of academic emphasis, in community not-for-profit agencies. At the same time as participants work in the community, they will research their agency and organization, undergo mock employment interviews, create a cover letter and resume based on the professional skills they have gained through their service, and reflect on careers and leadership in public service. Graded on A-F basis only.

**Credit Hour:** 3-6

**Prerequisites:** restricted to Interdisciplinary, General Studies and International Studies students

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### INTDSC 4970W: Service Learning Project. - Writing Intensive

Independent readings with supervisory faculty member; Students will engage in service activities, directly relevant to their areas of academic emphasis, in community not-for-profit agencies. At the same time as participants work in the community, they will research their agency and organization, undergo mock employment interviews, create a cover letter and resume based on the professional skills they have gained through their service, and reflect on careers and leadership in public service. Graded on A-F basis only.

**Credit Hour:** 3-6

**Prerequisites:** restricted to Interdisciplinary, General Studies and International Studies students

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### INTDSC 4971: Capstone Internship in Interdisciplinary Studies

Internship experience which serves as the student's capstone experience. Program advisor must approve internships. Section 2 of this course will be designated for Service Learning Capstone experience. Graded on S/U basis only.

**Credit Hour:** 1-6

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## Internal Medicine (IN\_MED)

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### IN\_MED 6002: Medicine Clerkship

Students spend eight weeks on the medicine inpatient service at University Hospital and Harry S. Truman Veterans Hospital where they learn to care for adult patients with acute and chronic illnesses. Teaching emphasizes the principles of differential diagnosis and problem solving as well as the integration of basic science information into the art of patient care. Students also gain clinical experience in medical interviewing and physical examination.

**Credit Hours:** 8

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### IN\_MED 6012: Rural Medicine Clerkship

Rural Medicine Clerkship

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**Credit Hours:** 8

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**IN\_MED 6022: Springfield Medicine Clerkship**

Students learn to care for adult patients with acute and chronic illnesses. Teaching emphasizes the principles of differential diagnosis and problem solving as well as the integration of basic science information into the art of patient care. Students also gain clinical experience in medical interviewing and physical examination.

**Credit Hours:** 8**Prerequisites:** successful completion of the first two years of medical school

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**IN\_MED 6052: Springfield Medical Consultation**

The student will work with the Medical Consultation attending faculty. The student will be expected to participate in an interdisciplinary manner with the Rehabilitation physicians as well as the therapy services and other ancillary services caring for the patients. Internists and medical subspecialists frequently encounter patients with critical conditions that require unique skills. During this rotation medicine students will: 1. Provide assessment, management and follow-up of the medical illnesses of patients in a Rehabilitation facility under the supervision of the medical consult attending. 2. Be intimately involved in this multidisciplinary approach to patient care. 3. Work collaborative with rehabilitation attending physicians, nurses, pharmacists, therapists and other ancillary support staff.

**Credit Hours:** 5**Prerequisites:** Successful completion of the Medicine Clerkship and M-4 Status. M3 students can be considered on an individual basis. Springfield faculty approval needed before registration

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**IN\_MED 6056: Springfield Infectious Diseases**

The fourth-year medicine student will work as part of the infectious diseases team providing hands-on clinical services in inpatient and/or consultative settings. Students will participate in daily inpatient rounds, mini-lectures, and clinical case conferences. Students will utilize a variety of evidence-based resources and on-line modules. Infectious diseases faculty are readily available for one-on-one discussion.

**Credit Hours:** 5**Prerequisites:** Successful completion of 5 of the 7 core clerkships, one of which must be Internal Medicine

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**IN\_MED 6102: Remediation Medicine Clerkship**

Enrolled students are those who received an unsatisfactory grade in a Medicine Clerkship at any Mizzou Med location or site. This course allows them the opportunity to rectify a deficiency.

**Credit Hours:** 8**Prerequisites:** IN\_MED 6002 Medicine Clerkship, received unsatisfactory grade

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**IN\_MED 6122: Remediation of Springfield Internal Medicine Clerkship**

Students learn to care for adult patients with acute and chronic illnesses. Teaching emphasizes the principles of differential diagnosis and problem solving as well as the integration of basic science information into the art of patient care. Students also gain clinical experience in medical interviewing and physical examination.

**Credit Hours:** 8**Prerequisites:** successful completion of the first two years of medical school

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**IN\_MED 6263: ABS Internal Medicine Research**

ABS Internal Medicine Research

**Credit Hour:** 5-10

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**IN\_MED 6265: ABS IN MED RSCH/REVIEW**

ABS in Medicine Research Review

**Credit Hours:** 5

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**IN\_MED 6500: Cardiology Consultation Service**

On the inpatient cardiology consultation block, the senior student gains experience in cardiology consultation at either the University Hospital or the Harry S Truman VA Hospital. Through active participation in the consult service the student is provided the opportunity to acquire knowledge of cardiovascular anatomy, physiology, cardiovascular pharmacology, prevention of cardiovascular disease, risk factors for cardiac disease, lipid disorders, chronic coronary artery disease management and its complications, cardiac arrhythmias and conduction abnormalities, hypertension, valvular heart disease, cardiomyopathy, pericardial disease, pulmonary heart disease, peripheral vascular disease, cerebral vascular disease, adult congenital heart disease, and pre- and post-operative assessment of patients with or without cardiac problems. Students will be evaluated using the standard department student elective evaluation form submitted to the Internal Medicine Education Office. Each faculty working with the student will have the opportunity to contribute to the final grade. The final evaluation will be based on student performance on the cardiology consultation service and active participation in the cardiology conferences. Students' skills in performing a history and physical exam, the quality of their presentation, the quality of their knowledge base, the quality of their interactions will constitute the basis of grade assignment.

**Credit Hours:** 5

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**IN\_MED 6507: Endocrinology/Metabolism**

The Endocrinology rotation is designed to enable the student to deal with clinical problems in Diabetes endocrinology and metabolism with particular emphasis on the more common problems in an ambulatory setting. During the rotation the student will have the opportunity to see patients with a wide range of endocrine disorders. These patients will be used as the focus for teaching with the emphasis placed on differential diagnosis, pathophysiology, management, and how the disorder affects the patient as a whole. By the end of the rotation the student should be able to evaluate and manage (with supervision) patients with: 1. Diabetes Mellitus 2. Hypoglycemia 3. Thyroid disorders including goiters, thyroid nodules, hyperthyroidism and hypothyroidism 4. Adrenal disorders including adrenal incidentalomas, Cushing and Hyperaldosteronism 5. Pituitary problems including hypopituitarism, conditions due to pituitary hormone excess that including Cushing's disease, acromegaly and prolactinoma. 6. Calcium abnormalities including hyperparathyroidism, hypoparathyroidism, hypercalcemia, hypocalcaemia and osteoporosis. 7. Polycystic ovarian syndrome. Evaluations: The course grade will be based on students' skill in performing a history and physical exam, the quality of the presentation, the quality of their knowledge base and the quality of their interactions.

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**Credit Hours:** 5

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**IN\_MED 6508: General Internal Medicine Outpatient**

General Internal Medicine Outpatient

**Credit Hours:** 5

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**IN\_MED 6513: Infectious Diseases**

The goals of the Infectious Diseases elective will be to: 1. Teach the student how to be an effective consultant. 2. Assist the student in his/her knowledge of disease processes. 3. Help the student improve his/her history taking and physical examination skills. 4. Enhance the student's knowledge regarding the use of antimicrobial agents. 5. Improve the student's understanding of the diagnosis and management of commonly-encountered infectious diseases with attention to the use of the history and readily available laboratory tests..

**Credit Hours:** 5

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**IN\_MED 6515: Problems in Medical Ethics**

Problems in Medical Ethics

**Credit Hours:** 5

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**IN\_MED 6800: Coronary Care Unit**

During the Coronary Intensive Care Unit rotation, the medical student is provided the opportunity to acquire knowledge in the evaluation and management of acute and chronic coronary artery disease, life threatening cardiac arrhythmias, acute severe congestive heart failure, acute valvular disease, acute infective endocarditis, hypertensive emergencies, cardiac tamponade, aortic dissection, aortic pulmonary embolism, life threatening complications of cardiac therapy, hypotension, and shock. The Coronary Intensive Care rotation allows the student to evaluate and treat these patients in close conjunction with medical residents, cardiology fellows and cardiology faculty. Students will be evaluated using the standard Department student elective evaluation form submitted to the Internal Medicine Education Office. Each faculty working with the student will have the opportunity to contribute to the final grade. The final evaluation will be based on student performance on the cardiology consultation service and active participation in the cardiology conferences. Students' skills in performing a history and physical exam, the quality of their presentation, the quality of their knowledge base, the quality of their interactions will constitute the basis of grade assignment.

**Credit Hours:** 5

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**IN\_MED 6801: Diabetes Mellitus Externship**

Diabetes Mellitus Externship

**Credit Hours:** 5

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**IN\_MED 6802: Gastroenterology**

Medical students will be assigned to the inpatient GI consultation service, where they will see and evaluate patients, read about their problems, and present them to the GI fellow and/or teaching attending. They should attend all endoscopic procedures on the patients they follow on the inpatient service. They should also attend a sampling of outpatient procedures each week in the Endoscopy Center. As time permits, they may be assigned to one or more GI clinics during the rotation as well. Medical students will be expected to attend all GI conferences during the rotation. Students are also encouraged to attend Internal Medicine

Grand Rounds and Internal Medicine Morning Report. They may also be assigned to give one formal presentation during their rotation. It is recommended that they read the entire GI-Liver section of the Internal Medicine textbook that they used on their third-year Internal Medicine Clerkship. Ongoing feedback is provided to the student during the rotation. At the end of the rotation, a formal written evaluation will be prepared by the inpatient attending, in conjunction with the GI fellow with whom the resident/medical student worked with. Conference participation is factored in.

**Credit Hours:** 5

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**IN\_MED 6803: Subinternship in Internal Medicine**

The internal medicine subinternship builds on the skills begun during the internal medicine clerkship and prepares the student for the internship year. 1. Students will refine and further develop skills in: a. Physical exam, history taking, chart review, and written notes; b. Problem list development and management plan; data interpretation and synthesis; c. Oral presentation; d. Interpersonal relations with patients, families, staff and peers ; e. Time management i. Self-directed learning ii. Evidence-based medicine 2. Expand knowledge base in general internal medicine 3. Assume primary responsibility for inpatient care 4. Further develop in the role of primary care giver Patient management skills, medical record keeping, presentation skills, knowledge base, and ability to handle responsibility will be carefully observed by both the senior ward resident and the attending physician. Students will receive constructive feedback/suggestions for improvement throughout the rotation from both the attending and the senior ward resident. The attending, with input from the senior ward resident and the third year students, will report the final scores using the Department of Internal Medicine standard electives evaluation form. Students will meet with the attending physician at the end of the block to discuss their performance. Students will not receive elective credit for three weeks rotations.

**Credit Hours:** 5

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**IN\_MED 6805: Hematology and Medical Oncology Chronic Care**

The specific objective of the course is to assist the student in developing a greater understanding for the care of chronically ill patients with hematologic and neoplastic diseases. The student's evaluation is based predominantly on his/her performance in presentation and in written chart notes of patients under the student's care. This evaluation will be by the attending physician with whom the student has worked. The standard department student elective evaluation form will be used to document student performance.

**Credit Hours:** 5

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**IN\_MED 6806: Immunology/Rheumatology**

The overall curricular objectives of this elective include: 1. Basic Information. The student should be able to: a. Perform a medical history and screening physical examination with attention to symptoms and signs of rheumatic disease. Understand the basic pathophysiology and clinical diagnosis of common arthritic and musculoskeletal diseases in adults. b. Understand the natural history of rheumatic diseases, particularly rheumatoid arthritis, soft tissue rheumatism, degenerative joint disease, systemic lupus erythematosus and spondyloarthropathies. c. Understand the short and long term management of rheumatic conditions and apply these principles together with overall clinical judgment in the management of individual patients. These therapeutic measures include: 1. drug therapy, 2. physical rehabilitative measures, and 3. surgical

intervention. d. Learn the uses and pitfalls of laboratory tests in practice. e. Formulate ways to approach the emotional problems of patients with chronic disease. f. Understand the value of the comprehensive approach in arthritis treatment including patient education, the role of the allied health professional and community resources.

**Credit Hours:** 5

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#### **IN\_MED 6807: Medical Intensive Care**

Under the supervision of the medical critical care attending, the medical students are part of a team providing assessment, management, and follow-up of critically ill patients. Students will be intimately involved in this multidisciplinary approach to patient care. As a member of the ICU patient management team, the student will work collaboratively with residents, fellows, medical attendings, nurses, pharmacists, respiratory therapists and the nutritional support staff. The team will work in a coordinated fashion with consulting physicians and services, social services, physical therapy workers, and the radiology and pathology laboratory departments, and chaplain services.

**Credit Hours:** 5

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#### **IN\_MED 6808: Nephrology Advanced Elective**

This elective builds on the knowledge and skills students have acquired in the third year course in Internal Medicine. Students will have the opportunity to perform histories and physicals, participate in the decision-making process of patient management, and be responsible for daily follow-up in patients with fluid and electrolyte problems, acid-base disturbances, acute and chronic renal failure and a variety of renal diseases. The focus in these areas will be at a much higher level of responsibility and management than in the third-year course.

**Credit Hours:** 5

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#### **IN\_MED 6809: Pulmonary Medicine Diagnostic Services**

The Pulmonary Medicine Service is designed to allow students to participate in the diagnosis and care of hospitalized patients with an acute pulmonary problem as well as continuity follow up of existing known disease processes. This service evaluates and assists in management of adult patients at the University or VA Medical Centers. Either rotation includes intensive care unit patients with primary surgical or cardiac diagnoses, the rotation at the VA Medical Center also includes intensive care unit patients with primary medical diagnoses. The rotation will introduce the student to major clinical entities including the diagnosis and management of infectious lung disorders, neoplasms of the lungs, chronic obstructive pulmonary disease, asthma, acute respiratory failure, occupational pulmonary disease and interstitial lung disorders. The student will be introduced to the variety of diagnostic tests including radiographic studies, fiberoptic bronchoscopy, pulmonary function testing, cardiopulmonary exercise testing, surgical lung biopsy, thoracentesis and pleural biopsy, and arterial blood sampling. Students also participate in consultation on patients requiring outpatient pulmonary clinic evaluation. Each student is encouraged to spend extra time in the pulmonary function lab, and have pulmonary function tests and cardiopulmonary exercise tests done on themselves, depending on available time. Each student rotating through the pulmonary service will be expected to evaluate and present patients fully on a daily basis to the pulmonary consult team, including the attending physician. The student will have an opportunity to assist fellows and faculty with procedures such as bronchoscopy and thoracentesis. Students will have the opportunity to interpret pulmonary function tests, chest radiographs and other

radiographic studies such as computed tomography and nuclear medicine studies of the thorax.

**Credit Hours:** 5

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#### **IN\_MED 6902: SCC Cardiac Electrophysiology Two Week**

The student will work as part of a team providing hands-on clinical services in both the inpatient and outpatient settings in a consultative manner. Students will learn using a variety of evidence-based resources, didactic teaching, demonstration, and observation. This is intended as an introductory experience in the specialty of Cardiac Electrophysiology.

**Credit Hours:** 2

**Prerequisites:** Completion of the first two years of medical school

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#### **IN\_MED 6904: SCC Hematology/Oncology Two Week**

This is intended as an introductory experience in the specialty of Hematology/Oncology. Students will learn how to integrate previously acquired knowledge and concepts as well as develop a greater understanding for the care of patients with hematologic and neoplastic disease. The student will work as part of a team providing hands-on clinical services in an inpatient, clinic, and consultative setting. Students will learn using a variety of evidence-based resources, didactic teaching, demonstration and observation.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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#### **IN\_MED 6911: Cardiology Procedure Service**

The Cardiology Procedure Service is designed to allow students to participate in the cardiology procedures involved in the diagnosis and care of hospitalized patients with an acute cardiac problem as well as continuity follow up of existing known disease processes. Sterile technique will be taught by the attending and students will demonstrate competence with sterile technique.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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#### **IN\_MED 6914: Pulmonary Medicine Procedure Service**

The Pulmonary Medicine Procedure Service is designed to allow students to participate in the pulmonary procedures involved in the diagnosis and care of hospitalized patients with an acute pulmonary problem as well as continuity follow up of existing known disease processes. Sterile technique will be taught by the attending and students will demonstrate competence with sterile technique.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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## **International Studies (INTL\_S)**

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#### **INTL\_S 3001: Topics in International Studies - General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-6

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**INTL\_S 4290: Pre-Departure Seminar for the TaLK Program**

Prior to beginning the TaLK Program in Korea, students will explore Korean language, culture and educational system through seminars and workshops provided by the Asian Affairs Staff and guest speakers. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**INTL\_S 4940: Internship in International Studies**

Internship limited to students pursuing the AB in International Studies degree. May be repeated to a maximum of six hours. Graded on S/U basis only.

**Credit Hour:** 1-6

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**INTL\_S 4960: Readings in International Studies**

Independent readings with supervisory faculty member. Open only to International Studies majors. May be repeated up to a maximum of 6 hours.

**Credit Hour:** 1-6

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## Italian (ITAL)

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**ITAL 1100: Elementary Italian I**

Intensive approach to beginning language. This course focuses on developing basic language skills (reading, writing, speaking, and listening) in Italian. The 5-hour option is open ONLY to Bachelor of Music students and only with override from the Department. The 5-hour option cannot be applied to meets Arts and Science or Journalism foreign language requirements. Offered in the Fall.

**Credit Hour:** 5-6

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**ITAL 1200: Elementary Italian II**

Students will expand the grammar structures learned in the previous semester and will continue to build on the skills acquired in Elementary Italian I. The 5-hour option is open ONLY to Bachelor of Music students and only with override from the Department. The 5-hour option cannot be applied to meets Arts and Science or Journalism foreign language requirements. Offered in the Spring.

**Credit Hour:** 5-6

**Prerequisites:** Grade in the C range or better in ITAL 1100 or its equivalent

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**ITAL 2001: Undergraduate Topics in Italian-General**

Organized study of selected topics. Subjects and credits may vary from semester to semester. Departmental consent for repetition.

**Credit Hour:** 1-3

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**ITAL 2005: Undergraduate Topics in Italian-Humanities/Fine Arts**

Organized study of selected topics. Subjects and credits may vary from semester to semester. Departmental consent for repetition.

**Credit Hour:** 1-3

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**ITAL 2160: Intermediate Italian**

Continues development of language skills acquired in Elementary Italian. While learning new structures and new vocabulary, students also review basic grammar components. By the end of the course, students are able to understand (through reading and listening) and communicate (in writing and orally) in a variety of both formal and informal situations. Offered in the Fall.

**Credit Hours:** 3

**Prerequisites:** ITAL 1200

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**ITAL 2310: Italian Civilization**

In this course students will focus on a broad range of Italian achievements, sociopolitical events, and artistic and literary movements from the past to the present. Open to any student interested. No knowledge of Italian required.

**Credit Hours:** 3

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**ITAL 2850: Italian Cinema**

(same as FILMS\_VS 2850). It offers a historical overview of Italian Cinema from the silent era to the present. The course will provide the analytical skills necessary to read and critically analyze a film. Social and historical issues will be raised and examined for each film as appropriate. No knowledge of Italian required.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**ITAL 3005: Topics in Italian-Humanities/Fine Arts**

Subject varies from semester to semester. Departmental consent for repetition. No knowledge of Italian required.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing or ENGLSH 1000

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**ITAL 3150: Post-Intermediate Italian**

Gives emphasis on acquiring communicative multi-skills competence necessary to understand and discuss a variety of written and aural texts, from newspaper articles to brief literature excerpts. It offers students opportunity to review grammar components as well as learning more complex structures, to expand their vocabulary, and to use language in a variety of cultural contexts.

**Credit Hours:** 3

**Prerequisites:** ITAL 2160

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**ITAL 3160: Italian Composition**

Continues the development of the language skills acquired in Intermediate and Post-Intermediate Italian. It offers students the opportunity to expand their vocabulary, to use the language in a variety of contexts prompted by cultural activities, and to acquire more complex grammatical structures. Emphasis is given on refining writing skills in connection with different text types.

**Credit Hours:** 3

**Prerequisites:** ITAL 3150

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**ITAL 3310: Contemporary Italian Fiction, Media and Culture**

This course focuses on the culture and creative production (i.e., literature, film, music, art, etc.) as well as the sociopolitical context of contemporary



Italy. Content may vary from semester to semester. No knowledge of Italian required.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or ENGLISH 1000

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**ITAL 3430: Italian Women Studies**

An interdisciplinary course on gender structures and representations in Italy through literature, media, politics, art, and feminist theories. Content may vary from semester to semester. No knowledge of Italian required.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or ENGLISH 1000

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**ITAL 3450: Transnational and Migrant Cinema**

This course aims to introduce students to the concept of transnational cinema by discussing international circulation and reception of films and by analyzing issues of migration and ethnicity in contemporary films, media, and culture. The course will use Italian films as well as international films located in Italy as case studies to learn what defines transnational cinema and to discuss transnational and migrant cinema in the context of Europe and the Mediterranean Sea.

**Credit Hours:** 3

**Recommended:** Junior standing

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**ITAL 4070: Italian for Reading Knowledge**

Designed for rapid acquisition of a reading knowledge of Italian. Cannot be taken to fulfill undergraduate language requirement.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**ITAL 7085: Problems in Italian Studies**

Independent study through readings, conferences, reports.

**Credit Hour:** 1-3

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## Japanese (JAPNSE)

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**JAPNSE 1100: Elementary Japanese I**

For beginners with no prior knowledge of Japanese. Three hours of lecture instruction and three hours of practice/drill per week in small groups.

**Credit Hours:** 6

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**JAPNSE 1200: Elementary Japanese II**

For beginners with some prior Knowledge of Japanese. Three hours of lecture instruction and three hours of practice/drill per week in small groups.

**Credit Hours:** 6

**Prerequisites:** C- or better in JAPNSE 1100, or equivalent

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**JAPNSE 2160: Japanese Conversation and Composition**

Develops oral and written command of Japanese as well as listening comprehension and further essay writing skills.

**Credit Hours:** 3

**Prerequisites:** C- or better in JAPNSE 1200, or equivalent

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**JAPNSE 2310: Japanese Civilization I**

Survey of Japanese culture and arts before 1868. May be taken independently of JAPNSE 2320. No knowledge of Japanese required. No foreign language credit.

**Credit Hours:** 3

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**JAPNSE 3085: Problems in Japanese**

Supervised study in Japanese language and/or culture.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**JAPNSE 3160: Intermediate Japanese Composition and Conversation**

Further develops oral and written command of Japanese as well as listening comprehension and further essay writing skills.

**Credit Hours:** 3

**Prerequisites:** C- or better in JAPNSE 2160

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**JAPNSE 3360: Modern Japanese Literature (in Translation)**

Surveys Japanese literature from 1868 to present. Analyzes works by such authors as Soseki, Tanizaki, Kawabata, Mishima, Oe, Murakami, and others. Readings and lectures in English.

**Credit Hours:** 3

**Recommended:** sophomore standing

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**JAPNSE 3370: Intermediate Readings in Japanese**

Develops reading and speaking skills and acquisition of more Kanji, vocabulary, and complex structures.

**Credit Hours:** 3

**Prerequisites:** C- or better in JAPNSE 3160, or equivalent, or instructor's consent

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**JAPNSE 3380: Intermediate Japanese II**

Continues development of intermediate reading, listening, speaking, and writing skills achieved in JAPNSE 3370, with attention to vocabulary acquisition, expansion of knowledge of kanji, and understanding of complex grammatical structures. Authentic readings in Japanese literature and exercises using authentic multi-media materials also help students gain greater familiarity with Japanese culture. Encourages development of student autonomy in language learning with the introduction and use of appropriate reference materials.

**Credit Hours:** 3

**Prerequisites:** JAPNSE 3370

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**JAPNSE 3850: Traditional Japanese Theatre**

Study of the history, scripts, and performance techniques of Japanese theatre from 14th century through late 19th century. Examines major plays (in English translations) and the culture that created them. Looks at staging and performance techniques of traditional puppet theatre. Course included stage performances and performances on campus and/or in the community.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent

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**JAPNSE 3880: Japan and its Cinema**

Survey and analysis of selected Japanese films from the 1940s to present. Films will be viewed and discussed in terms of history, techniques, artistry, and social impact. English subtitles. No foreign language credit.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent

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**JAPNSE 4005: Topics in Japanese - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Suitable for students who have taken JAPNSE 3370 or equivalent.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent, sophomore standing

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**JAPNSE 4005H: Topics in Japanese - Humanities - Honors**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Suitable for students who have taken JAPNSE 3370 or equivalent.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent, sophomore standing; Honors eligibility required

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**JAPNSE 4160: Advanced Japanese I**

Continues development of reading, listening, speaking, writing skills, with attention to vocabulary acquisition, expansion of knowledge of kanji, and understanding of complex grammatical structures. Authentic readings in Japanese literature, exercises using authentic multi-media materials. Encourages development of student autonomy in language learning with introduction and use of appropriate reference materials.

**Credit Hours:** 3

**Prerequisites:** JAPNSE 3380 or equivalent, or instructor's consent

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**JAPNSE 4180: Advanced Japanese II**

This course continues the development of reading, listening, speaking, and writing skills, with attention to vocabulary acquisition, expansion of knowledge of kanji, and understanding of complex grammatical structures. Authentic readings in Japanese literature and exercises using authentic multimedia materials also help students gain greater familiarity with Japanese culture. The course encourages the development of student autonomy in language learning with the introduction and use of appropriate reference materials.

**Credit Hours:** 3

**Prerequisites:** JAPNSE 4160

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## Journalism (JOURN)

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**JOURN \_0501: Study Abroad: Exchange Graduate**

Attributes: Study Abroad Program, Requires Consent, Journalism Course Fee, Course Has Non Standard Meeting Dates, Course Not Transcribed on Students Record Instruction Mode: Traditional Location: Study Abroad Exchange Units: 0 - 12 units

**Credit Hour:** 0-12

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**JOURN \_0900: News Practicum**

Instruction in fundamentals of newswriting for students entering the graduate program without an undergraduate degree in journalism.

**Credit Hours:** 3

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**JOURN 1000: The News Media: Journalism and Advertising in a Democratic Society**

How do you know the media are telling the full truth and nothing but the truth? In this course, you will learn how to decide what information sources to trust. You'll survey the roles played by you, the consumer, as well as by journalists, strategic communicators and advertisers in their relationships with different audiences. Students will weigh the merits of various storytelling methods, uses of social media and revenue models while developing a deeper understanding of the ethical issues facing consumers and journalists in today's fast-paced media environment. Pre-Journalism and Journalism majors cannot count this course towards the Bachelor of Journalism.

**Credit Hours:** 3

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**JOURN 1010: Career Explorations in Journalism**

Colloquium in which experts discuss their specialties and answer students' questions on the nature and current status of their disciplines. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Undeclared Journalism, Pre-Journalism, or Science and Agricultural Journalism majors only

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**JOURN 1010H: Career Explorations in Journalism - Honors**

Colloquium in which experts discuss their specialties and answer students' questions on the nature and current status of their disciplines. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Freshman Journalism and Science and Agricultural Journalism Majors only. Honors Eligibility Required

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**JOURN 1100: Principles of Journalism in Democracy**

Course designed to acquaint students with concepts and functions of journalism in American society. Stresses the basic issues and problems facing journalists and the mass media.

**Credit Hours:** 3

**Prerequisites:** During early registration, limited to Undeclared Journalism, Pre-Journalism, or Science and Agricultural Journalism majors only

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**JOURN 1200: Fundamentals of Visual Journalism and Strategic Communication**

Visual Fundamentals is designed to be one of three courses to introduce students to the basics of journalism and strategic communication practice. In this course, students will learn and practice the basics of visual and audio storytelling and design across the disciplines of journalism and strategic communication. Effective storytelling in audio, video, still photography and design requires an understanding of both the theory and philosophy as well as the software fundamentals necessary to manipulate these elements. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Undeclared Journalism or Pre-Journalism majors during early registration

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**JOURN 1300: Fundamentals of Written Journalism and Strategic Communication**

Fundamentals of Written Journalism and Strategic Communication is designed to be one of three courses to introduce students to the basics of journalism and strategic communication practice. In this course, students will learn and practice the basics of information gathering and writing across the disciplines of journalism and strategic communication. Good media writing requires more than an ability to craft clear sentences. It requires accuracy, curiosity, creativity and attention to detail. The class encompasses a variety of activities that will teach the following skills: AP style; News writing; Reporting; Interviewing; Story structure; Story boarding/scripting; Generating creative ideas; Research; Strategic thinking; Persuasive writing; Use of multiple platforms; Judgment; Attribution; Meeting deadlines. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Undeclared Journalism or Pre-Journalism majors during early registration

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**JOURN 1301: Topics in Journalism and Strategic Communication**

Organized study of selected topics. Subjects, specific content, and credits may vary from semester to semester. Graded on A-F basis only.

**Credit Hour:** 1-3

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**JOURN 1400: Applied Projects for Journalism and Strategic Communication**

This course is designed to introduce students to the basics of journalism and strategic communication practice. This course allows students to build on the basic principles and skills learned in the fundamentals courses through hands-on projects. Students will work individually and in teams to complete four projects throughout the semester. Two projects focus on journalism/news and two focus on strategic communication. Students will learn how communication differs depending on their role and their audience. Additionally, students will be challenged to think critically about how journalism and strategic communication intersect and overlap, yet remain distinct in today's complex media landscape. Finally, this course will help students better identify an academic major in the journalism school, as well as informing students' individual career interests and plans. The class puts into practice all of the skills learned in Writing Fundamentals and Visual Fundamentals, including (but not limited to): Reporting; Interviewing; Proper framing; Proper use of lighting, stability and sound; Using sequencing and matched action; Creativity; Pacing; Use of multiple platforms; AP style; News writing; Reporting; Interviewing; Story structure; Story boarding/scripting; Generating creative ideas; Research; Strategic thinking; Persuasive writing; Use of multiple platforms; Judgment; Attribution; Meeting deadlines. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** JOURN 1200 and JOURN 1300

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**JOURN 1940: Pre-Sequence Internship**

Internship for Journalism students who have not yet entered their emphasis areas. Used to satisfy employer requirements. Graded on S/U basis only.

**Credit Hour:** 0-1

**Prerequisites:** Consent from internship coordinator required

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**JOURN 2000: Cross-Cultural Journalism**

Cross-Cultural Journalism provides journalistic tools for the coverage of diverse ethnic, gender, ability and ideological groups inside and outside the United States. The critical role of diverse voices in a democracy will be discussed.

**Credit Hours:** 3

**Prerequisites:** sophomore standing required; C- or higher in JOURN 1100 and UM GPA of 2.8. Restricted to Undeclared Journalism, Pre-Journalism, Journalism and Science and Agricultural Journalism Students Only

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**JOURN 2100: News**

Introduction to fundamentals of news writing. Lectures, discussions and laboratory work provide training under deadline pressure in writing basic news stories. Stories cover several 'live' assignments. May not be taken concurrently with JOURN 2150.

**Credit Hours:** 3

**Prerequisites:** sophomore standing, C- or better in JOURN 1100; grade of 'B-' or higher in ENGLISH 1000 and 2.8 UM GPA. Restricted to Undeclared Journalism, Pre-Journalism, Journalism and Science and Agricultural Journalism students

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**JOURN 2100H: News - Honors**

Introduction to fundamentals of news writing. Lectures, discussions and laboratory work provide training under deadline pressure in writing basic news stories. Stories cover several 'live' assignments. May not be taken concurrently with JOURN 2150.

**Credit Hours:** 3

**Prerequisites:** sophomore standing, C- or higher in JOURN 1100; grade of 'B-' or higher in ENGLISH 1000 and 2.8 UM GPA. Restricted to Pre-Journalism, Journalism and Science and Agricultural Journalism students. Honors eligibility required

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**JOURN 2100HW: News - Honors/Writing Intensive**

Introduction to fundamentals of news writing. Lectures, discussions and laboratory work provide training under deadline pressure in writing basic news stories. Stories cover several 'live' assignments. May not be taken concurrently with JOURN 2150.

**Credit Hours:** 3

**Prerequisites:** sophomore standing, C- or higher in JOURN 1100; grade of 'B-' or higher in ENGLISH 1000 and 2.8 UM GPA. Restricted to Pre-Journalism, Journalism and Science and Agricultural Journalism students. Honors eligibility required

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**JOURN 2100W: News - Writing Intensive**

Introduction to fundamentals of news writing. Lectures, discussions and laboratory work provide training under deadline pressure in writing basic news stories. Stories cover several 'live' assignments. May not be taken concurrently with JOURN 2150.

**Credit Hours:** 3

**Prerequisites:** sophomore standing, C- or better in JOURN 1100; grade of 'B-' or higher in ENGLISH 1000 and 2.8 UM GPA. Restricted to

Undeclared Journalism, Pre-Journalism, Journalism and Science and Agricultural Journalism students

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**JOURN 2150: Fundamentals of Multimedia Journalism**

This course deals with the challenges faced by journalists and other communicators working with still photos, audio, video and print. Students learn the basics and ethics of cross-platform, multimedia storytelling. May not be taken concurrently with JOURN 2100. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or higher in JOURN 1100; sophomore standing and a UM GPA of 2.8. Restricted to Undeclared Journalism, Pre-Journalism, Journalism and Science and Agricultural Journalism students only

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**JOURN 2200: Audiences and Persuasion**

This course introduces the concepts of strategic communication and audiences for students in the School of Journalism. It focuses on audiences in a variety of communication settings. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites or Corequisites:** JOURN 1400

**Prerequisites:** 30 hours required; C- or higher in JOURN 1100 and MU GPA of 2.8

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**JOURN 2301: Topics in Journalism and Strategic Communication**

Organized study of selected topics. Subjects, specific content, and credits may vary from semester to semester. Graded on A-F basis only.

**Credit Hour:** 1-3

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**JOURN 3000: History of American Journalism**

American mass media from colonial days to present in the context of social, economic and political change.

**Credit Hours:** 3

**Prerequisites:** Junior Standing; Journalism or Science and Agricultural Journalism majors

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**JOURN 3301: Topics in Journalism and Strategic Communication**

Organized study of selected topics. Subjects, specific content, and credits may vary from semester to semester. Graded on A-F basis only.

**Credit Hour:** 1-3

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**JOURN 3510: Think Global: Fundamentals of Globalization and Digital Technologies**

(same as GERMAN 3510, T\_A\_M 3010, DST\_VS 3510, PEA\_ST 3510).

This inter-departmental course serves as one of the core seminars for students pursuing the undergraduate certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to all undergraduate students in all disciplines. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Junior standing; Journalism, Science and Agricultural Journalism majors only

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**JOURN 3510H: Think Global: Fundamentals of Globalization and Digital Technologies - Honors**

(same as GERMAN 3510H, PEA\_ST 3510H, T\_A\_M 3010H, DST\_VS 3510H). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in of Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing; JOURN 1100 and a 2.75 GPA or instructor's consent. Restricted to Journalism majors only. Honors eligibility required

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**JOURN 3510HW: Think Global: Fundamentals of Globalization and Digital Technologies - Honors/Writing Intensive**

(same as GERMAN 3510HW, PEA\_ST 3510HW, T\_A\_M 3010HW, DST\_VS 3510HW). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in of Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing; JOURN 1100 and a 2.75 GPA or instructor's consent. Restricted to Journalism majors only. Honors eligibility required

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**JOURN 3510W: Think Global: Fundamentals of Globalization and Digital Technologies - Writing Intensive**

(same as GERMAN 3510W, PEA\_ST 3510W, DST\_VS 3510W, T\_A\_M 3010W). This inter-departmental course serves as one of the core seminars for students pursuing the undergraduate certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to all undergraduate students in all disciplines. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Junior standing; Journalism, Science and Agricultural Journalism majors only

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**JOURN 4000: Communications Law**

Legal concepts, including prior restraint, libel, privacy, obscenity, contempt and access as they relate to print, broadcast, advertising and other areas.

**Credit Hours:** 3

**Prerequisites:** Junior Standing; Journalism and Science and Agricultural Journalism majors

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**JOURN 4050: Communications Practice**

Special instruction in the school's media as an extension of existing advanced media courses, or, in advertising, an extension of advertising creative courses. Contract must be approved by instructor and dean.

**Credit Hour:** 1-3

**Prerequisites:** Restricted to Journalism and Science and Agricultural Journalism majors only. Junior standing required

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**JOURN 4050H: Communications Practice - Honors**

Special instruction in the school's media as an extension of existing advanced media courses, or, in advertising, an extension of advertising creative courses.

**Credit Hour:** 1-3

**Prerequisites:** Consent from Independent Study Coordinator

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**JOURN 4050HW: Communications Practice - Honors/Writing Intensive**

Special instruction in the school's media as an extension of existing advanced media courses, or, in advertising, an extension of advertising creative courses.

**Credit Hour:** 1-3

**Prerequisites:** Consent from Independent Study Coordinator

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**JOURN 4050W: Communications Practice - Writing Intensive**

Special instruction in the school's media as an extension of existing advanced media courses, or, in advertising, an extension of advertising creative courses. Contract must be approved by instructor and dean.

**Credit Hour:** 1-3

**Prerequisites:** Restricted to Journalism and Science and Agricultural Journalism majors only. Junior standing required

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**JOURN 4058: New York Program: Journalism Theory and Practice**

Interdisciplinary course offering on-site study at national media venues in New York. Journalism alumni working in Manhattan provide weekly discussions on contemporary practices, job networks and work experiences.

**Credit Hour:** 2-3

**Prerequisites:** Restricted to Journalism and Science and Agricultural Journalism majors only. Junior standing required

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**JOURN 4122: Fundamentals of Data Reporting**

(cross-leveled with JOURN 7122). Explores the importance to journalists of mining public records and data; reviews basic newsroom mathematics; teaches basic techniques for using Microsoft Excel to create and manipulate spreadsheets and to produce graphics. This course is not to be taken by students who have already completed JOURN 4430 or JOURN 7430. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Restricted to Journalism and Science and Agricultural Journalism Students and Junior standing

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**JOURN 4126: Digital Audio and Visual Basics for Journalists**

(cross-leveled with JOURN 7126). Introduces journalism students to audio and video tools used in converged environments. Students will create news stories, ads or promos to meet journalistic or strategic communication goals. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Restricted to Journalism and Agricultural Journalism majors only

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**JOURN 4130: Account Services**

(cross-leveled with JOURN 7130). Designed for advanced strategic communication students preparing for careers in account services. Section topics vary. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Restricted to Journalism Strategic Communication and Science and Agricultural Journalism Majors

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**JOURN 4138: Public Relations Techniques**

(cross-leveled with JOURN 7138). Designed for advanced strategic communication students preparing for careers in public relations. Section topics vary. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** JOURN 4200, JOURN 4204 and JOURN 4952

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**JOURN 4140: Interactive Techniques**

(cross-leveled with JOURN 7140). Designed for advanced strategic communications students preparing for careers in interactive media. Section topics may vary. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** JOURN 4200, JOURN 4204 and JOURN 4952

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**JOURN 4146: Strategic Communication Techniques**

(cross-leveled with JOURN 7146). Designed for advanced strategic communication students. Section topics vary. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** JOURN 4200, JOURN 4204 and JOURN 4952

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**JOURN 4148: Interviewing Essentials**

(cross-leveled with JOURN 7148). This class focuses on the journalistic interviewing process, from identifying and gaining access to the best sources, setting ethical boundaries, asking the most effective questions and ensuring accuracy. It applies to the full range of story types, from breaking news to in-depth work in all coverage areas.

**Credit Hour:** 1

**Prerequisites:** Consent of instructor required

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**JOURN 4150: Using Infographics**

An introduction to the various types of information graphics and how each can be used effectively to help explain the news. Additional emphasis on generating graphic ideas and on the specific challenges of gathering information for graphics.

**Credit Hour:** 1

**Prerequisites:** instructor's consent required. Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4152: Concepts in Participatory Journalism**

Journalists need to know how to be in conversation with their communities rather than lecture to them. In this course, we will look at how a collaborative culture is changing journalism, and how journalists can take advantage of the new landscape. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** JOURN 2100, JOURN 2150. Journalism and Science and Agricultural Journalism majors and Junior Standing

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**JOURN 4160: Social Media Foundations and Practice**

(cross-leveled with JOURN 7160). This course introduces social media usage and research basics for journalism students. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Sophomore standing

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**JOURN 4180: Newsroom Content Creation**

(cross-leveled with JOURN 7180). This course puts students working together in a combined newsroom hub, producing content for publication on its own platform or for campus media outlets. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing

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**JOURN 4198: Area Seminar**

Special lectures, readings, discussions relating to the urban journalism, state government reporting or local public affairs reporting programs.

**Credit Hours:** 3

**Prerequisites:** Consent of Instructor required

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**JOURN 4200: Principles of Strategic Communication**

(cross-leveled with JOURN 7200). Foundation course familiarizing students with an array of strategic communication tools and how they are used in the field.

**Credit Hours:** 3

**Prerequisites:** Restricted to Strategic Communication and Science and Agricultural Journalism Majors

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**JOURN 4204: Introduction to Strategic Writing and Design**

This course will teach you about strategic writing and design, and then show you how to apply these skills to key communication platforms such as digital media, TV, radio, social media and others. Along the way, you will learn to think, write and design creatively and strategically. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Strategic Communication and Science and Agricultural Journalism Majors. Junior Standing Required

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**JOURN 4206: Strategic Writing I**

(cross-leveled with JOURN 7206). Students learn strategic writing for a variety of media such as print, radio, television, outdoor, new media, news releases, pitch letters and other persuasive messages.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4226, JOURN 4952

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**JOURN 4208: Strategic Writing II**

(cross-leveled with JOURN 7208). Advanced course in the creation of advertising and public relations materials with an emphasis on strategic planning, developing creative concepts, producing and polishing copy and visuals, execution of finished product and refining. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204 and JOURN 4952

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**JOURN 4212: Sports and Entertainment Promotion**

(cross-leveled with JOURN 7212) Course focuses on the role that research, sponsorship, advertising, public relations, social media, positioning, target marketing, psychographics, and other strategic communication processes play in the promotion of the sports and entertainment industry. The course will critically analyze and examine how chief executive officers of sport and entertainment organizations choose, maintain, or redirect their promotion strategies and activities to help achieve organization missions, encourage tickets sales, and attract large audiences.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor

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**JOURN 4213: Strategic Communication Mobile Sports Production**

(cross-leveled with JOURN 7213). This class is designed to prepare Strategic Communication students for vital new positions in the world of sports marketing with the emphasis on video productions, strategic planning, and strategic dissemination of video content via multiple media, channels and platforms. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204 and JOURN 4952. Restricted to Journalism Strategic Communication and Science and Agricultural Journalism Majors

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**JOURN 4214: Strategic Communication Integrated Sports Production**

(cross-leveled with JOURN 7214). This course will prepare Strategic Communication students for vital new positions in the world of sports marketing with an emphasis on video production, graphics, social media analytics, messaging management and strategic planning. Students will be taught basic information, techniques and strategies necessary for success in these fields. You will be working closely with the Mizzou Sports Network and Strategic Communication faculty from day one. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204 and JOURN 4952

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**JOURN 4216: Media Sales**

(cross-leveled with JOURN 7216). Focus of this course is to familiarize students with how to sell a variety of media, including newspaper, radio, television, outdoor, new media, and others.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204 and JOURN 4952

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**JOURN 4218: MoJo Ad Staff**

(cross-leveled with JOURN 7218). Application of strategic communication skills in a professional services agency specializing in the youth and young adult segment. Positions include management, planning, creative media and research. Other electives required based on position. Application required. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of Instructor

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**JOURN 4220: Creative Portfolio**

(cross-leveled with JOURN 7220). Students will produce a free-standing collection of outstanding, polished creative work to demonstrate his/her ability to perform at a high level of creativity.

**Credit Hours:** 3

**Prerequisites:** JOURN 4208 or JOURN 4228. Restricted to Strategic Communication and Science and Agricultural Journalism students only

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**JOURN 4224: Effective Job Search Strategies**

Are you getting ready to apply for a job or internship? A resume is a brief written account of personal, educational, and professional qualifications and experience that you prepare as part of your application materials for a prospective job. To ensure that your resume is read by the recipient, you will need a cover letter that markets your unique qualifications for the specified job description. In the current global economy, it is essential for job seekers to optimize their chances of being considered and hired for positions that are well-suited to their qualifications and interests. This course will help you effectively develop employment application materials for today's job market by honing your resume writing skills, providing you with tools to create an impressive resume (or to improve the one you already have), and giving suggestions on developing an effective cover letter. You will study different types of resume and cover letter formats that can be applied to various prospective employment situations and your own personal career goals. You will undertake a critical assessment of the professional skills you already possess, brainstorm and apply the best ways to market these skills in your resume and cover letter, and enhance your application materials by using specific tips and techniques to make you more competitive for the job you seek. Special focus is placed on developing effective application correspondence, follow-up correspondence and interviewing techniques. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204, and JOURN 4952

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**JOURN 4226: Strategic Design and Visuals I**

Course gives students a foundation in visual communication in areas such as typography, balance, eye flow and layouts.

**Credit Hours:** 3

**Prerequisites:** junior standing. Restricted to Strategic Communications students only

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**JOURN 4226H: Strategic Design and Visuals I - Honors**

Course gives students a foundation in visual communication in areas such as typography, balance, eye flow and layouts.

**Credit Hours:** 3

**Prerequisites:** Restricted to Strategic Communication students only with junior standing or higher. Honors eligibility required

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**JOURN 4228: Strategic Design and Visuals II**

(cross-leveled with JOURN 7228). Advanced course in strategic design and visuals. Persuasive visual principles applied to variety of integrated media including print, broadcast and on-line. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204 and JOURN 4952

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**JOURN 4236: Psychology in Advertising**

(cross-leveled with JOURN 7236). Application of psychological principles, learning, perception, motivation, attitudes to advertising. Emphasis on the increasing use of psychographics (the 'lifestyle' factor) to understand consumer wants and buying behavior.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204, JOURN 4952

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**JOURN 4242: Strategic Communication Leadership**

(cross-leveled with JOURN 7242). Strategic Communication Leadership is aimed at students who are eager to develop their skills and abilities in management and leadership with the likely outcome that they will be leaders in media organizations or as entrepreneurs. Rooted in principles of ethical persuasion and strategic communication, it will help develop individual skills and abilities and the mindset of helping others achieve their goals. Based on the experience and writings of CEO and world-renowned leader David Novak (Strategic Communication alumnus 1974), this is the one of three courses comprising the Leadership Interest Area in Strategic Communication. This course will call on students to commit to the process of their own growth and self-discovery and to help foster the growth and development of fellow learners. It will be an intensive experience and, with commitment to the program, will be immediately applicable to the students' current and future personal and professional lives. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204, JOURN 4952

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**JOURN 4242W: Strategic Communication Leadership - Writing Intensive**

(cross-leveled with JOURN 7242). Strategic Communication Leadership is aimed at students who are eager to develop their skills and abilities in management and leadership with the likely outcome that they will be leaders in media organizations or as entrepreneurs. Rooted in principles of ethical persuasion and strategic communication, it will help develop individual skills and abilities and the mindset of helping others achieve their goals. Based on the experience and writings of CEO and world-renowned leader David Novak (Strategic Communication alumnus 1974), this is the one of three courses comprising the Leadership Interest Area in Strategic Communication. This course will call on students to commit to the process of their own growth and self-discovery and to help foster the growth and development of fellow learners. It will be an intensive experience and, with commitment to the program, will be immediately applicable to the students' current and future personal and professional lives. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204, JOURN 4952

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**JOURN 4244: Creating Cultures Through Effective Strategic Communication and Leadership**

(cross-leveled with JOURN 7244). The course focuses on the role culture and communication play in organizational success, management, and leadership. Rooted in principles of ethical persuasion and strategic communication, it helps students develop individual skills and abilities and the mindset of helping others achieve their goals. The course is distinctly different from traditional organizational studies because of its focus on communication and marketing principles. It offers hands-on learning through the case method. Based on experience and writings of CEO and world-renowned leader David Novak (Strategic Communication

alumnus 1974), this is one of three courses comprising the Leadership interest area in Strategic Communication. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Journalism majors only

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**JOURN 4244W: Creating Cultures Through Effective Strategic Communication and Leadership - Writing Intensive**

(cross-leveled with JOURN 7244). The course focuses on the role culture and communication play in organizational success, management, and leadership. Rooted in principles of ethical persuasion and strategic communication, it helps students develop individual skills and abilities and the mindset of helping others achieve their goals. The course is distinctly different from traditional organizational studies because of its focus on communication and marketing principles. It offers hands-on learning through the case method. Based on experience and writings of CEO and world-renowned leader David Novak (Strategic Communication alumnus 1974), this is one of three courses comprising the Leadership interest area in Strategic Communication. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Journalism majors only

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**JOURN 4246: Taking People With You: Entrepreneurial Leadership and Innovation**

(cross-leveled with JOURN 7246). In this course, students explore the current landscape of entrepreneurship (with specific reference to the strategic communication space) and practice a human-centered approach to solving problems. Students will gain valuable leadership skills and develop the knowledge and mindset needed to pursue their own entrepreneurial ventures or to become innovators and 'intrapreneurs' within existing organizations. The course introduces students to insight-driven approaches to innovation including David Novak's Taking People with You philosophy of leadership and design thinking while offering ample opportunities to put these methods into practice. To simulate the entrepreneurial process, students identify an unmet need or market opportunity and develop an innovative product or service to solve a real-world problem. 'Startup teams' of four students engage in research, ideation, rapid prototyping, and iterative design to develop insights and a solution to meet the needs of real customers. Teams also conduct a market analysis, and develop a business model and go-to-market strategy for launching their startup and enlisting key partners to support their venture. The course culminates in a pitch competition in which teams present their ideas and strategies to a panel of industry experts and investors. In the process, students gain valuable leadership skills, develop an entrepreneurial mindset, and learn how to work with diverse teams and audiences to collaborate and solve problems. This is one of the three courses comprising the Leadership Interest Area in Strategic Communication. Students admitted to this course are also given priority to participate in the Novak Future Leaders Tour to San Francisco, where they gain exposure to ideas and leaders at some of the world's most innovative companies and organizations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Journalism majors only

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**JOURN 4248: Media Strategy and Planning**

(cross-leveled with JOURN 7248). Course deals with strategic planning and the selection and evaluation of appropriate media outlets. Students gain a clear understanding of the problems and issues involved in crafting

effective media strategies, creative problem solving and selection of appropriate media.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204, JOURN 4952

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**JOURN 4250: Management of Strategic Communication**

(cross-leveled with JOURN 7250). How to lead and contribute to strategically sound, highly creative and seamlessly integrated strategic communication on the agency or client side of the business. Directly relevant to agency account management and account planning, as well as client career paths.

**Credit Hours:** 3

**Prerequisites:** Consent of Instructor required

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**JOURN 4252: Branded Strategic Storytelling**

(cross-leveled with JOURN 7252). This course for Strategic Communication students integrates digital and content marketing planning and operational methodologies designed to deepen students' knowledge of content creation, distribution strategies and audience engagement. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204 and JOURN 4952

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**JOURN 4254: Tools, Techniques and Technology of Visual Storytelling**

(cross-leveled with JOURN 7254). In this course, students will learn how to professionally shoot and strategically edit video, visuals and textual content, strategize how to publish that content on owned media and social media platforms, utilize tools like GoPro and Drone technology, and even VR/AR and 360 attachments to make content that is more immersive, influential, impactful and persuasive. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204, JOURN 4952

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**JOURN 4256: Public Relations**

Current methods of communicating with constituents as practiced by agencies, corporations and government/not-for profit organizations.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204, and JOURN 4952

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**JOURN 4256H: Public Relations - Honors**

Current methods of communicating with constituents as practiced by agencies, corporations and government/not-for profit organizations.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204 and JOURN 4952. Honors eligibility required

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**JOURN 4262: Digital Strategy I**

(cross-leveled with JOURN 7262). Course covers every step from integrating Internet efforts into the overall strategic communication plan to building a website that works. Designed for those with an interest in interactive advertising. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204, and JOURN 4952



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**JOURN 4263: Digital Strategy II**

(cross-leveled with JOURN 7263). Course goes in-depth on top issues in the interactive process from video advertising to social networking sites and how to increase campaign performance with web analytics. Designed for those who want a career in interactive advertising. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4262

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**JOURN 4268: Strategic Communication Practicum**

(cross-leveled with JOURN 7268). Practical experience in public relations, corporate communications and strategic planning with the Missouri School of Journalism serving as client. Students from all journalism disciplines will apply knowledge and skills on a variety of platforms.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204 and JOURN 4952

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**JOURN 4270: Public Relations Writing**

(cross-leveled with JOURN 7270). Develop skills and capabilities in strategic communication applications, including news releases, media advisories, pitch letters, video news releases, media relations techniques, writing for electronic and broadcast media, feature writing, brochures and speeches. Graded on A-F basis.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor

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**JOURN 4300: Broadcast News I**

(cross-leveled with JOURN 7300) Beginning reporting and news writing for radio, television and their on-line services. Introduction to use of audio and video recorders and editing systems in production of news stories. Consideration of ethical issues, economic factors, relationships with news sources and gender and ethnic diversity in the newsroom and in news stories.

**Credit Hours:** 3

**Prerequisites:** Radio-Television Journalism Major Required

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**JOURN 4301: Topics in Journalism**

Selected current topics in journalism. Specific topics to be announced at time of registration.

**Credit Hour:** 1-3

**Prerequisites:** Consent of instructor required

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**JOURN 4301W: Topics in Journalism - Writing Intensive**

Selected current topics in journalism. Specific topics to be announced at time of registration.

**Credit Hour:** 1-3

**Prerequisites:** Consent of instructor required

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**JOURN 4306: Broadcast News II**

Introduction to general assignment reporting skills for the newsroom environment. Instruction in time management, writing, storytelling and performance. Team skills and ethnic diversity in the newsroom are discussed. Students begin work for broadcast newsrooms.

**Credit Hours:** 3

**Prerequisites:** JOURN 4300

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**JOURN 4308: Broadcast News III**

(cross-leveled with JOURN 7308). Intermediate reporting and news writing skills for radio and television. Advanced techniques in the use of video and sound in production of news stories.

**Credit Hours:** 3

**Prerequisites:** JOURN 4306

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**JOURN 4308W: Broadcast News III - Writing Intensive**

Intermediate reporting and news writing skills for radio and television. Advanced techniques in the use of video and sound in production of news stories.

**Credit Hours:** 3

**Prerequisites:** JOURN 4306

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**JOURN 4310: News Producing**

(cross-leveled with JOURN 7310). Instruction in techniques of television newscast preparation. Emphasis on role of the television news producer.

**Credit Hour:** 1-3

**Prerequisites:** JOURN 4308

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**JOURN 4320: Advanced Broadcast Reporting**

(cross-leveled with JOURN 7320). In-depth reporting and editing for radio or television; advanced production techniques; emphasis on writing, interviewing, effective use of audio or videotape at KOMU-TV or KBIA.

**Credit Hours:** 3

**Prerequisites:** JOURN 4308

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**JOURN 4328: Advanced News Communication**

(cross-leveled with JOURN 7328). This course will examine and practice the components of effective interviewing and on-set and live reporting for television news. Students will anchor KOMU-TV's morning newscasts.

**Credit Hour:** 1

**Prerequisites:** Restricted to Journalism and Science and Agricultural Journalism Majors only with Junior Standing or higher

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**JOURN 4330: From Murrow to Moore: What Good Journalists Read**

Introduces undergraduates to seminal works in broadcast and print Journalism that influences contemporary professional practices. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent. Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4340: Viewing Journalism Films: Images of the Reporter**

(cross-leveled with JOURN 7340). The course will examine images of journalists in American films ranging from 'Citizen Kane' to the present. Students will analyze award-winning movies that pose key questions about the professional responsibilities of journalists in all fields. Topics will include issues related to the practice of journalism as well as those triggered by the work of specific journalists, such as Woodward and Bernstein.

**Credit Hours:** 2

**Prerequisites:** Instructor's consent required

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**JOURN 4350: Problems in Journalism**

Independent research arranged with individual faculty member. Contract must be approved by instructor and dean. Not accepted as a substitute for any regularly scheduled course. Some sections of the course may be offered on either A-F graded or S/U graded basis only.

**Credit Hour:** 1-3

**Prerequisites:** Consent of instructor required

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**JOURN 4350W: Problems in Journalism - Writing Intensive**

Independent research arranged with individual faculty member. Contract must be approved by instructor and dean. Not accepted as a substitute for any regularly scheduled course. Some sections of the course may be offered on either A-F graded or S/U graded basis only.

**Credit Hour:** 1-3

**Prerequisites:** Consent of instructor required

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**JOURN 4360: Fundamentals of Design**

(cross-leveled with JOURN 7360). This is a beginning course in editorial design. We will study design history and learn basic design principles and concepts in both print and digital platforms. You will be introduced to software programs such as InDesign, Photoshop and Illustrator, as well as basic HTML coding.

**Credit Hours:** 2

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 2100 or JOURN 2150

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**JOURN 4370: Film Studies: The Intersections of Documentary Film and Journalism**

(same as FILMS\_VS 4370; cross-leveled with FILMS\_VS 7370, JOURN 7370). The popularity of documentary film in the past ten years has skyrocketed, and recent award-winning documentaries such as Inside Job (2010), Blackfish (2013), and The Invisible War (2012) are simultaneously entertaining audiences and investigating serious issues like the financial collapse, killer whale captivity, and sex crimes in the military--issues that in the past might have been covered exclusively by investigative journalism. What explains the public's growing fascination with documentary? How is documentary film reacting to recent transformations in the media landscape? Is it filling a critical need that journalism is no longer willing or able to meet? This course will explore the intersection of these two nonfiction storytelling forms - documentary film and journalism - and examine the role played by advocacy in both modes, as well as the cultural and ethical implications of the convergence between journalism and documentary film. In that it is centered on contemporary documentary film culture, the course also takes advantage of the True/ False Film Festival, and will be host to a conference during Week 6, featuring a number of major visiting filmmakers and film critics. Attendance at some sessions is required. Graded on A-F basis only.

**Credit Hours:** 3

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**JOURN 4370W: Film Studies: The Intersections of Documentary Film and Journalism - Writing Intensive**

(same as FILMS\_VS 4370; cross-leveled with FILMS\_VS 7370, JOURN 7370). The popularity of documentary film in the past ten years has skyrocketed, and recent award-winning documentaries such as Inside Job (2010), Blackfish (2013), and The Invisible War (2012) are simultaneously entertaining audiences and investigating serious issues like the financial collapse, killer whale captivity, and sex crimes in the military--issues that in the past might have been covered exclusively by investigative journalism. What explains the public's growing fascination with documentary? How is documentary film reacting to recent transformations in the media landscape? Is it filling a critical need that journalism is no longer willing or able to meet? This course will explore the intersection of these two nonfiction storytelling forms - documentary film and journalism - and examine the role played by advocacy in both modes, as well as the cultural and ethical implications of the convergence between journalism and documentary film. In that it is centered on contemporary documentary film culture, the course also takes advantage of the True/ False Film Festival, and will be host to a conference during Week 6, featuring a number of major visiting filmmakers and film critics. Attendance at some sessions is required. Graded on A-F basis only.

**Credit Hours:** 3

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**JOURN 4371: Documentary Theory**

(cross-leveled with JOURN 7371). Documentary and other long-form story telling methods involve a complex series of decisions made in the creation of the work that determines its style, length, direction, point of view and more. These and a thousand other editing decisions are the difference between a successful project that touches its audience and one that falls short. The focus of this course is on the craft of editing, as seen in a variety of documentary and other works and explained through the decisions made in and out of the editing room that lead to the final product. The course will introduce important concepts of editing, the work of significant editors in both documentary and narrative fiction films, and seek to apply those techniques to the conceptualization of documentary work students will do as part of their degree. Students will understand the history of documentary editing as it evolved on its own and as influenced by narrative fiction films, the language of editing, the work of important editors and directors and how it influences today's aesthetic and how to apply what they have learned to their own documentary projects at an advanced level. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

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**JOURN 4372: Documentary Reporting**

(cross-leveled with JOURN 7372). Students will learn elementary documentary reporting techniques by producing video and audio content in small group and individual projects. The course focuses on collection of content in the field, interviewing, research, story construction, editing and presentation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor consent

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**JOURN 4373: Documentary Development**

(cross-leveled with JOURN 7373). This course will concern itself primarily with the formation of projects: from theories behind different kinds of documentaries, through real world investigations and research into

possible projects, into the pitching and writing stage and lastly to the final idea that will be the basis of students' senior films. The ability to properly think of, clearly articulate, pitch and hone a project idea often makes the difference between a successful and unsuccessful final film. Still these ideas don't materialize out of thin air; inspiration for great documentaries can come from many places. Understanding how to seize viable project ideas is a crucial skill for a documentary filmmaker. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4371

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**JOURN 4375: Documentary Business and the Public Sphere**

(cross-leveled with JOURN 7375). Whether it be through contract employment, freelancing, or independent production, creating documentaries requires a knowledge of professional and business practices that differ from many other parts of journalism. The course will introduce important concepts related to the development and production of documentary work, as well as the public distribution of that work. Students will research the industry and develop skills to manage business and professional relationships with the documentary world. Students will build and maintain personal branding materials. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** JOURN 4564

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**JOURN 4377: Documentary Senior Project**

Students in this course will begin work on a yearlong documentary project to be the capstone of their work in the documentary journalism program. This course will concentrate on the research, reporting and field acquisition work for the senior documentary project. Students will show and discuss their work in group settings to share progress and report results. Each will also meet individually with the instructor to fine tune the direction and content of the project. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** JOURN 4375

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**JOURN 4379W: Documentary Senior Capstone - Writing Intensive**

Focus on the completion of a long-form documentary work and its place in current documentary programming. Students will apply knowledge from previous documentary courses in this capstone experience through writing, in-class presentations and their finished work.

**Credit Hours:** 3

**Prerequisites:** JOURN 4377

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**JOURN 4400: Introduction to News Editing**

(cross-leveled with JOURN 7400). Introduces the fundamentals of editing stories and writing headlines for publication online and in print, including an emphasis on style and grammar. Emphasized editing for an online audience.

**Credit Hour:** 1-2

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4450 or JOURN 4804

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**JOURN 4406: Digital News Editing**

(cross-leveled with JOURN 7406). Real-world experience in digital editing and news decision-making coupled with newspaper production; emphasis

on editing and headline writing across platforms, design for home page and mobile, social media, ethics and fundamentals of grammar. Lab work is hands-on experience at columbiamissourian.com and the Missourian newspaper.

**Credit Hours:** 3

**Prerequisites:** restricted to Journalism and Science and Agricultural Journalism Majors only

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**JOURN 4408: Magazine Editing**

(cross-leveled with JOURN 7408). Lectures provide an introduction to the magazine industry, including types of publications, roles of an editor and skills needed for today's magazine editor. Labs focus heavily on sentence structure, grammar, syntax, usage, punctuation and style.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4450 or JOURN 4804

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**JOURN 4410: Intermediate Writing**

(cross-leveled with JOURN 7410). In-depth reporting, research, and writing techniques with a magazine focus. Students produce articles for Vox, the Missourian and other magazines, publications or digital outlets.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4450 or JOURN 4804

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**JOURN 4410W: Intermediate Writing - Writing Intensive**

(cross-leveled with JOURN 7410). In-depth reporting, research, and writing techniques with a magazine focus. Students produce articles for Vox, the Missourian and other magazines, publications or digital outlets.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4450 or JOURN 4804

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**JOURN 4414: Field Reporting on the Food System and Environment**

(same as AGSC\_COM 4414; cross-leveled with JOURN 7414, AGSC\_COM 7414). Field reporting on the social, political, scientific, economic and ethical dimensions of the food system and environment, with emphasis on explanatory story-telling. Includes multi-day field trip. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

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**JOURN 4415: Current Issues in Science Journalism**

(same as AGSC\_COM 4415). Focuses on covering the interplay of one or more current issues of concern to journalists, scientists and society. The focus for any given semester may be biotechnology, climate change, energy, food safety, global population growth, wildlife or another issue. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 2100 or instructor's consent

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**JOURN 4416: Science, Health and Environmental Writing**

(cross-leveled with JOURN 7416). In this course students learn how to cover science, health and environmental topics by reporting and writing several stories for publication. Students can develop a marketable

specialty or cover these angles in any beat. This course can serve as a substitute for JOURN 4410 Intermediate Writing.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 4804 or JOURN 4206 or JOURN 4300 or JOURN 4372

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**JOURN 4416W: Science, Health and Environmental Writing - Writing Intensive**

(cross-leveled with JOURN 7416). In this course students learn how to cover science, health and environmental topics by reporting and writing several stories for publication. Students can develop a marketable specialty or cover these angles in any beat. This course can serve as a substitute for JOURN 4410 Intermediate Writing.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 4804 or JOURN 4206 or JOURN 4300 or JOURN 4372

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**JOURN 4418: Critical Reviewing**

(cross-leveled with JOURN 7418). This course seeks to enrich students' understanding of the arts; support their attendance of concerts, plays, films, and exhibitions; sharpen their skills in critical thinking; and encourage the publication of their reviews in Vox as well as other outlets. Students will analyze the works of critics, gain a general appreciation of the ways to approach each art, and write reviews.

**Credit Hours:** 3

**Prerequisites:** JOURN \_0900 or JOURN 2100. Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4418W: Critical Reviewing - Writing Intensive**

(cross-leveled with JOURN 7418). This course seeks to enrich students' understanding of the arts; support their attendance of concerts, plays, films, and exhibitions; sharpen their skills in critical thinking; and encourage the publication of their reviews in Vox as well as other outlets. Students will analyze the works of critics, gain a general appreciation of the ways to approach each art, and write reviews.

**Credit Hours:** 3

**Prerequisites:** JOURN \_0900 or JOURN 2100. Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4420: Editorial Writing**

Emphasizes writing and thinking. Discussion of current problems. Correct and effective use of English language. Mission, obligations and history of editorial pages.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450. Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4422: Sports Journalism**

(cross-leveled with JOURN 7422). A review of everything from 'how to watch Sports' to the history of sports writing. Contact instructor for consent on this course. Priority will be given to Sports Journalism students. All other consent will be given on a first-come, first-serve basis as space allows. Course graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

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**Recommended:** JOURN 4450/JOURN 7450 or JOURN 4804/JOURN 7804 or JOURN 4306/JOURN 7306 or JOURN 4560/JOURN 7560.

Priority will be given to Sports Journalism students. All other consent will be given on a first-come, first-served basis as space allows

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**JOURN 4424: Covering Traumatic Events**

(cross-leveled with JOURN 7424). This course will prepare reporters and future newsroom managers across platforms for the ethical, practical and emotional challenges of reporting accurately and sensitively on traumatic events. It will give students a deeper understanding of the psychological impact of such events, including natural and man-made disasters, violent crime, accidents, terrorism and war. The course will explore how news coverage affects individuals and communities, and the psychological challenges and ethical hazards for the journalists who cover these events, with a focus on best newsroom practices for managing fast-breaking news stories and mitigating the effects on communities and staffs. The course will also explore the challenges of technology in the context of traumatic events and how social media have affected coverage of and response to crime, war and disasters. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 7450; JOURN 4804 or JOURN 7804; or JOURN 4560 or JOURN 7560

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**JOURN 4426: Religion Reporting and Writing**

(same as REL\_ST 4418; cross-leveled with JOURN 7426, REL\_ST 7418). Advanced seminar in religion reporting and writing. Examines the role of religion journalism in faith, public life and culture.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 4804

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**JOURN 4428: Health Reporting Skills**

This course focuses on research and analysis techniques journalists use to understand and report on health policy, health-care quality, medical research and the business of health care. Graded on A-F basis only.

**Credit Hour:** 2-3

**Prerequisites:** Consent of Instructor required. Recommended JOURN 4450 or JOURN 4306 or JOURN 4804

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**JOURN 4430: Computer-Assisted Reporting**

(cross-leveled with JOURN 7430). How to negotiate for, transfer and process electronic information; the unique opportunities computers provide for analyzing information.

**Credit Hours:** 3

**Prerequisites:** Students must have completed JOURN 4306 or 4450 or 4804

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**JOURN 4432: Advanced Data Journalism**

(cross-leveled with JOURN 7432). Teaches students how to creatively solve problems in journalism using computer programming. Students will learn how to code using the Python language, and how to apply those coding skills to perform real-world tasks. Students will learn the concepts, theory and practical programming skills needed to clean data, scrape web sites and turn databases into interactive online experiences. By the end of the semester, students will have learned the skills to create interactive database presentations, and will have created a functional web app that will serve as a portfolio piece. Graded on A-F basis only.

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**Credit Hours:** 3

**Prerequisites:** JOURN 4430

**Recommended:** JOURN 4502

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**JOURN 4434: The Art and Mechanics of the Business Story**

(cross-leveled with JOURN 7434). The purpose of this course is to give students a deep understanding of business journalism and for them to apply those skills in a real newsroom, Missouri Business Alert. The class will cover everything from audience to financials, and students will leave the class with several work samples to show potential employers.

**Credit Hours:** 3

**Prerequisites:** Journalism and Science and Agricultural Journalism majors only; JOURN 4450 or JOURN 7450, or JOURN 4306 or JOURN 7306, or JOURN 4804 or JOURN 7804, or JOURN 4556 or JOURN 7556

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**JOURN 4436: Investigative Reporting**

(cross-leveled with JOURN 7436). Advanced course designed to acquaint reporters with public issues. Students write two in-depth projects and other shorter assignments. Students meet weekly with instructor for editorial suggestions.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

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**JOURN 4438: Business, Financial and Economic Journalism**

(cross-leveled with JOURN 7438). Understanding the news from the business sector and nation's economy for journalists and public relations students. Including financial filings, equity markets, local business, economic indicators, job creation, business data, sports business and what makes business/economic news different from other journalism. Includes tour of business journalism outlets and markets in New York. Open to all journalism school emphasis areas.

**Credit Hours:** 3

**Prerequisites:** Restricted to Journalism and Agricultural Journalism majors

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**JOURN 4439: Advanced Business Journalism**

(cross-leveled with JOURN 7439). This class requires students to write business stories every week and to attain a high level of financial literacy in the process. The class will cover topics behind the headlines, showing students how to spot economic trends, the stories behind the economy's main actors, and the keys to spotting a troubled business. By the end of the class, all students will be certified users of the Bloomberg Terminal. To take this course, students must enroll in one of the two attached accounting classes (grad or undergrad). Both are offered online. Prerequisites: Students must have taken or take concurrently with this course: ACCTCY 2010 or ACCTCY 7310 Accounting for Managers.

**Credit Hour:** 1-3

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**JOURN 4444: Team-Based Mobile Device Application Development**

This is a multi-disciplinary, team-based course on developing applications for mobile devices. Teams will be comprised of students who are software developers and students who are designers. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4804 or JOURN 4204 or JOURN 4306 or JOURN 4450

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**JOURN 4448: Public Service Journalism: Covering State Government**

(cross-leveled with JOURN 7448). One of the most important roles journalism plays in society is holding the powerful accountable and keeping the public informed about what those in charge are doing. Covering state government allows journalists to do both of these things. This course gives you the background you need to provide effective government coverage, and gives you hands-on experience.

**Credit Hour:** 1-3

**Prerequisites:** Instructor consent in consultation with the respective faculty groups

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**JOURN 4450: News Reporting**

(cross-leveled with JOURN 7450). Assignments on a daily city newspaper covering community news, city, county and state affairs, sports and lifestyle issues. Experience in gathering and writing news, writing under deadline conditions.

**Credit Hours:** 3

**Prerequisites:** JOURN 2100

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**JOURN 4450W: News Reporting - Writing Intensive**

(cross-leveled with JOURN 7450). Assignments on a daily city newspaper covering community news, city, county and state affairs, sports and lifestyle issues. Experience in gathering and writing news, writing under deadline conditions.

**Credit Hours:** 3

**Prerequisites:** JOURN 2100

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**JOURN 4460: Advanced News Reporting**

(cross-leveled with JOURN 7460). Assignments to more difficult beat areas, team reporting and some investigative reporting for community newspaper. Individual conferences and weekly class sessions on contemporary reporting problems.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450

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**JOURN 4460W: Advanced News Reporting - Writing Intensive**

(cross-leveled with JOURN 7460). Assignments to more difficult beat areas, team reporting and some investigative reporting for community newspaper. Individual conferences and weekly class sessions on contemporary reporting problems.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450

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**JOURN 4462: Emerging Technologies in Journalism**

(cross-leveled with JOURN 7462). This course quickly responds to technology developments in journalism through a combination of theory, practice and research. Students learn to use the developing technology and also strategies to manage its impact on media organizations while expanding academic discourse. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** junior standing; restricted to Journalism and Science and Agricultural Journalism students only

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**JOURN 4464: Magazines Across Platforms**

(cross-leveled with JOURN 7464). As digital editors for Vox Magazine, students manage and create content for Vox's digital platforms, including its WordPress website, blog, social media accounts and award-winning iPad app. Students also work with analytics, engagement and multimedia. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4450 or JOURN 4804

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**JOURN 4480: Will Write for Food (and Wine)**

(same as AGSC\_COM 4480; cross-leveled with JOURN 7480). Course focuses on food and wine writing in current U.S. culture. Come ready to create mouthwatering narrative and actively seek publishing your finished work. An emphasis will be placed on class participation and written critiques of peer-reviewed articles in class. This course can serve as a substitute for JOURN 4410 Intermediate Writing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4450 or JOURN 4804

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**JOURN 4480W: Will Write for Food (and Wine) - Writing Intensive**

(same as AGSC\_COM 4480; cross-leveled with JOURN 7480). Course focuses on food and wine writing in current U.S. culture. Come ready to create mouthwatering narrative and actively seek publishing your finished work. An emphasis will be placed on class participation and written critiques of peer-reviewed articles in class. This course can serve as a substitute for JOURN 4410 Intermediate Writing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4450 or JOURN 4804

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**JOURN 4482: Field Reporting: Wine Country Writing**

(same as AGSC\_COM 4482). Students will examine wine culture, agricultural issues in the vineyard, wine trends, the historical context of wine and Missouri settlement, and more. Come ready to shape articles into sharp focus and make them fresh with input from fellow student critiques. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 2100

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**JOURN 4482W: Field Reporting: Wine Country Writing - Writing Intensive**

(same as AGSC\_COM 4482W). Students will examine wine culture, agricultural issues in the vineyard, wine trends, the historical context of wine and Missouri settlement, and more. Come ready to shape articles into sharp focus and make them fresh with input from fellow student critiques. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 2100

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**JOURN 4500: Publication Design**

(cross-leveled with JOURN 7500). Intermediate design techniques and theories of editorial design. Students apply classroom teachings by designing pages for the Columbia Missourian and Vox Magazine. Students work under deadline and learn attention-to-detail through use and execution of design style guides.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4360

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**JOURN 4502: Multimedia Planning and Design**

(cross-leveled with JOURN 7502). Class covers the basics of web design - Storyboarding, navigation, information architecture, reader behavior, usability studies - as they relate to journalistic stories and persuasive messages.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** Completion of one of the following--JOURN 4804 or JOURN 4508 or JOURN 4406 or JOURN 4506 or JOURN 4204 or JOURN 4306 or JOURN 4450 or JOURN 4560

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**JOURN 4506: Magazine Design**

Introduction to typography of magazines from manuscript markup through layout to page proof. Extensions and limitations of typography are considered in light of current practice and economic possibilities.

**Credit Hours:** 3

**Prerequisites:** Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4508: Information Graphics**

(cross-leveled with JOURN 7508) Work as a news artist for a daily city newspaper graphically covering community news, sports and lifestyle issues. Emphasis on visual thinking and effective presentation. Experience with state-of-the-art software.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 4804

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**JOURN 4510: Visual Communication**

How to communicate through pictures. Topics: visual perception, vocabulary, the role of words, picture editing, design and layout, printers, taste and judgment, camera mechanics. For journalism students who are not photographers.

**Credit Hours:** 3

**Prerequisites:** Restricted to Journalism and Science and Agricultural Journalism majors only with Junior standing

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**JOURN 4550: Basic Photography and Photo Editing**

(cross-leveled with JOURN 7550). A basic survey for non-photojournalism majors and others with no prior experience who desire a working knowledge of photojournalistic theory and practice.

**Credit Hours:** 3

**Prerequisites:** instructor's consent. Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4554: Visual Editing for Multimedia**

(cross-leveled with JOURN 7554). This class develops understanding of multimedia storytelling by focusing on editing, production, and business model practices for online visual journalism. It builds on a foundation of digital editing, photojournalism, photo editing, videography, and multimedia production. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4804 or JOURN 4550 or JOURN 4306 or JOURN 4406 or JOURN 4506 and instructor's consent; restricted to Journalism and Science and Agricultural Journalism students only

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**JOURN 4556: Fundamentals of Photojournalism**

(cross-leveled with JOURN 7556). A rigorous skills course for advanced students preparing for a career in photojournalism consisting of weekly exercises in black and white and color photographic story telling and lectures that explore the philosophical, historical and ethical roots of the profession.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**JOURN 4556W: Fundamentals of Photojournalism - Writing Intensive**

(cross-leveled with JOURN 7556). A rigorous skills course for advanced students preparing for a career in photojournalism consisting of weekly exercises in black and white and color photographic story telling and lectures that explore the philosophical, historical and ethical roots of the profession.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**JOURN 4558: Advanced Techniques in Photojournalism**

(cross-leveled with JOURN 7558). Advanced techniques and problem solving in photojournalism. Stresses lighting techniques--available, studio, electronic flash and color correction of color film. Strobed documentary, portraiture, fashion, food, architecture, sports.

**Credit Hours:** 3

**Prerequisites:** JOURN 4556

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**JOURN 4560: Staff Photojournalism**

(cross-leveled with JOURN 7560). A laboratory course exploring the photojournalist's role in the news-gathering process. As staffers for the Columbia Missourian, students cover news, sports, features, food assignments and originate single pictures and stories.

**Credit Hours:** 3

**Prerequisites:** Consent of Instructor Required

**Recommended:** JOURN 4558

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**JOURN 4562: Photojournalism Business Practices**

(cross-leveled with JOURN 7562). Discusses legal, financial, organizational and entrepreneurial issues for photojournalists. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4558 or JOURN 7558 and JOURN 4566 or JOURN 7566 or consent of instructor; junior standing; restricted to Journalism and Science and Agricultural Journalism students only

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**JOURN 4564: Micro-Documentary Photojournalism and Videography**

(cross-leveled with JOURN 7564). This course extends student's understanding and abilities to produce short-form video journalism. They will produce, from concepts to web publication, two five-minute non-fiction videos that serves the public through engaging visual sound techniques and compelling narrative. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4558 or JOURN 4306 or JOURN 4804

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**JOURN 4566: Electronic Photojournalism**

(cross-leveled with JOURN 7566). Concepts and skills to incorporate photographs, audio and video for interactive presentation, with an emphasis on project design and coding for web and mobile devices. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4556 and instructor's consent

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**JOURN 4568: History of Photojournalism**

(cross-leveled with JOURN 7568). Examination of the aesthetic and technological development of photography from its invention in 1839 to the present. Primary emphasis on the evolution and impact of the picture press and the documentary tradition in America, although international developments are studied as well.

**Credit Hours:** 3

**Prerequisites:** Journalism and Science and Agricultural Journalism majors only with Junior standing

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**JOURN 4568W: History of Photojournalism - Writing Intensive**

(cross-leveled with JOURN 7568). Examination of the aesthetic and technological development of photography from its invention in 1839 to the present. Primary emphasis on the evolution and impact of the picture press and the documentary tradition in America, although international developments are studied as well.

**Credit Hours:** 3

**Prerequisites:** Journalism and Science and Agricultural Journalism majors only with Junior standing

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**JOURN 4650: International Issues and the Media**

(cross-leveled with JOURN 7650). Attached to an internship-based journalism study abroad program, this course is an overview of the media in a geographic region. The course aims to enhance students' research, writing, reporting and analytical skills so that they can produce articles, multimedia products and communications campaigns.

**Credit Hours:** 3

**Prerequisites:** JOURN 4556 or JOURN 4450 or JOURN 4804 or JOURN 4300 or JOURN 4200

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**JOURN 4656: International News Media Systems**

A comparative survey of current news media systems and how they affect the international flow of information. Newspapers, news agencies, broadcasting and satellite networks of the world are analyzed.

**Credit Hours:** 3

**Prerequisites:** junior standing in Journalism or Science and Agricultural Journalism

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**JOURN 4658: International Journalism**

(cross-leveled with JOURN 7658). An examination of the gathering, editing and dissemination of international news. The impact of social, economic, cultural and political structures on news media performance is evaluated.

**Credit Hours:** 3

**Prerequisites:** junior standing. Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4660: Media Forces Shaping the European Union**

(cross-leveled with JOURN 7660). Seminar analyzes the role of media in shaping policies and actions of the European Union member nations and their people. Open to graduate students regardless of major and to undergraduates with instructor's consent. Course qualifies for EU Certificate Program.

**Credit Hours:** 3

**Prerequisites:** Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4662: Global News Across Platforms**

(cross-leveled with JOURN 7662). Online, radio, and print production for a converged media enterprise, Global Journalist. Students report, write, plan, edit, design, and produce a video and radio program and website on international news while working under weekly deadlines.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 4804 or JOURN 4300 or JOURN 4372 or JOURN 4564

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**JOURN 4700: Engaged Journalism**

(cross-leveled with JOURN 7700). An examination of how information is shared outside professional journalism, and how journalists can interact with communities. Topics will include community collaboration, social media, audience outreach and understanding, and an expanding definition of 'news'. Students will work with the community on behalf of the Missourian. All interest areas welcome.

**Credit Hour:** 1-3

**Prerequisites:** JOURN 4450 or JOURN 4804 or JOURN 4306 or JOURN 4206 or JOURN 4560

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**JOURN 4706: The Community Newspaper**

(cross-leveled with JOURN 7706). The role of the newspaper in the community. Handling of news categories especially applicable to smaller newspaper. Field trips giving students experience in publishing newspapers in the state.

**Credit Hours:** 3

**Prerequisites:** JOURN 2100. Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4710: Newspaper Management**

(cross-leveled with JOURN 7710). Department-by-department organization, business practices, personnel, rate structures, equipment, production, laws and regulations of concern to newspaper management. Cases examine critical newspaper management issues.

**Credit Hours:** 3

**Prerequisites:** Journalism and Science and Agricultural Journalism majors with Junior standing

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**JOURN 4716: Women and the Media**

(same as WGST 4716; cross-leveled with JOURN 7716, WGST 7716). Focus on portrayal of women in American mass media. Other goals: historical perspective on women as journalists; exposure to issues usually not covered by mass media; research and writing skills. Enrollment limited to Journalism and Science and Agricultural Journalism majors only with junior standing required.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**JOURN 4718: Law and the Justice System**

(cross-leveled with JOURN 7718). Lectures, readings, discussions, writing assignments relating to justice system reporting from the view of attorneys, prosecutors, judges, correction and probation officers with the cooperation of the Missouri Bar.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

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**JOURN 4734: Journalism and Chaos: How to Understand and Cover 21st Century Business Models**

(cross-leveled with JOURN 7734). The purpose of this class is to explore alternative business/journalism models that can be grown from the rib of the traditional newsroom. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Junior Standing. Restricted to Journalism and Science and Agricultural Journalism students only

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**JOURN 4736: Changing Media Business Models**

Analysis of the economic changes in news media industry. Explore concepts and theories of monetizing media. Hands-on experience in creating innovations in media business models.

**Credit Hours:** 3

**Prerequisites:** Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4738: Language, Thought and Journalism**

This online course helps you, as S.I. Hayakawa wrote, 'to think more clearly, to speak and to write more effectively, and to listen and to read with greater understanding.' It explores the biases and limitations of language, culture, technology and other factors as applied to the practice of journalism and mass communications.

**Credit Hours:** 3

**Prerequisites:** Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4804: Convergence Reporting**

(cross-leveled with JOURN 7804). Practice and theory of reporting for converged media. Students produce multimedia reports for traditional and converged media operations. Graded on A-F basis only.

**Credit Hours:** 3



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**Prerequisites:** Restricted to Convergence, Print and Digital, Photojournalism, and Magazine students, and Science and Agricultural Journalism students

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**JOURN 4804W: Convergence Reporting - Writing Intensive**  
(cross-leveled with JOURN 7804). Practice and theory of reporting for converged media. Students produce multimedia reports for traditional and converged media operations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Convergence, Print and Digital, Photojournalism, and Magazine students, and Science and Agricultural Journalism students

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**JOURN 4806: Convergence Editing and Producing**  
(cross-leveled with JOURN 7806). Practice and theory of editing and producing material for publication or broadcast in a converged environment. Students produce media for multiple outlets. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4306 or JOURN 4804 or JOURN 4450

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**JOURN 4810: National News Writing and Production**  
(cross-leveled with JOURN 7810). Learn updated storytelling and video-production techniques on-site at Newsy, a next generation news network. You will work weekly shifts throughout the semester, culminating in the production of your own portfolio and mock interviews with hiring managers. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor consent required

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**JOURN 4812: Online Audience Development**  
(cross-leveled with JOURN 7812). You're already using social media every day - but are you using it in the most effective way possible? In Online Audience Development students will explore, envision and evaluate the possibilities of social media integration in news production workflows. We'll experiment with emerging social platforms to see how they might fit in a newsroom's social media and branding playbook. You will also exercise, develop and improve on all the journalism skills practiced in previous classes: researching, reporting, editing, producing, proofreading, photo editing and design. The big difference? This time you'll be reporting on our newsrooms in order to help create deeper connections with the audience. Graded on A/F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4560 or JOURN 4804 or JOURN 4306 or JOURN 4450 or instructor consent. Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4814: Multimedia Sports Journalism**  
(cross-leveled with JOURN 7814). Assignments on a daily regional website and radio station covering sports with converged media. Experience in reporting game and feature stories under deadline conditions. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required

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**JOURN 4940: Internship in Journalism**

Credit for approved employment in journalism. Specifications for this course appear in the Undergraduate Catalog. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** Consent from internship coordinator required

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**JOURN 4950: Understanding Audiences**

Focuses on the recipients of journalistic efforts by teaching students to identify, analyze and address media audiences. Students will learn a variety of research methods and gain hands-on experience with audience analysis through team-based practical projects.

**Credit Hours:** 3

**Prerequisites:** JOURN 2000 and junior standing. Strategic Communication students may not enroll in this entry level research course

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**JOURN 4952: Strategic Communication Research I**

(cross-leveled with JOURN 7952). Introduction to techniques and practice of strategic communication research. Emphasis on research techniques and use of research results, including consumer analysis, attitude measurement and evaluation of externally supplied research.

**Credit Hours:** 3

**Prerequisites:** Restricted to Strategic Communication and Science and Agricultural Journalism Majors

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**JOURN 4970: Strategic Campaigns**

(cross-leveled with JOURN 7970). This capstone course, gives students a hands-on opportunity to use their skills and apply strategic communication learning to a real client situation. To be taken final semester. Application required for Mojo Ad section and will include additional leadership responsibilities.

**Credit Hours:** 3

**Prerequisites:** Consent of Instructor required

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**JOURN 4970W: Strategic Campaigns - Writing Intensive**

(cross-leveled with JOURN 7970). This capstone course, gives students a hands-on opportunity to use their skills and apply strategic communication learning to a real client situation. To be taken final semester. Application required for Mojo Ad section and will include additional leadership responsibilities.

**Credit Hours:** 3

**Prerequisites:** Consent of Instructor required

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**JOURN 4972: Photo and Visual Editing**

(cross-leveled with JOURN 7972). An advanced visual editing course. Primary work is as a photo/multimedia editor on the Columbia Missourian photo desk. You collaborate on daily and semester projects and are assigned specific leadership roles.

**Credit Hours:** 3

**Prerequisites:** JOURN 4408 or or JOURN 4204 or JOURN 4500 or JOURN 4560

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**JOURN 4974: Advanced Internet Applications for Radio/TV News**

(cross-leveled with JOURN 7974). Integration of advanced Internet research and publishing skills with production and management of the KOMU-TV/KBIA Radio World Wide Web news service.

**Credit Hours:** 3

**Prerequisites:** JOURN 4306

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**JOURN 4976: Seminar in Radio/TV News**

(cross-leveled with JOURN 7976). Seminar in network and local news process, in coverage of major issues and social problems, in relationships of radio-TV news and government institutions.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

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**JOURN 4978: Media Management and Leadership**

(cross-leveled with JOURN 7978). Dramatic changes in technology and the media's role in converging technologies require new management and leadership techniques and paradigms. Students will write case examining these changes.

**Credit Hours:** 3

**Prerequisites:** JOURN 4306 or JOURN 4804. Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 4980: The Picture Story and Photographic Essay**

(cross-leveled with JOURN 7980). Production of photo stories/essays for newspapers, magazines and news media presentations. Research, photography, design and layout. Final portfolio will show journalistic strength and versatility in black and white, and color.

**Credit Hours:** 3

**Prerequisites:** JOURN 4560

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**JOURN 4984: Magazine Staff**

(cross-leveled with JOURN 7984). This course provides hands-on experience serving as an editor on a magazine staff. Students are department editors for Vox Magazine and learn how to take a story from an idea through story creation and production and to the printed page, as well as best practices for executing that idea across multiple platforms. Students learn about pitching, working with writers, designers and photographers, editing for content and style, successful story packaging and team collaboration.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4408 and JOURN 4410 or JOURN 4412 or JOURN 4416 or JOURN 4480

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**JOURN 4986: Advanced Writing**

(cross-leveled with JOURN 7986). This course builds on the in-depth, reporting, research, and writing techniques of Intermediate Writing and other writing and reporting classes. It is designed for those who wish to pursue writing as a career. Students complete writing assignments and analyze the work of well-known magazine and book authors.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4410 or JOURN 4412 or JOURN 4416 or JOURN 4480

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**JOURN 4986W: Advanced Writing - Writing Intensive**

(cross-leveled with JOURN 7986). This course builds on the in-depth, reporting, research, and writing techniques of Intermediate Writing and other writing and reporting classes. It is designed for those who wish to pursue writing as a career. Students complete writing assignments and analyze the work of well-known magazine and book authors.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4410 or JOURN 4412 or JOURN 4416 or JOURN 4480

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**JOURN 4988: Advanced Publication Design**

(cross-leveled with JOURN 7988). Project-based capstone in which skills learned in previous courses are applied to professional-level design challenges, such as feature, cover or iPad designs; multimedia prototypes; special editions; or other applications for Vox Magazine, Columbia Missourian, or other outlets.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4500

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**JOURN 4988W: Advanced Publication Design**

(cross-leveled with JOURN 7988). Project-based capstone in which skills learned in previous courses are applied to professional-level design challenges, such as feature, cover or iPad designs; multimedia prototypes; special editions; or other applications for Vox Magazine, Columbia Missourian, or other outlets.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4500

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**JOURN 4990: Journalism and Democracy**

This course seeks to cultivate critical-thinking skills by helping students synthesize and apply knowledge gained from a journalism education to the evaluation of news media performance in a democratic society.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4450

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**JOURN 4990W: Journalism and Democracy - Writing Intensive**

This course seeks to cultivate critical-thinking skills by helping students synthesize and apply knowledge gained from a journalism education to the evaluation of news media performance in a democratic society.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4450

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**JOURN 4992: Innovation and Audience Outreach in Converged Media**

(cross-leveled with JOURN 7992). Capstone course brings together the reporting, editing, audience focus, management and marketing skills gained in previous journalism courses. Students evaluate audiences and sustainability for journalistic content, applications, products and experiences and plan, produce and promote internal and external projects. Graded on A-F basis only.

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**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

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**JOURN 4992W: Innovation and Audience Outreach in Converged Media - Writing Intensive**

(cross-leveled with JOURN 7992). Capstone course brings together the reporting, editing, audience focus, management and marketing skills gained in previous journalism courses. Students evaluate audiences and sustainability for journalistic content, applications, products and experiences and plan, produce and promote internal and external projects. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

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**JOURN 4994: Magazine Publishing**

(cross-leveled with JOURN 7994). This capstone experience explores key components and recent trends in the magazine industry. The primary focus is creating a magazine prototype that includes conceptualizing ideas and editorial for new titles, as well as business plans for advertising, circulation, finance and production. The course follows a nuts and bolts, learn-by-doing approach to how these components work together and influence one another. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4408 and either JOURN 4410 or equivalent, or JOURN 4360 or 4500. Restricted to Journalism and Science and Agricultural Journalism majors only

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**JOURN 7000: Communications Law**

Legal concepts, including prior restraint, libel, privacy, obscenity, contempt and access as they relate to print, broadcast, advertising and other areas.

**Credit Hours:** 3

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**JOURN 7050: Communications Practice**

Special instruction in the school's media as an extension of existing advanced media courses, or, in advertising, an extension of advertising creative courses. Contract must be approved by instructor and dean. Some sections of the course may be offered on either A-F or S/U graded basis only.

**Credit Hour:** 1-3

**Prerequisites:** Study Abroad sections require consent by International Program. Obtain consent in 76 Gannett

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**JOURN 7122: Fundamentals of Data Reporting**

(cross-leveled with JOURN 4122). Explores the importance to journalists of mining public records and data; reviews basic newsroom mathematics; teaches basic techniques for using Microsoft Excel to create and manipulate spreadsheets and to produce graphics. Graded on A-F basis only. This course is not to be taken by students who have already completed JOURN 4430 or JOURN 7430. Restricted to Graduate Journalism students.

**Credit Hour:** 1

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**JOURN 7126: Digital Audio and Visual Basics for Journalists**

(cross-leveled with JOURN 4126). Introduces journalism students to audio and video tools used in converged environments. Students will create news stories, ads or promos to meet journalistic or strategic communication goals. Graded on S/U basis only.

**Credit Hour:** 1

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**JOURN 7130: Account Services**

(cross-leveled with JOURN 4130). Designed for advanced strategic communication students preparing for careers in account services. Section topics vary.

**Credit Hour:** 1

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**JOURN 7138: Public Relations Techniques**

(cross-leveled with JOURN 4138). Designed for advanced strategic communication students preparing for careers in public relations. Section topics vary.

**Credit Hour:** 1

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**JOURN 7140: Interactive Techniques**

(cross-leveled with JOURN 4140). Designed for advanced strategic communications students preparing for careers in interactive media. Section topics may vary.

**Credit Hour:** 1

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**JOURN 7146: Strategic Communication Techniques**

(cross-leveled with JOURN 4146). Designed for advanced strategic communication students. Section topics vary. Graded on A-F basis only.

**Credit Hour:** 1

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**JOURN 7148: Interviewing Essentials**

(cross-leveled with JOURN 4148). This class focuses on the journalistic interviewing process, from identifying and gaining access to the best sources, setting ethical boundaries, asking the most effective questions and ensuring accuracy. It applies to the full range of story types, from breaking news to in-depth work in all coverage areas.

**Credit Hour:** 1

**Prerequisites:** Consent of instructor required

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**JOURN 7150: Using Infographics**

An introduction to the various types of information graphics and how each can be used effectively to help explain the news. Additional emphasis on generating graphic ideas and on the specific challenges of gathering information for graphics.

**Credit Hour:** 1

**Prerequisites:** instructor's consent required

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**JOURN 7152: Concepts in Participatory Journalism**

Journalists need to know how to be in conversation with their communities rather than lecture to them. In this course, we will look at how a collaborative culture is changing journalism, and how journalists can take advantage of the new landscape. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** JOURN 2100, JOURN 2150

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**JOURN 7160: Social Media Foundations and Practice**

(cross-leveled with JOURN 4160). This course introduces social media usage and research basics for journalism students. Graded on A-F basis only.

**Credit Hour:** 1

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**JOURN 7180: Newsroom Content Creation**

(cross-leveled with JOURN 4180). This course puts students working together in a combined newsroom hub, producing content for publication on its own platform or for campus media outlets. Graded on A-F basis only.

**Credit Hours:** 3

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**JOURN 7198: Area Seminar**

Special lectures, readings, discussions relating to the urban journalism, state government reporting or local public affairs reporting programs.

**Credit Hours:** 3

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**JOURN 7200: Principles of Strategic Communication**

(cross-leveled with JOURN 4200). Foundation course familiarizing students with an array of strategic communication tools and how they are used in the field.

**Credit Hours:** 3

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**JOURN 7204: Introduction to Strategic Writing and Design**

This course will teach you about strategic writing and design, and then show you how to apply these skills to key communication platforms such as digital media, TV, radio, social media and others. Along the way, you will learn to think, write and design creatively and strategically. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Journalism Strategic Communication and Science and Agriculture Journalism Majors

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**JOURN 7206: Strategic Writing I**

(cross-leveled with JOURN 7206). Students learn strategic writing for a variety of media such as print, radio, television, outdoor, new media, news releases, pitch letters and other persuasive messages.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4226, JOURN 4952

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**JOURN 7208: Strategic Writing II**

(cross-leveled with JOURN 4208). Advanced course in the creation of advertising and public relations materials with an emphasis on strategic planning, developing creative concepts, producing and polishing copy and visuals, execution of finished product and refining. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204 and JOURN 4952

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**JOURN 7212: Sports and Entertainment Promotion**

(cross-leveled with JOURN 4212). Course focuses on the role that research, sponsorship, advertising, public relations, social media,

positioning, target marketing, psychographics, and other strategic communication processes play in the promotion of the sports and entertainment industry. The course will critically analyze and examine how chief executive officers of sport and entertainment organizations choose, maintain, or redirect their promotion strategies and activities to help achieve organization missions, encourage tickets sales, and attract large audiences.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor

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**JOURN 7213: Strategic Communication Mobile Sports Production**

(cross-leveled with JOURN 4213). This class is designed to prepare Strategic Communication students for vital new positions in the world of sports marketing with the emphasis on video productions, strategic planning, and strategic dissemination of video content via multiple media, channels and platforms. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Journalism Graduate Students

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**JOURN 7214: Strategic Communication Integrated Sports Production**

(cross-leveled with JOURN 4214). This course will prepare Strategic Communication students for vital new positions in the world of sports marketing with an emphasis on video production, graphics, social media analytics, messaging management and strategic planning. Students will be taught basic information, techniques and strategies necessary for success in these fields. You will be working closely with the Mizzou Sports Network and Strategic Communication faculty from day one. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204 and JOURN 4952

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**JOURN 7216: Media Sales**

(cross-leveled with JOURN 4216). Focus of this course is to familiarize students with how to sell a variety of media including newspaper, radio, television, outdoor, new media, and others.

**Credit Hours:** 3

**Prerequisites:** Restricted to Journalism Strategic Communication and Science and Agricultural Journalism Majors

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**JOURN 7218: Mojo Ad Staff**

(cross-leveled with JOURN 4218). Application of strategic communication skills in a professional services agency specializing in the youth and young adult segment. Positions include management, planning, creative media and research. Other electives required based on position. Application required. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of Instructor

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**JOURN 7220: Creative Portfolio**

(cross-leveled with JOURN 4220). Students will produce a free-standing collection of outstanding, polished creative work to demonstrate his/her ability to perform at a high level of creativity.

**Credit Hours:** 3

**Prerequisites:** core courses and JOURN 4208 or JOURN 7208

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**JOURN 7228: Strategic Design and Visuals II**

(cross-leveled with JOURN 4228). Advanced course in strategic design and visuals. Persuasive visual principles applied to variety of integrated media including print, broadcast and on-line. Graded on A-F basis only..

**Credit Hours:** 3

**Prerequisites:** JOURN 4200, JOURN 4204 and JOURN 4952

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**JOURN 7236: Psychology in Advertising**

(cross-leveled with JOURN 4236). Application of psychological principles, learning, perception, motivation, attitudes to advertising. Emphasis on the increasing use of psychographics (the 'lifestyle' factor) to understand consumer wants and buying behavior.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200 or JOURN 7200, JOURN 4952 or JOURN 7952, JOURN 4204 or JOURN 7204

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**JOURN 7242: Strategic Communication Leadership**

(cross-leveled with JOURN 4242). Strategic Communication Leadership is aimed at students who are eager to develop their skills and abilities in management and leadership with the likely outcome that they will be leaders in media organizations or as entrepreneurs. Rooted in principles of ethical persuasion and strategic communication, it will help develop individual skills and abilities and the mindset of helping others achieve their goals. Based on the experience and writings of CEO and world-renowned leader David Novak (Strategic Communication alumnus 1974), this is the one of three courses comprising the Leadership Interest Area in Strategic Communication. This course will call on students to commit to the process of their own growth and self-discovery and to help foster the growth and development of fellow learners. It will be an intensive experience and, with commitment to the program, will be immediately applicable to the students' current and future personal and professional lives. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Journalism Graduate students only

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**JOURN 7244: Creating Cultures Through Effective Strategic Communication and Leadership**

(cross-leveled with JOURN 4244). The course focuses on the role culture and communication play in organizational success, management, and leadership. Rooted in principles of ethical persuasion and strategic communication, it helps students develop individual skills and abilities and the mindset of helping others achieve their goals. The course is distinctly different from traditional organizational studies because of its focus on communication and marketing principles. It offers hands on learning through the case method. Based on the experience and writings of CEO and world-renowned leader David Novak (Strategic Communication alumnus 1974), this is one of three courses comprising the Leadership interest area in Strategic Communication. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Graduate Journalism Majors only

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**JOURN 7246: Taking People With You: Entrepreneurial Leadership and Innovation**

(cross-leveled with JOURN 4246). In this course, students explore the current landscape of entrepreneurship (with specific reference to the strategic communication space) and practice a human-centered approach to solving problems. Students will gain valuable leadership skills and develop the knowledge and mindset needed to pursue their own entrepreneurial ventures or to become innovators and 'intrapreneurs' within existing organizations. The course introduces students to insight-driven approaches to innovation including David Novak's Taking People with You philosophy of leadership and design thinking while offering ample opportunities to put these methods into practice. To simulate the entrepreneurial process, students identify an unmet need or market opportunity and develop an innovative product or service to solve a real-world problem. 'Startup teams' of four students engage in research, ideation, rapid prototyping, and iterative design to develop insights and a solution to meet the needs of real customers. Teams also conduct a market analysis, and develop a business model and go-to-market strategy for launching their startup and enlisting key partners to support their venture. The course culminates in a pitch competition in which teams present their ideas and strategies to a panel of industry experts and investors. In the process, students gain valuable leadership skills, develop an entrepreneurial mindset, and learn how to work with diverse teams and audiences to collaborate and solve problems. This is one of the three courses comprising the Leadership Interest Area in Strategic Communication. Students admitted to this course are also given priority to participate in the Novak Future Leaders Tour to San Francisco, where they gain exposure to ideas and leaders at some of the world's most innovative companies and organizations. Graded on A-F only.

**Credit Hours:** 3

**Prerequisites:** Graduate Journalism majors only

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**JOURN 7248: Media Strategy and Planning**

(cross-leveled with JOURN 4248). Course deals with strategic planning and the selection and evaluation of appropriate media outlets. Students gain a clear understanding of the problems and issues involved in crafting effective media strategies, creative problem solving and selection of appropriate media.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200 or JOURN 7200, JOURN 4952 or JOURN 7592, JOURN 4204 or JOURN 7204. Restricted to Journalism graduate students

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**JOURN 7250: Management of Strategic Communication**

(cross-leveled with JOURN 4250). How to lead and contribute to strategically sound, highly creative and seamlessly integrated strategic communication on the agency or client side of the business. Directly relevant to agency account management and account planning, as well as client career paths.

**Credit Hours:** 3

**Prerequisites:** Consent of Instructor required

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**JOURN 7252: Branded Strategic Storytelling**

(cross-leveled with JOURN 4252). This course for Strategic Communication students integrates digital and content marketing planning and operational methodologies designed to deepen students' knowledge of content creation, distribution strategies and audience engagement. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Graduate Journalism Majors only

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**JOURN 7254: Tools, Techniques and Technology of Visual Storytelling**

(cross-leveled with JOURN 4254). In this course, students will learn how to professionally shoot and strategically edit video, visuals and textual content, strategize how to publish that content on owned media and social media platforms, utilize tools like GoPro and Drone technology, and even VR/AR and 360 attachments to make content that is more immersive, influential, impactful and persuasive. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Graduate Journalism Majors only

**Recommended:** JOURN 7200, JOURN 7204

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**JOURN 7256: Public Relations**

Current methods of communicating with constituents as practiced by agencies, corporations and government/not-for-profit organizations.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200

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**JOURN 7262: Digital Strategy I**

(cross-leveled with JOURN 4262). Course covers every step from integrating Internet efforts into the overall strategic communication plan to building a website that works. Designed for those with an interest in interactive advertising. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 7200, JOURN 7204 and JOURN 7952

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**JOURN 7263: Digital Strategy II**

(cross-leveled with JOURN 4263). Course goes in-depth on top issues in the interactive process from video advertising to social networking sites and how to increase campaign performance with web analytics. Designed for those who want a career in interactive advertising. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 7262. Restricted to Journalism Graduate students

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**JOURN 7268: Strategic Communication Practicum**

(cross-leveled with JOURN 4268) Practical experience in public relations, corporate communications and strategic planning with the Missouri School of Journalism serving as client. Students from all journalism disciplines will apply knowledge and skills on a variety of platforms.

**Credit Hours:** 3

**Prerequisites:** JOURN 4200 or JOURN 7200, JOURN 4204 or JOURN 7204 and JOURN 4952 or JOURN 7952

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**JOURN 7270: Public Relations Writing**

(cross-leveled with JOURN 4270). Develop skills and capabilities in strategic communication applications, including news releases, media advisories, pitch letters, video news releases, media relations techniques, writing for electronic and broadcast media, feature writing, brochures and speeches. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor

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**JOURN 7300: Broadcast News I**

Beginning reporting and news writing for radio, television and their on-line services. Introduction to use of audio and video recorders and editing systems in production of news stories. Consideration of ethical issues, economic factors, relationships with news sources and gender and ethnic diversity in the newsroom and in news stories.

**Credit Hours:** 3

**Prerequisites:** JOURN 2100

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**JOURN 7301: Topics in Journalism**

Selected current topics in journalism. Specific topics to be announced at time of registration.

**Credit Hour:** 1-3

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**JOURN 7306: Broadcast News II**

Introduction to general assignment reporting skills for the newsroom environment. Instruction in time management, writing, storytelling and performance. Team skills and ethnic diversity in the newsroom are discussed. Students begin work for broadcast newsrooms.

**Credit Hours:** 3

**Prerequisites:** JOURN 4300 or JOURN 7300

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**JOURN 7308: Broadcast News III**

(cross-leveled with JOURN 4308). Intermediate reporting and news writing skills for radio and television. Advanced techniques in the use of video and sound in production of news stories.

**Credit Hours:** 3

**Prerequisites:** JOURN 7306

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**JOURN 7310: News Producing**

(cross-leveled with JOURN 4310). Instruction in techniques of television newscast preparation. Emphasis on role of the television news producer.

**Credit Hour:** 1-3

**Prerequisites:** JOURN 4308 or JOURN 7308

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**JOURN 7320: Advanced Broadcast Reporting**

(cross-leveled with JOURN 4320). In-depth reporting and editing for radio or television; advanced production techniques; emphasis on writing, interviewing, effective use of audio or videotape at KOMU-TV or KBIA.

**Credit Hours:** 3

**Prerequisites:** JOURN 4308 or JOURN 7308

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**JOURN 7328: Advanced News Communication**

(cross-leveled with JOURN 4328). This course will examine and practice the components of effective interviewing and on-set and live reporting for television news. Students will anchor KOMU-TV's morning newscasts.

**Credit Hour:** 1

**Prerequisites:** JOURN 4306 or JOURN 7306

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**JOURN 7340: Viewing Journalism Films: Images of the Reporter** (cross-leveled with JOURN 4340). The course will examine images of journalists in American films ranging from 'Citizen Kane' to the present. Students will analyze award-winning movies that pose key questions about the professional responsibilities of journalists in all fields. Topics will include issues related to the practice of journalism as well as those triggered by the work of specific journalists, such as Woodward and Bernstein.

**Credit Hours:** 2

**Prerequisites:** Instructor's consent required

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**JOURN 7350: Problems in Journalism**

Independent research arranged with individual faculty member. Contract must be approved by instructor and dean. Not accepted as a substitute for any regularly scheduled course. Some sections of the course may be graded on either A-F or S/U basis only.

**Credit Hour:** 1-3

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**JOURN 7360: Fundamentals of Design**

(cross-leveled with JOURN 4360). This is a beginning course in editorial design. We will study design history and learn basic design principles and concepts in both print and digital platforms. You will be introduced to software programs such as InDesign, Photoshop and Illustrator, as well as basic HTML coding.

**Credit Hours:** 2

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 2100 or JOURN 2150

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**JOURN 7370: The Intersections of Documentary Film and Journalism**

(same as FILMS\_VS 7370; cross-leveled with JOURN 4370, FILMS\_VS 4370). The popularity of documentary film in the past ten years has skyrocketed, and recent award-winning documentaries such as Inside Job (2010), Blackfish (2013), and The Invisible War (2012) are simultaneously entertaining audiences and investigating serious issues like the financial collapse, killer whale captivity, and sex crimes in the military-issues that in the past might have been covered exclusively by investigative journalism. What explains the public's growing fascination with documentary? How is documentary film reacting to recent transformations in the media landscape? Is it filling a critical need that journalism is no longer willing or able to meet? This course will explore the intersection of these two nonfiction storytelling forms--documentary film and journalism--and examine the role played by advocacy in both modes, as well as the cultural and ethical implications of the convergence between journalism and documentary film. In that it is centered on contemporary documentary film culture, the course also takes advantage of the True/ False Film Festival, and will be host to a conference during Week 6, featuring a number of major visiting filmmakers and film critics. Attendance at some sessions is required. Graded on A-F basis only.

**Credit Hours:** 3

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**JOURN 7371: Documentary Theory**

(cross-leveled with JOURN 4371). Documentary and other long-form story telling methods involve a complex series of decisions made in the creation of the work that determines its style, length, direction, point of view and more. These and a thousand other editing decisions are the difference between a successful project that touches its audience and

one that falls short. The focus of this course is on the craft of editing, as seen in a variety of documentary and other works and explained through the decisions made in and out of the editing room that lead to the final product. The course will introduce important concepts of editing, the work of significant editors in both documentary and narrative fiction films, and seek to apply those techniques to the conceptualization of documentary work students will do as part of their degree. Students will understand the history of documentary editing as it evolved on its own and as influenced by narrative fiction films, the language of editing, the work of important editors and directors and how it influences today's aesthetic and how to apply what they have learned to their own documentary projects at an advanced level. Graded on A-F basis only.

**Credit Hours:** 3

**Corequisites:** JOURN 7564

**Recommended:** JOURN 7370

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**JOURN 7372: Documentary Reporting**

(cross-leveled with JOURN 4372). Students will learn elementary documentary reporting techniques by producing video and audio content in small group and individual projects. The course focuses on collection of content in the field, interviewing, research, story construction, editing and presentation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor consent

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**JOURN 7373: Documentary Development**

(cross-leveled with JOURN 4373). This course will concern itself primarily with the formation of projects: from theories behind different kinds of documentaries, through real world investigations and research into possible projects, into the pitching and writing stage and lastly to the final idea that will be the basis of students' senior films. The ability to properly think of, clearly articulate, pitch and hone in on a project idea often makes the difference between a successful and unsuccessful final film. Still these ideas don't materialize out of thin air; inspiration for great documentaries can come from many places. Understanding how to seize viable project ideas is a crucial skill for a documentary filmmaker. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 7371

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**JOURN 7375: Documentary Business and the Public Sphere**

(cross-leveled with JOURN 4375). Whether it be through contract employment, freelancing, or independent production, creating documentaries requires a knowledge of professional and business practices that differ from many other parts of journalism. The course will introduce important concepts related to the development and production of documentary work, as well as the public distribution of that work. Students will research the industry and develop skills to manage business and professional relationships with the documentary world. Students will build and maintain personal branding materials. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** JOURN 7564

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**JOURN 7400: Introduction to News Editing**

(cross-leveled with JOURN 4400). Introduces the fundamentals of editing of stories and writing headlines for publication online and in print,

including an emphasis on style and grammar. Emphasized editing for an online audience.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

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**JOURN 7406: Digital News Editing**

(cross-leveled with JOURN 4406). Real-world experience in digital editing and news decision-making coupled with newspaper production; emphasis on editing and headline writing across platforms, design for home page and mobile, social media, ethics and fundamentals of grammar. Lab work is hands-on experience at columbiamissourian.com and the Missourian newspaper.

**Credit Hours:** 3

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**JOURN 7408: Magazine Editing**

(cross-leveled with JOURN 4408). Lectures provide an introduction to the magazine industry, including types of publications, roles of an editor and skills needed for today's magazine editor. Labs focus heavily on sentence structure, grammar, syntax, usage, punctuation and style.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4450 or JOURN 4804

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**JOURN 7410: Intermediate Writing**

(cross-leveled with JOURN 4410). In-depth reporting, research, and writing techniques with a magazine focus. Students produce articles for Vox, the Missourian and other magazines, publications or digital outlets.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 7450 or JOURN 4804 or JOURN 7804. Restricted to Journalism majors only

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**JOURN 7414: Field Reporting on the Food System and Environment**

(same as AGSC\_COM 7414; cross-leveled with JOURN 4414, AGSC\_COM 4414). Field reporting on the social, political, scientific, economic and ethical dimensions of the food system and environment, with emphasis on explanatory story-telling. Includes multi-day field trip. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**JOURN 7416: Science, Health and Environmental Writing**

(cross-leveled with JOURN 4416). In this course students learn how to cover science, health and environmental topics by reporting and writing several stories for publication. Students can develop a marketable specialty or cover these angles in any beat. This course can serve as a substitute for JOURN 7410 Intermediate Writing.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 4804 or JOURN 4206 or JOURN 4300 or JOURN 4372

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**JOURN 7418: Critical Reviewing**

(cross-leveled with JOURN 4418). This course seeks to enrich students' understanding of the arts; support their attendance of concerts, plays, films, and exhibitions; sharpen their skills in critical thinking; and encourage the publication of their reviews in Vox as well as other outlets.

Students will analyze the works of critics, gain a general appreciation of the ways to approach each art, and write reviews.

**Credit Hours:** 3

**Prerequisites:** JOURN \_0900 or JOURN 2100

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**JOURN 7420: Editorial Writing**

Emphasizes writing and thinking. Discussion of current problems. Correct and effective use of English language. Mission, obligations and history of editorial pages.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450

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**JOURN 7422: Sports Journalism**

(cross-leveled with JOURN 4422). A review of everything from 'How to Watch Sports' to the history of sports writing.

**Credit Hours:** 3

**Recommended:** JOURN 4450/JOURN 7450 or JOURN 4804/JOURN 7804 or JOURN 4306/JOURN 7306 or JOURN 4560/JOURN 7560.

Priority will be given to Sports Journalism students. All other consent will be give on a first-come first-served basis as space allows

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**JOURN 7424: Covering Traumatic Events**

(cross-leveled with JOURN 4424). This course will prepare reporters and future newsroom managers across platforms for the ethical, practical and emotional challenges of reporting accurately and sensitively on traumatic events. It will give students a deeper understanding of the psychological impact of such events, including natural and man-made disasters, violent crime, accidents, terrorism and war. The course will explore how news coverage affects individuals and communities, and the psychological challenges and ethical hazards for the journalists who cover these events, with a focus on best newsroom practices for managing fast-breaking news stories and mitigating the effects on communities and staffs. The course will also explore the challenges of technology in the context of traumatic events and how social media have affected coverage of and response to crime, war and disasters. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 7450; JOURN 4804 or JOURN 7804; or JOURN 4560 or JOURN 7560

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**JOURN 7426: Religion Reporting and Writing**

(same as REL\_ST 7418; cross-leveled with JOURN 4426, REL\_ST 4418). Advanced seminar in religion reporting and writing. Examines the role of religion journalism in faith, public life and culture.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 7450 or its equivalent in professional writing experience and instructor's consent

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**JOURN 7428: Health Reporting Skills**

This course focuses on reporting, sourcing and analysis techniques journalists use to understand and report on health policy, health-care quality, medical research and the business of health care. Graded on A-F basis only.

**Credit Hour:** 2-3

**Prerequisites:** JOURN 4450 or JOURN 7450, JOURN 4306 or JOURN 7306, or JOURN 4804 or JOURN 7804 and instructor's consent



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**JOURN 7430: Computer-Assisted Reporting**

(cross-leveled with JOURN 4430). How to negotiate for, transfer and process electronic information; the unique opportunities computers provide for analyzing information.

**Credit Hours:** 3

**Prerequisites:** Graduate standing is required and students must have completed JOURN 7306 or 7450 or 7804

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**JOURN 7432: Advanced Data Journalism**

(cross-leveled with JOURN 4432). Teaches students how to creatively solve problems in journalism using computer programming. Students will learn how to code using the Python language, and how to apply those coding skills to perform real-world tasks. Students will learn the concepts, theory and practical programming skills needed to clean data, scrape web sites and turn databases into interactive online experiences. By the end of the semester, students will have learned the skills to create interactive database presentations, and will have created a functional web app that will serve as a portfolio piece.

**Credit Hours:** 3

**Prerequisites:** JOURN 4430

**Recommended:** JOURN 4502

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**JOURN 7434: The Art and Mechanics of the Business Story**

(cross-leveled with JOURN 4434). The purpose of this course is to give students a deep understanding of business journalism and for them to apply those skills in a real newsroom, Missouri Business Alert. The class will cover everything from audience to financials, and students will leave the class with several work samples to show potential employers. Those classes include: JOURN 4450 or JOURN 7450; JOURN 4306 or JOURN 7306; JOURN 4804 or JOURN 7804; JOURN 4556 or JOURN 7556.

**Credit Hours:** 3

**Prerequisites:** Journalism Graduate students who have passed a newsroom reporting class (or its equivalent)

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**JOURN 7436: Investigative Reporting**

(cross-leveled with JOURN 4436). Advanced course designed to acquaint reporters with public issues. Students write two in-depth projects and other shorter assignments. Students meet weekly with instructor for editorial suggestions.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 7450 and instructor's consent

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**JOURN 7438: Business, Financial and Economic Journalism**

(cross-leveled with JOURN 4438). Understanding the news from the business sector and nation's economy for journalists and public relations students. Including financial filings, equity markets, local business, economic indicators, job creation, business data, sports business and what makes business/economic news different from other journalism. Includes tour of business journalism outlets and markets in New York. Open to all sequences and platforms.

**Credit Hours:** 3

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**JOURN 7439: Advanced Business Journalism**

(cross-leveled with JOURN 4439). This class requires students to write business stories every week and to attain a high level of financial literacy

in the process. The class will cover topics behind the headlines, showing students how to spot economic trends, the stories behind the economy's main actors, and the keys to spotting a troubled business. By the end of the class, all students will be certified users of the Bloomberg Terminal. To take this course, students must enroll in one of the two attached accounting classes (grad or undergrad). Both are offered online. Graded on A-F basis only. Prerequisites: Students must have taken or take concurrently with this course: ACCTCY 2010 or ACCTCY 7310.

**Credit Hour:** 1-3

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**JOURN 7440: Mapping for Stories and Graphics**

Learn mapping software to discover information for news stories and lay the foundations for compelling news information graphics. Students will learn how to create maps for print, broadcast and online. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** JOURN 2100 and instructor's consent

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**JOURN 7448: Public Service Journalism: Covering State Government**

(cross-leveled with JOURN 4448). One of the most important roles journalism plays in society is holding the powerful accountable and keeping the public informed about what those in charge are doing. Covering state government allows journalists to do both of these things. This course gives you the background you need to provide effective government coverage, and gives you hands-on experience. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** Instructor consent required

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**JOURN 7450: News Reporting**

(cross-leveled with JOURN 4450). Assignments on a daily city newspaper covering community news, city, county and state affairs, sports and lifestyle issues. Experience in gathering and writing news, writing under deadline conditions.

**Credit Hours:** 3

**Prerequisites:** JOURN \_0900 or JOURN 2100

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**JOURN 7460: Advanced News Reporting**

(cross-leveled with JOURN 7460). Assignments to more difficult beat areas, team reporting, and some investigative reporting for community newspaper. Individual conferences and weekly class sessions on contemporary reporting problems.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 7450

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**JOURN 7462: Emerging Technologies in Journalism**

(cross-leveled with JOURN 4462). This course quickly responds to technology developments in journalism through a combination of theory, practice and research. Students learn to use the developing technology and also strategies to manage its impact on media organizations while expanding academic discourse. May be repeated for credit. Graded A-F basis only.

**Credit Hour:** 1-3

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**JOURN 7464: Magazines Across Platforms**

(cross-leveled with JOURN 4464). As digital editors for Vox Magazine, students manage and create content for Vox's digital platforms, including its WordPress website, blog, social media accounts and award-winning iPad app. Students also work with analytics, engagement and multimedia. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4450 or JOURN 7450 or JOURN 4804 or JOURN 7804

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**JOURN 7480: Will Write for Food (and Wine)**

(cross-leveled with AGSC\_COM 4480, JOURN 4480). Course focuses on food and wine writing in current U.S. culture. Come ready to create mouthwatering narrative and actively seek publishing your finished work. An emphasis will be placed on class participation and written critiques of peer-reviewed articles in class. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Junior standing, instructor's consent and JOURN 4450. Restricted to Journalism and Science Agriculture Journalism students only

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**JOURN 7500: Publication Design**

(cross-leveled with JOURN 4500). Intermediate design techniques and theories of editorial design. Students apply classroom teachings by designing pages for the Columbia Missourian and Vox Magazine. Students work under deadline and learn attention-to-detail through use of execution of design style guides.

**Credit Hours:** 3

**Prerequisites:** JOURN 4360 and instructor's consent. Restricted to Journalism Graduate students only

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**JOURN 7502: Multimedia Planning and Design**

(cross-leveled with JOURN 4502). Class covers the basics of web design - Storyboarding, navigation, information architecture, reader behavior, usability studies - as they relate to journalistic stories and persuasive messages. Prerequisites: Completion of one of the following: JOURN 4804, JOURN 4508, JOURN 4406, JOURN 4506, JOURN 4204, JOURN 4306, JOURN 4450 or JOURN 4560; or by instructor's consent.

**Credit Hours:** 3

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**JOURN 7506: Magazine Design**

Introduction to typography of magazines from manuscript markup through layout to page proof. Extensions and limitations of typography are considered in light of current practice and economic possibilities.

**Credit Hours:** 3

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**JOURN 7508: Information Graphics**

(cross-leveled with JOURN 4508). Work as a news artist for a daily city newspaper graphically covering community news, sports and lifestyle issues. Emphasis on visual thinking and effective presentation. Experience with state-of-the-art software.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 7450 or the professional equivalent, or instructor's consent

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**JOURN 7510: Visual Communications**

How to communicate through pictures. Topics: visual perception, vocabulary, the role of words, picture editing, design and layout, printers, taste and judgment, camera mechanics. For journalism students who are not photographers.

**Credit Hour:** 2-3

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**JOURN 7554: Visual Editing for Multimedia**

(cross-leveled with JOURN 4554). This class develops understanding of multimedia storytelling by focusing on editing, production, and business model practices for online visual journalism. It builds on a foundation of digital editing, photojournalism, photo editing, videography, and multimedia production. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4804 or JOURN 4550 or JOURN 4306 or JOURN 4406 or JOURN 4506 and instructor's consent; restricted to Journalism and Science and Agriculture Journalism students only

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**JOURN 7556: Fundamentals of Photojournalism**

(cross-leveled with JOURN 4556). A rigorous skills course for advanced students preparing for a career in photojournalism consisting of weekly exercises in black and white and color photographic story telling and lectures that explore the philosophical, historical and ethical roots of the profession.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**JOURN 7558: Advanced Techniques in Photojournalism**

(cross-leveled with JOURN 4558). Advanced techniques and problem solving in photojournalism. Stresses lighting techniques-available, studio, electronic flash and color correction of color film. Strobed documentary, portraiture, fashion, food, architecture, sports.

**Credit Hours:** 3

**Prerequisites:** JOURN 4556 or JOURN 7556

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**JOURN 7560: Staff Photojournalism**

(cross-leveled with JOURN 4560). A laboratory course exploring the photojournalist's role in the news-gathering process. As staffers for the Columbia Missourian, students cover news, sports, features, food assignments and originate single pictures and stories.

**Credit Hours:** 3

**Prerequisites:** JOURN 4558 or JOURN 7558

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**JOURN 7562: Photojournalism Business Practices**

(cross-leveled with JOURN 4562). Discusses legal, financial, organizational and entrepreneurial issues for photojournalists. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4558 or JOURN 7558 and JOURN 4566 or JOURN 7566, or instructor's consent required. Restricted to graduate Journalism majors only

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**JOURN 7564: Micro-Documentary Photojournalism and Videography**  
(cross-leveled with JOURN 4564). This course extends students' understanding and abilities to produce short-form video journalism. They will produce, from concept to web publication, two five-minute non-fiction videos that serves the public through engaging visual sound techniques and compelling narrative. Graded on A/F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4558 or JOURN 7558 or JOURN 4306 or JOURN 7306 or JOURN 4804 or JOURN 7804 or consent of instructor. Restricted to Journalism or Science and Agricultural Journalism students only

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**JOURN 7566: Electronic Photojournalism**  
(cross-leveled with JOURN 4566). Concepts and skills to incorporate photographs, audio and video for interactive presentation, with an emphasis on project design and coding for web and mobile devices. Graded on A-F basis.

**Credit Hours:** 3

**Prerequisites:** JOURN 4556 or JOURN 7556 and instructor's consent required

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**JOURN 7568: History of Photojournalism**  
(cross-leveled with JOURN 4568). Examination of the aesthetic and technological development of photography from its invention in 1839 to the present. Primary emphasis on the evolution and impact of the picture press and the documentary tradition in America, although international developments are studied as well.

**Credit Hours:** 3

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**JOURN 7650: International Issues Reporting**  
An advanced professional seminar on how to recognize, report and write about the domestic influence of international political, economic and cultural problems and trends.

**Credit Hours:** 3

**Prerequisites:** JOURN 4450 or JOURN 7450

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**JOURN 7656: International News Media Systems**  
A comparative survey of current news media systems and how they affect the international flow of information. Newspapers, news agencies, broadcasting and satellite networks of the world are analyzed.

**Credit Hours:** 3

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**JOURN 7658: International Journalism**  
(cross-leveled with JOURN 4658). An examination of the gathering, editing and dissemination of international news. The impact of social, economic, cultural and political structures on news media performance is evaluated.

**Credit Hours:** 3

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**JOURN 7660: Media Forces Shaping the European Union**  
(cross-leveled with JOURN 4660). Seminar analyzes the role of media in shaping policies and actions of the European Union member nations and their people. Open to graduate students regardless of major and to undergraduates with instructor's consent. Course qualifies for EU Certificate Program.

**Credit Hours:** 3

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**JOURN 7662: Global News Across Platforms**  
(cross-leveled with JOURN 4662). Online, radio, and print production for a converged media enterprise, Global Journalist. Students report, write, plan, edit, design, and produce a video and radio program and website on international news while working under weekly deadlines.

**Credit Hours:** 3

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**JOURN 7700: Engaged Journalism**  
(cross-leveled with JOURN 4700). An examination of how information is shared outside professional journalism, and how journalists can interact with communities. Topics will include community collaboration, social media, audience outreach and understanding, and an expanding definition of 'news.' Students will work with the community on behalf of the Missourian. All interest areas welcome.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**JOURN 7706: The Community Newspaper**  
(cross-leveled with JOURN 4706). The role of the newspaper in the community. Handling of news categories especially applicable to smaller newspaper. Field trips giving students experience in publishing newspapers in the state.

**Credit Hours:** 3

**Prerequisites:** JOURN \_0900 and JOURN 2100

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**JOURN 7716: Women and the Media**  
(same as WGST 7716;cross-leveled with JOURN 4716, WGST 4716). Focus on portrayal of women in American mass media. Other goals: historical perspective on women as journalists; exposure to issues usually not covered by mass media; research and writing skills.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**JOURN 7718: Law and the Justice System**  
(cross-leveled with JOURN 4718). Lectures, readings, discussions, writing assignments relating to justice system reporting from the view of attorneys, prosecutors, judges, correction and probation officers, with the cooperation of the Missouri Bar.

**Credit Hours:** 3

**Prerequisites:** JOURN \_0900 or JOURN 2100

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**JOURN 7734: Journalism and Chaos: How to Understand and Cover 21st Century Business Models**  
(cross-leveled with JOURN 4734). The purpose of this class is to explore alternative business/journalism models that can be grown from the rib of the traditional newsroom.

**Credit Hours:** 3

**Prerequisites:** Restricted to Journalism and Agricultural Journalism students only

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**JOURN 7736: Changing Media Business Models**  
Analysis of the economic changes in news media. Explore concepts and theories of monetizing media. Hands-on experience in creating innovations in media business models.

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**Credit Hours:** 3

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**JOURN 7738: Thought, Language and Journalism**

This seminar uses the methods of science to explore and better understand the biases and limitations of language, culture, technology and other factors shaping the semantic environment as applied to the practice of journalism and mass communications studies.

**Credit Hour:** 1-3

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**JOURN 7802: Fundamentals of TV, Radio and Photojournalism**

Skills, theory and ethics of broadcast news and photojournalism for non-broadcast majors. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 2100

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**JOURN 7804: Convergence Reporting**

(cross-leveled with JOURN 4804). Practice and theory of reporting for converged media. Students produce multimedia reports for traditional and converged media operations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 7802 or instructor's consent

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**JOURN 7806: Convergence Editing and Producing**

(cross-leveled with JOURN 4806). Practice and theory of editing and producing material for publication or broadcast in a converged environment. Students produce media for multiple outlets. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4306 or JOURN 7306 or JOURN 4804 or JOURN 7804

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**JOURN 7810: National News Writing and Production**

(cross-leveled with JOURN 4810). Learn updated storytelling and video-production techniques on-site at Newsy, a next generation news network. You will work weekly shifts throughout the semester, culminating in the production of your own portfolio and mock interviews with hiring managers. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**JOURN 7812: Online Audience Development**

(cross-leveled with JOURN 4812). You're already using social media every day - but are you using it in the most effective way possible? In Online Audience Development students will explore, envision and evaluate the possibilities of social media integration in news production workflows. We'll experiment with emerging social platforms to see how they might fit in a newsroom's social media and branding playbook. You will also exercise, develop and improve on all the journalism skills practiced in previous classes: researching, reporting, editing, producing, proofreading, photo editing and design. The big difference? This time you'll be reporting on our newsrooms in order to help create deeper connections with the audience. Graded A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required

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**JOURN 7814: Multimedia Sports Journalism**

Assignments on a daily regional website and radio station covering sports with converged media. Experience in reporting game and feature stories under deadline conditions. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 4306 or JOURN 7306, or JOURN 4450 or JOURN 7450, or JOURN 4804 or JOURN 7804, or JOURN 4556 or JOURN 7556 or JOURN 4560 or JOURN 7560. Restricted to Journalism and Science and Agricultural Journalism students only. Instructor's consent required

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**JOURN 7940: Internship in Journalism**

Credit for approved employment in journalism. Specifications for this course appear in the Undergraduate Catalog. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** Restricted to Journalism students only

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**JOURN 7952: Strategic Communication Research I**

(cross-leveled with JOURN 4952). Introduction to techniques and practice of strategic communication research. Emphasis on research techniques and use of research results, including consumer analysis, attitude measurement and evaluation of externally supplied research.

**Credit Hours:** 3

**Prerequisites:** Restricted to Strategic Communication and Science and Agricultural Journalism Majors

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**JOURN 7970: Strategic Campaigns**

(cross-leveled with JOURN 4970). This capstone course gives students a hands-on opportunity to use their skills and apply strategic communication learning to a real client situation. To be taken final semester. Application required for Mojo Ad section and will include additional leadership responsibilities.

**Credit Hours:** 3

**Prerequisites:** JOURN 4204 or JOURN 7204

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**JOURN 7972: Photo and Visual Editing**

(cross-leveled with JOURN 4972). An advanced visual editing course. Primary work is as a photo/multimedia editor on the Columbia Missourian photo desk. You collaborate on daily and semester projects and are assigned specific leadership roles.

**Credit Hours:** 3

**Prerequisites:** JOURN 4408 or JOURN 7408 or JOURN 4204 or JOURN 7204 or JOURN 4500 or JOURN 7500 or JOURN 4560 or JOURN 7560

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**JOURN 7974: Advanced Internet Applications for Radio/TV News**

(cross-leveled with JOURN 4974). Integration of advanced Internet research and publishing skills with production and management of the KOMU-TV/KBIA Radio World Wide Web news service.

**Credit Hours:** 3

**Prerequisites:** JOURN 4306 or JOURN 7306

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**JOURN 7976: Seminar in Radio-TV News**

(cross-leveled with JOURN 4976). Seminar in network and local news process, in coverage of major issues and social problems, in relationships

of radio-TV news and government institutions. Not for students who have taken JOURN 8096.

**Credit Hours:** 3

**Prerequisites:** JOURN 4306; instructor's consent required

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**JOURN 7978: Media Management and Leadership**

(cross-leveled with JOURN 4978). Dramatic changes in technology and the media's role in converging technologies require new management and leadership techniques and paradigms. Students will write case examining these changes.

**Credit Hours:** 3

**Prerequisites:** JOURN 4306 or JOURN 4804

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**JOURN 7980: The Picture Story and Photographic Essay**

(cross-leveled with JOURN 4980). Production of photo stories/essays for newspapers, magazines and news media presentations. Research, photography, design and layout. Final portfolio will show journalistic strength and versatility in black and white, and color.

**Credit Hours:** 3

**Prerequisites:** JOURN 4560 or JOURN 7560

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**JOURN 7984: Magazine Staff**

(cross-leveled with JOURN 4984). This course provides hands-on experience serving as an editor on a magazine staff. Students are department editors for Vox Magazine and learn how to take a story from an idea through story creation and production and to the printed page, as well as best practices for executing that idea across multiple platforms. Students learn about pitching, working with writers, designers and photographers, editing for content and style, successful story packaging and team collaboration.

**Credit Hours:** 3

**Prerequisites:** JOURN 4410 or JOURN 7410, JOURN 4408 or JOURN 7408

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**JOURN 7986: Advanced Writing**

(cross-leveled with JOURN 4986). This course builds on the in-depth, reporting, research, and writing techniques of Intermediate Writing and other writing and reporting classes. It is designed for those who wish to pursue writing as a career. Students complete writing assignments and analyze the work of well-known magazine and book authors.

**Credit Hours:** 3

**Prerequisites:** JOURN 4410 or JOURN 7410 or equivalent. Restricted to Journalism students only

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**JOURN 7988: Advanced Publication Design**

(cross-leveled with JOURN 4988). Project-based capstone in which skills learned in previous courses are applied to professional-level design challenges, such as feature, cover or iPad designs; multimedia prototypes; special editions; or other applications for Vox Magazine, Columbia Missourian or other outlets.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor required

**Recommended:** JOURN 4500 or JOURN 7500

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**JOURN 7992: Innovation and Audience Outreach in Converged Media**

(cross-leveled with JOURN 4992). Capstone course brings together the reporting, editing, audience focus, management and marketing skills gained in previous journalism courses. Students evaluate audiences and sustainability for journalistic content, applications, products and experiences and plan, produce and promote internal and external projects. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** JOURN 7804, JOURN 7806 or equivalent level of multimedia experience; instructor's consent required

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**JOURN 7994: Magazine Publishing**

(cross-leveled with JOURN 4994). This capstone experience explores key components and recent trends in the magazine industry. The primary focus is creating a magazine prototype that includes conceptualizing ideas and editorial for new titles, as well as business plans for advertising, circulation, finance and production. The course follows a nuts and bolts, learn-by-doing approach to how these components work together and influence one another.

**Credit Hours:** 3

**Prerequisites:** JOURN 4408 or JOURN 7408 and either JOURN 4410 or JOURN 7410 or equivalent, or JOURN 4360 or JOURN 7360 or JOURN 4500 or JOURN 7500. Restricted to Journalism students only

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**JOURN 8000: Mass Media Seminar**

Concepts, functions and major problems of print and electronic media in the United States. Two hours lecture and one hour of discussion lab each week.

**Credit Hours:** 3

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**JOURN 8001: Seminar on Topics in Journalism**

Problems, issues and approaches to research in selected topic areas. Specific content varies by needs of faculty and students and will be announced in advance.

**Credit Hours:** 3

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**JOURN 8006: Quantitative Research Methods in Journalism**

Research methods of utility in journalism and philosophy of science. Emphasis on understanding common quantitative methods and tools.

**Credit Hours:** 3

**Prerequisites:** six hours of journalism or instructor's consent

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**JOURN 8008: Qualitative Research Methods in Journalism**

Course is designed to introduce graduate students to common qualitative approaches applicable to the study of journalism and mass communication. Students will learn a variety of approaches, practical methodologies and tools that will help them conduct research.

**Credit Hours:** 3

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**JOURN 8010: Advanced Qualitative Methods in Journalism**

Designed to familiarize doctoral students with qualitative approaches applicable to the study of journalism and mass communication. Students will be introduced to a variety of philosophical and conceptual

approaches as well as to practical tools-oriented methodologies in four major areas of qualitative research.

**Credit Hours:** 3

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**JOURN 8016: Advanced Quantitative Research Methods**

Experimental design, factor analysis, semantic differential and Q methodology as tools for the researcher in journalism, communication.

**Credit Hours:** 3

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**JOURN 8020: Principles and Tools in Strategic Communication Planning**

Introduces the latest principles of strategic communication and the importance of strategic planning in many contemporary communication fields. A significant operational component in the course introduces skills such as budgeting, scheduling objective-setting, organizing personal time, and managing people.

**Credit Hours:** 3

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**JOURN 8026: Philosophy of Journalism**

Seminar deals with wide assortment of philosophical questions in journalism but concentrates on epistemology, political press theory and ethics. Such questions as 'objectivity' in journalism, press responsibility, professionalism.

**Credit Hours:** 3

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**JOURN 8028: The Literature of Journalism**

Reading of ten basic books about journalism. Several books are assigned to everyone; several are assigned on an individual basis, and several are electives. Oral reports, short papers, and class discussion.

**Credit Hours:** 3

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**JOURN 8030: History of Mass Media**

American mass media from colonial days to present in the context of social, economic and political change. History research.

**Credit Hours:** 3

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**JOURN 8032: Media Sociology**

This course examines the relationship between media (and journalism in particular) and society by addressing the impact of society on media and the impact of media on society. It connects media actors, organizations, and institutions to important sociological concepts, such as socialization, social interaction, social roles, and social structures, concerns, such as power, ideology, autonomy, and identity, and debates, such as agency-structure, subjectivity-objectivity, and stability-change. Graded on A-F basis only.

**Credit Hours:** 3

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**JOURN 8036: Historical Methods**

Graduate seminar in research methods and theoretical approaches used by media historians, including oral history, biography, quantitative and archival research.

**Credit Hours:** 3

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**JOURN 8038: Seminar in Communications Law**

A graduate-level survey of issues in media law, as well as an introduction to First Amendment theory and scholarship. The course familiarizes students with fundamental concepts of mass media law through exposure to primary materials and provides students with the opportunity to analyze the issues discussed in class through individual research projects.

**Credit Hours:** 3

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**JOURN 8042: Health News and Promotion**

This is an advanced seminar that examines and critiques the literature on health communication in news about health and its impact and health promotion campaigns.

**Credit Hours:** 3

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**JOURN 8044: Strategic Conflict Management**

Strategic conflict management is a cross-disciplinary study that integrated organizational behavior, crisis management, conflict resolution and image repair. This course melds theory with practice, and is for those venturing into media management, law, and strategic communication.

**Credit Hours:** 3

**Prerequisites:** graduate journalism standing required

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**JOURN 8046: Controls of Information**

A detail of actions by government, largely the federal government, calculated to limit or alter the content of information in the United States.

**Credit Hours:** 3

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**JOURN 8052: Case Studies in the Digital Globe**

This course seeks to broaden students perspective about how digital technology affects the world around us. Final course in the CDiG certificate. Inter-departmental course.

**Credit Hours:** 3

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**JOURN 8054: Entrepreneurship and Media of the Future**

This course will give students an intense hands-on experience in working with real entrepreneurs on complex business problems in the journalism field. Example companies are the Associated Press, Kachingle, the Chicago Sun-Times, Spot-Us and the Media Policy Center. The goal is to offer a solution or solutions to the stated problem, and to present these ideas in a competitive, symposium environment.

**Credit Hours:** 3

**Prerequisites:** Graduate standing in Journalism or MBA program

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**JOURN 8056: Theory of Mass Communication**

Major communication theories and theorists. Interpersonal theories are included as they relate to mass communication.

**Credit Hours:** 3

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**JOURN 8058: Communication in Media Organizations**

Covers key concepts in management and communication in media organizations, including print, broadcast, advertising and public relations. Topics include leadership, human resource management, managerial/employee communication, career success, financial decision-making, teambuilding and goal setting in media organizations.

**Credit Hours:** 3

**Prerequisites:** Open to students in the online master's program only

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**JOURN 8068: The Mass Media and the Presidency**

This seminar examines that historical triad of the free expression clauses of the First Amendment, the presidency and the American mass media through readings, class assignments and a project.

**Credit Hours:** 3

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**JOURN 8070: Proseminar in Communications**

Seminar on professional and academic issues in journalism and communication. Specific discussion topics selected by faculty and students on a per class basis.

**Credit Hour:** 1-3

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**JOURN 8080: Media Ethics**

An introduction to and application of ethical theory to their contemporary mass media.

**Credit Hours:** 3

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**JOURN 8085: Problems in Journalism**

Individual work on chosen and specified problems not associated with the master's thesis or project. Topic must be arranged with supervising teacher prior to registration.

**Credit Hour:** 1-4

**Prerequisites:** Master's students only

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**JOURN 8090: Research in Journalism**

Guidance for graduate students engaged in research toward production of the thesis. Graded on a S/U basis only.

**Credit Hour:** 1-9

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**JOURN 8092: Photography in Society**

Social and political dimensions of still photography with emphasis on critical thinking and analysis in visual communication.

**Credit Hours:** 3

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**JOURN 8098: MA Project Seminar**

Choosing and designing an appropriate profession project; preparation to carry out work successfully; discussion of trends and future directions in various areas of journalism. Must be completed before starting the professional project. Graded on S/U basis only.

**Credit Hour:** 1

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**JOURN 8100: MA Thesis Seminar**

Choosing and developing an appropriate research topic for a thesis; designing a research strategy and learning appropriate investigative techniques. Must be completed before starting thesis. Graded on S/U basis only.

**Credit Hour:** 1

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**JOURN 8106: The Magazine: Then and Now**

Examines magazines' history, role, economics and ethical practices, and the companies and people who produce them, particularly in the United States. It also reviews research perspectives that have illuminated this medium.

**Credit Hours:** 3

**Prerequisites:** JOURN 8000

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**JOURN 8110: Editing and News Design for the High School Advisor**

Fundamentals of editing and headline writing for publication. Principles of design with emphasis on newspaper usage.

**Credit Hours:** 3

**Prerequisites:** Restricted to students in the online College of Education Master's program for high school journalism instructors

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**JOURN 8120: Media Law and Ethics for the High School Advisor**

Legal concepts, including prior restraint, libel, privacy, obscenity, contempt and access as they related to print, broadcast, scholastic journalism, advertising and other areas. Includes examination of media ethics and practice.

**Credit Hours:** 3

**Prerequisites:** Restricted to students in the online College of Education Master's program for high school journalism instructors

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**JOURN 8185: Area Seminar in Journalism**

Seminar designed to accompany JOURN 8190, Area Problem. Through readings and discussions the master's student examines the special area related to the project.

**Credit Hours:** 3

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**JOURN 8190: Area Problem in Journalism**

Work project enabling a master's student to demonstrate professional competence; may be one offered in a graduate reporting program or a creative project designed to meet a particular interest of student. Graded on S/U basis only.

**Credit Hour:** 1-9

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**JOURN 9000: Doctoral Theory and Research I**

First semester of a one-year course that covers theory and method in important topic areas. Each topic would be examined from several theoretical and methodological points of view. Required of doctoral students.

**Credit Hours:** 3

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**JOURN 9006: Doctoral Theory and Research II**

Continuation of JOURN 9000. Required of doctoral students.

**Credit Hours:** 3

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**JOURN 9008: Readings in Journalism**

Directed readings for doctoral candidates. Designed to supplement work in other courses and to broaden student's knowledge of trends, interpretations and developments in the media.

**Credit Hour:** 1-5

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**JOURN 9010: Doctoral Research Design**

This course is designed to meet the University requirement for a first-year qualifying examination process for doctoral students, involve students in research early in their programs and encourage students to recruit members of their doctoral committees.

**Credit Hours:** 3

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**JOURN 9085: Problems in Journalism**

Individual work on chosen and specified problems not associated with the doctoral dissertation or project. Topic must be arranged with supervising teacher prior to registration.

**Credit Hour:** 1-4

**Prerequisites:** Doctoral students only

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**JOURN 9087: Professional Development**

Weekly discussion session for doctoral students. Required of all doctoral students. Graded on S/U basis only.

**Credit Hour:** 1

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**JOURN 9090: Research in Journalism**

Guidance for doctoral candidates engaged in investigations looking toward production of the dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-9

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## Korean (KOREAN)

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**KOREAN 1001: Topics in Korean - General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**KOREAN 1005: Topics in Korean - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**KOREAN 1100: Elementary Korean I**

Introductory course on Korean language. Five hours classroom instruction with one hour lab weekly.

**Credit Hours:** 6

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**KOREAN 1200: Elementary Korean II**

Five hours classroom instruction with one hour lab work weekly.

**Credit Hours:** 6

**Prerequisites:** C- or better in KOREAN 1100

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**KOREAN 1830: Survey of East Asian History**

(same as HIST 1830). Introductory survey of the history of East Asian countries (China, Korea, Vietnam, and Japan) in the past two thousand

years, focusing on their cultural, economic, and political traditions as well as their transformations in the modern era. Graded on A-F basis only.

**Credit Hours:** 3

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**KOREAN 2001: Topics in Korean - General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing or instructor's consent

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**KOREAN 2005: Topics in Korean - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing or instructor's consent

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**KOREAN 2160: Intermediate Korean Language I**

Intermediate Korean I continues to build on the skills students acquired in the first-year series with increasing work in authentic materials and situations in conversation and reading that encourage students to understand the use of language in its social and cultural context.

**Credit Hours:** 3

**Prerequisites:** KOREAN 1200

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**KOREAN 2310: Korean Civilization I**

Focuses on understanding traditional Korean people and culture through examining social, political, economic, and belief systems. Considers literature, art, folklore, and history up to the late 19th century. May be taken independently of KOREAN 2320.

**Credit Hours:** 3

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**KOREAN 2320: Korean Civilization II**

Considers the situation and culture of Korea at the end of the Chosun Kingdom, and the period of modernization beginning about 1876. Investigates how modernization has changed Korea by looking at attitudes, behaviors, values, philosophies, and trends of Korea in the 20th and 21st centuries. May be taken independently of KOREAN 2310.

**Credit Hours:** 3

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**KOREAN 2810: History of Korea: Premodern to Hypermodern**

(same as HIST 2810). This course examines Korea historically. The area known as Korea and the people identified as Korean are considered temporally from the ancient times to the contemporary period. This course begins with the questions of what is Korea and when it became a distinct place in world history. More time is devoted to the contemporary period than other periods, and North Korea is equally considered with South Korea. This course is not only about what happened in Korea but also about how Korea's historical events are causally connected to world events, with the greater aim of universalizing Korea's historical questions.

**Credit Hours:** 3

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**KOREAN 3001: Topics in Korean-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent. Prerequisites: sophomore standing and instructor's consent;

**Credit Hour:** 1-3

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**KOREAN 3005: Topics in Korean - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and instructor's consent

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**KOREAN 3160: Intermediate Korean Language II**

Continues to build on the skills students acquire in the third semester of Korean language with increasing work in authentic materials and situations in conversation and reading. Encourages students to understand the use of language in its social and cultural context.

**Credit Hours:** 3

**Prerequisites:** KOREAN 2160, or instructor's consent

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**KOREAN 3180: Advanced Korean I**

The course is designed to advance students to greater strength in oral communication competence, reading skills, and socio-cultural knowledge of Korea. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or higher in KOREAN 3160, or equivalent

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**KOREAN 3650: Korean Politics**

This course is designed to help student understand the dynamics of Korean politics by critically examining major political issues in Korean political history since 1945. Korea is well known country as a rare example that has achieved rapid economic development as well as democratization in a short period of time in the world. However, Korea has experienced severe political struggles in the process of its political development. I assume Korea has survived three stages of political struggles, that is, the struggle for state-building, the struggle for the economic development, and the struggle for democratization which is in progress. For critical understanding of the Korean politics I will deal with the important issues in each stage of political struggles. I am also planning to deal with somewhat external issues that might have affected the Korean political process, that is. North Korean nuclear challenge and unification questions, and Sino-US rivalry in the East Asia.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**KOREAN 3800: Korean Economic Development and US-Korean Free Trade Agreement**

Covers introductory theories of economic development and overviews Korean historical economic development plans. Aids with understanding how South Korean achieved high levels of economic development and what policies the South Korean Government implemented to spur growth. US -Korea Free Trade Agreement is a good example of how trade promotes the achievement of development goals.

**Credit Hours:** 3

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**KOREAN 3890: Korean Society Through Cinema**

(same as FILMS\_VS 3895). Examines the way in which Korean film reveals the cultural, political, and ideological orientation of the society in which it is created and circulated. Compares films from North and South Korea, considering modernity, gender, nation-hood, and class. Graded on A/F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**KOREAN 4001: Topics in Korean-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing and instructor's consent

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**KOREAN 4005: Topics in Korean - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing and instructor's consent

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**KOREAN 4220: North Korean Politics**

This course is designed to help student understand the dynamics of North Korean politics. North Korea can be described as an exceptional country in many ways. First, the transition of power in the North Korea was made through the hereditary succession like a monarchy even though it claimed to be a socialist country. Second, North Korea has survived as a socialist country, while most of the communist countries including the Soviet Union and East European countries collapsed in the late 1980s and the early 1990s. Third, the North Korea, one of the poorest countries, has developed the nuclear weapons as well as other weapons of mass destruction, threatening the international security. For critical understanding of the North Korean politics I will trace the Korean communist movement, and deal with the North Korean political history since 1945. I am also planning to deal with the ideology and important governmental structure including the Korean Workers' party, the Military Commission and the social control structures. Then I will examine the current issues including economic reforms, the nuclear challenge, and the several issues with the South Korea like unification questions and the conclusion of the peace treaty to end the Korean War.

**Credit Hours:** 3

**Prerequisites:** junior standing required

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**KOREAN 4260: The Korean Diaspora in the U.S., Japan and China**

Interdisciplinary course related to the phenomenon of migration and settlement from Korea. Course seeks to deepen understanding of the ways in which Korean immigrants have shaped and continue to shape social thought as well as institutions in the United States, Japan and China. Draws upon literature, history and cultural studies to examine experiences of Koreans living in the U.S., Japan and China. Through reading critical literatures, students address issues such as immigration history, race/ethnicity, racism and resistance, gender and sexuality,

culture and identity, labor, migration and globalization, class, education, religion.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent required

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**KOREAN 4690: Korean Politics - South and North Korea**

(same as POL\_SC 4690). This course is designed to help student understand the dynamics of Korean politics by critically examining major political issues in Korean political history since 1945. Korea is the only country that still remained in the Cold War international structure. Since the division of Korean peninsula, the two Koreas are competing each other for the legitimacy among Koreans. For critical understanding of the Korean politics, I will first deal with the division of Korean peninsula and emergence of two Koreas, Korean war and the political implication of the two Koreas. And then I will focus on the South Korean politics of which country that is well known as a rare example that has achieved rapid economic growth as well as democratization in a short period of time in the world. I am also planning to deal with several issues that might have affected the South-North Korean politics, that is. ROK-US Alliance, North Korean nuclear challenge and unification questions, and Sino-US rivalry in the East Asia.

**Credit Hours:** 3

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**KOREAN 4867: North Korea: History, Political Economy, Culture**

(same as HIST 4867). The aim of this course is to survey North Korea's history, especially in terms of political economy and culture. Through several themes, we will examine the historical situations of North Korea from its beginnings in the postliberation period to the present, as North Korea undergoes monumental changes. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing, or instructor's consent

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## Laboratory Animal Medicine (LAB\_AN)

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**LAB\_AN 8090: Research in Laboratory Animal Medicine**

Research expected to terminate in a thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**LAB\_AN 9087: Seminar in Laboratory Animal Medicine**

Theme-oriented seminars and discussions in the field of laboratory animal medicine, comparative medicine or related areas. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** departmental consent

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**LAB\_AN 9437: Pathology of Laboratory Animals**

Pathogenesis, pathology and diagnosis of naturally occurring diseases in animals used in research.

**Credit Hours:** 4

**Prerequisites:** departmental consent

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**LAB\_AN 9468: Laboratory Animal Biology**

Anatomy, taxonomy, reproduction, genetics, nutrition, and behavior of common laboratory animals. Emphasis is placed on mice and rats, including genetically-engineered models with comparative discussions on other laboratory animals. Prerequisites: departmental consent

**Credit Hours:** 4

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**LAB\_AN 9469: Laboratory Animal Resource Management**

Policies, standards and regulations in the care and use of laboratory animals, including colony management, animal procurement, cost accounting, facility design, and supervisory skills.

**Credit Hours:** 4

**Prerequisites:** departmental consent

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**LAB\_AN 9476: Grant and Manuscript Writing for Biomedical Researchers**

Topics include experimental design applied biostatistics and writing effective grant proposals and scientific manuscripts. Methods include lecture, discussion and assignments including an individual grant proposal which will be reviewed by a mock study section.

**Credit Hours:** 3

**Prerequisites:** LAB\_AN 9475; instructor's consent

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**LAB\_AN 9477: Laboratory and Project Management**

This course will provide graduates with professional development skills and career guidance including instruction in laboratory and project management. Topics will include job searching, start-up considerations, equipping a lab, personnel management and budget management. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** enrollment in Comparative Medicine Area Program or approval of course coordinator

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## Latin (LATIN)

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**LATIN 1100: Elementary Latin I**

Forms, grammar, syntax.

**Credit Hours:** 4

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**LATIN 1100H: Honors Elementary Latin**

Beginning Latin for Honors Eligible students.

**Credit Hours:** 4

**Prerequisites:** Honors eligibility required

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**LATIN 1200: Elementary Latin II**

Continuation of LATIN 1100.

**Credit Hours:** 4

**Prerequisites:** LATIN 1100

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**LATIN 1200H: Honors Elementary Latin II**

Continuation of LATIN 1100H.

**Credit Hours:** 4

**Prerequisites:** LATIN 1100. Honors eligibility required

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**LATIN 2000: Latin Reading**

Readings in Latin prose and poetry.

**Credit Hours:** 3

**Prerequisites:** LATIN 1200

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**LATIN 2000H: Latin Reading - Honors**

Readings in Latin prose and poetry.

**Credit Hours:** 3

**Prerequisites:** LATIN 1200. Honors eligibility required

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**LATIN 4121: Methods of Teaching Foreign Languages**

(same as SPAN 4120, FRENCH 4120). Theory and techniques of current foreign language methodology and their application in the classroom. Presentation of instructional projects, classroom observations, and strategies for classroom management. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**LATIN 4300: Latin Poetry**

(cross-leveled with LATIN 7300). Readings in selections from the Latin poets.

**Credit Hours:** 3

**Prerequisites:** LATIN 2000

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**LATIN 4350: Latin Prose**

(cross-leveled with LATIN 7350). Selections from various Latin prose writers; some composition at instructor's discretion.

**Credit Hours:** 3

**Prerequisites:** LATIN 2000

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**LATIN 4500: Latin Stylistics**

(cross-leveled with LATIN 7500). Study and writing of connected prose compositions.

**Credit Hour:** 1-3

**Recommended:** LATIN 4300

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**LATIN 4510: Age of the Scipios**

(cross-leveled with LATIN 7510). Critical readings in and integrated analyses of the culture of the second century B.C.

**Credit Hour:** 3-6

**Recommended:** LATIN 4300

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**LATIN 4520: Age of Cicero**

(cross-leveled with LATIN 7520). Critical readings in and integrated analyses of the culture of the last decades of the Roman Republic.

**Credit Hours:** 3

**Recommended:** LATIN 4300

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**LATIN 4530: Vergil**

(cross-leveled with LATIN 7530). Readings, discussion, and literary analysis of Vergil Aeneid.

**Credit Hours:** 3

**Recommended:** LATIN 4300

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**LATIN 4540: Augustan Literature**

Critical readings in and integrated analyses of the culture of Augustan Rome.

**Credit Hours:** 3

**Recommended:** LATIN 4300

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**LATIN 4580: The Theodosian Age**

(cross-leveled with LATIN 7580). A survey of major literary works of the late fourth and early fifth centuries. Readings from Augustine, Ambrose, Prudentius, Paulinus of Nola, Ammianus Marcellinus, Claudian.

**Credit Hours:** 3

**Recommended:** LATIN 4300

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**LATIN 4590: Medieval Latin**

(cross-leveled with LATIN 7590). Selected texts of Middle Ages and Renaissance. For students with primary interest in history, literature, philosophy, religion, Romance philology, or the classical tradition, experience with Latin sources in their field.

**Credit Hours:** 3

**Recommended:** LATIN 4300

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**LATIN 4600: Survey of Latin Literature**

(cross-leveled with LATIN 4600). Latin literature from origins to end of Roman Empire; emphasis on authors not covered in other courses, to provide general view of styles and genres.

**Credit Hours:** 3

**Recommended:** LATIN 4300

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**LATIN 4960: Special Readings in Latin**

Readings in authors and texts not covered in other courses.

**Credit Hour:** 1-3

**Recommended:** LATIN 4300

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**LATIN 7300: Latin Poetry**

(cross-leveled with LATIN 4300). Readings in selections from the Latin poets. Available to students for graduate credit in departments other than Classical Studies.

**Credit Hours:** 3

**Prerequisites:** LATIN 2000 or equivalent

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**LATIN 7350: Latin Prose**

(cross-leveled with LATIN 4350). Selections from various Latin prose writers; some composition at instructor's discretion. Available to students for graduate credit in departments other than Classical Studies.

**Credit Hours:** 3

**Prerequisites:** LATIN 2000

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**LATIN 7500: Latin Stylistics**

(cross-leveled with LATIN 4500). Study and writing of connected prose compositions.

**Credit Hours:** 3

**Prerequisites:** two years classical Latin or equivalent

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**LATIN 7510: Age of the Scipios**

(cross-leveled with LATIN 4510). Critical readings in and integrated analyses of the culture of the second century B.C.

**Credit Hour:** 3-6

**Prerequisites:** two years Classical Latin or equivalent

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**LATIN 7520: Age of Cicero**

(cross-leveled with LATIN 4520). Critical readings in and integrated analyses of the culture of the last decades of the Roman Republic.

**Credit Hours:** 3

**Prerequisites:** two years Classical Latin or equivalent

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**LATIN 7530: Vergil**

(cross-leveled with LATIN 4530). Readings, discussion, and literary analysis of Vergil's Aeneid.

**Credit Hours:** 3

**Prerequisites:** two years of Classical Latin or equivalent

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**LATIN 7580: The Theodosian Age**

(cross-leveled with LATIN 4580). A survey of major literary works of the late fourth and early fifth centuries. Readings from Augustine, Ambrose, Prudentius, Paulinus of Nola, Ammianus Marcellinus, Claudian.

**Credit Hours:** 3

**Prerequisites:** two years of Classical Latin or equivalent

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**LATIN 7590: Medieval Latin**

(cross-leveled with LATIN 4590). Selected texts of Middle Ages and Renaissance. For students with primary interest in history, literature, philosophy, religion, Romance philology, or the classical tradition, experience with Latin sources in their field.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**LATIN 7600: Survey of Latin Literature**

(cross-leveled with LATIN 4600). Latin literature from origins to end of Roman Empire; emphasis on authors not covered in other courses, to provide general view of styles and genres.

**Credit Hours:** 3

**Prerequisites:** two years Classical Latin or equivalent

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**LATIN 7960: Special Readings in Latin**

Readings in authors and texts not covered in other courses.

**Credit Hour:** 2-3

**Prerequisites:** two years Classical Latin or equivalent

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**LATIN 8000: Proseminar in Latin Texts**

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**LATIN 8010: Latin Rough Guide**

Intensive exploration of Latin literature from the Roman Republic through the Late Empire. Emphasis upon texts as both literary and cultural artifacts whose interpretation requires familiarity with the historical

and archaeological legacy of antiquity as well as modern exegetical strategies.

**Credit Hours:** 3

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**LATIN 9287: Seminar in Latin Lyric and Elegiac Poetry**

Seminar in Latin Lyric and Elegiac Poetry

**Credit Hours:** 3

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**LATIN 9387: Seminar in Neronian Literature**

Seminar in Neronian Literature

**Credit Hours:** 3

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**LATIN 9587: Seminar in Latin Epic Poetry**

Seminar in Latin Epic Poetry.

**Credit Hour:** 1-99

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**LATIN 9687: Seminar in the Augustan Age**

Integrated studies in the culture of the age of Augustus--its literature, art and architecture, religion, political and social institutions.

**Credit Hour:** 3-6

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**LATIN 9787: Seminar in Late Antiquity**

Integrated studies in the culture of late antiquity with interdisciplinary focus.

**Credit Hours:** 3

**Prerequisites:** consent required for non graduate students

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## Law (LAW)

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**LAW 1100: Cases and Controversies in American Law**

Discover the American legal system through the case method used at law schools across the United States. Students will learn legal principles and will then apply their knowledge to new sets of facts, practicing the skills lawyers use when serving clients. Topics include constitutional law, contracts, criminal law, property, and torts. Course is taught by law faculty for undergraduates. Graded on A-F basis only.

**Credit Hours:** 3

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**LAW 1100H: Cases and Controversies in American Law - Honors**

Discover the American legal system through the case method used at law schools across the United States. Students will learn legal principles and will then apply their knowledge to new sets of facts, practicing the skills lawyers use when serving clients. Topics include constitutional law, contracts, criminal law, property, and torts. Course is taught by law faculty for undergraduates. Graded on A-F basis only. Prerequisites: Honors eligibility required

**Credit Hours:** 3

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**LAW 2001: Topics in Law - General**

Organized study of selected topics in law. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent. Graded on A-F basis only.

**Credit Hour:** 1-3

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**LAW 2010: Law of the Internet**

Society has moved online - so have our legal disputes. Most of us have tapped 'I agree' without reading the fine print; streamed copyrighted works without paying a license fee; and crepted someone via google and social media. Most of us have also been digitally hacked, phished, and spied upon; our personal data has been collected by private and governmental entities; and we have repeatedly heard these buzzwords of network neutrality and bitcoin. This is a survey course in the law of the internet -- civics of the internet. We cover regulation of the internet and big media companies such as Facebook and Google; privacy law from various angles; liability for various nefarious activities (including actions taken by AI rather than humans); and yes, what happens when you click 'I agree.' Although we discuss computer technology, this is not a high-tech class. You will not need any technical expertise beyond knowing about email, the world wide web, and texting.

**Credit Hour:** 1-3

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**LAW 2010H: Law of the Internet - Honors**

Society has moved online - so have our legal disputes. Most of us have tapped 'I agree' without reading the fine print; streamed copyrighted works without paying a license fee; and crepted someone via google and social media. Most of us have also been digitally hacked, phished, and spied upon; our personal data has been collected by private and governmental entities; and we have repeatedly heard these buzzwords of network neutrality and bitcoin. This is a survey course in the law of the internet -- civics of the internet. We cover regulation of the internet and big media companies such as Facebook and Google; privacy law from various angles; liability for various nefarious activities (including actions taken by AI rather than humans); and yes, what happens when you click 'I agree.' Although we discuss computer technology, this is not a high-tech class. You will not need any technical expertise beyond knowing about email, the world wide web, and texting.

**Credit Hour:** 1-3

**Prerequisites:** Honors eligibility required

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**LAW 3800: Logical Reasoning and Legal Analysis**

This course provides students with the basic concepts necessary to improve their scores on the Law School Admission Test (LSAT), thereby improving their proficiency in key skills such as reading comprehension, analytical reasoning, and logical reasoning. The course will consist of (1) readings and lectures; (2) ten practice tests taken as homework, corrections to practice tests, and (3) a final exam. Graded on A-F basis only.

**Credit Hours:** 3

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**LAW 4001: Topics in Law - General**

Organized study of selected topics in law. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent. Graded on A-F basis only.

**Credit Hour:** 1-3

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**LAW 4940: Internships in Law**

This course is designed to help students learn how the law affects working environments of all kinds, from businesses to government

agencies to non-profit organizations. Students will arrange an internship with an organization of their choice and will obtain work experience in a professional setting. Students will then complete assignments related to how various sources of law (such as state and federal statutes, state and federal regulations, and state and federal court opinions) affect that organization. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** Students must have completed at least 55 credit hours before taking this course. Students must have an overall GPA of at least 2.00

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**LAW 5010: Civil Procedure I**

Fundamental and recurrent problems in civil actions in federal and state courts; remedies; pleading; discovery; trials; jurisdiction; appeals; joinder; and preclusion.

**Credit Hour:** 1-3

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**LAW 5015: Civil Procedure II**

Continuation of LAW 5010.

**Credit Hour:** 1-3

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**LAW 5020: Contracts I**

Contract formation, insufficient and defective agreement, bases of promissory liability (including consideration and promissory estoppel), restitution, and abuse of bargaining process, Statutes of Frauds, parol evidence rule and principles of interpretation, contract performance and risk allocation, remedies for breach.

**Credit Hour:** 1-3

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**LAW 5025: Contracts II**

A continuation of Law 5020

**Credit Hour:** 1-3

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**LAW 5035: Criminal Law**

The purposes of criminal law; nature of criminal responsibility; characteristics of particular crimes.

**Credit Hour:** 1-4

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**LAW 5040: Property I**

Classification of property; personal property; possession, bailment, lien, gift, bona fide purchase; land conveyancing at common law under statute of uses; freehold estate in land; concurrent estate in land; and introduction to future interests.

**Credit Hours:** 3

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**LAW 5045: Property II**

Landlord and tenant; easements, profits, and licenses; support; introduction to water rights, nuisance, covenants running with the land, equitable servitudes, zoning, and modern conveyances.

**Credit Hours:** 3

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**LAW 5050: Property**

Classification of real and personal property; rights to found goods; bailments; possession and adverse possession; estates in land and

future interests; concurrent ownership; Landlord and tenant; easements, profits and licenses; covenants running with land and equitable servitudes; contracts for the sale of land; conveyancing.

**Credit Hour:** 1-5

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**LAW 5070: Torts**

Principles and practices governing recovery of damages for injuries to person or property. Topics typically covered are intentional torts, negligence, strict liability, products liability, immunities and a survey of various 'no fault' proposals.

**Credit Hour:** 1-5

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**LAW 5080: Legal Research and Writing**

An introduction to the basics of legal research, legal citation and legal writing. Each student writes two objective office memoranda, and a client letter.

**Credit Hour:** 1-3

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**LAW 5085: Advocacy and Research**

An introduction to Computer Assisted Legal Research, written advocacy, oral advocacy, and the Missouri rules of appellate procedure. Each student writes a trial court motion and brief and then argues that motion. Each student also writes an appellate brief and presents an oral argument in the First Year Moot Court Competition directed by the Board of Advocates (BOA).

**Credit Hour:** 1-3

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**LAW 5090: Foundations of Legal Studies II**

A limited enrollment course designed to assist first-year students to better understand the legal system, prepare for examinations and improve their legal analysis and reasoning skills. Graded on S/U basis only.

**Credit Hour:** 1-2

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**LAW 5095: Lawyering: Problem Solving and Dispute Resolution**

The course is designed to provide students an introduction to critical lawyering skills; to give students an overview of the alternative processes that a lawyer can employ to resolve a client's problem; and to offer students an understanding of the lawyer's role as a problem solver. It includes an introduction to Interviewing, Counseling, Negotiation, Mediation, Arbitration, mixed dispute resolution processes and ways to choose or build dispute resolution processes.

**Credit Hour:** 1-2

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**LAW 5220: Constitutional Law**

Study of theories of judicial review and justiciability; sources of federal legislative power, commerce, taxing, spending, treaty, presidential, military powers; power of states to regulate and tax interstate commerce; preemption; state actions doctrine; due process, equal protection, and First Amendment rights.

**Credit Hour:** 1-4

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**LAW 5240: Criminal Procedure**

Constitutional and other limitations placed upon law enforcement officers and prosecutors.

**Credit Hour:** 1-3

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**LAW 5260: Evidence**

The basic law of evidence; use in trials, relevancy, circumstantial proof and real proof; use of witnesses; methods of examination; presumptions and burden of proof; and, functions of judge and jury.

**Credit Hour:** 1-4

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**LAW 5280: Professional Responsibility**

Responsibilities of lawyer to client, courts and the public. Topics include: organization of the legal profession, fees, conflicts of interest, the confidential relationship, advertising and solicitation, unauthorized practice and courtroom behavior.

**Credit Hour:** 1-3

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**LAW 5310: Administrative Law**

Administrative Law is concerned with the process government agencies use to make decisions. As such it develops the requirements for establishing rules and policies. It also covers the means by which agencies enforce regulations and statutory provisions, and the means for securing judicial review of rules and enforcement actions.

**Credit Hour:** 1-3

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**LAW 5320: Advanced Legal Research**

Skills training in advanced research techniques and resources used in law practice. Designed to help students become critical legal information consumers with an emphasis on developing effective, cost-efficient research strategies. Topics include advanced litigation research, legislative and regulatory history, audience research, research in transactional practice areas, and research in other practice areas including legal ethics, public interest law, and international law. In-depth practice with Lexis, Westlaw and free Internet sources, including appropriate and effective use of social networking tools to extend research is also taught.

**Credit Hour:** 1-2

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**LAW 5321: Advanced Legal Writing**

This course is designed to help students think purposefully about the process of writing and to practice writing and editing in a disciplined way. Students will do exercises involving: rhetorical techniques; grammar; punctuation; and, word usage. Students also will either rewrite or critique portions of appellate briefs or judicial opinions to emphasize a particular technique.

**Credit Hour:** 1-3

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**LAW 5323: Advanced Torts: Dignitary and Economic Torts**

The course will examine dignitary and economic torts covering but not limited to such topics as: defamation, invasion of privacy, tortious interference, misrepresentation and injurious falsehood. Unlike tortious conduct that results in an individual suffering physical harm or contact, the claims that arise from these torts represent one of two kinds of non-physical injury - independent dignitary harms that are similar to or include emotional harms or independent economic or commercial harms. The purpose of the course is to provide students with an opportunity to explore tortious conduct and remedies available that are omitted typically from the First Year Torts course.

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**Credit Hour:** 1-3

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**LAW 5325: Advanced Trial Practice**

This course will expand student knowledge of opening statements, direct/cross examination of witnesses, jury instructions, and closing arguments. The course also will focus significantly on the examination/cross examination of expert witnesses. Grading is based on student participation in the examination of witnesses and a semester-ending written trial brief. NOTE: Intersession Trial Practice will not satisfy the prerequisite.

**Credit Hour:** 1-3

**Prerequisites:** LAW 5260 Evidence and LAW 5925 Trial Practice

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**LAW 5330: Advocacy, Family Violence and Public Policy**

Interdisciplinary presentations examine both the state of family violence in America and the cross disciplinary issues in effective intervention, including legal procedures. The seminar is open to 2nd or 3rd year law students and other professional graduate students with permission of the faculty.

**Credit Hour:** 1-2

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**LAW 5337: American Legal History to 1876**

This is a review of Legal History. The course covers such topics as the impact of the English common law heritage; the development of law in the American colonies; and, slavery, race and gender in 19th century America. The course ends with the conclusion of the Civil War. The course will explore the effects of historical events on the development of law, but the course does not presume prior study of American history.

**Credit Hour:** 1-3

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**LAW 5338: American Legal History from 1876**

Historical study of the development of American law since the Civil War. The course will cover such topics as the Civil War amendments to the Constitution; Reconstruction and its aftermath; legal change during the rise of industrialism; race and gender in late 19th century and 20th century America; law in the Progressive Era; the growth of civil liberties and civil rights in the Supreme Court; the law during war and the Depression; jurisprudential trends; and the Civil Rights Movement of the 1960s. The course will explore the effects of historical events on the development of law, but the course does not presume prior study of American history.

**Credit Hour:** 1-3

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**LAW 5340: Antitrust Law**

Introduces antitrust and economic analysis and the role of competition, with an emphasis on price fixing, horizontal and vertical restraints of trade, monopoly, and merger problems.

**Credit Hour:** 1-3

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**LAW 5345: Appellate Advocacy**

The course enhances skills training for the preservation and presentation of matters on appeal. In addition, the courses provides an introductory examination of extraordinary remedies (as a complement to appeal) and other unique actions filed in the Supreme Court of Missouri.

**Credit Hour:** 1-3

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**LAW 5350: Arbitration**

Law, policy and practices relating to the arbitration process as it is utilized in commercial and international sectors. Topics include modern arbitration statutes (e.g., the Federal Arbitration Act), enforceability of agreements to arbitrate, public policy defenses against enforcement of arbitration agreements, arbitrators and administering institutions, components of the arbitral process, arbitral remedies and awards, and the arbitration award in the courts.

**Credit Hour:** 1-3

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**LAW 5365: Bankruptcy**

The course focuses on the rights of both secured and unsecured creditors under state and federal law. State law covers collective actions and individual actions such as execution, attachment, garnishment, and the law of fraudulent conveyances. Federal law concentrates on liquidation proceedings under Chapter 7 of the Bankruptcy Code and reorganizations for wage earners under Chapter 13 of the Code. The course will include, as time permits, an introduction to the business reorganization provisions of Chapter 11.

**Credit Hour:** 1-3

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**LAW 5370: Basic Business Principles for Lawyers**

This course is designed for students who want to understand the language and practices of business regardless of whether they contemplate being a business lawyer or not. All lawyers, regardless of their specialty, regularly encounter the language and concepts of business. The purpose of the class is to provide law students with little or no business knowledge or background with the information they need to practice law effectively in a business environment. This class is intended to educate students to be comfortable with business concepts regardless of their prior background. So liberal arts undergraduates should feel comfortable taking this class.

**Credit Hour:** 1-3

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**LAW 5375: Basic Federal Income Taxation**

The course is designed to introduce students to the income tax considerations that arise in a variety of legal contexts and is also beneficial for students not planning to pursue a career in tax. Topics covered are federal income tax problems of individual taxpayers; nature of income; when and to whom income is taxable; exclusion from tax base; deduction; tax effects of exchange or other disposition of capital assets.

**Credit Hour:** 1-4

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**LAW 5392: Business, Entrepreneurship, and Tax Law Review**

The Business, Entrepreneurship, and Tax Law Review (BETR) is affiliated with the Center for Intellectual Property and Entrepreneurship (CIPE). The BET Review journal will give students an opportunity to hone their legal research and writing skills, as well as their leadership skills as editors of the journal, on contemporary issues in growing areas of legal practice. It will also provide an outlet for the publication of articles stemming from symposia and a colloquium series that will be held on topics in the fields of intellectual property, entrepreneurship, and tax. Graded on S/U basis only.

**Credit Hour:** 1-2

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**LAW 5395: Business Organizations**

The course is the law school's foundation course in business law. Topics covered include the study of agency, partnership, limited partnerships, limited liability partnerships, limited liability companies, and corporations. It is recommended for students in all areas of interest. The course is a prerequisite for several advanced electives in business law.

**Credit Hour:** 1-4

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**LAW 5410: Children and the Law**

The course covers the status, rights and obligations of children in contemporary American law; civil proceedings and criminal prosecutions alleging child abuse or neglect; foster care; termination of parental rights; juvenile protective legislation; and delinquency. Emphasis is placed on juvenile justice doctrine, policy and practice issues and the historical and contemporary operation of juvenile and family courts.

**Credit Hour:** 1-3

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**LAW 5415: Constitutional and Civil Rights Litigation**

The course provides advanced analysis of the protection of civil liberties that derive from the United States Constitution and federal statutes. The statutes which will be covered most extensively include the Reconstruction Era laws now codified at 42 U.S.C. Sections 1981, 1983 and 1985; the Rehabilitation Act of 1973; Title IX of the Educational Amends. of 1972; and, Titles II and VI of the Civil Rights Acts of 1964.

**Credit Hour:** 1-3

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**LAW 5420: Client Interviewing and Counseling**

The course covers the nature and conduct of the counseling process including basic interviewing techniques, psychological factors affecting the interview process, facilitating and structuring the interview, clarification of statements and ascertaining legal issues, and dealing with client resistance and hostility. Graded on S/U basis only.

**Credit Hour:** 1-3

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**LAW 5425: Clinical Skills**

The course provides the skills training for students enrolled in the Criminal Clinic. Lectures and simulations are designed to facilitate student skills in case preparation and presentation and client representation. The course provides students with experience in addressing ethical concerns, conducting fact investigation, client interviewing and counseling, drafting legal documents, direct and cross examination, and, making and responding to objections. (Not available to students on probation).

**Credit Hour:** 1-4

**Prerequisites:** LAW 5260 Evidence and LAW 5280 Professional Responsibility

**Corequisites:** LAW 5470 Criminal Clinic and LAW 5475 Criminal Clinic Writing Project

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**LAW 5430: Commercial Real Estate Leasing**

The course is a seminar focusing on the study of selected topics involved in the negotiation, drafting, and interpretation of commercial real estate leases. Topics will include but are not limited to: rental provisions, defining the premises, use of the premises, condition of the premises, assignments and subleases, maintenance and repairs, casualty insurance, default/remedies, and collateral lease documentation. The

course looks at the various parties involved in the process of commercial real estate leasing, their respective interests, and the dynamics of the negotiation and drafting process in which these parties memorialize their respective interests in the lease document. There is a heavy focus upon the careful reading, review, negotiation and revision of the lease document. Grading is based upon a series of exercises involving document review, negotiation, and drafting, and includes both individual and group work.

**Credit Hour:** 1-3

**Prerequisites:** LAW 5856 Real Estate Finance, or LAW 5858 Real Estate Transactions, or LAW 5697 Landlord/Tenant Law and Practice

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**LAW 5435: Comparative Law**

The course examines the differences and similarities between the major legal systems of the world, focusing on distant areas of substantive and procedural law to demonstrate diverse methods of addressing similar legal issues. The course includes a discussion of the historical distinctions between the common and civil law traditions but also moves the analysis forward to address more recent legal innovations and the recognition of new groupings of legal systems. Students will leave the class with a solid understanding of (1) how U.S. legal principles compare to approaches used elsewhere and (2) the uses and benefits of the comparative approach. Principles taught in this course will be equally applicable to those who anticipate practicing domestic U.S. law as well as those who expect to develop an international practice. No foreign language skills are necessary for this course.

**Credit Hour:** 1-3

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**LAW 5440: Complex Litigation**

The course will examine principles and practical techniques relevant to complex civil cases. Building on civil procedure, the course will focus on litigation involving multiple parties and/or multiple jurisdictions. Each student will be required to complete several drafting assignments.

**Credit Hour:** 1-3

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**LAW 5441: Complex Litigation: Mass Torts**

This course will explore aspects of complex civil litigation through the lens of mass torts lawsuits. It will specifically examine issues such as discovery and scientific evidence, alternative liability issues, class action and multi-district litigation, and alternatives to litigation. This course will involve a final exam.

**Credit Hour:** 1-3

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**LAW 5450: Conflict and Conflict Management**

The course is designed to give lawyers a better understanding of the meaning and dynamics of conflict, so that they may better understand their client's situations, as well as the mechanisms that may be most appropriate to the resolution of any particular dispute. The course draws its theoretical teachings from a variety of disciplines beyond law: psychology, sociology, anthropology and economics.

**Credit Hour:** 1-3

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**LAW 5454: Contract Drafting**

The course teaches students the principles of drafting commercial agreements. Although the course will be of particular interest to students pursuing a corporate or commercial law career, the concepts



are applicable to any transactional practice. Students will learn how transactional lawyers translate business deals into contract provisions, as well as techniques for minimizing ambiguity and drafting with clarity. Through a combination of lecture, hands-on drafting exercises and extensive homework assignments, students will learn about different types of contracts, other documents used in commercial transactions, and the drafting problems that contracts and other documents present. Course will also focus on how a drafter can add value to a deal by finding, analyzing and resolving business issues. Grades will be based on the graded assignments, good faith completion of the ungraded assignments, and class participation.

**Credit Hour:** 1-3

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#### **LAW 5455: Copyright Law**

The course examines the nature of copyright law; common law misappropriation; scope of common law copyrights; the Copyright Revision Act of 1976 as amended; formalities of registration (fixation, copyright notice); copyrightable subject matter; originality; exclusive rights of copyright owner; scope of copyright protection; substantial similarity and infringement; fair use; joint and composite works; duration, renewal, termination, transfer; remedies; artists moral rights; federal preemption; international protection; copyrightability of computer software; and, copyright issues on the internet.

**Credit Hour:** 1-3

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#### **LAW 5465: Corporate Taxation**

The course provides an in-depth study of the federal income taxation of corporations and their shareholders, including the tax aspects of forming and capitalizing a corporation, corporate distributions, redemptions, and taxable and tax-free corporate liquidations. This course will be taught using the problem method of instruction.

**Credit Hour:** 1-3

**Prerequisites or Corequisites:** Must have taken or be currently enrolled in LAW 5375 Basic Federal Income Taxation

**Prerequisites:** LAW 5375 Basic Federal Income Taxation

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#### **LAW 5470: Criminal Clinic**

The Criminal Clinic is available during both the Fall and Winter semesters. It can only be taken once. Enrollment is limited to 8 students per semester. Students must also enroll in Clinical Skills and Criminal Clinic Writing Project and have completed, or be enrolled in, LAW 5280 Professional Responsibility and LAW 5260 Evidence. (Not available to students on probation).

**Credit Hour:** 1-5

**Prerequisites:** LAW 5280 Professional Responsibility, LAW 5260 Evidence. Students must have prior permission of professor

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#### **LAW 5475: Criminal Clinic Writing Project**

This is the Writing Section accompanying course LAW 5470.

**Credit Hour:** 1-2

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#### **LAW 5477: Criminal Justice Administration**

The course examines the justice system's processing of formal criminal cases from the point at which a defendant is formally charged and going forward. The course reviews the processing and adjudication of criminal cases. Topics include the defendant's rights under the Sixth Amendment

(e.g. jury trial, speedy trial, confrontation clause, and compulsory process rights); Eighth Amendment issues (e.g. bail and cruel and unusual punishment); criminal discovery (e.g. the prosecutor's Brady obligation to provide exculpatory evidence to defendants); expert witnesses; pretrial and trial publicity; plea bargaining; sentencing (e.g. use of discretionary guidelines and minimum mandatory systems); and appeals. This will be both an advanced criminal procedure course (similar to 'bail to jail' courses at other law schools) and an advanced criminal law course.

**Credit Hour:** 1-3

**Recommended:** successful completion both LAW 5035 Criminal Law and LAW 5240 Criminal Procedure before taking this course

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#### **LAW 5485: Cross-Cultural Dispute Resolution**

The course will focus on the impact culture can have on the private ordering of disputes. Culture affects communication, perceptions regarding conflict and methods for resolution. As the world becomes more interrelated and Missouri and the U.S. more diverse, lawyers need to be prepared to resolve problems across cultural lines. 20-25% of the grade will come from timely attendance and class participation.

**Credit Hour:** 1-3

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#### **LAW 5496: Deal Skills Class**

The course introduces students to business and legal issues common to commercial transactions. Class will emphasize the thought process involved in, and required by, the practice of transactional law, skills such as interviewing, counseling and communicating with your client, understanding business issues and drafting contract provisions to reflect those issues, negotiation deals and managing a transaction closing. Simulation exercise, in-class role-play and lectures, out-of-class due diligence, negotiation and other exercises.

**Credit Hour:** 1-3

**Prerequisites:** Either LAW 5395 - Business Organization or LAW 5454 - Contracting Drafting. Students cannot enroll concurrently in Corporate Finance and Deal Skills. Students who have completed Deal Skills are precluded from enrolling in Corporate Finance. However, students are allowed to enroll in Deal Skills even if they have already taken Corporate Finance

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#### **LAW 5497: Death Penalty Law**

The course will focus primarily on the U.S. Supreme Court's capital punishment jurisprudence over the past 35 years or more, with particular attention to how it has shaped state statutory schemes and legal argumentation in capital sentencing trials.

**Credit Hour:** 1-3

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#### **LAW 5516: Dispute Resolution in the Digital Age**

The course will explore the need for expanded and equalized access to remedies in consumer cases, and how the internet opens doors to online dispute resolution ('ODR') systems that utilize cost-effective negotiation, mediation, and arbitration processes for resolving complaints. ODR has its drawbacks, but it can be especially effective and satisfying for low dollar claims such as those in most consumer contexts because of its efficiencies. ODR also has potential to ease power imbalances that have hindered market regulation. Accordingly, this course will look at the various systems currently used by major companies such as eBay, as well as the rules and treaty developments in global markets. We also will do ODR simulation exercises, led by Colin Rule, who has been a leader

in creating ODR systems. The class also will include deep consideration of both the potential and drawbacks of ODR systems. All ODR processes are not beneficial, and thus we will also discuss development of best practices and question policy directions.

**Credit Hour:** 1-4

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#### **LAW 5520: Drafting of Legal Instruments**

The course examines problems frequently encountered in general office practice (land transfers, mortgages, leases, contracts, wills, business organizations, etc.), with drafting of the related instruments. Use and adaptation of legal forms. Graded on S/U basis only.

**Credit Hour:** 1-2

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#### **LAW 5525: Education Law**

This course examines the application of discrete doctrines from criminal law, constitutional law, juvenile law, employment law, and disability law to the legal problems facing American schools. Students will explore the ways in which the objectives of these discrete legal doctrines either promote or interfere with our educational policies. Substantive areas of concentration include state regulation of education; freedom of speech, association and religion; equal educational opportunity; employment of teachers; and discipline of students.

**Credit Hour:** 1-3

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#### **LAW 5530: Elder Law**

This course address legal issues impacting older individuals, including discussion of government benefits (Social Security, Medicaid, Medicare, Supplemental Security Income), long-term care (types, contract issues, civil rights, and financial planning), guardianship and conservatorship, planning for incapacity, and health care decisions at the end of life. The course emphasizes planning techniques for the average client. Grade will be based on a short paper and take-home exam. The course may be taken for writing credit.

**Credit Hour:** 1-3

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#### **LAW 5532: Election Law**

Election Law has become more important in recent years. This course will introduce students to the many theoretical and practical constitutional, statutory, common law, and policy issues that accompany the franchise, including: legislative districting, voting rights, campaign finance, political parties, interest groups, direct democracy, and alternative democratic structures. The course will emphasize federal law, but will also address Missouri state law as appropriate.

**Credit Hour:** 1-3

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#### **LAW 5534: Electronic Discovery**

This course provides an in-depth treatment of the legal, technical, and cost management issues involving electronically stored information ('ESI') in civil litigation. Covers the 2006 FRCP ESI amendments (Rules 26 meet and confer, 34, production, and 37 sanctions), FRE 502 (privilege review and production), state e-discovery rules, the rapidly developing ESI case law, and emerging best practices from the Sedona Conference Cooperation Proclamation, the Electronic Discovery Reference Model, and other E-discovery authorities. Practice drafting litigation holds, preservation orders, and related e-discovery documents regularly

used in civil litigation. Grading is based on student projects and a final examination.

**Credit Hour:** 1-3

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#### **LAW 5537: Emotional Intelligence in Law**

Success in law requires more than substantive legal knowledge. It also requires self-awareness, or 'emotional intelligence,' by the lawyer in order to be able to operate effectively in a complex and nuanced legal environment. This course is designed to help students develop their emotional intelligence by cultivating such personal and social competencies as personal and social awareness, understanding of motivation, empathy and social skills.

**Credit Hour:** 1-3

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#### **LAW 5540: Employment Discrimination**

This course examines the laws which prohibit discriminatory practices in employment. Title VII is the primary focus, but coverage is also given to the Equal Pay Act, the Americans with Disabilities Act, and the Age Discrimination in Employment Act. Additionally, the course addresses the administrative process available for dealing with employment discrimination complaints, the prima facie case requirement and burden shifting analysis used in civil rights cases, and affirmative action requirements.

**Credit Hour:** 1-3

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#### **LAW 5543: Employment Law**

Employment Law focuses on the legal relationship between employers and employees in the non-unionized workplace. The course will survey a variety of issues regarding the establishment, maintenance and termination of the employment relationship. For example, the course will cover the common law aspects of that relationship, particularly contracts and torts. It will examine statutory modifications of the common law in areas such as wage and hours, pensions, whistle-blower protection, unemployment insurance, workers compensation, and health and safety.

**Credit Hour:** 1-3

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#### **LAW 5544: Entrepreneurship Legal Clinic**

The Entrepreneurship Legal Clinic (the 'ELC') combines business law issues, intellectual property, and transactional experiential learning. The ELC explores the lawyer's role as counsel to entrepreneurs engaged in early-stage ventures. Students will survey the legal and business issues encountered by entrepreneurs and develop the practical skills necessary to effectively represent them, including client interviewing and counseling, entity formation and planning, governance issues, employee issues, intellectual property analysis (except patents [presently]), and contract drafting. Students will work on actual client matters approved by the ELC's Supervising Attorney. Students must have the Supervising Attorney's permission to enroll, and they must satisfy the Requisites listed below. The Clinic is graded and enrollment is limited.

**Credit Hour:** 1-4

**Corequisites:** LAW 5280 - Professional Responsibility

**Recommended:** LAW 5395 -Business Organizations

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#### **LAW 5545: Environmental Law**

Federal and state regulation of the environment, including the economic and philosophical foundations of environmental regulation, the common

law roots of environmental regulation, and substantive coverage of a number of environmental statutes, such as the Clean Air Act, Clean Water Act, Resource Conservation and Recovery Act, Comprehensive Environmental Response, Compensation and Liability Act, National Environmental Policy Act, and Endangered Species Act.

**Credit Hour:** 1-3

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**LAW 5555: Estate Planning**

Applies substantive law learned in Estates and Trusts and Basic Income Tax to the drafting of estate planning documents and related documents typical of those used in law practice. Grade based entirely on student projects.

**Credit Hour:** 1-4

**Prerequisites:** LAW 5560 and LAW 5375

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**LAW 5560: Estates and Trusts**

Wills: probate process and will contests, intestate succession; restrictions on testation; execution, revival of wills; integration, incorporation by reference, events of independent significance; will substitutes; will construction; family protection.. Trusts: elements and creations; modification and termination; beneficial interests; charitable trusts; trust construction; powers of appointment; trust administration and fiduciary duties.

**Credit Hour:** 1-4

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**LAW 5570: Externship**

The Externship offers students an opportunity to develop the skills necessary to bridge the gap between law school and law practice. Through the Externship, students prepare for 'effective and responsible participation in the legal profession' (ABA Std. 301) by applying the core concepts learned in law school courses to the challenges presented in the actual, in-office practice of law. Details concerning the requirements and structure of the course are available at the Externship webpage. Students cannot take more than 6 hours of Externship credits, except in the Semester-in-Practice program and subjected to the additional limitations of that program. Credits earned in Landlord/Tenant Practicum count toward that 6-hour Externship limit. Graded on S/U basis only.

**Credit Hour:** 1-9

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**LAW 5575: Family Law**

After surveying the variety of family arrangements in contemporary America and central issues concerning the practice of domestic relations law, this course covers marriage; dissolution; distribution of marital property; alimony; child custody; visitation and support; post-dissolution disputes over custody and child-rearing; non-marital families and non-marital children; private agreements in family law; and alternative dispute resolution in collaboration with other professions in client representations, and ethical and policy issues.

**Credit Hour:** 1-3

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**LAW 5580: Family Violence Clinic: Individual and Social Justice**

Rule 13 certified law students represent needy abused women and children in 13 rural Missouri counties. Students obtain orders of protection in adult abuse courts, and appear in protective custody cases in juvenile courts. Weekly debriefings may include interprofessional graduate students. Law students must complete LAW 5330 Advocacy, Family

Violence and Public Policy before or during their clinical experience. (Not available to students on probation).

**Credit Hour:** 1-4

**Prerequisites:** LAW 5280 Professional Responsibility

**Corequisites:** LAW 5330 Advocacy, Family Violence and Public Policy

**Recommended:** LAW 5260 Evidence

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**LAW 5584: Fiduciary Administration**

This course will cover key issues that arise in the administration of decedent's estates and trusts, including the necessity for probate, rights of creditors, the fiduciary obligations of trustees and personal representatives, investments, and accounting and distribution. Depending on class size, grading will be based either on an exam, a practice-oriented project, or both.

**Credit Hour:** 1-3

**Prerequisites:** LAW 5560 Estates and Trusts

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**LAW 5585: Federal Courts**

The course will examine the role of federal courts and their relationship to state courts. Topics covered: justiciability; federal question and diversity jurisdiction; sovereign immunity; abstention; and habeas corpus.

**Credit Hour:** 1-3

**Prerequisites:** LAW 5220 Constitutional Law

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**LAW 5590: Freedom of Speech and Association**

A study of the rights of speech and association under the First Amendment of the United States Constitution. Major Supreme Court decisions regarding freedom of speech, including content-based and content-neutral restrictions of speech, regulation of commercial speech, regulation of obscenity and pornography, regulation of speech in public and private fora, libel and privacy law, forced association with persons or ideas, and subsidization of speech.

**Credit Hour:** 1-3

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**LAW 5591: Food Law and Policy**

This course examines the laws that govern food safety and food labeling, and considers how well this network works to protect American consumers. It also considers current issues affecting the global food system. Representative topics include recent food safety problems such as tainted meat and salmonella contamination of eggs; food labeling issues such as the use of the term 'grass fed' in meat labeling and the use of GMO seed; organic standards; government efforts to address the obesity problem; urban food deserts; animal welfare concerns; the regulation of pet food, and the like. Specific topics addressed each semester will depend on current events and recent legal developments. Students will be graded on the basis of research paper and class participation. The course will often include a writing section designed to meet the upper-level writing requirement. The course may be offered from time to time as a paper-only course, designed to meet the upper-level writing requirement.

**Credit Hour:** 1-3

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**LAW 5592: Firearms Law**

This class will examine the historical development and modern context of the regulation of firearms. Although emphasizing domestic law, some

international and comparative perspectives will be examined. The class may be taken for writing credit.

**Credit Hour:** 1-3

**Prerequisites:** LAW 5220 Constitutional Law

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**LAW 5595: Gender, Race, Sexuality and the Law**

A study of the treatment of gender by the legal system. Topics will include a survey of writings by influential feminist legal scholars, historians and social scientists; a comparison of different theoretical frameworks; and an overview of substantive law and the latest legal developments involving gender. The primary aim of the course is to study various feminist theories to discern how gender is viewed by today's lawmakers and courts.

**Credit Hour:** 1-3

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**LAW 5615: Health Law: The Regulation of Providers**

An examination of the law governing the interactions between patients and their health care providers. The course will focus on rules governing the duty to treat, confidentiality, informed consent, medical malpractice liability, institutional vicarious liability, managed care liability, conditions of participation in federal programs like Medicare and Medicaid, fraud and abuse, and ERISA preemption. The course will cover antitrust and self-policing aspects of professional associations. The class also covers selected elements of public health law.

**Credit Hour:** 1-3

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**LAW 5620: Immigration Law**

A study of the development of U.S. immigration and refugee law and policy, with emphasis on current immigration problems and issues. Recent changes in the immigration laws, and future trends in dealing with increasing immigrant pressure.

**Credit Hour:** 2-3

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**LAW 5632: Innocence Project Clinic**

This is a joint clinic among the MU and UMKC law schools, and The Midwest Innocence Project, a non-profit organization. Law students will work under the supervision of the Clinic Director, a practicing lawyer, on cases of possible actual innocence from six states. Graded on S/U basis only.

**Credit Hour:** 1-4

**Prerequisites:** LAW 5946 Wrongful Convictions

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**LAW 5634: Innovation and Technology in the Practice of Law**

As in other industries, the legal profession is undergoing substantial disruption. Pressure to reduce client costs in the private sector and longstanding access to justice constraints in the public sector have fueled innovation through technology and redesign of traditional legal service models. The course surveys topics at the intersection of law and technology such as artificial intelligence, Blockchain, cybersecurity, data privacy, electronic discovery, social media, and smart contracts; established law practice tech applications including practice management software and document automation; and evolving machine learning and data analytics tools to future proof law. Innovations in the delivery of public sector legal services are considered. Throughout the course, students will experience and evaluate practice tools that are essential for a lawyer's technology competency.

**Credit Hour:** 1-3

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**LAW 5635: Insurance Law**

A basic course in the fundamentals of insurance law. Topics covered include defining insurance; risk and the nature of the insurance relationship; insurable interest; indemnity; fortuity; subrogation; coordination of benefits; interpretation; rights at variance with policy provisions; contract formation; warranties, misrepresentation and concealment; condition; agents and brokers; introduction to regulation; introduction to insurance coverage.

**Credit Hour:** 1-3

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**LAW 5637: Insurance Claims Processing and Dispute Resolution**

This course provides an in-depth examination of claims processing and dispute resolution in the insurance business in both first-party (property, life, etc.) and third-party (liability) insurance. Topics covered include notice of loss, proof of loss, duty to cooperate; negotiation of insurance claims; appraisal; mediation and arbitration of insurance claims; remedies for noncompliance with claims processing obligations; and, bad faith. The topics will be covered from a national perspective, but special emphasis will also be given to Missouri law. This course is approved to count as an elective toward the Dispute Resolution Certificate.

**Credit Hour:** 1-4

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**LAW 5640: Intellectual Property**

This course is an introduction to the four broad areas of intellectual property. Students will learn about intellectual property, contract, and tort knowledge gained from the first year curriculum. The course will cover trademarks, trade secrets, patent law, and copyright law. Thus, the course will cover how one obtains the special property rights called the copyright, patent, trademark contract. Further, the course will cover how these intellectual property rights are protected from the tortious act of infringement, as well as any defense to infringement it is important to note that this introductory class cannot be used to satisfy any of the requirements for the Intellectual Property certificate; nor is this introductory course substitute for the more in-depth coverage offered by Patent Law and Policy, Copyright Law or Trademark Law. Rather, it is designed to allow students to explore basic intellectual property issues and to meet any prerequisites for Cyberspace Law, Software Law and International Intellectual Property. Students may find that taking this introductory course complements the rest of the intellectual property curriculum. Class participation and preparations is required, as is class attendance. An exam and several small written projects will be required.

**Credit Hour:** 1-3

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**LAW 5652: International Commercial Arbitration**

This course offers a study of arbitration as a dispute resolution process for international trade and business disputes. The course reviews ad hoc and institutional arbitration, the authority of arbitral panels, enforcement of agreement to arbitrate, challenging arbitrators, procedure and choice of law in arbitral proceedings, the enforcement of international arbitral awards. Special attention will be given to the international convention on the recognition and enforcement of international arbitral agreements and awards (New York Convention) and the UNCITRAL (U.N. Commission of International Trade Law) arbitral rules and model law. The course focuses on commercial arbitration as an international practice and not on arbitration under any particular national system. Students will participate

in a hypothetical arbitration matter, beginning from the development of the claim to preliminary proceedings, the arbitration hearing, and ending with the arbitrators' award.

**Credit Hour:** 2-3

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**LAW 5660: International Human Rights**

The purpose of this course is to enable students to develop a basic understanding of the concept of international human rights law and the role played by international and regional organizations, states and private actors in defining and enforcing human rights. Beginning with the historical origins of human rights, the course will examine the international regional human rights instruments and institutions that form the sources of human rights law (the UN system, including the Charter and treaties, European, African and Inter-American human rights regimes). It will also examine the role of non-governmental organization, the International Criminal Court and International humanitarian law (the law of war), and the interaction between US civil rights law and International human rights. Throughout the course, students will be introduced to important critical themes of human rights, including: the distinctions between public and private acts, evolving theories of statehood, sovereignty immunity, cultural relativism, and the western tradition of individual rights, and the relationship between rights and duties. Issues examined will include: political participation and democratization, religious freedom, the use of torture, corporate liability, woman's rights, the right and status of refugees, genocide and war crimes.

**Credit Hour:** 1-3

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**LAW 5665: International Law**

Introduction to the international legal system, with emphasis on relations between nation-states or international entities. Topics include statehood and recognition, legislative and judicial jurisdiction, human rights and the status of the individual, treaties and international organizations.

**Credit Hour:** 1-3

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**LAW 5677: Internet Law and Practice**

This course will focus on preparing to advise business clients dealing with electronic commerce and internet law issues. There is no technological background requirement or prerequisite to take the class. We will explore a variety of themes including the control over the internet by both government and private actors; how online activities differ from their off-line counterparts; and how the laws should react to new forms of interaction and social structures found online. Specific doctrinal topics include problems of digital authorship and publication including rights of anonymity, copyrights, trademarks, defamation and other torts; sales and licensing of products; marketing, advertising and data-mining, including privacy issues; jurisdiction over online actors; and cyber-squatting. Grades will be based on the final exam and an optional short paper.

**Credit Hour:** 1-3

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**LAW 5680: Journal of Dispute Resolution**

Credit for work as prescribed by the faculty for members of the Journal of Dispute Resolution. Graded on S/U basis only.

**Credit Hour:** 1-3

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**LAW 5691: Jury Instructions**

Theoretical and practical aspects of jury instructions (including general and special verdicts) at trial are presented from the perspectives of the judge, counsel, the jury, and the court of appeals. The course will involve the students in researching and drafting instructions, using pattern instructions, observing or participating in a simulated jury instruction conference, and writing an appellate court opinion that describes what the student has learned during the course.

**Credit Hour:** 1-3

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**LAW 5695: Labor Law**

The regulation of relations between employers and labor unions at common law and under federal and state legislation; primary emphasis on the National Labor Relations Act, as amended.

**Credit Hour:** 1-3

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**LAW 5697: Landlord Tenant Law and Practice**

This course focuses primarily on litigation under the Missouri Landlord Tenant statute and under federal administrative regulations governing public entities which provide housing and housing subsidies to low-income people including the processes for litigating against such entities. The course will address proper pleading, relevant evidentiary issues, and requisite settlement skills/strategies. This course is available to all 2L's and 3L's and requires Rule 13 certification. The course is required for all students enrolled in the Landlord/Tenant Practicum.

**Credit Hour:** 1-3

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**LAW 5698: Landlord/Tenant Practicum**

The Landlord-Tenant Practicum serves indigent individuals in Mid-Missouri. A Mid-Missouri Legal Services Corporation staff attorney supervises Rule 13 certified law students representing tenants including but not limited to those who are being evicted and/or who wish to sue their landlords for habitability or security deposit non-return. Students may also represent tenants who reside in public or subsidized housing in administrative actions brought by or against a Housing Authority. The practicum is graded and enrollment is limited. Credits earned in the Landlord/Tenant Practicum count toward the 6-hour Externship limit.

**Credit Hour:** 1-3

**Prerequisites or Corequisites:** LAW 5697 Landlord/Tenant Law and Practice

**Corequisites:** LAW 5280 Professional Responsibility

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**LAW 5700: Land Use Controls**

This course focuses on laws governing the use and development of land. The course examines legal rules and policy considerations related to zoning, subdivision controls, building codes, historic preservation, aesthetic regulation, growth management, eminent domain, nuisance law, regional land use conflicts, development exactions, and environmental land use restrictions.

**Credit Hour:** 1-3

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**LAW 5715: Law and Economics**

Study of the use of microeconomic analysis and methods in influencing the law. Topics: economic analysis of tort, contract and property law, the use and misuse of economics in the common law judging tradition,

limitations on the use of economic analysis in law and links between economic analysis and constitutional law/public choice theory.

**Credit Hour:** 1-3

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**LAW 5717: The Law of Habeas Corpus and Post-Conviction Relief**

Course will cover principles and practices of post-conviction remedies available to collaterally attack a criminal conviction in state and federal courts. Students will prepare post-conviction motions and petitions for a writ of habeas corpus under state and federal rules.

**Credit Hour:** 1-3

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**LAW 5721: Law Practice Management and Technology**

Managing a successful law practice requires time and project management skills, as well as knowledge about the business of practicing law. This course explores the practical and ethical challenges that confront the solo or small firm lawyer. Students will be introduced to a range of resources for the solo and small firm lawyer, and gain practical experience in preparing a business plan, client welcome package, and policies and procedure manual. Material presented is relevant to both the litigation and the transactional lawyer.

**Credit Hour:** 1-3

**Prerequisites:** LAW 5280 Professional Responsibility

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**LAW 5723: The Law and Practice of Criminal Sentencing**

This simulation-based course examines the substantive law and practical operation of state and federal criminal sentencing systems and seeks to provide students with entry-level competence as advocates in the sentencing phase of criminal cases. Students will participate in a series of simulated sentencing proceedings in state and federal court, acting as counsel for the government or the defendant, or as the sentencing judge. Criminal Procedure and Criminal Justice Administration are recommended, but not required.

**Credit Hour:** 1-4

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**LAW 5730: Law Review**

Credit for work as prescribed by the faculty for members of the Missouri Law Review. Graded on S/U basis only.

**Credit Hour:** 1-3

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**LAW 5746: Legislative Practicum**

This course provides students with the opportunity to work with individual lawyer legislators, or lawyer staff, at the Missouri General Assembly. The students will assist members of the General Assembly with drafting legislation, preparing materials for hearings, conducting research and analysis to respond to broad public policy issues as well as constituent concerns. On occasion students may be assigned to legislative committees, legislative staff support services, or to groups lobbying for legislation. Students will be expected to meet periodically with the professor and to maintain a journal of their activities. Graded on S/U basis only.

**Credit Hour:** 1-3

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**LAW 5748: Life Skills for Lawyers**

Readings and discussions will focus on how members of the class want to live their lives as a lawyer. Students will be asked to examine their

law school experience and visualize their place in the legal profession. Various problems faced by lawyers (e.g. the pressure to produce billable hours and dealing with clients) will be discussed. Some of the positive aspects of being a lawyer will be identified. The emphasis will be on what the problems and opportunities mean to you personally and the importance of taking responsibility for your own personal and professional life. (not available to students on probation, except for students classified as 3L students).

**Credit Hour:** 1-3

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**LAW 5750: Local Government Law**

(same as PUB\_AF 8866). Structure and powers of local government units; state-local relations, including 'home rule'; local government finance, including taxation and indebtedness; incorporation and annexation; eminent domain; tort liability; land use controls; labor relations.

**Credit Hour:** 1-3

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**LAW 5765: Mediation**

A study of the process in which a neutral third party assists others in resolving a dispute or planning a transaction. The course addresses the mediation movement as regards public policy, politics, professional responsibility, malpractice, and negotiation. Students develop mediation and negotiation skills through readings, demonstrations, experimental exercises, and preparation of a case study.

**Credit Hour:** 1-3

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**LAW 5770: Mediation Clinic**

(same as LAW 6970). Students develop and refine mediation skills by observing and participating in simulated and real mediation cases. Graded on S/U basis only.

**Credit Hour:** 1-2

**Prerequisites:** LAW 5765 Mediation (or concurrent enrollment), or completion of an approved training. Limited to J.D. or LL.M. students in designated semesters

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**LAW 5800: Moot Court I**

Required only for those students participating in the New York City Bar National Moot Court and the National Black Law Student Association Moot Court Competitions. Graded on S/U basis only.

**Credit Hour:** 1-3

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**LAW 5805: Moot Court II**

Required only for those students participating in the New York City Bar National Moot Court and the National Black Law Student Association Moot Court Competitions. Graded on S/U basis only.

**Credit Hour:** 1-2

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**LAW 5808: Natural Resources Law**

This course is a foundational survey course in the law and policy related to management of natural resources. Resources covered may include public lands, waters, submerged lands and wetlands, forests, minerals and energy, wildlife and biodiversity and ecosystems. Topics also may include organic statutes establishing certain resource management standards and procedures, generally applicable statutes governing

agency behavior, judicial review of agency decisions, integrated management of multiple resources, the use of ecosystem management and conservation methods, and takings.

**Credit Hour:** 1-3

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**LAW 5810: Negotiation**

Negotiation is an essential skill for most lawyers, regardless of practice area. Lawyers must negotiate with their counterparts, clients, partners, staff, courts, and many others in the course of representing a client. This course provides an in-depth understanding of the different models of negotiation, and practical skill development for meeting the many challenges that negotiation presents.

**Credit Hour:** 1-3

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**LAW 5815: Partnership Taxation**

This course will study the federal income tax treatment of partnerships and other entities treated as partnerships, including limited liability companies. The course will examine partnership formations, contributions to and distributions from partnerships, partnership operations, including special allocations of income and losses among partners, transfers of partnership interests, and partnership dissolution. This course will be taught using the problem method of instruction.

**Credit Hour:** 1-3

**Prerequisites:** LAW 5375 Basic Federal Income Taxation

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**LAW 5820: Patent Law and Policy**

This course will provide comprehensive coverage of the U.S. Patent Laws for those interested in obtaining general information about patents, as well as for those interested in practicing before the Patent and Trademark Office. The course will trace an invention through the application, examination, reconsideration, re-examination and litigation processes. If time permits, there may also be coverage of international treaties that affect U.S. Patent Laws as well as some comparison of U.S. Patent Laws and the Patent Laws of select countries. There are no course prerequisites and a technical background is not required because the course primarily focuses on the Patent Act, its requirements and its jurisprudence. Thus, students need only be familiar with applying statutes and cases to a fact pattern. In lieu of an examination or a paper, up to six written projects, between 3-10 pages each (approx. 40 pages overall), will be due at the end of the semester, giving students an intensive writing experience. The professor will review drafts of some of these projects during the semester and all of the projects will be discussed in class. These projects will allow students to help solve a clients hypothetical patent problem as we work through the Patent Act and its jurisprudence. Students may also have the opportunity to engage in client interviewing and counseling in order to complete the projects. There are no prerequisites and a technical background is not required.

**Credit Hour:** 1-3

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**LAW 5830: Pretrial Litigation**

Focus on the study of the legal principles, techniques, strategies and skills which pertain to civil pretrial practice, including: Professional and Ethical Considerations, Case Selection Case Investigation, Development of a case theory, Pleading, Discovery, Pretrial Conference, Motion Practice, Settlement Processes and Alternative Dispute Resolution.

**Credit Hour:** 1-3

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**LAW 5835: Products Liability**

A study of civil liability for personal injury, property damage, and economic loss caused by defective products. The study includes actions for negligence, strict liability, misrepresentation and the effect of state and federal legislation on those actions.

**Credit Hour:** 1-3

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**LAW 5837: Property, Life, Disability and Health Insurance Law**

This course will explore the legal issues that arise in connection with the purchase and ownership of 'first-party' insurance policies, which includes the categories of personal and commercial property insurance, life insurance, accidental death insurance, disability insurance, and health insurance. The course will examine the law from a national perspective but will give special attention to Missouri law when appropriate. The emphasis will be on the legal issues that typically arise when the consumer comes into contact with the insurance industry with respect to these products. The coverage of health insurance will focus on the provision and regulation of private insurance, as distinct from government programs providing access to the health care system through insurance or insurance-like benefits.

**Credit Hour:** 1-3

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**LAW 5845: Publicly Held Corporation**

This course focuses on legal issues most relevant to large public corporations. Recommended for students interested in pursuing a career in corporate law or for students desiring study in corporate law beyond the Business Organizations course.

**Credit Hours:** 3

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**LAW 5856: Real Estate Finance**

This course examines legal and transactional issues relating to the financing of real estate. The course covers mortgage documentation; the use of mortgagee prior to foreclosure; transfers of mortgaged property; transfers of mortgages and securitization; payment and discharge of mortgages; default and impact of bankruptcy on real estate transactions. The grade will be based upon a final examination.

**Credit Hour:** 1-3

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**LAW 5858: Real Estate Transactions**

This course examines issues relating to the transfer of real estate and the practice of transactional real estate law. The course covers conveyance documentation, the recording system, title and survey review, title insurance, purchase and sale transactions, basis entity structure and tax considerations, environmental review, commercial leasing, valuation of real estate, and project cash flow. The grade will be based on a final examination.

**Credit Hour:** 1-3

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**LAW 5859: Real Estate Transaction Skills Project**

Students will participate in a weekly seminar class focused on contract drafting, negotiation, due diligence, and client management in the context of a transactional real estate law practice. The grade for the course will be based upon student performance on drafting and practice skills assignments. Projects may include the negotiation and drafting of a purchase contract; the negotiation and modification of a commitment for

title insurance; survey review; review and evaluation of lease; and, lease drafting and negotiation. Student projects will include both individual and group work.

**Credit Hour:** 1

**Corequisites:** Concurrent registration in LAW 5858 Real Estate Transaction is required

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#### **LAW 5861: Regulation of Drugs and Medical Devices**

This course examines the U.S. Food and Drug Administration (FDA) interpretation and implementation of the federal Food, Drug, and Cosmetic Act (FDCA) and the Public Health Service Act (PHSA). FDA regulates food, drugs, animal drugs and feed, cosmetics, medical devices, tobacco products, and biological products (broadly speaking 'food and drugs'). The course considers not only the substantive regulations and policies applicable to food and drugs, but also issues of administrative law (agency practice and procedure, as well as judicial review), enforcement authority (powers and priorities), the agency's place within our federal system, and the place of food and drug law in the larger legal environment. The scope of the class will vary from semester to semester, usually covering at least drugs and devices.

**Credit Hour:** 1-3

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#### **LAW 5862: The Regulation of Medical Marijuana Businesses**

More than half of the states now authorize designated businesses to produce and sell marijuana commercially. However, these businesses remain subject to extensive state regulation. In 2018, Missouri adopted a constitutional amendment, Art. XIV, § 1, with a purpose to authorize medical marijuana. State regulations raise a host of legal questions: How do states award commercial licenses to grow and sell marijuana? Are any state licensing regulations preempted by federal law? Do state advertising restrictions violate the First Amendment? How are marijuana licensees disciplined for regulatory violations? Marijuana businesses also face numerous regulatory hurdles erected by the federal government, adding to the questions surrounding the marijuana industry: Do marijuana businesses have any viable legal defense against federal criminal prosecution? Can marijuana businesses register their trademarks? Can they deduct their expenses when they pay their federal taxes? Will courts enforce contracts with the marijuana industry? Can the industry obtain banking or legal services? The resolution of these issues is in a state of flux throughout the nation and, in particular, in Missouri, in light of Missouri's 2018 constitutional amendment. This class will address these and related questions surrounding the nascent marijuana industry.

**Credit Hour:** 1-3

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#### **LAW 5870: Remedies**

Survey of damages, history of equity; coverage of various equitable remedies and their adequacy, practicability, defenses, procedural problems, enforcement of decrees, merger of law and equity, contempt.

**Credit Hour:** 1-3

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#### **LAW 5875: Research in Law**

Independent Research with a faculty member is available during the Summer, Fall and Spring Semesters. Any student enrolling for Research credit must designate at the time of enrollment the professor who will supervise the research project. Credit is earned at the rate of 20 pages per credit hour. No more than three hours of Research may be taken or counted toward the law degree. Enrollment in LAW 5875 may, but need

not, be structured so as to satisfy the upper-level writing requirement. Enrollment in LAW 5875 Research satisfies the Law School's writing requirement only if the project culminates in an individually authored paper of at least 20 pages, based on independent research, through a process that involves an initial draft, critique by the supervising faculty members, and rewrite.

**Credit Hour:** 1-3

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#### **LAW 5885: Secured Transactions**

The course focuses on the rights of secured creditors and debtors under Article 9 of the Uniform Commercial Code, and includes coverage of creditors with special rights (such as taxing authorities and artisans), documentary exchanges under Article 7, and bulk sales under Article 6.

**Credit Hour:** 1-3

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#### **LAW 5890: Securities Regulation**

Financing of business through the sale of securities. Emphasis on federal securities acts, with some consideration of state statutes. Consideration of the registration process; exemptions from registration; the special antifraud rules; liabilities and criminal penalties; reporting; insider trading; and, proxy solicitation problems.

**Credit Hour:** 1-3

**Prerequisites:** LAW 5395 Business Organizations

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#### **LAW 5897: Sex, Reproduction and the Law**

This course surveys the legal and social history of state and federal regulation of sexual and reproductive behavior. It will explore constitutional rights vis a vis a number of specific legal and social issues including the demographics of conception, parenting, and domestic violence; forced sterilization; access to contraception and abortion; adoption; assisted reproductive technologies; left over pre-implantation frozen embryos; gestational surrogacy; rape; same sex marriage and family building; and stem cell research.

**Credit Hour:** 1-3

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#### **LAW 5905: Sports Law**

Substantive areas of concentration include sports litigation, labor law, NCAA regulations, legal relationships in professional sports, anti-trust aspects of sports activities, and collective bargaining.

**Credit Hour:** 1-3

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#### **LAW 5910: State Constitutional Law**

Since the departure of Chief Justice Warren, the U.S. Supreme Court and other federal courts have taken a less expansive view of the rights granted by the U.S. Constitution. Congress has also taken steps to turn over both funds and authority to states. Both developments have increased the importance of state constitutional law. The course would be taught in three parts: (1) History of state constitutions; their relationship to the U.S. Constitution and the major differences among them; (2) Individual rights; instances in which state constitutional provisions that are facially similar or identical to the Bill of Rights in the U.S. Constitution, have been interpreted by state courts to extend beyond the federal rights, and instances where state constitutions guarantee individual rights that are different from or in addition to those in the U.S. Constitution; and (3) Governmental obligations and authority; Constitutional provisions allocating governmental authority, such as limitations on legislative



authority, the authority of the people to act through referendum or initiative and the relative authority of independent constitutional and officers.

**Credit Hour:** 1-2

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**LAW 5914: Tax Planning**

This course will examine the application of corporate and partnership tax planning principles to accomplish common business objectives. Students will interview hypothetical clients, prepare written planning documents, present their tax plans to the class, and analyze associated substantive tax and business issues in a seminar format. The grade in this course will be based on written planning documents, a class presentation, and class participation. There will be no final exam.

**Credit Hour:** 1-3

**Prerequisites:** LAW 5375 Basic Federal Income Taxation

**Recommended:** Students are strongly encouraged to have taken or be concurrently enrolled in LAW 5465 Corporate Taxation or LAW 5815 Partnership Taxation

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**LAW 5915: Tax Research**

This course provides students with an in-depth exploration of methods and sources for researching tax issues. The course provides students an opportunity to gain experience in using tax research tools. While primarily applicable to tax research, the knowledge gained by students will be helpful in future practice, regardless of practice area. Grades will be based on written assignments to be completed throughout the semester and one final project.

**Credit Hour:** 1-2

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**LAW 5916: Taxation of Property Transactions**

This course will examine tax laws and policies fundamental to real estate investment. Topics include depreciation and recapture, cash and accrual methods of accounting, installment sales, non-recognition transactions, including like-kind exchanges and bad involuntary conversions, and discharge of indebtedness issues arising out of real estate transactions. This course is designed to provide a detailed analysis of complex tax provisions necessary for advanced tax planning and will be taught using the problem method of instruction.

**Credit Hour:** 1-3

**Prerequisites:** LAW 5375 Basic Federal Income Taxation

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**LAW 5917: Topics in Law**

Various topics in law are explored in depth. Topics change each semester. Some sections may be graded either A-F only or S/U basis only.

**Credit Hour:** 1-5

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**LAW 5920: Trademark Law**

Nature of trademark law; common law and statutory trademarks and trade-names; Lanham Act of 1946; distinctiveness; types of marks; qualification of marks for registration (use in commerce, intent-to-use certification, secondary meaning, abandonment); registration procedures; exclusive rights of trademark owner; scope of protection; concurrent use; infringement (including 'gray market' use); international protection; remedies; state trademark acts; related common law doctrines; trademark usage on the Internet; and, domain name issues.

**Credit Hour:** 1-3

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**LAW 5923: Transnational Litigation**

This course addresses common areas of concern in private transnational litigation and provides students with an understanding of litigation tactics in this growing area of law. Topics include jurisdictional issues, forum selection, international service of process, international discovery, international choice of law, proving foreign law in U.S. courts, multiple proceedings (including parallel proceedings and interim/interlocutory assistance) and enforcement of foreign judgments. Although international in nature, the course covers many of the same sorts of concerns that arise in other sorts of complex civil litigation and emphasizes practical strategy points and transactional considerations.

**Credit Hour:** 1-3

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**LAW 5925: Trial Practice**

Skills based course that focuses on the techniques of pleading, discovery, jury selection, opening statements, direct/cross examination of witnesses, preparing jury instructions, and closing arguments. Each student participates in classroom problems selected from various phases of litigation, and in one complete trial. Some sections of this course may be offered as a graded section or graded on S/U basis only.

**Credit Hour:** 1-4

**Prerequisites:** LAW 5260 Evidence

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**LAW 5927: Veterans Clinic**

In this clinical program, students will help veterans in need and/or their dependents secure disability related benefits after an initial denial from the Regional VA office. This work will be done at the Board of Veterans' Appeals (BVA) level or before the Court of Appeals for Veterans' Claims (CAVC), both located in Washington D.C. The BVA and CAVC are federal tribunals, specially created to handle veterans' claims. Students will have the opportunity to work with the client, in a law firm type atmosphere, and prepare and argue appeals relating to the denial of benefits.

**Credit Hour:** 1-4

**Prerequisites or Corequisites:** LAW 5280 Professional Responsibility

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**LAW 5940: White Collar Crime**

Study of what are generally considered to be business or organizational crimes. General topics to be explored may include: mail and wire fraud, conspiracy, securities fraud, tax fraud, government contracting fraud (with particular emphasis on the False Claims Act), the Hobbs Act and the Racketeer Influenced and Corrupt Organizations Acts.

**Credit Hour:** 1-4

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**LAW 5945: Will and Trust Drafting**

Building on Estates and Trusts, applies substantive law of wills and trusts to actual drafting of documents typical of those used in law practice. Grade based entirely on student projects.

**Credit Hour:** 1-3

**Prerequisites:** LAW 5560 Estates and Trust

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**LAW 5946: Wrongful Convictions**

This course offers students an insider's look into the operation of the criminal justice system. It should be of particular interest to any student

interested in working in a prosecutor's office, public defender's office or for a firm doing defense work. It is a prerequisite for any student wishing to enroll in the Innocence Project clinic. The course is designed to help students gain insight into features of the criminal justice system that have a tendency to produce wrongful convictions. In addition to examining the causes of wrongful convictions, the course will consider systemic reforms that might minimize convicting the innocent. We will also work with the Midwest Innocence Project on cases of possible actual innocence. Finally, the class will also focus on recurring ethical issues that confront prosecutors and criminal defense lawyers.

**Credit Hour:** 1-4

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**LAW 5947: Workers' Compensation Law and Practice**

This course will cover the law and practice of Workers' Compensation Law both in general and in Missouri. About two-thirds of the class time will be spent studying and discussing the doctrinal basis of workers' compensation. In the balance of the time students will work on a simulation in which they will have the opportunity to work through different steps of a workers' compensation claim.

**Credit Hour:** 1-3

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**LAW 6500: London Program**

Students enrolled in classes in London. Credit will count toward graduation requirements. Zero billing hours.

**Credit Hour:** 1-16

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**LAW 6710: Comparative Dispute Resolution**

South Africa Program

**Credit Hour:** 1-2

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**LAW 6720: Comparative Constitutional Law**

South Africa Program

**Credit Hour:** 1-2

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**LAW 6730: Comparative Criminal Justice**

South Africa Program

**Credit Hour:** 1-2

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**LAW 6905: LLM Arbitration Seminar**

(same as LAW 6805). This course covers law, policy, and practices relating to the arbitration in the U.S. under modern arbitration statutes as well as arbitration of international commercial disputes under international conventions and arbitral rules.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**LAW 6920: LL.M. Externship**

Student will be placed (or secure placement) with attorney, professional mediator or arbitrator, or dispute resolution agency (government-based or private) for an externship ranging from three to nine weeks. Students will observe and, to the extent possible, participate in dispute resolution activities of mentor. Journal entries form basis for credit. Externship placements will be local, national or international. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** LL.M. students only

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**LAW 6925: LL.M. Independent Study**

Substantial research project on selected topic of choice.

**Credit Hour:** 1-3

**Prerequisites:** LL.M. students only

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**LAW 6930: LL.M. Major Research Project**

(same as LAW 6830). Development and presentation of substantial research paper on current topic in dispute resolution. Supervision of this work by appropriate faculty will be determined according to the topic selected.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**LAW 6932: Conflict and Conflict Management**

This course explores the nature and sources of conflict, the conditions under which conflict may escalate or de-escalate, models for understanding conflict, and strategies and techniques attorneys may use to effectively manage conflict. The course addresses both theory and skills. Graded on A-F basis only.

**Credit Hour:** 1-4

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**LAW 6933: Cross Cultural Dispute Resolution**

The course will focus on the impact culture can have on the private ordering of disputes. Culture affects communication, perceptions regarding conflict and methods for resolution. As the world becomes more interrelated and Missouri and the U.S. more diverse, lawyers need to be prepared to resolve problems across cultural lines. Graded on A-F basis only.

**Credit Hour:** 1-4

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**LAW 6934: Dispute Resolution in the Digital Age**

This course will explore Online Dispute Resolution (ODR) systems. We will look at the various systems currently used by major companies such as eBay, as well as the rules and treaty developments in global markets. We also will do ODR simulation exercises. The class also will include deep consideration of both the potential and drawbacks of ODR systems. Therefore, we also will discuss development of best practices and question policy directions. Graded on A-F basis only.

**Credit Hour:** 1-4

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**LAW 6935: Dispute System Design**

(same as LAW 6835). Analysis of system design principles and the management of multi-party complex disputes. Course will include overview of statutes, regulations, court rules and general policy considerations for the development of systematic approaches to the resolution of disputes as well as the consultation process inherent in system design work. An underlying theme for this course will be issues of program quality. Students will review scholarly work evaluating the ADR field and study basic research/evaluation methodologies.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**LAW 6945: Non-Binding Methods of Dispute Resolution**

(same as LAW 6845). Negotiation and mediation of disputes, focusing on the theory, strategy, and skills, and public policy issues involved in using non-binding methods of dispute resolution. The course addresses the role of attorneys in unassisted and mediated negotiation as well as the role of mediators. The course considers the professional responsibility of advocates negotiating for clients and of mediators.

**Credit Hour:** 3-4

**Prerequisites:** instructor's consent

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**LAW 6950: Practicum on Dispute Resolution Training and Education**

Structured training experience through participation in the first-year curriculum project; service as judges in J.D. student competitions, such as negotiation and client counseling; and assignments to appropriate upper division courses to assist with development of dispute resolution modules. Credit is earned for work over the entire academic year. Graded on a S/U basis only.

**Credit Hour:** 1-2

**Prerequisites:** LL.M. students only

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**LAW 6953: Public Policy Dispute Resolution**

Public policy disputes, such as those that occur in the energy, environmental, education, and health industries, are complex and challenging to manage. This course will explore the intersections of the executive, legislative, and judicial branches of both state and federal government and legal strategies for shaping public policy, whether through litigation, legislation, regulation, alternative dispute resolution or a combination of processes. We will look at two case studies and at least one current issue. Graded on A-F basis only.

**Credit Hour:** 1-4

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**LAW 6955: Topics**

Special and emerging topics in dispute resolution. Subject, content and credit varies, depending on available faculty and student interest.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**LAW 6970: Mediation Clinic**

(same as LAW 5770). Students develop and refine mediation skills by observing and participating in simulated and real mediation cases. Limited to J.D. or LL.M. students in designated semesters. Graded on S/U basis only.

**Credit Hour:** 1-2

**Prerequisites or Corequisites:** LAW 5765 (or concurrent enrollment), or completion of an approved training

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**LAW 6980: Overview of the US Legal System**

This course will introduce fundamentals of the U.S. legal system. Topics include the basic structure and function of U.S. legal institutions, the adversarial system and judicial process, the interaction of state and federal law in the American system of federalism, sources of law including statutory, common and administrative law, selected topics in constitutional law and civil and criminal procedure, and brief overviews in selected areas of substantive law such as contracts, property, family, tax, or torts. Graded on A-F basis only.

**Credit Hour:** 1-4

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## Learning, Teaching, & Curriculum (LTC)

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**LTC 1100: Orientation**

This course familiarizes and orients students with MU resources, College of Education programs and expectations and career options. Graded on S/U basis only.

**Credit Hour:** 1

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**LTC 1110: Orientation: Art Education**

This course familiarizes and orients students with MU resources, College of Education programs and expectations and career options, emphasizing Art Education. Graded on S/U basis only.

**Credit Hour:** 1

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**LTC 1120: Orientation: Math Education**

This course familiarizes and orients students with MU resources, College of Education programs and expectations and career options, emphasizing Math Education. Graded on S/U basis only.

**Credit Hour:** 1

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**LTC 1130: Orientation: Middle School Education**

This course familiarizes and orients students with MU resources, College of Education programs and expectations and career options, emphasizing Middle School Education. Graded on S/U basis only.

**Credit Hour:** 1

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**LTC 1155: Orientation: Science Education**

This course familiarizes and orients students with MU resources, College of Education programs and expectations and career options, emphasizing Science Education. Graded on S/U basis only.

**Credit Hour:** 1

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**LTC 1170: Orientation: English/Language Arts**

This course familiarizes and orients students with MU resources, College of Education programs, expectations and career options, emphasizing English/Language Arts education. Graded on S/U only.

**Credit Hour:** 1

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**LTC 1320: Scuba Theory**

The curriculum of the class includes bio-physics, hydrostatic pressures, physiology, fundamentals of compressed gases, environmental conditions, mechanics, first aid as it relates to diving, and planning speciality dives such as decompression, night, cave, ice, salvage and wreck diving.

**Credit Hours:** 3

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**LTC 2040: Inquiring into Schools, Community and Society I**

This course focuses on schooling in American society, the school community, the school culture and students' lives and identities. Studied are the political, cultural, and economic conditions of the schools.

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**Credit Hours:** 3

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**LTC 2044: Inquiry into Schools, Community and Society: Field**

This field experience course supports the Inquiring into Schools, Community and Society (ISCS), component of Phase I. Graded on S/U basis only.

**Credit Hour:** 1

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**LTC 2200: School Health and Student Wellbeing**

This course will explore and analyze the critical role schools and teachers play to address students' physical, social, and emotional wellbeing. Research indicates that a healthy school environment can improve both academic and social outcomes. Focus areas include school safety, nutrition policy and health education.

**Credit Hours:** 3

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**LTC 4004: Field Experience**

This course is a stand alone field experience for College of Education majors to gain additional experience inside the classroom. Graded on S/U basis only.

**Credit Hour:** 0-2

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**LTC 4085: Problems in Curriculum and Instruction**

Studies professional programs and issues in health or physical education.

**Credit Hour:** 1-3

**Recommended:** instructor's consent

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**LTC 4085W: Problems in Curriculum and Instruction - Writing Intensive**

Studies professional programs and issues in health or physical education.

**Credit Hour:** 1-3

**Recommended:** instructor's consent

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**LTC 4091: Assessment and Family Collaboration in Early Childhood Education**

(cross-leveled with LTC 7091). Strategies for effectively observing and assessing young children and strategies for building positive family and community relationships, which support children's development and learning.

**Credit Hours:** 3

**Prerequisites:** Consent required (enrollment limited to students admitted to Phase II)

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**LTC 4110: Working with Infants and Toddlers**

(cross-leveled with LTC 7110). Experience working with children aged 6 weeks to 2 1/2 years and their families. Opportunity to apply theories of cognitive, language, and social development.

**Credit Hour:** 2-3

**Recommended:** Admittance to Phase II

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**LTC 4120: Early Childhood Education Literacy Methods & Assessment I**

(cross-leveled with LTC 7120). Strategies for assessing and supporting young children's literacy development. Graded on A-F basis only.

Recommended: admittance to College of Education required and co enrollment of LTC 4210 and LTC 4124: K-3 Field Experience.

**Credit Hours:** 3

**Prerequisites:** Consent of department required

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**LTC 4120W: Early Childhood Education Literacy Methods & Assessment I - Writing Intensive**

(cross-leveled with LTC 7120). Strategies for assessing and supporting young children's literacy development. Graded on A-F basis only. Recommended: admittance to College of Education required and co enrollment of LTC 4210 and LTC 4124: K-3 Field Experience.

**Credit Hours:** 3

**Prerequisites:** Consent of department required

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**LTC 4124: Emergent and Developing Literacy Early Childhood Field Experience**

This field experience supports the LTC 4120 component of Phase II. Field experience expectations are delineated in the LTC 4120 course syllabi. Graded on a S/U basis only.

**Credit Hours:** 3

**Corequisites:** LTC 4120 and LTC 4210

**Recommended:** Admittance to Phase II

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**LTC 4130: Teaching and Learning Math, Science and Social Studies w/ Young Children**

(cross-leveled with LTC 7130). Strategies for assessing and supporting young children's math, science and social studies learning. Includes strategies for home-school collaboration. Must take concurrently with K-3 field experience. Graded on A-F basis only.

**Credit Hours:** 9

**Corequisites:** LTC 4134

**Recommended:** Admittance to Phase II

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**LTC 4134: Teaching & Learning Math, Sci & Soc Studies w/Young Children Field Experience**

This field experience supports the LTC 4130 component of Phase II. Field experience expectations are delineated in the LTC 4130 course syllabi. Graded on a S/U basis only.

**Credit Hours:** 3

**Corequisites:** LTC 4130

**Recommended:** Admittance to Phase II

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**LTC 4140: Curriculum, Theory and Classroom Management in Early Childhood Education**

(cross-leveled with LTC 7140). Reflection on the relationship of theory and practice in ECE. Consideration of various topics including historical influences on early childhood curriculum, models of early childhood curriculum, classroom management, and individualizing curriculum.

**Credit Hours:** 3

**Prerequisites:** Consent required (enrollment limited to students who have completed the first two semesters of Phase II)

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**LTC 4140W: Curriculum, Theory and Classroom Management in Early Childhood Education - Writing Intensive**

(cross-leveled with LTC 7140). Reflection on the relationship of theory and practice in ECE. Consideration of various topics including historical influences on early childhood curriculum, models of early childhood curriculum, classroom management, and individualizing curriculum.

**Credit Hours:** 3

**Prerequisites:** Consent required (enrollment limited to students who have completed the first two semesters of Phase II)

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**LTC 4150: Early Childhood Education Literacy Teaching Methods and Assessment II**

(cross-leveled with LTC 7150). Advanced strategies for assessing and supporting young children's literacy development.

**Credit Hours:** 3

**Prerequisites:** Consent of department required

**Recommended:** LTC 4120 or LTC 7120, LTC 4124 K-3 Field experience and admittance to the ECE certification program in Phase II of the College of Education required

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**LTC 4150W: Early Childhood Education Literacy Teaching Methods and Assessment II - Writing Intensive**

(cross-leveled with LTC 7150). Advanced strategies for assessing and supporting young children's literacy development.

**Credit Hours:** 3

**Prerequisites:** Consent of department required

**Recommended:** LTC 4120 or LTC 7120, LTC 4124 K-3 Field experience and admittance to the ECE certification program in Phase II of the College of Education required

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**LTC 4160: Motor Development in Young Children**

For Early Childhood majors. Study of young children's motor development.

**Credit Hours:** 2

**Recommended:** Admission to Phase II

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**LTC 4170: Program Management & Environmental Organization in PreKindergarten**

Strategies for working with children aged 2-6 and their families. Emphasis on planning and implementing developmentally appropriate practice, designing effective learning environments, and managing programs.

**Credit Hours:** 3

**Prerequisites:** Consent required (enrollment limited to students admitted to Phase II, and completion of first 2 semesters of Phase II)

**Recommended:** Co-enrollment in LTC 4971 (Early Childhood section)

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**LTC 4194: Elementary Education Field Experience I**

Seminars and diverse 1-5 grade classroom experience focus is on the learner and learning in the elementary school. Graded on a S/U basis only.

**Credit Hour:** 1-3

**Recommended:** Admittance to Phase II

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**LTC 4200: Young Children's Emergent Language**

(cross-leveled with LTC 7200). For Early Childhood and Elementary Education majors. Study of young children's language development and implications for teachers.

**Credit Hours:** 2

**Corequisites:** LTC 4120, LTC 4124, and LTC 4210

**Recommended:** Admittance to Phase II

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**LTC 4210: Children's Language and Literature**

(cross-leveled with LTC 7210). For Early Childhood Education majors. Examines children's oral language development and surveys the field of children's literature for children ages birth to eight. Graded on A-F basis only.

**Credit Hours:** 3

**Corequisites:** LTC 4120 and LTC 4124

**Recommended:** Admittance to Phase II

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**LTC 4211: Literacy Assessment and Development**

Focus is on the development, assessment, and instruction of reading and writing motivations, skills, and strategies of diverse learners with emphasis on data interpretation and instruction. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4221: Contexts and Methods for Elementary Reading Instruction**

Students will closely explore the different contexts, methods, and materials for reading instruction in diverse settings. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4231: Contexts and Methods for Writing Instruction**

This course explores contexts and methods for writing instruction, with a focus on writing development, writing across the content, and multimodal and multilingual composition. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4231W: Contexts and Methods for Writing Instruction - Writing Intensive**

This course explores contexts and methods for writing instruction, with a focus on writing development, writing across the content, and multimodal and multilingual composition. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4240: Art for Children**

(cross-leveled with LTC 7270). This course focuses on appropriate teaching methods and strategies for teaching art (studio, art history, aesthetic, and criticism), artistic development of children, and curriculum, instructional, and organization strategies for the art classroom.

**Credit Hours:** 2

**Recommended:** Admittance to Phase II

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**LTC 4241: Diverse Literature for Children and Youth**

Reading and discussion of diverse literature within a wide variety of genres will allow students to explore issues of diversity as related to elementary instruction. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4241W: Diverse Literature for Children and Youth - Writing Intensive**

Reading and discussion of diverse literature within a wide variety of genres will allow students to explore issues of diversity as related to elementary instruction. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4250: Music for Children**

Preparation of early childhood and elementary education students with the skills, knowledge, and philosophical foundations necessary to integrate music into the early childhood and elementary curricula.

**Credit Hours:** 2

**Recommended:** MUSIC\_NM 1608, MUSIC\_NM 1612, MUSIC\_NM 1618 or competency test; Admittance to Phase II

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**LTC 4260: Elementary Social Studies**

To develop knowledge of social studies and the skills to teach social studies in the elementary school. The course is designed to provide the student with the skills to plan, implement, and evaluate both the teaching and learning processes for the elementary social studies classroom.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4280: Teaching Science in Elementary Schools**

Concepts, materials, methods in the elementary school program.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4294: Elementary Education Field Experience II**

Seminars and diverse 1-5 grade classroom experiences focus is on the teacher and instruction in the elementary school. Graded on S/U basis only.

**Credit Hour:** 1-3

**Recommended:** Admittance to Phase II

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**LTC 4300: Learning and Teaching Number and Operation in the Elementary School**

The purpose of this course is to (a) develop a deeper understanding of number and operation, (b) connect the mathematical knowledge of number as described in (a) to the learning and teaching of number in elementary school.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4310: Learning and Teaching Geometry in the Elementary School**

The purpose of this course is to (a) develop a deeper understanding of geometry and measurement, (b) critically examine content and issues of the complexities in teaching and learning fundamental concepts of geometry and measurement in elementary schools.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4320: Middle School Social Studies I**

Curriculum decision making, instructional planning, techniques and strategies, materials selection, approaches to assessment in middle level social studies, all based upon early adolescent growth and development principles.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4324: Middle School Social Studies Field I**

This field experience supports the Learning, Teaching and Curriculum 4320 component of Phase II for MS students. Field experience expectations are delineated in the LTC 4320 course syllabi. Graded on S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4334: Middle School Social Studies Field Experience II**

This field experience supports the LTC 4550 component of Phase II for MS students. Field experience expectations are delineated in the LTC 4550 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4340: Middle School Science I**

(cross-leveled with LTC 7340). Concepts, materials, methods in middle school program.

**Credit Hours:** 4

**Prerequisites:** Consent required

**Recommended:** Admittance to Phase II

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**LTC 4340W: Middle School Science I - Writing Intensive**

(cross-leveled with LTC 7340). Concepts, materials, methods in middle school program.

**Credit Hours:** 4

**Prerequisites:** Consent required

**Recommended:** Admittance to Phase II

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**LTC 4344: Middle School Science Field I**

This field experience supports the Learning, Teaching and Curriculum 4340 component of Phase II. Field experience expectations are delineated in the LTC 4340 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4350: Middle School Science II**

(cross-leveled with LTC 7350). Concepts, materials, methods in the middle school program.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4354: Middle School Science Field Experience**

This field experience supports the LTC 4350 component of Phase II. Field experience expectations are delineated in the LTC 4350 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4360: Intro. Teaching Mathematics in Middle and Secondary Schools**

(cross-leveled with LTC 7360). Introduction to teaching mathematics including: professional mathematics teacher associations and journals, learning theories related to teaching mathematics, tools, and materials for teaching mathematics, curriculum and instructional strategies (middle and lower high school level), and techniques for assessing mathematical understanding.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4364: Intro. Teaching Math in Middle and Secondary School Field Experience**

This field experience supports the LTC 4360 component of Phase II. Field experience expectations are delineated in the LTC 4360 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4370: Teaching and Modeling Middle School Mathematics**

(cross-leveled with LTC 7370). Major issues/topics of the course include: nature of middle school students, lesson planning, developing and utilizing teaching strategies, assessment alternatives, teaching via problem solving and mathematical modeling, interdisciplinary strategies and materials, and techniques for assessing mathematical understanding.

**Credit Hours:** 3

**Prerequisites:** LTC 4360 or LTC 7360 and LTC 4581 or 7581

**Recommended:** Admittance to Phase II and at least 18 credit hours of required mathematics

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**LTC 4370W: Teaching and Modeling Middle School Mathematics - Writing Intensive**

(cross-leveled with LTC 7370). Major issues/topics of the course include: nature of middle school students, lesson planning, developing and utilizing teaching strategies, assessment alternatives, teaching via problem solving and mathematical modeling, interdisciplinary strategies and materials, and techniques for assessing mathematical understanding.

**Credit Hours:** 3

**Prerequisites:** LTC 4360 or LTC 7360 and LTC 4581 or 7581

**Recommended:** Admittance to Phase II and at least 18 credit hours of required mathematics

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**LTC 4374: Teaching and Modeling Middle School Mathematics Field Experience**

This field experience supports the LTC 4370 component of Phase II. Field experience expectations are delineated in the LTC 4370 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4380: Teaching Middle School Language Arts I**

(cross-leveled with LTC 7380). Integrates an understanding of literacy (highlighting reading) with content area demands, literature and other media texts, evaluation and inquiry within a context of diversity.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4384: Teaching Middle School Language Arts I Field Experience**

This field experience supports the LTC 4380 component of Phase II. Field experience expectations are delineated in the LTC 4380 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4390: Teaching Middle and Secondary English/Language Arts II**

(cross-leveled with LTC 7390). Prepares prospective educators with the knowledge, skills, and strategies necessary for integrating and teaching the English/Language Arts, primarily focusing on the teaching of writing and critical thinking.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

---

**LTC 4390W: Teaching Middle and Secondary English/Language Arts II - Writing Intensive**

(cross-leveled with LTC 7390). Prepares prospective educators with the knowledge, skills, and strategies necessary for integrating and teaching the English/Language Arts, primarily focusing on the teaching of writing and critical thinking.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4394: Teaching Middle School Language Arts II Field Experience**

This field experience supports the LTC 4390 component of Phase II. Field experience expectations are delineated in the LTC 4390 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4400: Teaching Middle and Secondary English/Language Arts III**

(cross-leveled with LTC 7400). Prepare prospective educators by focusing on the teaching of American culture and critical thinking, through literacy, mediacy, oracy, and cultural artifacts.

**Credit Hours:** 3

**Prerequisites:** LTC 4380 or LTC 7380 and LTC 4390 or LTC 7390

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**Recommended:** Admittance to Phase II

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**LTC 4404: Teaching Middle School Language Arts III Field Experience**

This field experience supports the LTC 4400 component of Phase II. Field experience expectations are delineated in the LTC 4400 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4410: Teaching, Engaging and Assessing Middle-Level Students**

(cross-leveled with LTC 7410). In this course students will learn about the specific and individual needs of middle-level students and develop the skills and understandings to meet these needs.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4410W: Teaching, Engaging and Assessing Middle-Level Students - Writing Intensive**

(cross-leveled with LTC 7410). In this course students will learn about the specific and individual needs of middle-level students and develop the skills and understandings to meet these needs.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4414: Teaching, Engaging & Assessing Mid-Level Students Field Experience**

This field experience supports the LTC 4410 component of Phase II. Field experience expectations are delineated in the LTC 4410 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4420: Adolescent Literacy**

(cross-leveled with LTC 7420). Explores literacy implications of content areas. Topics include determining the difficulty of text, examining literature that supports content, creating alternative assessments, and evaluating reading/writing strategies as tools for learning. (Required of all students obtaining certification in middle school or concurrent certification in middle and secondary school area(s) except language arts.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4424: Middle School Literacy Field Experience**

This field experience supports the LTC 4420 component of Phase II. Field experience expectations are delineated in the LTC 4420 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4460: Teaching English to Speakers of Other Languages**

(same as LINGST 4650; cross-leveled with LTC 7460, LINGST 7650). Linguistic and pedagogical principles of teaching English to speakers of other languages. Graded A-F only.

**Credit Hours:** 3

**Prerequisites:** Consent required

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**LTC 4470: Teaching Secondary English/Language Arts I**

(cross-leveled with LTC 7470). Prepares prospective educators with the knowledge, skills, and strategies necessary for integrating and teaching the English/Language Arts, Primarily focusing on Young Adult Literature and critical thinking.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4474: Teaching Secondary English/Language Arts I Field Experience**

This field experience supports the LTC 4470 component of Phase II. Field experience expectations are delineated in the LTC 4470 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4480: Teaching Middle and Secondary English/Language Arts II**

(cross-leveled with LTC 7480). Prepares prospective educators with the knowledge and strategies necessary for integrating and teaching the English/Language Arts, primarily focusing on the teaching of writing and critical thinking.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4480W: Teaching Middle and Secondary English/Language Arts II - Writing Intensive**

(cross-leveled with LTC 7480). Prepares prospective educators with the knowledge and strategies necessary for integrating and teaching the English/Language Arts, primarily focusing on the teaching of writing and critical thinking.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4484: Teaching Secondary English/Language Arts II Field Experience**

This field experience supports the LTC 4480 component of Phase II. Field experience expectations are delineated in the LTC 4480 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4490: Teaching Middle and Secondary English/Language Arts III**

(cross-leveled with LTC 7490). Prepares prospective educators by focusing on the teaching of American culture and critical thinking, through literacy, mediacy, oracy, and cultural artifacts.

**Credit Hours:** 3

**Prerequisites:** LTC 4470 or LTC 7470 and LTC 4480 or LTC 7480

**Recommended:** Admittance to Phase II

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**LTC 4494: Teaching Secondary English/Language Arts III Field Experience**

This field experience supports the LTC 4490 component of Phase II. Field experience expectations are delineated in the LTC 4490 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4500: Emergent Language in Early Childhood**

(cross-leveled with LTC 7500). Study of language learning in young children; how meaning of the environment is gained through language; implications for teachers working with children from varying language-learning environments.

**Credit Hours:** 3

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**LTC 4510: Assessment in Early Childhood Education**

A study of formal and informal assessment instruments and procedures used to measure progress and determine developmentally appropriate curriculum for children in early childhood settings.

**Credit Hours:** 3

**Recommended:** H\_D\_FS 3420 or equivalent child development or child psychology course

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**LTC 4530: Introduction to Social Studies**

Will introduce prospective teachers to the profession of social studies teaching; to the bases for making curriculum choices in social studies and the process of choosing content; and the process of planning curriculum and instruction in social studies classrooms.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4534: Secondary Social Studies I Field Experience**

This field experience supports the Learning, Teaching and Curriculum 4530 component of Phase II. Field experience expectations are delineated in the LTC 4530 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4541: Reading and Writing in the Social Studies**

(cross-leveled with LTC 7541). Focuses on the teaching of reading and writing strategies for social studies teachers. Students review literacy interventions related to reading and writing historical texts. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4544: Reading and Writing in the Social Studies Field**

This field experience supports the Learning, Teaching and Curriculum 4541 component of Phase II. Field experience expectations are delineated in the LTC 4541 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4550: Assessment in Social Studies**

Will address the purposes and development of social studies assessment for all levels from classroom to national assessment. Assessment will be used to reflect upon curriculum/instruction, make revisions and set goals.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4550W: Assessment in Social Studies - Writing Intensive**

Will address the purposes and development of social studies assessment for all levels from classroom to national assessment. Assessment will be used to reflect upon curriculum/instruction, make revisions and set goals.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4554: Secondary Social Studies III Field Experience**

This field experience supports the LTC 4550 component of Phase II. Field experience expectations are delineated in the LTC 4550 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4560: Reading and Writing in the Content Areas**

(cross-leveled with LTC 7560). For secondary school teachers. Specific ways teachers can help students improve reading and writing skills in content areas and ways they can be taught.

**Credit Hours:** 3

**Recommended:** Phase II admittance

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**LTC 4565: Reading and Writing in the Content Areas II**

(cross-leveled with LTC 7565). Reading and Writing in the Content Areas II explores specific reading and writing content area strategies, with a focus on struggling students and new investigations in disciplinary literacy.

**Credit Hours:** 3

**Prerequisites:** LTC 4560 or LTC 7560 or LTC 4380

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**LTC 4571: Introduction to Teaching Mathematics in Middle and Secondary Schools**

Introduction to teaching mathematics including: professional mathematics teacher associations and journals, learning theories related to teaching mathematics, tools, and materials for teaching mathematics, curriculum and instructional strategies (middle and lower high school level), and techniques for assessing mathematical understanding. Recommended: Admittance to Phase II

**Credit Hours:** 3

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**LTC 4574: Intro. Teaching Math in Middle and Secondary School Field Experience**

Field experience supporting the LTC 4571 component of Phase II. Field experience expectations are delineated in the LTC 4571 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4581: Teaching Mathematics in Middle and Secondary Schools: Focus on Algebra and Technology**

(cross-leveled with LTC 7581). Key issues in the teaching of pre-algebra through advanced algebra, appropriate use of technology, lesson planning, integration of appropriate models, mathematical connections. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** LTC 4571 or LTC 7571 or LTC 4360 or LTC 7360

**Recommended:** Admittance to Phase II

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**LTC 4584: Teaching Math in Middle and Secondary Schools: Algebra and Technology Field**

This field experience supports the Learning, Teaching and Curriculum 4581/7581 component of Phase II. Field experience expectations are delineated in the LTC 4581/LTC 7581 course syllabi. Graded on S/U basis only.

**Credit Hour:** 1

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**LTC 4590: Teach.Math in Sec.Schools: Focus on Geometry, Probability and Statistics**

(cross-leveled with LTC 7590). Provides experience which advanced students' knowledge, understanding, and facility in engaging students in learning mathematics. Major issues/topics highlighted in the course are: exploration of curriculum, teaching strategies, and assessment for geometry, probability and statistics.

**Credit Hours:** 3

**Prerequisites:** LTC 4571 or LTC 7571 and LTC 4581 or LTC 7581

**Recommended:** Admittance to Phase II

---

**LTC 4590W: Teach.Math in Sec.Schools: Focus on Geometry, Probability and Statistics - Writing Intensive**

(cross-leveled with LTC 7590). Provides experience which advanced students' knowledge, understanding, and facility in engaging students in learning mathematics. Major issues/topics highlighted in the course are: exploration of curriculum, teaching strategies, and assessment for geometry, probability and statistics.

**Credit Hours:** 3

**Prerequisites:** LTC 4571 or LTC 7571 and LTC 4581 or LTC 7581

**Recommended:** Admittance to Phase II

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**LTC 4594: Teach Math in Sec Sch: Focus on Geometry/Probability**

This field experience supports the LTC 4590 component of Phase II. Field experience expectations are delineated in the LTC 4590 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4631: Teach.Sci.Second.Sch.:Phil.,Hist., Sci.Inq.,Curr., Assm., & Teach I**

(cross-leveled with LTC 7631). An integration of the philosophy and history of science, technology, society; teaching science as inquiry; classroom management, strategies and curricula for teaching/learning science; and using technology in science learning.

**Credit Hours:** 4

**Prerequisites:** Consent required

**Recommended:** Admittance to Phase II

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**LTC 4631W: Teach.Sci.Second.Sch.:Phil.,Hist., Sci.Inq.,Curr., Assm., & Teach I - Writing Intensive**

(cross-leveled with LTC 7631). An integration of the philosophy and history of science, technology, society; teaching science as inquiry; classroom management, strategies and curricula for teaching/learning science; and using technology in science learning.

**Credit Hours:** 4

**Prerequisites:** Consent required

**Recommended:** Admittance to Phase II

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**LTC 4634: Teaching Middle and Secondary Science I Field**

This field experience supports the Learning, Teaching and Curriculum 4631 component of Phase II. Field experience expectations are delineated in the LTC 4631 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4641: Teaching Middle and Secondary Science II**

An integration of the philosophy and history of science, technology, society; teaching science as inquiry; classroom management, strategies and curricula for teaching/learning science; and using technology in science learning.

**Credit Hours:** 3

**Prerequisites:** LTC 4631

**Recommended:** Admittance to Phase II

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**LTC 4644: Teaching Middle and Secondary Science II Field**

This field experience supports the LTC 4641 component of Phase II. Field experience expectations are delineated in the LTC 4641 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4651: Teach.Sci.Second.Sch.:Phil.,Hist.,Sci.Inq.,Curr.,Assm., & Tech III**

(cross-leveled with LTC 7651). An integration of the philosophy and history of science, technology, society; teaching science as inquiry; classroom management, strategies and curricula for teaching/learning science; and using technology in science learning.

**Credit Hours:** 3

**Prerequisites:** LTC 4631 and LTC 4641

**Recommended:** Admittance to Phase II

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**LTC 4654: Teach Sci MS/Sec Sch: Phil,Hist,Sci Inq,Curr,Assm & Tech III Fld**

This field experience supports the LTC 4651 component of Phase II. Field experience expectations are delineated in the LTC 4651 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4730: Overview of Art Education**

(cross-leveled with LTC 7730). This is the first of a three course sequence and serves as the foundation for inquiries of methodological

and philosophical approaches to the teaching of the visual arts at the elementary and secondary level.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**LTC 4734: Overview of Art Education Field Experience**

This field experience supports the Learning, Teaching and Curriculum 4730 component of Phase II. Field experience expectations are delineated in the LTC 4730 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4740: Inquiry into Art Education: Pre-School Through Middle School**

(cross-leveled with LTC 7740). The second of three course sequence. It will cover art education issues as they apply to the Pre-School through Middle School setting.

**Credit Hours:** 3

**Prerequisites:** LTC 4730 or LTC 7730

**Recommended:** Admittance to Phase II

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**LTC 4740W: Inquiry into Art Education: Pre-School Through Middle School - Writing Intensive**

(cross-leveled with LTC 7740). The second of three course sequence. It will cover art education issues as they apply to the Pre-School through Middle School setting.

**Credit Hours:** 3

**Prerequisites:** LTC 4730 or LTC 7730

**Recommended:** Admittance to Phase II

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**LTC 4744: Inquiry into Art Education: Pre-School Through Middle School Field Experience**

This field experience supports the LTC 4740 component of Phase II. Field experience expectations are delineated in the LTC 4740 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4750: Inquiry into Art Education: Secondary**

(cross-leveled with LTC 7750). The third of a three course sequence. Student will learn about secondary art education and make application to practice with emphasis on adolescent development, curriculum design, student assessment, instruction, diversity/equity, and professionalism.

**Credit Hours:** 3

**Prerequisites:** LTC 4740 or LTC 7740

**Recommended:** Admittance to Phase II

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**LTC 4754: Inquiry into Art Education: Secondary Field Experience**

This field experience supports the LTC 4750 component of Phase II. Field experience expectations are delineated in the LTC 4750 course syllabi. Graded on a S/U basis only.

**Credit Hour:** 1

**Recommended:** Admittance to Phase II

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**LTC 4800: Educational and Cultural Experience Abroad**

(cross-leveled with LTC 7800). Students work in a collaborative setting with K-12 educations in the host country. Components of this experience include research, discussion, electronic communication, in-country observations, and co-teaching experiences with a focus on the host-country education and culture.

**Credit Hour:** 0-6

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**LTC 4960: Special Readings in Curriculum and Instruction**

Directed study of literature and research reports in education.

**Credit Hour:** 1-3

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**LTC 4970: Standardized Assessments**

This non-credit course will provide resources to assist with standardized assessments required to become a Missouri certified teacher. Graded on S/U basis only.

**Credit Hours:** 0

**Recommended:** Admittance to Phase III

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**LTC 4971: Internship and Capstone Seminar**

Internship is a full-semester experience in the public schools, including a capstone seminar addressing problems of practice (integrating subjects, reading and writing across the curriculum, meeting all students' needs), and evaluation of the interns preparation for entering the profession. It is offered each Fall and Spring for 10-16 credit hours. Admittance to College of Education required.

**Credit Hour:** 1-16

**Prerequisites:** ED\_LPA 4060 or ED\_LPA 7060

**Recommended:** Admittance to Phase III

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**LTC 4981: Internship I**

This field experience provides preservice interns a semester-long public school experience where they simultaneously engage in a unique combination of observation and teaching. Through observation, conferencing, reading, discussion, demonstration, and participation, the preservice intern will synthesize the course concepts of the Senior Year On-Site Program (SYOSP). Graded on A-F basis only.

**Credit Hour:** 1-4

**Prerequisites:** ED\_LPA 4060 or ED\_LPA 7060

**Recommended:** Admittance to Phase III

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**LTC 7040: Inquiring into Schools, Community and Society I**

This course focuses on schooling in American society, the school community, the school culture and students' lives and identities. Studied are the political, cultural, and economic conditions of the schools.

**Credit Hour:** 2-3

**Prerequisites:** completion of Phase I or enrollment in a graduate level program in the College of Education

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**LTC 7085: Problems in Curriculum and Instruction**

Studies professional programs and issues in health or physical education.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**LTC 7091: Assessment and Family Collaboration in Early Childhood Education**

(cross-leveled with LTC 4091). Strategies for effectively observing and assessing young children and strategies for building positive family and community relationships, which support children's development and learning.

**Credit Hours:** 3

**Prerequisites:** Consent required (enrollment limited to students admitted to Phase II)

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**LTC 7110: Working with Infants and Toddlers**

(cross-leveled with LTC 4110). Experience working with children aged 6 weeks to 2 1/2 years and their families. Opportunity to apply theories of cognitive, language, and social development.

**Credit Hours:** 3

**Prerequisites:** course in child development and admission to Phase II; admittance to College of Education required

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**LTC 7120: Early Childhood Education Literacy Methods & Assessment I**

(cross-leveled with LTC 4120). Strategies for assessing and supporting young children's literacy development. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of department required

**Recommended:** Admittance to College of Education required and co enrollment in LTC 4200 and LTC 4210 and K-3 field experience

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**LTC 7130: Teaching & Learning Math, Sci. & Social Studies w/Young Children**

(cross-leveled with LTC 4130). Strategies for assessing and supporting young children's math, science and social studies learning. Includes strategies for home-school collaboration. Must take concurrently with K-3 field experience. Graded on A-F basis only.

**Credit Hours:** 9

**Prerequisites:** Consent required (enrollment is limited to students admitted to the College of Education and have completed of ECE Language/Literacy block)

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**LTC 7140: Curriculum, Theory and Classroom Management in Early Childhood Education**

Reflection on the relationship of theory and practice in ECE. Consideration of various topics including historical influences on early childhood curriculum, models of early childhood curriculum, classroom management, and individualizing curriculum.

**Credit Hours:** 3

**Prerequisites:** Consent required (enrollment limited to students who have completed the first two semesters of Phase II)

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**LTC 7150: Early Childhood Education Literacy Teaching Methods and Assessment II**

(cross-leveled with LTC 4150). Advanced strategies for assessing and supporting young children's literacy development.

**Credit Hours:** 3

**Prerequisites:** Consent of department required

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**Recommended:** LTC 4120 or LTC 7120, LTC 4124 K-3 Field Experience and admittance to the ECE certification program in Phase II of the College of Education

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**LTC 7200: Young Children's Emergent Language**

(cross-leveled with LTC 4200). For Early Childhood and Elementary Education majors. Study of young children's language development and implications for teachers.

**Credit Hours:** 2

**Prerequisites:** admittance to Phase II; admittance to College of Education required

**Corequisites:** LTC 4120, LTC 4210, and K-3 field experience

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**LTC 7220: Emergent Literacy**

Emergent reading. Instructional methods, diagnostic procedures, and materials appropriate for learners in elementary grades 1-3.

**Credit Hours:** 3

**Prerequisites:** completion of Phase I

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**LTC 7240: Art for Children**

(cross-leveled with LTC 4240). This course focuses on appropriate teaching methods and strategies for teaching art (studio, art history, aesthetic, and criticism), artistic development of children, and curriculum, instructional, and organization strategies for the art classroom.

**Credit Hours:** 2

**Prerequisites:** admittance to College of Education

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**LTC 7340: Middle School Science I**

(cross-leveled with LTC 4340). Concepts, materials, methods in middle school science.

**Credit Hours:** 4

**Prerequisites:** Consent required. (enrollment limited to Phase I admittance; admittance to the College of Education required)

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**LTC 7360: Intro. Teaching Mathematics in Middle & Secondary**

(cross-leveled with LTC 4360). Introduction to teaching mathematics including: professional mathematics teacher associations and journals, learning theories related to teaching mathematics, tools, and materials for teaching mathematics, curriculum and instructional strategies (middle and lower high school level), and techniques for assessing mathematical understanding.

**Credit Hours:** 3

**Prerequisites:** professional standing, MATH 1360; admittance to College of Education required

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**LTC 7400: Teaching Middle and Secondary English/Language Arts III**

(cross-leveled with LTC 4400). Prepares prospective educators by focusing on the teaching of American culture and critical thinking, through literacy, mediacy, oracy, and cultural artifacts.

**Credit Hours:** 3

**Prerequisites:** LTC 4380 or LTC 7380 and LTC 4390 or LTC 7390; admittance to Phase II of College of Education

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**LTC 7410: Teaching, Engaging and Assessing Middle-Level Students**

(cross-leveled with LTC 4410). In this course students will learn about the specific and individual needs of middle-level students and develop the skills and understandings to meet these needs.

**Credit Hours:** 3

**Prerequisites:** admittance to College of Education required

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**LTC 7420: Adolescent Literacy**

(cross-leveled with LTC 4420). Explores literacy implications of content areas. Topics include determining the difficulty of text, examining literature that supports content, creating alternative assessments, and evaluating reading/writing strategies as tools for learning. (Required of all students obtaining certification in middle school or concurrent certification in middle and secondary school area(s) except language arts.

**Credit Hours:** 3

**Prerequisites:** admittance to College of Education required

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**LTC 7460: Teaching English to Speakers of Other Languages**

(same as ENGLISH 7650). Linguistics and pedagogical principles of teaching English to speakers of other languages. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 7600 and ENGLISH 7610 or equivalent and acceptance into Phase II

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**LTC 7470: Teaching Secondary English/Language Arts I**

(cross-leveled with LTC 4470). Prepares prospective educators with the knowledge, skills, and strategies necessary for integrating and teaching the English/ Language Arts, primarily focusing on Young Adult Literature and critical thinking.

**Credit Hours:** 3

**Prerequisites:** admittance to Phase II of College of Education

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**LTC 7480: Teaching Middle and Secondary English/Language Arts II**

(cross-leveled with LTC 4480). Prepares prospective educators with the knowledge, skills, and strategies necessary for integrating and teaching the English/ language Arts, primarily focusing on the teaching of writing and critical thinking.

**Credit Hours:** 3

**Prerequisites:** admittance to Phase II of College of Education

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**LTC 7490: Teaching Middle and Secondary English/Language Arts III**

(cross-leveled with LTC 4490). Prepares prospective educators by focusing on the teaching of American culture and critical thinking, through literacy, mediacy, oracy, and cultural artifacts.

**Credit Hours:** 3

**Prerequisites:** LTC 4470 or LTC 7470 and LTC 4480 or LTC 7480; admittance to Phase II of College of Education

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**LTC 7500: Emergent Language in Early Childhood**

(cross-leveled with LTC 4500). Study of language learning in young children; how meaning of the environment is gained through language; implications for teachers working with children from varying language-learning environments.

**Credit Hours:** 3

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**LTC 7560: Reading and Writing in Content Areas**

(cross-leveled with LTC 4560). For secondary school teachers. Specific ways teachers can help students improve reading and writing skills in content areas and ways they can be taught.

**Credit Hours:** 3

**Prerequisites:** Consent required (enrollment is limited to College of Education admitted to Phase II with 60+ credit hours)

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**LTC 7565: Reading and Writing in the Content Areas II**

(cross-leveled with LTC 4565). Reading and Writing in the Content Areas II explores specific reading and writing content area strategies, with a focus on struggling students and new investigations in disciplinary literacy.

**Credit Hours:** 3

**Prerequisites:** LTC 4560 or LTC 7560 or LTC 4380

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**LTC 7571: Introduction Teaching Mathematics in Middle and Secondary**

Introduction to teaching mathematics including: professional mathematics teacher associations and journals, learning theories related to teaching mathematics, tools, and materials for teaching mathematics, curriculum and instructional strategies (middle and lower high school level), and techniques for assessing mathematical understanding.

**Credit Hours:** 3

**Prerequisites:** professional standing and MATH 2300

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**LTC 7581: Teaching Mathematics in Middle and Secondary Schools: Focus on Algebra and Technology**

(cross-leveled with LTC 4581). Key issues in the teaching of pre-algebra through advanced algebra, appropriate uses of technology, lesson planning, integration of appropriate models, mathematical connections. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** LTC 7571 or LTC 7360

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**LTC 7587: Seminar in Curriculum and Instruction**

Seminar in Curriculum and Instruction.

**Credit Hour:** 1-3

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**LTC 7590: Teach.Math in Sec.Schools: Focus on Geometry, Probability & Stat.**

(cross-leveled with LTC 4590). Provides experience which advanced students' knowledge, understanding, and facility in engaging students in learning mathematics. Major issues/topics highlighted in the course are: exploration of curriculum, teaching strategies, and assessment for geometry, probability and statistics.

**Credit Hours:** 3

**Prerequisites:** LTC 4570 or LTC 7570; admittance to College of Education required

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**LTC 7631: Teach.Sci.Second.Sch.:Phil.,Hist., Sci.Inq.,Curr.,Assm., & Tech 3**

(cross-leveled with LTC 4631). An integration of the philosophy and history of science, technology, society; teaching science as inquiry; classroom management, strategies and curricula for teaching/learning science; and using technology in science learning.

**Credit Hours:** 4

**Prerequisites:** Consent required (professional standing; admittance to College of Education required)

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**LTC 7641: Teaching Middle and Secondary Science II**

An integration of the philosophy and history of science, technology, society; teaching science as inquiry; classroom management, strategies and curricula for teaching/learning science; and using technology in science learning.

**Credit Hours:** 3

**Prerequisites:** professional standing and Teaching Science in the Secondary School, Part I; admittance to College of Education required

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**LTC 7730: Overview of Art Education**

(cross-leveled with LTC 4730). This is the first of a three course sequence and serves as the foundation for inquiries of methodological and philosophical approaches to the teaching of the visual arts at the elementary and secondary level.

**Credit Hours:** 3

**Prerequisites:** admittance to College of Education required

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**LTC 7740: Inquiry into Art Education: Pre-School Through Middle School**

(cross-leveled with LTC 4740). The second of three course sequence. It will cover art education issues as they apply to the Pre-School through Middle School setting.

**Credit Hours:** 3

**Prerequisites:** admittance to College of Education required

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**LTC 7750: Inquiry into Art Education: Secondary**

(cross-leveled with LTC 4750). The third of a three course sequence. Student will learn about secondary art education and make application to practice with emphasis on adolescent development, curriculum design, student assessment, instruction, diversity/equity, and professionalism.

**Credit Hours:** 3

**Prerequisites:** admittance to College of Education required

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**LTC 7800: Educational and Cultural Experience Abroad**

(cross-leveled with LTC 4800). Students work in a collaborative setting with K-12 educators in the host country. Components of this experience include research, discussion, electronic communication, in-country observations, and co-teaching experiences with a focus on the host-country education and culture.

**Credit Hour:** 0-6

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**LTC 8085: Problems in Curriculum and Instruction**

Problems in Curriculum and Instruction.

**Credit Hour:** 1-99

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**LTC 8600: Home-School Partnerships: Working with Families**

Examination of theoretical and philosophical foundations of parent involvement, social and cultural influences on contemporary families, current research on parent involvement, and characteristics of effective home-school-community partnerships. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8611: Instructional Leadership and Advocacy in Early Childhood Education**

This course supports students in examining the unique leadership context in early childhood education settings and the skills and dispositions required of leaders engaging a diverse, undercompensated workforce with a wide range of formal/degreed education. The course will explore the history of leadership in ECE, historical and contemporary policies that have shaped the field, and future directions for advocacy. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8612: Play, Inquiry, and Project-based Learning in Classrooms with Young Children**

Study of early childhood curriculum in contemporary educational settings along with selection of appropriate materials and development of instructional strategies for children, prekindergarten through early primary grades. Graded on A-F basis only.

**Credit Hour:** 2-3

**Prerequisites:** teaching experience or instructor's consent

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**LTC 8613: Advanced Assessment in Early Childhood**

(same as SPC\_ED 8490). Procedures and instruments used in assessment of young children, including screening, diagnosis, interpretation of diagnostic findings, and application to instructional plans. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Departmental consent required

**Recommended:** May be restricted to students in semester-based courses offered through Mizzou Online

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**LTC 8614: Language and Early Literacy Development**

Investigation of the language and early literacy development of young children from birth through age 8. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Department consent required

**Recommended:** May be restricted to students in semester-based courses offered through Mizzou Online

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**LTC 8615: The Missouri Writing Project**

Focus on 1) current theory and research in teaching writing; 2) development of effective practice in teaching, writing and reading; and 3) experimentation with writing and response.

**Credit Hour:** 3-4

**Prerequisites:** successful application to MWP

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**LTC 8616: The Teaching of Journalism**

The course focuses on the learning and teaching of middle, secondary, and post-secondary journalism/mass media course. Major strands of study include the theory and practice of journalism instruction, curriculum, and assessment.

**Credit Hours:** 3

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**LTC 8617: Teaching Writing in Middle and Secondary Classroom**

This course will encourage the student as a writer and as a teacher of writing, especially in the middle and high school setting. We will explore various types of writing, with emphasis in English Education, including addressing national and state standards.

**Credit Hours:** 3

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**LTC 8618: Writing, Reading and Teaching Nonfiction**

Students will get more than their feet wet as they read and write a variety of nonfiction texts, explore nonfiction's value and relationship to other genres, and investigate its potential for learning.

**Credit Hours:** 3

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**LTC 8619: Media Literacy**

Teachers will learn how to incorporate visual images in the classroom while helping students 'read' the images of our media-rich culture. Teachers will pair media with literature; analyzed and evaluate different media; and design several assignments.

**Credit Hours:** 3

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**LTC 8621: Talk in the Curriculum**

This survey of oracy examines talk's essential role in learning and the connections among language, power and cultural identity.

**Credit Hours:** 3

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**LTC 8625: Language Acquisition and Development**

You will explore theories of language acquisition and development, and examine how language acquisition impacts reading and writing. Ideas for creating a language rich curriculum, second language learning, and cultural aspects of language will be addressed.

**Credit Hours:** 3

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**LTC 8635: Literature for Children and Youth**

Systematic study of selected areas of particular importance to students of literature, teachers, librarians, supervisors, and school administrators.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**LTC 8636: Teaching Literature**

This course involves exploration of theory, research, and practice in the teaching and learning of literature to students in Grades 9-12. It is intended for master's and doctoral students - experienced teachers enrolled in MU's English Education graduate program. This course addresses selected Common Core Standards, and focuses on an integrated approach to the teaching of literature and some nonfiction. Texts include novels, short stories, poems, literary nonfiction, and plays. The teaching of critical thinking, research skills, and technology are

integrated into these experiences. This course promotes the use of various teaching and learning practices. The course is divided into the following major sections: 1) Introductions of Class Members; 2) Theories of Teaching Literature in the Classroom; and 3) Trying Out Theories on Selected Literature. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** This is a recommended course for early in a master's program

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**LTC 8637: Teaching Communication**

This course explores the theory, research, and practice in the teaching and learning of communication. This course is intended for master's and doctoral students - experienced teachers enrolled in MU's English Education graduate program. This course addresses selected Common Core Standards, and focuses on the teaching of speaking, listening, and language, as they occur within the best practices of English/Language Arts classrooms. The course involves variety of texts such as short stories, poems, literary nonfiction, and plays. The teaching of critical thinking, research skills, and technology are integrated into these experiences. This course encourages the use of various teaching and learning practices. The course is divided into the following major themes: 1) Introductions of Class Members; 2) Overview of Communication: Theory, Research, Practice; and 3) Teaching Communication in Context: Speaking, Listening, Reading, Writing. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** We recommend, but do not require, that you take this course early in your program

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**LTC 8638: Critical Literacy**

This course explores the theory, research, and practice of Critical Literacy. Students develop an understanding of the roots of critical literacy, based in critical theory, and critical pedagogy. Students develop an understanding of how critical literacy fits in conversation with other movements in literacy studies, particularly new literacies, while considering the research and practice rationales for using critical literacy as a way to engage student populations historically underserved by traditional approaches to literacy. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8640: Studies in English Education**

Exploration of the theory, research, and application of topics in the teaching of English, such as Writing/Thinking, Media, Literature, Language, and Creative Nonfiction. Topics announced at time of registration. May repeat to twelve hours with department's approval.

**Credit Hours:** 3

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**LTC 8641: Foundations of English Education**

This course focuses on foundational readings in the teaching and learning of English/Language Arts. The course requires intensive reading, writing, and discussion focusing on four subcategories of English Education: writing, literature, language and critical thinking. In addition, the course situates these topics within a historical perspective of the field. An additional focus of this course is on professional networking and development. It is expected that as students develop a greater understanding of the foundations of English Studies in Language Arts, they will see where their areas of expertise and knowledge join them to the profession as a leader. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8642: Teaching Writing and Reading in Content Areas**

Theory and practice of teaching reading and writing. Specific ways teachers can help students use writing to communicate about the course content, as well as to learn course concepts. Class also focuses on how to teach reading in reading classes, how to help students improve reading skills in content areas, and how reading and writing skills can reinforce each other.

**Credit Hours:** 3

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**LTC 8643: Teaching ESL/EFL to Adult Learners**

This course explores the characteristics of adult learners, theories of adult learning, and the contexts in which adults learn English as a second or foreign language. Students apply this knowledge in the design of language learning curricula and activities for adult learners. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8644: Teaching English Grammar and Pronunciation**

This course develops teachers' knowledge of the structure of the English language (its grammar and its sound system) and provides them with pedagogical skills in teaching grammar and pronunciation to second/foreign language learners. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** LTC 8645 and LTC 8648

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**LTC 8645: Second Language Acquisition**

This course examines theories of how humans develop first and second languages in childhood and adulthood and how this knowledge can be used to educate language learners. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8646: Materials for and Assessment of English Language Learners**

This course will examine the appropriate classroom materials, methods, reasons, and tools for the formal and informal assessment of English Language Learners. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8647: Language and Culture for Educators**

This course will examine how to prepare educators to effectively educate students from a range of linguistic and cultural backgrounds by developing a broad understanding of the definition and nature of culture and appropriate teaching strategies and materials for diverse students. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8648: Linguistics for Educators**

This course focuses on the form, meaning, and use of language in context and applying knowledge of linguistics to the teaching of English language learners. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8649: Methods of Teaching English Language Learners**

This course will examine how to prepare teachers to develop the investigative, decision-making, and reflective teaching skills needed to work with English Language Learners. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8650: English to Speakers of Other Languages Practicum**

This culminating course will allow students to apply the theory and practice of teaching English to non-native speakers in an educational setting. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8653: Education Toward Bi/Multilingualism: Theory, Policy, and Practice**

(same as ED\_LPA 8653). Overview of the theory, policy, and practice of using at least two languages in education to develop children's bi/multilingualism. Key topics include: (1) models of bilingual/multilingual education; (2) policy and politics of language education in the U.S. and international contexts; (3) psycholinguistic and sociocultural perspectives on bi/multilingual language development, as related to schooling; and (4) evaluation and assessment issues in bi/multilingual education.

**Credit Hours:** 3

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**LTC 8654: ESOL Curriculum Development**

This course prepares teachers to design a language learning curriculum for students who are learning English as a second or foreign language.

**Credit Hours:** 3

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**LTC 8660: Reading Miscue Analysis**

The process in which readers construct meaning by relating their socio-psycholinguistic backgrounds to discourse. 15 studied miscues (text deviations) are analyzed at several linguistic levels. A comprehension centered reading program is developed.

**Credit Hours:** 3

**Prerequisites:** LTC 7540 and LTC 7560, or equivalent

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**LTC 8664: Practicum in Child Study I**

Practicum experiences in diagnosing educational problems of school children.

**Credit Hour:** 3-5

**Prerequisites:** LTC 7540 or LTC 7560 or LTC 8670

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**LTC 8665: Practicum in Child Study II**

Practicum experiences in applying remedial procedures to children with educational problems.

**Credit Hour:** 3-5

**Prerequisites:** LTC 8664

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**LTC 8670: Analysis & Correction of Reading Disabilities**

Diagnostic and corrective procedures in reading instruction that may be used for clinical study.

**Credit Hours:** 3

**Prerequisites:** LTC 7540 or instructor's consent

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**LTC 8675: Foundations of Reading Instruction**

This online course examines principles and practices of teaching reading to PK-12 students; the nature of reading and literacy learning, the foundations of reading acquisition and development; and reading instructional across grade levels. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8681: Guiding all Readers Toward Independence**

This course is an exploration of ways to help all readers, particularly those who have been unable to achieve success in reading. Focus areas are assessment, evaluation, and planning, all examined through work with an individual reader in a targeted case study. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8682: Focus on Writing in the Classroom**

The course focuses on theory, research and practices in teaching writing in the elementary classroom (K-6) while developing a critical understanding of process methods to teach writing.

**Credit Hours:** 3

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**LTC 8683: Celebrating Reading Through Good Books**

Many people can read but do not. This course will explore ways to make reading a joyful, exciting experience. Assignments will include reading journal articles that will help students meet self determined goals. Sharing books will be an important part of this course.

**Credit Hours:** 3

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**LTC 8684: Integrating Literacy and Technology**

This will be a seminar course in which the students explore definitions of literacy, theoretical frameworks of educational technology, and literature that investigates the effectiveness of integrating literacy and technology. The students will also examine and evaluate a range of software used to integrate literacy and technology.

**Credit Hours:** 3

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**LTC 8685: Literature Opportunities: Using Children's and Young Adult's Literature in the Classroom**

This class examines genres in children's and young adult literature (grades 1-9). In-depth look at the work of children's authors and illustrators; explore issues of censorship, gender, and culture.

**Credit Hours:** 3

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**LTC 8686: Theory of Instructional Strategies**

The course investigates instructional strategies in K-12 and higher education classrooms and the theories behind those strategies. Content includes large and small group strategies, inquiry-based learning, student-centered and direct instruction, and differentiated instruction.

**Credit Hours:** 3

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**LTC 8687: Literacy and the Internet (Grades K-12)**

The internet offers a myriad of opportunities to engage K-12 students in meaningful, purpose-driven reading and writing. Students examine their

own literacy programs, examine ways they can incorporate the internet, and create a classroom web site.

**Credit Hours:** 3

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**LTC 8688: Nature of Literacy in a Digital World**

New literacies are required to successfully engage in professional, civic, and personal lives that are imbued with technology. Students examine the literacy skills required to proficiently read and write with text messages, blogs, wikis, social networks, and virtual worlds.

**Credit Hours:** 3

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**LTC 8689: Curricular Decisions for Literacy in a Digital World (Grades K-12)**

This course will focus on making a match between educational technologies that can be used to support literacy and your beliefs about literacy instruction. We will examine types of educational technologies, stances towards the integration of literacy and technology, various theoretical perspectives of literacy acquisition and development, aspects of literacy, and instructional approaches for literacy. You will examine various technologies and identify what best matches your literacy instruction. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8710: Nature of Science and Science Teaching**

Examines philosophical, historical and sociological views of the nature of science and implications for science education policy and science instruction.

**Credit Hours:** 3

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**LTC 8712: Inquiry and the Science Curriculum**

Examines inquiry as the foundation of the science curriculum. Includes study of exemplary programs and curriculum materials, and provides models for curriculum development in science education.

**Credit Hours:** 3

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**LTC 8714: Research in Science Education**

Studies appropriate research methodologies and reviews research and selected readings in science education. Allows option for elementary or secondary emphasis for specific areas: life, physical or earth sciences.

**Credit Hours:** 3

**Prerequisites:** undergraduate course in Science Education

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**LTC 8717: Teaching, Learning, & Research in Middle & Secondary School Sci.I**

Course I is for Post-Baccalaureate Majors seeking Middle and/or Secondary teacher certification. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** LTC 8942

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**LTC 8718: Teaching, Learning & Research Middle & Secondary School Sci.: II**

For Post-Baccalaureate Majors seeking Middle and/or Secondary teacher certification. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** LTC 8942

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**LTC 8719: Teaching, Learning, & Research Middle & Secondary**

For Post-Baccalaureate Majors seeking Middle and/or Secondary teacher certification. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** LTC 8942

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**LTC 8724: College Science Teaching**

(same as BIO\_SC 8724, PHYSCS 8310 and ASTRON 8310). Study of learner characteristics, teaching strategies, and research findings related to teaching science at the post-secondary level.

**Credit Hours:** 3

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**LTC 8725: Science Outreach: Public Understanding of Science**

(same as BIO\_SC 8725 and AN\_SCI 8725). Development of presentations to adult audiences on the science underlying issues of current interest. May be repeated for credit.

**Credit Hour:** 1-2

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**LTC 8726: Integrating Science with Outreach**

(same as BIO\_SC 8726). This course provides an opportunity for students to earn credit for outreach activities in the community. Students will capitalize on their area of study and scientific expertise in developing, implementing, and evaluating related outreach activities. May be repeated for credit.

**Credit Hour:** 1-6

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**LTC 8730: Survey of Art Education**

Provides survey of the development of art education and problems in the field by means of a critical inquiry.

**Credit Hours:** 3

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**LTC 8735: Visual Literacy and Visual Culture**

This course will investigate the intersection between art and language, exploring the connections between visual media and the written word—how these two areas inform and enrich each other.

**Credit Hours:** 3

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**LTC 8740: Curriculum in Art Education**

Advanced study of art education curricula, with option for elementary or secondary emphasis. Study of exemplary art programs, standards of quality, curriculum models, curriculum design and construction, concomitant instructional methods and evaluation.

**Credit Hours:** 3

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**LTC 8745: Visual Thinking Strategies I**

This course will introduce regular classroom and art educators to Visual Thinking Strategies theory and methodology, building practical VTS facilitation skills through structured guidance and feedback as each participant implements VTS lessons within his/her own teaching context.

**Credit Hours:** 3

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**LTC 8746: Visual Thinking Strategies II**

Visual Thinking Strategies II students will build upon the basic facilitation skills acquired during VTS I as they design an image-based studio curriculum tailored to their own students and classrooms. Action research and peer coaching are key features of the course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** LTC 8745

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**LTC 8750: Review of Research in Art Education**

Studies appropriate research methodologies and reviews research and selected readings in art education.

**Credit Hours:** 3

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**LTC 8765: Artistic Thinking: Multimedia Applications for Teaching Art**

This course is designed to keep pace with contemporary trends in technology and digital media literacies. Students will deeply explore current applications and develop curriculum implementation strategies for K-12 instruction in visual arts classrooms.

**Credit Hours:** 3

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**LTC 8766: Illuminating Process and Product: Making Learning Visible**

This course focuses on the evaluative processes that surround and are embedded in art education. Due to the subtle, nuanced, and product based nature of visual arts, evaluative practices should be studied, understood, and implemented in an effective and encouraging manner. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8767: The Art of Teacher Reflection**

This course investigates reflective practices making deep inquiries into theoretical teaching practices. Students will examine their educational heritage, cultural beliefs and the implications these beliefs have on their current and future classrooms. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8780: Managing Classrooms for Learning**

Theoretical assumptions, goals, and research that inform various approaches to classroom management advocated for practitioners. Includes strategies for conducting action research on classroom management.

**Credit Hour:** 1-3

**Prerequisites:** An educational psychology course or instructor's consent

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**LTC 8790: Patterns for Instruction in Social Studies**

Presents and evaluates strategies for planning, teaching, and evaluating social studies in elementary and secondary schools.

**Credit Hours:** 3

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**LTC 8800: Secondary Social Studies Curriculum**

Examines current theory, trends and practices in secondary social studies curriculum with a practicum in curriculum development.

**Credit Hours:** 3

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**LTC 8805: Inquiry into K-12 History and Social Science**

this course is designed as a directed study on a topic in social studies content for the K-12 classroom. The focus of the course is on what is taught in social studies. Graded on A-F basis only

**Credit Hours:** 3

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**LTC 8806: Issues in the Social Studies Classroom**

This course is designed to provide an intensive study of current trends and significant issues in social studies that affect the social studies classroom.

**Credit Hours:** 3

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**LTC 8807: Exploration of Research in Social Studies**

The course serves as the capstone experience for graduate students pursuing in the LTC Masters program with an emphasis in social studies education. This course prepares students to engage in classroom research specific to a social studies classroom and/or setting. Students will consider their role as classroom researchers. Students will be asked to synthesize course readings and discuss the underlining theories, dilemmas, and tensions found in the research. Students will also conduct a capstone project. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8860: Mathematics Curriculum**

Evolution of the mathematics curriculum during the 20th century will be studied. Emphasis will be given to examining major factors influencing the changing mathematics curriculum and their impact.

**Credit Hours:** 3

**Prerequisites:** teaching experience or the instructor's consent

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**LTC 8861: Teaching, Learning & Research in Middle & Secondary School Math I**

Course I for Post-Baccalaureate Majors seeking Middle and/or Secondary teacher certification. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8862: Teaching, Learning & Research Middle & Secondary School Math: II**

Course II for Post-Baccalaureate Majors seeking Middle and/or Secondary teacher certification. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** LTC 8861

**Corequisites:** LTC 8942

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**LTC 8863: Teaching, Learning, and Research Middle and Secondary Math III**

Course III for Post-Baccalaureate Majors seeking Middle and/or Secondary teacher certification. Graded on A-F basis only. Prerequisites: LTC 8861, and LTC 8862; Co-Requisites: LTC 8942.

**Credit Hours:** 3

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**LTC 8865: Assessment in Mathematics Education**

Examination of assessment practices and the accountability movement. Emphasis is placed on significant research findings in assessment and implications for planning, implementing, and evaluating mathematics instruction.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7100 and teaching experience

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**LTC 8866: Contemporary Curriculum Issues in Mathematics Education**

Mathematics curriculum is a concern to students, parents, school districts, business leaders, and government officials. This course examines current trends in mathematics curriculum from the perspective of mathematics educators, policymakers, and the public. Factors influencing changes in mathematics curriculum are examined. Graded on an A-F basis only.

**Credit Hours:** 2

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**LTC 8870: Studying Mathematics Teaching in Schools**

This course explores issues that must be considered in the study of mathematics teaching, with a focus on appreciating the complexity of teaching mathematics and the challenges involved with improving teaching within typical school systems and structures. It includes a survey of research on mathematics teaching and an introduction to a variety of research methodologies used in such studies. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Open to masters and doctoral students

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**LTC 8871: Teaching and Learning Number/Operations Advanced**

Course will develop understanding of learning and teaching pre-number concepts, counting and cardinality, numbers and operations in base ten. Emphasis will be given to how children think about and learn these concepts and how they fit into the elementary school curriculum. Graded on A-F basis only.

**Credit Hours:** 3

**Corequisites:** LTC 8881

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**LTC 8872: Teaching and Learning Rational Number Advanced**

The course is designed to develop an understanding of the learning and teaching of rational numbers and the ratio and proportional relationships. Emphasis will be given to how children think about and learn these concepts and how they fit into the elementary school curriculum. Graded on A-F basis only. Corequisites: LTC 8882

**Credit Hours:** 3

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**LTC 8873: Teaching and Learning Geometry and Measurement Advanced**

This course is designed to develop and understanding of the teaching and learning of geometry and measurement. Emphasis will be given to how children think about and learn these concepts and how they fit into an elementary mathematics curriculum. Graded on an A-F basis only.

**Credit Hours:** 3

**Corequisites:** LTC 8883

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**LTC 8874: Teaching and Learning Algebraic Reasoning Advanced**

Course focuses on the content and complexities of teaching and assessing algebraic reasoning in grades 1-6. Includes examinations of representation, analysis of mathematical structures, patterns, functions, and the transition from arithmetic to algebra. Graded on A-F basis only. Corequisites: LTC 8884

**Credit Hours:** 3

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**LTC 8875: Technology and Mathematics Education**

This course will focus on effective uses of technology in mathematics teaching and learning. Participants will experience different electronic technologies including computers, graphing calculators, and calculator based laboratories.

**Credit Hours:** 3

**Prerequisites:** Open to masters and doctoral students

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**LTC 8876: Teaching Data Analysis and Mathematical Modeling**

The course will develop understanding of data analysis and mathematical modeling. Emphasis will be given to how children think and learn about these concepts and how they fit into the elementary school curriculum. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8877: Foundations of Mathematics Leadership in Elem Schools**

This course provides opportunities for participants to develop knowledge and understanding of leadership principles and the process of continuous improvement as it related to the roles and responsibilities of elementary mathematics specialists. Graded on A-F basis only.

**Credit Hours:** 2

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**LTC 8878: Mathematical Leadership for Elementary Schools Advanced**

This advanced leadership course focuses on research and practice related to teamwork, interaction, communication, conflict resolution, and leadership in K-5 schools. Candidates will examine effective strategies for influencing and facilitating school/district improvement. Course graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8879: Mathematical Thinking and Learning**

This course surveys empirical research on mathematical thinking and learning in grades K-12, explores the complexity and mathematical power in students' thinking, and cultivates skill in using clinical interview methods to study students' thinking and learning. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8881: Internship - Number and Operations in Elementary Schools**

A supervised mathematics teaching practicum with online seminars in which the candidate acquires experience working with a range of students and adult learners (parents and teachers) on number and operations concepts. Graded on A-F basis only. Corequisites: LTC 8871

**Credit Hour:** 1

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**LTC 8882: Internship - Rational Numbers in Elementary Schools**

A supervised mathematics teaching practicum with online seminars in which the candidate acquires experience working with a range of students and adult learners (teachers and parents) on rational number and proportional thinking concepts. Graded A-F basis only. Corequisites: LTC 8872

**Credit Hour:** 1

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**LTC 8883: Internship - Geometry/Measurement in Elementary Schools**

A supervised mathematics teaching practicum with online seminars in which the candidate acquires experience working with students and adult learners (teachers and parents) on geometry and measurement concepts appropriate for K-5 students. Graded on A-F basis only.

**Credit Hour:** 1

**Corequisites:** LTC 8873

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**LTC 8884: Internship - Algebraic Reasoning in Elementary Schools**

A supervised mathematics teaching practicum with online seminars in which the candidate acquires experience working with a range of students and adult learners (teachers and parents) on concepts related to algebraic reasoning appropriate for K-5 students. Course graded on A-F basis only. Corequisites: LTC 8874

**Credit Hour:** 1

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**LTC 8886: Contemporary Equity Issues in Mathematics Education**

Certain student populations (e.g., socioeconomically disadvantaged, racial minorities, English Language Learners, students with disabilities) have been traditionally underserved by the U.S. mathematics education system. This course explores the fundamental issues underlying this situation and explores mathematics teaching techniques that can be used to make students' learning opportunities more equitable. Graded on an A-F basis only.

**Credit Hours:** 3

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**LTC 8890: Mathematics Education Research**

Examination of major research efforts and significant findings on learning and teaching mathematics. Emphasis will be placed on becoming knowledgeable of research and on developing wise consumers of research in mathematics education.

**Credit Hours:** 3

**Prerequisites:** teaching experience or instructor's consent

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**LTC 8893: Integrating Instruction in Science and Mathematics, Grades 5-12**

This course is designed to help middle and secondary mathematics and science teachers enhance student understanding of mathematics and science through integration of the disciplines.

**Credit Hours:** 2

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**LTC 8896: Secondary Mathematics from an Advanced Perspective**

This course deepens understanding of the mathematics underlying the secondary school curriculum. It addresses high school content from the viewpoint of advanced mathematics. Connections are explored

within high school content and between high school and college content. Content strands include analysis, algebra, and Euclidean and non-Euclidean geometry. Graded on an A-F basis only.

**Credit Hours:** 3

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**LTC 8900: Seminar in Curriculum and Instruction**

Seminar in Curriculum and Instruction. Some sections may be graded on A-F or S/U graded basis only.

**Credit Hour:** 1-3

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**LTC 8910: Individual Research**

Independent research not leading to thesis.

**Credit Hour:** 1-3

**Prerequisites:** consent required

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**LTC 8913: Curriculum Development**

Curriculum Development explores the intersections of learning, teaching, and curriculum. Students investigate not just various definitions of, types of, and purposes for educational curriculum, but more specifically focus on curriculum-in-practice. Student explore how teachers enact curriculum and the factors that inform curriculum use, such as state and national standards, standardized assessments, school contexts and curricular materials. Students study and apply models of curriculum development and curriculum decision-making for everyday classroom use, which may include backwards design, culturally-relevant designs, principles of learning and/or other curricular and instructional approaches. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8914: Culturally Responsive Pedagogy**

This course equips practicing teachers, curriculum developers, and community leaders with tools to address the varied cultural and social landscape of today's classrooms. Students examine political, cultural, and economic conditions of schools and develop strengths-based, culturally responsive approaches to teaching. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 8915: Classroom Research-Learning, Teaching and Curriculum**

Study of original classroom research and theories of instruction leading to plans for personal research and theory development.

**Credit Hour:** 1-3

**Prerequisites:** advanced graduate standing

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**LTC 8930: Ethnographic Research in Education**

Investigate practical aspects, nature, and assumptions of ethnographic research in education. Pilot study required.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 7170 or equivalent

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**LTC 8940: In-Service Course in Curriculum and Instruction**

Course work adapted to current vocational needs.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**LTC 8941: Internship in Curriculum and Instruction**

Provides internship experience under supervision in advanced levels of curriculum and instruction.

**Credit Hour:** 1-99

**Prerequisites:** departmental chairman's consent

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**LTC 8942: Advanced Internship in Curriculum and Instruction**

This internship is for students enrolled in MU COE Post-Baccalaureate Certification Programs. Graded on A-F basis only.

**Credit Hour:** 1-10

**Prerequisites:** instructor's consent

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**LTC 8950: Case Study Research Methods**

This course introduces graduate students to the advanced qualitative techniques related to case study research, within and across case coding strategies, and theoretical/philosophical underpinnings of case study research methodology.

**Credit Hours:** 3

**Prerequisites:** Previous introductory course in qualitative research methods is required

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**LTC 8951: Grounded Theory and Situated Inquiry**

(same as LTC 8951). For qualitative researchers attempting to understand social processes, Grounded Theory (GT) offers a way of developing theory empirically, 'from the bottom up.' In fact, this is what most distinguishes GT from other methods. It is explicitly emergent. It does not test a hypothesis. It provides useful tools to learn about participants' understandings and experiences of a social issue, process, or phenomena and to discover and construct theory to account for the social processes being studied. In this course, we will consider the theoretical underpinnings and practices of classic and contemporary GT methodologies. Importantly, we will conduct research and a GT analysis of data.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8957 and ESC\_PS 9620

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**LTC 8952: Narrative Inquiry Theory and Research Methods**

Narrative inquiry has gained popularity amongst researchers specifically in education and other social science fields with various theoretical and analytical approaches. In this advanced qualitative course, students will learn about these approaches and develop critical perspectives toward narrative inquiry. The purpose of this course is to expose students, in various disciplines, to the theoretical underpinnings of narrative inquiry and provide space to 'have a try' at several analytical methods for narrative research (i.e. thematic, structural, dialogic/performative, and image analysis). This course will equip students with narrative research method experiences that could be used for dissertation research.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8957 and ESC\_PS 9620

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**LTC 8953: Poststructural Theory and Research Methods**

Poststructural perspectives call into question the universals and/or structures of society. The purpose of this course is to expose students, in various disciplines, to poststructural theory and provide space to 'have a try' at thinking with theory for data analysis. This course provides space for students to read poststructural scholars' original writings. Readings for

the course also allow students to read secondary sources and research studies that apply poststructural ideas. Students are encouraged to think of ways that poststructural theory can become a methodology and/or method for research in their discipline.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 8957 and ESC\_PS 9620

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**LTC 8957: Qualitative Methods in Educational Research I**

(same as ESC\_PS 8957 and ED\_LPA 8957). This course provides a practical introduction to qualitative research and its applications in education and social sciences. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 9050: Curriculum Theories**

Examines key ideological orientations in curriculum theory, explores the notion of curriculum as more than 'a course of study' or 'structured knowledge,' and asserts that curriculum is embedded within historical discourses and practices of race, class, gender and sexuality. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Admittance into a doctoral program

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**LTC 9060: Theories of Learning and Implications for Education**

The course will familiarize students with the learning theories most widely drawn upon in educational research. Students will examine how theories are used and the range of interpretations of these theories. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Admittance into a doctoral program

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**LTC 9070: Philosophical Perspectives in Education Research**

An examination of the history and philosophy of social science research, including perspectives on ontology, epistemology, and axiology. Students will consider how various philosophical assumptions shape research paradigms, purposes, interests, and methodologies. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Admittance into a doctoral program

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**LTC 9080: Teacher Education Research**

This course is designed to prepare doctoral students as researchers who understand current trends and challenges for teacher education across the professional continuum, and who have the ability to formulate, compare, and problematize relevant research in the field.

**Credit Hours:** 3

**Prerequisites:** Admittance into a doctoral program

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**LTC 9090: Research in Curriculum and Instruction**

Graded on a S/U basis only.

**Credit Hour:** 1-99

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**LTC 9620: Qualitative Methods in Educational Research II**

(same as ED\_LPA 9620 and ESC\_PS 9620). This course constructs a conceptual and methodological bridge between the understandings

of qualitative research developed in Qualitative Methods I and more advanced study of theories, designs, and methods. The focus is on theory, approaches to data analysis, and interpretation. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC 9675: Language, Literacy, and Culture**

This course explores how culture mediates language and literacy learning from a variety of theoretical perspectives. It examines language and literacy practices in and out of school and the ways educational policies and institutions shape what practices are valued and sustained over time. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Doctoral students only

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**LTC 9750: Doctoral Research Seminar in Art Education**

This course focuses on art education research and is designed to offer doctoral students an opportunity to investigate, through readings, reflective thinking, writing, and discussion, the issues that impact art education research. Graded on A-F basis only.

**Credit Hour:** 1

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**LTC 9860: Research in Mathematics Education**

This course focuses on research connoisseurship and expertise, and provides concrete opportunities for students to present, critique, and discuss research. It is intentionally designed as a practical research-learning environment. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites or Corequisites:** Doctoral candidate status in Learning, Teaching, & Curriculum

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## Learning, Teaching, & Curriculum - Vocational (LTC\_V)

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**LTC\_V 1050: Principles of Sales**

Provide the student with the concepts, tools and skills to become a professional salesperson. Emphasis is placed upon participation and performance of sales skills.

**Credit Hours:** 3

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**LTC\_V 1070: Word Processing and Presentation Concepts**

Instruction on preparing written documents and creating presentations for business, legal, medical, and social service career areas using word processing and presentation software; Special emphasis on the use of advanced features of computer business application software. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC\_V 1110: Principles of Retailing**

Examines problems, opportunities and trends in retailing. Problems and cases deal with store organization, budgeting, control, personnel and operation.

**Credit Hours:** 3

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**LTC\_V 4085: Problems in Curriculum and Instruction - CTE**

Study of professional programs and issues or technical problems related to the field of career and technical education.

**Credit Hour:** 1-99

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**LTC\_V 4210: Foundations of Adult Workforce Education**

Study of workforce education and human resource development; emphasis on the foundational concepts of adult learning theory and its application to the development and use of instructional methods, curriculum design, and procedures for adult workforce and professional education. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC\_V 4570: Career Guidance**

Problems, methods, and procedures involved in assisting individuals in choosing, preparing for, entering upon, and progressing in their career. For workforce development and human resource professionals, employment counselors, and teachers, counselors, and school administrators.

**Credit Hour:** 2-3

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**LTC\_V 4710: Business Software Applications**

Advanced concepts, features, and applications central to the major types of business software--spreadsheets, database management, word processing, graphics, and communications.

**Credit Hours:** 3

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**LTC\_V 4750: Occupational Analysis**

Techniques, procedures of analyzing occupations into their basic elements. Required of trade teachers, coordinators.

**Credit Hours:** 2

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**LTC\_V 4910: Application of Adult Learning Concepts**

(cross-leveled with LTC\_V 7910). Course introduces students to the foundational concepts of adult learning theory, with a focus on the application of these theories to the development and use of instructional methods, curriculum design, and program development principles for instructors of adult learners in a variety of instructional settings. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 4115; junior standing

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**LTC\_V 4920: Workforce Education and the Community College**

(cross-leveled with LTC\_V 7920). This course provides an overview of the philosophy, history, and development of the community college in America, and reviews the social, economic, and political forces affecting these institutions. It also explores the rationale and techniques for keeping instructional and organizational functions responsive to the changing educational and workforce needs of the community, with an emphasis on collaboration with public-sector economic development and workforce training programs and customized training services for private sector organizations. Graded on A-F basis only.

**Credit Hours:** 3

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**Prerequisites:** Junior standing or instructor approval

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**LTC\_V 7083: Teaching Personal Finance Literacy**

(same as FINPLN 7083) Principles and practices of teaching personal finance with particular emphasis on income, money management, spending and credit, and savings and investing. Course graded on A-F basis only.

**Credit Hours:** 3

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**LTC\_V 7085: Problems in Curriculum and Instruction-CTE**

Study of professional programs and issues or technical problems related to the field of career and technical education.

**Credit Hour:** 1-99

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**LTC\_V 7570: Career Guidance**

(cross-leveled with LTC\_V 4570). Problems, methods, procedures involved in assisting individuals in choosing, preparing for, entering upon, progressing in their vocation. For teachers, counselors, school administrators. Graded on A-F basis only.

**Credit Hour:** 2-3

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**LTC\_V 7750: Occupational Analysis**

Techniques, procedures of analyzing occupations into their basic elements. Required of trade teachers, coordinators.

**Credit Hours:** 2

---

**LTC\_V 7910: Application of Adult Learning Concepts**

(cross-leveled with LTC\_V 4910). Course introduces students to the foundational concepts of adult learning theories, with a focus on the application of these theories to the development and use of instructional methods, curriculum design, and program development principles for instructors of adult learners in a variety of instructional settings. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC\_V 8085: Problems in Workforce and Professional Education**

Independent, directed study on a topic in the areas of workforce, professional, or technology education.

**Credit Hour:** 1-99

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**LTC\_V 8190: Research Applications for Career and Technical Education**

Interpretation, evaluation, and application of research methodologies and findings in career and technical education.

**Credit Hours:** 3

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**LTC\_V 8210: Program Development in Adult Workforce Education**

The adult workforce and professional education movement; characteristics of and learning principles applied to adult students; instructional materials, methods and procedures in organizing and operating adult vocational education programs. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC\_V 8310: Foundations of Career and Technical Education**

Philosophy, background, nature, purpose, and role of career and technical education programs in secondary and post-secondary education and workforce development. For teachers and administrators working with career and technical education programs. Graded on A-F basis only.

**Credit Hours:** 3

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**LTC\_V 8350: Curriculum Development for Workforce and Professional Education**

In-depth investigation of curriculum development theory, research, issues, and procedures for workforce and professional education in the public and private sectors.

**Credit Hours:** 3

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**LTC\_V 8501: Topics in Workforce and Professional Education**

Topics in the field of workforce, professional, or technology education in the CTE program areas.

**Credit Hour:** 1-99

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**LTC\_V 8510: Evaluation in Workforce and Professional Education**

Development of evaluation procedures and the construction of evaluation devices for workforce and professional education. Emphasizes performance evaluation, improvement of instruction, and program review.

**Credit Hours:** 3

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**LTC\_V 8520: Implementation of Career and Technical Education Programs**

Types of organization, approved administrative and supervisory practices, and state and federal guidelines for programs of career and technical education. Graded on A-F basis only.

**Credit Hours:** 3

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## Linguistics (LINGST)

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**LINGST 1060: Human Language**

(same as ANTHRO 1060, SLHS 1060, ENGLISH 1060). General introduction to various aspects of linguistic study. Elementary analysis of language data, with some attention to application of linguistic study to other disciplines.

**Credit Hours:** 3

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**LINGST 2001: Topics in Linguistics-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** consent of chair

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**LINGST 2601: Languages of Africa**

(same as BL\_STU 2601 and ENGLISH 2601). Introduction to the diversity of the 2000+ African languages, including first-hand experience exploring a few in detail with native speakers. Features of African languages

are compared with others of the world. Political and social aspects of language in Africa are discussed.

**Credit Hours:** 3

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**LINGST 2700: Elementary Logic**

(same as PHIL 2700). Introduces a symbolic language for representing the structure of arguments. Presents precise rules for demonstrating the validity of arguments. Covers natural deduction for sentence and predicate logic. Develops skill in constructing derivations.

**Credit Hours:** 3

**Prerequisites:** grade of C or higher in MATH 1100 or MATH 1120

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**LINGST 2820: Minds, Brains, and Machines**

(same as PSYCH 2820 and PHIL 2820). Cognitive science is a many-splendored thing. It draws on a variety of disciplines, including psychology, neuroscience, computer science, linguistics, anthropology, and philosophy. The purpose of this course is to introduce the central questions of cognitive science, the conceptual and empirical tools used to investigate those questions, and some of the answers that have emerged so far. After an initial overview of the foundations of the cognitive-scientific enterprise as a whole, we will see what particular sectors of it have to say about mental capacities such as language, categorization, reasoning, social cognition, and consciousness.

**Credit Hours:** 3

**Prerequisites:** sophomore standing required

**Recommended:** PSYCH 1000

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**LINGST 3001: Topics in Linguistics-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** consent of chair

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**LINGST 3010: American Phonetics**

(same as SLHS 3010). Analysis of production and acoustics of the sounds of speech with an emphasis on American English; practice in broad and narrow transcription using the International Phonetic Alphabet.

**Credit Hours:** 3

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**LINGST 3210: Anatomy and Physiology of the Speech Mechanism**

(same as SLHS 3210). Introduction to anatomical and functional aspects of the speech mechanism.

**Credit Hours:** 3

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**LINGST 3220: Speech Acoustics**

(same as SLHS 3220). An introduction to the acoustic aspects of speech as they relate to the respiratory, phonatory, resonatory, and articulatory systems.

**Credit Hours:** 2

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**LINGST 3470: Culture as Communication**

(same as ANTHRO 3470, COMMUN 3470). Study of the influence of culture on communication processes. Examines topics such as the



impact of values, languages, and nonverbal behavior on intercultural interaction.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**LINGST 3620: Languages of the World**

(same as ENGLISH 3620). Introduction to the diversity of the world's languages emphasizing historical relations and structural similarities and differences.

**Credit Hours:** 3

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**LINGST 3710: Survey of Minority and Creole Languages of the U.S. and the Caribbean**

(same as SPAN 3710 and FRENCH 3710). Analysis of the state of the minority languages of the U.S. and the Creole languages of the Caribbean with particular attention to the social status of these languages and speakers' attitudes toward them in context of ethnic, cultural, and national identity (taught in English).

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**LINGST 3721: Spanish Phonetics**

(same as SPAN 3721). Introductory course to the study of Spanish phonological, phonetic and spelling systems, practice of pronunciation, phonetic transcriptions, and introduction to the variation of Spanish pronunciation in the Hispanic world. The course is conducted in Spanish.

**Credit Hours:** 3

**Prerequisites:** SPAN 2160

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**LINGST 4001: Topics in Linguistics-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** consent of chair

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**LINGST 4001H: Topics in Linguistics-General - Honors**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Prerequisites: consent of chair; honors eligibility required,

**Credit Hour:** 1-99

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**LINGST 4001W: Topics in Linguistics-General - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** consent of chair

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**LINGST 4100: Philosophy of Language**

(same as PHIL 4100; cross-leveled with LINGST 7100, PHIL 7100). Examination of contemporary views of the relationship between language, minds, and the world.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and PHIL 2700 or instructor's consent

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**Recommended:** one other course in Philosophy

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**LINGST 4110: Advanced Logic**

(same as PHIL 4110; cross-leveled with LINGST 7110; PHIL 7110). Presents the method of truth trees for sentence and predicate logic. Examines proofs concerning the decidability, soundness, and completeness of formal systems. Emphasizes the theory of formal systems.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and PHIL 2700; or instructor's consent

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**LINGST 4200: Introduction to Old English**

(same as ENGLISH 4200; cross-leveled with ENGLISH 7200, LINGST 7200). A beginning study of the Old English or Anglo-Saxon language in its cultural context, with emphasis on gaining a reading knowledge.

**Credit Hours:** 3

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**LINGST 4412: Gender, Language and Communication**

(same as COMMUN 4412, ANTHRO 4412; cross-leveled with COMMUN 7412, ANTHRO 7412, LINGST 7412). Relationships among gender, language, nonverbal communication, and culture.

**Credit Hours:** 3

**Prerequisites:** junior standing or departmental consent

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**LINGST 4420: Historical Linguistics**

(same as ANTHRO 4420, ENGLISH 4660; cross-leveled with ANTHRO 7420, LINGST 7420, ENGLISH 7660). Methods of tracing the history of languages by glottochronology, and by comparative and internal reconstructions; cultural and linguistic implications of such reconstructions and of areal linguistics.

**Credit Hours:** 3

**Recommended:** junior/senior standing

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**LINGST 4600: Structure of American English**

(same as ENGLISH 4600; cross-leveled with ENGLISH 7600, LINGST 7600). Introduction to English linguistics. Study of the grammar and pronunciation of contemporary English, with the major focus on syntax.

**Credit Hours:** 3

**Recommended:** junior standing

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**LINGST 4610: History of the English Language**

(same as ENGLISH 4610; cross-leveled with ENGLISH 7610, LINGST 7610). Historical changes in the grammar and pronunciation of the English language from Old English to the present. Introduction to Indo-European origins of English.

**Credit Hours:** 3

**Recommended:** junior standing

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**LINGST 4620: Regional and Social Dialects of American English**

(same as ENGLISH 4620; cross-leveled with ENGLISH 7620, LINGST 7620). The study of regional and social variation in pronunciation, vocabulary, and syntax of American English.

**Credit Hours:** 3

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**Recommended:** LINGST 4600 and LINGST 4610 or equivalent

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**LINGST 4630: Phonology**

(same as ENGLISH 4630; cross-leveled with ENGLISH 7630, LINGST 7630). Survey of the sound patterns of English and other languages.

**Credit Hours:** 3

**Recommended:** LINGST 1060 or LINGST 4600 or equivalent

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**LINGST 4640: Syntax**

(same as ENGLISH 4640; cross-leveled with ENGLISH 7640, LINGST 7640). Study of the properties of phrase and sentence-level grammar, emphasizing English, with some comparison to other languages.

**Credit Hours:** 3

**Recommended:** LINGST 1060 or LINGST 4600 or equivalent

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**LINGST 4710: History of the French Language**

(same as FRENCH 4710). Study of the French language from its Latin origin to the present. The course includes a survey of the external, social, political, and historical factors that have affected the development of French, followed by diachronic study of the internal structural features of the language.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3420 and FRENCH 3430

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**LINGST 4711: History of the Spanish Language**

(same as SPAN 4711). Diachronic analysis of phonological, morphological, and syntactical systems of Spanish, from Vulgar Latin to contemporary dialects.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**LINGST 4720: Structure of Modern French**

(same as FRENCH 4720; cross-leveled with LINGST 7720, FRENCH 7720). An introductory presentation of the phonological and syntactic systems of contemporary standard French.

**Credit Hours:** 3

**Prerequisites:** FRENCH 3160

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**LINGST 4721: Structure of Modern Spanish**

(same as SPAN 4721; cross-leveled with LINGS 7721, SPAN 7721). Synchronic analysis of phonology morphology and syntax of spoken Spanish dialects.

**Credit Hours:** 3

**Recommended:** four 3000-level courses in Spanish

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**LINGST 4722: Spanish Across the Continents**

(same as SPAN 4722; cross-leveled with SPAN 7722). This course focuses on the effects of migratory movements on language change, considering the Spanish spoken in Latin America, Puerto Rico, Spain and the USA. The class sharpens awareness and recognition of the linguistic diversity of the Spanish-speaking regions of the world. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** four 3000-level courses in Spanish

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**LINGST 4723: Language and Society: Spanish in the U.S.**

(same as SPAN 4723; cross-leveled with SPAN 4723). This class surveys linguistic and social issues pertaining to Spanish in the U.S. (past, present and future). Topics include bilingualism, code switching (a.k.a. Spanglish), first language attrition, linguistic identity, and the role of Spanish in Education, services and media. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** four 3000-level courses in Spanish

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**LINGST 4730: Linguistic Theory and Language Acquisition**

The goal of this class is to study the implications of current linguistic theory for contemporary research on second language acquisition. In particular, the hypothesis that second language acquisition follows some of the same principles as first language acquisition is explored. Course is taught in English.

**Credit Hours:** 3

**Prerequisites:** LINGST 4720, LINGST 4721, or LINGST 4600

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**LINGST 4740: Interdisciplinary Introduction to NLP**

(same as CMP\_SC 4740; cross-leveled with LINGST 7740, CMP\_SC 7740). The goal of this course is to enable students to develop substantive NLP applications. Focus on current structural and statistical techniques for the parsing and interpretation of texts.

**Credit Hours:** 3

**Prerequisites:** senior standing

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**LINGST 4810: Psycholinguistics**

(same as SLHS 4810; cross-leveled with LINGST 7810, SLHS 7810). Examination of the knowledge and processes that underlie the human ability to produce and understand language.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**LINGST 4870: Field Methods in Linguistics**

(same as ANTHRO 4870 and ENGLISH 4670; cross-leveled with LINGST 7870, ANTHRO 7870, ENGLISH 7670). Intensive training in collection and analysis of data taken from a native speaker of a non-Indo-European language. May be repeated for credit.

**Credit Hours:** 4

**Prerequisites:** Contact the Linguistics advisor to request permission

**Recommended:** 9 hours of linguistics

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**LINGST 4870W: Field Methods in Linguistics - Writing Intensive**

(same as ANTHRO 4870 and ENGLISH 4670; cross-leveled with LINGST 7870, ANTHRO 7870, ENGLISH 7670). Intensive training in collection and analysis of data taken from a native speaker of a non-Indo-European language. May be repeated for credit.

**Credit Hours:** 4

**Prerequisites:** Contact the Linguistics advisor to request permission

**Recommended:** 9 hours of linguistics

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**LINGST 4960: Special Readings in Linguistics**

Independent study through readings, conferences, reports.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**LINGST 4991: Honors Thesis in Linguistics**

Based on an original research project in theoretical or applied linguistics. Topic, director, and second reader approved by Linguistics Committee, College of Arts and Science.

**Credit Hours:** 3

**Prerequisites:** qualification for Honors degree

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**LINGST 7100: Philosophy of Language**

(same as PHIL 7100; cross-leveled with LINGST 4100, PHIL 4100). Examination of contemporary views of the relationship between language, minds, and the world.

**Credit Hours:** 3

**Prerequisites:** PHIL 2700 or instructor's consent

**Recommended:** Some work in PHIL 1000, PHIL 3000 or PHIL 3200

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**LINGST 7110: Advanced Logic**

(same as PHIL 7110; cross-leveled with LINGST 4110, PHIL 4110). Presents the method of truth trees for sentence and predicate logic. Examines proofs concerning the decidability, soundness, and completeness for formal systems. Emphasizes the theory of formal systems.

**Credit Hours:** 3

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**LINGST 7200: Introduction to Old English**

(same as ENGLISH 7200; cross-leveled with LINGST 4200 and ENGLISH 4200). A beginning study of the Old English or Anglo-Saxon language in its cultural context, with emphasis on gaining a reading knowledge.

**Credit Hours:** 3

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**LINGST 7420: Historical Linguistics**

(same as ANTHRO 7420, ENGLISH 7460; cross-leveled with ANTHRO 4420, LINGST 4420, ENGLISH 4460). Methods of tracing the history of languages by glottochronology, and by comparative and internal reconstructions; cultural and linguistic implications of such reconstructions and of areal linguistics.

**Credit Hours:** 3

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**LINGST 7600: Structure of American English**

(same as ENGLISH 7600; cross-leveled with ENGLISH 4600, LINGST 4600). Introduction to English linguistics. Study of the grammar and pronunciation of contemporary English, with the major focus on syntax.

**Credit Hours:** 3

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**LINGST 7610: History of the English Language**

(same as ENGLISH 7610; cross-leveled with ENGLISH 4610, LINGST 7610). Historical changes in the grammar and pronunciation of the English language from Old English to the present. Introduction to Indo-European origins of English.

**Credit Hours:** 3

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**LINGST 7620: Regional and Social Dialects of American English** (same as ENGLISH 7620; cross-leveled with ENGLISH 4620, LINGST 7620). The study of regional and social variation in pronunciation, vocabulary, and syntax of American English.

**Credit Hours:** 3

**Prerequisites:** LINGST 4600 or LINGST 7600 and LINGST 7610 or equivalent

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**LINGST 7630: Phonology**

(same as ENGLISH 7630; cross-leveled with ENGLISH 4630, LINGST 4630). Survey of the sound patterns of English and other languages.

**Credit Hours:** 3

**Recommended:** at least one course in linguistics

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**LINGST 7640: Syntax**

(same as ENGLISH 7640; cross-leveled with ENGLISH 4640, LINGST 4640). Study of the properties of phrase-and sentence-level grammar, emphasizing English, with some comparison to other languages.

**Credit Hours:** 3

**Recommended:** at least one course in linguistics

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**LINGST 7870: Field Methods in Linguistics**

(same as ANTHRO 7870, ENGLISH 7670; cross-leveled with ANTHRO 4870, ENGLISH 4670, LINGST 4870). Intensive training in collection and analysis of data taken from a native speaker of a non-Indo-European language. May be repeated for credit.

**Credit Hours:** 4

**Prerequisites:** instructor's consent

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**LINGST 8000: Problems**

Independent study through readings, analysis of special linguistic problems, reports.

**Credit Hours:** 3

**Prerequisites:** one Advanced Linguistics course and instructor's consent

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**LINGST 8120: Bilingualism and Language Contact**

(same as SPAN 8120 and FRENCH 8120). Global analysis of the study of Bilingualism from a combined sociocultural, sociolinguistic and psycholinguistic perspective based on current research and examination of various phenomena of language contact (taught in Eng.).

**Credit Hours:** 3

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**LINGST 8600: Seminar in the English Language**

(same as ENGLISH 8600). Descriptive and historical studies of the English language. Topics (e.g., The Germanic Origins, Modern Syntactic Analysis) announced at time of registration. May be repeated up to twelve hours with departmental approval.

**Credit Hours:** 3

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## Management (MANGMT)

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### **MANGMT 1030: Vasey Academy on Leadership Issues**

Business seminar course restricted to Vasey Academy scholars. Focus on leadership issues and on career opportunity exploration in key areas of business. Graded on A-F basis only.

**Credit Hour:** 1

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### **MANGMT 1050: Contemporary Leadership Issues in Business**

Course focuses on contemporary business leadership practices and includes an overview of the accountancy, finance, management and marketing majors and careers in each of these fields.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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### **MANGMT 2700: Introduction to Entrepreneurship**

This course introduces a wide range of entrepreneurial concepts, most of which will be explored more deeply in advanced courses in the entrepreneurship and innovation management minor. Students learn about attitudes and aptitudes that are highly associated with entrepreneurial and innovation behaviors including working effectively in teams under deadline pressure. Processes for opportunity identification and recognition, working under severe resource constraints, identifying and testing key assumptions about business models, prototyping, and innovation diffusion are explored. Students will engage in experiential exercises in the field to learn more about these principles and processes. Students are encouraged to meet with and learn from real entrepreneurs through selected assignments. Graded on A-F basis only.

**Credit Hours:** 3

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### **MANGMT 3000: Principles of Management**

Introduction to the basic concepts of management and organization and their application to business operations.

**Credit Hours:** 3

**Prerequisites:** Completion of 45 semester hours. May require consent

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### **MANGMT 3000H: Principles of Management - Honors**

Introduction to the basic concepts of management and organization and their application to business operations. The honors section includes additional breadth (topics) and depth (topical detail) above and beyond regular sections utilizing critical review of case studies.

**Credit Hours:** 3

**Prerequisites:** Completion of 45 semester hours. Honors eligibility required

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### **MANGMT 3200: Business and Society**

This course emphasizes the ethical implications of managerial decisions and the relationships between businesses and stakeholder groups. Major topics include corporate governance, social responsibility, rights and obligations, and international business.

**Credit Hours:** 3

**Prerequisites:** Admission to upper level business program

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### **MANGMT 3200H: Business and Society - Honors**

This course emphasizes the ethical implications of managerial decisions and the relationships between businesses and stakeholder groups. Major topics include corporate governance, social responsibility, rights and obligations, and international business.

**Credit Hours:** 3

**Prerequisites:** Admission to upper level business program. Honors eligibility required. Other students may be allowed to register after early registration provided space is available. Consent may be required

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### **MANGMT 3200HW: Business and Society - Honors/Writing Intensive**

This course emphasizes the ethical implications of managerial decisions and the relationships between businesses and stakeholder groups. Major topics include corporate governance, social responsibility, rights and obligations, and international business.

**Credit Hours:** 3

**Prerequisites:** Admission to upper level business program. Honors eligibility required. Other students may be allowed to register after early registration provided space is available

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### **MANGMT 3200W: Business and Society - Writing Intensive**

This course emphasizes the ethical implications of managerial decisions and the relationships between businesses and stakeholder groups. Major topics include corporate governance, social responsibility, rights and obligations, and international business.

**Credit Hours:** 3

**Prerequisites:** Admission to upper level business program

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### **MANGMT 3300: Introduction to Business Processes and Technologies**

Introduces students to cross-functional business processes including both transactional and decision making forms. Current and emerging technologies used to facilitate efficient and effective action in these processes are explored. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** 24 credit hours. Restricted to students in the College of Business during early registration. Other students may register after early registration

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### **MANGMT 3540: Introduction to Business Law**

The legal aspects of business related to society--introduction to the legal system; constitutional, criminal, tort law; contracts and sales law cases and problems; administrative regulation of business and consumer issues.

**Credit Hours:** 3

**Prerequisites:** Completion of 30 semester hours. May be restricted to CoB students only w/30 credit hours during early registration. Other students may register after early registration, provided there is space available. NO OVERRIDES/PERMISSIONS will be given for this class once the lectures/labs fill

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### **MANGMT 3700: Diversity and Inclusion in Management**

Discuss elements of diversity including race, gender, ethnicity, religion, sexual orientation, socioeconomic status, and age, among others, as these impact effective management in the workplace through a variety of workplace performance-related outcomes. Explore ways to

contribute to, learn from, and benefit from a more diverse and inclusive work environment. Examine methods of optimizing human performance and potential in organizations. Create personal action plan to increase awareness, knowledge, skills and global perspective relative to diversity and inclusion. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MANGMT 3000. May be restricted to CoB students w/30 credit hours during early registration. Other students may register after early registration provided space is available

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**MANGMT 3720: The Entrepreneurial Mindset**

The course will engage students in experiences that develop entrepreneurial characteristics such as a passion for business, tenacity despite failure, self-determination, management of risk, self-confidence, creating opportunities, creativity, initiative, and detail orientation. The product of this course intends to be a well-prepared student-entrepreneur fully confident to launch a thought-out business model. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** ABM 3283, MANGMT 4700, T\_A\_M 3800

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**MANGMT 3760: Design Thinking for New Business Innovation**

The Design Thinking for New Business Innovation course is ideally taken as the second course in a three course sequence (sequencing of courses is not required). Students, working in teams, first learn how to recognize potential opportunities in a range of business contexts (MANGMT 4700). Next, students learn how to identify meaningful issues for customers in a more focused context, how to generate multiple solutions and form these into cohesive business concepts, and how to carefully test for feasible value with potential customers using rough prototypes (this course). Finally, students learn how to develop a comprehensive business plan in areas like operations, marketing, finance, and human resources based on a business model concept for a given industry (MANGMT 4730). Such a detailed plan can be used to appeal to potential funding sources and serves as a guide for strategic action by a new venture. This course, as the middle course, bridges into the domains of both of the other two courses to give students a flavor for what can be learned in both. Graded on A-F basis only.

**Credit Hours:** 3

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**MANGMT 3900: International Management**

Analyzes the essential management functions within a global economy and provides a basic literacy in international management strategy and decision-making. Global markets are examined using legal, technological, ethical, and cultural considerations. Management principles in planning, organizing, leading, and controlling international trade and commerce are examined. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MANGMT 3000

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**MANGMT 3901: Special Topics in Management**

Study of a selected topic in management taken as part of an organized short-term study abroad program. Some sections of this course may be graded on either on A-F or S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** May require consent

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**MANGMT 3901H: Special Topics in Management - Honors**

Study of a selected topic in management taken as part of an organized short-term study abroad program. Some sections of this course may be graded on either on A-F or S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** May require consent. Honors eligibility required

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**MANGMT 3910: Managing Across Cultures**

Applying cultural dimensions to developing cross-cultural behavioral competencies utilizing code-switching training methods. For all persons interested in improving international person-to-person interactions.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 3920: Managing People in the Global Enterprise**

Focuses on management of people in global organizations- especially for-profit enterprises. Topics include differences across countries in recruitment and selection, training and development, leadership and motivation, compensation, cross-cultural negotiation, and employment relations. The use of expatriates and host country nationals as managers is contrasted. Challenges involved in repatriating expatriates and their families after lengthy terms of service in foreign countries are explored. Graded on A-F basis only.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 3975: Current Issues in International Management**

Study of current issues and practices in international management taken as part of an organized short term study abroad program. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**MANGMT 4010: Operations Management**

(cross-leveled with MANGMT 7010). Managerial analysis of operating problems, with emphasis on planning and control systems. Math Reasoning Proficiency Course. May require consent.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MANGMT 3000

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**MANGMT 4020: Human Resource Management**

(cross-leveled with MANGMT 7020) Introduction to strategies and best practices in attracting, retaining, developing, and compensating employees. May require consent.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MANGMT 3000

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**MANGMT 4030: Organizational Behavior**

(cross-leveled with MANGMT 7030). Examines theoretical constructs and research findings on human behavior in work organizations such as businesses, especially individual differences, dyadic relations and small group behavior. May require consent.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MANGMT 3000

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**MANGMT 4050: Management of Service Operations**

Managing services, especially the operation's activity in service firms. Includes determining the service package, forecasting service demand, managing demand, capacity analysis and management, scheduling, cost control, service quality, and human resource management. Standardization, franchising, and service automation addressed.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MANGMT 3000

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**MANGMT 4060: Project Management Fundamentals**

Application of predictive and agile project management methods and techniques for project breakdown, scheduling, resource allocation, and evaluation of project performance.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MANGMT 3000

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**MANGMT 4070: Supply Chain Management**

(cross-leveled with MANGMT 7070). An examination of the concepts, processes and institutions that are fundamental to an understanding of supply chain management in a global environment. Graded on A-F basis only.

**Credit Hours:** 3

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**MANGMT 4080: Managing Global Trade**

(cross-leveled with MANGMT 7080). International trade is the exchange of goods and services between countries giving rise to a world economy that is affected by global events. This course will focus on global trade management issues, procedures, requirements, and strategies. The implementation of international market strategy, global supply chains, and trade finance will also be explored. These topics will be examined by exploring trade factors that influence organizations and trade relations such as different cultural norms, government regulations, technology, resources, and logistics. Graded on A-F basis only.

**Credit Hours:** 3

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**MANGMT 4090: Purchasing and Supply Management**

(cross-leveled with MANGMT 7090). This course examines the critical role of the procurement function within the organization. The objective is to provide students with a fundamental understanding of the purchasing/sourcing function, key issues and developments in purchasing and supply management within the context of SCM, and to identify ways that purchasing can make a positive contribution to the competitiveness of the firm. Topics include an intro to the field/role in SCM; developing global sourcing strategies using commodity/channel/category management; make-or-buy decisions; supplier identification and selection; contract and pricing practices; negotiation; spend analytics including value analysis for services; contract performance monitoring; traditional versus collaborative supplier development; cross-functional relationship management, and ethics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MANGMT 4010

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**MANGMT 4110: Total Quality Management**

Introductory, comprehensive approach to quality planning, analysis, and control. Applications orientation. Integrates customer needs, product and service design and delivery, and continuous improvement into all organizational activities. Examines full range of behavioral, technical, and organizational aspects relating to quality.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MANGMT 3000

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**MANGMT 4120: Human Resource Management Law**

Analysis and evaluation of legal and administrative regulations of terms of employment; Fair Labor Standards, discriminatory practices, safety and health regulations, other regulations.

**Credit Hours:** 3

**Prerequisites:** Restricted to COB students ONLY during early registration. Other students may register after early registration, provided there is space available. NO PERMISSIONS/OVERRIDES will be given for this class once it fills

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**MANGMT 4130: Advanced Organizational Behavior**

Based upon behavioral science concepts and research findings directed toward understanding and explaining human behavior within organizations. Case studies, individual or team projects.

**Credit Hours:** 3

**Prerequisites:** MANGMT 4030. Restricted to COB students ONLY during early registration. Other students may register after early registration, provided there is space available. NO PERMISSIONS/OVERRIDES will be given for this class once it fills

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**MANGMT 4140: Business Communication**

The course provides the fundamentals of business communication skills, including written, oral communication, listening, multicultural communication, and teamwork skills, with an emphasis on written communication skills as a method to communicate with important stakeholders.

**Credit Hours:** 3

**Prerequisites:** Restricted to Trulaske College of Business students admitted to upper level

**Corequisites:** MANGMT 3000

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**MANGMT 4140W: Business Communication - Writing Intensive**

The course provides the fundamentals of business communication skills, including written, oral communication, listening, multicultural communication, and teamwork skills, with an emphasis on written communication skills as a method to communicate with important stakeholders.

**Credit Hours:** 3

**Prerequisites:** Restricted to Trulaske College of Business students admitted to professional degree program during early registration

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**MANGMT 4185: Problems in Management**

Undergraduate students may select topics for study and investigation. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-9

**Prerequisites:** instructor's consent

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**MANGMT 4201: Topics in Management**

(cross-leveled with MANGMT 7201). Selected current topics in management. Offered on an experimental, one-semester basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MANGMT 3000. Restricted to College of Business students ONLY during early registration. Other students may register after early registration, provided there is space available

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**MANGMT 4201H: Topics in Management - Honors**

Selected current topics in management. Offered on an experimental, one-semester basis only.

**Credit Hours:** 3

**Prerequisites:** will vary with different topics. Honors eligibility required

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**MANGMT 4201W: Topics in Management - Writing Intensive**

(cross-leveled with MANGMT 7201). Selected current topics in management. Offered on an experimental, one-semester basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MANGMT 3000. Restricted to COB students ONLY during early registration. Other students may register after early registration, provided there is space available. NO PERMISSIONS/OVERRIDES will be given for this class once it fills

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**MANGMT 4210: Management Science**

Further development of models and quantitative analysis as applied to production management problems. Management research design and experimentation; computer applications; quantitative case analyses; individual industrial field studies. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites or Corequisites:** STAT 3500 and ACCTCY 2258 or CMP\_SC 1050, Junior standing required

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**MANGMT 4220: Compensation Theory and Practice**

Examines the empirical research and theory relating to the effect of compensation administration systems upon employee satisfaction and performance. Analysis of financial compensation systems and benefit programs in use in modern organizations.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MANGMT 4020. Restricted to Business students ONLY during early registration. Other students may register after early registration, provided there is space available. NO PERMISSIONS/OVERRIDES will be given for this class once it fills

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**MANGMT 4310: Modern Manufacturing**

Contemporary qualitative and quantitative analysis of automation systems for production and inventory; robotics, digital data matrix and Q/R coding, PLC overview; uncertainty, risk, and policy considerations; analysis of networks; management problems in application.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MANGMT 4010

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**MANGMT 4320: Selected Problems in Human Resource Management**

Advanced studies in selected administrative and technical policies, practices in employee relations, with individual and group project work,

research. Focuses on policy issues, research findings, advanced techniques.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MANGMT 4020. Restricted to Business students ONLY during early registration. Other students may register after early registration, provided there is space available. NO PERMISSIONS/OVERRIDES will be given for this class once it fills

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**MANGMT 4340: Crisis Management**

Management strategies for organizational crisis events, including: constituent analysis, identity creation, image building, reputation control, media relations, internal communications, government relations, and investor relations. Concepts are explored through case studies, film, literature, and current events in popular culture.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MANGMT 3000. Restricted to Business students ONLY during early registration. Other students may register after early registration, provided there is space available

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**MANGMT 4350: Leadership Development**

Provides a comprehensive understanding of leadership development within the corporate environment. Examines causes and outcomes of different styles of leadership that are designed to fit the needs of individuals and/or specific situations.

**Credit Hours:** 3

**Corequisites:** MANGMT 3000

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**MANGMT 4420: Collective Bargaining**

Content, negotiation, administration of collective labor agreements and settlement of disputes.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MANGMT 3000. Restricted to Business students ONLY during early registration. Other students may register after early registration, provided there is space available. NO PERMISSIONS/OVERRIDES will be given for this class once it fills

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**MANGMT 4450: Management of Electronic Commerce**

An introduction to electronic commerce. Topics covered include definition and scope of e-commerce, tools and technologies used, strategies, and understanding of this dynamic field.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MANGMT 3000. Restricted to Business students ONLY during early registration. Other students may register after early registration, provided there is space available. NO PERMISSIONS/OVERRIDES will be given for this class once it fills

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**MANGMT 4520: Change Management in Business**

Provides a comprehensive understanding of the processes of change in the corporate environment. Examines antecedents of change such as acquisitions, mergers, technology and new leadership as well as approaches to managing change using tools from organization development (OD).

**Credit Hours:** 3

**Prerequisites or Corequisites:** MANGMT 3000

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**MANGMT 4540: Legal Aspects of Business Organization and Operation**

(cross-leveled with MANGMT 7570). Includes agency and employment relationships, sole proprietorships, partnerships, and corporations, also operational aspects of business associations such as administrative regulation, taxation, bankruptcy, and trade regulation.

**Credit Hours:** 3

**Prerequisites:** MANGMT 3540

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**MANGMT 4610: Database Management**

This is an introductory course on database (DB) technology. It introduces such technology and provides hands-on experience in designing and developing DBs to meet organizational goals. Topics include database concepts such as entity-relationship modeling, data modeling, relational database development, SQL, application of popular database systems software, data warehousing, and selected advanced topics in business use of DBs. Students work in groups to develop a database system project for an organization of their choice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MANGMT 3000

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**MANGMT 4620: Web Development Fundamentals**

An introduction to the fundamentals of design, technology and project management aspects of developing websites. Some web based programming languages including HTML, CSS, JavaScript and ASP/VBScript and an introduction to Adobe Photoshop and Macromedia Dreamweaver.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 2258

**Corequisites:** MANGMT 3000

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**MANGMT 4700: Principles of Entrepreneurship**

An introductory course designed to provide a solid foundation of the role of entrepreneurship. The focus is on the creation of new ventures, the decisions leading to their development, and the factors that lead to their success.

**Credit Hours:** 3

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**MANGMT 4710: The Entrepreneurial Process**

This course deals with critical thinking, logic, emotional intelligence, ethics and a problem solving/decision making frame in the context of the entrepreneurial business phases: opportunity identification; launch after gathering resources; managing growth and harvesting rewards.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MANGMT 3000. Restricted to Business students ONLY during early registration. Other students may register after early registration, provided there is space available. NO PERMISSIONS/OVERRIDES will be given for this class once it fills

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**MANGMT 4720: Experiential Entrepreneurship**

The course will engage students in experiences that develop entrepreneurial characteristics such as a passion for business, tenacity despite failure, self-determination, management of risk, self-confidence, creating opportunities, creativity, initiative, and detail orientation.

**Credit Hours:** 3

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**Prerequisites or Corequisites:** MANGMT 3000. Restricted to Business students ONLY during early registration. Other students may register after early registration, provided there is space available. NO PERMISSIONS/OVERRIDES will be given for this class once it fills

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**MANGMT 4730: New Business Planning and Management**

Analysis of the major functional areas of the start-up firm including accounting, finance, human resources, information systems, logistics, management, marketing, production/operations, purchasing and sales. Focus is also placed on generating ideas, scanning for environmental trends, and critically evaluating opportunities.

**Credit Hours:** 3

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**MANGMT 4740: Entrepreneurial Consulting for Small Business**

This course is focused on developing the critical skills required to operate and manage a business in the growth phase following startup. Typically in this phase, the company has found and served customers and is cash flow positive. However, formal organization of the company and properly managing growth can be a challenge to the entrepreneur. The pitfalls of growth can be very different from organization to organization. For some it might be meeting production schedules, for others it might be expanding the management structure through hiring to increase organizational capacity. Properly financing growth can be a challenge for all. Graded on A-F basis only.

**Credit Hours:** 3

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**MANGMT 4940: Professional Management Internship**

Provides experience with management activities in business organizations (or, occasionally, in a governmental or not-for-profit setting). Students are required to prepare and execute a plan of study approved by the instructor and to complete written assignments detailed in the plan. Course only satisfies a professional elective requirement of the program. Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites:** COB student with a management concentration, and Internship Coordinator's consent

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**MANGMT 4970: Strategic Management**

Enterprise-level case studies, simulations, similar exercises to integrate business functional decisions; assessment of environmental influences on business. Development, implementation of company strategies.

**Credit Hours:** 3

**Prerequisites:** MANGMT 3000, MRKTNG 3000, FINANC 3000 and 93 credit hours earned. Open only to seniors admitted to a professional program in the CoB

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**MANGMT 4970W: Strategic Management**

Enterprise-level case studies, simulations, similar exercises to integrate business functional decisions; assessment of environmental influences on business. Development, implementation of company strategies.

**Credit Hours:** 3

**Prerequisites:** MANGMT 3000, MRKTNG 3000, FINANC 3000 and 93 credit hours earned. Open only to seniors admitted to a professional program in the CoB

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**MANGMT 7010: Operations Management**

(cross-leveled with MANGMT 4010). Managerial analysis of operating problems, with emphasis on planning and control systems. Math Reasoning Proficiency Course. May require consent.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MANGMT 3000

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**MANGMT 7020: Human Resource Management**

(cross-leveled with MANGMT 4020). Introduction to strategies and best practices in attracting, retaining, developing, and compensating employees. May require consent.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MANGMT 3000

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**MANGMT 7030: Organizational Behavior**

(cross-leveled with MANGMT 4030). Examines theoretical constructs and research findings on human behavior in work organizations such as businesses, especially individual differences, dyadic relations and small group behavior. May require consent.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MANGMT 3000

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**MANGMT 7070: Supply Chain Management**

(cross-leveled with MANGMT 4070). An examination of the concepts, processes and institutions that are fundamental to an understanding of supply chain management in a global environment. Graded on A-F basis only.

**Credit Hours:** 3

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**MANGMT 7080: Managing Global Trade**

(cross-leveled with MANGMT 4080). International trade results from the buying and selling of goods and services across country borders. Events that occur globally, advancements in technology, and country policies all affect trade. This course focuses on global trade management issues, procedures, requirements, and strategies. It explores international market selection and entry strategies, risk factors, global supply chains, and trade finance. The course examines trade factors that influence organizations and trade relations including current events, different cultural considerations, governmental regulation, innovation and technology, financial resources, and logistics. Graded on A-F basis only.

**Credit Hours:** 3

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**MANGMT 7090: Purchasing and Supply Management**

(cross-leveled with MANGMT 4090). This course examines the critical role of the procurement function within the organization. The objective is to provide students with a fundamental understanding of the purchasing/sourcing function, key issues and developments in purchasing and supply management within the context of SCM, and to identify ways that purchasing can make a positive contribution to the competitiveness of the firm. Topics include an intro to the field/role in SCM; developing global sourcing strategies using commodity/channel/category management; make-or-buy decisions; supplier identification and selection; contract and pricing practices; negotiation; spend analytics including value analysis for services; contract performance monitoring; traditional versus collaborative supplier development; cross-functional relationship management, and ethics. Graded on A-F basis only.

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**Credit Hours:** 3

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**MANGMT 7201: Topics in Management**

(cross-leveled with MANGMT 4201). Selected current topics in management. Offered on an experimental, one-semester basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MANGMT 3000. Restricted to College of Business students ONLY during early registration. Other students may register after early registration, provided there is space available

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**MANGMT 7380: Organizational Behavior and Management: The Individual**

An examination of factors influencing behavior in organizations. An analysis of research, theory, and current practices dealing with managing people in work organizations. Focus on the individual within the organizational context.

**Credit Hour:** 1.5

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**MANGMT 7390: Organizational Behavior and Management: Dyadic, Group and Organizational Processes**

An examination of factors influencing behavior in organizations. An analysis of research, theory, and current practices dealing with managing people in work organizations. Focus on dyadic, group and system-wide processes. Prerequisites: MANGMT 7380

**Credit Hour:** 1.5

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**MANGMT 7410: Management Information Systems**

A managerially-oriented, case-based introduction to information systems. Emphasizes how information systems technology can aid managers in improving organizational performance, group work, and personal productivity, thus providing competitive advantage.

**Credit Hour:** 1.5

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**MANGMT 7420: Managerial Statistics**

Overview of statistics as an aid in decision making. Emphasis on summarizing data, statistical inference, sampling techniques, and regression based forecasting as applied to problems in business.

**Credit Hour:** 1.5

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**MANGMT 7430: Operations Strategy**

Introduction to Operations Management function within an organization- the function which controls key resources necessary to produce and deliver a firm's goods or services to customers. Surveys strategic problems common to operations within complex organization. Emphasizes planning, control, and decision making to gain competitive advantage through operations-related activities. Stresses concepts, models, and behaviors across technologies, sectors, and industries, rather than emphasizing a few specific conversion technologies.

**Credit Hour:** 1-3

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**MANGMT 7450: Business Analytics**

This course focuses on two areas of knowledge. One focus is on developing relevant statistical thinking skills, including an awareness and management of risk, and recognizing the type of statistical analysis that is appropriate for a given managerial problem. The other is on developing

an understanding of the role of business analytics in the organization, at the managerial, tactical and strategic level. Graded on A-F basis only.

**Credit Hours:** 3

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**MANGMT 7470: Data Analysis for Managers**

Statistical thinking approaches to address common business data and problems. Analysis of real-world cases and unstructured data using statistical features of spreadsheet software and communication of results in managerial format. Graded A-F only.

**Credit Hour:** 1.5

**Prerequisites:** Open to Crosby MBA students ONLY

**Corequisites:** MANGMT 7420

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**MANGMT 7480: Managerial Analytics**

Spreadsheet modeling procedures to address common business problems. Analysis of real-world cases and unstructured problems using basic and advanced features software and communication of results in managerial format. Graded A-F only.

**Credit Hour:** 1.5

**Prerequisites:** MANGMT 7420 and MANGMT 7470. Open to Crosby MBA students ONLY

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**MANGMT 7540: Legal Aspects of Business Organization and Operation**

(cross-leveled with MANGMT 4540). Includes agency and employment relationships, sole proprietorships, partnerships, and corporations, also operational aspects of business associations such as administrative regulation, taxation, bankruptcy, and trade regulation.

**Credit Hours:** 3

**Prerequisites:** MANGMT 3540. Restricted to COB students

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**MANGMT 7970: Introduction to Strategic Management**

Examines through case analysis and simulation how business-level managers overseeing a profit center in a specific industry set direction for a firm's activities in that industry and develop policies to implement that direction. Emphasis is on aligning business strategy with overarching corporate strategy (in diversified firms) and integrating functional perspectives (marketing, operations, finance, R&D, purchasing, human resources, etc.) by effectively resolving conflicts in these perspectives when formulating effective strategy. Focus is also placed on balancing short-term efficiency in a business unit with long-term effectiveness through cultivating continuous innovation processes that redefine the business unit over time.

**Credit Hour:** 1.5

**Prerequisites:** Open to Crosby MBA students only

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**MANGMT 8001: Topics in Management**

Selected current topics in management. Some sections may be graded on an A-F or S/U basis only. Some sections may require consent.

**Credit Hour:** 1-6

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**MANGMT 8054: Entrepreneurship and Media of the Future**

(same as JOURN 8054). This course will give students an intense hands-on experience in working with real entrepreneurs on complex business problems in the journalism field. Example companies are the Associated

Press, Kachingle, the Chicago Sun-Times, Spot-Ups and the Media Policy Center. The goal is to offer a solution or solutions to the stated problem, and to present these ideas in a competitive, symposium environment. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** graduate standing in Journalism or MBA program

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**MANGMT 8085: Problems in Management**

Graduate students may select topics for study and investigation. Selected sections of the course may be offered either on A-F or S/U basis only.

**Credit Hour:** 1-99

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**MANGMT 8100: Exploring the Digital Globe**

Impacts of technological change and globalization are explored from the perspective of business, law and journalism. The first course required for the 'CDiG certificate'. Issues involving electronic commerce, digitization and globalization will be analyzed through online and in-class projects, class discussion and guest lectures.

**Credit Hours:** 3

**Prerequisites:** enrollment in CDiG Graduate Certificate Program or instructor's consent

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**MANGMT 8200: Commercialization of Life Science Innovations**

(same as BIOL\_EN 8200). This course will provide educational content and experiences that equip course participants to navigate the main pathways for commercialization of biomedical innovations. Students will also learn how to access sources of capital for R&D and develop an understanding of the role of FDA approval and the processes for approval of different types of biomedical products. Students will become familiar with quality assurance programs required in the biomedical industry. Students will also become familiar with the most common business models for biomedical companies and the importance of product development and commercialization alliances.

**Credit Hours:** 3

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**MANGMT 8330: Current Issues in Human Resource Management**

Exploration of current trends, issues, and controversies involving the managing of human resources in organizations, with an emphasis on how human resources can provide competitive advantage. Considers multiple perspectives, including that of employers, employees, and other stakeholders.

**Credit Hours:** 3

**Prerequisites:** MANGMT 8310 or MANGMT 7380 and MNGMT 7390

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**MANGMT 8360: Negotiations**

A structured overview of negotiations; includes the development of improved negotiation skills. Topics include power, distributive negotiations, integrative negotiations, maneuvers, tactics, strategies, conflict, complex negotiations, mediation, and negotiation ethics.

**Credit Hours:** 3

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**MANGMT 8380: Personal and Professional Development**

Readings, activities, and discussions designed to build individual self-awareness of leadership strengths and change management skills for both personal and career development. Graded on A-F basis only.

**Credit Hour:** 1-3

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**MANGMT 8400: Management Science Modeling**

Application of management science modeling procedures to organizational decision making. Topics include mathematical programming, queuing, and network models. Stresses managerial point of view with analysis of problems and interpretation of computer solutions.

**Credit Hour:** 1.5

**Prerequisites:** MANGMT 7420

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**MANGMT 8410: Decision Making and Risk**

Managerial approaches to decision making under risk and uncertainty with emphasis on decision analysis, spreadsheet simulation, and computer solutions via other management science models. Discussion of rational and behavioral decision making and procedures for assessing risk and uncertainty.

**Credit Hour:** 1.5

**Prerequisites:** MANGMT 7400 or equivalent

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**MANGMT 8420: Decision Support Systems**

The theory, methodology and implementation of Decision Support Systems (DSS). Topics include the DSS concept, applications, organizational issues, hardware and software technology, developmental methodology, data-model-user relationships, user interfaces, implementation strategies, and evaluation procedures. Includes hands-on building of a DSS.

**Credit Hours:** 3

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**MANGMT 8510: Project Management**

An advanced introduction to methods and techniques for managing projects, with selective attention to human resource issues as required. Includes project breakdown analysis, task network scheduling, resource allocation, and assessment/evaluation of project performance.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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**MANGMT 8540: Entrepreneurial Ventures**

Analysis of management challenges facing entrepreneurial startups and alternative strategic responses to those challenges. Views issues from multiple functional perspectives to design cross-functional solutions to entrepreneurial problems.

**Credit Hours:** 3

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**MANGMT 8550: Launching a High-Growth Venture**

An experiential learning course using a business plan competition to simulate planning and securing capital for high-growth ventures. Participants with management, marketing or finance interests learn skills for preparing and presenting business plans to investors.

**Credit Hours:** 3

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**MANGMT 8560: Legal Strategies for Entrepreneurs**

The study of how legal decisions affect a business organization of various transitional states of development, from start up to going public. Designed

for both MBA and Law students, who work together planning legal transitions of a business.

**Credit Hours:** 3

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**MANGMT 8800: Turnaround Management and Strategy**

No turnaround is the same, and there is no secret formula that will work every time. However, there are basic principles that can take a leader to a point where they can position a company in a more stable environment quickly, which will ultimately help the company to survive. Most students who pursue a business career will find themselves in a Turnaround or restructure environment sometime in their career. This class will give the student the upper hand in understanding why these situations occur, who and what is the cause, and a framework to be part of the solution.

**Credit Hours:** 3

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**MANGMT 8900: Corporate Governance and Professional Accountability**

Corporate governance (CG) is the set of processes, customs, policies, laws, and institutions affecting how a company is directed, administered or controlled. CG includes the relationships among the many stakeholders involved and the goals by which the corporation is governed. In contemporary business corporations, the main external stakeholder groups are shareholders, debtholders, trade creditors, suppliers, customers and communities affected by the corporation's activities. Internal stakeholders are the board of directors, executives, and other employees. This course will illustrate some of these key relationships, including how they can go wrong and the trade-offs managers have to make to manage all of these relationships. This course can be seen as a course on the professional responsibilities of business leaders. It is based on the assumption that business, like law and medicine, is a profession whose practitioners carry out essential functions in society. When individuals enter the profession, they undertake to fulfill a distinctive set of responsibilities that go with their chosen role. Graded on A-F basis only.

**Credit Hours:** 3

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**MANGMT 8970: Strategy and Global Competitiveness**

Investigates alternative goals of business enterprises relative to internal resources and external environment; development and implementation of policies and strategies to achieve objectives. Cases, computer simulations, and/or field research may supplement published materials.

**Credit Hour:** 1-3

**Prerequisites:** MANGMT 7970 for the 1.5 credit hour version of the course. Open to MBA Students only

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**MANGMT 9010: Research Methods in the Organization Sciences**

Identifying research questions, critiquing research ideas, planning, conducting, and communicating research using experimental, cross-sectional, survey and qualitative methods.

**Credit Hours:** 3

**Prerequisites:** PhD student or instructor's consent

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**MANGMT 9030: Seminar in Macro Organizational Behavior**

This course is designated to introduce students to content areas within the organizational behavior literature. Topics in 'macro' organizational behavior will be covered, including groups and teams, organizational

culture, and national culture. We will also cover a number of topics outside of traditional organizational behavior topics, including negotiation and social conflict, creativity, empowerment, and other topics as the instructor sees fit. Readings will consist of a combination of recent and classic journal articles on the topics.

**Credit Hours:** 3

**Prerequisites:** PhD Students and instructor's consent

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**MANGMT 9040: Seminar in Human Resource Management**

Intensive study of current research, issues and methodology of the applied science of human resource management. Topics include recruitment and selection, training, job performance and performance feedback, and career success.

**Credit Hours:** 3

**Prerequisites:** PhD student or instructor's consent

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**MANGMT 9060: Seminar in Corporate Strategy**

The doctoral seminar in strategy focuses on the topics of strategy content research (what strategies are used by firms, and what is their effect on performance, corporate and competitive strategy, etc.) but also considering important related research streams of strategy process and implementation.

**Credit Hours:** 3

**Prerequisites:** PhD student or instructor's consent

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**MANGMT 9080: Seminar in Entrepreneurship**

The doctoral seminar in Entrepreneurship is intended to provide students with a broad coverage of the literature. It focuses on the foundations and 'cutting edge' research in entrepreneurship content research. Topics covered in the course include: a theoretical overview of entrepreneurship, identification of opportunities, the decision to exploit opportunities, resource assembly and new markets, founders and entrepreneurial teams, venture capital and venture capitalists, entrepreneurship and efficient governance, initial public offerings (IPOs), new ventures (strategy, growth, performance), entrepreneurial networks and alliances, and international entrepreneurship.

**Credit Hours:** 3

**Prerequisites:** PhD student or instructor's consent

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**MANGMT 9087: Seminar in Management**

Intensive studies of current research and issues. Readings, independent investigations, reports.

**Credit Hour:** 1-99

**Prerequisites:** open to Ph.D. students, or instructor's consent

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**MANGMT 9090: Research in Management**

Thesis research for Ph.D. degree. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**MANGMT 9101: Topics Seminar in Management**

Reading and critical evaluation of selected current management literature and research. May be repeated.

**Credit Hour:** 1-3

**Prerequisites:** Ph.D. students only

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## Marketing (MRKTNG)

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**MRKTNG 3000: Principles of Marketing**

Institutions, processes, and problems involved in producing and transferring goods and services from producer to consumers; emphasis on economics and social aspects.

**Credit Hours:** 3

**Prerequisites or Corequisites:** ECONOM 1014, ECONOM 1024, ECONOM 1000, or ECONOM 1051 or ABM 1041

**Prerequisites:** 45 semester hours

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**MRKTNG 3000H: Principles of Marketing - Honors**

Institutions, processes, and problems involved in producing and transferring goods and services from producer to consumers; emphasis on economics and social aspects.

**Credit Hours:** 3

**Prerequisites or Corequisites:** ECONOM 1014, ECONOM 1024, ECONOM 1000 or ECONOM 1051, or ABM 1041

**Prerequisites:** 45 semester hours; Honors eligibility required

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**MRKTNG 3410: Personal Selling**

Modern selling methods that focus on solving customer problems rather than using manipulative techniques. Principles underlying the sale process. Practical methods for building long-term customer relationships in business-to-business contexts are emphasized. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MRKTNG 3000. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with an emphasis in Marketing

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**MRKTNG 3510: Procurement Processes and Analytics**

Overview of the procurement process used by retailers; execution of pricing strategies, negotiations, retail planning at the category and item level; use of software to analyze data and make procurement decisions. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MRKTNG 3000. During Early Registration some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with an emphasis in Marketing

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**MRKTNG 3901: Special Topics in Marketing**

Study of a selected topic in Marketing in a course taken for credit as part of an organized study abroad program. May be repeated for credit. Graded on S/U basis only.

**Credit Hour:** 1-3

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**MRKTNG 3975: Current Issues in International Marketing**

Study of current issues and practices in international marketing in a course taken for credit as part of an organized study abroad program. May be repeated for credit. Graded on S/U basis only.

**Credit Hour:** 1-3

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**MRKTNG 4000: Marketing Management**

Further examination of marketing issues: market analysis, market research, positioning, products, pricing, promotion, distribution, relationship management, other topics.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000, and ACCTCY 2010 or ACCTCY 2026, or ACCTCY 2036 or ACCTCY 2136H. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing

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**MRKTNG 4000H: Marketing Management - Honors**

Further examination of marketing issues: market analysis, market research, positioning, products, pricing, promotion, distribution, relationship management, other topics.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000; ACCTCY 2010 or ACCTCY 2026 or ACCTCY 2036 or ACCTCY 2136H; Honors eligibility required

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**MRKTNG 4050: Marketing Research**

Procedures for defining marketing research problems; specifying information requirements; collecting, analyzing, interpreting, and presenting data for use in marketing decision making. Utilizes student projects and research-related computer assignments.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000, STAT 3500. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing

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**MRKTNG 4185: Problems in Marketing**

In-depth independent study of marketing topic(s). Student must have course plan (assignments, evaluation criteria, etc.) approved by faculty sponsor. Contact Marketing Department office for details and enrollment permission. Selected sections of this course may be graded either on A-F or S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** Departmental consent, MRKTNG 3000

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**MRKTNG 4201: Topics in Marketing**

Selected marketing-related topics. Subjects may vary across semesters. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000

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**MRKTNG 4220: Consumer Behavior**

Dimensions of the consumer market and decision-making process of consumers; analyzing economic, psychological and socio-psychological influences on consumer market and buying behavior.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing

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**MRKTNG 4220H: Consumer Behavior - Honors**

Dimensions of the consumer market and decision-making process of consumers; analyzing economic, psychological and socio-psychological influences on consumer market and buying behavior.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000 and Honors eligibility required

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**MRKTNG 4250: Retail Marketing**

Strategies, policies, tactics, and procedures of marketing in a retailing environment.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing

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**MRKTNG 4250H: Retail Marketing - Honors**

Strategies, policies, tactics, and procedures of marketing in a retailing environment.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000 and Honors eligibility required

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**MRKTNG 4420: Sales Management**

Methods and tools employed by salespeople and field sales managers; emphasis on underlying behavioral and quantitative theory.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with an emphasis in Marketing

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**MRKTNG 4430: Advanced Professional Selling**

Emphasis on the analytics approach to sales. This reflects the overall trends in business practice, and specifically in the world of sales with increasing reliance on Sales Force Automation (SFA) and Customer Relationship Management (CRM) tools. Students will need to come to class with laptops or tablets. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3410

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**MRKTNG 4440: Services Marketing**

Challenges, problems, and strategies specific to marketing in service industries. Topics include the unique characteristics of services and managing service-oriented businesses; service design and service recovery; service quality and customer satisfaction service pricing issues and demand management; and management of service customers and employees. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with an emphasis in Marketing

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**MRKTNG 4510: Artificial Intelligence and Machine Learning Applications in Sales and Marketing**

This course is intended to introduce students to cutting-edge Artificial Intelligence and Machine Learning (AI&ML) applications in the domain of sales and marketing. Students will use a proprietary, cloud-based software tool to learn about underlying models, but prior knowledge of programming languages is not required. The course will take an analytics approach and will require students to work with data sets. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MRKTNG 3000. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with an emphasis in Marketing

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**MRKTNG 4550: Integrated Marketing Communications**

Design, coordination, and management of marketing communications. Focus on the role of integrated marketing communications in the overall marketing process, with emphasis on advertising and sales promotion strategies and tactics.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing

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**MRKTNG 4550H: Integrated Marketing Communications - Honors**

Design, coordination, and management of marketing communications. Focus on the role of integrated marketing communications in the overall marketing process, with emphasis on advertising and sales promotion strategies and tactics. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000 and Honors eligibility required

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**MRKTNG 4650: e-Marketing**

Strategic and managerial challenges and issues related to use of the Internet and other electronic channels as marketing tools.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing

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**MRKTNG 4720: Global Marketing**

Strategic and managerial issues associated with international trade and international marketing.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000. During early registration, some section may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis in Marketing

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**MRKTNG 4880: Contemporary Issues in Marketing**

Selected topical issues, their impact on marketing and marketers, and implications for firms and industries. Emphasis on scanning the external environment, projection of trends, and analysis; strategy development based on environmental analysis.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with emphasis on marketing

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**MRKTNG 4890: Marketing Supply Chain Analytics**

(cross-leveled with MRKTNG 7890) This course focuses on applying data analytic tools and techniques at various supply chain stages, specifically focusing on retailers. At the end of the course, the students will develop supply chain analytical skills for solving several marketing supply chain problems such as demand forecasting, inventory management, and sales and operations planning. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** STAT 3500 or equivalent

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**MRKTNG 4900: Analyzing and Communicating Business Data**

This course focuses on the analysis of marketing and other business data with basic statistical techniques. Students will learn when and how to use statistical techniques to solve marketing and other business problems and how to effectively communicate the results of statistical tests to managers. The course covers univariate procedures and regression. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 2258, MRKTNG 3000, STAT 2500, STAT 3500

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**MRKTNG 4910: Marketing Data Analytics**

(cross-leveled with MRKTNG 7910). Introduction and overview of Artificial and Machine Learning applications in the domain of sales and marketing. Students will work with analytical tools and models without any coding requirements, learn to derive actionable insight from using these tools, and gain knowledge of contemporary issues involving collecting, analyzing, and sharing consumer data. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MRKTNG 3000. During early registration, some sections may be restricted to College of Business students with emphasis in Marketing, or International Business with an emphasis in Marketing

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**MRKTNG 4920: Data Visualization**

An introduction to data visualization. Students will learn the principles for effective visual representation of data and learn how to prepare data visualizations using the Tableau platform. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** ACCTCY 2258

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**MRKTNG 4930: Databases for Marketing Decisions**

This is an applied course on marketing databases. The course helps students harness database management techniques to solve complex problems in the domain of marketing. In addition to learning the principles of relational database management systems (DBMS), students will learn how to apply database management skills (combined with other statistical packages) to make data-driven decisions that address important marketing problems. Specifically, they will learn how to do market segmentation analysis, cluster analysis, market share analysis, customer relationship management, brand and store positioning, and market and product sales forecasting. Graded on A-F basis only.

**Credit Hours:** 3

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**Prerequisites:** ACCTCY 2258, MRKTNG 3000, STAT 2500, STAT 3500

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**MRKTNG 4950: Data-Based Decision-Making in Marketing**

A systematic, analytical approach to marketing decision-making. Students will build their analytical skills through a combination of lectures, cloud-based software tools, and business case studies. Emphasis is on a hands-on approach to solve real-world marketing problems in domains such as segmentation, targeting, positioning, pricing, and resource allocation. Students will be able to assess the financial impact of marketing expenditures including bottom-line metrics and will draw on data visualization basics to effectively present their analysis to their peers. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ACCTCY 2258, MRKTNG 3000, STAT 2500, STAT 3500

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**MRKTNG 7460: Managerial Marketing**

Introduces concepts and theories for marketing decision making. Provides an overview of principles and tools to analyze and understand marketing situations in order to develop and execute appropriate marketing initiatives.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required

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**MRKTNG 7470: Advanced Marketing Management**

Develops knowledge and skills to manage marketing activities at the strategic and tactical levels. Course utilizes case studies, interactive class exercises, and advanced marketing readings. Students will learn to apply relevant concepts for effective marketing strategy development, marketing planning, and implementation of marketing mix decisions.

**Credit Hour:** 1-3

**Prerequisites:** MBA program consent required; MRKTNG 7460

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**MRKTNG 7890: Marketing Supply Chain Analytics**

(cross-leveled with MRKTNG 4890). This course focuses on applying data analytic tools and techniques at various supply chain stages, specifically focusing on retailers. At the end of the course, the students will develop supply chain analytical skills for solving several marketing supply chain problems such as demand forecasting, inventory management, and sales and operations planning. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Obtain consent in Graduate Programs Office

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**MRKTNG 7910: Marketing Data Analytics**

(cross-leveled with MRKTNG 4910). Introduction and overview of Artificial and Machine Learning applications in the domain of sales and marketing. Students will work with analytical tools and models without any coding requirements, learn to derive actionable insight from using these tools, and gain knowledge of contemporary issues involving collecting, analyzing, and sharing consumer data. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** GPO Consent

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**MRKTNG 8001: MBA Topics in Marketing**

Advanced study of selected marketing-related topics. Subjects vary across semesters.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required and completion of MRKTNG 7460 and MRKTNG 7470

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**MRKTNG 8060: Competitive Marketing Strategy**

Builds on the foundations of Marketing 7460 and 7470. Focuses on quantitative market intelligence-based design, execution, and adaptation of a market-drive business strategy to improve a firm's financial performance over time in a competitive environment. Uses a competitive, multi-period, marketing simulation game in which students are assigned to manage one of several firms competing in an industry. Prerequisites: MBA Program consent required: MRKTNG 7460 and MRKTNG 7470. Cannot receive credit for both MRKTNG 8050 and MRKTNG 8060.

**Credit Hour:** 1-3

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**MRKTNG 8070: Marketing Business Models**

Builds on the foundations of Marketing 7460 and 7470. Focuses on the formulation and analysis of marketing strategy and contemporary business models for creating and capturing value in different industries such as consumer goods, services, retailing, media, sports, entertainment, and online businesses. Business revenue and profit models will be evaluated in conjunction with marketing performance.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required, MRKTNG 7460 and MRKTNG 7470. Cannot receive credit for both MRKTNG 8050 and MRKTNG 8070

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**MRKTNG 8085: MBA Independent Study in Marketing**

Advanced independent study of marketing topics(s). Student must have a course plan (assignments, evaluation criteria, etc.) approved by a marketing faculty member. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** departmental and MBA Program consent required; MRKTNG 7460, MRKTNG 7470

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**MRKTNG 8180: Applied Statistics for Marketing Analytics**

This course is designed to increase students' understanding of essential statistical methods, focusing primarily on interpretation and application in marketing contexts. During the course, students will apply statistical concepts and analyses in diverse marketing settings with a variety of data sets. By the end of the course, students will know when and how to apply fundamental statistical techniques in marketing situations, how to interpret the results of statistical analysis, and how to present results in a managerially useful manner. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** MBA program consent, prior statistical coursework

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**MRKTNG 8280: Research for Marketing Decisions**

Methods for generating and using information related to marketing decisions. The course is aimed at the manager who designs, conducts, and/or uses the research. Emphasizes the design of research studies to inform managers' decisions and techniques for gathering and analyzing primary and secondary data.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent, MRKTNG 7460, MRKTNG 7470, MRKTNG 8180

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**MRKTNG 8350: Business-to-Business Marketing**

Advanced study of the marketing of goods and services to business customers; customer relationship management, and functionally integrated approaches to solving business problems.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required and completion of MRKTNG 7460 and MRKTNG 7470

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**MRKTNG 8420: Sales Force Management**

Basic tasks of sales management as well as the application of theories and concepts to effectively manage that function. Topics covered include salesperson effectiveness, deployment, motivation, organizational design, compensation and evaluation.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required and completion of MRKTNG 7460 and MRKTNG 7470

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**MRKTNG 8650: Digital Marketing**

The use of the Internet and other electronic channels as marketing tools. Emphasis on integration of digital interactions and communication into the overall marketing strategy.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required and completion of MRKTNG 7460 and MRKTNG 7470

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**MRKTNG 8680: Database Marketing**

A quantitatively-oriented, hands-on course regarding the use of customer data for making decisions about marketing campaigns and targeting of individual customers. Concepts and applications in this course emphasize statistical analysis of large datasets involving customer records. The analytical and statistical programming skills learned in the course should be useful in any data-oriented business environment. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required, MRKTNG 7460, MRKTNG 7470, MRKTNG 8180, MRKTNG 8280

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**MRKTNG 8720: International Marketing**

Strategic and managerial issues associated with international trade and international marketing. The course focuses on managerial decision making in the differing and complex environments across foreign markets, alternative methods by which firms enter foreign markets and the development and implementation of international marketing strategies.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required and completion of MRKTNG 7460 and MRKTNG 7470

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**MRKTNG 8750: Brand Management**

Focuses on the creation and execution of profitable brand strategies. Examines the practice of branding, the key components of brand equity, and how firms can build and sustain successful brands in competitive markets.

**Credit Hour:** 1-3

**Prerequisites:** MBA Program consent required, MRKTNG 7460 and MRKTNG 7470

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**MRKTNG 8760: Marketing Analytics for Business Decisions**

A systematic, analytical approach to marketing decision-making. Students will be able to build their analytical skills through a combination of lectures, Excel-based software tools, and business case studies. Emphasis is on hands-on approaches for solving real-world marketing problems in domains such as segmentation, targeting, positioning, and resource allocation. The course will help students understand the financial impact of marketing expenditures including ROI assessment. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites or Corequisites:** MRKTNG 8180

**Prerequisites:** GPO consent required

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**MRKTNG 8770: Marketing Databases and SQL**

A user/analyst perspective to relational databases used in marketing applications. Fundamentals of relational databases, including database concepts, table design, views, normalization, and security. Hands-on training in SQL (Structured Query Language) on database tables and views to retrieve, change, join, filter, sort, group, and summarize data. Data analysis with SQL and Excel combined. Presentation of SQL results sets. Course graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites or Corequisites:** MRKTNG 8180

**Prerequisites:** GPO consent required

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**MRKTNG 8780: Advanced Marketing Analytics**

Analytical methods for solving marketing problems. Emphasis on use of multivariate statistical techniques (e.g. regression models, time series models, principal components analysis, cluster analysis, discriminant analysis, ANOVA, survival/duration models, etc.) to aid marketing tasks and decisions in areas such as customer classification, segmentation, profiling, and targeting; prospecting with archival data; customer response to marketing interventions; customer acquisition/retention tactics; customer relationship management (CRM); sales forecasting; media allocation decisions; market basket analysis; etc. Graded on an A-F basis only.

**Credit Hour:** 1-3

**Prerequisites or Corequisites:** MRKTNG 8180

**Prerequisites:** GPO Consent Required

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**MRKTNG 8800: R for Marketing Analytics**

Statistical analysis in R, including various types of regression analysis and other multivariate techniques. Emphasis is also placed on deriving relevant managerial implications from the results returned by R software. Graded on A-F basis only.

**Credit Hour:** 1.5

**Prerequisites or Corequisites:** MRKTNG 8180

**Prerequisites:** Graduate Programs Office consent

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**MRKTNG 8810: Python for Marketing Analytics**

The science of processing data using expert systems for faster and smarter decision-making. The course covers statistical and machine learning methods, their core principles, and real-life applications in



marketing. Provides hands-on training in using Python in a variety of applications. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites or Corequisites:** MRKTNG 8180

**Prerequisites:** MBA Program consent

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**MRKTNG 8820: Artificial Intelligence and Machine Learning Applications in Marketing**

Artificial Intelligence and Machine Learning (AI&ML) applications in the domain of marketing. Topics covered include applications using neural networks, support vector machines, and deep learning, among others. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites or Corequisites:** MRKTNG 8180

**Prerequisites:** MBA Program consent

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**MRKTNG 9010: Introduction to Research Methods in Marketing**

Introduces students to the research process. Examines philosophy of science, constructs and measurement issues regarding validity, and hypothesis-testing. Provides an overview of experimental and survey research methods, with introduction to qualitative research, model-building, and research using secondary data.

**Credit Hour:** 1-3

**Prerequisites:** Ph.D. students only; instructor's consent

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**MRKTNG 9020: Seminar in Advanced Research Methods in Marketing**

Familiarizes students with advanced research methods in marketing, emphasizing problem developmental and conceptualization, operationalization of research questions, measurement, and survey research.

**Credit Hour:** 1-3

**Prerequisites:** MRKTNG 9010 or equivalent; Ph.D. students only; instructor's consent

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**MRKTNG 9030: Seminar in Applied Multivariate Analysis in Marketing**

Familiarizes students with multivariate analysis of data used for research in marketing. Emphasizes application of multivariate methods, presentation of set, performing preliminary assessment of data quality and distribution, assessing measurement quality, and conducting a variety of multivariate and structural equation models, regression, logistic regression, discriminate analysis, cluster analysis, multi-way frequency analysis, and ANOVA.

**Credit Hour:** 1-3

**Prerequisites:** basic course in multivariate statistical methods; Ph.D. students only; instructor's consent

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**MRKTNG 9090: Research in Marketing**

Thesis research for Ph.D. degree. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** Ph.D. students only

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**MRKTNG 9101: Current Topics Seminar in Marketing**

Reading and critical evaluation of selected current marketing literature and research. Graded on S/U basis only. May be repeated.

**Credit Hour:** 1-3

**Prerequisites:** Ph.D. students only

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**MRKTNG 9185: Doctoral Independent Study in Marketing**

Independent study of a marketing topic or research project. Arranged in consultation with a graduate faculty member. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** Ph.D. students only; instructor's consent

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**MRKTNG 9210: Seminar in Marketing Strategy**

Focuses on research topics that pertain to strategic marketing programs and decisions, such as marketing productivity, services marketing, product innovation management, and pricing, among others. Coverage is also given to defining the domain of research in marketing and to the development and use of related theories.

**Credit Hour:** 1-3

**Prerequisites:** Ph.D. students only; instructor's consent

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**MRKTNG 9220: Seminar Marketing Models**

Familiarizes students with quantitative modeling approaches to address a variety of marketing problems. The focus is on the nature, relevance, and properties of mathematical models and analytical methods that are employed to address various types of marketing decisions. Students will gain an understanding of the process of model-building, testing and implementation.

**Credit Hour:** 1-3

**Prerequisites:** Ph.D students only; instructor's consent

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**MRKTNG 9230: Seminar in Consumer Behavior**

Exposes doctoral students to perspectives on consumer behavior that draw from a variety of disciplines, including marketing, psychology, decision theory, sociology, and cultural anthropology. Students also learn about the different methods researchers employ to study consumers. Covers both classic and contemporary literature. Students are encouraged to evaluate and synthesize existing literature in the pursuit of new research ideas.

**Credit Hour:** 1-3

**Prerequisites:** Ph.D. students only; instructor's consent

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**MRKTNG 9600: Seminar in Marketing**

Readings, independent investigations and reports. May be repeated.

**Credit Hour:** 1-3

**Prerequisites:** Ph.D. students only

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## Mathematics (MATH)

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**MATH \_0110: Intermediate Algebra**

MATH \_0110 is a preparatory course for college algebra that carries no credit towards any baccalaureate degree. However, the grade received in MATH \_0110 does count towards a student's overall GPA. The course covers operations with real numbers, graphs of functions, domain and

range of functions, linear equations and inequalities, quadratic equations; operations with polynomials, rational expressions, exponents and radicals; equations of lines. Emphasis is also put on problem-solving.

**Credit Hours:** 3

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#### **MATH 1050: Quantitative Reasoning**

Promotes mathematical literacy among students. This course will cover important mathematical ideas and problem solving skills in the context of science, technology, and/or society. Topics may include: logic and critical thinking, Venn Diagrams, problem solving, sets, units of measure, percentages and ratios, counting and probability, exponential growth and decay, linear and exponential models. Quantitative Reasoning is designed to stimulate interest in and appreciation of mathematics and quantitative reasoning as valuable tools for comprehending the world in which we live. This course does not satisfy the prerequisite of any other MATH course.

**Credit Hours:** 3

**Prerequisites:** C- or higher in MATH \_0110 or a sufficient score on the myMath test

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#### **MATH 1100: College Algebra**

A review of exponents, order of operations, factoring, and simplifying polynomial, rational, and radical expressions. Topics include: linear, quadratic, polynomial, rational, inverse, exponential, and logarithmic functions and their applications. Students will solve equations involving these functions, and systems of linear equations in two variables, as well as inequalities. See the Math website for specific requirements. A student may receive at most 5.0 credit hours among MATH 1100, MATH 1120, MATH 1140, MATH 1160.

**Credit Hours:** 3

**Prerequisites:** C- or higher in MATH \_0110 or a sufficient score on the ALEKS exam or MyMathTest Intermediate Algebra score of 70% or higher

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#### **MATH 1140: Trigonometry**

A student may receive only 5 credits from among MATH 1100, MATH 1140, and MATH 1160. A Student may receive at most 5.0 credit hours from MATH 1100, MATH 1120, MATH 1140, and MATH 1160.

**Credit Hours:** 2

**Prerequisites:** C- or higher in MATH 1100 or sufficient ALEKS score or MyMathTest College Algebra score of 70% or higher

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#### **MATH 1160: Precalculus Mathematics**

Review of elementary algebra. Background material for MATH 1500, including algebraic, trigonometric, logarithmic, exponential functions. A student may receive at most 5 credits from among MATH 1100, MATH 1140, and MATH 1160.

**Credit Hours:** 5

**Prerequisites:** B+ or higher in MATH \_0110 (at MU), or C- or higher in MATH 1100, or sufficient ALEKS score or MyMathTest College Algebra score of 60% or higher

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#### **MATH 1300: Finite Mathematics**

A selections of topics in finite mathematics such as: basic financial mathematics, counting methods and basic probability and statistics, systems of linear equations and matrices. Warning: without a College

Algebra exemption, a sufficient ALEKS score will not suffice unless it is a proctored exam (for MATH 1100 credit).

**Credit Hours:** 3

**Prerequisites:** Grade of C- or higher in MATH 1100, or MATH 1160, or both a College Algebra exemption and sufficient ALEKS score

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#### **MATH 1360: Geometric Concepts**

This course is primarily for education majors. This course covers topics of Euclidean geometry such as the study of points, lines, angles, polygons, circles, congruence, similarity, transformations, symmetry, area, surface area, arc length, and volume. Polyhedra, spheres, cones, and other solids are discussed. The course includes constructions and proofs, and uses inductive and deductive reasoning throughout. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** C- or higher in MATH 1100 or sufficient ALEKS exam score or MATH 1160 or equivalent

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#### **MATH 1400: Calculus for Social and Life Sciences I**

The real number system, functions, analytic geometry, derivatives, integrals, maximum-minimum problems. No credit for students who have completed a calculus course. A student may receive credit for MATH 1320 or MATH 1400 but not both. A student may receive at most 5 units of credit among the MATH 1320 or MATH 1400 and MATH 1500. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** grade of C- or higher in MATH 1100, or MATH 1160, or sufficient ALEKS score

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#### **MATH 1500: Analytic Geometry and Calculus I**

Elementary analytic geometry, functions, limits, continuity, derivatives, antiderivatives, definite integrals. A student may receive at most 5 units of credit among the Mathematics courses MATH 1320 or MATH 1400 and MATH 1500. Math Reasoning Proficiency Course.

**Credit Hours:** 5

**Prerequisites:** grade of C- or higher in MATH 1160 or C- or higher in both MATH 1100 and MATH 1140 or sufficient ALEKS score or MyMathTest PreCalculus score of 70% or higher

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#### **MATH 1500H: Analytic Geometry and Calculus I - Honors**

Elementary analytic geometry, functions, limits, continuity, derivatives, antiderivatives, definite integrals. Honors eligibility required. A student may receive at most 5 units of credit among MATH 1320 or MATH 1400 and MATH 1500. Math Reasoning Proficiency course.

**Credit Hours:** 5

**Prerequisites:** C- or higher in MATH 1160 or C- in both MATH 1100 and MATH 1140 and sufficient ALEKS score. Honors Eligibility required

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#### **MATH 1601: Selected Topics in Mathematics-General**

The special topics covered may vary from term to term. This course may be repeated.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**MATH 1602: Selected Topics in Mathematics-Biological/Physical/Math**

The special topics covered may vary from term to term. This course may be repeated.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**MATH 1700: Calculus II**

Definite integrals, applications and techniques of integration, elementary transcendental functions, infinite series. Math Proficiency Reasoning course.

**Credit Hours:** 5

**Prerequisites:** a grade of C- or better in MATH 1500

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**MATH 1700H: Calculus II - Honors**

Definite integrals, applications and techniques of integration, elementary transcendental functions, infinite series. Math Reasoning Proficiency course.

**Credit Hours:** 5

**Prerequisites:** a grade of C- or better in MATH 1500. Honors eligibility required

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**MATH 2100: Calculus for Social and Life Sciences II**

Riemann integral, transcendental functions, techniques of integration, improper integrals and functions of several variables. No credit for students who have completed two calculus courses. Math Reasoning Proficiency course.

**Credit Hours:** 3

**Prerequisites:** C- or higher in MATH 1320 or MATH 1400 or MATH 1500

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**MATH 2300: Calculus III**

Vectors, solid analytic geometry, calculus of several variables. Math Reasoning Proficiency course.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in MATH 1700

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**MATH 2300H: Calculus III - Honors**

Vectors, solid analytic geometry, calculus of several variables. Math Reasoning Proficiency course.

**Credit Hours:** 3

**Prerequisites:** grade of C or better in MATH 1700. Honors eligibility required

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**MATH 2320: Discrete Mathematical Structures**

Sets, functions, logic, relations, induction, recursion, counting techniques, graphs, trees, algorithms. Math Reasoning Proficiency course.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or higher in MATH 1700

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**MATH 3000: Introduction to Advanced Mathematics**

Gateway to theoretical math courses. Focus on reading and writing math proofs/rigorously developing background needed in Adv Calc/Abstract Alg. Topics include logic, set theory, properties of functions and integers,

the real number system, completeness of the real numbers, sequences of real numbers.

**Credit Hours:** 3

**Prerequisites:** Consent of Department required. Recommended MATH 1700

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**MATH 3000W: Introduction to Advanced Mathematics - Writing Intensive**

Gateway to theoretical math courses. Focus on reading and writing math proofs/rigorously developing background needed in Adv Calc/Abstract Alg. Topics include logic, set theory, properties of functions and integers, the real number system, completeness of the real numbers, sequences of real numbers.

**Credit Hours:** 3

**Prerequisites:** Consent of Department required. Recommended MATH 1700

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**MATH 4002: Topics in Mathematics-Biological Sciences**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May repeat for credit with Departmental consent.

**Credit Hour:** 1-6

**Prerequisites:** MATH 2300 and instructor's consent

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**MATH 4006: Topics in Mathematics-Mathematical Sciences**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May repeat for credit with Departmental consent.

**Credit Hour:** 1-6

**Prerequisites:** MATH 2300 and instructor's consent

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**MATH 4007: Topics in Mathematics-Physical Sciences**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May repeat for credit with Departmental consent.

**Credit Hour:** 1-6

**Prerequisites:** MATH 2300 and instructor's consent

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**MATH 4060: Connecting Geometry to Middle and Secondary Schools**

(cross-leveled with MATH 7060). Euclidean foundations, logic, Euler Characteristic, congruence, area, Pick's Theorem, volume, Cavalieri's Principle, surface area, similarity, symmetry, transformations, matrices, introduction to spherical geometry.

**Credit Hours:** 3

**Prerequisites:** Consent of Department required

**Recommended:** MATH 1360 or MATH 1500

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**MATH 4070: Connecting Algebra to Middle and Secondary Schools**

(cross-leveled with MATH 7070). A detailed study of integer and rational arithmetic and algebra. Topics include: Binomial Theorem, induction, division algorithm, Euclid's Algorithm, Fundamental Theorem of Arithmetic, Pythagorean triples, modular arithmetic and generalizations to polynomials, matrices and other axiomatic structures.

**Credit Hours:** 3

**Prerequisites:** MATH 1400, enrollment is restricted to Math Education majors

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**MATH 4080: Calculus Connections**

Course topics include: sequences, series, functions, limits, continuity, differentiation, optimization, curve sketching, antidifferentiation, areas of plane regions, lengths of plane curves, areas of surfaces of revolution, and volumes of solids.

**Credit Hours:** 3

**Prerequisites:** MATH 1160, enrollment is restricted to Math Education majors

---

**MATH 4100: Differential Equations**

(cross-leveled with MATH 7100). Traditional introductory course in ordinary differential equations. Includes 1st and 2nd order linear differential equations with numerous applications; Laplace transforms; power series solutions; numerical methods, linear systems.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or above in MATH 2300

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**MATH 4140: Matrix Theory**

(cross-leveled with MATH 7140). Basic properties of matrices, determinants, vector spaces, linear transformations, eigenvalues, eigenvectors, and Jordan normal forms. Introduction to writing proofs.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MATH 2300 or MATH 2320. Writing intensive sections require ENGLISH 1000

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**MATH 4140W: Matrix Theory - Writing Intensive**

Basic properties of matrices, determinants, vector spaces, linear transformations, eigenvalues, eigenvectors, and Jordan normal forms. Introduction to writing proofs.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MATH 2300 or MATH 2320. Writing intensive sections require ENGLISH 1000

---

**MATH 4150: History of Mathematics**

This is a history course with mathematics as its subject. Includes topics in the history of mathematics from early civilizations onwards. The growth of mathematics, both as an abstract discipline and as a subject which interacts with others and with practical concerns, is explored. Prerequisites or Corequisite: MATH 2300 or MATH 2340. Writing intensive sections require ENGLISH 1000.

**Credit Hours:** 3

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**MATH 4150W: History of Mathematics - Writing Intensive**

This is a history course with mathematics as its subject. Includes topics in the history of mathematics from early civilizations onwards. The growth of mathematics, both as an abstract discipline and as a subject which interacts with others and with practical concerns, is explored. Prerequisites or Corequisite: MATH 2300 or MATH 2340. Writing intensive sections require ENGLISH 1000.

**Credit Hours:** 3

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**MATH 4300: Numerical Analysis**

(cross-leveled with MATH 7300). Machine arithmetic, approximation and interpolation, numerical differentiation and integration, nonlinear equations, linear systems, differential equations, error analysis. Selected algorithms will be programmed for solution on computers.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MATH 2300 and MATH 4100

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**MATH 4310: Numerical Linear Algebra**

(cross-leveled with MATH 7310). Solution of linear systems of equations by direct and iterative methods. Calculation of eigenvalues and eigenvectors of matrices. Selected algorithms programmed for solution on computers.

**Credit Hours:** 3

**Prerequisites:** MATH 2300 and familiarity with software such as Mathematica, MatLab, Maple, etc

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**MATH 4315: Introduction to Mathematical Statistics**

(same as STAT 4710; cross-leveled with MATH 7315, STAT 7740). Introduction to theory of probability and statistics using concepts and methods of calculus.

**Credit Hours:** 3

**Prerequisites:** MATH 2300 or instructor's consent

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**MATH 4320: Introduction to Probability Theory**

(same as STAT 4750; cross-leveled with MATH 7320, STAT 7750). Probability spaces; random variables and their distributions; repeated trials; probability limit theorems.

**Credit Hours:** 3

**Prerequisites:** MATH 2300 or instructor's consent

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**MATH 4330: Theory of Numbers**

(cross-leveled with MATH 7330). Divisibility, factorization, arithmetic functions, means value theorems, distribution of prime numbers, congruences, primitive roots, character theory, Riemann zeta function, and Dirichlet L-functions.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or higher in MATH 2300. Recommended MATH 2320

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**MATH 4350: Introduction to Non-Euclidean Geometry**

(cross-leveled with MATH 4350). Account of rise, development of non-Euclidean geometries. Intensive study of plane hyperbolic geometry.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

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**MATH 4355: Mathematics of Financial Derivatives I**

(cross-leveled with MATH 7355). Long and short positions, forward contracts, exchange traded index futures, European and American call and put options, put-call parity, trading and hedging strategies, synthetic transactions, arbitrage, currency options, fixed income portfolio management, duration, convexity, interest rate and currency swaps, embedded options.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or higher in MATH 2300 and either STAT 2500 or STAT 4710 or MATH 4315

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#### **MATH 4370: Interest Theory**

(cross-leveled with MATH 7370). This course covers the concepts underlying the theory of interest and their applications to valuation of various cash flows, annuities certain, bonds, and loan repayment. This course is designed to help students prepare for Society of Actuaries exam FM (Financial Mathematics). It is oriented towards problem solving techniques applied to real-life situations and illustrated with previous exam problems.

**Credit Hours:** 3

**Prerequisites:** grade of C-or better in MATH 2300

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#### **MATH 4371: Models for Life Contingencies I**

(cross-leveled with MATH 7371). The sequence MATH 4371 - MATH 4372 is designed to help students prepare for the Society of Actuaries exam LTAM (Long-Term Actuarial Mathematics). This course teaches the basic theory of life contingent actuarial models and the applications of those models to insurance and other financial risks. Covered topics include: survival models, life tables and selection, insurance benefits, life annuities, premium calculation and reserves.

**Credit Hours:** 3

**Prerequisites:** MATH 4320 or STAT 4750, and MATH 4370

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#### **MATH 4372: Models for Life Contingencies II**

(cross-leveled with MATH 7372). The sequence MATH 4371 - MATH 4372 is designed to help students prepare for the Society of Actuaries exam LTAM (Long-Term Actuarial Mathematics). This course extends the life-death contingency models of Math 4371 to more general multiple-state and multiple-life models applied to problems involving a wide range of insurance and pension benefits. Covered topics include: Markov chains, multiple decrement models, joint life and last survivor benefits, pension mathematics, profit testing.

**Credit Hours:** 3

**Prerequisites:** A grade of C- or better in MATH 4371

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#### **MATH 4400: Introduction to Topology**

(cross-leveled with MATH 7400). Topics from topology of Euclidean spaces, generalizations to metric spaces and topological spaces. Fundamentals of point set topology.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

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#### **MATH 4500: Applied Analysis**

(cross-leveled with MATH 7500). Solution of the standard partial differential equations (wave, heat, Laplace's eq.) by separation of variables and transform methods; including eigenfunction expansions, Fourier and Laplace transform. Boundary value problems, Sturm-Liouville theory, orthogonality, Fourier, Bessel, and Legendre series, spherical harmonics.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or higher in MATH 4100

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#### **MATH 4510: Higher Algebra**

(cross-leveled with MATH 7510). Introduction to rings, integral domains, fields, groups.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or higher in MATH 2300 or MATH 2320

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#### **MATH 4520: Statistical Inference I**

(same as STAT 4760; cross-leveled with MATH 7520, STAT 7760). Sampling; point estimation; sampling distribution; tests of hypotheses; regression and linear hypotheses.

**Credit Hours:** 3

**Prerequisites:** MATH 4320

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#### **MATH 4540: Mathematical Modeling I**

(cross-leveled with MATH 7540). Solution of problems from industry, physical, social and life sciences, economics, and engineering using mathematical models.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or higher in MATH 2300 and MATH 4100

**Recommended:** Familiarity with software such as MATHEMATICA, MATLAB, or MAPLE

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#### **MATH 4560: Nonlinear Dynamics, Fractals and Chaos**

(cross-leveled with MATH 7560). Conceptual introduction to nonlinear dynamics, bifurcation and stability of steady states, chaos in nonlinear differential equations and maps, fractal dimension, strange attractors, and applications to physical science.

**Credit Hours:** 3

**Prerequisites:** MATH 4100 or MATH 7100, MATH 4140 or MATH 7140, and familiarity with software such as MATHEMATICA, MATLAB, or MAPLE

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#### **MATH 4590: Mathematics of Financial Derivatives II**

(cross-leveled with MATH 7590). Binomial and Black-Scholes pricing models. Option Greeks, delta and gamma hedging, market maker profit theory. Asian, barrier, compound gap and exchange options. Lognormal and Monte Carlo price simulation. Geometric Brownian Motion and Ito's Lemma. Interest rate models and volatility.

**Credit Hours:** 3

**Prerequisites:** MATH 2300 and either STAT 2500 or STAT 4710 or MATH 4315

**Recommended:** MATH 4355

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#### **MATH 4700: Advanced Calculus of One Real Variable I**

(cross-leveled with MATH 7700). Basic topology of the real line, numerical sequences and series, continuity, differentiability, Riemann integration, uniform convergence, power series.

**Credit Hours:** 3

**Prerequisites:** Grade of C - or higher in MATH 3000

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#### **MATH 4720: Introduction to Abstract Algebra I**

(cross-leveled with MATH 7720). Basic properties of integers, fundamental theorem of arithmetic, introduction to groups, rings and fields.

**Credit Hours:** 3

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**Prerequisites:** Grade of C- or higher in MATH 3000

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**MATH 4900: Advanced Multivariable Calculus**

(cross-leveled with MATH 7900). This is a course in calculus in several variables. The following is core material: Basic topology of n-dimensional Euclidian space; limits and continuity of functions; the derivative as a linear transformation; Taylor's formula with remainder; the Inverse and Implicit Function Theorems, change of coordinates; integration (including transformation of integrals under changes of coordinates); Green's Theorem. Additional material from the calculus of several variables may be included, such as Lagrange multipliers, differential forms, etc.

**Credit Hours:** 3

**Prerequisites:** MATH 4700

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**MATH 4920: Introduction to Abstract Linear Algebra**

(cross-leveled with MATH 7920). Study of vector spaces over arbitrary fields: topics include linear maps on finite dimensional vector spaces, bilinear and multi-linear forms, invariant subspaces and canonical forms.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or higher in MATH 4720

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**MATH 4940: Introduction to Complex Variables**

(cross-leveled with MATH 7940). Complex functions, contour integration, power series, residues and poles, conformal mapping.

**Credit Hours:** 3

**Prerequisites:** MATH 4110 or MATH 4700

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**MATH 4960: Special Readings in Mathematics**

**Credit Hour:** 1-3

**Prerequisites:** Consent of Department required

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**MATH 4996: Honors in Mathematics**

Special work for senior B.A. Honors and B.S. Honors candidates.

**Credit Hours:** 2

**Prerequisites:** Consent of Department required

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**MATH 7060: Connecting Geometry to Middle and Secondary Schools**

(cross-leveled with MATH 4060). Euclidian foundations, basic concepts of symbolic logic, polyhedra, Euler Characteristic, congruence, area, Picks Theorem, volume, Cavalier's Principles, surface area, similarity, reflections, translations, rotations, symmetry, vectors, general transformations, determinants, matrices, transformations using matrices, brief introduction to spherical geometry.

**Credit Hours:** 3

**Prerequisites:** MATH 1360 or MATH 1500, enrollment is restricted to Math Education majors

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**MATH 7070: Connecting Algebra to Middle and Secondary Schools**

(cross-leveled with MATH 4070). A detailed study of integer and rational arithmetic and algebra. Topics include: Binomial Theorem, induction, division algorithm, Euclid's Algorithm, Fundamental Theorem of Arithmetic, Pythagorean triples, modular arithmetic and generalizations to polynomials, matrices and other axiomatic structures. Prerequisites: MATH 1400, enrollment is restricted to Math Education majors

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**Credit Hours:** 3

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**MATH 7100: Differential Equations**

(cross-leveled with MATH 4100). Traditional introductory course in ordinary differential equations. Includes 1st and 2nd order linear differential equations with numerous applications; Laplace transforms; power series solutions; numerical methods, linear systems.

**Credit Hours:** 3

**Prerequisites:** graduate standing and MATH 2300

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**MATH 7140: Matrix Theory**

(cross-leveled with MATH 4140). Basic properties of matrices, determinants, vector spaces, linear transformations, eigenvalues, eigenvectors, and Jordan normal forms. Introduction to writing proofs.

**Credit Hours:** 3

**Prerequisites:** graduate standing and one of MATH 2300, MATH 2320, MATH 2120 or MATH 2340

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**MATH 7150: History of Mathematics**

This is a history course with mathematics as its subject. Includes topics in the history of mathematics from early civilizations onwards. The growth of mathematics, both as an abstract discipline and as a subject which interacts with others and with practical concerns, is explored. Pre- or Co-requisite: MATH 2300 or MATH 2340 and graduate standing.

**Credit Hours:** 3

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**MATH 7300: Numerical Analysis**

(cross-leveled with MATH 4300). Machine arithmetic, approximation and interpolation, numerical differentiation and integration, nonlinear equations, linear systems, differential equations, error analysis. Selected algorithms will be programmed for solution on computers.

**Credit Hours:** 3

**Prerequisites:** graduate standing and MATH 2300 and MATH 4100 or equivalent

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**MATH 7310: Numerical Linear Algebra**

(cross-leveled with MATH 4310). Solution of linear systems of equations by direct and iterative methods. Calculation of eigenvalues and eigenvectors of matrices. Selected algorithms programmed for solution on computers.

**Credit Hours:** 3

**Prerequisites:** MATH 2300 and prior experience writing programs in Mathematica and /or in a computer language such as Fortran, Pascal, or C

**Recommended:** MATH 4140

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**MATH 7330: Theory of Numbers**

(cross-leveled with MATH 4330). Divisibility, factorization, arithmetic functions, means value theorems, distribution of prime numbers, congruences, primitive roots, character theory, Riemann zeta function, and Dirichlet L-functions.

**Credit Hours:** 3

**Prerequisites:** MATH 2300; recommended MATH 2320 or MATH 2340, and MATH 4940 or MATH 7940

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**MATH 7350: Introduction to Non-Euclidean Geometry**

(cross-leveled with MATH 4350). Account of rise, development of non-Euclidean geometries. Intensive study of plane hyperbolic geometry.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

---

**MATH 7355: Mathematics of Financial Derivatives I**

(cross-leveled with MATH 4355). Long and short positions, forward contracts, exchange traded index futures, European and American call and put options, put-call parity, trading and hedging strategies, synthetic transactions, arbitrage, currency options, fixed income portfolio management, duration, convexity, interest rate and currency swaps, embedded options.

**Credit Hours:** 3

**Prerequisites:** MATH 2300 and STAT 2500 or STAT 4710/ MATH 4315, or instructor's consent

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**MATH 7370: Interest Theory**

(cross-leveled with MATH 4370). This course covers the main probability tools applied to financial risk modeling, and the financial mathematics concepts used in calculating present and accumulated values for various cash flows. It is a helpful tool in preparing for the Society of Actuaries exams P (Probability) and FM (Financial Mathematics), and it is oriented towards problem solving techniques illustrated with previous exam problems. Students are encouraged to take MATH 4355 prior to this course.

**Credit Hours:** 3

**Prerequisites:** MATH 2300, MATH 4320/ STAT 4750

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**MATH 7371: Models for Life Contingencies I**

(cross-leveled with MATH 4371). The sequence MATH 4371 - MATH 4372 is designed to help students prepare for the Society of Actuaries exam LTAM (Long-Term Actuarial Mathematics). This course teaches the basic theory of life contingent actuarial models and the applications of those models to insurance and other financial risks. Covered topics include: survival models, life tables and selection, insurance benefits, life annuities, premium calculation and reserves.

**Credit Hours:** 3

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**MATH 7372: Models for Life Contingencies II**

(cross-leveled with MATH 4372). The sequence MATH 4371 - MATH 4372 is designed to help students prepare for the Society of Actuaries exam LTAM (Long-Term Actuarial Mathematics). This course extends the life-death contingency models of MATH 4371 to more general multiple-state and multiple-life models applied to problems involving a wide range of insurance and pension benefits. Covered topics include: Markov chains, multiple decrement models, joint life and last survivor benefits, pension mathematics, profit testing.

**Credit Hours:** 3

**Prerequisites:** A grade of C- or better in MATH 4371 or MATH 7371

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**MATH 7400: Introduction to Topology**

(cross-leveled with MATH 4400). Topics from topology of Euclidean spaces, generalizations to metric spaces and topological spaces. Fundamentals of point set topology.

**Credit Hours:** 3

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**Prerequisites:** MATH 2300

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**MATH 7500: Applied Analysis**

(cross-leveled with MATH 4500). Solution of the standard partial differential equations (wave, heat, Laplace's eq.) by separation of variables and transform methods; including eigenfunction expansions, Fourier and Laplace transform. Boundary value problems, Sturm-Liouville theory, orthogonality, Fourier, Bessel, and Legendre series, spherical harmonics.

**Credit Hours:** 3

**Prerequisites:** MATH 4100/ MATH 7100

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**MATH 7510: Higher Algebra**

(cross-leveled with MATH 4510). Introduction to rings, integral domains, fields, groups.

**Credit Hours:** 3

**Prerequisites:** MATH 2300 OR MATH 2320

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**MATH 7540: Mathematical Modeling I**

(cross-leveled with MATH 4540). Solution of problems from industry, physical, social and life sciences, economics, and engineering using mathematical models.

**Credit Hours:** 3

**Prerequisites:** graduate standing and 3 semesters of calculus and some exposure to ordinary differential equations or instructor's consent

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**MATH 7560: Nonlinear Dynamics, Chaos and Fractals**

(cross-leveled with MATH 4560). Conceptual introduction to nonlinear dynamics, bifurcation and stability of steady states, chaos in nonlinear differential equations and maps, fractal dimension, strange attractors, and applications to physical science.

**Credit Hours:** 3

**Prerequisites:** graduate standing and MATH 4100/ MATH 7100, MATH 4140/ MATH 7140, and familiarity with software such as MATHEMATICA, MATLAB, or MAPLE

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**MATH 7590: Mathematics of Financial Derivatives II**

(cross-leveled with MATH 4590). Binomial and Black-Scholes pricing models. Option Greeks, delta and gamma hedging, market maker profit theory. Asian, barrier, compound, gap and exchange options. Lognormal and Monte Carlo price simulation. Geometric Brownian Motion and Ito's Lemma. Interest rate models and volatility. Prerequisites: MATH 2300 and either STAT 2500 or STAT 4710 or MATH 4315.

**Credit Hours:** 3

**Prerequisites:** MATH 2300 and either STAT 2500 or STAT 4710 or MATH 4315

**Recommended:** MATH 4355

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**MATH 7700: Advanced Calculus of One Real Variable I**

(cross-leveled with MATH 4700). Series of real numbers, limits of functions, continuity and uniform continuity, differentiability, and Riemann integration.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

**Recommended:** MATH 4140 and one other mathematics course number above MATH 2300

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**MATH 7720: Introduction to Abstract Algebra I**

(cross-leveled with MATH 4720). Basic properties of integers, fundamental theorem of arithmetic, introduction to groups, rings and fields.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

**Recommended:** MATH 4140 and one other Mathematics course numbered above 2300

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**MATH 7900: Advanced Multivariable Calculus**

(cross-leveled with MATH 4900). This is a course in calculus in several variables. The following is core material: Basic topology of n-dimensional Euclidian space; limits and continuity of functions; the derivative as a linear transformation; Taylor's formula with remainder; the Inverse and Implicit Function Theorems, change of coordinates; integration (including transformation of integrals under changes of coordinates); Green's Theorem. Additional material from the calculus of several variables may be included, such as Lagrange multipliers, differential forms, etc.

**Credit Hours:** 3

**Prerequisites:** MATH 4700/ MATH 7700

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**MATH 7920: Introduction to Abstract Linear Algebra**

(cross-leveled with MATH 4920). Study of vector spaces over arbitrary fields: topics include linear maps on finite dimensional vector spaces, bilinear and multi-linear forms, invariant subspaces and canonical forms.

**Credit Hours:** 3

**Prerequisites:** MATH 2300

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**MATH 7940: Introduction to Complex Variables**

(cross-leveled with MATH 4940). Complex functions, contour integration, power series, residues and poles, conformal mapping.

**Credit Hours:** 3

**Prerequisites:** MATH 4110/ MATH 7110 OR MATH 4700/ MATH 7700

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**MATH 7960: Special Readings in Mathematics**

**Credit Hour:** 1-3

**Prerequisites:** MATH 2300 and instructor's consent

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**MATH 7980: Mathematics Problem Solving**

Creative advanced problem solving bringing together methods such as integration, probability and Euclidean geometry.

**Credit Hours:** 3

**Prerequisites:** MATH 4140 and another 4000 level Mathematics course, or instructor's consent

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**MATH 8085: Problems in Mathematics**

Problems in Mathematics

**Credit Hours:** 3

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**MATH 8090: Master's Thesis Research in Mathematics**

Students will be required to complete an independent project. Topics are chosen in consultation with a faculty advisor and are subject to departmental consent. Graded on S/U basis only.

**Credit Hours:** 3

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**MATH 8102: Topics in Algebra**

Advanced topics in algebra.

**Credit Hours:** 3

**Prerequisites:** MATH 8410

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**MATH 8190: Masters Project in Mathematics**

Masters Project in Mathematics

**Credit Hours:** 3

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**MATH 8202: Topics in Functional Analysis**

Topics in Functional Analysis

**Credit Hours:** 3

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**MATH 8210: Basic Algebra**

Accelerated problem solving course in linear and abstract algebra. Will prepare students for the algebra qualifying exam.

**Credit Hours:** 3

**Prerequisites:** MATH 4720, MATH 4920, or instructor's consent, or equivalent

**Corequisites:** MATH 8220 and MATH 8250

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**MATH 8220: Basic Analysis**

Accelerated problem-solving course in advanced calculus and complex analysis. Will prepare students for the analysis qualifying exam.

**Credit Hours:** 6

**Prerequisites:** MATH 4700, MATH 4900, MATH 4940, instructor's consent or equivalent

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**MATH 8250: Basic Topology and Geometry**

Topological spaces, differential manifolds, differential forms, integration of vector fields.

**Credit Hours:** 3

**Prerequisites:** MATH 4700, MATH 4900, MATH 4140, or instructor's consent, or equivalent

**Corequisites:** MATH 8210 and MATH 8220

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**MATH 8302: Topics in Harmonic Analysis**

Topics in Harmonic Analysis

**Credit Hours:** 3

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**MATH 8402: Topics in Mathematical Physics**

Topics in Mathematical Physics

**Credit Hours:** 3

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**MATH 8410: Algebra I**

Theory of algebraic structures--groups, rings, fields, algebraic and transcendental extensions of fields.



**Credit Hours:** 3

**Prerequisites:** MATH 4720 and MATH 4920, or equivalent

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**MATH 8411: Algebra II**

Theory of modules, Galois theory and additional topics to be selected by the instructor.

**Credit Hours:** 3

**Prerequisites:** MATH 8410 or equivalent

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**MATH 8420: Theory of Functions of Real Variables I**

Properties of functions of one real variable. Lebesgue measure and integration on the line.

**Credit Hours:** 3

**Prerequisites:** MATH 4700 or MATH 7700 and MATH 4900 or MATH 7900, or equivalent

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**MATH 8421: Theory of Functions of Real Variables II**

Continuation of MATH 8420. General measure and integration theory. Elements of the theory of Hilbert and Banach spaces, linear functions and linear operators.

**Credit Hours:** 3

**Prerequisites:** MATH 8420

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**MATH 8425: Complex Analysis I**

Rigorous introduction to the theory of functions of a complex variable.

**Credit Hours:** 3

**Prerequisites:** MATH 4940 or MATH 7940 or equivalent

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**MATH 8426: Complex Analysis II**

Analytic continuation, Riemann surfaces, entire and meromorphic functions, selected topics.

**Credit Hours:** 3

**Prerequisites:** MATH 8425

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**MATH 8440: Advanced Ordinary Differential Equations I**

Topics from existence and uniqueness theorems, plane autonomous systems, periodicity and boundedness of solutions of second order nonlinear equations, perturbation theory, Sturm-Liouville systems, behavior of solutions at singularities.

**Credit Hours:** 3

**Prerequisites:** MATH 4700 or MATH 7700 or equivalent

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**MATH 8445: Partial Differential Equations I**

Fourier and integral transforms, first and second order partial differential equations, methods of characteristics, Laplace's equation, Dirichlet and Neumann problems, Green's functions and maximum principles.

**Credit Hours:** 3

**Prerequisites:** MATH 4700 or MATH 7700 or instructor's consent required

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**MATH 8446: Partial Differential Equations II**

The Cauchy-Kovalevski theorem, the Lewy example, the heat operator, the wave operator, Sobolev spaces, local regularity of elliptic boundary value problems.

**Credit Hours:** 3

**Prerequisites:** MATH 8445

**Recommended:** MATH 8420

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**MATH 8460: Mathematical Finance I**

(same as FINANC 8340). Financial instruments and derivative: stocks, bonds, futures option prices on interest rates, swaps, etc. Mathematical models of stock price fluctuations. Interest rates and options on interest rates. Swaps. Open markets and properties of stock option prices. Stochastic models. Binomial trees. Continuous time stochastic modeling. No arbitrage modeling. European and American options. BlackScholes model and differential equation, for the price of European option. Exotic options. Interest rate models.

**Credit Hours:** 3

**Prerequisites:** graduate standing in Mathematics. Knowledge of elementary probability or instructor's consent

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**MATH 8461: Mathematical Finance II**

Diffusion Processes as models for stock price fluctuations. Contingent claims and arbitrage. Mathematical analysis of risk neutral valuation of contingent claims. Self-financing portfolios and hedging. Hedging contingent claims. Partial differential equations for valuation of derivative securities. Completeness of the markets and hedging. Parity relations and delta hedging. Several underlying assets.

**Credit Hours:** 3

**Prerequisites:** knowledge of advance probability/stochastic processes or instructor's consent

**Recommended:** MATH 8460

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**MATH 8480: Advanced Probability**

(same as STAT 9810). Measure theoretic probability theory. Characteristic functions; conditional probability and expectation; sums of independent random variables including strong law of large numbers and central limit problem.

**Credit Hours:** 3

**Prerequisites:** MATH 4320 or MATH 8220; or instructor's consent

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**MATH 8502: Topics of Geometry**

Topics of Geometry.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MATH 8587: Topology Seminar**

Topology Seminar

**Credit Hours:** 3

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**MATH 8615: Algebraic Geometry I**

Affine and projective varieties and schemes; nullstellensatz; Zariski topology, morphisms and rational maps; divisors and linear systems; topics from curves, surfaces, Grassmann varieties; commutative algebra and homological algebra as needed.

**Credit Hours:** 3

**Prerequisites:** MATH 8410

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**MATH 8616: Algebraic Geometry II**

Continuation of MATH 8615.

**Credit Hours:** 3

**Prerequisites:** MATH 8615

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**MATH 8618: Introduction to Algebraic Topology**

Development of singular homology theory; reference to other homology and cohomology theories. Introduction to homological algebra.

**Credit Hours:** 3

**Prerequisites:** MATH 8250

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**MATH 8628: Functional Analysis I**

Linear topological spaces, Banach spaces, Hilbert spaces. Operator theory, including the Hahn-Banach, uniform boundedness and closed graph theorems.

**Credit Hours:** 3

**Prerequisites:** MATH 4900 and instructor's consent or MATH 8420

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**MATH 8630: Harmonic Analysis I**

An introduction to Fourier Analysis in one and higher Dimensions. Topics include Fourier Series, conjugate functions, Fourier transforms, distributions, interpolation, and maximal functions.

**Credit Hours:** 3

**Prerequisites:** MATH 8420

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**MATH 8631: Harmonic Analysis II**

Singular integrals, Littlewood-Paley theory, Hardy spaces, bounded mean oscillation, weighted norm inequalities, boundary value problems, and analysis on groups.

**Credit Hours:** 3

**Prerequisites:** MATH 8630

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**MATH 8650: Differentiable Manifolds and Riemannian Geometry**

Tensor product spaces and tensor fields on manifolds. Differentiation and integration of differential forms. Riemannian geometry and applications.

**Credit Hours:** 3

**Prerequisites:** MATH 4700 or MATH 4400

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**MATH 8655: General Topology I**

Introduction to axiomatic theory of general topology. Continuous functions and homeomorphisms. Convergence in abstract topological spaces. Compact and locally compact spaces. Connectedness. Metrizable spaces.

**Credit Hours:** 3

**Prerequisites:** MATH 4900, MATH 4400 or instructor's consent

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**MATH 8702: Topics in Applied Mathematics**

Selected topics in applied mathematics drawn from variety of areas: partial differential equations, tensor analysis, calculus of variations, asymptotic methods, integral equations, advanced theory of transforms and distributions, numerical analysis.

**Credit Hours:** 3

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**MATH 9090: Doctoral Dissertation Research in Mathematics**

Doctoral Dissertation Research in Mathematics. Graded on a S/U basis only.

**Credit Hour:** 1-9

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**MATH 9387: Harmonic Analysis Seminar**

Harmonic Analysis Seminar

**Credit Hours:** 3

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**MATH 9487: Mathematical Physics Seminar**

Mathematical Physics Seminar

**Credit Hours:** 3

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**MATH 9502: Topics in Topology**

Advanced topics in topology or topological algebra.

**Credit Hours:** 3

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**MATH 9787: Applied Mathematics Seminar**

Applied Mathematics Seminar

**Credit Hours:** 3

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**MATH 9887: Analysis Seminar**

Analysis Seminar

**Credit Hours:** 3

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## Mechanical And Aerospace Engineering (MAE)

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**MAE 1000: Introduction to Mechanical Engineering**

Introduction to the mechanical engineering profession, the Mechanical and Aerospace Engineering Department and curriculum, and the core disciplines of mechanical engineering. Introduction to engineering problem solving, ethics, and design.

**Credit Hour:** 1

**Prerequisites:** Restricted to engineering students only

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**MAE 1100: Introduction to Computer Aided Design**

Introduction to 2D and 3D mechanical modeling techniques using computer-aided design (CAD) software. Topics include 3D part and assembly modeling, 2D part and assembly drawings, standards of engineering drawings, and basic animation and simulation. Graded on A-F basis only. Prerequisites/

**Credit Hours:** 3

**Prerequisites:** Restricted to Engineering Students only, or by departmental consent

**Corequisites:** MATH 1500

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**MAE 1100H: Introduction to Computer Aided Design - Honors**

Introduction to 2D and 3D mechanical modeling techniques using computer-aided design (CAD) software. Topics include 3D part and assembly modeling, 2D part and assembly drawings, standards of

engineering drawings, and basic animation and simulation. Graded on A-F basis only. Prerequisites/

**Credit Hours:** 3

**Prerequisites:** Restricted to Engineering Students only, or by departmental consent. Honors eligibility required

**Corequisites:** MATH 1500

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#### **MAE 2100: Programming and Software Tools**

Introduction to the use of computers, programming, and software. Topics include MATLAB syntax and programming techniques, algorithm design, and programming with Excel spreadsheets.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in MATH 1700. Restricted to Mechanical Aerospace Engineering students only

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#### **MAE 2200: Engineering Materials**

The nature of the structure of engineering materials. The relationship of material structure to physical properties. Mechanical behavior of engineering materials. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in ENGINR 1200 and CHEM 1320. Restricted to Mechanical and Aerospace Engineering students only

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#### **MAE 2200W: Engineering Materials - Writing Intensive**

The nature of the structure of engineering materials. The relationship of material structure to physical properties. Mechanical behavior of engineering materials. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in ENGINR 1200 and CHEM 1320. Restricted to Mechanical and Aerospace Engineering students only

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#### **MAE 2300: Thermodynamics**

(same as ENGINR 2300). Fluid properties, work and heat, first law, second law, entropy, applications to vapor and ideal gas processes.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in PHYSICS 2750; restricted to MAE students only

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#### **MAE 2600: Dynamics**

Basic fundamentals of particle and rigid body dynamics; energy and momentum methods.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in ENGINR 1200. Restricted to Mechanical and Aerospace Engineering students only

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#### **MAE 3100: Computational Methods for Engineering Design**

Introduction to numerical methods for linear system analysis, curve-fitting, integration and differentiation, and optimization. The numerical methods are demonstrated through computer implementation and application to engineering design problems.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MATH 4100 grade of C- or better

**Prerequisites:** Grade of C- or better in MAE 2100; Restricted to Mechanical and Aerospace Engineering students only

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#### **MAE 3400: Fluid Mechanics**

A basic course in fluid mechanics. Topics include: fluid properties, hydrostatics, conservation laws, infinitesimal and finite control volume analysis, Navier-Stokes equations, dimensional analysis, internal and external flows.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MAE 2300 grade of C- or better

**Prerequisites:** Grade of C- or better in MAE 2600; Restricted to Mechanical and Aerospace Engineering students only

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#### **MAE 3500: Manufacturing Methods**

Fundamentals of manufacturing processes including forming, machining, casting, micro/nano manufacturing, rapid prototyping, and smart manufacturing systems. Emphasis on material selection and design considerations for manufacturing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MAE 1100 and MAE 2200.

Restricted to Mechanical and Aerospace Engineering students only

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#### **MAE 3600: Dynamic Systems and Control**

Modeling and analysis of dynamic systems and introduction to feedback control. Topics include dynamic modeling and response of mechanical, electrical, fluid, and thermal systems; and feedback control systems analysis.

**Credit Hours:** 3

**Prerequisites or Corequisites:** ENGINR 2100 grade of C- or better

**Prerequisites:** Grade of C- or better in MAE 2600 and MAE 3100 and MATH 4100. Restricted to Mechanical and Aerospace Engineering students only

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#### **MAE 3600H: Dynamic Systems and Control - Honors**

Modeling and analysis of dynamic systems and introduction to feedback control. Topics include dynamic modeling and response of mechanical, electrical, fluid, and thermal systems; and feedback control systems analysis.

**Credit Hours:** 3

**Prerequisites or Corequisites:** ENGINR 2100 grade of C- or better

**Prerequisites:** Grade of C- or better in MAE 2600 and MAE 3100 and MATH 4100. Restricted to Mechanical and Aerospace Engineering students only. Honors eligibility required

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#### **MAE 3800: Instrumentation and Measurements Laboratory**

Design and reporting of experimental investigations. Topics include instrument design equations, sources of error, and calibration. Survey of instruments to measure: voltage, resistance, current, time, frequency, displacement, velocity, acceleration, strain, force, and torque.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MAE 3600 grade of C- or better

**Prerequisites:** grade of C- or better in ENGINR 2100 and ENGINR 2200 and Physics 2760; Restricted to Mechanical and Aerospace Engineering students only

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#### **MAE 3900: Mechanism Design**

Analysis of kinematics and dynamics of machinery. Topics include design and selection of various mechanisms. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MAE 2600 and MAE 3100. Restricted to Mechanical and Aerospace Engineering students only

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**MAE 3910: Machine Element Design**

Application of stress and fatigue analyses to the design of machine elements such as fasteners, springs, shafts, and gears. Topics include selection of appropriate materials and machine elements. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in ENGINR 2200 and MAE 2200. Restricted to Mechanical and Aerospace Engineering students only

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**MAE 4001: Topics in Mechanical and Aerospace Engineering**

Current and new technical developments in mechanical and aerospace engineering. Enrollment limited to Mechanical and Aerospace Engineering students only. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** See instructor provided prerequisites

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**MAE 4085: Problems in Mechanical and Aerospace Engineering**

Special design, experimental and analytical problems in mechanical and aerospace engineering.

**Credit Hour:** 1-99

**Prerequisites:** Instructor's consent

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**MAE 4210: Aerospace Structures**

(cross-leveled with MAE 7210). Fundamentals of the mechanics and design issues of aerospace structures. Analysis of thin skins with stiffeners for external surfaces, bulkheads and frames for shape support, and fasteners for holding components together. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or better in ENGINR 2200

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**MAE 4220: Materials Selection**

(cross-leveled with MAE 7220). Study of the physical and mechanical metallurgy of alloy systems of interest in engineering applications.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 2200; Restricted to Mechanical and Aerospace Engineering students only

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**MAE 4230: Nanomaterials**

(cross-leveled with MAE 7230). The primary goal of this course is to introduce students into the new field of nanostructured materials. The emphasis of the course is to introduce the students into synthesis and characterization of nanomaterials, the behavior of such materials with nanoscale structures, and their technological applications.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 2200 or equivalent

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**MAE 4230W: Nanomaterials - Writing Intensive**

(cross-leveled with MAE 7230). The primary goal of this course is to introduce students into the new field of nanostructured materials. The

emphasis of the course is to introduce the students into synthesis and characterization of nanomaterials, the behavior of such materials with nanoscale structures, and their technological applications.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 2200 or equivalent

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**MAE 4231: Transport Phenomena in Materials Processing**

(same as BIOL\_EN 4231; cross-leveled with BIOL\_EN 7231, MAE 7231). Applications of fluid flow, heat transfer, and mass transfer in steady-state and unsteady-state materials processing with applications to metals, polymers, and ceramics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MAE 4300

**Prerequisites:** C- or better in Math 4100

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**MAE 4232: Ceramic Materials and Processing**

(cross-leveled with MAE 7232). Treatment of ceramics materials, structure, and ceramic processing with hands-on demonstration/labs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 2200

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**MAE 4250: Composite Materials**

(cross-leveled with MAE 7250). A survey of composite materials used in engineering emphasizing fiber-reinforced composites but including laminate and particulate composites.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 2200. Restricted to Mechanical and Aerospace Engineering students only

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**MAE 4270: Nondestructive Evaluation of Materials**

(cross-leveled with MAE 7270). The role of nondestructive evaluation (NDE) in engineering is explored. Ultrasonic NDE is studied in detail. Labs are used to support the study of ultrasonic NDE. Other NDE techniques are surveyed.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 2200, Mechanical and Aerospace Engineering students only

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**MAE 4280: Introduction to Finite Element Methods**

(cross-leveled with MAE 7280). The application of matrix operations, energy concepts and structural mechanics to the development of the finite element method. Application of finite element method to beams, frames and trusses.

**Credit Hours:** 3

**Prerequisites:** C- or better in ENGINR 2200, MAE 3100, MAE students only

---

**MAE 4290: Welding Engineering**

(cross-leveled with MAE 7290). Welding is the most common method of joining similar as well as dissimilar materials. This course thus introduces the basic science and engineering aspects of commonly used fusion and non-fusion welding processes. Stress analysis and failure of welded joints is also introduced to develop safe and durable welded structures.

**Credit Hours:** 3

**Prerequisites:** senior standing in Mechanical and Aerospace Engineering

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**MAE 4300: Heat Transfer**

Fundamentals of conduction, convection and radiation. Use of nondimensional parameters. Theory and design of simple heat exchangers.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MAE 2300 and MAE 3400. Restricted to Mechanical and Aerospace Engineering students only

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**MAE 4310: Intermediate Heat Transfer**

(cross-leveled with MAE 7310). Advanced topics in conduction, convection, and radiation. Heat exchanges and their applications will also be analyzed.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 4300 and Mechanical Engineering students only

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**MAE 4320: Design of Thermal Systems**

(cross-leveled with MAE 7320). Thermal systems are simulated by mathematical models (often on a digital computer), followed by optimization. Supporting topics include: economics, heat transfer, thermodynamics, and optimization.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 4300

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**MAE 4320W: Design of Thermal Systems - Writing Intensive**

Thermal systems are simulated by mathematical models (often on a digital computer), followed by optimization. Supporting topics include: economics, heat transfer, thermodynamics, and optimization.

**Credit Hours:** 3

**Recommended:** MAE 4300

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**MAE 4325: Nanoscale Energy Transport**

(cross-leveled with MAE 7325). This course examines non-equilibrium energy processes from the vantage point of fundamental energy carriers. Topics include foundational solid state physics, statistical energy carrier distributions, density of states, and dispersion relationships. Energy transport will be discussed in terms of kinetic theory, the Landauer Formalism, and the Boltzmann Transport Equation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Senior standing in MAE

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**MAE 4340: Heating and Air Conditioning**

(cross-leveled with MAE 7340). General principles of thermal science applied to the design of environmental control systems. Topics covered include heating and cooling load calculations, annual operating and life cycle cost estimating, duct and pipe sizing, and equipment selection.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 4300 and MAE students only

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**MAE 4350: Industrial Energy Analysis**

(cross-leveled with MAE 7355). Energy use in industrial systems: furnaces, boilers, compressors, motors, lighting, etc. Insulation in building envelopes. Renewable energy sources. Energy auditing and economic analysis. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MAE 4300

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**MAE 4371: Energy Systems and Resources**

(same as ECE 4020, NU\_ENG 4315; cross-leveled with ECE 7020, NU\_ENG 7315, MAE 7371). Analysis of present energy usage in Missouri, USA and the world, evaluation of emerging energy technologies and trends for the future. Economics and environmental impact of the developed technologies. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or better in ENGINR 2300

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**MAE 4380: Intermediate Thermodynamics**

(cross-leveled with MAE 7380). Topics from classical and statistical thermodynamics.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 2300

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**MAE 4390: Aerospace Propulsion**

(cross-leveled with MAE 7390). Analysis of aircraft engines and spacecraft propulsion systems.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3400 and Junior standing in Mechanical and Aerospace Engineering

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**MAE 4420: Intermediate Fluid Mechanics**

(cross-leveled with MAE 7420). Topics in potential and viscous flow theory, and computational fluid dynamics.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3400

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**MAE 4430: Introduction to Computational Fluid Dynamics and Heat Transfer**

(cross-leveled with MAE 7430). Introduction to the principles and development of the finite difference approximations to the governing differential equations of viscous and inviscid fluid flow, as well as heat transfer. Introduction to discretization methods and the calculation of flow fields, convection, diffusion and conduction.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3400

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**MAE 4440: Aerodynamics**

(cross-leveled with MAE 7440). Presents fundamentals of wing and airfoil theory for incompressible flow, including fluid kinematics and dynamics, potential flow, flow about a body, thin-airfoil theory, and finite wing.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3400

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**MAE 4450: Gas Dynamics**

(cross-leveled with MAE 7450). One dimensional compressible flow with and without friction and heat transfer. Isentropic flow and shock phenomenon in nozzles and diffusers.

**Credit Hours:** 3

**Prerequisites:** C- or better MAE 3400

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**MAE 4460: Microfluidics**

(cross-leveled with MAE 7460). This course focuses on liquid transport in micro/nano fluidic devices and related electrohydrodynamics. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** MAE 3400

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**MAE 4600: Advanced Mechanics of Materials**

(same as CV\_ENG 4600; cross-leveled with MAE 7600 and CV\_ENG 7600). Analysis of more complicated problems in stresses, strains.

**Credit Hours:** 3

**Prerequisites:** C- or better in ENGINR 2200, MAE 2200 and Junior standing in MAE

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**MAE 4620: Aircraft Flight Performance**

(cross-leveled with MAE 7620). Analysis of aircraft flight and aircraft performance metrics. Topics include airplane aerodynamics and propulsion, steady flight, range, endurance, take-off and landing, and aircraft maneuvers. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 2600, MAE 3100, MAE 3400, and Junior standing in Mechanical and Aerospace Engineering

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**MAE 4630: Space Flight Mechanics**

(cross-leveled with MAE 7630). Analysis of spacecraft orbits and trajectories. Topics include orbital mechanics, orbital maneuvers, interplanetary missions, and entry flight mechanics.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 2600, MAE 3100, and Junior standing in Mechanical and Aerospace Engineering

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**MAE 4635: Spacecraft Attitude Dynamics and Control**

(cross-leveled with MAE 7635). Spacecraft attitude representations; Spacecraft rotational kinematics and dynamics; Attitude determination and sensors; Environmental torques; Attitude stabilization strategies with gravity gradient, single and dual spins; Attitude control with momentum exchange devices. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MAE 3600

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**MAE 4660: Vibration Analysis**

(same as CV\_ENG 4660; cross-leveled with MAE 7660, CV\_ENG 7660). Vibration theory and its application to mechanical systems. Topics include free and forced vibration analysis of single- and multi-degree of freedom systems.

**Credit Hours:** 3

**Prerequisites:** C- or better in MATH 4100 and MAE 2600

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**MAE 4680: Introduction to MEMS**

(cross-leveled with MAE 7680). The course will start with a survey of the widespread applications of MEMS sensors and actuators. Micro fabrication methods used in conventional semiconductor industry will be introduced. MEMS-specific process will be emphasized. Fundamental principles in electric circuits and mechanics will be reviewed. Special attention is on mechanical issues encountered in MEMS design and fabrication.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3600 and Junior standing in Mechanical and Aerospace Engineering

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**MAE 4690: Aircraft Flight Dynamics**

(cross-leveled with MAE 7690). Introduction to atmospheric flight mechanics, Static stability, Dynamic stability, Aircraft coordinate systems, Aircraft equations of motion, Small perturbation Analysis and Linearization, Aerodynamic force and moment representations, Longitudinal motion, Lateral/directional motion, Introduction to flight controls. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 2600, MAE 3100, and MAE 3400 and Junior Standing in Mechanical and Aerospace Engineering

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**MAE 4710: Hydraulic Control System**

(cross-leveled with MAE 7710). Analysis of hydraulic control components and systems. Topics include pumps, valves, actuators, and industrial and mobile control systems. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3400, MAE 3600, and Junior standing in Mechanical and Aerospace Engineering

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**MAE 4720: Modern Control**

(cross-leveled with MAE 7720). Analysis and design of control systems using state-space methods. Topics include controllability and observability, feedback control using pole-placement, state observers, optimal linear-quadratic feedback control, and optimal estimation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3600 and Junior standing in Mechanical and Aerospace Engineering

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**MAE 4730: Mechatronics**

(cross-leveled with MAE 7730). Design of systems which require the integration of mechanical and electronic components. Topics include microcontrollers, sensors, actuators, mechanical systems, real time control system programming, and modeling of electronic and mechanical systems.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3600 and Junior standing in Mechanical and Aerospace Engineering

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**MAE 4740: Digital Control**

(cross-leveled with MAE 7740). Design and analysis of control systems using discrete-time methods. Topics include z-transforms, sampling and reconstruction, stability analysis, and digital controller design.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3600 and Junior standing in Mechanical and Aerospace Engineering

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**MAE 4750: Classical Control**

(same as BIOL\_EN 4310, ECE 4310; cross-leveled with MAE 7750, BIOL\_EN 7310, ECE 7310 ). Study of feedback control design based on classical continuous-time methods. Topics include performance specifications, stability analysis, root locus compensator design, and frequency domain analysis and compensator design.

**Credit Hours:** 3

**Prerequisites:** C- or better in MATH 4100

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**MAE 4825: Materials and Manufacturing Laboratory**

Experiments in materials characterization, material properties, and manufacturing processes. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** C- or better in MAE 3500 and MAE 3800, Restricted to Mechanical and Aerospace Engineering students only

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**MAE 4834: Thermal Fluids Laboratory**

Applied thermal and fluid systems, such as HVAC and psychometrics, will be introduced. Experiments conducted on thermal/fluid hardware components will be used to reinforce concepts. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MAE 4300 and MAE 3800. Restricted to Mechanical and Aerospace Engineering students only

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**MAE 4834W: Thermal Fluids Laboratory - Writing Intensive**

Applied thermal and fluid systems, such as HVAC and psychometrics, will be introduced. Experiments conducted on thermal/fluid hardware components will be used to reinforce concepts. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MAE 3800 and MAE 4300. Restricted to Mechanical and Aerospace Engineering students only

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**MAE 4930: Applied Mechanical Optimization**

(cross-leveled with MAE 7930). Introduction to mathematical programming techniques and applications to the design of mechanical systems and components.

**Credit Hours:** 3

**Prerequisites:** C- or better in MAE 3100, Mechanical and Aerospace Engineering students only

---

**MAE 4940: Aircraft Design**

(cross-leveled with MAE 7940). Conceptual design of aircraft, from initial sizing and design layout to design analysis, optimization and trade studies. Fundamental theories for aircraft design including sizing, aerodynamic forces, airfoil selection, wing loading, configuration layout

payloads, propulsion systems, landing gear, aerospace structures, and cost analysis. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or better in ENGINR 2200, MAE 3400, MAE 3600, and Junior standing in MAE

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**MAE 4980: Senior Capstone Design**

Senior design experience. Topics include reliability, safety, manufacturability, economic, and environmental constraints; design case studies; and industrial design projects. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** C- or better in MAE 4825, MAE 4834, and STAT 4710 or IMSE 2110

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**MAE 4980W: Senior Capstone Design - Writing Intensive**

Senior design experience. Topics include reliability, safety, manufacturability, economic, and environmental constraints; design case studies; and industrial design projects. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** C- or better in MAE 4825, MAE 4834, and STAT 4710 or IMSE 2110

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**MAE 4990: Undergraduate Research in Mechanical and Aerospace Engineering**

Independent investigation or project in Mechanical Engineering. Enrollment limited to senior Mechanical and Aerospace Engineering students only.

**Credit Hour:** 0-6

**Prerequisites:** instructor's consent

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**MAE 4995: Undergraduate Honors Research Mechanical & Aerospace Engineering**

Independent investigation to be presented as an undergraduate honors thesis. Enrollment limited to Honors Mechanical and Aerospace Engineering students only. Prerequisites: Consent required

**Credit Hour:** 1-99

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**MAE 4995W: Undergraduate Honors Research Mechanical & Aerospace Engineering - Writing Intensive**

Independent investigation to be presented as an undergraduate honors thesis. Enrollment limited to Honors Mechanical and Aerospace Engineering students only. Prerequisites: Consent required

**Credit Hour:** 1-99

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**MAE 7001: Topics in Mechanical and Aerospace Engineering**

Current and new technical developments in mechanical and aerospace engineering. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** See instructor provided prerequisites

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**MAE 7210: Aerospace Structures**

Fundamentals of the mechanics and design issues of aerospace structures. Analysis of thin skins with stiffeners for external surfaces,

bulkheads and frames for shape support, and fasteners for holding components together. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** grade of C or better in ENGINR 2200

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**MAE 7220: Materials Selection**

(cross-leveled with MAE 4220). Study of the physical and mechanical metallurgy of alloy systems of interest in engineering applications.

**Credit Hours:** 3

**Prerequisites:** MAE 2200

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**MAE 7230: Nanomaterials**

(cross-leveled with MAE 4230). The primary goal of this course is to introduce students into the new field of nanostructured materials. The emphasis of the course is to introduce the students into synthesis and characterization of nanomaterials, the behavior of such materials with nanoscale structures, and their technological applications.

**Credit Hours:** 3

**Prerequisites:** MAE 2200 or equivalent

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**MAE 7231: Transport Phenomena in Materials Processing**

(same as BIOL\_EN 7231; cross-leveled with MAE 4231, BIOL\_EN 4231) Applications of fluid flow, heat transfer, and mass transfer in steady-state and unsteady-state materials processing with applications to metals, polymers, and ceramics. Graded A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MAE 2200, MAE 3400, MAE 4300 (or equivalent courses) and MATH 4100

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**MAE 7232: Ceramic Materials and Processing**

(cross-leveled with MAE 4232). Treatment of ceramics materials, structure, and ceramic processing with hands-on demonstration/labs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MAE 2200 or equivalent course

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**MAE 7250: Composite Materials**

(cross-leveled with MAE 4250). A survey of composite materials used in engineering emphasizing fiber-reinforced composites but including laminate and particulate composites.

**Credit Hours:** 3

**Prerequisites:** MAE 2200

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**MAE 7270: Nondestructive Evaluation of Materials**

(cross-leveled with MAE 4270). The role of nondestructive evaluation (NDE) in engineering is explored. Ultrasonic NDE is studied in detail. Labs are used to support the study of ultrasonic NDE. Other NDE techniques are surveyed.

**Credit Hours:** 3

**Prerequisites:** MAE 2200

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**MAE 7280: Introduction to Finite Element Methods**

(cross-leveled with MAE 4280). The application of matrix operations, energy concepts and structural mechanics to the development of the

finite element method. Application of finite element method to beams, frames and trusses. Prerequisites: ENGINR 2200, MAE 3100, MAE students only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Mechanical and Aerospace Engineering students only

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**MAE 7290: Welding Engineering**

(cross-leveled with MAE 4290). Welding is the most common method of joining similar as well as dissimilar materials. This course thus introduces the basic science and engineering aspects of commonly used fusion and non-fusion welding processes. Stress analysis and failure of welded joints is also introduced to develop safe and durable welded structures.

**Credit Hours:** 3

**Prerequisites:** senior standing or graduate level

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**MAE 7310: Intermediate Heat Transfer**

(cross-leveled with MAE 4310). Advanced topics in conduction, convection, and radiation. Heat exchanges and their applications will also be analyzed.

**Credit Hours:** 3

**Prerequisites:** MAE 4300

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**MAE 7320: Design of Thermal Systems**

(cross-leveled with MAE 4320). Thermal systems are simulated by mathematical models (often on a digital computer), followed by optimization. Supporting topics include: economics, heat transfer, thermodynamics, and optimization.

**Credit Hours:** 3

**Prerequisites:** MAE 4300

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**MAE 7325: Nanoscale Energy Transport**

(cross-leveled with MAE 4325). This course examines non-equilibrium energy processes from the vantage point of fundamental energy carriers. Topics include foundational solid state physics, statistical energy carrier distributions, density of states, and dispersion relationships. Energy transport will be discussed in terms of kinetic theory, the Landauer Formalism, and the Boltzmann Transport Equation. Graded on A-F basis only.

**Credit Hours:** 3

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**MAE 7340: Heating and Air Conditioning**

(cross-leveled with MAE 4340). General principles of thermal science applied to the design of environmental control systems. Topics covered include heating and cooling load calculations, annual operating and life cycle cost estimating, duct and pipe sizing, and equipment selection.

**Credit Hours:** 3

**Prerequisites:** MAE 4300

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**MAE 7355: Industrial Energy Analysis**

(cross-leveled with MAE 4350). Energy use in industrial systems: furnaces, boilers, compressors, motors, lighting, etc. Insulation in building envelopes. Renewable energy sources. Energy auditing and economic analysis. Graded on A-F basis only.

**Credit Hours:** 3



**Corequisites:** MAE 4300 or instructor's consent

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**MAE 7371: Energy Systems and Resources**

(same as ECE 7020, NU\_ENG 7315; cross-leveled with ECE 4020, NU\_ENG 4315, MAE 4371). Analysis of present energy usage in Missouri, USA and the world, evaluation of emerging energy technologies and trends for the future. Economics and environmental impact of the developed technologies.

**Credit Hours:** 3

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**MAE 7380: Intermediate Thermodynamics**

(cross-leveled with MAE 4380). Topics from classical and statistical thermodynamics.

**Credit Hours:** 3

**Prerequisites:** ENGINR 2300

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**MAE 7390: Aerospace Propulsion**

(cross-leveled with MAE 4390). Analysis of aircraft engines and spacecraft propulsion systems.

**Credit Hours:** 3

**Prerequisites:** MAE 3400

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**MAE 7420: Intermediate Fluid Mechanics**

(cross-leveled with MAE 4420). Topics in potential and viscous flow theory, and computational fluid dynamics.

**Credit Hours:** 3

**Prerequisites:** MAE 3400

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**MAE 7430: Introduction to Computational Fluid Dynamics and Heat Transfer**

(cross-leveled with MAE 4430). Introduction to the principles and development of the finite difference approximations to the governing differential equations of viscous and inviscid fluid flow, as well as heat transfer. Introduction to discretization methods and the calculation of flow fields, convection, diffusion and conduction.

**Credit Hours:** 3

**Prerequisites:** MAE 3400, MAE 4300 and MAE 4420

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**MAE 7440: Aerodynamics**

(cross-leveled with MAE 4440). Presents fundamentals of wing and airfoil theory for incompressible flow, including fluid kinematics and dynamics, potential flow, flow about a body, thin-airfoil theory, and finite wing.

**Credit Hours:** 3

**Prerequisites:** MAE 3100 and MAE 3400

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**MAE 7450: Gas Dynamics**

(cross-leveled with MAE 4450). One-dimensional compressible flow with and without friction and heat transfer. Isentropic flow and shock phenomenon in nozzles and diffusers.

**Credit Hours:** 3

**Prerequisites:** MAE 3400

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**MAE 7460: Microfluidics**

(cross-leveled with MAE 4460). This course focuses on liquid transport in micro/nano fluidic devices and related electrohydrodynamics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MAE 3400

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**MAE 7600: Advanced Mechanics of Materials**

(same as CV\_ENG 7600; cross-leveled with MAE 4600 and CV\_ENG 4600). Analysis of more complicated problems in stresses, strains.

**Credit Hours:** 3

**Prerequisites:** C- or better in ENGINR 2200, MAE 2200 and Junior standing in MAE

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**MAE 7620: Aircraft Flight Performance**

(cross-leveled with MAE 4620). Analysis of aircraft flight dynamics and aircraft performance. Topics include airplane aerodynamics and propulsion, steady flight, flight performance, aircraft maneuvers, aircraft stability, and an introduction to flight controls. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MAE 3600

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**MAE 7630: Space Flight Mechanics**

(cross-leveled with MAE 4630). Analysis of spacecraft motion. Topics include orbital dynamics, spacecraft attitude dynamics, satellite trajectory design, and spacecraft control system design.

**Credit Hours:** 3

**Prerequisites:** MAE 3600

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**MAE 7635: Spacecraft Attitude Dynamics and Control**

(cross-leveled with MAE 4635). Spacecraft attitude representations; Spacecraft rotational kinematics and dynamics; Attitude determination and sensors; Environmental torques; Attitude stabilization strategies with gravity gradient, single and dual spins; Attitude control with momentum exchange devices. Graded on A-F basis only.

**Credit Hours:** 3

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**MAE 7660: Vibration Analysis**

(same as CV\_ENG 7660; cross-leveled with CV\_ENG 4660, MAE 4660). Vibration theory and its application to Mechanical systems. Topics include free and forced vibration analysis of single and multi-degree of freedom systems.

**Credit Hours:** 3

**Prerequisites:** C- or better in MATH 4100 and MAE 2600

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**MAE 7680: Introduction to MEMS**

(cross-leveled with MAE 4680). The course will start with a survey of the widespread applications of MEMS sensors and actuators. Micro fabrication methods used in conventional semiconductor industry will be introduced. MEMS-specific processes will be emphasized. Fundamental principles in electric circuits and mechanics will be reviewed. Special attention is on mechanical issues encountered in MEMS design and fabrication. Graded on A-F basis only.

**Credit Hours:** 3

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**MAE 7690: Aircraft Flight Dynamics**

(cross-leveled with MAE 4690). Introduction to atmospheric flight mechanics, Static stability, Dynamic stability, Aircraft coordinate systems, Aircraft equations of motion, Small perturbation Analysis and Linearization, Aerodynamic force and moment representations, Longitudinal motion, Lateral/directional motion, Introduction to flight controls. Graded on A-F basis only.

**Credit Hours:** 3

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**MAE 7710: Hydraulic Control Systems**

(cross-leveled with MAE 4710). Analysis of hydraulic control components and systems. Topics include pumps, valves, actuators, and industrial and mobile control systems.

**Credit Hour:** 1-3

**Prerequisites:** MAE 3400 and MAE 3600

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**MAE 7720: Modern Control**

(cross-leveled with MAE 4720). Analysis and design of control systems using state-space methods. Topics include controllability and observability, feedback control using pole-placement, state observers, optimal linear-quadratic feedback control, and optimal estimation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MAE 3600

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**MAE 7730: Mechatronics**

(cross-leveled with MAE 4730). Design of systems which require the integration of mechanical and electronic components. Topics include microcontrollers, sensors, actuators, mechanical systems, real time control system programming, and modeling of electronic and mechanical systems.

**Credit Hours:** 3

**Prerequisites:** MAE 3600

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**MAE 7750: Classical Control**

(same as ECE 7310, BIOL\_EN 7310; cross-leveled with MAE 4750, ECE 4310, BIOL\_EN 4310). Study of feedback control design based on classical continuous-time methods. Topics include performance specifications, stability analysis, root locus compensator design, and frequency domain analysis and compensator design.

**Credit Hours:** 3

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**MAE 7910: Mechanism Design**

(cross-leveled with MAE 4910). Analysis of kinematics and dynamics of machinery. Topics include design and selection of various mechanisms. Graded on A-F basis only.

**Credit Hours:** 3

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**MAE 7930: Applied Mechanical Optimization**

(cross-leveled with MAE 4930). Introduction to mathematical programming techniques and applications to the design of mechanical systems and components.

**Credit Hours:** 3

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**Prerequisites:** MAE 3100

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**MAE 7940: Aircraft Design**

(cross-leveled with MAE 4940). Conceptual design of aircraft, from initial sizing and design layout to design analysis, optimization, and trade studies. Fundamental theories for aircraft design, including sizing, aerodynamic forces, airfoil selection, wing loading, configuration layout, payloads, propulsion systems, landing gear, aerospace structures, and cost analysis. Graded A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MAE 3400, MAE 3600, MAE 3600

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**MAE 8001: Advanced Topics in Mechanical and Aerospace Engineering**

Advanced Topics in Mechanical and Aerospace Engineering.

**Credit Hours:** 3

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**MAE 8085: Problems in Mechanical and Aerospace Engineering**

Supervised investigation in mechanical and aerospace engineering to be presented in the form of a report.

**Credit Hour:** 1-99

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**MAE 8087: Graduate Seminar in Mechanical and Aerospace Engineering**

Reviews recent investigations, projects of major importance in mechanical and aerospace engineering. Graded on S/U basis only.

**Credit Hour:** 1

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**MAE 8240: Mechanical Behavior of Materials**

This course will cover the mechanical behavior of metallic, ceramic, polymeric, and composite materials and their relationships to the underlying microstructures. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MAE 2200 and graduate standing in engineering, or instructor's consent

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**MAE 8250: Plasma Technology for Materials Engineering**

The course is intended to give graduate students a fundamental knowledge of plasma-assisted materials processing and an understanding of state-of-the-art plasma processing technology and applications. The content is designed for graduate students from materials science, mechanical engineering, chemical engineering, electrical engineering, etc. Graded on A-F basis only.

**Credit Hours:** 3

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**MAE 8280: Finite Element Methods**

(same as CV\_ENG 8208). The concepts and fundamentals of the finite element method with applications to problems in solid and fluid mechanics.

**Credit Hours:** 3

**Prerequisites:** MAE 4280

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**MAE 8300: Microscale Heat Transfer**

Review of existing models. Concept of thermal lagging and the second-law admissibility. Applications to low temperatures, thermal processing of thin-film devices; amorphous materials; advanced composites.

**Credit Hours:** 3

**Prerequisites:** MAE 4300

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**MAE 8311: Heat Transfer-Convection**

Principles of heat transfer by convection, review of boundary layer theory, laminar and turbulent heat transfer, temperature-dependent fluid properties, high velocity heat transfer and an introduction to mass transfer.

**Credit Hours:** 3

**Prerequisites:** MAE 4300 and MAE 8410

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**MAE 8313: Heat Transfer-Conduction**

Distribution of temperature and temperature history within solids by the four essential methods of evaluation of these temperature fields.

**Credit Hours:** 3

**Prerequisites:** MAE 4300

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**MAE 8315: Multiphase Heat Transfer**

Fundamentals and application of heat and mass transfer and fluid flow with phase change; melting and solidification, sublimation and vapor deposition, condensation, evaporation, nucleate and film boiling, two-phase flow. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MAE 4300

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**MAE 8320: Continuum Mechanics**

(same as CV\_ENG 8320). Introductory course in the mechanics of continuous media. Basic concepts of stress, strain, constitutive relationships; conservation laws are treated using Cartesian tensor notation. Examples from both solid and fluid mechanics investigated.

**Credit Hours:** 3

**Prerequisites:** MAE 3400, MATH 4100, ENGINR 2200

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**MAE 8330: Theory of Elasticity**

(same as CV\_ENG 8330). Stress and strain at a point. General equations of elasticity. Plane stress, plain strain problems; torsion of prismatic bars. Energy methods.

**Credit Hours:** 3

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**MAE 8332: Thermal Stresses**

General equations of thermoelasticity, Constitutive equations of thermoelastoplasticity; Analytical and numerical analyses of thermal stresses in bars, beams, 3D media, 2D plane stress and strain media, cylinders, and spheres. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MAE 4300, or instructor's consent

**Recommended:** MAE 8330

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**MAE 8350: Theory of Elastic Stability**

(same as CV\_ENG 8350). Buckling of Columns, frames, arches and other structural systems. Kinematic approach to stability. Large deflections. Energy approach to buckling. Plate and shell buckling. Inelastic buckling of columns. Creep buckling.

**Credit Hours:** 3

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**MAE 8360: Theory of Plasticity**

(same as CV\_ENG 8360). Plastic yield conditions and stress-strain relations. Behavior of elastic-perfectly plastic members. Plain strain in plastic members.

**Credit Hours:** 3

**Prerequisites:** MAE 8330 or instructor's consent

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**MAE 8380: Advanced Thermodynamics**

Advanced topics from classical thermodynamics.

**Credit Hours:** 3

**Prerequisites:** MAE 4380

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**MAE 8420: Computational Heat Transfer and Fluid Dynamics**

Introduction to numeric analysis techniques applied to heat transfer and fluid dynamics problems. Coverage will include, the development of discretization equations for the control volume approach and solution strategies of those equations. Results from numeric simulations will be compared with close form analytic solutions and commercial numeric code output.

**Credit Hours:** 3

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**MAE 8430: Introduction to Two Phase Flow**

An introduction to the analysis of the mechanics and transport processes in two phase flows.

**Credit Hours:** 3

**Prerequisites:** MAE 3400

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**MAE 8450: Introduction to Turbulence**

An introduction to the physical phenomena of turbulence, supported by mathematical and statistical descriptions. Especially appropriate for engineers involved in research of momentum, heat, and mass transport.

**Credit Hours:** 3

**Prerequisites:** MAE 4420

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**MAE 8510: Manufacturing Design**

Design for manufacture methods, their capabilities and applications. Design of intelligent manufacturing systems using sensory systems and artificial intelligence techniques.

**Credit Hours:** 3

**Prerequisites:** MAE 3100 and MAE 4500

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**MAE 8620: Advanced Dynamics**

(same as CV\_ENG 8620). Fundamental principles of advanced rigid body dynamics with applications. Special mathematical techniques including Lagrangian and Hamiltonian methods.

**Credit Hours:** 3

**Prerequisites:** MAE 2600

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**MAE 8740: Robust Control**

Definition of the robust performance problem with the goal of achieving specified signal levels in the face of plant uncertainty; uncertainty and robustness, stabilization, design constraints, loopshaping, model matching and design for robust performance.

**Credit Hours:** 3

**Prerequisites:** MAE 4750, and MAE 8780 or instructor's consent

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**MAE 8750: Nonlinear Control**

Nonlinear systems analysis techniques including phase plane analysis, Lyapunov theory. Control design including feedback linearization, sliding control, and adaptive control.

**Credit Hours:** 3

**Prerequisites:** MAE 4750 and MAE 8780

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**MAE 8760: Optimal Control**

The course will study optimization under dynamic constraints and optimal control theory. Topics include calculus of variation, Pontryagin's minimum principle, dynamic programming, and linear quadratic optimal control. Graded on A-F basis only.

**Credit Hours:** 3

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**MAE 8910: Modular Machine Tool Design**

This course introduces necessary concepts and tools for modular machine tool design. Students will learn how to apply mechanical design knowledge and commercially available subassemblies and parts to design modular machine tools for mass production application.

**Credit Hours:** 3

**Prerequisites:** MAE 4980 or instructor's consent

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**MAE 8930: Advanced Mechanical System Modeling and Optimization**

Calculus of variations is introduced as a basic tool. Hamilton's Principle is used for system modeling. Numerical solution methods are used for dynamic simulation. Genetic algorithm and other algorithms are applied for system optimization. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MAE 3600 and MAE 4980. Seniors will require consent

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**MAE 8990: Research-Masters Thesis in Mechanical and Aerospace Engineering**

Independent investigation in field of mechanical and aerospace engineering to be presented as a thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**MAE 9990: Research-Doctoral Dissertation Mechanical & Aerospace Engineering**

Independent investigation in field of mechanical and aerospace engineering to be presented as a thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

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## Medical Pharmacology and Physiology (MPP)

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**MPP 1111: How to Inquire and Investigate**

In this course we will be interviewing faculty members from different departments to learn about their area of research and they will also be interviewing me about my area of research. How does one learn about a new subject with all its technical language (jargon)? What are common themes and approaches in different disciplines? What are conceptual and viewpoint differences in different disciplines?

**Credit Hour:** 1

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**MPP 2010: The Science of Sex, Drugs and Rock'n'Roll**

This course will examine the data and theories for how drugs affect the body, for the physiology of reproduction and, for how sound affects the body. These topics will be used to motivate an understanding, and provide training in applying, the key scientific principles. Graded on A-F basis only.

**Credit Hour:** 1

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**MPP 2015: Toxins, The Good, The Bad, and the Beautiful**

In this course, the students will explore toxins. We will discuss how toxins are formed, the 'value' of the toxin to the organism that makes it, how the toxin is delivered, the effect of the toxin on the target animal and on humans. In addition, we will discuss how toxins have led to new therapies and drugs. We will also analyze some famous cases of apparent toxin poisoning. In all cases, the students will be urged to critically evaluate the data and the theories and encouraged to think of novel uses of toxins and of experiments that would provide important new information about the toxins and their effects.

**Credit Hours:** 3

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**MPP 2015H: Toxins, The Good, The Bad, and the Beautiful - Honors**

In this course, the students will explore toxins. We will discuss how toxins are formed, the 'value' of the toxin to the organism that makes it, how the toxin is delivered, the effect of the toxin on the target animal and on humans. In addition, we will discuss how toxins have led to new therapies and drugs. We will also analyze some famous cases of apparent toxin poisoning. In all cases, the students will be urged to critically evaluate the data and the theories and encouraged to think of novel uses of toxins and of experiments that would provide important new information about the toxins and their effects.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**MPP 2015W: Toxins, The Good, The Bad, and the Beautiful - Writing Intensive**

In this course, the students will explore toxins. We will discuss how toxins are formed, the 'value' of the toxin to the organism that makes it, how the toxin is delivered, the effect of the toxin on the target animal and on humans. In addition, we will discuss how toxins have led to new therapies and drugs. We will also analyze some famous cases of apparent toxin poisoning. In all cases, the students will be urged to critically evaluate the data and the theories and encouraged to think of novel uses of toxins and of experiments that would provide important new information about the toxins and their effects.

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**Credit Hours:** 3

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**MPP 2020: Bodily Fluids and Functions**

In this course, the students will study body fluids. We will learn about how the fluids are formed and the functions of the fluids. We will also critically evaluate some theories about the formation and function of the fluids.

**Credit Hours:** 3

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**MPP 2020W: Bodily Fluids and Functions - Writing Intensive**

In this course, the students will study body fluids. We will learn about how the fluids are formed and the functions of the fluids. We will also critically evaluate some theories about the formation and function of the fluids.

**Credit Hours:** 3

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**MPP 2222: Let's Do Experiments for Research**

This course is designed to provide students a hands on opportunity to do experiments in the first part of the semester, students will be working primarily on two projects that they chose from a list developed by the previous class; the second half of the semester will be not only working on those projects, but developing the choice of projects for students to start for the next time the course is offered. The projects can be basic science, translational science, or developing education activities/experiments or a combination of these. Some of the choices will involve safe materials and will require no additional training. Other choices may involve human subjects, animal tissues, or hazardous chemicals in which case, the students will need to obtain the appropriate training and that can be done to fulfill part of this course's requirements.

**Credit Hours:** 3

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**MPP 3202: Elements of Physiology**

Beginning course for sophomore and above designed to cover the basic functional aspects of major organ systems of the body.

**Credit Hours:** 5

**Prerequisites:** sophomore standing

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**MPP 3202H: Elements of Physiology - Honors**

Beginning course for sophomore and above designed to cover the basic functional aspects of major organ systems of the body.

**Credit Hours:** 5

**Prerequisites:** sophomore standing; honors eligibility required

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**MPP 3290: Undergraduate Research**

Laboratory experience and opportunity to explore research in medical pharmacology and physiology.

**Credit Hour:** 1-3

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**MPP 3333: Fundamentals of Human Physiology**

This course presents the basic concepts of physiology using a problem based approach. The major organs systems are discussed with the relevance to everyday physiology as well as clinical and animal applications discussed.

**Credit Hours:** 3

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**MPP 3333H: Fundamentals of Human Physiology - Honors**

This course presents the basic concepts of physiology using a problem based approach. The major organs systems are discussed with the relevance to everyday physiology as well as clinical and animal applications discussed.

**Credit Hours:** 3

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**MPP 3337: Human Physiology Laboratory**

This lab course will involve experiments to illustrate basic physiology concepts.

**Credit Hours:** 2

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**MPP 3500: Introduction to Human Physiology**

This is an online course that will introduce students to basic concepts in human physiology, with a focus on the integrated function of organ system in homeostasis/human health. The final section of the course will expose students to important issues in exercise physiology, specifically the impact of exercise on cardiovascular and metabolic functions.

**Credit Hours:** 3

**Recommended:** Cell Biology, Biochemistry

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**MPP 4001: Undergraduate Topics in Medical Pharmacology and Physiology**

Selected topics not in regularly offered courses.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**MPP 4085: Undergraduate Problems in Medical Pharmacology and Physiology**

This course is designed to provide well-qualified undergraduate students the opportunity to engage in advanced study in topics in pharmacology or physiology with individual faculty members. Topics will be drawn from recent primary literature. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**MPP 4085W: Undergraduate Problems in Medical Pharmacology and Physiology - Writing Intensive**

This course is designed to provide well-qualified undergraduate students the opportunity to engage in advanced study in topics in pharmacology or physiology with individual faculty members. Topics will be drawn from recent primary literature. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**MPP 4202: Medical Physiology**

(cross-leveled with MPP 7422). Medical Physiology is intended for health scientists. Fat, bone, digestion, nutrition, appetite and brain health will be emphasized for health reform and updates for nervous, muscle, heart, vasculature, liver, renal, lung and endocrine systems with analysis for preventative medicine. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Nutrition or Biochemistry

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**MPP 4204: Medical Pharmacology**

(cross-leveled with MPP 7424). Medical pharmacology teaches the science of drug actions in medicine today, and principles of pharmacokinetics/dynamics. Future health professionals will learn prescription judgment and quality/cost improvements for patient safety. An online laboratory will teach drug database information technology.

**Credit Hours:** 4

**Prerequisites or Corequisites:** BIO\_SC 3700 or MPP 3202 or MPP 4202 or equivalent physiology course from other colleges

**Recommended:** nutrition or biochemistry courses are recommended but not required

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**MPP 4204H: Medical Pharmacology-Honors**

Medical pharmacology teaches the science of drug actions in medicine today, and principles of pharmacokinetics/dynamics. Future health professionals will learn prescription judgment and quality/cost improvements for patient safety. An online laboratory will teach drug database information technology.

**Credit Hours:** 4

**Prerequisites or Corequisites:** BIO\_SC 3700 or MPP 3202 or MPP 4202 or equivalent physiology course from other colleges; Honors eligibility required

**Recommended:** nutrition or biochemistry courses are recommended but not required

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**MPP 4417: Diagrams, Figures and Graphs**

(cross-leveled with MPP 7717). In this course, we will examine what features optimize the drawing of diagrams, figures and graphs for communication to different audiences. Graded on A-F basis only.

**Credit Hour:** 1

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**MPP 7302: Drug Discovery and Action**

This course is designed to provide the student with an in depth knowledge of specific aspects of cardiovascular physiology with major emphasis on cardiac structure and function. Topics are covered in 1, 3-4 hour session per week and are based on reading assignments from the literature. The following topics have been addressed in previous offerings but the specific topics may vary from year to year: Heart muscle structure related to function; Contractile proteins structures and function; Regulation of protein synthesis; Regulation of myocardial hypertrophy; Regulation of myocardial metabolism; Myocardial mechanics systolic and diastolic function; Mechanisms of length dependent contraction; Control of electrical-mechanical coupling processes; Mechanisms for adrenergic regulation of myocardial function.

**Credit Hour:** 1

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**MPP 7422: Medical Physiology**

(cross-leveled with MPP 4202). Medical Physiology is intended for health scientist. Fat, bone, digestion, nutrition, appetite and brain health will be emphasized for health reform and updates for nervous, muscle, heart, vasculature, liver, renal, lung and endocrine systems with analysis for preventive medicine. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Nutrition or Biochemistry

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**MPP 7424: Medical Pharmacology**

(cross-leveled with MPP 4204). Pharmacology teaches the science of drug actions in medicine today and principles of pharmacokinetics/dynamics. Future medical researchers will learn molecular probes for medical research and translational science to improve health care. An online laboratory will teach drug database information technology. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites or Corequisites:** BIO\_SC 3700 or MPP 3202 or MPP 4202 or equivalent physiology course from other colleges

**Recommended:** nutrition or biochemistry courses are recommended but not required

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**MPP 7717: Diagrams, Figures, and Graphs**

(cross-leveled with MPP 4417). In this course, we will examine what features optimize the drawing of diagrams, figures and graphs for communication to different audiences. Graded on A-F basis only.

**Credit Hour:** 1

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**MPP 8000: Scientific Discovery Leading to Life Science Innovations**

(same as BIOL\_EN 8000). This course explains the scientific discovery process from idea to product release, examining problem identification, need validation, and commercialization. Clinical, business and engineering perspectives are examined to understand translating innovation into clinical practice. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** must be enrolled in a graduate degree program

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**MPP 8004: Regulatory Issues in Clinical Research and Clinical Trials**

(same as BIOL\_EN 8004). The goal of the course is to highlight key FDA regulatory issues for conducting human clinical trials and clinical research. For clinical trials, FDA has set up several compliance programs and guidance documents as a part of human subject protection (HSP)/ Bioresearch Monitoring (BIMO) initiatives. The aim of the program was to strengthen FDA oversight and protection of subjects in clinical trials and to preserve confidentiality of data. The HSP/BIMO initiative comprehends all FDA regulated clinical trials including human drugs and biological drug products, devices, foods, and veterinary medicine. The course is designed for students in medical professions, management, biomedical engineering, and related areas. Adequate knowledge regarding FDA guidance in conducting human clinical trials and clinical research will help professionals steer drug/device development and commercialization in their respective field. This course will be offered online only. An introduction to essential disciplines for conducting clinical trials and clinical research will be provided. The basics of good clinical practices (GCPs), biostatistics and clinical epidemiology in relation to clinical trials will be presented. Several relevant case studies for conducting clinical trials, both nationally and internationally, will be discussed. The importance of data collection and data management while conducting clinical trials will be explained. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Knowledge in biomedical sciences, clinical sciences

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**MPP 8050: Non-Thesis Research in Medical Pharmacology and Physiology**

Opportunities for graduate research in physiology or pharmacology not leading to dissertation. Graded on A-F basis only.

**Credit Hour:** 1-5

**Prerequisites:** instructor's consent

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**MPP 8085: Graduate Problems in Medical Pharmacology and Physiology**

Guided study to strengthen knowledge in physiology and pharmacology. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**MPP 8090: Thesis Research in Medical Pharmacology and Physiology**

Research for Master's Students in physiology or pharmacology, leading to dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**MPP 8100: Design and Development of Biomedical Innovations**

(same as BIOL\_EN 8100, ENGINR 8100). The overarching goal of this course is to help participants understand the design and development (drug or device) process in biomedical innovation. This course will help participants to understand the process of choosing unmet clinical needs, articulate a need statement without integrating solution, design and develop a solution. Participants will learn to assess the commercial potential of clinical needs by performing market analysis and valuing customer needs. A conceptual understanding about development of a prototype for a device and also drug development by different brainstorming process will be provided. Details of regulatory, reimbursement, patenting process required for product development will be explained with examples. An overview about how to evaluate preliminary designs, define product specifications, comply with manufacturing principles and methods, costs, cGMP requirements will be explained. Quality control and Quality assurance necessities for drug/device will be elucidated with case studies. Participants will gain knowledge about different business models for drug and devices, estimate market penetration and how to make profitable, patient-driven products. Graded on A-F basis only,

**Credit Hours:** 3

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**MPP 8411: Mammalian Pharmacology and Physiology**

An integrated course covering the basic concepts in physiology and pharmacology of the cardiovascular, gastrointestinal, endocrine, renal, and respiratory systems with an emphasis of applying the key concepts to clinically relevant examples. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites:** instructor's consent

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**MPP 8412: Seminar in Medical Pharmacology and Physiology**

Instruction in critical evaluation, review, and summary of scientific data and practice in oral presentation of scientific research seminar. Taught in conjunction with weekly department seminar series.

**Credit Hour:** 1

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**MPP 8415: Responsible Conduct of Research thru Engagement, Enactment and Empowerment NIH and other Federal Age**

The emphasis is on the scientific research ethics problems in interdisciplinary work. Student involvement can include designing mock misconduct trials or writing advocacy letters to change current policy.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MPP 8417: Scientific Communication**

A course to foster and improve students ability to communicate orally and in writing. Student enrolled in the course will be expected to write a report and present a seminar on a topic related to one of the lab rotation projects to the mentor of the rotation and other interested faculty members and students. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MPP 8420: Skills in Biomedical Research**

This course focuses on introducing graduate students to the basics of biomedical research. Course objectives are to provide new graduate students with a basic understanding of laboratory safety issues and fundamental skills that are integral to research including principles of experimental design, theory and practical application of modern research techniques, written and oral communication of research information, and scientific record keeping standards. Graded on S/U basis only.

**Credit Hours:** 2

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**MPP 8500: Translational Biosciences I**

This course covers foundational principles in molecular and cellular biology that are required for understanding a wide range of biomedical science disciplines, including cancer biology, microbiology, virology and physiology. This is a lecture-based course that also feature a discussion session each week in which students will read/discuss current primary scientific literature to emphasize the translational implications of these pathways. Graded on A-F basis only.

**Credit Hours:** 5

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**MPP 8550: Skills in Translational Biosciences I**

Skills in Translational Biosciences I will provide students an overview of current techniques in biomedical sciences, including bioethics. Students will also be exposed to state of the art techniques ranging from subcellular to whole animal studies, as well as medical bioinformatics, health outcomes and epidemiology. The course will have a significant emphasis on reading primary literature in a journal club format.

**Credit Hours:** 4

**Recommended:** This course is to be taken concurrent with MPP 8500

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**MPP 9090: Thesis Research in Medical Pharmacology and Physiology**

Research for PhD students in physiology or pharmacology, leading to dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**MPP 9422: Medical Pharmacology and Physiology Journal Club**

On a weekly basis, individual students are assigned current high profile journal articles to present to their fellow students and faculty in a journal club setting. Each student in the course is required to read the paper in advance and participate in discussions of the figures and general topics that is being presented. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** enrolled in MPP PhD graduate program

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**MPP 9426: Transmembrane Signaling**

This course is for advanced level graduate students. The course is designed to develop state of the art knowledge and understanding of current research issues in the cell signaling. The major emphasis is on receptor and non-receptor mediated transmembrane signaling events underlying physiological and pharmacological responses of the cells. Students are also involved in class presentations, and the development and critical review of new research proposals, all focused on cellular signaling.

**Credit Hours:** 4

**Prerequisites:** basic courses in biochemistry and or cell and molecular biology or equivalent

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**MPP 9429: Principles and Frontiers of Molecular Pharmacology**

An in-depth examination of pharmacodynamics, structure-activity relationships, pharmacokinetics/drug metabolism, and toxicology, followed by a consideration of emerging concepts regarding membrane receptors and channels and their role in biology and medicine.

**Credit Hours:** 5

**Prerequisites:** Students must have completed a physiology, biochemistry or cell biology course

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**MPP 9430: Cardiovascular Physiology**

This course is designed to provide the student with an in depth knowledge of specific aspects of cardiovascular physiology with major emphasis on cardiac structure and function. Topics are covered in 1, 3-4 hour session per week and are based on reading assignments from the literature. The following topics have been addressed in previous offerings but the specific topics may vary from year to year: Heart muscle structure related to function; Contractile proteins structures and function; Regulation of protein synthesis; Regulation of myocardial hypertrophy; Regulation of myocardial metabolism; Myocardial mechanics systolic and diastolic function; Mechanisms of length dependent contraction; Control of electrical-mechanical coupling processes; Mechanisms for adrenergic regulation of myocardial function.

**Credit Hours:** 3

**Prerequisites:** MPP 4310 and MPP 8411 or the equivalent (e.g., UM first year medical school curriculum, V\_BSCI 8421, or BIO\_SC 3700 with supporting courses)

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**MPP 9431: Control of Energy Metabolism**

(same as V\_BSCI 9431). This advanced elective is in a lecture/discussion format using primary literature to explore how cells organize and regulate metabolism to meet energy demands.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MPP 9432: Mammalian Membrane Physiology**

This course is designed to stimulate active learning of the concepts of modern membrane physiology. Throughout the course, a balance will be maintained between examining classic papers in the field and current literature, including not only theories that have held up over time, but areas in which there is current dispute as the best model that describes the observations.

**Credit Hour:** 1-3

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**MPP 9434: Microvascular Circulatory Function**

(same as V\_BSCI 9425). An in-depth study of microcirculatory structure and function in various tissues with emphasis on recent developments in the understanding of the mechanisms involved in nutrient supply, edema formation, lymphatic function and fluid balance.

**Credit Hours:** 4

**Prerequisites:** V\_BSCI 8420 and V\_BSCI 8421 or equivalent and instructor's consent

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**MPP 9435: Molecular Exercise Biology**

(same as V\_BSCI 9435). Skeletal muscle mechanics, contractions theories, transgenic models, development, gene expression regulation, adaptation to exercise, aging, metabolic functions, and inactivity induced chronic diseases.

**Credit Hour:** 1-3

**Prerequisites:** course director's consent required for enrollment

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**MPP 9437: Neural Cardiorespiratory Control**

(same as V\_BSCI 9467). Course objectives include developing a general understanding of CNS mechanisms in the regulation of the cardiovascular and respiratory system, including autonomic, neurohumoral and body fluid homeostatic mechanisms, gaining knowledge of the major advances and topics in the field and becoming familiar with some of the methods used to study CNS cardiorespiratory regulation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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## Medicine-Interdisciplinary (MED\_ID)

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**MED\_ID 5041: Structure and Function of the Human Body I**

Biochemical principles, cell biology, human development, histology and gross anatomy with clinical correlates utilizing patient examples and non-invasive techniques.

**Credit Hours:** 6

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**MED\_ID 5042: Interviewing**

Development of skills needed to obtain a history of the patient's present illness, past medical history and other pertinent background information. Vitally important to medical practice, these skills are role modeled, practiced and evaluate with detailed feedback. Additional emphasis is placed on the doctor-patient relationship, ethics and the role of the physician as a therapeutic agent.

**Credit Hours:** 3

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**MED\_ID 5043: Structure and Function of the Human Body II**

Study of the structure and function of the body's metabolic, nervous and muscular systems.

**Credit Hours:** 6

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**MED\_ID 5044: Physical Examination**

Introduction to the doctor-patient relationship and systematic physical examination of the patient. Certification in basic life support is also included.

**Credit Hours:** 3

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**MED\_ID 5045: Structure and Function of the Human Body III**

Study of the structure and function of the body's cardiovascular, gastrointestinal, and urinary systems.

**Credit Hours:** 6

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**MED\_ID 5046: Psychosocial Aspects of Medicine**

A brief study of the history of medicine and the impact of key events on current medical practice. Study of the biopsychosocial model, biomedical ethics and specific psychosocial problems encountered by physicians such as compliance, problems based in human sexuality, substance abuse and death and dying.

**Credit Hours:** 3

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**MED\_ID 5047: Structure and Functions of the Human Body IV**

Study of the structure and function of the endocrine, reproductive, vascular systems. The classification of pathogenic and non-pathogenic organisms, mechanisms of infection, the immune response and the interaction between pharmacologic agents and exogenous organisms.

**Credit Hours:** 6

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**MED\_ID 5048: Clinical Epidemiology and Preventive Medicine**

Application of clinical epidemiology to understanding measurement of population characteristics and to the critical analysis of the literature through analysis of study designs and interpretation of the results and causal relationships. Study of prevention, screening and health maintenance as important aspects of health care.

**Credit Hours:** 3

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**MED\_ID 5051: Ambulatory Clinical Experience I**

Ambulatory Clinical Experience I

**Credit Hour:** 1

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**MED\_ID 5052: Ambulatory Clinical Experience II**

Ambulatory Clinical Experience II

**Credit Hour:** 1

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**MED\_ID 5180: FULL-TIME ENROLLMENT FOR POST-SOPHOMORE FELLOWS**

FULL-TIME ENROLLMENT FOR POST-SOPHOMORE FELLOWS

**Credit Hours:** 18

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**MED\_ID 5205: Individualized Study**

Individualized Study

**Credit Hour:** 1-5

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**MED\_ID 5207: Summer Clinical Practicum Internal Medicine**

Summer Clinical Practicum Internal Medicine. 4 week course. Zero credit hours, 4 FA hours.

**Credit Hours:** 0

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**MED\_ID 5213: Leadership Practicum**

Leadership Practicum

**Credit Hours:** 0

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**MED\_ID 5215: Summer Clinical Practicum - Medical Education**

Summer Clinical Practicum - Medical Education- Zero billing hours and 4 FA hours

**Credit Hours:** 0

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**MED\_ID 5217: Summer Clinical Practicum - Rural Track**

This represents non-credit clinical and research experiences that medical students may take during the summer following their first (M1) year of medical school. 8 weeks. Zero Credit.

**Credit Hours:** 0

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**MED\_ID 5341: Structure/Function Human Body I - Remediation**

Structure/Function Human Body I - Remediation

**Credit Hours:** 6

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**MED\_ID 5342: Interviewing - Remediation**

Interviewing - Remediation

**Credit Hours:** 3

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**MED\_ID 5343: Structure/Function Human Body II - Remediation**

Structure/Function Human Body II - Remediation

**Credit Hours:** 6

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**MED\_ID 5344: Physical Exam - Remediation**

Physical Exam - Remediation

**Credit Hours:** 3

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**MED\_ID 5345: Structure/Function Human Body III**

Structure/Function Human Body III

**Credit Hours:** 6

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**MED\_ID 5346: Psychosocial Aspects Med - Remediation**

Psychosocial Aspects Med - Remediation

**Credit Hours:** 3

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**MED\_ID 5347: Structure/Function Human Body IV - Remediation**

Structure/Function Human Body IV - Remediation

**Credit Hours:** 6

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**MED\_ID 5348: Clinical Epidemiology and Preventive Medicine - Remediation**

Clinical Epidemiology and Preventive Medicine - Remediation

**Credit Hours:** 3

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**MED\_ID 5551: Pathophysiology I**

Pathophysiologic mechanisms of cell injury, inflammation and repair, hemodynamic disturbances, genetic disorders, autoimmune response, immune deficiency and hypersensitivity reactions.

**Credit Hours:** 6

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**MED\_ID 5552: Diagnostic Tests and Medical Decisions**

Assessment of the appropriate use and interpretation of common diagnostic tests and their contribution to medical decisions and the care of patients. Includes emphasis on the review of systems, interactive hypothesis testing, differential diagnosis probability, sensitivity and specificity, and cost benefit and cost effectiveness analysis.

**Credit Hours:** 3

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**MED\_ID 5553: Pathophysiology II**

Pathophysiologic mechanisms of cardiovascular disease, diseases of the respiratory system, disorders of the blood, and nutritional diseases.

**Credit Hours:** 6

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**MED\_ID 5554: Psychopathology and Behavioral Medicine**

Presentation and discussion of the U.S. health care system and health care reform, financing and resource allocation, and the impact of change on individuals, communities, employers and the government. Included are analyses of the ethical and legal implications of health care and health care reform.

**Credit Hours:** 3

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**MED\_ID 5555: Pathophysiology III**

Pathophysiologic mechanisms of the digestive, endocrine and urogenital systems.

**Credit Hours:** 6

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**MED\_ID 5556: Clinical Practicum**

A continuation of Block 6 objectives and a clinical practicum and review comprise this block.

**Credit Hours:** 3

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**MED\_ID 5557: Pathophysiology IV**

Pathophysiology of infectious diseases, reproductive disorders, musculoskeletal and soft tissues diseases, diseases affecting the nervous system and skin diseases.

**Credit Hours:** 6

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**MED\_ID 5558: Physician as a Person**

Exploration of the physician as a person, the balance between professional and personal demands, family life, membership in a

community, the stresses and rewards of the medical profession, professional ethics and the doctor-patient relationship. A four week clinical review completes this block.

**Credit Hours:** 3

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**MED\_ID 5561: Advanced Physical Diagnosis I**

Advanced Physical Diagnosis I

**Credit Hour:** 1

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**MED\_ID 5570: Advanced Clinical Skill Practicum**

This course is designed for MD/PhD students and other medical students away on research or post-sophomore fellowship leave. Approval to enroll must be obtained from the Director of the MD/PhD program or the Faculty Director of Clinical curriculum. Graded on S/U basis only.

**Credit Hours:** 0

**Prerequisites:** Advanced Physical Diagnosis; must have satisfactorily completed the second year of medical school

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**MED\_ID 5751: Pathophysiology I - Remediation**

Pathophysiology I - Remediation

**Credit Hours:** 6

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**MED\_ID 5752: Diagnosis Test/Med Decision - Remediation**

Diagnosis Test/Med Decision - Remediation

**Credit Hours:** 3

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**MED\_ID 5753: Pathophysiology II - Remediation**

Pathophysiology II - Remediation

**Credit Hours:** 6

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**MED\_ID 5755: Pathophysiology III - Remediation**

Pathophysiology III - Remediation

**Credit Hours:** 6

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**MED\_ID 5756: Clinical Practicum - Remediation**

Clinical Practicum - Remediation

**Credit Hours:** 3

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**MED\_ID 5757: Pathophysiology IV - Remediation**

Pathophysiology IV - Remediation

**Credit Hours:** 6

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**MED\_ID 5758: Physician as a Person - Remediation**

Physician as a Person - Remediation

**Credit Hours:** 3

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**MED\_ID 5850: Contemplating Medicine, Patients, Self and Society**

The purpose of the longitudinal COMPASS course is to foster the development of patient-centered physicians in relation to patients, self and society. This is accomplished through an innovative longitudinal small group experience using a variety of learning methods including group discussion, reflective writing, storytelling, reading and case

problem solving. The small group membership includes students from each of the 4 medical school classes and 2 faculty Guides. Curricular themes and small group session titles for the 4 year course recur on a two year cycle. The content and focus of each session is unique. Students in the first, second and third years of medical school will receive a final course grade (satisfactory or unsatisfactory) at the end of their M4 year. The final course grade will reflect the student's performance in the small group sessions and performance on the capstone assignment.

**Credit Hour:** 1-5

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**MED\_ID 5950: Remediation of MED\_ID 5850**

Medical Students who receive an unsatisfactory grade in MED\_ID 5850 Contemplating Medicine, Patients, Self and Society will enroll for this course in order to remediate their grade.

**Credit Hour:** 1-5

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**MED\_ID 6030: SCC Advanced Biomedical Sciences Elective**

Students will work under the supervision of an MU faculty member at MU's Springfield Clinical Campus in a pre-approved learning experience. Activities that fulfill this requirement may include, but are not limited to: Anatomy dissection at Missouri State University (MSU), research project at a Springfield based clinical location or lab (Cox, Mercy, MSU), PBL case writing, and cross cultural medicine (global health study abroad). ABS elective content and requirements will be similar to those offered at MU's Columbia Clinical Campus.

**Credit Hours:** 5

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**MED\_ID 6031: SCC Advanced Clinical Selective**

Students will work under the supervision of a faculty preceptor at the Springfield Clinical Campus. Students will see patients in the outpatient clinic and/or inpatient hospital setting, perform a history and exam, and develop a patient-centered assessment and plan. They will then discuss their findings, assessment and plan with the faculty preceptor and go see the patient together. The student will complete oral patient presentations and document patient encounters in the medical record as directed by the faculty preceptor. Students will enhance their knowledge, skills, and attitudes about patient-centered care through active participation in direct patient care activities while under the supervision of a faculty preceptor. Students will integrate previously acquired knowledge and concepts and apply them to the care and management of patients.

**Credit Hours:** 5

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**MED\_ID 6032: SCC General Elective**

Students will work under the supervision of a faculty preceptor at the Springfield Clinical Campus. Students will see patients in the outpatient clinic and/or inpatient hospital setting, perform a history and exam, and develop a patient-centered assessment and plan. They will then discuss their findings, assessment and plan with the faculty preceptor and go see the patient together. The student will complete oral patient presentations and document patient encounters in the medical record as directed by the faculty preceptor. Students will enhance their knowledge, skills, and attitudes about patient-centered care through active participation in direct patient care activities while under the supervision of a faculty preceptor. Students will integrate previously acquired knowledge and concepts and apply them to the care and management of patients.

**Credit Hours:** 5

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**MED\_ID 6040: SCC Advanced Clinical Surgical Selective**

Students will enhance their knowledge, skills, and attitudes about patient-centered care through active participation in direct patient care activities while under the supervision of a faculty preceptor. Students will integrate previously acquired knowledge and concepts and apply them to the care and management of patients.

**Credit Hours:** 5

**Recommended:** Successful completion of 5 of 7 core clerkships, including the Surgery clerkship. Additional department specific pre-requisites may apply

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**MED\_ID 6244: ABS Quality Improvement and Patient Safety Elective**

The 4th year student will work with leaders in the Office of Clinical Effectiveness to identify an improvement project to be conducted during the elective. Students will have self-paced readings/didactic expectations, and will be expected to review and report on medical literature relevant to the care process(es) targeted for improvement. To complete their project, the student will present the improvement work to patient safety and quality improvement leaders, as well as stakeholders in the care process(es) identified for improvement efforts.

**Credit Hours:** 5

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**MED\_ID 6390: ABS Individualized Study in Medicine-M1**

Goals/Objectives: Participate in PBL as a tutor under the guidance of an experienced faculty tutor. Review the literature appropriate to each case. Update one PBL case that is used in the course of the block OR update a problem solving exam OR write a new problem solving exam. Students must submit the case or exam electronically to the course coordinator. Evaluation: Student's performance as tutor will be evaluated by the supervising faculty member and the tutor group members. Notes: During a four-week block, the fourth year student will tutor an M-1 PBL group (Monday, Wednesday, & Friday mornings) under the supervision of a senior faculty member. Contact course coordinator for case update details. Submission date for case update is set two weeks after the tutoring session ends. The student will attend all tutor preparation meetings and prepare for PBL through reading, self-directed study and discussions with faculty. Complete student mid-block and end-of-block evaluation as directed.

**Credit Hours:** 5

**Prerequisites:** M4s registering for PBL tutoring must be in good standing and not on probation. M4s must not have come before the CSP for an automatic vote for dismissal

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**MED\_ID 6391: ABS Individualized Study in Medicine-M2**

ABS Individualized Study in Medicine-M2

**Credit Hours:** 5

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**MED\_ID 6393: ABS Interdisciplinary Research**

ABS Interdisciplinary Research

**Credit Hour:** 5-10

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**MED\_ID 6394: ABS Cross-Cultural Medicine**

ABS Cross-Cultural Medicine

**Credit Hours:** 5

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**MED\_ID 6396: ABS Medical Practice Organization**

ABS Medical Practice Organization

**Credit Hour:** 5-10

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**MED\_ID 6397: ABS Academic Tutoring for M1/M2 Students**

ABS Academic Tutoring for M1/M2 Students

**Credit Hours:** 5

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**MED\_ID 6398: ABS County Public Health**

ABS County Public Health

**Credit Hours:** 5

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**MED\_ID 6399: ABS Case Writing**

ABS Case Writing

**Credit Hours:** 5

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**MED\_ID 6690: Elective Individual Study in Medicine - M1**

Elective Individual Study in Medicine - M1

**Credit Hours:** 5

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**MED\_ID 6691: Elective Individual Study in Medicine - M2**

Goals/Objectives: Participate in PBL as a tutor under the guidance of an experienced faculty tutor. Evaluations: the student's performance as tutor will be evaluated by the supervising faculty member and the tutor group members. Notes: During the four-week block, the fourth year student will tutor a M-2 PBL group (Tuesday and Thursday afternoons) under the supervision of a senior faculty member.

**Credit Hours:** 5

**Prerequisites:** M4s registering for PBL tutoring must be in good standing and not on probation. M4s must not have come before the CSP for an automatic vote for dismissal

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**MED\_ID 6692: Case/Exam Writing Elective**

The fourth year medical student will work as part of a team in order to develop learning materials for the first and second year students. Students will work closely with faculty advisors and clinical mentors to develop educationally sound learning materials. Under the guidance of faculty preceptors, medical students will author one original PBL case including a comprehensive tutor guide and multiple choice examination questions covering the case objectives, AND one original Clinical Reasoning Exam including an annotated key.

**Credit Hours:** 5

**Prerequisites:** fourth year medical student in good standing

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**MED\_ID 6693: Simulation Preparation for Internship**

This course is meant to increase the medical students' knowledge and skillsbase in preparation for the first year of internship. In order to accomplish this, the students will be exposed to a variety situations common to first year residents through activities created with simulation. Throughout the course, students will demonstrate how to provide effective and efficient patient-centered care, while improving their communication skills and professionalism with patients and other healthcare providers. Students will understand the role of simulation

in medical education and develop skills in debriefing of scenarios throughout the course. At the end of the course, students will be expected to complete a simulation capstone project. Prerequisites: Class level: 4th year medical student. Approval by Simulation Director and Completion of all Core Clerkship Requirements.

**Credit Hours:** 5

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**MED\_ID 6694: Nutrition Elective**

The Nutrition 4-week elective is largely a customizable elective that can be designed to match a student's interest(s) with a wide range of mentored nutrition experiences. The experience will include some fixed elements such as participation in a weekly seminar series and/or weekly journal clubs in which the student will be expected to present research papers. Focused experiences can be designed in areas including, but not limited, to Medical Nutrition Therapy, General Dietetics, Inpatient TPN/ICU and enteral feeds, Research Nutrition Studies, and Bariatric Surgery Nutrition. A wide variety of clinical environments will be available (pediatric obesity/endocrinology, failure to thrive, gastroenterology, cancer, etc.). Students will learn using a variety of experiences, evidence-based materials, patient simulations, and case studies. Students will produce a final written product of a revised or new PBL case or a paper on a specific nutrition prescription for a given diagnosis.

**Credit Hours:** 5

**Prerequisites:** Successful completion of the first two years of medical school

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**MED\_ID 6925: Springfield Clinical Campus Elective**

Students will work under the supervision of a faculty preceptor at the Springfield Clinical Campus. Students will see patients in the outpatient clinic and/or inpatient hospital setting, perform a history and exam, and develop a patient-centered assessment and plan. They will then discuss their findings, assessment and plan with the faculty preceptor and go see the patient together. The student will complete oral patient presentations and document patient encounters in the medical record as directed by the faculty preceptor.

**Credit Hours:** 2

**Prerequisites:** successful completion of the first two years of medical school

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**MED\_ID 6934: Sexual and Gender Minority Health Issues Across the Lifecourse**

The purpose of this course is to increase student's familiarity with sexual and gender minority health issues likely to be seen in practice. Integral to the course structure is improved cultural competency in not only appropriate language and terms used within the community but also a sense of the social-cultural issues each generation has faced growing up in America.

**Credit Hours:** 2

**Prerequisites:** successful completion of the first two years of medical school

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## Medieval Renaissance Studies (MDVL\_REN)

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### MDVL\_REN 2004: Topics in Medieval and Renaissance Studies-Social Science

Organized study of selected medieval and Renaissance topics. Subjects and earnable credit may vary from semester to semester. Topics announced at time of enrollment. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

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### MDVL\_REN 2005: Topics in Medieval and Renaissance Studies-Humanities

Organized study of selected medieval and Renaissance topics. Subjects and earnable credit may vary from semester to semester. Topics announced at time of enrollment. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

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### MDVL\_REN 3004: Topics in Medieval and Renaissance Studies-Social Science

Organized study of selected medieval and Renaissance topics. Subjects and earnable credit may vary from semester to semester. Topics announced at time of enrollment. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent

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### MDVL\_REN 3005: Topics in Medieval and Renaissance Studies-Humanities

Organized study of selected medieval and Renaissance topics. Subjects and earnable credit may vary from semester to semester. Topics announced at time of enrollment. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent

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### MDVL\_REN 4104: Studies in Medieval and Renaissance Cultures-Social Science

(cross-leveled with MDVL\_REN 7104). In-depth study of selected topics in medieval and Renaissance cultures. Subjects vary from semester to semester. Topics announced at time of enrollment. May be repeated for credit with departmental consent.

**Credit Hours:** 3

**Prerequisites:** Junior standing or Instructor's consent

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### MDVL\_REN 4105: Studies in Medieval and Renaissance Cultures-Humanities

(cross-leveled with MDVL\_REN 7105). In-depth study of selected topics in medieval and Renaissance cultures. Subjects vary from semester to semester. Topics announced at time of enrollment. May be repeated for credit with departmental consent.

**Credit Hours:** 3

**Prerequisites:** Junior standing or Instructor's consent

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**MDVL\_REN 4411: Studies in Medieval and Renaissance Languages** (cross-leveled with MDVL\_REN 7411). Study of a medieval or early modern language.

**Credit Hours:** 3

**Prerequisites:** Instructors consent

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### MDVL\_REN 4535: Monastic Worlds

(same as REL\_ST 4535; cross-leveled with MDVL\_REN 7535, REL\_ST 7535). Monastic Worlds is an experiential learning course designed to serve as a Humanities Field School in medieval and early modern studies. It will be taught by faculty from UMKC and UMC through the Intercampus Course Sharing initiative. The class introduces students to humanities research methodology and the religious history and culture of premodern Europe and the contemporary Midwest by using the monastic communities as a focal point to learn about musicology, history, art history, literature, and religion. Following two weeks of online course modules, students will travel to the Benedictine communities of Conception Abbey in Conception, Missouri and Mount Saint Scholastica's in Atchison, Kansas, for additional face-to-face classes and research projects. On-site, students will participate in communal living and attend face-to-face classes on the historical and cultural worlds of medieval and early modern Europe. They will practice ethnography through observation of and participation in communal life of prayer, study, book production, and labor. Students will also have the opportunity to work with the manuscripts and rare books owned by these communities and visit the largest reliquary collection in North America, housed at the nearby Benedictine community of the Sisters of Perpetual Adoration in Clyde, MO. This course has an associated fee. Contact teaching faculty for this year's fee details. Graded on A-F basis only.

**Credit Hours:** 3

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### MDVL\_REN 7104: Studies in Medieval and Renaissance Cultures-Social Science

(cross-leveled with MDVL\_REN 4104). In-depth study of selected topics in medieval and Renaissance cultures. Subjects vary from semester to semester. Topics announced at time of enrollment. May be repeated for credit with departmental consent.

**Credit Hours:** 3

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### MDVL\_REN 7105: Studies in Medieval and Renaissance Cultures-Humanities

(cross-leveled with MDVL\_REN 4105). In-depth study of selected topics in medieval and Renaissance cultures. Subjects vary from semester to semester. Topics announced at time of enrollment. May be repeated for credit with departmental consent.

**Credit Hours:** 3

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**MDVL\_REN 7411: Studies in Medieval and Renaissance Languages** (cross-leveled with MDVL\_REN 4411). Study of a medieval or early modern language.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**MDVL\_REN 7535: Monastic Worlds**

(same as REL\_ST 7535; cross-leveled with MDVL\_REN 4535, REL\_ST 4535). Monastic Worlds is an experiential learning course designed to serve as a Humanities Field School in medieval and early modern studies. It will be taught by faculty from UMKC and UMC through the Intercampus Course Sharing initiative. The class introduces students to humanities research methodology and the religious history and culture of premodern Europe and the contemporary Midwest by using the monastic communities as a focal point to learn about musicology, history, art history, literature, and religion. Following two weeks of online course modules, students will travel to the Benedictine communities of Conception Abbey in Conception, Missouri and Mount Saint Scholastica's in Atchison, Kansas, for additional face-to-face classes and research projects. On-site, students will participate in communal living and attend face-to-face classes on the historical and cultural worlds of medieval and early modern Europe. They will practice ethnography through observation of and participation in communal life of prayer, study, book production, and labor. Students will also have the opportunity to work with the manuscripts and rare books owned by these communities and visit the largest reliquary collection in North America, housed at the nearby Benedictine community of the Sisters of Perpetual Adoration in Clyde, MO. This course has an associated fee. Contact teaching faculty for this year's fee details. Graded on A/F basis only.

**Credit Hours:** 3**MDVL\_REN 8411: Studies in Medieval and Renaissance Languages**

Study of a medieval or early modern language.

**Credit Hours:** 3**Prerequisites:** Instructor's consent

## Microbiology (MICROB)

**MICROB 2800: Microbiology for Nursing and Health Professions**

This course will provide basic principles for understanding microbial growth, function, and control. This includes a survey of microbial cellular structure/functions, immunology concepts, epidemiology, specimen handling, and causes of microbial disease (bacterial, viral, and parasitic). Material is presented in lecture and corresponding laboratory exercises that will allow students to explore the microbial world around them.

**Credit Hours:** 4**Prerequisites:** The overall content is 'restricted to Freshman and sophomore Nursing and Health Related Professional students only'. Other inquires contact department**MICROB 3200: Medical Microbiology and Immunology**

Focus on medically important viruses, bacteria, fungi and parasites with emphasis on their disease causing potential and mechanisms. Introduction to cells and molecules of the immune system with emphasis on their role in fighting infectious diseases. Discussion of treatment and prevention strategies. Lecture material will be reinforced with laboratory demonstrations and hands-on exercises. The course is intended for preprofessional students.

**Credit Hours:** 4**MICROB 3800: Case-Based Microbiology: Assembling Systemic Health Connections**

Detailed infectious diseases across organ systems. The biological characteristics and pathologic mechanisms of infectious diseases caused by bacteria, viruses, fungi and parasites are explored in a case-based learning. Student-driven learning objectives for each case (to include microbiology, anatomy, physiology, pharmacology, technology and clinical LO's each case) help groups connect scientific information across disciplines.

**Credit Hours:** 3**Prerequisites:** Instructor's consent**Recommended:** MICROB 2800 or MICROB 3200, MPP 3202, and PTH\_AS 2201**MICROB 4300: Bacterial Pathogenesis**

(cross-leveled with MICROB 7404). This team taught course covers the biology and virulence mechanisms of bacterial pathogens, with emphasis on those causing human and zoonotic diseases. Topics covered include bacterial structure, genetics, physiology, and metabolism; antibiotic resistance; host-pathogen interactions; microbiomes and emerging pathogens.

**Credit Hours:** 2**Prerequisites:** MICROB 3200 or equivalent. Consent from Course Director is required to insure academic readiness**MICROB 4303: Fundamental Virology**

(cross-leveled with MICROB 7303). Classification of viruses, life cycles, genome organization and expression, host-virus interactions, oncogenes and cellular transformation, viral pathogenesis, viral gene therapy approaches, strategies for anti viral therapy.

**Credit Hours:** 2**Prerequisites:** undergraduates require instructor's consent. This course will include evaluation of current literature and require paper presentations**MICROB 4304: Immunology**

(cross-leveled with MICROB 7304). This is a comprehensive team-taught, basic immunology course covering cells and organs of the immune system, lymphocyte development, innate immunity, antibody production, antibody-antigen presentation, CD4+ and CD8+ T lymphocyte responses, cytokines, autoimmunity and immunodeficiency among other immunologically relevant topics. Completion of a biochemistry, genetics, or molecular biology course would be helpful. Graded on A-F basis only.

**Credit Hours:** 3**Recommended:** MICROB 3200 or BIOCHM 4270**MICROB 7101: Structure and Synthesis of Macro Molecules**

This multiple-instructor course is designed to provide students with a detailed understanding of the structure, function, and biophysical properties of bio-molecules. Principles and techniques of molecular biology related to the study of recombinant DNA and genetic analysis, protein structure, function and basic immunological principles will be covered. Admission is dependent on approval by course director.

**Credit Hours:** 2**Prerequisites:** consent required

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**MICROB 7303: Fundamental Virology**

(cross-leveled with MICROB 4303). Classification of viruses, life cycles, genome organization and expression, host-virus interactions, oncogenes and cellular transformation, viral pathogenesis, viral gene therapy approaches, strategies for anti viral therapy.

**Credit Hours:** 2

**Prerequisites:** Undergraduates require instructor's consent. This course will include evaluation of current literature and require paper presentations

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**MICROB 7304: Immunology**

(cross-leveled with MICROB 4304). Covers innate immunity, antibodies, antigens, MHC, antigen presentation, lymphocyte development, antigen specific receptors, lymphocyte activation and differentiation, immune effector mechanisms, hypersensitivities, tolerance, autoimmunity, immunodeficiencies. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** MICROB 3200 or BIOCHM 4270 or BIOCHM 4272 or instructor's consent

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**MICROB 7404: Foundations in Bacteriology and Pathogenesis**

(cross-leveled with MICROB 4300). This team taught course covers the biology and virulence mechanisms of bacterial pathogens, with emphasis on those causing human and zoonotic disease. Topics covered include bacterial structure, genetics, physiology, and metabolism; antibiotic resistance; host-pathogen interactions; microbiomes and emerging pathogens.

**Credit Hours:** 3

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**MICROB 8050: Graduate Student Survival Skills**

This course is an introduction to inform new graduate students about the Microbiology program and provide them with the knowledge to access resources and information needed for a successful transition into their course work and research. The course will also focus on guidelines in selecting mentors and their relationships, time management, good notebook practices, presentation and posters, comprehensive exams, and computer skills needed. Graded on A-F basis only.

**Credit Hour:** 1

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**MICROB 9001: Topics in Microbiology**

Current topics, highly specialized topics taught infrequently, or courses taught by visiting professors.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**MICROB 9085: Problems in Microbiology**

Students assigned individual problems in microbiology for library or lab investigation. Graded on A-F basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**MICROB 9087: Seminar in Microbiology**

Presentation and critical discussion of student and faculty research, current literature, and guest lectures on subjects in various areas of microbiology. Graded on A-F basis only.

**Credit Hour:** 1

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**MICROB 9090: Research in Microbiology**

Original investigations in various areas of microbiology related to bacteria, fungi, rickettsia, viruses, and animal parasites, or immunology relating to antigens and antibodies of infectious and noninfectious nature designed for graduate thesis research. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**MICROB 9403: Advanced Medical Microbiology**

Similar to MICROB 4300 but treats medical microbiology and immunology in a more advanced manner. Methods of preparation and instruction stressed. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MICROB 9404: Advanced Bacterial Pathogenesis**

Literature based lectures and discussions covering current issues in bacterial pathogenesis. Focus is on understanding host-pathogen interactions that lead to disease. Topics include bacterial toxins and secreted virulence factors, intracellular bacterial growth and survival, host cell death and inflammatory pathways. Course will focus on a few model pathogens and discuss the molecular mechanisms of the pathogen and host that contribute to virulence. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** MICROB 7404

**Recommended:** MICROB 4304 or MICROB 7304

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**MICROB 9407: Advanced Immunology**

Literature based lectures and discussions covering current issues in molecular and cellular immunology. Topics include innate immunity; lymphocyte development; inflammation; tolerance, infection, and autoimmunity; mucosal immunity; asthma and allergy and tumor immunology.

**Credit Hours:** 4

**Prerequisites:** MICROB 4304 or MICROB 7304, or instructor's consent

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**MICROB 9432: Molecular Biology II**

(same as BIOCHM 9432 and BIO\_SC 9432). Detailed experimental analysis of eukaryotic cellular and molecular biology relevant to cellular and viral gene expression, post-transcriptional and post-translational modifications and genome replication. Models for developmental genetic analysis and genetic determinants controlling developmental processes utilizing the current literature will be examined.

**Credit Hours:** 4

**Prerequisites:** MICROB 9430

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**MICROB 9449: Infection and Immunity**

Writing, discussion, literature driven course, covering topics that focus on the interface between infectious diseases, cancer and the immune system. May be repeated for credit. Graded A-F basis only.

**Credit Hours:** 4

**Prerequisites:** 2nd year Graduate student with bacteriology, virology, microbial pathogenesis and immunology background only. 1st year graduate students require instructor approval

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## Military Science (MIL\_SC)

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### **MIL\_SC 1100: Foundations of Officership**

Introduces students to issues and competencies that are central to a commissioned officer's responsibilities. Establish framework for understanding officership, leadership, and Army values followed and 'life skills' such as physical fitness and time management.

**Credit Hour:** 1

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### **MIL\_SC 1110: Introductory Military Science Laboratory I**

Field application of skills taught in MIL\_SC 1100, to include leadership, land navigation, tactical skills and basic soldier skills.

**Credit Hour:** 1

**Recommended:** MIL\_SC 1100

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### **MIL\_SC 1120: Basic Leadership**

Establishes foundation of basic leadership fundamentals such as problem solving, communication, briefings and effective writing, goal setting, techniques for improving listening and speaking skills and an introduction to counseling.

**Credit Hour:** 1

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### **MIL\_SC 1130: Introductory Military Science Laboratory II**

Field application of skills taught in MIL\_SC 1120, to include leadership, land navigation, tactical skills and basic soldier skills.

**Credit Hour:** 1

**Recommended:** MIL\_SC 1120

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### **MIL\_SC 1140: Introduction to Outdoor Adventure Skills**

This course is an entry-level outdoor education program designed to introduce students to general skills in outdoor adventure-type activities, team-building, leadership and physical fitness. This program emphasizes the importance of the individual's role within a team, problem-solving through critical thinking, improving oral and written communication skills, physical and mental resilience and demonstrating a commitment to lifelong learning. This course introduces students to several general concepts within outdoor education. Students will gain an understanding and appreciation of life-development skills through a series of real-world training labs. Subject materials will range from individual empowerment abilities to life-saving techniques. Through the usage of the experiential learning model, students will be introduced to new topics each week and then will apply this knowledge in a practical application format. Graded on A-F basis only.

**Credit Hours:** 2

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### **MIL\_SC 2200: Individual Leadership Studies**

Students identify successful leadership characteristics through observation of others and self through experimental learning exercises. Students record observed traits (good and bad) in a dimensional leadership journal and discuss observations in small group settings.

**Credit Hours:** 2

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### **MIL\_SC 2210: Intermediate Military Science Laboratory I**

Progressively more challenging leadership scenarios presented in a field and classroom environment. Students practice basic military skills such as squad-level offensive and defensive operations. First aid topics and drill and ceremony are also taught.

**Credit Hour:** 1

**Recommended:** MIL\_SC 2200

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### **MIL\_SC 2220: Leadership and Teamwork**

Study examines how to build successful teams, various methods for influencing action, effective communication in selling and achieving goals, the importance of timing the decision, creativity in the problem solving process, and obtaining team buy-in through immediate feedback.

**Credit Hours:** 2

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### **MIL\_SC 2230: Intermediate Military Science Laboratory II**

Progressively more challenging leadership scenarios presented in a field and classroom environment. Students practice basic military skills such as platoon-level offensive and defensive operations. Practical application of night land navigation.

**Credit Hour:** 1

**Recommended:** MIL\_SC 2220

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### **MIL\_SC 3160: Death by a Thousand Cuts: Counterinsurgency/ Insurgency the American Experience**

This course explores the problem of insurgency and counterinsurgency in terms of what we can learn from these conflicts. It examines counterinsurgency theory and practice, the Philippine Insurrection, Banana Wars, Vietnam War, Afghanistan, and Iraq.

**Credit Hours:** 3

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### **MIL\_SC 3161: The American Experience in Vietnam**

This course was developed to provide students the opportunity to examine the American experience in the Vietnam War, to search for meanings in this experience, and to arrive at their own conclusions concerning the impact of the war upon the nation. Moreover, it challenges the students to think critically about war and the use of military power to settle differences between nations. May be repeated for credit.

**Credit Hours:** 3

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### **MIL\_SC 3162: Counterinsurgency in Asia**

This course explores the problem of insurgency and counterinsurgency in Asia in terms of what we can learn from these conflicts. The course examines the insurgency in the Philippine Insurrection 1899-1902, the Vietnam War, the Soviet-Afghan War, in Thailand, Sri Lanka and Malayan Emergency. May be repeated for credit.

**Credit Hours:** 3

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### **MIL\_SC 3163: U.S. Military History in the Western Tradition**

Analysis of United States military history from the Colonial period to the present, (1609-2012). It is a comprehensive look into the evolution of warfare in America, military traditions and heritage, and technology. This course analyzes the following: American Revolution, War of 1812,



Mexican American War, Civil War, Indian Wars, Spanish American War, World War I, Inter War Period, World War II, Korean War, Vietnam War, Gulf War, Afghanistan and Iraq. All cadets are required to take this course for commissioning. May be repeated for credit.

**Credit Hours:** 3

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**MIL\_SC 3164: Nation Building through a Barrel of a Gun** (same as POL\_SC 3164). This course was developed to provide students the opportunity to examine the dilemmas of military intervention, nation-building/peacekeeping operations and exit strategies. This course is designed to challenge students to think critically and arrive at their own conclusions about the use of military power to settle differences between nations, and use of military forces to conduct nation building.

**Credit Hours:** 3

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**MIL\_SC 3165: 'Chasing Ghost', The History of Irregular Warfare** (same as POL\_SC 3165). This course explores the history of Irregular Warfare from the guerrilla perspective. The course examines the works of Mao Tse-Tung, Che Guevara, T.E. Lawrence and several other Guerrilla Leaders. You will analyze the evolution of Irregular Warfare through history and understand the complexities associated with the difficulties of countering and defeating Irregular Warfare. Graded on A-F basis only.

**Credit Hours:** 3

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**MIL\_SC 3230: Leadership and Problem Solving**  
Students conduct self-assessment of leadership style, develop personal fitness regimen, and learn to plan and conduct individual/small unit tactical training while testing reasoning and problem-solving techniques. Students receive direct feedback on leadership abilities. Student must be a contracted cadet to enroll in this course.

**Credit Hours:** 3

**Recommended:** MIL\_SC 1100 and MIL\_SC 2200

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**MIL\_SC 3240: Leadership and Ethics**  
Examines the role communications, values, and ethics play in effective leadership. Topics include ethical decision-making, considerations of others, spirituality in the military, and survey Army leadership doctrine. Emphasis on improving oral and written communication ability.

**Credit Hours:** 3

**Recommended:** MIL\_SC 3230

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**MIL\_SC 3250W: Leadership and Management**  
Develops student proficiency in planning and executing complex operations, functioning as a member of a staff, and mentoring subordinates. Students explore training management, methods of effective staff collaboration, and developmental counseling techniques.

**Credit Hours:** 3

**Recommended:** MIL\_SC 3240

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**MIL\_SC 3260: Officership**  
Study includes case study analysis of military law and practical exercises on establishing an ethical command climate, service as an officer; capstone exercise. Leadership lab Students must complete a semester long Senior Leadership Project that requires them to plan, organize, collaborate, analyze, and demonstrate their leadership skills.

**Credit Hours:** 3

**Recommended:** MIL\_SC 3250W

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**MIL\_SC 3270: Advanced Transition to Lieutenant I**  
Independent research, analysis and monthly discussion on related military topics. Personal, academic and professional goals and objectives, development and maintenance of an officer evaluation report support form.

**Credit Hours:** 3

**Prerequisites:** MIL\_SC 3250W, MIL\_SC 3260

**Recommended:** department head permission

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**MIL\_SC 3280: Advanced Transition to Lieutenant II**  
Independent research, analysis and monthly discussion on related military topics. Personal academic and professional goals and objectives, development and maintenance of an officer evaluation report support form.

**Credit Hours:** 3

**Prerequisites:** MIL\_SC 3250W, MIL\_SC 3260

**Recommended:** department head permission

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## MU Informatics Institute (INFOINST)

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### INFOINST 7001: Topics in Informatics

This course provides the overview to the informatics foundations as well as introduces topics regarding the current informatics-driven areas of science. Graded on A-F basis only.

**Credit Hours:** 3

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### INFOINST 7002: Introduction to Informatics

This course provides an overview to informatics foundations in addition to introducing topics regarding the current informatics-driven areas of science. Topics to include: recent trends in informatics; database management and Big Data analytics; data visualization, bioinformatics, health informatics, geoinformatics, nursing informatics, social informatics, and legal informatics. Graded on A-F only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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### INFOINST 7010: Computational Methods in Bioinformatics

(same as CMP\_SC 7010). Fundamental concepts and basic computational techniques for mainstream bioinformatics problems. Emphasis placed on computational aspect of bioinformatics including formulation of a biological problem, design of algorithms, confidence assessment of software development. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 4050 and STAT 4710

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### INFOINST 7430: Introduction to Health Informatics

Introduction to the use of clinical information systems in healthcare. Topics include clinical data, standards, electronic medical records, computerized provider order entry, decision support, telemedicine, and consumer applications. Graded on A-F basis only

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**INFOINST 8001: Topics in Informatics**

Organized study of selected topics. Subjects and earned credit may vary from semester to semester. Repeatable upon consent of department. Graded A-F basis only.

**Credit Hours:** 3

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**INFOINST 8005: Applications of Bioinformatics Tools in Biological Research**

This service course is designed for bioinformatics non-major students from life sciences, biological sciences, plant sciences, animal sciences, biochemistry, medicine fields and others. This course will provide an introduction to the current state of the art topics in bioinformatics and the computational tools available to the research community for application to biological research questions. Students will learn how to effectively utilize the tools and software packages to analyze data and visualize the results. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

**Recommended:** Graduate students are expected to have basic knowledge in algorithms, databases, and molecular biology

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**INFOINST 8085: Problems in Informatics**

Independent, directed study on a topic in the area of informatics. Some sections may be graded A-F or S/U.

**Credit Hour:** 1-6

**Prerequisites:** Instructor's consent required

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**INFOINST 8087: Seminar in Informatics**

Students attend and/or present at informatics seminars approved by the institute. Graded on S/U basis only.

**Credit Hour:** 0.5-1

**Prerequisites:** instructor's consent required

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**INFOINST 8088: Lab Rotations in Informatics**

This course is designed to train students in both computational/informatics and life science/hospital laboratories to foster critical research collaborations in biomedical informatics. Students are expected to write reports with their advisors and the mentor of the rotation. Graded on S/U basis only.

**Credit Hour:** 1-3

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**INFOINST 8090: Dissertation (pre-candidacy) Research in Informatics**

Research leading to dissertation before comprehensive examination. Graded on S/U basis only.

**Credit Hour:** 1-99

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**INFOINST 8150: Integrative Methods in Bioinformatics**

(same as CMP\_SC 8150). With biology entering the Big Data era, scientists are overwhelmed with the amount and the diversity of the experimental, statistical, and omics data about the biological objects they study. As a result, the frontier bioinformatics and computational genomics

methods have started to utilize a so-called integrative approach, where the computational and informatics methods are used to combine the high-throughput and low-throughput data. The main objective of this course is to teach students how to utilize bioinformatics and programming techniques for such multi-omics data integration. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOINST 8005 or instructor's permission

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**INFOINST 8190: Computational Systems Biology**

(same as CMP\_SC 8390). This course covers current theories and methods in the modeling and analysis of high-throughput experiments such as microarrays, proteomics, and metabolomics. Topics include the inference of causal relations from experimental data and reverse engineering of cellular systems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOINST 7010 or CMP\_SC 7010; INFOINST 8010

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**INFOINST 8310: Computational Genomics**

(same as CMP\_SC 8130). This course introduces computational concepts and methods of genomics to students. The course covers genome structure, database, sequencing, assembly, annotation, gene and RNA finding, motif and repeats identification, single nucleotide polymorphism, and epigenomics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOINST 7010 or CMP\_SC 7010

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**INFOINST 8350: Integrative Methods in Bioinformatics**

Course objective is to introduce the most popular experimental methods from the point of view of the information sources that can be used in. Students will learn to use data obtained directly from biological experiments and how to suggest new experiments to improve results. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOINST 7010 or CMP\_SC 7010

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**INFOINST 8390: Computational Systems Biology**

This course covers current theories and methods in the modeling and analysis of high-throughput experiments such as microarrays, proteomics, and metabolomics. Topics include the inference of casual relations from experimental data and reverse engineering of cellular systems. Graded A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOINST 7010 or CMP\_SC 7010; INFOINST 8010 or instructors consent

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**INFOINST 8450: Precision Medicine Informatics**

(same as PTH\_AS 7450). This course will introduce students with the theoretical and practical aspects of precision medicine informatics. Topics include: complex diseases, computational genomics/proteomics, informatics of molecular interactions and biological pathways, somatic mutations, signal transduction and cancer, biomarker discovery, machine learning and data mining for PMI, networks methods for PMI, knowledge representation and reasoning for PMI. The course will consist of a set of didactic lectures, computational assignments, in-class demonstrations of PMI methods and discussions of recent publications.

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**Credit Hours:** 3

**Prerequisites:** INFOINST 8005 with C or better or INFOINST 7010 with C or better or instructor's consent

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**INFOINST 8810: Research Methods in Informatics**

Research Methods in Health and Bioinformatics is a writing intensive course that provides students with an understanding of research proposal development, literature searching, research synthesis, research designs, evaluation methods, and ethics. Graded A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Second semester or later in PhD program or instructor's consent

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**INFOINST 8870: Knowledge Representation in Biology and Medicine**

The main topics presented in the course are: logic systems, knowledge representation methods, production systems and representation of statistical and uncertain knowledge. Graded A-F basis only.

**Credit Hours:** 3

**Prerequisites:** HMI 7430 and HMI 7440

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**INFOINST 8880: Machine Learning Methods for Biomedical Informatics**

(same as CMP\_SC 8180) This course teaches statistical machine learning methods and their applications in biomedical informatics. The course covers theories of advanced statistical machine learning methods and teaches how to develop machine learning methods to solve biomedical problems. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CMP\_SC 7050 and INFOINST 7010 or CMP\_SC 7010 or INFOINST 8005

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**INFOINST 9090: Dissertation (post-candidacy) Research in Informatics**

Research leading to Ph.D. dissertation after comprehensive examination. Graded on S/U basis only.

**Credit Hour:** 1-99

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## Music-Applied Music (MUS\_APMS)

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**MUS\_APMS 1435: Studio Instruction for Majors**

Acceptable as a secondary applied subject on B.S. in music education and B.M. degrees. Materials varies according to educational purpose. May be repeated for credit.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**MUS\_APMS 2455: Studio Instruction**

Credit accepted toward all undergraduate music and music education degrees. May be repeated for credit.

**Credit Hour:** 1-5

**Prerequisites:** instructor's consent

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**MUS\_APMS 3455: Studio Instruction**

Accepted as upperclass credit only in Music Education, music theory, history, or composition. May be repeated for credit.

**Credit Hour:** 1-3

**Prerequisites:** 8 hours and 4 semesters of MUS\_APMS 2455 or equivalent; audition by committee, and instructor's consent

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**MUS\_APMS 3970: Junior Recital**

Preparation and presentation of Junior Recital. Appropriate applied music course to be taken concurrently. May be repeated for credit. Each recital must be approved by a committee at least two weeks before the recital.

**Credit Hour:** 1

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**MUS\_APMS 4455: Studio Instruction**

For B.M. degrees in performance. Study of pedagogy in studio class. May be repeated for credit.

**Credit Hour:** 1-5

**Prerequisites:** 8 hours and 4 semesters of MUS\_APMS 2455; audition; instructor's consent

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**MUS\_APMS 4970: Senior Recital**

Preparation and presentation of Senior Recital. Appropriate applied music course to be taken concurrently. May be repeated for credit. Each recital must be approved by a committee at least two weeks before the recital.

**Credit Hour:** 1

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**MUS\_APMS 7435: Studio Instruction**

For music teachers needing instruction in secondary instruments or voice. Maybe repeated for credit.

**Credit Hour:** 1

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**MUS\_APMS 7455: Studio Instruction**

For graduate credit on M.A., M.Ed., and Ph.D. degrees. Study of pedagogy in studio class. May be repeated for credit.

**Credit Hour:** 1-5

**Prerequisites:** audition; instructor's consent

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**MUS\_APMS 8455: Studio Instruction**

Required for graduate credit as major applied study on M.M. degree. Acceptable for graduate credit on M.A., M.Ed., Ed.D., and Ph.D. degrees. Maybe repeated for credit.

**Credit Hour:** 1-5

**Prerequisites:** audition by committee and instructor's consent

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**MUS\_APMS 8970: Graduate Recital**

Preparation and presentation of Graduate Recital. Appropriate applied music course to be taken concurrently. May be repeated for credit. Each recital must be approved by a committee at least two weeks before the recital.

**Credit Hour:** 1

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## Music-Courses for Non-Majors (MUSIC\_NM)

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### **MUSIC\_NM 1005: Topics in Music-Humanities**

Organized study of selected topics. Subjects vary from semester to semester. May be repeated once for additional credit with departmental consent.

**Credit Hour:** 1-3

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### **MUSIC\_NM 1085: Problems in Music**

Independent investigation leading to a paper project. Sections are: Music Theory, Music Composition, Music History, Music Performance/Pedagogy. May be repeated for credit.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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### **MUSIC\_NM 1211: Fundamentals of Music I**

Introduction to rhythmic, melodic, harmonic, and structural elements of music. Designed for non-music majors. No credit for music majors or minors.

**Credit Hours:** 2

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### **MUSIC\_NM 1214: Songwriting and Beat Making**

Introductory course into the world of creating music that starts from the very beginnings of melody, harmony, and form to a finished, recorded product ready to be released.

**Credit Hours:** 3

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### **MUSIC\_NM 1300: Experiencing Music Through Concert Attendance**

Development of music listening skills through concert attendance, reading and class attendance.

**Credit Hour:** 1

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### **MUSIC\_NM 1310: Masterpieces of Western Music**

Introduction to the Western fine-art tradition through the study of representative masterworks, emphasis on developing listening skills; directed to non-majors.

**Credit Hours:** 3

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### **MUSIC\_NM 1311: Jazz, Pop, and Rock**

Historical introduction to jazz (to approximately 1970) and the American popular song, including rock and roll (to approximately 1980); directed to non-majors.

**Credit Hours:** 3

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### **MUSIC\_NM 1313: Introduction to World Music**

Introduction to the musical traditions of selected non-Western societies; emphasis on developing listening skills; directed to non-majors, but music majors may enroll.

**Credit Hours:** 3

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### **MUSIC\_NM 1314: Orchestral Masterpieces**

In-depth study of selected symphonic works of masters from Joseph Haydn to Aaron Copland. Students develop critical listening skills to identify orchestral instruments and perceive the structure and character of selected orchestral works. Directed to non-music majors. Graded on A-F basis only.

**Credit Hours:** 3

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### **MUSIC\_NM 1315: Musical Profile-Bach**

Systematic study of the music of J.S. Bach directed to the general student. Graded on A-F basis only.

**Credit Hour:** 1

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### **MUSIC\_NM 1316: Music Profile--Wolfgang A. Mozart**

A systematic introduction to the music of Wolfgang Amadeus Mozart. Graded on A-F basis only.

**Credit Hour:** 1

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### **MUSIC\_NM 1318: Music Profile--Claude Debussy**

A systematic introduction to the music of Claude Debussy. Graded on A-F basis only.

**Credit Hour:** 1

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### **MUSIC\_NM 1320: Musical Profile-Copland**

Systematic study of the music of Aaron Copland directed to the general student. Graded on A-F basis only.

**Credit Hour:** 1

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### **MUSIC\_NM 1330: Introduction to African-American Music**

Introduction to the history and scholarship of African American music from eighteenth through twentieth centuries. Focus on African legacies and retentions, slave culture, the black church, minstrelsy, folk traditions, spirituals, ragtime, blues, jazz, soul, R&B, and hip hop.

**Credit Hours:** 3

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### **MUSIC\_NM 1335: Introduction to Soul and Country**

(same as BL\_STU 1335). Examination of musical cultures signified by 'soul' and 'country'. Study of the evolution and aesthetics of these genres and how they deal with concepts like identity, class, race, and ethnicity; gender and sexuality; politics and patriotism.

**Credit Hours:** 3

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### **MUSIC\_NM 1445: Studio Instruction**

Acceptable for non-majors and majors requiring a half-hour lesson with instructor's consent. May be repeated for credit.

**Credit Hour:** 1

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### **MUSIC\_NM 1608: Beginning Piano Class**

For non-music majors only.

**Credit Hour:** 1

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### **MUSIC\_NM 1609: Intermediate Piano Class**

For non-music majors only. Continuation of MUSIC\_NM 1608.

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**Credit Hour:** 1

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**MUSIC\_NM 1612: Elementary Folk Guitar Class**

Teaching correct hand position, strum patterns, and chords needed for accompaniment of popular and folk songs.

**Credit Hour:** 1

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**MUSIC\_NM 1618: Basic Musicianship**

Development of musicianship through music reading, playing, creating, and perceptive listening, including study of pitch, rhythm, structure, style, expressive and interpretive elements, and related vocabulary. No credit for music majors or minors or students who have completed MUSIC\_NM 1211 or MUSIC\_NM 1212.

**Credit Hours:** 3

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**MUSIC\_NM 1651: Voice Class I**

Fundamentals of singing: posture, breath support, control, vocalization, concepts of tone quality, placement and resonance. Literature selected for students with no previous vocal training. Adapted to needs of drama and other interdisciplinary students.

**Credit Hour:** 1

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**MUSIC\_NM 2306: Perceiving Musical Traditions and Styles**

An introduction to music from the late Baroque to the present day, including fine art, folk, and popular music. Designed to serve as a foundation for developing knowledge and skills of musical perception that will eventually lead to thoughtful written commentary on musical performances. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**MUSIC\_NM 2306H: Perceiving Musical Traditions and Styles - Honors**

An introduction to music from the late Baroque to the present day, including fine art, folk, and popular music. Designed to serve as a foundation for developing knowledge and skills of musical perception that will eventually lead to thoughtful written commentary on musical performances. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000. Honors eligibility required

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**MUSIC\_NM 2310: Live Music: Up Close and Personal**

Study of classical chamber music from 1770-present through live performances. Artistic, cultural and historical contexts; development of listening skills and basic music vocabulary. No credit for music majors and music minors.

**Credit Hour:** 1

**Recommended:** Humanities credit for non-music students

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**MUSIC\_NM 2320: History of the Classical Guitar**

Historical development of the classical guitar and guitar music from 1400 to today.

**Credit Hours:** 2

**Recommended:** Humanities credit for any and all non-music majors

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**MUSIC\_NM 2445: Studio Instruction for Non-Majors**

Acceptable for non-majors only. May be repeated for credit.

**Credit Hour:** 1-2

**Prerequisites:** audition by examining committee and instructor's consent

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**MUSIC\_NM 4445: Studio Instruction for Non-Majors**

Acceptable for non-majors only. May be repeated for credit.

**Credit Hour:** 1-2

**Prerequisites:** audition by examining committee and instructor's consent

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**MUSIC\_NM 7445: Studio Instruction for Non-Majors**

Acceptable for graduate s credit for non-majors only. May be repeated for credit.

**Credit Hour:** 1-2

**Prerequisites:** instructor's consent

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## Music-Ensemble Courses (MUS\_ENS)

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**MUS\_ENS 1841: Instrumental Ensemble**

Provides experience in instrumental performance and repertory. Open to all MU students by audition. May be repeated for credit. Enrollment in Marching Band is limited to a maximum of five semesters. Sections are: Philharmonic Orchestra, Chamber Orchestra, Symphonic Band, Wind Ensemble, Concert Band, Varsity Band, Studio Jazz Ensemble, Jazz Lab Band, Marching Band. Some sections may be graded on an S/U or A-F basis only.

**Credit Hour:** 0-1

**Prerequisites:** Audition

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**MUS\_ENS 1842: Choral Ensemble**

Provides experience in choral performance and repertory. Open to all MU students. May be repeated for credit. Sections are: University Singers, Chamber Singers, Choral Union, Vocal Jazz Ensemble, Concert Chorale, Men's Chorus, Women's Chorus. Some sections may be graded on an S/U or A-F basis only.

**Credit Hour:** 0-1

**Prerequisites:** audition required for all but Choral Union

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**MUS\_ENS 1846: Chamber Music**

Preparation and performance of chamber music. May be repeated for credit. Sections are: String Ensemble, Woodwind Ensemble, Brass Ensemble, Percussion Ensemble. Jazz Combo. Some sections may be graded on an S/U or A-F basis only.

**Credit Hour:** 0-1

**Prerequisites:** audition and instructor's consent

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**MUS\_ENS 1865: Opera Workshop**

Study, preparation and performance of selected operatic or musical theatre work in staged or concert versions. Open to all MU students by audition. Credit arranged; may be repeated for credit. Some sections may be graded on an S/U or A-F basis only.

**Credit Hour:** 0-1

**Prerequisites:** audition and instructor's consent

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**MUS\_ENS 4866: Musical Theatre Performance**

(same as THEATR 4460). A practical study for the actor of theatrical songs through character analysis, lyric interpretation, and movement. A performance course.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_ENS 8841: Instrumental Ensemble**

Research, preparation and performance of instrumental compositions. May be repeated for credit. Sections and credit hours are: Philharmonic Orchestra, Chamber Orchestra, Symphonic Band, Wind Ensemble, Concert Band, Studio Jazz Ensemble, Jazz Lab Band, Marching Band. Some sections may be graded on an S/U or A-F basis only.

**Credit Hour:** 0-1

**Prerequisites:** audition and instructor's consent

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**MUS\_ENS 8842: Choral Ensemble**

Research, preparation and performance of choral compositions. May be repeated for credit. Sections are: University Singers, Chamber Singers, Choral Union, Vocal Jazz Ensemble, Concert Choral, Men's Chorus, Women's Chorus. Some sections may be graded on an S/U or A-F basis only.

**Credit Hour:** 0-1

**Prerequisites:** audition and instructor's consent

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**MUS\_ENS 8846: Advanced Chamber Ensemble**

Study, preparation and performance of chamber music. May be repeated for credit. Sections are: String Ensemble, Woodwind Ensemble, Brass Ensemble, Percussion Ensemble, Jazz Combo. Some sections may be graded on an S/U or A-F basis only.

**Credit Hour:** 0-1

**Prerequisites:** audition and instructor's consent

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**MUS\_ENS 8865: Advanced Opera Workshop**

Study, preparation and performance of selected operatic or musical theatre works in staged or concert versions. Credit arranged; may be repeated for credit. Some sections may be graded on an S/U or A-F basis only.

**Credit Hour:** 0-2

**Prerequisites:** audition and instructor's consent

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## Music-General (MUS\_GENL)

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**MUS\_GENL 1091: Recital Attendance for Undergraduate Music Majors**

Required attendance of eleven music events from the Music Department listing. 0 credit, and may be repeated until the total degree requirement is satisfactorily met. No tuition charged. Graded on S/U basis only.

**Credit Hours:** 0

**Prerequisites:** Undergraduate music or music education majors only

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**MUS\_GENL 3085: Problems in Music**

Independent investigation leading to a paper or project. May be repeated for credit. Sections are: Music Theory, Music Composition, Music History, Music Performance/Pedagogy.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**MUS\_GENL 3085W: Problems in Music - Writing Intensive**

Independent investigation leading to a paper or project. May be repeated for credit. Sections are: Music Theory, Music Composition, Music History, Music Performance/Pedagogy.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**MUS\_GENL 4005: Topics in Music-Humanities**

Organized study of selected topics in music. Subjects and credit variable. May be repeated for additional credit with departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** junior standing in Music and instructor's consent

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**MUS\_GENL 4005W: Topics in Music-Humanities - Writing Intensive**

Organized study of selected topics in music. Subjects and credit variable. May be repeated for additional credit with departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** junior standing in Music and instructor's consent

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**MUS\_GENL 4029: Music Travel Course**

(cross-leveled with MUS\_GENL 7029). Experience designed to broaden music students' perspectives on music in different social and/or cultural context(s). Participant bears cost of the course.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

---

**MUS\_GENL 4510: Career Development for Musicians**

(cross-leveled with MUS\_GENL 7510). Examination of professional opportunities available in the Creative Economy; development of a framework for career planning, professional portfolio, and personal business plan.

**Credit Hours:** 2

**Prerequisites:** sophomore standing and instructor's consent

---

**MUS\_GENL 4512: Principles of Arts Entrepreneurship**

(cross-leveled with MUS\_GENL 7512). Provisions of a solid foundation of the core principles of entrepreneurial practice: creation of new ventures, the decisions leading to their development, and the factors that lead to their success. Students identify a career objective and develop a framework for achieving it.

**Credit Hours:** 2

**Prerequisites:** MUS\_GENL 4510; sophomore standing or instructor's consent

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**MUS\_GENL 4514: Arts Marketing**

(cross-leveled with MUS\_GENL 7514). Exploration of marketing the arts in the 21st Century. Students formulate a marketing plan for a project or

career goal, including establishing a competitive advantage, identifying target markets, formulating marketing strategy, and measuring outcomes.

**Credit Hour:** 1

**Prerequisites:** MUS\_GENL 4510; Sophomore standing or instructor's consent

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**MUS\_GENL 4516: Grant Writing for the Arts**

(cross-leveled with MUS\_GENL 7516). Exploration of the nuts and bolts of grant writing, including resources for freelance performers and teachers, and alternative fundraising strategies for individual venture ideas. Students identify a grant opportunity and draft a funding proposal for a real or imagined project.

**Credit Hour:** 1

**Prerequisites:** MUS\_GENL 4510; sophomore standing or instructor's consent

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**MUS\_GENL 4518: Arts Industry Survey**

(cross-leveled with MUS\_GENL 7518). In-depth survey of the commercial arts industry world, with emphasis on career opportunities within the recording, performing, music retail, and music management sectors.

**Credit Hour:** 1

**Prerequisites:** MUS\_GENL 4510 and sophomore standing

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**MUS\_GENL 4520: Non-Profit Management in the Arts**

(cross-leveled with MUS\_GENL 7520). Introduction to management strategy and its application within the not-for-profit arts sector.

**Credit Hour:** 1

**Prerequisites:** MUS\_GENL 4510, sophomore standing or instructor's consent

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**MUS\_GENL 4522: Community Engagement in the Arts**

(cross-leveled with MUS\_GENL 4522). Introduction to community-based arts and their relationship to personal branding in the non-profit arts sector.

**Credit Hour:** 1

**Prerequisites:** MUS\_GENL 4510, sophomore standing, or instructor's consent

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**MUS\_GENL 4530: Leadership, Advocacy, and Policy in the Arts**

(cross-leveled with MUS\_GENL 7530). Seminar investigating advocacy methods, the application of leadership within non-profit arts organizations, arts policy and implications for artists in the 21st century. Writing and research-based work is a heavy component.

**Credit Hour:** 1

**Prerequisites:** MUS\_GENL 4510 and sophomore standing

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**MUS\_GENL 4540: Music Entrepreneurship Practicum**

(cross-leveled with MUS\_GENL 7540). Students either A) design and execute an entrepreneurial music leadership project in the community, or B) complete an internship (and accompanying report) with an approved partner organization, supervised by the instructor.

**Credit Hour:** 1-2

**Prerequisites:** MUS\_GENL 4510, sophomore standing or instructor's consent

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**MUS\_GENL 4550: Movement and Wellness for Musicians**

(cross-leveled with MUS\_GENL 7550). Students will actively engage with various somatic practices with the goal of holistically improving musical performance.

**Credit Hour:** 1

**Prerequisites:** Instructor's consent

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**MUS\_GENL 7005: Topics in Music**

Organized study of selected topics in music. Subjects and credit variable. May be repeated with departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** departmental consent

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**MUS\_GENL 7029: Music Travel Course**

(cross-leveled with MUS\_GENL 4029). Experience designed to broaden music students' perspectives on music in different social and/or cultural context(s). Participant bears cost of the course.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

---

**MUS\_GENL 7510: Career Development for Musicians**

(cross-leveled with MUS\_GENL 4510). Examination of professional opportunities available in the Creative Economy; development of a framework for career planning, professional portfolio, and personal business plan.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

---

**MUS\_GENL 7512: Principles of Arts Entrepreneurship**

(cross-leveled with MUS\_GENL 4512). Provision of a solid foundation of the core principles of entrepreneurial practice: creation of new ventures, the decisions leading to their development, and the factors that lead to their success. Students identify a career objective and develop a framework for achieving it.

**Credit Hours:** 2

**Prerequisites:** MUS\_GENL 7510 and instructor's consent

---

**MUS\_GENL 7514: Arts Marketing**

(cross-leveled with MUS\_GENL 4514). Exploration of marketing the arts in the 21st Century. Students formulate a marketing plan for a project or career goal, including establishing a competitive advantage, identifying target markets, formulating marketing strategy, and measuring outcomes.

**Credit Hour:** 1

**Prerequisites:** MUS\_GENL 7510 and instructor's consent

---

**MUS\_GENL 7516: Grant Writing for the Arts**

(cross-leveled with MUS\_GENL 4516). Explorations of the nuts and bolts of grant writing, including resources for freelance performers and teachers, and alternative fundraising strategies for individual venture ideas. Students identify a grant opportunity and draft a funding proposal for a real or imagined project.

**Credit Hour:** 1

**Prerequisites:** MUS\_GENL 7510; instructor's consent

---

**MUS\_GENL 7518: Arts Industry Survey**

(cross-leveled with MUS\_GENL 4518). In-depth survey of the commercial arts industry world, with emphasis on career opportunities within the recording, performing, music retail, and music management sectors.

**Credit Hour:** 1

**Prerequisites:** MUS\_GENL 7510 or instructor's consent

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**MUS\_GENL 7520: Non-Profit Management in the Arts**

(cross-leveled with MUS\_GENL 4520). Introduction to management strategy and its application within the not-for-profit arts sector.

**Credit Hour:** 1

**Prerequisites:** MUS\_GENL 7510 or instructor's consent

---

**MUS\_GENL 7522: Community Engagement in the Arts**

(cross-leveled with MUS\_GENL 4522). Introduction to community-based arts and their relationship to personal branding in the non-profit arts sector.

**Credit Hour:** 1

**Prerequisites:** MUS\_GENL 7510 or instructor's consent

---

**MUS\_GENL 7530: Leadership, Advocacy, and Policy in the Arts**

(cross-leveled with MUS\_GENL 4530). Seminar investigating advocacy methods, the application of leadership within non-profit arts organizations, arts policy and implications for artists in the 21st century. Writing and research-based work is a heavy component.

**Credit Hour:** 1

**Prerequisites:** MUS\_GENL 7510 or instructor's consent

---

**MUS\_GENL 7540: Music Entrepreneurship Practicum**

(cross-leveled with MUS\_GENL 4540). Students either A) design and execute an entrepreneurial music leadership project in the community, or B) complete an internship (and accompanying report) with an approved partner organization, supervised by the instructor.

**Credit Hour:** 1-2

**Prerequisites:** MUS\_GENL 7510 or instructor's consent

---

**MUS\_GENL 7550: Movement and Wellness for Musicians**

(cross-leveled with MUS\_GENL 4550). Students will actively engage with various somatic practices with the goal of holistically improving musical performance.

**Credit Hour:** 1

**Prerequisites:** Instructor's consent

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**MUS\_GENL 8085: Problems in Music**

Independent investigation leading to a paper or project. May be repeated for credit. Sections are: Music Theory, Music Composition, Music History, Music Performance/Pedagogy.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**MUS\_GENL 8090: Research in Music**

Thesis course. May be repeated for additional credit. Sections are: Music Theory, Music Composition, Music History. Performance/Pedagogy. Graded on S/U basis only.

**Credit Hour:** 1-99

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## Music-Instrumental And Vocal Repertory (MUS\_I\_VR)

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**MUS\_I\_VR 3753: Piano Literature I**

Survey of keyboard music from ca. 1600 to ca. 1800.

**Credit Hours:** 2

**Prerequisites:** junior standing and instructor's consent

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**MUS\_I\_VR 3753W: Piano Literature I - Writing Intensive**

Survey of keyboard music from ca. 1600 to ca. 1800.

**Credit Hours:** 2

**Prerequisites:** junior standing and instructor's consent

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**MUS\_I\_VR 3754: Piano Literature II**

Survey of keyboard music from Beethoven's time to the present.

**Credit Hours:** 2

**Prerequisites:** MUS\_I\_VR 3753 or instructor's consent

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**MUS\_I\_VR 4767: Vocal Literature I**

(cross-leveled with MUS\_I\_VR 7767). Introduction to and study of song literature with emphasis on style and interpretation. Prerequisites: junior standing

**Credit Hours:** 2

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**MUS\_I\_VR 4768: Vocal Literature II**

Continuation of MUS\_I\_VR 4767.

**Credit Hours:** 2

**Prerequisites:** MUS\_I\_VR 4767 or instructor's consent

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**MUS\_I\_VR 4776: Orchestral Excerpts**

(cross-leveled with MUS\_I\_VR 7776). Study and preparation of selected excerpts from the standard audition repertoire, culminating in a mock audition. May be repeated for credit.

**Credit Hour:** 1

**Prerequisites:** Instructor's consent required

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**MUS\_I\_VR 4780: Classical Guitar Repertory I**

(cross-leveled with MUS\_I\_VR 7780). Survey of guitar repertory and history from 1400 to present.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**MUS\_I\_VR 4781: Classical Guitar Repertory II**

(cross-leveled with MUS\_I\_VR 7781). Continued study of guitar repertory from 1400 to present, with emphasis on organological development of the guitar and performance practice.



**Credit Hour:** 1

**Prerequisites:** MUS\_I\_VR 4780; instructor's consent

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**MUS\_I\_VR 7767: Advanced Vocal Literature I**

Study of specific aspects of vocal repertory. Individual projects in research, analysis and performance.

**Credit Hours:** 3

**Prerequisites:** MUS\_APMS 7455 or instructor's consent

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**MUS\_I\_VR 7768: Advanced Vocal Literature II**

Continuation of MUS\_I\_VR 7767.

**Credit Hours:** 3

**Prerequisites:** MUS\_I\_VR 7767 or instructor's consent

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**MUS\_I\_VR 7776: Orchestral Excerpts**

(cross-leveled with MUS\_I\_VR 4776). Study and preparation of selected excerpts from the standard audition repertory, culminating in a mock audition. May be repeated for credit.

**Credit Hour:** 1

**Prerequisites:** instructor's consent required

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**MUS\_I\_VR 7780: Graduate Classical Guitar Repertory I**

(cross-leveled with MUS\_I\_VR 4780). Survey of guitar repertory and history from 1400 to present.

**Credit Hour:** 1

**Prerequisites:** instructor's consent required

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**MUS\_I\_VR 7781: Graduate Classical Guitar Repertory II**

(cross-leveled with MUS\_I\_VR 4781). Continued study of guitar repertory from 1400 to present, with emphasis on organological development of the guitar and performance practice.

**Credit Hour:** 1

**Prerequisites:** MUS\_I\_VR 7780. Instructor's consent required

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**MUS\_I\_VR 8753: Piano Repertory I**

Study of specific aspects of Baroque and Classical keyboard music. Individual projects in research, analysis and performance.

**Credit Hours:** 2

**Prerequisites:** MUS\_APMS 7455 or instructor's consent

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**MUS\_I\_VR 8754: Piano Repertory II**

Study of specific aspects of nineteenth- and twentieth century piano music. Individual projects in research, analysis and performance.

**Credit Hours:** 2

**Prerequisites:** MUS\_I\_VR 8753 or instructor's consent

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**MUS\_I\_VR 8765: Choral Repertory**

Survey of choral works from selected periods with an emphasis on various aspects of choral performance. May be repeated once for additional credit.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

---

**MUS\_I\_VR 8770: Band Repertory**

To survey band and wind ensemble repertoire with emphasis on various aspects of performance practice in order to prepare the student for a career which includes conducting advanced high school and college bands and wind ensembles.

**Credit Hours:** 3

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**MUS\_I\_VR 8773: String Instrument Repertory I**

**Credit Hour:** 1

**Prerequisites:** MUS\_APMS 7455 or instructor's consent

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**MUS\_I\_VR 8774: String Instrument Repertory II**

Continuation of MUS\_I\_VR 8773.

**Credit Hour:** 1

**Prerequisites:** MUS\_I\_VR 8773

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**MUS\_I\_VR 8775: Orchestral Repertory**

A survey of orchestral repertory, emphasizing various aspects of performance practice. Appropriate for graduate music conducting majors who wish to pursue a career which includes conducting orchestras at the advanced high school, college, and professional levels. May be repeated.

**Credit Hours:** 2

**Prerequisites:** Conducting experience at the high school or college level and instructor's consent

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## Music-Instrumental And Vocal Techniques (MUS\_I\_VT)

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**MUS\_I\_VT 1610: Group Piano for Music Majors I**

Beginning piano for music majors and concentrations only.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**MUS\_I\_VT 1611: Group Piano for Music Majors II**

Continuation of MUS\_I\_VT 1610.

**Credit Hour:** 1

**Prerequisites:** MUS\_I\_VT 1610 with a minimum grade of C- or instructor's consent

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**MUS\_I\_VT 1620: Jazz Piano Class**

Beginning piano technique and study of common jazz piano voicings for accompaniment and solo performance.

**Credit Hour:** 1

**Prerequisites:** MUSIC\_NM 1211 or MUS\_THRY 1220; instructor's consent required

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**MUS\_I\_VT 2610: Group Piano for Music Majors III**

Continuation of MUS\_I\_VT 1611.

**Credit Hour:** 1

**Prerequisites:** MUS\_I\_VT 1611 with a minimum grade of C- or instructor's consent

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**MUS\_I\_VT 2611: Group Piano for Music Majors IV**

Continuation of MUS\_I\_VT 2610.

**Credit Hour:** 1

**Prerequisites:** MUS\_I\_VT 2610 with a minimum grade of C- or instructor's consent

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**MUS\_I\_VT 2631: Basic Conducting and Score Reading**

To develop the basic psychomotor and score reading skills prerequisite to the art of conducting.

**Credit Hours:** 2

**Prerequisites:** grade of C- or better in MUS\_THRY 2220

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**MUS\_I\_VT 2633: Rehearsal Clinic: Choral Conducting I**

To develop musical and interpersonal skills requisite for successful leadership of a choral ensemble, emphasizing rehearsal strategies and repertoire.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_I\_VT 2631 or instructor's consent

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**MUS\_I\_VT 2634: Rehearsal Clinic: Band Conducting I**

To develop musical and interpersonal skills requisite for successful rehearsal leadership, emphasizing strategies effective for rehearsal of wind and percussion ensembles.

**Credit Hour:** 1

**Prerequisites:** Grade of C- or better in MUS\_I\_VT 2631 or instructor's consent

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**MUS\_I\_VT 2635: Rehearsal Clinic: Choral Conducting II**

Continuation of MUS\_I\_VT 2633.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_I\_VT 2633

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**MUS\_I\_VT 2636: Rehearsal Clinic: Band Conducting II**

Continuation of MUS\_I\_VT 2634.

**Credit Hour:** 1

**Prerequisites:** Grade of C- or better in MUS\_I\_VT 2634

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**MUS\_I\_VT 2637: Woodwinds I**

Class instruction in clarinet and saxophone; playing and methods/ materials for teaching. Taught on a laboratory basis. Meets twice weekly.

**Credit Hour:** 1

**Prerequisites:** major in Music or Music Education

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**MUS\_I\_VT 2638: Woodwinds II**

Class instruction in flute and double reeds; playing and methods/ materials for teaching. Taught on a laboratory basis. Meets twice weekly.

**Credit Hour:** 1

**Prerequisites:** major in Music or Music Education

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**MUS\_I\_VT 2640: Strings I**

Class instruction in violin and viola; playing and methods and materials for teaching. Taught on a laboratory basis. Meets twice weekly.

**Credit Hour:** 1

**Prerequisites:** major in Music or Music Education. Grade of C- or better in MUS\_THRY 1221 or instructor's consent

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**MUS\_I\_VT 2641: Strings II**

Class instruction in violoncello and string bass; playing and methods and materials for teaching. Taught on a laboratory basis. Meets twice weekly.

**Credit Hour:** 1

**Prerequisites:** major in Music or Music Education. Grade of C- or better in MUS\_THRY 1221 or instructor's consent. Recommend enrolling after earning a grade of C- or better in MUS\_I\_VT 2640

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**MUS\_I\_VT 2645: Brass I**

Class instruction in trumpet and horn; playing and methods/ materials for teaching. Taught on a laboratory basis. Meets twice weekly.

**Credit Hour:** 1

**Prerequisites:** major in Music or Music Education

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**MUS\_I\_VT 2646: Brass II**

Class instruction in trombone, euphonium, and tuba; playing and methods/materials for teaching. Taught on a laboratory basis. Meets twice weekly.

**Credit Hour:** 1

**Prerequisites:** major in Music or Music Education

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**MUS\_I\_VT 2648: Percussion**

Class instruction in percussion instruments; playing and methods and materials for teaching. Taught on a laboratory basis. Meets twice weekly.

**Credit Hour:** 1

**Prerequisites:** major in Music Education

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**MUS\_I\_VT 2649: Percussion II**

Extension of MUS\_I\_VT 2648. Topics include marching percussion, drumset, Latin accessory instruments, and percussion ensemble literature.

**Credit Hour:** 1

**Prerequisites:** MUS\_I\_VT 2648

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**MUS\_I\_VT 2661: Keyboard Skills for Piano Majors I**

Study of sightreading, harmonization, transposition, figured bass realization, and duet skills.

**Credit Hours:** 2

**Prerequisites:** grade of C- or better in MUS\_THRY 1221 and MUS\_THRY 1231; instructor's consent

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**MUS\_I\_VT 2662: Keyboard Skills for Piano Majors II**

Study of score reading, duet performance, and collaborative experiences with voice and instruments.

**Credit Hours:** 2

**Prerequisites:** grade of C- or better in MUS\_I\_VT 2661; instructor's consent

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**MUS\_I\_VT 3642: Seminar in String Techniques**

In-depth study of publications, philosophies, repertory, grading, specific problems for the string player. May be repeated once for credit.

**Credit Hour:** 1

**Prerequisites:** MUS\_I\_VT 2640 and MUS\_I\_VT 2641, or instructor's consent

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**MUS\_I\_VT 3643: Symposium in Instrumental Music**

Study of procedures, techniques and literature for variable combinations of wind, string, and percussion classes and the administration of instrumental music programs.

**Credit Hours:** 2

**Prerequisites:** junior standing in Music or Music Education or instructor's consent

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**MUS\_I\_VT 3644: Jazz Methods and Materials**

Training and supervised practice in conducting Jazz Ensembles; study of administration, methods, and materials pertinent to teaching Jazz, Rock, and Commercial Music in high school and college.

**Credit Hour:** 1

**Prerequisites:** junior standing or instructor's consent

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**MUS\_I\_VT 3646: Marching Band Techniques**

Study of techniques and procedures used in the development of field and street marching.

**Credit Hours:** 2

**Prerequisites:** junior standing in Music or Music Education

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**MUS\_I\_VT 3670: Diction in Singing: Italian**

Study of the correct principles and application of Italian diction in singing the solo vocal, operatic and choral literature; the International phonetic alphabet; spoken language drill, study and recitation of representative literature.

**Credit Hour:** 1

**Prerequisites:** sophomore standing

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**MUS\_I\_VT 3671: Diction in Singing: German**

Study of the correct principles and application of German diction in singing the solo vocal, operatic and choral literature; the International Phonetic Alphabet spoken language drill, study and recitation of representative literature.

**Credit Hour:** 1

**Prerequisites:** sophomore standing

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**MUS\_I\_VT 3672: Diction in Singing: French**

Study of the correct principles and application of French diction in singing the solo vocal, operatic, and choral literature; the International Phonetic Alphabet spoken language drill, study and recitation of representative literature. Prerequisites: sophomore standing

**Credit Hour:** 1

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**MUS\_I\_VT 3673: Diction in Singing: English**

Study of the correct principles and application of English diction in singing the solo vocal, operatic and choral literature; the International phonetic

alphabet; spoken language drill, study and recitation of representative literature.

**Credit Hour:** 1

**Prerequisites:** Sophomore standing

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**MUS\_I\_VT 4640: Introduction to Improvisation**

(cross-leveled with MUS\_I\_VT 7640). Introduction to contemporary improvisation, aimed at classically trained musicians. No improvisational experience necessary.

**Credit Hours:** 2

**Prerequisites:** Consent of instructor

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**MUS\_I\_VT 4645: Jazz Improvisation**

Creation of a melodic vocabulary for jazz improvisation through study and application of jazz chord-scale theory, solo transcription, and careful listening to the vanguard of jazz.

**Credit Hours:** 2

**Prerequisites:** MUSIC\_NM 1211 or MUS\_THRY 1220, instructor's consent

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**MUS\_I\_VT 4650: Composing for Percussion**

(cross-leveled with MUS\_I\_VT 7650). Hands-on compositional practice course with weekly exercises, weekly compositional sketches and score study. The course will allow students to collaborate with performers, solve compositional problems, and write for a wide variety of percussion instruments. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 2216 or by Instructor's Consent

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**MUS\_I\_VT 4661: Piano Pedagogy Survey I**

Study of approaches for teaching young beginning and intermediate student; survey of materials and resources.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_I\_VT 4662: Piano Pedagogy Survey II**

Study of approaches for teaching older, more advanced and class piano students; survey of materials and resources.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_I\_VT 4663: Piano Pedagogy Laboratory**

Supervised instruction in private and class piano . May be repeated once for additional credit.

**Credit Hour:** 1

**Prerequisites:** MUS\_I\_VT 4661 and MUS\_I\_VT 4662

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**MUS\_I\_VT 4680: Classical Guitar Pedagogy**

Basic anatomical and physiological aspects of guitar performance, setting technical and musical goals for students, repertoire development in relation to age, level, and musical style. Career goals (building a private studio, lesson planning, organizational skills) are addressed.

**Credit Hour:** 1

**Prerequisites:** Audition required and instructor's consent

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**MUS\_I\_VT 7640: Introduction to Improvisation**

(cross-leveled with MUS\_I\_VT 4640). Introduction to contemporary improvisation, aimed at classically trained musicians. No improvisational experience necessary.

**Credit Hours:** 2

**Prerequisites:** Consent of instructor

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**MUS\_I\_VT 7645: Graduate Jazz Improvisation**

Creation of a melodic vocabulary for jazz improvisation through study and application of jazz chord-scale theory, solo transcription, and careful listening to the vanguard of jazz.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_I\_VT 7650: Composing for Percussion**

(cross-leveled with MUS\_I\_VT 4650). A hands-on compositional practice course with weekly exercises, weekly compositional sketches and score study. The course will allow students to collaborate with performers, solve compositional problems, and write for a wide variety of percussion instruments. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 2216 or by Instructor's Consent

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**MUS\_I\_VT 7680: Graduate Classical Guitar Pedagogy**

Basic anatomical and physiological aspects of guitar performance, setting technical and musical goals for students, repertoire development in relation to age, level and musical style. Career goals (building a private studio, lesson planning, organizational skills) are addressed.

**Credit Hour:** 1

**Prerequisites:** Audition and approval of instructor

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**MUS\_I\_VT 8646: Jazz Pedagogy I**

Study of historical and current trends in jazz education and pedagogy, including administration and curriculum, through assigned readings, supervised teaching, classroom discussion, survey of materials, and formation of an annotated bibliography. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**MUS\_I\_VT 8647: Jazz Pedagogy II**

Continuation of MUS\_I\_VT 8646; formulation of an extensive philosophy of jazz education. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MUS\_I\_VT 8646 and instructor's consent

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**MUS\_I\_VT 8671: Principles of Singing I**

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_I\_VT 8673: Advanced Choral Conducting**

Advanced conducting techniques in the interpretation of choral literature; score analysis. May be repeated for additional credit.

**Credit Hours:** 2

**Prerequisites:** MUS\_I\_VT 2633 or instructor's consent

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**MUS\_I\_VT 8674: Advanced Instrumental Conducting**

Advanced conducting techniques in the interpretation of band and orchestral literature; score analysis. May be repeated for additional credit.

**Credit Hours:** 2

**Prerequisites:** MUS\_I\_VT 2634 or instructor's consent

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**MUS\_I\_VT 8681: Advanced Piano Pedagogy I**

A survey of materials and techniques of instruction for teaching the young beginner and the intermediate piano student.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_I\_VT 8682: Advanced Piano Pedagogy II**

A survey of materials and techniques of instruction for teaching class piano, the older beginner, and the advanced student.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_I\_VT 8683: Piano Pedagogy Internship**

Supervised teaching of individual and group lessons. May be repeated once for credit.

**Credit Hour:** 1

**Prerequisites:** MUS\_I\_VT 8681 and MUS\_I\_VT 8682 and instructor's consent

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**MUS\_I\_VT 8684: Group Piano Pedagogy**

Preparation of graduate students to teach group piano to both college level music majors and adult beginners.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_I\_VT 8689: Band Techniques**

To develop individual conducting techniques as well as instrumental ensemble techniques. Emphasis is placed on the learning process to give the student a perspective to improve the techniques of others.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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## Music-Music Education (MUS\_EDUC)

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**MUS\_EDUC 1100: Orientation: Music Education**

This course familiarizes and orients students with MU resources, Music Education degree expectations and career options. Graded on S/U basis only.

**Credit Hour:** 1

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**MUS\_EDUC 4140: Teaching Music I**

Study of skills, knowledge, and philosophical foundations necessary to teach general music to children in grades preK - 5, including methods, philosophies, and teacher and learner behaviors.

**Credit Hours:** 3

**Prerequisites:** junior standing; music education major or instructor's consent

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**MUS\_EDUC 4141: Teaching Music I Field Experience**

This field experience supports the MUS\_EDUC 4140 course. Field experience expectations are delineated in the course syllabus. Graded on a S/U basis only.

**Credit Hour:** 1

**Prerequisites:** junior standing; music education major or instructor's consent

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**MUS\_EDUC 4142: Teaching Music II**

Study of a broad repertoire of music literature and instructional materials, including critical evaluation and analysis for use in the general music classroom.

**Credit Hours:** 2

**Prerequisites:** MUS\_EDUC 4140

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**MUS\_EDUC 4142W: Teaching Music II - Writing Intensive**

Study of a broad repertoire of music literature and instructional materials, including critical evaluation and analysis for use in the general music classroom.

**Credit Hours:** 2

**Prerequisites:** MUS\_EDUC 4140

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**MUS\_EDUC 4143: Teaching Music II Field Experience**

This field experience supports the MUS\_EDUC 4142 course. Field experience expectations are delineated in the course syllabus. Graded on a S/U basis only.

**Credit Hour:** 1

**Prerequisites:** MUS\_EDUC 4141

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**MUS\_EDUC 4143W: Teaching Music II Field Experience - Writing Intensive**

This field experience supports the MUS\_EDUC 4142 course. Field experience expectations are delineated in the course syllabus. Graded on a S/U basis only.

**Credit Hour:** 1

**Prerequisites:** MUS\_EDUC 4141

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**MUS\_EDUC 4144: Teaching Music III**

A study of various strategies for the successful teaching of middle and high school music programs.

**Credit Hours:** 3

**Prerequisites:** MUS\_EDUC 4142

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**MUS\_EDUC 4144W: Teaching Music III - Writing Intensive**

A study of various strategies for the successful teaching of middle and high school music programs.

**Credit Hours:** 3

**Prerequisites:** MUS\_EDUC 4142

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**MUS\_EDUC 4145: Teaching Music III Field Experience**

This field experience supports the MUS\_EDUC 4144 course. Field experience expectations are delineated in the course syllabus. Graded on a S/U basis only.

**Credit Hour:** 1

**Prerequisites:** MUS\_EDUC 4143

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**MUS\_EDUC 4145W: Teaching Music III Field Experience - Writing Intensive**

This field experience supports the MUS\_EDUC 4144 course. Field experience expectations are delineated in the course syllabus. Graded on a S/U basis only.

**Credit Hour:** 1

**Prerequisites:** MUS\_EDUC 4143

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**MUS\_EDUC 8140: Advanced Techniques in Music Education-General**

A review and evaluation of teaching/learning strategies in general music instruction.

**Credit Hour:** 2-5

**Prerequisites:** Music methods or instructor's consent

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**MUS\_EDUC 8141: Advanced Techniques in Music Education-Early Childhood**

A review and evaluation of teaching/learning strategies in early childhood music instruction.

**Credit Hour:** 2-5

**Prerequisites:** Music methods or instructor's consent

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**MUS\_EDUC 8142: Curriculum Materials in Music Education-General**

A development of critical abilities in evaluation and selection of music education materials for general music.

**Credit Hour:** 2-5

**Prerequisites:** instructor's consent

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**MUS\_EDUC 8143: Curriculum Materials in Music Education-Vocal**

A development of critical abilities in evaluation and selection of music education materials for secondary vocal music.

**Credit Hour:** 2-5

**Prerequisites:** instructor's consent

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**MUS\_EDUC 8150: Foundations of Music Education**

A study of the history, philosophy and rationale of music education.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_EDUC 8151: Measurement and Research in Music Education**

Introduction to measurement and research strategies and techniques employed by music educators to assess music achievement, aptitude, perception, performance, cognition, and affective development. Emphasis on reading with understanding and applying research to pedagogical practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Graduate standing in music education

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**MUS\_EDUC 8152: Psychology of Music Instruction and Performance**

Introduction to the study of psychological factors, theories and research related to the musical development and performance of children, adolescents, and adults, with implications and applications for music education programs and instruction. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Graduate standing in music education

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**MUS\_EDUC 8160: Current Issues in Music Education**

This course is designed to stimulate thinking about current issues related to the field of music education and the influences of these issues on approaches to music teaching and learning.

**Credit Hour:** 1-3

**Prerequisites:** Graduate standing in music education

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**MUS\_EDUC 8170: Doctoral Seminar in Music Education**

Emphasis on knowledge, strategies, and skills necessary for doctoral students to be prepared to make contributions to the profession as successful college teachers, researchers, master teachers in K-12 schools, and arts administrators. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** Admission to doctoral study in music education

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**MUS\_EDUC 9090: Research in Music Education**

Research leading to the dissertation. Graded on S/U basis only.

**Credit Hour:** 1-12

**Prerequisites:** Doctoral student in Music Education who have submitted passed comprehensive examination

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## Music-Music History And Literature (MUS\_H\_LI)

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**MUS\_H\_LI 1322: Introduction to Music in the United States**

Historical overview of American folk, popular, and fine-art music; emphasis on listening skills.

**Credit Hours:** 2

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**MUS\_H\_LI 2307: History of Western Music I**

Historical survey of selected European practices up to 1700 following a consideration of the major fine-art traditions of the world.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 1322

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**MUS\_H\_LI 2308: History of Western Music II**

Historical survey of Western fine-art music from approximately 1700 to the present.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2307

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**MUS\_H\_LI 4311: Historical Studies in Art Song**

(cross-leveled with MUS\_H\_LI 7311). Historical survey of works for solo voice and instruments.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4311W: Historical Studies in Art Song - Writing Intensive**

(cross-leveled with MUS\_H\_LI 7311). Historical survey of works for solo voice and instruments.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4312: Historical Studies in Choral Music**

(cross-leveled with MUS\_H\_LI 4312). Historical survey of works featuring choral ensembles.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4312W: Historical Studies in Choral Music - Writing Intensive**

(cross-leveled with MUS\_H\_LI 7312). Historical survey of works featuring choral ensembles.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4313W: Historical Studies in Opera - Writing Intensive**

(cross-leveled with MUS\_H\_LI 7313). Historical survey of opera.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4315: Historical Studies in Chamber Music**

(cross-leveled with MUS\_H\_LI 7315). Historical survey of works for small ensembles, instrumental and vocal.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4315W: Historical Studies in Chamber Music - Writing Intensive**

(cross-leveled with MUS\_H\_LI 7315). Historical survey of works for small ensembles, instrumental and vocal.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4317: Historical Studies in Jazz and Popular Music**  
(cross-leveled with MUS\_H\_LI 7317). Historical survey of works from the realm of American jazz and popular music.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4317W: Historical Studies in Jazz and Popular Music - Writing Intensive**  
(cross-leveled with MUS\_H\_LI 7317). Historical survey of works from the realm of American jazz and popular music.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4318: Studies in World Music**  
(cross-leveled with MUS\_H\_LI 7318). Advanced systematic study of musical activities in selected world cultures, with the emphasis on developing listening skills and understanding the role of music in a culture.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2307 and MUS\_H\_LI 2308

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**MUS\_H\_LI 4318W: Studies in World Music - Writing Intensive**  
(cross-leveled with MUS\_H\_LI 7318). Advanced systematic study of musical activities in selected world cultures, with the emphasis on developing listening skills and understanding the role of music in a culture.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2307 and MUS\_H\_LI 2308

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**MUS\_H\_LI 4320W: Historical Studies in African-American Music - Writing Intensive**  
(cross-leveled with MUS\_H\_LI 7320). Exploration of history and current scholarship in African-American music from the eighteenth to twenty-first centuries. Genres include folk music, religious music, blues, ragtime, jazz, musical theater, art music, R&B, funk, soul, disco, house, hip-hop and rap.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and Instructor's consent

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**MUS\_H\_LI 4330: Music of the Postmodern Era**  
(cross-leveled with MUS\_H\_LI 7330). Systematic study of fine-art musical practice from approximately 1945 to the present.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308

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**MUS\_H\_LI 4336: Music in the Baroque Era**  
(cross-leveled with MUS\_H\_LI 7336). Systematic study of European musical practice from approximately 1600 to 1750.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4337: Music of the Classic Era**  
(cross-leveled with MUS\_H\_LI 7337). Systematic study of European musical practice from approximately 1750 to 1800.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4337W: Music of the Classic Era - Writing Intensive**  
(cross-leveled with MUS\_H\_LI 7337). Systematic study of European musical practice from approximately 1750 to 1800.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4338: Music of the Romantic Era**  
(cross-leveled with MUS\_H\_LI 7338). Systematic study of European musical practice from approximately 1800 to 1900.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4338W: Music of the Romantic - Writing Intensive**  
(cross-leveled with MUS\_H\_LI 7338). Systematic study of European musical practice from approximately 1800 to 1900.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4339: Music of the Modern Era**  
(cross-leveled with MUS\_H\_LI 7339). Systematic study of fine-art musical practice from approximately 1900 to the present.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308

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**MUS\_H\_LI 4340: Focal Composers**  
Systematic study of the works of landmark composers: J.S. Bach, Mozart, Beethoven, Verdi/Wagner, Debussy, or Stravinsky, studied in rotation. Repeatable for up to 6 hours or credit.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4340W: Focal Composers - Writing Intensive**  
Systematic study of the works of landmark composers: J.S. Bach, Mozart, Beethoven, Verdi/Wagner, Debussy, or Stravinsky, studied in rotation. Repeatable for up to 6 hours or credit.

**Credit Hours:** 3

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**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4341: Advanced Studies in American Music**  
(cross-leveled with MUS\_H\_LI 7341). Systematic study of the diverse streams of musical practice in the United States from the colonial time to the present.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4341W: Advanced Studies in American Music - Writing Intensive**

(cross-leveled with MUS\_H\_LI 7341). Systematic study of the diverse streams of musical practice in the United States from the colonial time to the present.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4342: Contemporary Issues in Musicology**

(cross-leveled with MUS\_H\_LI 7342). Systematic study of single musicological problem of contemporary relevance.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4342W: Contemporary Issues in Musicology - Writing Intensive**

(cross-leveled with MUS\_H\_LI 7342). Systematic study of single musicological problem of contemporary relevance.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_H\_LI 2308 and instructor's consent

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**MUS\_H\_LI 4350: Introduction to Ethnomusicology**

(cross-leveled with MUS\_H\_LI 7350). Study of theories, historical development, research methodologies, and practice of ethnomusicology, in an interdisciplinary approach. Topics include ethnographic research, oral and literate sources, transcription and analysis, critical analysis, and interpretative techniques.

**Credit Hours:** 3

**Prerequisites:** grade of C-or better in MUS\_H\_LI 2308; instructor's consent

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**MUS\_H\_LI 4350W: Introduction to Ethnomusicology - Writing Intensive**

(cross-leveled with MUS\_H\_LI 7350). Study of theories, historical development, research methodologies, and practice of ethnomusicology, in an interdisciplinary approach. Topics include ethnographic research, oral and literate sources, transcription and analysis, critical analysis, and interpretative techniques.

**Credit Hours:** 3

**Prerequisites:** grade of C-or better in MUS\_H\_LI 2308; instructor's consent

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**MUS\_H\_LI 4352W: Historical Studies in African Music - Writing Intensive**

(same as BL\_STU 4352; cross-leveled with MUS\_H\_LI 7352). Ethnomusicological introduction to the music and culture of countries and ethnic groups in Africa. Traditional and contemporary popular styles are explored, and influences of Islamic invasions, missionary arrivals, colonial conquests, neo-colonial trends, and globalization.

**Credit Hours:** 3

**Prerequisites:** grade of C-or better in MUS\_H\_LI 2308; instructor's consent

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**MUS\_H\_LI 4376: American Musicals**

(same as THEATR 4720). Historical survey of the development of the 20th-Century American Musical in Theatre and Film.

**Credit Hours:** 3

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**MUS\_H\_LI 4399: Graduate History Review**

Review of history for graduate students. Does not fulfill graduate degree requirements. Graded on S/U basis only.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_H\_LI 7311: Historical Studies in Art Song**

(cross-leveled with MUS\_H\_LI 4311). Advanced historical survey of works for solo voice and instruments.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_H\_LI 7312: Historical Studies in Choral Music**

(cross-leveled with MUS\_H\_LI 4312). Advanced historical survey of works featuring choral ensembles.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_H\_LI 7313: Historical Studies in Opera**

(cross-leveled with MUS\_H\_LI 4313). Advanced historical survey of opera.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_H\_LI 7315: Historical Studies in Chamber Music**

(cross-leveled with MUS\_H\_LI 4315). Advanced historical survey of works for small ensembles, instrumental and vocal.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_H\_LI 7317: Historical Studies in Jazz and Popular Music**

(cross-leveled with MUS\_H\_LI 4317). Advanced historical survey of works from the realm of American jazz and popular music.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_H\_LI 7318: Studies in World Music**

(cross-leveled with MUS\_H\_LI 4318). Advanced systematic study of musical activities in selected world cultures, with emphasis on developing listening skills and understanding the role of music in a culture.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_H\_LI 7320: Historical Studies in African-American Music**

(cross-leveled with MUS\_H\_LI 4320). Exploration of history and current scholarship in African-American music from the eighteenth to the twenty-first centuries. Genres include folk music, religious music, blues, ragtime, jazz, musical theater, art music, R&B, funk, soul, disco, house, hip-hop and rap.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_H\_LI 7330: Music of the PostModern Era**

(cross-leveled with MUS\_H\_LI 4330). Systematic study of fine-art musical practice from approximately 1945 to the present.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**MUS\_H\_LI 7336: Music in the Baroque Era**

(cross-leveled with MUS\_H\_LI 4336). Advanced systematic study of European musical practice from approximately 1600 to 1750.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_H\_LI 7337: Music of the Classic Era**

(cross-leveled with MUS\_H\_LI 4337). Advanced systematic study of European musical practice from approximately 1750 to 1800.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_H\_LI 7338: Music of the Romantic Era**

(cross-leveled with MUS\_H\_LI 4338). Advanced systematic study of European musical practice from approximately 1800 to 1900.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_H\_LI 7339: Music of the Modern Era**

(cross-leveled with MUS\_H\_LI 4339). Advanced systematic study of fine-art musical practice from approximately 1900 to the present.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_H\_LI 7341: Advanced Studies in American Music**

(cross-leveled with MUS\_H\_LI 4341). Advanced systematic study of the diverse streams of musical practice in the United States from the colonial time to the present.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_H\_LI 7342: Contemporary Issues in Musicology**

(cross-leveled with MUS\_H\_LI 4342). Advanced systematic study of single musicological problem of contemporary relevance.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_H\_LI 7350: Introduction to Ethnomusicology**

(cross-leveled with MUS\_H\_LI 4350). Study of theories, historical development, research methodologies, and practice of ethnomusicology, in an interdisciplinary approach. Topics include ethnographic research, oral and literate sources, transcription and analysis, critical analysis, and interpretative techniques.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_H\_LI 8313: Introduction to Graduate Study**

Introduction to library procedures, basic sources of information in music and techniques for research.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_H\_LI 8314: Introduction to Graduate Studies in Music II**

The application of basic music bibliography, research techniques, and conventions of music scholarship.

**Credit Hour:** 1

**Prerequisites:** MUS\_H\_LI 8313 or instructor's consent

---

**MUS\_H\_LI 8340: Focal Composers**

Advanced systematic study of the works of landmark composers: J.S. Bach, Mozart, Beethoven, Verdi/Wagner, Debussy, or Stravinsky, studied in rotation. Repeatable for up to 6 hours or credit.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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## **Music-Music Theory (MUS\_THRY)**

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**MUS\_THRY 1210: Introduction to Computer Technology and Music**

Introduces Finale, music engraving and playback software, and introduces sequencing and other software applications that may impact students while they are in school and as professional musicians.

**Credit Hours:** 2

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**MUS\_THRY 1213: Introduction to Music Theory**

Introduction to music notation and to rhythmic, melodic, harmonic, and structural elements of music. Emphasis on written skills, but ear training, sight singing, and keyboard components included as well. Graded on A/F basis only.

**Credit Hours:** 2

**Prerequisites:** consent required. Placement by exam

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**MUS\_THRY 1220: Tonal Music Theory I**

Review of fundamentals. Study of rhythm, melody, harmonic, structure and stylistic characteristics of various periods. Application through original

composition projects. Prerequisites: none for Music majors; others: instructor's consent.

**Credit Hours:** 2

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**MUS\_THRY 1221: Tonal Music Theory II**

Continuation of MUS\_THRY 1220. Study of smaller forms and introduction to chromatic harmony.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 1220

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**MUS\_THRY 1230: Aural Training and Sight Singing I**

Development of aural and sight singing skills.

**Credit Hours:** 2

**Prerequisites or Corequisites:** MUS\_THRY 1220

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**MUS\_THRY 1231: Aural Training and Sight Singing II**

Continuation of MUS\_THRY 1230.

**Credit Hours:** 2

**Prerequisites or Corequisites:** MUS\_THRY 1221

**Prerequisites:** Grade of C- or better in MUS\_THRY 1230

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**MUS\_THRY 2215: Composition I**

Fundamentals of composition and writing in small forms.

**Credit Hours:** 2

**Prerequisites:** grade of B- or better in MUS\_THRY 1220, MUS\_THRY 1221, MUS\_THRY 1230, MUS\_THRY 1231, and instructor's consent

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**MUS\_THRY 2216: Composition II**

Continuation of MUS\_THRY 2215.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 2215

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**MUS\_THRY 2220: Tonal Music Theory III**

Chromatic harmony, variation techniques and contrapuntal genres. Study of traditional forms in instrumental, vocal and choral compositions. Applications through original composition projects.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 1221

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**MUS\_THRY 2221: Tonal Music Theory IV**

Continued study of chromatic harmony and compositions in larger forms. Application through original composition projects.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 2220

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**MUS\_THRY 2230: Aural Training and Sight Singing III**

Continuation of MUS\_THRY 1231. Further development of aural and sight singing skills with an emphasis on chromatic harmony and decorative pitches. Introduction of structural perception.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 1231 and MUS\_THRY 2220 or MUS\_THRY 2220 concurrently

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**MUS\_THRY 2231: Aural Training and Sight Singing IV**

Continuation MUS\_THRY 2230.

**Credit Hours:** 2

**Prerequisites or Corequisites:** MUS\_THRY 2221

**Prerequisites:** Grade of C- or better in MUS\_THRY 2230

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**MUS\_THRY 3215: Composition III**

Further development of creative writing in traditional forms.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 2216

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**MUS\_THRY 3216: Composition IV**

Continuation of MUS\_THRY 3215.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 3215

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**MUS\_THRY 4210: Jazz Harmony and Arranging I**

(cross-leveled with MUS\_THRY 7210). Study of basic melodic and harmonic materials commonly used in jazz. Application through arranging projects for small jazz groups.

**Credit Hours:** 2

**Prerequisites:** MUSIC\_NM 1211 or MUS\_THRY 1220; instructor's consent required

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**MUS\_THRY 4211: Jazz Harmony and Arranging II**

(cross-leveled with MUS\_THRY 7211). Continuation of MUS\_THRY 4210. Study of advanced melodic and harmonic materials commonly used in jazz. Application through arranging projects for small and large jazz groups.

**Credit Hours:** 2

**Prerequisites:** MUS\_THRY 4210; instructor's consent

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**MUS\_THRY 4212: Jazz Theory I**

Comprehensive study of the grammar and syntax of jazz harmony.

**Credit Hour:** 1

**Prerequisites:** Grade of C- or better in MUSIC\_NM 1211 or MUS\_THRY 1220

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**MUS\_THRY 4215: Composition V**

Writing of works in larger forms for a solo instrument or chamber ensemble.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 3216

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**MUS\_THRY 4216: Composition VI**

Continuation of MUS\_THRY 4215. May be repeated for additional credit.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 4215

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**MUS\_THRY 4220: Post-Tonal Music Theory**

(cross-leveled with MUS\_THRY 7220). The study and application of analytical procedures in post-tonal music.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 2221

---

**MUS\_THRY 4221: Analysis of Music**

An analytical study of rhythmic, melodic, harmonic and structural aspects of 18th-, 19th- and 20th-century music.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 2221 or equivalent

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**MUS\_THRY 4223: Eighteenth-Century Counterpoint**

(cross-leveled with MUS\_THRY 7223). Study of contrapuntal procedures and representative works of the eighteenth century. Emphasis on compositions and style of Johann Sebastian Bach. Original composition projects: canon, invention, and fugue.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_THRY 2221

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**MUS\_THRY 4225: Sixteenth-Century Counterpoint**

(cross-leveled with MUS\_THRY 7225). Analysis of contrapuntal procedures and representative compositions of 16th century. Emphasis on styles of Palestrina, Lassus and Victoria. Stylistic writing in two, three or more voices.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_THRY 2221

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**MUS\_THRY 4225W: Sixteenth-Century Counterpoint - Writing Intensive**

(cross-leveled with MUS\_THRY 7225). Analysis of contrapuntal procedures and representative compositions of 16th century. Emphasis on styles of Palestrina, Lassus and Victoria. Stylistic writing in two, three or more voices.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_THRY 2221

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**MUS\_THRY 4226: Instrumentation**

(cross-leveled with MUS\_THRY 7226). This course will provide students with the background to successfully write for all instruments of the orchestra and wind ensemble. Topics will include ranges, tessitura, and basic techniques. Central to the course will be writing projects for ensembles. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** MUS\_THRY 2221

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**MUS\_THRY 4227: Orchestration**

(cross-leveled with MUS\_THRY 7227). Study of orchestral instruments and the process of scoring for various orchestral combinations.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 2221

---

**MUS\_THRY 4229: Band Arranging**

Transcription, scoring of solo and ensemble literature for band instrument combinations of varying sizes up to and including concert band.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 2221

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**MUS\_THRY 4230: Choral Arranging**

Transcription and arrangement of music suitable for performance by various vocal ensembles.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 2221

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**MUS\_THRY 4231: Schenkerian Analysis**

Techniques of musical analysis developed by Heinrich Schenker.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_THRY 2221

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**MUS\_THRY 4232: Rhythmic Analysis of Tonal Music**

Introduction to rhythmic analysis, including context of current thinking, basic concepts, various approaches, selected topics, performance issues, and particular problems.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in MUS\_THRY 2221

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**MUS\_THRY 4241: Advanced Schenkerian Analysis**

(cross-leveled with MUS\_THRY 7241). Continuation of MUS\_THRY 4231, with a focus on the analysis of complete works, including larger forms.

**Credit Hours:** 3

**Prerequisites:** Grade of C-minus or better in MUS\_THRY 4231, or equivalent at another institution

---

**MUS\_THRY 4245: Introduction to Electronic Music**

(cross-leveled with MUS\_THRY 7245). Techniques used in the creation of music with tape recorders, voltage-controlled synthesizers and electronics.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 4220

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**MUS\_THRY 4247: Introduction to Digital Synthesis**

Introduction to the techniques of digital synthesis, including the study of programming, and Musical Instrument Digital Interfacing.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_THRY 4250: Analysis of Musical Styles**

(cross-leveled with MUS\_THRY 7250). Analytical study of specific rhythmic, melodic, harmonic, and structural factors which constitute the stylistic practices of a specific period or composer. May be repeated for credit with departmental consent.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 2221

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**MUS\_THRY 4252: Keyboard Harmony and Score Reading**

(cross-leveled with MUS\_THRY 7252). Study of idiomatic chord progressions and harmonization strategies at the keyboard, including figured bass, score reading, and score playing. Skills are reinforced by analysis, both at sight and prepared.

**Credit Hours:** 3

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**Prerequisites:** Grade of C- or better in MUS\_THRY 2221; instructor's consent

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**MUS\_THRY 4271: Pedagogy of Music Theory I**

Techniques and materials for teaching basic music theory courses for high schools and colleges.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 2221

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**MUS\_THRY 4284: Contemporary Analytical Techniques**

Study and application of various analytical systems for 20th century compositions. Analysis of music employing contemporary theories.

**Credit Hours:** 2

**Prerequisites:** Grade of C- or better in MUS\_THRY 2221

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**MUS\_THRY 4290: Music Composition Seminar**

(cross-leveled with MUS\_THRY 7290). A venue for student, faculty, and guest composers to actively exchange thoughts and ideas about the music of today. Through lectures, presentations, attendance of New Music Initiative events, and reading assignments pertaining to topics in new music, this course will give students a greater understanding of what it means to be a composer writing in our time by discussing issues raised from their experiences inside and outside of class. Graded on S/U basis only. Corequisites: Students enrolled in one of the following: MUS\_THRY 2215, MUS\_THRY 2216, MUS\_THRY 3215, MUS\_THRY 3216, MUS\_THRY 4215, MUS\_THRY 4216 or consent.

**Credit Hour:** 1

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**MUS\_THRY 4299: Graduate Theory Review**

Review of music theory for graduate students in music. Does not fulfill graduate degree requirements. Graded on S/U basis only.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_THRY 7210: Advanced Jazz Harmony and Arranging I**

(cross-leveled with MUS\_THRY 4210). Study of basic melodic and harmonic materials commonly used in jazz. Application through arranging projects for small jazz groups.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

---

**MUS\_THRY 7211: Advanced Jazz Harmony and Arranging II**

(cross-leveled with MUS\_THRY 4211). Continuation of MUS\_THRY 7210. Study of advanced melodic and harmonic materials commonly used in jazz. Application through arranging projects for small and large groups.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_THRY 7215: Composition I**

Fundamentals of Composition: Writing in small forms. For non-composition graduate students in music.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_THRY 7216: Composition II**

Continuation of MUS\_THRY 7215.

**Credit Hours:** 2

**Prerequisites:** MUS\_THRY 7215

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**MUS\_THRY 7220: Post-Tonal Music Theory**

(cross-leveled with MUS\_THRY 4220). Graduate review in the study and application of analytical procedures to 20th century music literature. Special readings; individual projects. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**MUS\_THRY 7221: Analysis of Music**

Graduate review in the analytical study of rhythmic, melodic, harmonic and structural aspects of 18th-, 19th- and 20th-century music.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**MUS\_THRY 7223: Eighteenth-Century Counterpoint**

(cross-leveled with MUS\_THRY 4223). Advanced study of contrapuntal procedures and representative works of the eighteenth century. Emphasis on compositions and style of Johann Sebastian Bach. Original composition projects: canon, invention, and fugue. Prerequisites: instructor's consent

**Credit Hours:** 3

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**MUS\_THRY 7225: Sixteenth-Century Counterpoint**

(cross-leveled with MUS\_THRY 4225). Advanced analysis of contrapuntal procedures and representative compositions of 16th century. Emphasis on styles of Palestrina, Lassus and Victoria. Stylistic writing in two, three or more voices.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**MUS\_THRY 7226: Instrumentation**

(cross-leveled with MUS\_THRY 4226). This course will provide students with the background to successfully write for all instruments of the orchestra and wind ensemble. Topics will include ranges, tessitura, and basic techniques. Central to the course will be writing projects for ensembles. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** MUS\_THRY 2230 or the equivalent

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**MUS\_THRY 7227: Advanced Orchestration**

(cross-leveled with MUS\_THRY 4227). Study of orchestral instruments and the process of scoring for various orchestral combinations.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

---

**MUS\_THRY 7229: Band Arranging**

Advanced transcription, scoring of solo and ensemble literature for band instrument combinations of varying sizes up to and including concert band.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

---

**MUS\_THRY 7230: Choral Arranging**

Advanced transcription and arrangement of music suitable for performance by various vocal ensembles.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

---

**MUS\_THRY 7231: Schenkerian Analysis**

Advanced techniques of musical analysis developed by Heinrich Schenker.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**MUS\_THRY 7232: Rhythmic Analysis of Tonal Music**

Advanced study of rhythmic analysis, including context of current thinking, basic concepts, various approaches, selected topics, performance issues, and particular problems.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**MUS\_THRY 7241: Advanced Schenkerian Analysis**

(cross-leveled with MUS\_THRY 4241). Continuation of MUS\_THRY 7231, with a focus on the analysis of complete works, including larger forms.

**Credit Hours:** 3

**Prerequisites:** Grade of C-minus or better in MUS\_THRY 4231 or MUS\_THRY 7231, or equivalent at another institution

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**MUS\_THRY 7245: Introduction to Electronic Music**

(cross-leveled with MUS\_THRY 7245). Advanced techniques used in the creation of music with tape recorders, voltage-controlled synthesizers and electronics.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

---

**MUS\_THRY 7247: Introduction to Digital Synthesis**

Graduate-level introduction to the techniques of digital synthesis, including the study of programming, and Musical Instrument Digital Interfacing.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

---

**MUS\_THRY 7250: Analysis of Musical Styles**

(cross-leveled with MUS\_THRY 4250). Advanced analytical study of specific rhythmic, melodic, harmonic, and structural factors which constitute the stylistic practices of a specific period or composer. May be repeated for credit with departmental consent. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**MUS\_THRY 7252: Keyboard Harmony and Score Reading**

(cross-leveled with MUS\_THRY 4252), Study of idiomatic chord progressions and harmonization strategies at the keyboard, including figured bass, score reading, and score playing. Skills are reinforced by analysis, both at sight and prepared.

**Credit Hours:** 3

**Prerequisites:** demonstrable keyboard proficiency at level of Bach invention; instructor's consent

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**MUS\_THRY 7271: Pedagogy of Music Theory I**

Advanced techniques and materials for teaching basic music theory courses for high schools and colleges.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

---

**MUS\_THRY 7290: Music Composition Seminar**

(cross-leveled with MUS\_THRY 4290). A venue for student, faculty, and guest composers to actively exchange thoughts and ideas about the music of today. Through lectures, presentations, attendance of New Music Initiative events, and reading assignments pertaining to topics in new music, this course will give students a greater understanding of what it means to be a composer writing in our time by discussing issues raised from their experiences inside and outside of class. Graded on S/U basis only. Corequisites: Enrollment in one of the following: MUS\_THRY 7215, MUS\_THRY 7216, MUS\_THRY 8215, MUS\_GENL 8090 or consent.

**Credit Hour:** 1

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**MUS\_THRY 8215: Composition VII**

Intensive work in larger forms. Seminar, private lessons. May be repeated for credit with departmental consent.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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## Natural Resources (NAT\_R)

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**NAT\_R 1040: Conservation Studies**

A one-week field experience in natural resource management issues—soil and water conservation, air pollution, fish and wildlife habitat requirements, importance of forest ecosystems. Limited to high school students who have completed their junior year and taken the PSAT or equivalent. Graded on S/U basis only.

**Credit Hour:** 1

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**NAT\_R 1060: Ecology and Conservation of Natural Resources**

Introduction to the principles of resource and conservation describing the foundation of the variety of natural resources and conservation practices used to protect and maintain these resources.

**Credit Hours:** 3

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**NAT\_R 1070: Ecology and Renewable Resource Management**

Introduction to ecological principles and their relationship to resource use and management.

**Credit Hours:** 3

**Prerequisites:** restricted to Natural Resources majors

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**NAT\_R 2002: Topics in Natural Resources - Biological**

Organized study of selected topics. Subjects and credit may vary from semester to semester.

**Credit Hour:** 1-99

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**NAT\_R 2080: Outdoor Recreation Consortium**

Outdoor Recreation Consortium is a collaborative course taught by MU, North Carolina State University, Penn State University, East Carolina University, Texas A&M University and Western Illinois University. The course uses Great Smoky Mountains National Park as a case study for understanding the relationship between ecosystem management, natural resource management, tourism, and outdoor recreation. This course is based around a one week trip to the Smokies. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** NAT\_R 1070 or PRST 2111 or ENV\_SC 1100 and permission of instructor

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**NAT\_R 2160: Issues in Natural Resources and the Environment**

This course provides an introduction to ecological and environmental challenges in natural resource management in our rapidly changing world. Topical discussions will provide students with informed perspectives of several contemporary issues that affect the sustainability of our natural resources.

**Credit Hours:** 3

**Recommended:** This course is recommended as an introductory course for non-science majors

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**NAT\_R 2325: Introduction to Geographic Information Systems**

Cover basic theories and techniques of GIS; including vector and raster data representation, vector data digitizing, attribute data input, map projection, layout database manipulation, terrain analysis and spatial interpolation.

**Credit Hours:** 3

**Prerequisites:** NAT\_R 1070 or instructor's consent

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**NAT\_R 3110: Natural Resource Biometrics**

Sampling methods and analysis as applied to a variety of natural resources, including fisheries, range, recreation, forests, water and wildlife.

**Credit Hours:** 3

**Recommended:** STAT 2500 or equivalent

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**NAT\_R 3290: Hydrologic Measurement Techniques**

Students will be introduced to field methods and tools used by water resource and environmental science professionals. Students will sample and measure hydrologic and environmental variables, learn about data storage systems, and access and analyze data. Course may be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** MATH 1100 or permission of instructor

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**NAT\_R 3290W: Hydrologic Measurement Techniques - Writing Intensive**

Students will be introduced to field methods and tools used by water resource and environmental science professionals. Students will sample and measure hydrologic and environmental variables, learn about data storage systems, and access and analyze data. Course may be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** MATH 1100 or permission of instructor

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**NAT\_R 3400: Water Quality and Natural Resource Management**

(same as ENV\_SC 3400). Introduction to broad aspects of water quality science, management, and policy. Topics include aquatic ecology, eutrophication, lake and coastal management, water supply and treatment, watershed management with respect to agriculture and urban development, and toxicology. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** CHEM 1320 and ENV\_SC 1100 or NAT\_R 1070

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**NAT\_R 4001: Topics in Natural Resources**

Organized study of selected topics. Subjects may vary from semester to semester.

**Credit Hour:** 1-99

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**NAT\_R 4024: Foundations of Environmental Education**

(same as ENV\_SC 4024; cross-leveled with NAT\_R 7024). This course provides a theoretical foundation to environmental education (EE). The purpose of this course is to develop the knowledge and skills for developing quality, age-appropriate EE for students in both formal and non-formal education setting. The emphasis is on EE curriculum materials, resources, and programs that can be used with students in settings at classrooms, nature centers, museums, and parks. This course involves training in the Missouri Department of Conservation Discover Nature School educational materials, and in observing and teaching EE lessons in a local nature center. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1010 or ENV\_SC 1100 or NAT\_R 1060 or NAT\_R 1070 or NAT\_R 2160 or Instructor's consent

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**NAT\_R 4100: Lake Ecology**

(same as ENV\_SC 4100; cross-leveled with NAT\_R 7100). Ecology of inland waters with emphasis on productivity. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** senior standing or BIO\_SC 3650

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**NAT\_R 4300: Methods in Aquatic Ecology**

(same as ENV\_SC 4300; cross-leveled with ENV\_SC 7300, NAT\_R 7300). Methods used for quantitative assessment of water quality and quantity in inland waters. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Senior standing or BIO\_SC 3650 and ENV\_SC 4100 or NAT\_R 4100 or NAT\_R 4200 or FOREST 4390 or NAT\_R 3400

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**NAT\_R 4353: Natural Resource Policy/Administration**

This course examines law, policy, and administration related to public lands and natural resources in the United States. The focus of this course is U.S. federal decision-making; we will also discuss Missouri state-level processes and selected topics in international environmental governance. Substantive policy areas addressed by this course include: public lands, wildlife and fisheries, water resources, forests, and energy and mineral resources. This course uses case studies to illustrate historical and contemporary natural resource management challenges. It also addresses topics on governance such as public participation, the role of lobbyists, campaign finance, and the use of technology to improve policy-making. This course will use a variety of teaching methods, including lecture and classroom discussion, guest speakers, map quizzes, and a natural resources book club.

**Credit Hours:** 3

**Prerequisites:** senior standing or instructor's consent

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**NAT\_R 4365: GIS Applications**

Introduces logical thinking and techniques in applying GIS to practical problems. Covers general GIS functionalities, Arc View Spatial Analyst including georeference, terrain analysis, hydrological analysis, grid, and remote sensing image processing.

**Credit Hours:** 3

**Prerequisites:** GEOG 3040 or NAT\_R 2325

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**NAT\_R 4385: Landscape Ecology and GIS Analysis I**

(same as GEOG 4810). Examination of the landscape-scale approach to biodiversity, ecosystem dynamics, and habitat management. Particular emphasis on the use of Geographic Information Systems to analyze the spatial dimension of ecological patterns and processes.

**Credit Hours:** 3

**Prerequisites:** GEOG 3040 or NAT\_R 2325

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**NAT\_R 7001: Topics in Natural Resources**

Organized study of selected topics. Subjects may vary from semester to semester.

**Credit Hour:** 1-99

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**NAT\_R 7024: Foundations of Environmental Education**

(cross-leveled with NAT\_R 4024, ENV\_SC 4024). This course provides a theoretical foundation to environmental education (EE). The purpose of this course is to develop the knowledge and skills for developing quality, age-appropriate EE for students in both formal and non-formal education setting. The emphasis is on EE curriculum materials, resources, and programs that can be used with students in settings at classrooms, nature centers, museums, and parks. This course involves training in the Missouri Department of Conservation Discover Nature School educational materials, and in observing and teaching EE lessons in a local nature center. Graded on A-F basis only.

**Credit Hours:** 3

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**NAT\_R 7100: Lake Ecology**

(same as ENV\_SC 7100; cross-leveled with ENV\_SC 4100 and NAT\_R 4100). Ecology of inland waters with emphasis on productivity. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** BIO\_SC 3650

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**NAT\_R 7300: Methods in Aquatic Ecology**

(same as ENV\_SC 7300; cross-leveled with NAT\_R 4300, ENV\_SC 4300). Methods used for quantitative assessment of water quality and quantity in inland waters. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** senior standing or BIO\_SC 3650. ENV\_SC/NAT\_R 4100 OR 3400 OR FOR 4390

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**NAT\_R 7353: Natural Resource Policy/Administration**

(cross-leveled with NAT\_R 4353). This course examines law, policy, and administration related to public lands and natural resources in the United States. The focus of this course is U.S. federal decision-making; we will also discuss Missouri state-level processes and selected topics in international environmental governance. Substantive policy areas addressed by this course include: public lands, wildlife and fisheries, water resources, forests, and energy and mineral resources. This course uses case studies to illustrate historical and contemporary natural resource management challenges. It also addresses topics on governance such as public participation, the role of lobbyists, campaign finance, and the use of technology to improve policy-making. This course will use a variety of teaching methods, including lecture and classroom discussion, guest speakers, map quizzes, and a natural resources book club.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**NAT\_R 7365: GIS Applications**

Introduces logical thinking and techniques in applying GIS to practical problems. Cover general GIS functionalities, Arc View Spatial Analyst including georeference, terrain analysis, hydrological analysis, grid, and remote sensing image processing.

**Credit Hours:** 3

**Prerequisites:** GEOG 3040, NAT\_R 1080 and NAT\_R 1090, or instructor's consent

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**NAT\_R 8001: Topics in Natural Resources**

Organized study of selected topics. Subjects may vary from semester to semester.

**Credit Hour:** 1-99

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**NAT\_R 8024: Program Development and Evaluation in Informal Settings**

This advanced level course focuses on designing, conducting, and analyzing quantitative educational research data and evaluation studies that measure the impact and effectiveness of environmental education and/or STEM education programs. Applied statistics in educational research will be taught. Evaluation is a set of approaches and techniques used to make judgments about the effectiveness or quality of a program or treatment; to inform decisions about its design, development, and implementation. This course provides theoretical background and techniques of program development and evaluation. This course will practice using qualitative and quantitative data for data analysis and manuscript writing. This is designed for those who will be working in leadership or supervisory capacities to gain skills in conducting needs

assessments, designing programs, and conducting formative and summative evaluations of these programs for citizen science, inquiry-based learning, place-based program, students-centered, science outreach program, and nature explore study programs. By the end of the semester, students will have a ready-to-submit manuscript completed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENV\_SC 4024 or NAT\_R 4024 or NAT\_R 7024

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**NAT\_R 8050: Masters Non-Thesis Research in Natural Resources**

Research credits associated with a non-thesis M.S. project. May be repeated for credit. Graded on S/U basis only.

**Credit Hour:** 1-10

**Prerequisites:** restricted to Masters students in the School of Natural Resources

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**NAT\_R 8090: Master Thesis Research in Natural Resources**

Research credits leading to M.Sc. thesis. May be repeated for credit. Graded on S/U basis only.

**Credit Hour:** 1-10

**Prerequisites:** Restricted to Masters students in the School of Natural Resources

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**NAT\_R 8290: Hydrologic Measurement and Synthesis**

Students are introduced to methods fundamental to measuring hydrologic processes, and assessing physical data, including field measurement, and data logging and acquisition information systems. Students will gain experience analyzing and synthesizing hydrologic data using tools commonly used by water resource professionals. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** MATH 1100, STAT 2530, PHYSCS 1210. If deficient in prerequisite courses, or unsure of qualification, contact instructor for consent

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**NAT\_R 8300: Urban Biodiversity, Conservation, and Planning**

The importance of urban biodiversity is debated by many in the conservation community. Some researchers and managers focus on threats to biodiversity associated with urbanization and land use change. In contrast to this approach people who live in, study, or care about cities: ecologists, wildlife managers, conservation biologists, planners, and local residents have debated what biodiversity means in urban settings. Recent literature on biodiversity in cities notes the range of ecological, social, and cultural meanings of urban biodiversity and stresses the importance of defining the setting and scales at which biodiversity is being assessed. This approach to urban biodiversity has documented the importance of conservation of rare species and habitats but also the importance of managing the range of habitats in and around where people live, work, and play. This course builds on the work of the NSF-funded Urban Biodiversity Research Coordination Network (UrBioNet), with course modules taught by UrBioNet steering committee members.

**Credit Hours:** 3

**Recommended:** Coursework in ecology, conservation / management or planning will be helpful in this course

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**NAT\_R 8325: Introduction to Geographic Information Systems**

Cover theories and techniques of GIS; including vector and raster data representation, vector data digitizing, attribute data input, map projection, layout database manipulation, terrain analysis and spatial interpolation.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**NAT\_R 8395: Landscape Ecology and GIS Analysis II**

(same as GEOG 8815). Provide students with principles and applications of landscape ecology and firm understandings of spatial analysis techniques using GIS. Discuss metrics for spatial pattern and models for landscape-scale dynamics.

**Credit Hours:** 3

**Prerequisites:** NAT\_R 4365; FOREST 4320 or equivalent; basic statistics; instructor's consent

**Recommended:** GEOG 4810 or GEOG 7810

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**NAT\_R 8450: Advanced Limnology**

This graduate course will cover the physical, chemical, and biological processes of lakes and streams emphasizing biological production, water quality, and emerging issues. This seminar-style graduate course will familiarize students with the limnological literature. Students will learn how to critically read, interpret, and evaluate journal publications. They will learn the publication process from beginning to end with the opportunity to provide perspectives and assessments of emerging manuscripts in the limnological field. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** NAT\_R 4100 or NAT\_R 7100

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**NAT\_R 8500: Qualitative Research**

Introduces students to qualitative field research from design, data collection, analysis, reporting, and peer-reviewed publication. Readings emphasize qualitative methods in a variety of social and behavioral sciences to address environmental problems.

**Credit Hours:** 3

**Recommended:** PRST 8430

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**NAT\_R 8860: International Comparative Rural Policy**

(same as PUB\_AF 8860. AAE 8860). Compares the rural policy objectives and implementation strategies of various countries, and assesses these policies in terms of economic, social, environmental outcomes and their implications for international relations. Includes 2-weeks of study Abroad. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**NAT\_R 9001: Topics in Natural Resources**

Organized study of selected topics. Subjects and topics may vary from semester to semester. Graded on S/U basis only.

**Credit Hour:** 1-10

**Prerequisites:** instructor's consent. Restricted to School of Natural Resources Graduate Students

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**NAT\_R 9090: Dissertation Research in Natural Resources**

Research leading to a dissertation and Ph.D. in the School of Natural Resources. Graded on S/U basis only.

**Credit Hour:** 1-10

**Prerequisites:** Restricted to PhD students in the School of Natural Resources

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**NAT\_R 9490: Ecohydrology: Contemporary Topics**

A series of discussions centered on primary literature within disciplines relevant to the participants. All Natural Resources disciplines are encouraged to participate (e.g., ecology, wildlife, fisheries, recreation/tourism, hydrology, atmospheric sciences, soils, etc.) with emphasis on interdisciplinary research (i.e. integrated natural, social and/or physical scientific research). May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1

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## Naval Science (NAVY)

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**NAVY 1100: Introduction to Naval Science**

This course serves as an introduction to the organization of the Naval Service, the varied career opportunities available, the long held customs and traditions of the service, and the duties of a Junior Officer.

**Credit Hours:** 3

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**NAVY 1200: Seapower and Maritime Affairs**

Seminars examine the application of seapower as an instrument of foreign policy by the major nations of the world. Emphasis placed on role of the Navy.

**Credit Hours:** 3

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**NAVY 2110: Naval Ship Systems I**

Ship construction, stability and damage control, basic thermodynamics, the steam cycle and engineering plant, including introduction to gas turbine, diesel and nuclear powered systems.

**Credit Hours:** 3

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**NAVY 2130: Evolution of Warfare**

Evolution of strategy, tactics, weapons and leadership from earliest beginning through the Vietnam period. Development of military policy, the impact of warfare on the political, social and economic structure of nations.

**Credit Hours:** 3

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**NAVY 2210: Naval Ship Systems II**

Naval weapons systems, their employment and control, including the basic fire control problem, with emphasis on new systems.

**Credit Hours:** 3

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**NAVY 3120: Marine Navigation**

Theoretical and practical application of the principles of marine navigation. Includes fundamentals of dead reckoning, piloting, tides and current, celestial navigation, electronic navigation.

**Credit Hours:** 3

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**NAVY 3140: Leadership and Management**

This course will provide a basic understanding of the interrelationship between authority, responsibility and accountability within a task oriented organization. Students will learn to apply leadership and management skills to prioritize competing demands and to attain mission objectives; the importance of planning and follow-up; and develop a basic understanding of communication and counseling as it pertains to personnel management.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or by consent of Professor of Naval Science

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**NAVY 3220: Naval Operations**

Principles and concepts of naval operations: rules of the road, command and control in naval operations, communications, ASW warfare, international maritime law, and practical solution of relative motion problems.

**Credit Hours:** 3

**Prerequisites:** NAVY 3120

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**NAVY 3230: Fundamentals of Maneuver Warfare**

This course prepares future military officers and other leaders for service by studying modern tactical principles, current military developments, and other aspects of warfare and their interactions with and influences on maneuver warfare doctrine. There is a specific focus on the United States Marine Corps as the premier maneuver warfighting organization. Study also includes historical influences on tactical, operational, and strategic levels of maneuver warfare practices in the current and future operating environments. Graded on A-F basis only.

**Credit Hours:** 3

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**NAVY 4940: Leadership and Ethics**

(same as PEA\_ST 4940). The curriculum provides a foundation in leadership, ethical decision making, the Law of Armed Conflict and the military justice system. Course explores ethical theories and helps students to build an ethical framework for decision making. Topic areas include: Kant, Utilitarianism, Stoicism, Constitutional Paradigm, Uniform Code of Military Justice and Law of Armed Conflict. Designed as a capstone course for juniors and seniors enrolled in NROTC it is open to all MU students.

**Credit Hours:** 3

**Prerequisites:** junior standing required

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**NAVY 4940W: Leadership and Ethics - Writing Intensive**

(same as PEA\_ST 4940). The curriculum provides a foundation in leadership, ethical decision making, the Law of Armed Conflict and the military justice system. Course explores ethical theories and helps students to build an ethical framework for decision making. Topic areas include: Kant, Utilitarianism, Stoicism, Constitutional Paradigm, Uniform Code of Military Justice and Law of Armed Conflict. Designed as a capstone course for juniors and seniors enrolled in NROTC it is open to all MU students.

**Credit Hours:** 3

**Prerequisites:** junior standing required

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## Neurology (NEUROL)

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### NEUROL 6003: Neurology Clerkship

Students see patients with neurological disorders in the outpatient clinics, in hospital settings, and on consultation services.

**Credit Hours:** 4

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### NEUROL 6013: Rural Neurology Clerkship

Rural Neurology Clerkship

**Credit Hours:** 4

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### NEUROL 6023: Springfield Neurology Clerkship

Students see patients with neurological disorders in the outpatient clinics, in hospital settings, and on consultation services.

**Credit Hours:** 4

**Prerequisites:** successful completion of the first two years of medical school

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### NEUROL 6103: Remediation Neurology Clerkship

Enrolled students are those who received an unsatisfactory grade in a Child Health Clerkship at any Mizzou Med location or site. This course gives the student an opportunity to rectify their deficiency.

**Credit Hours:** 4

**Prerequisites:** NEUROL 6003 Neurology Clerkship, received unsatisfactory grade

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### NEUROL 6123: Remediation Springfield Neurology Clerkship

Students see patients with neurological disorders in the outpatient clinics, in hospital settings, and on consultation services.

**Credit Hours:** 4

**Prerequisites:** successful completion of the first two years of medical school

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### NEUROL 6303: ABS Neurology Research

ABS Neurology Research

**Credit Hours:** 5

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### NEUROL 6845: Neurology

Neurology

**Credit Hours:** 5

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### NEUROL 6850: Advanced Neurology

Advanced Neurology

**Credit Hours:** 5

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### NEUROL 6923: Neuromuscular Disorders

One week will be spent in the outpatient unit and one inpatient. The inpatient experience will consist of rounding on neuromuscular patients and being an integral part of patient care. A significant portion of the experience will be spent in Electromyography (EMG). During the outpatient experience, the student will rotate with one of three

neuromuscular specialists and participate in patient care, and participate in MDA clinic.

**Credit Hours:** 2

**Prerequisites:** successful completion of the first two years of medical school

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## Nuclear Engineering (NU\_ENG)

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### NU\_ENG 2201: Topics in Nuclear Engineering

Current and new developments in nuclear engineering.

**Credit Hours:** 3

**Prerequisites:** sophomore standing; PHYSCS 1210 and PHYSCS 1220 and MATH 1100 or MATH 1120 or instructor's consent

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### NU\_ENG 2303: Harnessing the Atoms in Everyday Life: Fulfill M Curie's Dream

Introduction to applications of nuclear science and technology, utilizing web-based learning scenarios.

**Credit Hours:** 3

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### NU\_ENG 4001: Topics in Nuclear Engineering

Current and new developments in nuclear engineering. May be repeated for credit.

**Credit Hour:** 2-5

**Prerequisites:** instructor's consent

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### NU\_ENG 4303: Radiation Safety

(same as RA\_SCI 4303) Types and origins of radiation; radiation detection and measurement; radiation interactions; shielding; dose calculations; federal, state and local regulations; and procedures for safe uses of radiation. Laboratory experiments in radiation measurements and protection.

**Credit Hours:** 3

**Prerequisites:** college physics, calculus based

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### NU\_ENG 4305: Survey of Nuclear Engineering

Introductory topics in nuclear engineering. Atomic and nuclear physics; nuclear reactor principles under steady-state and transient conditions; heat removal; shielding; instrumentation; power generation; fusion.

**Credit Hours:** 3

**Prerequisites:** concurrent with MATH 4100

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### NU\_ENG 4315: Energy Systems and Resources

(same as ECE 4020, MAE 4371; cross-leveled with ECE 7020, NU\_ENG 7315, MAE 7371). Analysis of present energy usage in Missouri, USA and the world, evaluation of emerging energy technologies and trends for the future. Economics and environmental impact of the developed technologies. Prerequisites: C- or better in ENGINR 2300

**Credit Hours:** 3

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### NU\_ENG 4315W: Energy Systems and Resources - Writing Intensive

(same as ECE 4020). Analysis of present energy usage in Missouri, USA and the world, evaluation of emerging energy technologies and trends

for the future. Economics and environmental impact of the developed technologies.

**Credit Hours:** 3

**Prerequisites:** ENGINR 2300 or equivalent

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**NU\_ENG 4319: Physics and Chemistry of Materials**

(same as PHYSCS 4190, BIOL\_EN 4480, CHEM 4490, BME 4480; cross-leveled with NU\_ENG 7319, PHYSCS 7190, BIOL\_EN 7480, CHEM 7490). Physics and Chemistry of Materials is a 3 credit hours course offered every spring semester for students from Physics, Chemistry, Engineering and Medical Departments and consists of lectures, laboratory demonstrations, two mid-term and one final exam. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2750, CHEM 1320 or equivalent, or instructor's consent

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**NU\_ENG 4328: Introductory Radiation Biology**

(same as BIO\_SC 4328, RADIOL 4328; cross-leveled with BIO\_SC 7328, RADIOL 7328, V\_M\_S 7328). Concepts of ionizing radiations, their actions on matter through effects on simple chemical systems, biological molecules, cell, organisms, man.

**Credit Hours:** 3

**Prerequisites:** junior standing, Sciences/Engineering; one course in Biological Sciences and Physics/Chemistry; or instructor's consent

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**NU\_ENG 4330: Science and Technology of Terrorism and Counter Terrorism**

(same as PEA\_ST 4330; cross-leveled with NU\_ENG 7330). Terrorism has been a familiar tool of political conflict, and it has assumed greater importance during the past twenty years. This subject has been treated by political scientists in various forms, but the scientific and technological aspects of different forms of terrorism cannot be found in a single place. It is important for persons who propose counter measures to understand the basics of different types of terrorism such as for instance the nature of chemical agents, their properties such as toxicity, etc. in order to build better defense systems.

**Credit Hours:** 3

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**NU\_ENG 4331: Nonproliferation Issues for Weapons of Mass Destruction**

(cross-leveled with NU\_ENG 7331). Nonproliferation and impact on technology and world events.

**Credit Hours:** 3

**Prerequisites:** junior/senior standing or instructor's consent. May be repeated for credit

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**NU\_ENG 4331W: Nonproliferation Issues for Weapons of Mass Destruction - Writing Intensive**

Nonproliferation and impact on technology and world events.

**Credit Hours:** 3

**Prerequisites:** junior/senior standing or instructor's consent. May be repeated for credit

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**NU\_ENG 4346: Introduction to Nuclear Reactor Engineering I**

(same as ECE 4030; cross-leveled with NU\_ENG 7346, ECE 7030). Engineering principles of nuclear power systems, primarily for the production of electrical energy.

**Credit Hours:** 3

**Prerequisites:** ENGINR 1200, ENGINR 2300 or equivalent

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**NU\_ENG 4369: Principles of Direct Energy Conversion**

(cross-leveled with NU\_ENG 7369). Principles and utilization of thermoelectric, thermionic, photovoltaic, magnetohydrodynamic generators and fuel cells.

**Credit Hours:** 3

**Prerequisites:** ENGINR 2300, MAE 3400, or equivalent

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**NU\_ENG 4375: Introduction to Plasmas**

(same as ECE 4550; cross-leveled with NU\_ENG 7375, ECE 7550). Equations of plasma physics, interaction of waves and plasmas; plasma sheaths and oscillations; measurements and applications.

**Credit Hours:** 3

**Prerequisites:** ECE 4930 or instructor's consent

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**NU\_ENG 4391: Nuclear Radiation Detection**

(cross-leveled with NU\_ENG 7391). Principles and application of radiation detectors and analyzers: ionization, Geiger-Muller, proportional, liquid and solid scintillation, semiconductor, pulse height analyzers, coincidence circuits, data reduction, tracer applications, activation analysis. Lectures, laboratory.

**Credit Hours:** 3

**Prerequisites:** senior standing or instructor's consent

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**NU\_ENG 7001: Topics in Nuclear Science and Engineering**

Current and new developments in nuclear engineering.

**Credit Hour:** 2-5

**Prerequisites:** instructor's consent

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**NU\_ENG 7080: Medical Ethics for Medical Physics**

This course will start with an introduction into medical ethics then transitions into research procedures with humans and animals. This course will cover research ethics, professional conduct, authorship, publishing, and plagiarism.

**Credit Hour:** 1

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**NU\_ENG 7085: Special Problems in Nuclear Science and Engineering**

Special Problems in Nuclear Science and Engineering.

**Credit Hour:** 1-5

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**NU\_ENG 7087: Seminar in Nuclear Science and Engineering**

Reviews of investigations and projects of importance in nuclear engineering.

**Credit Hour:** 1

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**NU\_ENG 7302: Safe Handling of Radioisotopes**

Introduction of methods and procedures for safe handling of radioisotopes in the research laboratory. Intensive lecture and laboratory training sessions designed for persons planning to use radioisotopes at the University.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**NU\_ENG 7303: Radiation Safety**

(same as RA\_SCI 7303; cross-leveled with NU\_ENG 4303). Types and origins of radiation; radiation detection and measurement; radiation interactions; shielding; dose calculations; federal, state and local regulations; and procedures for safe uses of radiation. Laboratory experiments in radiation measurements and protection.

**Credit Hours:** 3

**Prerequisites:** college physics, calculus based

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**NU\_ENG 7306: Advanced Engineering Math**

(cross-leveled with NU\_ENG 7306). Applies ordinary and partial differential equations to engineering problems; Fourier's series; determinants and matrices; Laplace transforms; analog computer techniques.

**Credit Hours:** 3

**Prerequisites:** MATH 4100

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**NU\_ENG 7313: Nuclear Science for Engineering for Secondary Science Teachers**

This one-week course is for high school science and math teachers, and provides basic of nuclear science concepts and their applications, types of radiation (including radiation detection and protection), and industrial, medical and nuclear power generation application.

**Credit Hours:** 3

**Prerequisites:** instructor's consent; actively engaged in STEM teaching at the secondary level

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**NU\_ENG 7315: Energy Systems and Resources**

(same as ECE 7020, MAE 7371; cross-leveled with ECE 4020, MAE 4371, NU\_ENG 4315 ). Analysis of present energy usage in Missouri, USA and the world, evaluation of emerging energy technologies and trends for the future. Economics and environmental impact of the developed technologies.

**Credit Hours:** 3

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**NU\_ENG 7319: Physics and Chemistry of Materials**

(same as PHYSCS 7190, BIOL\_EN 7480, CHEM 7490; cross-leveled with NU\_ENG 4319, PHYSCS 4190, BIOL\_EN 4480, CHEM 4490, BME 4480). Physics and Chemistry of Materials is a 3 credit hours course offered every spring semester for students from Physics, Chemistry, Engineering and Medical Departments and consists of lectures, laboratory demonstrations, two mid-term and one final exam. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2750, CHEM 1320 or equivalent, or instructor's consent

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**NU\_ENG 7320: Natural Resources and Nuclear Energy**

Not for engineering students. Lecture, demonstration; describes physical environment, energy, power plants, nuclear reactors; radioactivity, its biological effects; health physics measures, rad-waste disposal; nuclear safeguards, nuclear explosives, societal implications.

**Credit Hours:** 3

**Prerequisites:** high school algebra

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**NU\_ENG 7328: Introductory Radiation Biology**

(same as BIO\_SC 7328, RADIOL 7328, and V\_M\_S 7328; cross-leveled with BIO\_SC 4328, RADIOL 4328). Concepts of ionizing radiations, their actions on matter through effects on simple chemical systems, biological molecules, cell, organisms, man.

**Credit Hours:** 3

**Prerequisites:** Sciences/Engineering; one course in Biological Sciences and Physics/Chemistry; or instructor's consent

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**NU\_ENG 7330: Science and Technology of Terrorism and Counter Terrorism**

(cross-leveled with NU\_ENG 4330, PEA\_ST 4330). Terrorism has been a familiar tool of political conflict, and it has assumed greater importance during the past twenty years. This subject has been treated by political scientists in various forms, but the scientific and technological aspects of different forms of terrorism cannot be found in a single place. It is important for persons who propose counter measures to understand the basics of different types of terrorism such as for instance the nature of chemical agents, their properties such as toxicity, etc. in order to build better defense systems.

**Credit Hours:** 3

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**NU\_ENG 7331: Nonproliferation Issues for Weapons of Mass Destruction**

(cross-leveled with NU\_ENG 4331). Nonproliferation and impact on technology and world events.

**Credit Hours:** 3

**Prerequisites:** junior or senior standing or instructor's consent

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**NU\_ENG 7335: Nuclear Safeguards Science and Technology**

(same as ECE 7335). This course provides an overview of nuclear materials management and safeguards, including physical protection systems, material accounting and control, monitoring, and regulatory issues.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 4303 or NU\_ENG 7303

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**NU\_ENG 7341: Nuclear Chemical Engineering**

Principles and processes of importance in the field of nuclear technology.

**Credit Hours:** 3

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**NU\_ENG 7346: Introduction to Nuclear Reactor Engineering I**

(same as ECE 7030; cross-leveled with NU\_ENG 4346, NU\_ENG 4030). Engineering principles of nuclear power systems, primarily for the production of electrical energy.

**Credit Hours:** 3

**Prerequisites:** ENGINR 1200, ENGINR 2300 or equivalent

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**NU\_ENG 7349: Nuclear Engineering Materials**

Properties of materials for reactor components; radiation damage and corrosion; metallurgy of reactor materials.

**Credit Hours:** 3

**Prerequisites:** upper division or graduate standing in Physical Sciences or Engineering, or instructor's consent

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**NU\_ENG 7353: Introduction to Fusion**

Basic plasma physics, principles of thermonuclear fusion, plasma confinement and heating, and devices.

**Credit Hours:** 3

**Prerequisites:** graduate standing in Engineering or Science or instructor's consent

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**NU\_ENG 7357: Nuclear Heat Transport**

Principles of heat transport in nuclear reactors. Brief review of the theory of flow coast down and convective heat transfer. Heat transfer loop experiments on flow coast down, steady state and transient forced convection heat transfer, boiling heat transfer.

**Credit Hours:** 2

**Prerequisites:** NU\_ENG 4305, NU\_ENG 4346 or instructor's consent

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**NU\_ENG 7365: Nuclear Power Engineering**

(cross-leveled with NU\_ENG 4365). Nuclear reactor heat generation and removal; nuclear reactor coolants; analysis of nuclear reactor power plants.

**Credit Hours:** 3

**Prerequisites:** ENGINR 2300

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**NU\_ENG 7369: Principles of Direct Energy Conversion**

(cross-leveled with NU\_ENG 4369). Principles and utilization of thermoelectric, thermionic, photovoltaic, magnetohydrodynamic generators and fuel cells.

**Credit Hours:** 3

**Prerequisites:** ENGINR 2300, MAE 3400, or equivalent

---

**NU\_ENG 7375: Introduction to Plasmas**

(same as ECE 7550; cross-leveled with NU\_ENG 4375, ECE 4550). Equations of plasma physics, interaction of waves and plasmas; plasma sheaths and oscillations; measurements and applications.

**Credit Hours:** 3

**Prerequisites:** ECE 4930 or instructor's consent

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**NU\_ENG 7391: Nuclear Radiation Detection**

(cross-leveled with NU\_ENG 4391). Principles and application of radiation detectors and analyzers: ionization, Geiger-Muller, proportional, liquid and solid scintillation, semiconductor, pulse height analyzers, coincidence circuits, data reduction, tracer applications, activation analysis. Lectures, laboratory.

**Credit Hours:** 3

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**NU\_ENG 8001: Advanced Topics in Nuclear Science and Engineering**

Advanced developments in nuclear engineering.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**NU\_ENG 8085: Problems in Nuclear Science and Engineering**

Supervised investigation in nuclear engineering to be presented in the form of a report.

**Credit Hour:** 1-6

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**NU\_ENG 8090: Research in Nuclear Science and Engineering**

Independent investigation in nuclear engineering to be presented as a thesis. Graded on an S/U basis only.

**Credit Hour:** 1-99

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**NU\_ENG 8402: Nuclear Fuel Cycle**

Covers the nuclear fuel cycle from mine through enrichment, fuel element burn-up reactor physics, chemical reprocessing, waste disposal, with special emphasis on the newer proliferation-resistant fuel cycles.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 4346 or NU\_ENG 4305 and instructor's consent

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**NU\_ENG 8403: Applied Topics in Medical Physics and Health Physics**

Directed observations and experience in scientific aspects of daily operations in nuclear medicine, diagnostic radiology, radiotherapy and health physics.

**Credit Hour:** 1-6

**Prerequisites:** departmental consent

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**NU\_ENG 8404: Nuclear Reactor Laboratory I**

Application of reactor physics principals to operation of and experiments with the University of Missouri Research Reactor. Neutron activation analysis, instrumentation, reactivity evaluation.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 4346 or NU\_ENG 8411

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**NU\_ENG 8409: Interaction of Radiation with Matter**

Theory/applications of radiation interaction processes. Reviews nuclear physics concepts; radioactive decay; sources/ spectra of ionizing radiation; collision mechanisms for charged particles, electromagnetic radiation, neutrons for interaction with matter.

**Credit Hours:** 3

**Prerequisites:** Entrance requirements

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**NU\_ENG 8412: Nuclear Reactor Theory II**

Linear and non-linear reactor kinetics; perturbation theory; temperature and fission product effects; control rod theory; transport theory.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 8411 or NU\_ENG 4346

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**NU\_ENG 8422: Radiation Shielding**

Fundamentals of radiation interactions stressing neutron and gamma radiation transport; ray theory, removal theory, multi-group transport shield design principles.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 8409 or instructor's consent

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**NU\_ENG 8429: Radiation Dosimetry**

Basis and applications of conventional and microscopic radiation dosimetry. Dose concepts and quantities; biological dose-response models; dose measurement principles; photon, charged particle, and neutron dosimetry.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 8409

**Recommended:** NU\_ENG 4328

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**NU\_ENG 8432: Nuclear Thermal Hydraulics and Safety**

Engineering topics from reactor heat transfer and thermal stresses, fuel cycle analysis, power plant thermodynamics, shielding, and reactor safety analysis.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 8411 or NU\_ENG 4346, or instructor's consent

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**NU\_ENG 8434: Fracture Mechanics I**

(same as MAE 8220). Mechanics of flawed structure. Concepts include Griffith theory, Barenblatt's theory, Irwin analysis, energy analysis of cracked bodies, fracture toughness testing, plane strain, plane stress, transition temperature concepts, subcritical flaw growth.

**Credit Hours:** 3

**Prerequisites:** MAE 3200 or instructor's consent

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**NU\_ENG 8435: Physics of Diagnostic Radiology**

Principles and applications of X-ray production and interactions. Images production concepts including X-ray film, intensifying screens, grids, fluoroscopy, image intensification and television monitors. Image quality analysis and assessment.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 8409 or equivalent or instructor's consent

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**NU\_ENG 8439: Clinical Physics in Radiotherapy**

Principles and applications of radiation producing units, exposure and dose measurements, and calibration. External beam physics parameters and application to fixed field and rotational field treatment planning.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 8409 or equivalent or instructor's consent

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**NU\_ENG 8452: Ultrasound and Magnetic Resonance Imaging**

The physical principles of MRI and ultrasound including clinical instrumentation, artifacts in images, biological effects and quality control. Images obtained with both techniques will be presented.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 4391, NU\_ENG 8409, NU\_ENG 4306 or equivalent

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**NU\_ENG 8453: Advanced Fusion Theory**

Plasma stability theory, charged particle diffusion, slowing down of charged particles, interaction of radiation with matter, direct energy conversion using charged particles, and engineering considerations.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 4353 and NU\_ENG 4375 or PHYSCS 8450 or instructor's consent

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**NU\_ENG 8461: Neutron Transport Theory**

The Boltzmann equation; general properties and solution; numerical methods of solving the transport equation; neutron thermalization and neutron spectra.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 8412; MATH 4940, MATH 4300, or instructor's consent

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**NU\_ENG 8470: Fast Reactor Analysis**

Analytical methods for designing fast breeder reactor systems. Graded on a S/U basis only.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 8412, NU\_ENG 8432, NU\_ENG 8451 or instructor's consent

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**NU\_ENG 8471: Radiation Protection**

Theory and applications of radiation protection and health physics. Radiation dosimetry methods and calculations, shielding evaluations, equipment surveys and inspection, environmental monitoring, radiation standards and regulations and administration presented.

**Credit Hours:** 3

**Prerequisites:** NU\_ENG 4303 and NU\_ENG 4328

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**NU\_ENG 9090: Research in Nuclear Science and Engineering**

Independent investigation in nuclear engineering to be presented as a thesis. Graded on an S/U basis only.

**Credit Hour:** 1-99

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## Nuclear Medicine (NUCMED)

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**NUCMED 1000: Introduction to Nuclear Medicine**

Introduction to the profession of nuclear medicine technology. In addition to scheduled clinical experiences, topics include educational requirements, procedures, and professional trends.

**Credit Hour:** 1

**Prerequisites:** Pre-Health Professions students only

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**NUCMED 3255: Orientation to Clinical Practice**

This course provides an introductory experience to clinical practice. Must be accepted into Nuclear Medicine Program. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to Nuclear Medicine students, junior standing required

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**NUCMED 3256: Clinical Nuclear Medicine I**

Introductory clinical course. Introduces instrumentation, administration, procedures, and laboratory techniques. Includes supervised clinical participation.

**Credit Hours:** 2

**Prerequisites:** NUCMED 3263 and restricted to Nuclear Medicine students only

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**NUCMED 3263: Morphological Correlations in Nuclear Medicine I**

Anatomy, physiology, and pathology of the human body as assessed using medicine techniques. The first of two courses that address current clinical applications of nuclear medicine.

**Credit Hours:** 3

**Prerequisites:** restricted to Nuclear Medicine students only

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**NUCMED 3328: Introductory Radiation Biology**

(same as BIO\_SC 4328, NU\_ENG 4328, V\_M\_S 7328). Concepts of ionizing radiations, their actions on matter through effects on simple chemical systems, biological molecules, cell, organisms, man.

**Credit Hours:** 3

**Prerequisites:** junior standing

**Recommended:** Sciences/Engineering; one course in Biological Sciences and Physics/Chemistry; or instructor's consent

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**NUCMED 4085: Problems in Nuclear Medicine**

Supervised investigation in an aspect of nuclear medicine technology, usually culminating in a written report.

**Credit Hour:** 1-3

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**NUCMED 4232: Clinical In Vitro**

Detailed review of current regulations and procedures governing the use of open sources of radioactivity in a nuclear medicine setting.

**Credit Hours:** 3

**Prerequisites:** Restricted to Nuclear Medicine students

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**NUCMED 4268: Clinical Nuclear Medicine II**

Continuation of clinical series taught in conjunction with NUCMED 3256 and NUCMED 4232. Addresses advanced therapeutic and diagnostic procedures, computer applications, and quality assurance procedures.

**Credit Hours:** 3

**Prerequisites:** NUCMED 3256. Restricted to Nuclear Medicine students only

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**NUCMED 4268W: Clinical Nuclear Medicine II - Writing Intensive**

Continuation of clinical series taught in conjunction with NUCMED 3256 and NUCMED 4232. Addresses advanced therapeutic and diagnostic procedures, computer applications, and quality assurance procedures.

**Credit Hours:** 3

**Prerequisites:** NUCMED 3256. Restricted to Nuclear Medicine students only

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**NUCMED 4269: Clinical Nuclear Medicine III**

Final course in clinical series. Seminar discussion of the areas of professional ethics, current medical-legal considerations, and future nuclear medicine applications.

**Credit Hour:** 1

**Prerequisites:** NUCMED 3256. Restricted to Nuclear Medicine students only

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**NUCMED 4299: Morphological Correlations in Nuclear Medicine II**

Anatomy, physiology, and pathology of the human body as assessed using nuclear medicine techniques. The second of two courses that address current clinical applications of nuclear medicine.

**Credit Hours:** 3

**Prerequisites:** NUCMED 3263, restricted to Nuclear Medicine students

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**NUCMED 4327: Nuclear Medicine Instrumentation**

Radionuclide imaging systems and the use of computers. Topics include Anger camera systems, emission tomography, ultrasound, nuclear magnetic resonance, and bone absorptionmetry.

**Credit Hours:** 3

**Prerequisites:** Restricted to Nuclear Medicine students

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**NUCMED 4329: Radiopharmaceuticals in Nuclear Medicine**

(cross-leveled with NUCMED 7329). Introduces concepts of radiopharmacy, generator systems, labeling of materials, quality control procedures and FDA regulations concerning radiopharmaceuticals.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

**Recommended:** CHEM 1320

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**NUCMED 4330: PET in Nuclear Medicine**

(cross-leveled with NUCMED 7330). Overview of special isotope production techniques for positron emitting agents; instrumentation concerns beyond standard Anger imaging; and image critique and analysis with morphologic correlation. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Nuclear Medicine students only

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**NUCMED 4841: Microbiological Control and Radiation Monitoring**

This lecture and laboratory class includes analytic techniques used for monitoring and controlling microbial, particulate, and radioactive contamination. Topics will include testing of QC supplies, monitoring of clean room environments, product testing both before and after sterilization, bioburden / microbial limit testing, sterility testing as a qualitative measure for contamination control, endotoxin testing, waste handling, and disposal techniques. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites or Corequisites:** CDS 4328, or NUCMED 3328 and RA\_SCI 4303; CHEM 2100 ; BIOCHM 3630; MICROB 2800; STAT 1200 or STAT 1300 or STAT 1400

**Corequisites:** concurrent enrollment in NUCMED 4842

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**NUCMED 4842: Statistical Analysis in Radioisotope Manufacturing**

This combination lecture and computer lab class covers topics including statistical methods for sample evaluation, data analysis software coding (e.g., MINTAB), quality assurance methodologies used for ensuring radiochemical and radioisotopic quality and integrity during production, transportation, and end use, and practice standards for maintaining regulatory compliance. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites or Corequisites:** CDS 4328, or NU\_ENG 4328 and NU\_ENG 4303; CHEM 2100; BIOCHM 3630; STAT 1200 or STAT 1300 or STAT 1400

**Corequisites:** concurrent enrollment in NUCMED 4841

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**NUCMED 4843: Quality Control of Radiochemical Products**

This course is designed to be a correlative course taken in conjunction with other nuclear medicine courses and will provide an overview of reactor and accelerator based production of radioisotopes, and the techniques used to ensure product identity, strength, and purity. Additionally, course topics will include the discussion of the factors affecting radiochemical integrity, Good Laboratory Practice (GLP), Good Manufacturing Practice (GMP), FDA documentation practices, vendor qualifications, and control of materials. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CDS 4328 (or NU\_ENG 4328 and NU\_ENG 4303); CHEM 2100; BIOCHM 3630; STAT 1200 or STAT 1300 or STAT 1400

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**NUCMED 4939: Nuclear Clinical Internship I**

Application of nuclear medicine in supervised clinical settings. Clinical experience to include imaging procedures and techniques, radiation safety, safe handling of radiopharmaceuticals, and quality control. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** NUCMED 4299; Restricted to Nuclear Medicine Students

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**NUCMED 4940: Nuclear Clinical Internship II**

Application of nuclear medicine in supervised clinical settings. Clinical experience to include imaging procedures and techniques, radiation safety, safe handling of radiopharmaceuticals, and quality control. Graded on A-F basis only.

**Credit Hours:** 6

**Prerequisites:** Restricted to Nuclear Medicine students

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**NUCMED 4941: Nuclear Clinical Internship III**

Application of nuclear medicine in supervised clinical settings. Clinical experience to include imaging procedures and techniques, radiation safety, safe handling of radiopharmaceuticals, and quality control. Graded on A-F basis only.

**Credit Hours:** 7

**Prerequisites:** NUCMED 4940. Restricted to undergraduate Nuclear Medicine students

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**NUCMED 7085: Problems in Nuclear Medicine**

Supervised investigation in an aspect of nuclear medicine technology, usually culminating in a written report.

**Credit Hours:** 3

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**NUCMED 7329: Radiopharmaceuticals in Nuclear Medicine**

(course-leveled with NUCMED 4329). Introduces concepts of radiopharmacy, generator systems, labeling of materials, quality control procedures and FDA regulations concerning radiopharmaceuticals.

**Credit Hours:** 3

**Prerequisites:** CHEM 1320 and instructor's consent

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**NUCMED 7330: PET in Nuclear Medicine**

(cross-leveled with NUCMED 4330). Overview of special isotope production in techniques for positron emitting agents; instrumentation concerns beyond standard Anger imaging; and image critique and analysis with morphologic correlation. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 1210 and NUCMED 4327 or instructor's consent

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## Nursing (NURSE)

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**NURSE 1000: Advisory Seminar for Nursing**

Orientation to the undergraduate nursing program, professional role development, and introduction to the professional milieu. Graded on an S/U basis only.

**Credit Hour:** 1

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**NURSE 2000: Nursing as a Profession**

Introduces the structure of nursing knowledge and explores professional nursing role characteristics from historical, ethical, legal, economic, professional, occupational and social perspectives. Examines nursing as subsystem of the health care system.

**Credit Hours:** 3

**Prerequisites:** sophomore standing. Restricted to pre-nursing majors with a GPA of 2.8 or higher

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**NURSE 2000H: Nursing as a Profession - Honors**

Introduces the structure of nursing knowledge and explores professional nursing role characteristics from historical, ethical, legal, economic, professional, occupational, and social perspectives. Examines nursing as subsystem of the health care system. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing with undergraduate GPA of 2.8 or higher; honors eligibility required

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**NURSE 2100: Communication Issues in Nursing**

In this course students develop their interpersonal communication skills and cultural competency in health care. Topics include social determinants of health, biases in the healthcare setting, diversity issues in health care, health literacy and health disparities. Students will learn evidence-based communication techniques.

**Credit Hours:** 2

**Prerequisites:** Sophomore Standing. Restricted to pre-nursing majors only

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**NURSE 2100H: Communication Issues in Nursing - Honors**

Reviews psychosocial and communication issues. Focuses on improving interpersonal communication skills and learning how to provide therapeutic interventions to people with selected mental health issues. An experiential model emphasizes personal skill development strategies.

**Credit Hour:** 2-3

**Prerequisites:** Sophomore Standing. Restricted to pre-nursing majors only. Honors eligibility required

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**NURSE 2200: Foundations of Communication and Professionalism in Nursing**

In this course, students develop their interpersonal communication skills and cultural competency in health care. Topics include social determinants of health, biases in the healthcare setting, health literacy, and health disparities. Students will learn evidence-based communication techniques. Graded on A-F basis only.

**Credit Hours:** 3

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**NURSE 2200H: Foundations of Communication and Professionalism in Nursing - Honors**

In this course, students develop their interpersonal communication skills and cultural competency in health care. Topics include social determinants of health, biases in the healthcare setting, health literacy, and health disparities. Students will learn evidence-based communication techniques. Graded on A-F basis only.

**Credit Hours:** 3

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**NURSE 3000: Health Care Resiliency**

This course examines the unique psychosocial, spiritual, and physical stressors health professionals encounter while carrying out their duties. Self-care practices are examined that build the resilience needed to address challenging professional demands. This course draws on the extensive scientific literature that explores health and wellness promotion. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** For Clinical Nursing majors only during Early Registration

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**NURSE 3002: Topics in Nursing - Biological, Physical, Mathematical**

Specialized topics in nursing not available through regularly offered courses. Sections may be offered either on S/U or A-F basis.

**Credit Hour:** 1-4

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**NURSE 3002H: Topics in Nursing - Biological Sciences- Honors**

Specialized topics in nursing not available through regularly offered courses. Sections may be offered either on S/U or A-F basis.

**Credit Hour:** 1-4

**Prerequisites:** Honors Eligibility required

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**NURSE 3080: Introduction to Nursing Informatics**

Informatics is the science of managing information. This course provides basic content for understanding informatics in nursing. Principles, theories, and practices of informatics from seeking and storing to retrieving and analyzing information will be presented. Students will apply basic content as they consider informatics from consumer and provider perspectives for current or future use as nursing professionals.

**Credit Hours:** 3

**Prerequisites:** RN-BSN students only

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**NURSE 3080W: Introduction to Nursing Informatics - Writing Intensive**

Informatics is the science of managing information. This course provides basic content for understanding informatics in nursing. Principles, theories, and practices of informatics from seeking and storing to retrieving and analyzing information will be presented. Students will apply basic content as they consider informatics from consumer and provider perspectives for current or future use as nursing professionals.

**Credit Hours:** 3

**Prerequisites:** RN-BSN students only

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**NURSE 3100: Pharmacology for Nursing**

This course will focus on pharmacological classification and the nurse's role in medication administration and patient education. Medication issues with special populations will be addressed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** NURSE 3200 or NURSE 3260

**Prerequisites:** Restricted to Clinical BSN Accelerated students; restricted to clinical majors during early registration; PTH\_AS 2201 and PTH\_AS 2203 and MPP 3202

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**NURSE 3170: Nursing Skills, Technologies, and Simulation**

Provides laboratory experiences for fundamental to complex nursing skills and procedures. Focuses on application of therapeutic interventions and procedure to provide safe, patient-centered care.

**Credit Hours:** 4

**Prerequisites:** Clinical BSN Nursing CLN\_BSN

**Recommended:** NURSE 3270

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**NURSE 3180: Role Transitions**

Explores returning-to-school issues important to adult learners. Links previous basic nursing courses with baccalaureate courses and begins building new knowledge on prior nursing education.

**Credit Hours:** 3

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**NURSE 3200: Pathophysiology**

Focus is on commonly occurring alterations in health across the life span. Developmental concepts, diagnostics, and treatment modalities are integrated throughout course content. Enrollment requires admission to the clinical nursing major BSN option.

**Credit Hours:** 4

**Prerequisites:** Restricted to pre-nursing and students in the Clinical Nursing Major. PTH\_AS 2201 and PTH\_AS 2203 and MPP 3202

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**NURSE 3260: Pathophysiology**

Focus is on commonly occurring alterations in health across the life span. Developmental concepts, diagnostics, and treatment modalities are integrated throughout course content. Course is designed for students applying to the accelerated BSN option.

**Credit Hours:** 3

**Prerequisites or Corequisites:** MICROB 2800 or MICROB 3200

**Prerequisites:** MPP 3202; PTH\_AS 2201 and PTH\_AS 2203

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**NURSE 3270: Foundations of Nursing: Physical Assessment and the Nursing Process**

NURSE 3270 provides knowledge and skills in physical assessment and the application of the Nursing Process. Clinical application of foundational knowledge determines the health status of individuals.

**Credit Hours:** 5

**Prerequisites or Corequisites:** For Clinical BSN, students must have completed NURSE 2000 and NURSE 2100 and be concurrently enrolled in NURSE 3170, NURSE 3200, NURSE 3300; for Clinical BSN Accelerated students must have completed NURSE 3200 or NURSE 3260 and be concurrently enrolled NURSE 3170 and NURSE 3100 or NURSE 3300

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**NURSE 3280: Fundamentals of Nursing**

This course assists students to identify and apply the nursing process in both laboratory and clinical settings. The course provides classroom, laboratory and clinical experiences for learning fundamental to complex nursing skills and technologies. Assists students with necessary application of foundational knowledge and critical thinking in the clinical setting. The student will utilize skills of data collection, documentation, communication, implementation and evaluation of a plan of care to meet health care needs. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites or Corequisites:** NURSE 3200 or NURSE 3260 and NURSE 3370 and NURSE 3300 or NURSE 3100

**Prerequisites:** Restricted to Clinical BSN Nursing Major

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**NURSE 3300: Pharmacology and Nursing Implications**

This course will focus on pharmacological classifications and the nurse's role in medication administration and patient education. Medication issues with special populations will be addressed. Graded on a A-F basis only.

**Credit Hours:** 4

**Prerequisites or Corequisites:** NURSE 3200 or NURSE 3260

**Prerequisites:** Restricted to Clinical Nursing Majors. PTH\_AS 2201 and PTH\_AS 2203 and MPP 3202

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**NURSE 3350: Individual Study**

Independent study for qualified students in specific areas of interest in nursing under faculty guidance. Some sections may be graded A-F only or S/U only.

**Credit Hour:** 0-6

**Prerequisites:** instructor's consent

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**NURSE 3370: Health Assessment in Nursing**

This course provides opportunities for students to acquire and build upon knowledge of health and illness and to develop skill in assessment of the whole individual. Students will learn a holistic approach to assessment, focused on physical, mental and social aspects, to determine the health status of individuals, families and communities. Students will develop skills in taking a health history and conducting a complete head-to-toe assessment of adults as well as individuals across the life-span from infants and children to older adults. Students will perform skills in a laboratory setting that are transferable to the clinical setting. The student

is expected to apply knowledge from prerequisite and concurrent courses in data collection and interpretation of findings to determine the need for nursing care. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites or Corequisites:** NURSE 3200 or NURSE 3260 and NURSE 3370 and NURSE 3300 or NURSE 3100

**Prerequisites:** Traditional Students - Clinical Nursing Majors (CLN\_BSN) NURSE 2200 or NURSE 2100; Accelerated Students - Acceptance into the Accelerated Nursing Program

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**NURSE 3470: Mental Health Nursing**

Students discover behavioral, social, interpersonal, and neuro-biological aspects of mental health nursing. Therapeutic use of self in designing and implementing nursing care for clients throughout the life cycle is emphasized. Content on psychopathology is included.

**Credit Hours:** 5

**Prerequisites or Corequisites:** NURSE 3900 or NURSE 3900H

**Prerequisites:** NURSE 3280 and NURSE 3300 or NURSE 3100 and NURSE 3370

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**NURSE 3670: Nursing of Adults I**

Application of the nursing process to deliver care for hospitalized adults with health deviations. Evidence, technologies, professional standards and collaboration are used to enhance patient-centered, safe and effective care.

**Credit Hours:** 6

**Prerequisites or Corequisites:** NURSE 3900 or NURSE 3900H

**Prerequisites:** NURSE 3280 and NURSE 3300 or NURSE 3100 and NURSE 3370

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**NURSE 3750: Nursing of the Childbearing Family**

This course provides learning experiences with childbearing families. Students apply the nursing process to promote health and well-being for the childbearing family. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NURSE 3260 or NURSE 3200, and NURSE 3270, NURSE 3100, admission to accelerated BSN option

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**NURSE 3760: Pediatric Nursing**

Provides learning experiences with children and their families from newborn to adolescents. Examines health alterations that interfere with self-care in and for children.

**Credit Hours:** 3

**Prerequisites:** NURSE 3270, admission to accelerated option

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**NURSE 3800: Gerontological Nursing Care**

Emphasis on normal aging processes, health promotion, disease prevention, management of complex health conditions, and evaluation of care for older adults.

**Credit Hours:** 3

**Prerequisites or Corequisites:** NURSE 3300 or NURSE 3100

**Prerequisites:** NURSE 3370 and NURSE 3280

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**NURSE 3900: Introduction to Nursing Science**

Introduces nursing as a science from the perspective of knowledge development. Structures nursing knowledge from a theoretical perspective. Presents nursing research as a method of knowledge development and validation.

**Credit Hours:** 3

**Prerequisites:** STAT 1200 or STAT 1300 or ESC\_PS 4170 and Clinical Nursing Major

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**NURSE 3900H: Introduction to Nursing Science - Honors**

Introduces nursing as a science from the perspective of knowledge development. Students examine the structure of nursing knowledge using theory, research and clinical practice. Nursing research is discussed as a method of building nursing knowledge, developing practice based on evidence, and validation of clinical activities. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Clinical Nursing Majors and STAT 1200 or STAT 1300 or ESC\_PS 4170; Honors eligibility required

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**NURSE 4110: RN to MS Role Transition**

Seamless academic progression to support registered nurses prepared in community colleges and hospital based programs to advance their education is essential, based upon recommendations from professional nursing organizations, as well as institutions of higher learning. This course focuses on the role transitions encountered in advanced nursing roles at the master's level. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** RN to MSN majors

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**NURSE 4200: Nursing Ethics and Law**

This course examines and explores legal and ethical principles and applications as they pertain to clinical nursing practice and healthcare. The information in this course is applied in concurrent and subsequent program courses and provides a foundation for ethical and legal professional nursing practice.

**Credit Hours:** 3

**Prerequisites:** Restricted to RN-BSN students

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**NURSE 4200W: Nursing Ethics and Law - Writing Intensive**

Analyzes clinical nursing situations using ethical principles and decision-making models. Examines the basic doctrines and principles foundational for providing legally sound nursing practice.

**Credit Hour:** 3-4

**Prerequisites or Corequisites:** NURSE 3080 or NURSE 3670

**Prerequisites:** Senior Clinical Major

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**NURSE 4201: Legal Concepts in Nursing**

This course examines fundamental legal guidelines for professional nursing practice using content gleaned from nursing and medicine. The student will analyze and apply legal principles pertaining to nursing practice. Enrollment requires a prerequisite of a medical ethics, healthcare ethics or a bioethics course which is subject to instructor approval. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** PHIL 2440 or PHIL 1150 or HLTH\_SCI 4480

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**NURSE 4210: Nursing Ethics**

This course examines and explores legal and ethical principles and applications as they pertain to clinical nursing practice and healthcare. The information in this course is applied in concurrent and subsequent program courses and provides a foundation for ethical and legal professional nursing practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** NURSE 3370

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**NURSE 4210W: Nursing Ethics - Writing Intensive**

This course examines and explores legal and ethical principles and applications as they pertain to clinical nursing practice and healthcare. The information in this course is applied in concurrent and subsequent program courses and provides a foundation for ethical and legal professional nursing practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** NURSE 3370

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**NURSE 4270: Nursing of Children**

Nursing of children with acute and chronic health and developmental deviations. Self-care and dependent care abilities are emphasized. Content includes health promotion for infants, children and adolescents.

**Credit Hours:** 4

**Prerequisites or Corequisites:** For accelerated BSN students NURSE 3470

**Prerequisites:** For Clinical BSN, students must have completed NURSE 3470 and NURSE 3670

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**NURSE 4270H: Nursing of Children - Honors**

Nursing of children with acute and chronic health and developmental deviations. Self-care and dependent care abilities are emphasized. Content includes health promotion for infants, children and adolescents. Prerequisites or Corequisites: For accelerated BSN students NURSE 3470; Honors eligibility required

**Credit Hours:** 4

**Prerequisites:** For Clinical BSN, students must have completed NURSE 3470 and NURSE 3670

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**NURSE 4300: Nursing Issues/Leadership and Management**

Examines leadership and organizational theories in relation to resource management and effective delivery of nursing to sets of clients. Analyzes societal/political issues and trends related to nursing and contemporary health care.

**Credit Hours:** 3

**Prerequisites or Corequisites:** NURSE 3670

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**NURSE 4380: Health Assessment and Pathophysiology**

Examines biologic basis for selected commonly occurring diseases throughout the life-span. Study and performance of health assessments with application of findings to adults and children.

**Credit Hours:** 3

**Prerequisites:** RN-BSN student

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**NURSE 4400: Nursing Leadership and Management**

Examines leadership, management, and organizational theories in relation to resource management and effective delivery of nursing to sets of clients. Analyzes societal and political issues and trends related to nursing and contemporary health care. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** RN-BSN student

**Corequisites:** NURSE 3080

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**NURSE 4470: Nursing of the Childbearing Family**

This course provides nursing care learning experiences for childbearing families. Students apply the nursing process to promote health and well-being for the childbearing family.

**Credit Hours:** 4

**Prerequisites:** For Clinical BSN, students must have completed NURSE 3470 and NURSE 3670

**Corequisites:** For Accelerated BSN students NURSE 3670

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**NURSE 4870: Nursing of Adults II**

Application of nursing process to care for adults with acute physiological health deviations. Leadership and management principles are integrated in delivering care for sets of clients.

**Credit Hour:** 3-7

**Prerequisites or Corequisites:** NURSE 4970

**Prerequisites:** NURSE 3470 and NURSE 3670 and NURSE 4270 and NURSE 4470

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**NURSE 4870H: Nursing of Adults II Honors**

Application of nursing process to care for adults with acute physiological health deviations. Leadership and management principles are integrated in delivering patient care. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** NURSE 3470 and NURSE 3670 and NURSE 4270 and NURSE 4470; Honors eligibility required

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**NURSE 4930: Evidence-Based Nursing Practice**

Concepts of evidence-based nursing practice are applied to clinical nursing questions, emphasizing use of research findings in practice settings to generate best nursing practices and optimal patient care outcomes.

**Credit Hours:** 5

**Prerequisites:** NURSE 4950

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**NURSE 4930W: Evidence-Based Nursing Practice - Writing Intensive**

Concepts of evidence-based nursing practice are applied to clinical nursing questions, emphasizing use of research findings in practice settings to generate best nursing practices and optimal patient care outcomes.

**Credit Hours:** 5

**Prerequisites:** NURSE 4950

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**NURSE 4950: Nursing Theory and Research**

Addresses nursing research as means of acquiring and refining knowledge. Research utilization to impact nursing addressed. Examines development and utilization of nursing theory.

**Credit Hours:** 3

**Prerequisites:** STAT 1200 or ESC\_PS 4170. Must be a RN-BSN student

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**NURSE 4950W: Nursing Theory and Research - Writing Intensive**

Addresses nursing research as means of acquiring and refining knowledge. Research utilization to impact nursing addressed. Examines development and utilization of nursing theory.

**Credit Hours:** 3

**Prerequisites:** STAT 1200 or ESC\_PS 4170. Must be a RN-BSN student

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**NURSE 4970: Nursing in Communities**

Examines roles and functions of nurses within community with emphasis on application of community/public health concepts and design and implementation of nursing systems of care for individuals, families, and populations.

**Credit Hour:** 4-5

**Prerequisites:** Restricted to RN-BSN students. NURSE 4950 and NURSE 4930

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**NURSE 4970H: Nursing in Communities - Honors**

(same as NURSE 4970W). Examines roles and functions of nurses within community with emphasis on application of community/public health concepts and design and implementation of nursing systems of care for individuals, families, and populations. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites:** Honors eligibility required. Students must meet one of the following - Traditional students - NURSE 4470, NURSE 4270 and NURSE 3470; or Accelerated students - NURSE 3750 and NURSE 3760 and pre- or co-enrolled in NURSE 3470

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**NURSE 4970HW: Nursing in Communities - Honors/Writing Intensive**

Examines roles and functions of nurses within community with emphasis on application of community/public health concepts and design and implementation of nursing systems of care for individuals, families, and populations.

**Credit Hours:** 5

**Prerequisites:** Honors Eligibility required; Students must meet one of the following - Traditional students - NURSE 4470, NURSE 4270 and NURSE 3470; or Accelerated students - NURSE 3750 and NURSE 3760 and pre- or co-enrolled in NURSE 3470

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**NURSE 4970W: Nursing in Communities - Writing Intensive**

Examines roles and functions of nurses within community with emphasis on application of community/public health concepts and design and implementation of nursing systems of care for individuals, families, and populations.

**Credit Hours:** 5

**Prerequisites or Corequisites:** Accelerated students - NURSE 3670 and NURSE 3470 and NURSE 4270 and NURSE 4470

**Prerequisites:** Students must meet one of the following - Traditional students - NURSE 4470, NURSE 4270

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**NURSE 7010: Biostatistical Foundations for Health Researchers**

Examines basic concepts of data management, study design, descriptive and inferential biostatistics using analytic software. Emphasizes statistical

literacy and critical thinking for health researchers. Graded on A-F basis only.

**Credit Hours:** 3

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**NURSE 7087: Leadership and Technology Institute**

Introduction to knowledge and skills essential to support research and practice doctorates. May be repeated for credit.

**Credit Hour:** 1

**Prerequisites:** Admission to DNP or PhD program

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**NURSE 7089: Transition to APRN Practice**

The Transition to APRN Practice course is designed to provide additional guidance, support, and reinforcement of knowledge for new APRNs as they transition into practice. Case conferences, webinars, discussion, and speakers will be utilized to address a variety of topics of interest to the practitioner. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** MSN APRN Completion

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**NURSE 7100: Theoretical Basis for Advanced Nursing**

Analysis, application and evaluation of a variety of nursing and non nursing theories used in advanced nursing practice and research.

**Credit Hours:** 3

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**NURSE 7110: Advanced Nursing Roles and Professional Communication**

This course provides an overview of advanced nursing roles (Clinical Nurse Specialists, Nurse Practitioners [MS and DNP prepared], Executives, Educators, and Nurse Researchers [PhD]) and professional issues for which foundational knowledge of other advanced nursing courses will build. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Admission to the graduate program or faculty consent

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**NURSE 7120: Advanced Physiology and Pathophysiology**

Focus on the normal and altered physiological functioning of body systems. Provides essential knowledge of human health and disease across the lifespan necessary for advanced nursing practice.

**Credit Hours:** 3

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**NURSE 7130: Advanced Pharmacology and Pharmacotherapeutics**

Advanced practice nurse drug therapy management for health maintenance and treatment of acute episodic and chronic health problems in various populations over the life span.

**Credit Hours:** 3

**Prerequisites:** BSN or instructor's consent

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**NURSE 7140: Advanced Health Assessment and Promotion**

Expands history and physical assessment techniques across lifespan. Addresses diagnostic reasoning, differential diagnosis, selection of common diagnostic test, disease risk factors, and health promotion strategies.

**Credit Hours:** 3.5

**Prerequisites:** BSN or instructor's consent

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**NURSE 7150: Research Basis for Advanced Nursing**

Examines fundamentals of scientific inquiry. Addresses research design issues. Focuses on interpreting, critiquing, and synthesizing research findings.

**Credit Hours:** 3

**Prerequisites:** NURSE 7100

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**NURSE 7160: Scientific Foundations for Health Sciences**

Students examine integrity in scientific research; scientific inquiry fundamentals; research design issues; theory analysis, application, and evaluation; data analyses for research designs; and critical evaluation of research findings in health sciences. Graded on A-F basis only.

**Credit Hours:** 4

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**NURSE 7500: Foundations of Care Management: Professional, Legal, Financial, and Business**

This course will introduce students to the interdisciplinary care management role. Topics covered include practice settings and models of care as well as professional, legal, financial, and leadership responsibilities within the context of the current U.S. health system. Graded on A-F basis only.

**Credit Hours:** 3

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**NURSE 7510: Pharmacology, Pathophysiology, & Physical Assessment for Care Managers**

This course develops student's knowledge of common acute and chronic health conditions. Topics include normal and altered physiological functioning, physical assessment, and therapeutic interventions. Students gain an understanding of human health and disease across the lifespan, which can be applied to care management practice. Graded on A-F basis only.

**Credit Hours:** 3

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**NURSE 7750: Functional Dimensions of Aging**

(same as ARCHST 7640, F\_C\_MD 7750, HMI 7750, H\_D\_FS 7750, SOC\_WK 7752). This online course provides a variety of learning activities to facilitate understanding and appreciation of physical, psychosocial, and economic challenges older adults may experience. Content will include determinants of and approaches to quality of life and successful aging. Graded on A-F basis only.

**Credit Hours:** 3

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**NURSE 7751: Psychosocial Function and Older Adults**

(same as ARCHST 7650, F\_C\_MD 7751, HMI 7751, H\_D\_FS 7751, P\_HLTH 7751 and SOC\_WK 7751). This course takes an Interdisciplinary approach to understanding the psychosocial function of older adults and explores approaches to alleviate disabling conditions that interfere with psychosocial function and quality of life in old age. Graded on A-F basis only.

**Credit Hours:** 3

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**NURSE 8001: Topics in Advanced Clinical Nursing**

Specialized topics in advanced clinical nursing not available through regularly offered courses.

**Credit Hours:** 3

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**NURSE 8002: Research Topics in Nursing and Health**

Topics courses are intended for special offerings, or as opportunities to experiment with a new course prior to seeking approval for it as a regular course. Graded on A-F basis only.

**Credit Hours:** 3

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**NURSE 8010: Family Dynamics and Intervention**

(same as H\_D\_FS 8012). Theories of family function and dysfunction; techniques of assessment; models of family intervention. Practicum with selected families.

**Credit Hours:** 3

**Prerequisites:** NURSE 7100 (Nursing students)

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**NURSE 8020: Intermediate Statistical Methods for Health Researchers**

Examination of generalized linear models, multiple logistic regression, and multilevel modeling as applied to health sciences research.

**Credit Hours:** 3

**Prerequisites:** NURSE 7010 or equivalent

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**NURSE 8030: Interpreting Statistical Evidence in the Health Sciences**

Students learn to critically evaluate statistical designs and data analysis methods used in health sciences research and scientific evidence for health care decision making. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** Graduate level statistics course

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**NURSE 8085: Problems in Nursing**

Guided readings, special study and/or a practicum in an area of the student's interest or in an area which the student needs to strengthen. Selected sections of the course may be offered on A-F or S/U basis only.

**Credit Hour:** 1-4

**Prerequisites:** instructor's consent

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**NURSE 8090: Research in Nursing**

Original investigation for presentation as thesis or dissertation. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** graduate statistics, instructor's consent

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**NURSE 8100: Principles of Epidemiology**

Explores key concepts of epidemiology and epidemiologic methods for studying the distribution and determinants of health and disease in populations. Application to public health and population-based practice addressed.

**Credit Hours:** 3

**Prerequisites:** NURSE 7150 or faculty consent

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**NURSE 8150: Interprofessional Practice: Transforming Healthcare**

This course provides an introduction to interprofessional care management theories and models within the health professions.

Differences and similarities of the specific elements that comprise various models of care management will be explored. Core competencies of interprofessional collaborative practice will be examined with specific emphasis placed on developing a wraparound service model that uses an interprofessional team approach. Graded on A-F basis only.

**Credit Hours:** 3

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**NURSE 8160: Evidence Based Care Management Practice for Individuals and Populations**

This course builds upon fundamentals of interdisciplinary care management. Evidence based practice concepts are explored including distinguishing relevant resources and critiquing specific evidence related to care management. Tools, assessments, and techniques used in the management of complex patients with physical and mental health needs will be examined. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NURSE 7500 and NURSE 7510

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**NURSE 8170: Public Health, Sociocultural Issues, and Health Policy**

Explores concepts of public health, social determinants of health, and health policy interventions. This course evaluates the role of the advanced practice nurse in the development, implementation, advocacy for and administration of programs and policies designed to meet the health needs of the public. Graded on A-F basis only.

**Credit Hours:** 3

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**NURSE 8210: Special Health Care Needs of Children**

Perform developmental, neuro developmental, and psychosocial assessments of chronically ill children. Collaborate with families, schools; health care, community, family services to meet child's needs.

**Credit Hour:** 3.5-5

**Prerequisites:** NURSE 7100 or instructor's consent

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**NURSE 8300: Public Health and Sociocultural Issues**

Explores concepts of public health with a focus on the advanced practice nurse in population-based/primary care practice; core public health functions will be addressed at three service levels--the aggregate, the family, and the individual.

**Credit Hours:** 3

**Prerequisites:** NURSE 7100

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**NURSE 8310: Health Disparities of Rural and Other Underserved Populations**

In-depth examination of rural and other vulnerable populations and their interactions with the health care system including access, utilization, and outcomes. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** NURSE 7087, NURSE 8300 or faculty consent

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**NURSE 8400: Adult and Geriatric Primary Care I**

Advanced practice nursing clinical diagnosis and management of acute and chronic cardiovascular, respiratory, HEENT, renal, metabolic and musculoskeletal problems in adults, older adults and their families.

**Credit Hour:** 3.5-5

**Prerequisites:** NURSE 7120, NURSE 7130, NURSE 7140

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**NURSE 8410: Adult and Geriatric Primary Care II**

Advanced practice nursing clinical diagnosis and management of acute and chronic gastrointestinal, endocrine, hematological, neuropsychological problems and bioterrorism and CAM issues in adults, older adults and their families.

**Credit Hour:** 3.5-5

**Prerequisites:** NURSE 8400

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**NURSE 8420: Newborn Through Adolescence Primary Care**

Advanced nursing practice of newborn through adolescence of health maintenance/promotion, clinical diagnosis and management of common childhood illness, behavioral, developmental problems. Advanced knowledge of human growth, development, family dynamics, community resources, collaborative relationships. Integrated clinical practicum.

**Credit Hour:** 3.5-5

**Prerequisites:** NURSE 7140 or NURSE 7310

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**NURSE 8425: Participatory Approaches for Health and Health Systems**

(same as F\_C\_MD 8425). Focuses on the use of participatory approaches for the design of health and health-system interventions. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NURSE 8100 or F\_C\_MD 8420 or instructor consent

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**NURSE 8430: Reproductive and Sexual Health Primary Care**

Reproductive, sexual issues, adolescence through aging. Design, delivery, evaluation of nursing management of women, reproductive health care of men. Stresses personal health promotion.

**Credit Hour:** 3.5-5

**Prerequisites:** NURSE 7140, NURSE 8410 or instructor's consent

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**NURSE 8540: Advanced Diagnostics and Reasoning I**

Expands upon knowledge of advanced assessment, diagnostic, and procedural skills; utilizes current technology in a cost-effective and patient-centered manner. Clinical increases specialty-specific knowledge. May be repeated for credit.

**Credit Hour:** 3.5-5

**Prerequisites:** 4th clinical specialty course

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**NURSE 8545: Advanced Diagnostics II**

Expands upon initial advanced assessment, diagnostic, and procedural skills; utilizes the latest technology in a cost-effective and patient-centered manner. Clinical component allows for increasing specialty-specific knowledge to provide appropriate evidence-based management of pediatric, adult and geriatric populations. Population focus will be discipline specific. Graded on A-F basis only.

**Credit Hour:** 3.5-5

**Prerequisites:** NURSE 8540

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**NURSE 8610: Diagnostics and Psychopharmacology for Mental Health Nurses**

Emphasis is on the neurobiologic basis and diagnosis of mental health problems and advanced nursing management of psychiatric conditions using pharmaceutical agents.

**Credit Hour:** 3.5-4

**Prerequisites:** NURSE 7120, NURSE 7130 and NURSE 7140

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**NURSE 8620: Brief Individual Psychotherapy for Mental Health Nurses**

Develops advanced skills in assessment, treatment, and follow-up evaluation of individuals experiencing acute mental health problems. Emphasizes brief psychotherapy based on frameworks from nursing and other disciplines.

**Credit Hour:** 3.5-4

**Prerequisites:** NURSE 8610

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**NURSE 8640: Group Therapy and Social Skills Training**

Application of group and behavioral methods in mental health prevention, promotion, maintenance, and restoration. Designing, implementing, and evaluating mental health promotion groups and social skills training programs.

**Credit Hour:** 3.5-4

**Prerequisites:** NURSE 8610

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**NURSE 8660: Mental Health Nursing Interventions for Families**

Application of nursing and family theories in advanced nursing management of families experiencing a variety of problems. Emphasis on designing, implementing, and evaluating advanced nursing interventions for families.

**Credit Hour:** 3.5-4

**Prerequisites:** NURSE 8620 or consent of instructor

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**NURSE 8680: Pediatric Mental Health Assessment and Treatment**

Develops advanced skills in psychiatric assessment and follow-up evaluation of children and adolescents experiencing mental health problems. Explores diagnosis, treatment, and management of child and adolescent mental health disorders. Graded on A-F basis only.

**Credit Hour:** 3.5-4

**Prerequisites:** NURSE 8610 or faculty consent

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**NURSE 8710: Clinical Management of Acute and Critical Care Problems**

Advanced practice nurse management of selected clinical problems across the lifespan commonly encountered in the acute and/or critical care settings. Patient safety, technology, and product selection addressed. Integrated clinical practicum with selected population and setting. May be repeated for credit.

**Credit Hour:** 3.5-5

**Prerequisites:** NURSE 7140

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**NURSE 8720: Symptom Management in Acute and Chronic Illness**

Clinical management of symptoms of acute and chronic illness across the lifespan. Preparation for teaching patient self-management strategies. Integrated clinical practicum with selected population and setting.

**Credit Hour:** 3-5

**Prerequisites:** NURSE 7140 and NURSE 7150 or faculty consent

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**NURSE 8820: Health Care Financial Management**

Prepares nurses to use the techniques that facilitate financial analysis and decision-making for patient care programs across the healthcare continuum. Focuses on efficient, effective management of resources for delivery of quality healthcare services. Prerequisites: NURSE 7100

**Credit Hours:** 4

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**NURSE 8830: Informatics Applications and Innovations in Health Care Systems**

This course explores informatics from the perspective of health related fields through technology assessment and evaluation, and research and development in technological innovations. The impact of technology on patient privacy will also be examined. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NURSE 7087 or instructor's consent

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**NURSE 8840: Nursing Leadership, Innovation, and Entrepreneurship**

This course will provide an overview of leadership theories and strategies for managing individuals, groups, or systems within rapidly changing healthcare environments. Innovative and cutting edge phenomena in healthcare will be explored as well as entrepreneurship. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NURSE 7087 or instructors consent

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**NURSE 8854: Teaching Strategies in Nursing**

Examines principles, issues, techniques, and evaluation methods in teaching nursing. Focuses on the development of a variety of teaching strategies and evaluation methods for didactic and clinical settings.

**Credit Hours:** 3

**Prerequisites:** NURSE 7100 and NURSE 7110 or instructor's consent

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**NURSE 8860: Organizations & Human Resource Management in Nursing**

This course will examine various organizational theories, organizational behavior, and the impact of change within organizations. Participants will apply and analyze workforce management principles in regard to employee rights, resources, and responsibilities. May be repeated for credit. Graded on an A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NURSE 7087 or instructors consent

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**NURSE 8864: Curriculum Development in Nursing**

Examines theoretical foundations, principles, and issues in curriculum design. Explores systematic evaluation of curriculum at all levels.

**Credit Hours:** 3

**Prerequisites:** NURSE 7100 and NURSE 7110 or instructor's consent

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**NURSE 8890: Clinical/Scholarly Project**

Design, implement and evaluate nursing projects derived from theory, including written report with explanation or justification to support the

empirical and/or theoretical basis for the project. Graded on a S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** NURSE 7100, NURSE 7150, graduate statistics

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**NURSE 8900: Research Practicum in Nursing**

Selected independent research activities in conjunction with ongoing research programs of faculty. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** NURSE 7150, graduate statistics, instructor's consent

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**NURSE 8910: Translational Evidence-Based Nursing Practice**

Provides essential skills for utilizing research to support practice change: assessing practice based problems, analyzing current evidence, proposing practice changes, and developing plans for implementing evidence-based practice concepts.

**Credit Hours:** 3

**Prerequisites:** NURSE 8100 or NURSE 7150, or faculty consent

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**NURSE 8920: Quality, Safety, and Performance Outcomes**

Uses information systems to identify and analyze patient safety and other clinical issues and recommend system-wide actions and measurement plans that result in safe, effective, efficient, equitable, patient-centered outcomes.

**Credit Hours:** 3

**Prerequisites:** NURSE 8910

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**NURSE 8930: Health Program Design and Management**

Designing, implementing and evaluating effective health programs. Addresses leadership and organizational change issues.

**Credit Hours:** 3

**Prerequisites:** NURSE 8920 or instructor's consent

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**NURSE 8940: Nursing and Health Policy**

Designed to explore and critically evaluate the role of nursing and nurse leaders/scholars in health policy development and the organization and financing of health care in response to the health and social needs of the public.

**Credit Hours:** 3

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**NURSE 8950: Teaching Nursing Practicum**

Participation in application of principles and methods of teaching, learning, and evaluation to the education of nursing students. Graded on S/U basis only.

**Credit Hours:** 4

**Prerequisites:** NURSE 8854 and NURSE 8864

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**NURSE 8954: Distance-Mediated Teaching Nursing Practicum**

Faculty-guided application of distance mediated teaching, learning, and evaluation methods with graduate &/or undergraduate nursing students. Course graded on S/U basis only.

**Credit Hours:** 4

**Prerequisites:** NURSE 8854 and NURSE 8864 or equivalents

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**NURSE 8955: Care Management Role-Focused Practicum**

Care management will be delivered in the student's setting and population of interest with an approved preceptor. Students will have the opportunity to operationalize content from prerequisite courses related to care management practice. Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites:** NURSE 7500, NURSE 7510, NURSE 8150 and NURSE 8160

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**NURSE 8960: Leadership in Nursing and Healthcare Systems Practicum**

Participation in application of principles and methods of leadership, management, and evaluation to facilitate patient care operations in various settings. Graded on an S/U basis only.

**Credit Hours:** 5

**Prerequisites:** NURSE 8800, NURSE 8810, NURSE 8820

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**NURSE 8980: Advanced Clinical Nursing Practicum**

Intensive preceptor or faculty-guided clinical experience that synthesizes previous theory and clinical coursework. Refines knowledge and skills required to transition to an autonomous advanced nursing practice role. Graded on S/U basis only.

**Credit Hour:** 2-7

**Prerequisites:** NURSE 7110, NURSE 8910 or faculty consent

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**NURSE 8990: Practice Inquiry**

In this course, students will demonstrate a culmination of knowledge and skills learned throughout the MS program. Students must successfully complete a critical review of the literature in an integrative review format on a healthcare topic of their choice related to their area of study. The MS Examination is the final course product comprised of the comprehensive oral presentation that assists in evaluating the paper process and students meeting program outcomes. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** Course must be completed in last semester of coursework

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**NURSE 9020: Hierarchical Linear Models for Health Researchers**

Introduction to the use of hierarchical or multilevel models which take into account dependencies between observations. Content will cover basic concepts, theory, and application of hierarchical linear models. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NURSE 8020 or instructor consent

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**NURSE 9070: DNP Clinical Residency**

Intensive clinical experience. Prepare experts in advanced nursing practice and leadership to effectively evaluate practice problems, translate evidence into practice, monitor outcomes, and implement innovative models of care. May be repeated for credit. Some sections may be graded on either an A-F or S/U basis only.

**Credit Hour:** 1-5

**Prerequisites:** NURSE 8930 and NURSE 8450 or NURSE 8610

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**NURSE 9080: DNP Residency Project**

Final synthesis of DNP coursework culminating in an in-depth practice change project or case analysis impacting a rural or other underserved population or critical healthcare system need. May be repeated for credit. Some sections may be offered on an A-F or S/U graded basis only.

**Credit Hour:** 1-3

**Prerequisites or Corequisites:** NURSE 8930 and NURSE 9070

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**NURSE 9087: Leadership and Transformational Role Institute**

Synthesis of advanced nursing practice knowledge and leadership skills. Prepares DNP graduate to implement an advanced nursing practice role that will result in practice and/or policy change at the local, state, or national levels. May be repeated for credit.

**Credit Hours:** 2

**Prerequisites or Corequisites:** NURSE 9080 and NURSE 9070

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**NURSE 9090: Research in Nursing and Health**

Original research leading to dissertation. Graded on S/U basis only.

**Credit Hour:** 1-12

**Prerequisites:** Instructor's consent

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**NURSE 9100: State of the Science**

The existing body of research literature is the foundation upon which new scientific knowledge is built. This course will guide the student through the purpose and processes of scholarly writing. Students will conduct a systematic review of the scientific literature on a selected focus area in the health sciences. Students will work with course faculty, with input from the student's advisor, to develop and implement strategies to search, evaluate, and synthesize the literature in the selected area. Scholarly writing will be emphasized in this course. Graded on an A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Admission to a doctoral program or permission of instructor

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**NURSE 9120: Philosophical and Theoretical Basis for Research**

Based on an understanding of the philosophy of science, critically appraise and adapt conceptual models and theoretical frameworks for use in research.

**Credit Hours:** 3

**Prerequisites:** NURSE 7100 or faculty consent

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**NURSE 9131: Responsible Conduct of Research in the Health and Social Sciences**

(same as H\_D\_FS 9131) This course examines professional research ethics including the rights of human subjects. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Instructor's permission required

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**NURSE 9132: Writing Research Grants: Skill Building**

(same as H\_D\_FS 9130). This course teaches the components of writing a research grant for external funding. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NURSE 9120, graduate research methods course, or instructor's permission

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**NURSE 9410: Advanced Quantitative Methods**

(same as H\_D\_FS 9200). Study of explanatory and predictive quantitative designs in health-related research, including nested, double-blind, time series, casual models, retrospective cohort; secondary database use will be explored.

**Credit Hours:** 3

**Prerequisites:** NURSE 9131, Advanced Statistics Course

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**NURSE 9420: Qualitative Methods**

(same as H\_D\_FS 9420) Examines the following selected qualitative research approaches appropriate for the study of nursing phenomena and the extension or modification of scientific knowledge so as to be relevant to nursing: case study research methods, verbal qualitative approaches, and nonverbal qualitative approaches. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NURSE 7150 and doctoral status (or permission of faculty)

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**NURSE 9450: Doctoral Seminar: Social Determinants of Health**

Doctoral seminar on defining, measuring and conducting research on social determinants of health. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** NURSE 9120 and NURSE 9410

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**NURSE 9460: Theories and Interventions in Health Behavior Science**

Focuses on health behavior science theories, linking theories to measurement, and designing health behavior interventions. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** NURSE 9100, NURSE 9120 or faculty consent

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**NURSE 9470: Technology Evaluation in Health Care Systems Research**

(same as HMI 9440). Examines technology applications and evaluation methods used to determine outcomes, efficiencies, effectiveness, satisfaction, and cost of using technology. Prerequisites: 6 credit hours of graduate statistics;

**Credit Hours:** 3

**Prerequisites or Corequisites:** NURSE 9410 or faculty consent

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**NURSE 9540: Seminar in Nursing**

Course content varies. May be repeated to a maximum of six hours.

**Credit Hour:** 1-99

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**NURSE 9550: Meta-Analysis Research**

(Same as H\_D\_FS 9550). Examines quantitative synthesis including research questions, search strategies, coding issues, meta-analysis statistical procedures, and interpretation of findings. Emphasizes conceptual understanding and practical methods.

**Credit Hours:** 3

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**Prerequisites:** 6 credit hours of graduate statistics courses, NURSE 9410 or graduate level quantitative methods course

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**NURSE 9560: Qualitative Systematic Reviews**

(Same as SOC\_WK 9560 and H\_D\_FS 9560) Examine and carry out elements of qualitative systematic reviews: topic/problem identification, data collection, and analysis. Understand how to limit threats to validity and maximize generalizability.

**Credit Hours:** 3

**Prerequisites:** NURSE 9420 or equivalent

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**NURSE 9710: Advanced Research Practicum**

Mentored research experience designed by student, mentor, and program committee based on student's substantive areas of interest and program of research. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites or Corequisites:** NURSE 9120; advisor consent

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## Nutrition (NUTRIT)

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**NUTRIT 7020: Monogastric Nutrition**

(same as AN\_SCI 7312 and NEP 7020; cross-leveled with AN\_SCI 4312 and NEP 4020). Principles of nutrition, feed formulation and recent research in poultry feeding. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** AN\_SCI 3242

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## Nutrition and Exercise Physiology (NEP)

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**NEP 1001: Topics in Nutritional Sciences**

Supervised study in specialized topic of nutritional sciences.

**Credit Hour:** 1-99

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**NEP 1034: Introduction to Human Nutrition**

Basic nutrition principles, including: nutrient functions, food sources, and needs; healthy eating tools; energy balance and weight management; nutrition and fitness; nutrition through the life cycle; food safety; and consumer topics. No credit if taken after NEP 2340.

**Credit Hours:** 3

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**NEP 1034H: Introduction to Human Nutrition - Honors**

Basic nutrition principles, including: nutrient functions, food sources, and needs; healthy eating tools; energy balance and weight management; nutrition and fitness; nutrition through the life cycle; food safety; and consumer topics. No credit if taken after NEP 2340.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**NEP 1210: The Ethics of Eating**

This introductory course for non-majors provides a general overview of the scope of ethical issues we should consider surrounding the food we eat. We explore the intersection of the science and societal issues

regarding what we eat. We will discuss what we choose to eat, how related issues such as agricultural practices and food transportation impact those choices with an emphasis on the intersection of the science and current societal considerations.

**Credit Hours:** 3

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#### **NEP 1310: Food and Cultures of the World**

Trans-disciplinary approach to nutrition, considering anthropological, physiological, geographical, socioeconomic and psychological elements in world nutrition. These ideas will be explored in the context of cuisines and cultures that are found in the US, but originate elsewhere.

**Credit Hours:** 3

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#### **NEP 1310W: Food and Cultures of the World - Writing Intensive**

Trans-disciplinary approach to nutrition, considering anthropological, physiological, geographical, socioeconomic and psychological elements in world nutrition. These ideas will be explored in the context of cuisines and cultures that are found in the US, but originate elsewhere.

**Credit Hours:** 3

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#### **NEP 1340: Introduction to Exercise and Fitness**

Provides students with practical information about exercise and physical fitness. After taking this class, students will be prepared to be physically active, understand the 'Do's and Don'ts' of exercise, and know how to live a healthy way of life. As part of the course, students will assess their current level of activity/fitness, develop a plan for improvement, and put that plan into action.

**Credit Hours:** 3

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#### **NEP 1485: Career Exploration in Exercise Science**

Undergraduate course designed to provide an overview of the components important to developing an understanding and appreciation of all aspects of Exercise Science. Graded on A-F basis only.

**Credit Hour:** 1

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#### **NEP 1995: Nutritional Food Science**

The study of components of food systems and how they are affected by processing, preservation, preparation and by techniques that improve taste, texture, flavor, appearance and nutrient retention. This course is 100% online and includes a virtual lab. Graded on A-F basis only.

**Credit Hours:** 3

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#### **NEP 2085: Problems in Nutritional Sciences**

Supervised study in a specialized phase of nutritional sciences.

**Credit Hour:** 1-99

**Prerequisites:** consent required

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#### **NEP 2140: Exercise Practicum I**

This course provides an overview of the necessary skills and techniques for successful implementation of exercise programming. This course will help prepare the student for completion of the PANHP degree and prepare for completion of the ACSM EP-C certification.

**Credit Hours:** 3

**Prerequisites:** NEP 1340 and NEP 1485

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#### **NEP 2222: Landscape of Obesity**

The societal, economic, medical, behavioral, and psychological causes and results of the obesity epidemic and potential modes of treatment and prevention. Lecture course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing required

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#### **NEP 2340: Human Nutrition I**

Basic concepts of normal nutrition related to physiological/ chemical processes; changing nutrient needs during human life cycle, emphasis on adult; some social/psychological influences on dietary habits. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C- or better in CHEM 2030 or CHEM 2100 or CHEM 2160H

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#### **NEP 2340H: Human Nutrition I - Honors**

Basic concepts of normal nutrition related to physiological/chemical processes; changing nutrient needs during human life cycle, emphasis on adult; some social/psychological influences on dietary habits. Includes weekly discussion on controversial issues. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** CHEM 2030 or CHEM 2100 or CHEM 2160H. NEP majors must have a C- or better in CHEM 2030, CHEM 2100 or CHEM 2160H. Honors eligibility required

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#### **NEP 2380: Diet Therapy for Health Professionals**

Principles underlying normal nutrition and diet for health and disease. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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#### **NEP 2450: Nutrition Throughout the Life Span**

Nutritional requirements, challenges, community nutrition programs, and eating patterns throughout the life span with emphasis on health promotion and disease prevention; Role of beliefs, culture, socio-psychological influences, and economic resources in food selection and nutrition/health status. Lecture/discussion course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NEP 1034 or NEP 2340 or NEP 2380 or equivalent. Nutrition and Exercise Physiology majors must earn a C or better in NEP 2340 or 2380 to enroll

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#### **NEP 2460: Eating Disorders**

Definition, etiology, treatment, and research related to eating disorders: anorexia nervosa, bulimia nervosa and binge eating disorder/obesity. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** NEP 1034 or 2380

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#### **NEP 3001: Topics in Nutritional Science**

Instruction in specific subject matter areas in the field of food science and nutrition.

**Credit Hour:** 1-99

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**NEP 3085: Problems in Nutritional Sciences**

Advanced problems in a selected field of food science and nutrition.

**Credit Hour:** 1-99

**Prerequisites:** consent required

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**NEP 3085W: Problems in Nutritional Sciences - Writing Intensive**

Advanced problems in a selected field of food science and nutrition.

**Credit Hour:** 1-99

**Prerequisites:** consent required

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**NEP 3131: International Nutrition and Exercise Physiology**

Immersion into and examination of selected cultures - beliefs, practices, policies and social structures around food, physical activity and health. Graded on A-F basis only.

**Credit Hour:** 0-6

**Prerequisites:** instructor's consent

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**NEP 3131H: International Nutrition and Exercise Physiology - Honors**

Immersion into and examination of selected cultures - beliefs, practices, policies and social structures around food, physical activity and health. Graded on A-F basis only.

**Credit Hour:** 0-6

**Prerequisites:** instructor's consent; Honors eligibility required

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**NEP 3290: Food Service I: Supervised Practice Experience**

A practicum designed to expose the student to concepts of quantity food production, evaluation of products and resources, personnel administration and application of food microbiological principles. 1 lecture class and 4 hours of supervised practice per week. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Open only to students accepted into the Coordinated Program in Nutrition and Foods/Dietetics. Department consent required

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**NEP 3360: Nutritional Assessment Supervised Practice Experience**

Supervised practice to develop skills in screening individuals for nutrition risk; use of dietary, anthropometric, laboratory, clinical and sociocultural criteria to assess nutritional status of individuals, 8 hours of supervised practice per week. Enrollment limited to students who have taken or are concurrently enrolled in NEP 4360; Open to Nutrition and Food majors in the Coordinated Program in Dietetics only.

**Credit Hours:** 2

**Prerequisites:** Open only to students accepted into the Coordinated Program in Nutrition and Foods/Dietetics. Departmental consent required

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**NEP 3370: Medical Nutrition Therapy I: Supervised Practice Experience**

Practice and application of principles of nutrition care for selected disease states. 12 hours of supervised practice per week. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Open to students accepted into the Coordinated Program in Nutrition and Foods/Dietetics only. Department consent required

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**NEP 3390: Teaching and Counseling Techniques in Nutrition**

Principles and theories of learning; Resources, methods and techniques for teaching food/nutrition principles and dietary guidelines; Group dynamics and facilitation; Introduction to counseling theories and methods used in nutrition care of individuals. Lecture course. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** C or better in PSYCH 1000 and NEP 2340

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**NEP 3400: Teaching & Counseling Techniques in Nutr. Supervised Practice Exp**

Skill development and practice in counseling individuals for health promotion and disease prevention and the teaching of food and nutrition topics to groups. 4 hours of supervised practice per week. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Open only to students accepted into the Coordinated Program in Nutrition and Foods/Dietetics. Department consent required

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**NEP 3420: Role of Inactivity in Chronic Diseases**

This course is designed to provide an understanding of selected topics related to physical inactivity and chronic diseases and conditions including obesity, type 2 diabetes, hypertension, vascular dysfunction, atherosclerosis, heart failure, and dementia. Specifically, this course will focus on examining the scientific evidence supporting the role of sedentarism as a causal factor in the development of chronic diseases and the role of physical activity as a mitigating factor. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NEP 1340 and MPP 3202 or BIO\_SC 3700 - NEP majors must receive a C or better in the pre-reqs

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**NEP 3450: Activity Throughout the Lifespan**

Course is designed to develop knowledge and understanding of the value of physical activity across the lifespan. The physiology, psychology, and guidelines of exercise, along with the integration of nutrition with physical activity, will be explored from pregnancy through early development and into old age. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NEP 1340 - NEP majors must have a C or higher; May be restricted to Nutrition and Fitness/ Physical Activity, Nutrition and Human Performance majors only during early registration

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**NEP 3550: Corporate, Community, and Personal Fitness**

Course is designed to develop the knowledge and understanding of exercise application for corporate wellness, community programs, and personal fitness. Topics covered will include exercise prescription, behavioral and motivational theories, legality, ethics and professionalism, and how these topics relate to corporate, community, and personal fitness clients. Students should be able to understand the various needs of these populations and how to apply the science of physical activity, nutrition, and human performance to each. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NEP 1340 and NEP 2340 or NEP 2380. NEP majors must have a C or better in these courses to enroll

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**NEP 3590: Community Nutrition Supervised Practice Experience**

A practicum which explores and applies the concepts and techniques of nutrition programming in a community setting. 4 hours of supervised practice per week. Enrollment limited to students who have taken NEP 4590. Open to students enrolled in the Coordinated Program in Dietetics only. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Open to Nutrition and Foods students accepted into the Coordinated Program in Dietetics. Departmental consent required

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**NEP 3800: Prevention and Care of Athletic Injury**

Theory, practice in prevention, emergency care, rehabilitation of injuries encountered in vigorous games.

**Credit Hours:** 3

**Prerequisites:** PTH\_AS 2201. Restricted from Pre-Nutrition and Fitness majors

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**NEP 3820: Kinesiology**

Study of the relationships of physical laws, mechanical principles, and structural parameters to the analysis of human motion, with emphasis on application to daily activities, sport/athletic performance, and developmental exercise.

**Credit Hours:** 3

**Prerequisites:** PTH\_AS 2201

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**NEP 3850: Physiology of Exercise**

This is the basic course in exercise physiology, which applies specific principles and concepts of human physiology to the physical work situation. This course will look at ventilation, oxygen transport, cardiovascular physiology, muscle physiology and the metabolic systems; and emphasis will be given to the adaptations to exercise and training. This course will first explore basic exercise physiology and then will explore many of the applied issues pertaining to performance and health. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PTH\_AS 2201; MPP 3202 or BIO\_SC 3700. Restricted from Pre-Nutritional and Fitness students

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**NEP 3850W: Physiology of Exercise - Writing Intensive**

This is the basic course in exercise physiology, which applies specific principles and concepts of human physiology to the physical work situation. This course will look at ventilation, oxygen transport, cardiovascular physiology, muscle physiology and the metabolic systems; and emphasis will be given to the adaptations to exercise and training. This course will first explore basic exercise physiology and then will explore many of the applied issues pertaining to performance and health. Graded on A-F basis only..

**Credit Hours:** 3

**Prerequisites:** C or better in PTH\_AS 2201; MPP 3202 or BIO\_SC 3700. C- or better in ENGLSH 1000

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**NEP 4001: Topics in Nutrition and Exercise Physiology**

Instruction in specific subject matter areas in the field of nutrition science and exercise physiology.

**Credit Hour:** 1-3

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**NEP 4088: Advanced Seminar in Dietetics**

Examines current applications in nutrition and dietetics, using journal articles and position and practice papers. Graded on A-F basis only.

**Credit Hour:** 1-5

**Prerequisites:** Department consent required. Must be enrolled in Coordinated Program in Dietetics

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**NEP 4200: Sports Performance and Conditioning**

(cross-leveled with NEP 7200). Course utilizes scientific theory and applied instruction to teach procedures, techniques, and modalities used to improve physical sports performance. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PTH\_AS 2201, MPP 3202 or BIO\_SC 3700 - NEP majors must have a C or better in these courses. Junior or senior standing required

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**NEP 4280: Food Service Management**

(cross-leveled with NEP 7280). Issues related to marketing and financial control in the foodservice sector. Lecture course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MANGMT 3000 or equivalent

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**NEP 4290: Food Serv. II: Adv. Food Service Manage. Supervised Practice Exp**

A practicum tailored to apply marketing and budgetary principles in the foodservice industry. 8 hours of supervised practice per week. Enrollment limited to students with concurrent enrollment in NEP 4280. Open to students admitted to the Dietetics program. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Open to students accepted into the Coordinated Program in Dietetics only. Departmental consent required

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**NEP 4330: Human Nutrition II Laboratory**

(cross-leveled with NEP 7330). A techniques course in nutrition, usually taken concurrently with NEP 4340.

**Credit Hours:** 2

**Prerequisites:** NEP 2340, Biochemistry and instructor's consent

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**NEP 4340: Human Nutrition II Lecture**

(cross-leveled with NEP 7340). Physiological and biochemical aspects of nutrition; functions of methods of measuring nutritional status; various aspects of applied nutrition. Continuation of NEP 2340. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NEP 2340 - NEP majors must have a C or better to enroll and either BIOCHM 3630, BIOCHM 4270 or BIOCHM 4272

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**NEP 4360: Nutritional Assessment**

(cross-leveled with NEP 7360). Introduction to the nutrition assessment process. The identification of dietary, anthropometric, laboratory, clinical and sociocultural parameters used to assess nutritional status of individuals. Lecture course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C or better in NEP 2340

---

**NEP 4370: Medical Nutrition Therapy I**

(cross-leveled with NEP 7370). In-depth study of physiological/biochemical changes in selected disease states (cardiovascular disease, rehabilitation, diabetes and cancer); development of principles underlying nutrition therapy. Lecture course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C or better in NEP 4360

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**NEP 4380: Medical Nutrition Therapy II**

(cross-leveled with NEP 7380). Evaluation, design and monitoring of the nutrition care of complex health disorders such as advanced gastrointestinal complications, major organ transplant, and metabolic disorders with an emphasis on nutrition support. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C or better in NEP 4370

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**NEP 4385: Professional Development I**

(cross-leveled with NEP 7385). Course designed to provide career exploration and assessment and prepare students for the final rotations in the coordinated program in dietetics. Graded on A-F basis only. Enrollment limited to students enrolled in the coordinated program in Dietetics.

**Credit Hour:** 1

**Prerequisites:** Departmental consent required

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**NEP 4400: Pathophysiology of Diseases Affecting Metabolic Health**

There is not a universally-accepted definition of 'metabolic health', however, a similar combination of assessment criteria including measurements of body weight/composition, blood pressure, lipid profile, insulin sensitivity/resistance, and systemic inflammation are frequently used for clinical and research purposes. This course will explore the disordered physiological processes in diseases affecting these metabolic health parameters. Focus will be on the leading causes of death in the US, cardiovascular disease, stroke and cancer, as well as the related diseases of diabetes and osteoporosis, all of which are diseases of enormous burden to the US healthcare system. The common theme of modifiable factors (diet, exercise, sleep) to prevent and manage these chronic conditions will be woven throughout the course. This course may be particularly useful for students seeking careers in health care and prevention. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MPP 3202 or BIO\_SC 3700 and BIOCHM 3630 or BIOCHM 4270

**Recommended:** NEP 2340 and PTH\_AS 2201

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**NEP 4480: Pediatric Exercise Physiology**

Course is designed to develop knowledge and understanding of the value of physical activity in the pediatric population. The physiology, psychology, and guidelines of exercise will be explored in the developmental process of youth. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NEP 1340 and NEP 3850W - NEP majors must have a C or better in these courses

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**NEP 4550: Exercise is Medicine**

Provide an overview of Exercise Is Medicine On Campus. As the designated Exercise is Medicine program on campus we will explore ways to promote the program across the MU Campus, develop student engagement, and implement the program through event planning and collaboration with key services on the MU Campus. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** NEP 3450, NEP 3850, majors only

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**NEP 4590: Community Nutrition**

(cross-leveled with NEP 7590). Public health nutrition and chronic disease prevention, food security, nutrition programs and food access, public policy, sustainable agriculture and food production systems, cultural food practices, needs assessment. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NEP 2340 or NEP 2380. Restricted from Pre-Nutrition and Fitness majors

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**NEP 4750: Cardiopulmonary Rehabilitation - A Multifactorial Process**

A guide to the practice of Cardiopulmonary Rehab in the 21st Century. We will explore the interdisciplinary aspects of a successful approach to the delivery of cardiac and pulmonary rehabilitation throughout a broad spectrum of patients. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NEP 3450 and NEP 3850W. NEP majors must earn a C or better in these courses to enroll

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**NEP 4860: Exercise Prescription**

Course investigates theory and methods of testing and prescribing exercise for circulatory fitness, body composition, muscle strength, joint and muscle ranges in motion, and posture. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** NEP 3850W. All NEP majors must have a C- or better in this class to enroll

**Prerequisites:** MPP 3202 or BIO\_SC 3700 and, PTH\_AS 2201. All NEP majors must have a C or better in these courses to enroll

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**NEP 4940: Internship in Nutritional Science and Exercise Physiology**

Combines study, observation and employment in an area of exercise physiology and/or nutrition. Written reports, faculty evaluation .

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent required

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**NEP 4950: Capstone: Research in Nutritional Sciences**

Introduction to research, including the types of basic, clinical, and outcomes-based research. Defining research problems related to nutrition and exercise sciences, developing hypotheses, reviewing scientific literature, writing research protocols, analyzing data. Lecture course.

**Credit Hours:** 2

**Prerequisites:** NEP 2340 and either STAT 2500 or ESC\_PS 4170 and senior standing. Restricted from Pre-Nutrition and Fitness majors

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**NEP 4951: Nutrition Research Communication**

Analyze and interpret data; present results of a research study in manuscript and seminar presentation formats. Emphasis on effective communication of nutrition research to scientific and lay audiences. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** NEP 4950 or instructor's consent

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**NEP 4951W: Nutrition Research Communication - Writing Intensive**

Analyze and interpret data; present results of a research study in manuscript and seminar presentation formats. Emphasis on effective communication of nutrition research to scientific and lay audiences. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** NEP 4950 or instructor's consent

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**NEP 4970: PANHP Capstone: Sports Nutrition**

(cross-leveled with NEP 7970). Integration of research literature with knowledge from previous coursework, emphasis on sports nutrition research, nutrient requirements of athletes, critical evaluation of ergogenic aids. Graded on A-F basis only. Prerequisites: C or better in all pre-reqs: NEP 2340, and either MPP 3202 or BIO\_SC 3700, and either STAT 1200 or ESC\_PS 4170; Senior standing. Restricted to Nutrition and Fitness or Physical Activity, Nutrition and Human Performance majors only.

**Credit Hours:** 2

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**NEP 4975: Practice of Dietetics Supervised Practice Experience**

Supervised practice in providing quality nutrition services in clinical, community, management and specialty settings. 40 hours of supervised practice per week.

**Credit Hours:** 10

**Prerequisites:** NEP 3590, NEP 4280, NEP 4290, NEP 4380, NEP 4381, and NEP 4590; Open to students admitted to the Dietetics Program only

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**NEP 7001: Topics in Nutritional Science and Exercise Physiology**

Instruction in specific subject matter areas in the field of food science and nutrition.

**Credit Hour:** 1-99

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**NEP 7020: Monogastric Nutrition**

(same as AN\_SCI 7312 and NUTRIT 7020; cross-leveled with NEP 4020 and AN\_SCI 4312). Principles of nutrition, feed formulation and recent research in poultry feeding. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** AN\_SCI 3242

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**NEP 7085: Problems in Nutritional Sciences and Exercise Physiology**

Advanced problems in a selected field of food science and nutrition.

**Credit Hour:** 1-99

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**NEP 7200: Sports Performance and Conditioning**

(cross-leveled with NEP 4200). Course utilizes scientific theory and applied instruction to teach procedures, techniques, and modalities used to improve physical sports performance. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PTH\_AS 2201, MPP 3202 or BIO\_SC 3700 - NEP majors must have a C or better in these courses

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**NEP 7330: Human Nutrition II Laboratory**

(cross-leveled with NEP 4330). A techniques course in nutrition, usually taken concurrently with NEP 4340.

**Credit Hours:** 2

**Prerequisites:** NEP 2340, Biochemistry and instructor's consent

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**NEP 7340: Human Nutrition II Lecture**

(cross-leveled with NEP 4340). Physiological and biochemical aspects of nutrition; functions of methods of measuring nutritional status; various aspects of applied nutrition. Continuation of NEP 2340. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NEP 2340 - NEP majors must have a C or better to enroll and either BIOCHM 3630, BIOCHM 4270 or BIOCHM 4272

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**NEP 7360: Nutritional Assessment**

(cross-leveled with NEP 4360). Introduction to the nutrition assessment process. The identification of dietary, anthropometric, laboratory, clinical and sociocultural parameters used to assess nutritional status of individuals. Lecture course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NEP 2340

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**NEP 7370: Medical Nutrition Therapy I**

(cross-leveled with NEP 4370). In-depth study of physiological/biochemical changes in selected disease states (cardiovascular disease, rehabilitation, diabetes and cancer); development of principles underlying nutrition therapy. Lecture course. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C or better in NEP 4360

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**NEP 7380: Medical Nutrition Therapy II**

(cross-leveled with NEP 4380). Evaluation, design and monitoring of the nutrition care of complex health disorders such as advanced gastrointestinal complications, major organ transplant, and metabolic disorders with an emphasis on nutrition support. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** C or better in NEP 4370

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**NEP 7381: Nutrition Therapy II: Supervised Practice Experience**

Practice in the nutrition care of complex health disorders with emphasis on nutrition support. 16 hours of supervised practice per week. Enrollment limited to students with concurrent enrollment in NEP 7380. Open to students admitted to Dietetics program only. Graded A-F only.

**Credit Hours:** 4

**Prerequisites:** NEP 4370 or NEP 7370

**Corequisites:** NEP 4380 or NEP 7380

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**NEP 7385: Professional Development I**

(cross-leveled with NEP 4385). Course designed to provide career exploration and assessment and prepare students for the final rotations in the coordinated program in dietetics.

**Credit Hour:** 1

**Corequisites:** Concurrent enrollment in NEP 7380, NEP 7381

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**NEP 7390: Professional Development II**

Lectures and discussions focus on issues and trends in dietetics. Discussions are used to encourage the development of skills and attitudes that foster life-long professional learning. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** NEP 7385, and in the Coordinated Program for Dietetics

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**NEP 7500: Research in Nutritional Sciences and Exercise Physiology**

Original investigations, usually in connection with one of the research projects of Agricultural Experiment Station. Written report required.

**Credit Hour:** 1-99

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**NEP 7590: Community Nutrition**

(cross-leveled with NEP 4590). Public health nutrition and chronic disease prevention, food security, nutrition programs and food access, public policy, sustainable agriculture and food production systems, cultural food practices, needs assessment. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Nutrition course or instructor's consent

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**NEP 7950: Research in Dietetics**

(cross-leveled with NEP 4950). Introduction to research, including the relationship of basic, clinical, and outcomes-based research to dietetics practice. Defining research problems in a dietetics practice setting, developing hypotheses, reviewing scientific literature, writing research protocols, analyzing data. Lecture course.

**Credit Hours:** 2

**Prerequisites:** statistics course

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**NEP 7970: PANHP Capstone: Sports Nutrition**

(cross-leveled with NEP 4970). Integration of research literature with knowledge from previous coursework, emphasis on sports nutrition research, nutrient requirements of athletes, critical evaluation of ergogenic aids. Graded on A-F basis only. Prerequisites: C or better in all pre-reqs: NEP 2340, and either MPP 3202 or BIO\_SC 3700, and either STAT 1200 or ESC\_PS 4170; Senior standing. Restricted to Nutrition and

Fitness or Physical Activity, Nutrition and Human Performance majors only.

**Credit Hours:** 2

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**NEP 8001: Topics in Nutritional Sciences and Exercise Physiology**

Instruction in specific subject matter areas in the field of nutrition science and exercise physiology. May be repeated for credit. Graded on A-F basis only.

**Credit Hour:** 1-3

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**NEP 8030: Etiology of Obesity**

This course is designed to provide an understanding of the cause and implications of human obesity. General topic areas covered will include: methodologies of obesity research, physiology of obesity, behavioral and environmental factors influencing obesity, obesity and disease, therapeutic approaches to obesity, and emerging topics in obesity. The structure of this course will be mixture of lectures and interactive discussions/reviews of primary research articles in these areas. Students will be expected to present and critically evaluate research papers relevant to the field of obesity.

**Credit Hours:** 3

**Prerequisites:** NEP 7340

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**NEP 8085: Problems in Nutritional Sciences and Exercise Physiology**

Individual studies include a minor research problems.

**Credit Hour:** 1-99

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**NEP 8087: Masters Seminar in Nutritional Sciences and Exercise Physiology**

Seminar features expert presentations of current research and issue-based applications that represent the breadth of nutritional sciences and/or exercise physiology. Graded on S/U basis only.

**Credit Hour:** 1

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**NEP 8090: Masters Research in Nutritional Sciences and Exercise Physiology**

Original investigation of advanced nature, leading to thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**NEP 8095: Internship in Exercise Physiology**

The internship experience will take place in professionally supervised settings, and allow students to complement their academic work with employment-related experiences. Organizations, companies and business that offer internships can be selected to match with student interests. This experience will offer the student meaningful learning opportunities that will complement their career goals.

**Credit Hours:** 4

**Prerequisites:** must be accepted into the Exercise Physiology graduate program, 3.0 GPA or higher, completed 50% of the coursework at the masters level

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**NEP 8125: Preventive and Therapeutic Exercise Physiology**

Graduate level course designed to prepare Masters Candidates for a career in Clinical Exercise Physiology. Students will be provided opportunities to develop knowledge, skills, and ability to work with individuals with diverse range of chronic diseases and disabilities. Graded on A-F basis only.

**Credit Hours:** 3

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**NEP 8127: Advanced Physiological Assessment and Exercise Prescription**

Graduate Level course designed to enhance the Exercise Science student's knowledge and skills in the administration of appropriate physiological assessments and the interpretation of the results from those tests. Course Objectives: 1) Understand the nature and importance of physiological assessments. 2) Understand the measurable components of physical fitness and how each of them relates to overall health. 3) Become familiar with and conduct various tests of physical and performance related parameters Body Composition - Girth measurements, skin folds, bioelectrical impedance; BODPOD, DEXA; Cardiorespiratory Fitness - Resting measurements, submaximal protocols; VO<sub>2</sub>max testing; Musculoskeletal Fitness - Muscular strength and endurance testing; flexibility testing. 4) Interpret results of various test batteries conducted in class. 5) Understand limitations of tests conducted in class. 6) Develop research thesis ideas for comparison of techniques. Graded on A-F basis only.

**Credit Hours:** 3

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**NEP 8220: Cardiovascular Disease and Exercise**

Advanced study through readings and discussion of selected topics related to cardiovascular risk and disease development, including hypertension, endothelial dysfunction, vascular insulin resistance, arterial stiffness, atherosclerosis and heart failure, with a particular emphasis on the effects of physical activity and exercise. Special focus will also be placed on understanding the links between lack of physical activity, metabolic disorders, and increased cardiovascular risk. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Undergraduate level exercise physiology is highly recommended

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**NEP 8310: Nutritional Biochemistry of Lipids**

(same as AN\_SCI 8431 and NUTRIT 8310). Current concepts in the nutritional regulation of lipid metabolism. Emphasis on integrating information and interpreting current research data.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 4270 and BIOCHM 4272

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**NEP 8340: Nutrition in Human Health**

(same as NUTRIT 8340). Nutritional aspects of maintaining human health with emphasis on micronutrients, basis for dietary recommendations, and nutrition public health initiatives. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIOCHM 4270 and BIOCHM 4272; 4000-level nutrition course; graduate standing or current enrollment in the Masters in Dietetics Program

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**NEP 8380: Medical Nutrition Therapy III**

In-depth study of physiological/biochemical changes in advanced selected disease states focusing on special complex clinical issues of infants, children, and the geriatric population, as well as investigation into cutting edge treatments for these special populations. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** NEP 7380; Coordinated Program students in Masters in Dietetics only

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**NEP 8501: Hot Topics in Nutrition, Exercise and Disease**

This course addresses various topics and examine the interaction of nutrition and exercise/physical activity on these topics. The topics and assignments will focus on a specific physiological topic and how nutrition and exercise can either prevent disease and/or possibly minimize disease progression. The topics in this course will focus on current hot topics in the literature and the format will vary by instructor, but may include didactic, seminar, journal club style, presentations, etc. Graded on A-F basis only.

**Credit Hour:** 1-3

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**NEP 8850: Advanced Exercise Physiology**

Lectures, laboratory experiences, and readings in current literature to provide reasonable depth in selected areas of physiology as applied to activity and health.

**Credit Hours:** 3

**Prerequisites:** NEP 4850 and Chemistry

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**NEP 8860: Exercise Endocrinology**

The nervous system and the endocrine system integrate to regulate the functions of the body. These systems are tightly linked and frequently one system cannot be considered without consideration of the other system. This course integrates endocrine physiology and the impact that exercise has on the endocrine response. This class will focus on the glands producing hormones, the target organs, mechanisms and how both acute and chronic exercise impacts hormone action. This is an advanced exercise physiology course designed for graduate students in Exercise Physiology or the life sciences and will consist of lectures, readings and discussion. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** NEP 8850, V\_BSCI 8420 or graduate standing in the Life Sciences

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**NEP 8870: Exercise Metabolism**

Review of major metabolic pathways and the effect of exercise upon them. Special topics include indirect calorimetry, EPOC, anaerobic threshold; weight control, ergogenic aids, and exercise nutrition.

**Credit Hours:** 3

**Prerequisites:** NEP 4850 and Chemistry

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**NEP 8975: Dietetics Supervised Practice Experience**

This course provides supervised practice for students in their final semester in the Coordinated Program in Dietetics at the University of Missouri. Supervised practice is designed to provide quality nutrition experiences in clinical, community and management settings. Students are in their field sites for 40 hours/week for supervised practice for

approximately 13 weeks. In addition, classblocks are held in Columbia three times throughout the semester for a total of approximately three weeks (may also include supervised practice activities). Graded on A-F basis only.

**Credit Hours:** 10

**Prerequisites:** For dietetic students in their final semester in the Coordinated Program (CP) only. Consent required

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### **NEP 9087: Doctorate Seminar in Nutritional Sciences and Exercise Physiology**

Seminar features expert presentations of current research and issue-based topics that represent the breadth of nutritional sciences and exercise physiology. Graded on S/U basis only.

**Credit Hour:** 1

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### **NEP 9090: Doctorate Research in Nutritional Sciences and Exercise Physiology**

Original investigation of advanced nature, leading to a dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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## **Obstetrics And Gynecology (OB\_GYN)**

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### **OB\_GYN 6004: Obstetrics/Gynecology Clerkship**

Students rotate on the obstetric service, the gynecology service and the gynecologic oncology service, seeing a broad range of patients in both inpatient and outpatient settings. In addition, they attend lectures and interactive case presentations.

**Credit Hours:** 8

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### **OB\_GYN 6014: Rural Obstetrics/Gynecology Clerkship**

Rural Obstetrics/Gynecology Clerkship

**Credit Hours:** 8

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### **OB\_GYN 6024: Springfield Obstetrics and Gynecology Clerkship**

Students rotate on the obstetric service, the gynecology service and the gynecologic oncology service, seeing a broad range of patients in both inpatient and outpatient settings. In addition, they attend lectures and interactive case presentations.

**Credit Hours:** 8

**Prerequisites:** successful completion of the first two years of medical school

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### **OB\_GYN 6041: SCC Gynecologic Surgical Oncology Selective**

The medical student will work as a member of the Gynecologic Oncology team providing hands-on clinical and surgical services in the inpatient, outpatient, and consultative settings. Students will learn using a variety of evidence-based resources, on-line resources, and from clinical dialogue with the members of the health care team.

**Credit Hours:** 5

**Prerequisites:** Successful completion of 5 of the 7 core clerkships. One of the 5 must be the Obstetrics and Gynecology Clerkship

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### **OB\_GYN 6053: SCC Obstetrics/Gynecology Selective**

The fourth-year student will work as a member of the health-care team, providing hands-on clinical and surgical services in the inpatient, outpatient, and consultative settings. The medical student will participate in daily rounds under the direction of the attending physician. Students will learn using a variety of evidence-based resources, on-line resources, and dialogue with other team members in the clinical setting. The student will be expected to perform at a sub-intern level. To provide the student with additional clinical and surgical experience in obstetrics and gynecology. The student will learn how to integrate previously acquired knowledge and concepts, then apply them in the management of patients.

**Credit Hours:** 5

**Prerequisites:** Successful completion of 5 of the 7 core clerkships. One of the 5 must be the Obstetrics and Gynecology Clerkship. Springfield faculty approval is required prior to registration

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### **OB\_GYN 6104: Remediation OB/GYN Clerkship**

Enrolled students are those who received an unsatisfactory grade in a OB/GYN Clerkship at any Mizzou Med location or site. This course gives the student an opportunity to rectify their deficiency.

**Credit Hours:** 8

**Prerequisites:** OB\_GYN 6004 Clerkship, received unsatisfactory grade

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### **OB\_GYN 6313: ABS OB/Gynecology Research**

ABS OB/Gynecology Research

**Credit Hours:** 5

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### **OB\_GYN 6315: ABS OB/Gynecology Research and Review**

ABS OB/Gynecology Research and Review

**Credit Hour:** 5-10

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### **OB\_GYN 6563: OB/GYN Clinical Reproductive Endocrinology**

OB/GYN Clinical Reproductive Endocrinology

**Credit Hours:** 5

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### **OB\_GYN 6565: Reproductive Medicine and Infertility Offsite**

The 4th year student will work as a member of the Reproductive Endocrinology and Infertility team, providing hands-on clinical and surgical services in the inpatient, outpatient and consultative settings. The medical student will participate in daily outpatient clinic and any observe surgical services related to care of those patients. Students will learn using a variety of evidence-based resources, on-line resources and from clinical dialogue with the members of the care team.

**Credit Hours:** 5

**Prerequisites:** Successful completion of the first two years of medical school and the OB/GYN Clerkship

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### **OB\_GYN 6583: Obstetrics/Gynecology Offsite Advanced Elective**

Obstetrics/Gynecology Offsite Advanced Elective

**Credit Hours:** 5

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**OB\_GYN 6765: OB/GYN - Rural**

OB/GYN - Rural

**Credit Hours:** 5**OB\_GYN 6865: Maternal-Fetal Medicine Selective**

Goals/Objectives: To expose the student to high-risk obstetrical experiences in the Maternal Fetal Medicine division. All obstetrical selectives are done at Women's and Children's Hospital.

**Credit Hours:** 5**Prerequisites:** Ob-Gyn Clerkship**OB\_GYN 6866: Obstetrical**

Goals/Objectives: To provide the student with additional obstetrical experience in the Labor and delivery suite. All obstetrical electives are done at the Missouri Ob/Gyn Associates Clinic and Women's and Children's Hospital. Evaluations: The student will be graded on their ward performance. An evaluation for this rotation will be completed by the appropriate faculty and resident physicians. Notes: While on this rotation students will have exposure to various faculty members, residents, and fellow medical students. Students will participate in the evaluation of patients on labor and delivery including those presenting for evaluation of first trimester problems and labor evaluations. Some participation in operative procedures and labor management is expected. Students will have exposure to antenatal testing and ultrasonography including the interpretation of ultrasounds and limited participation in genetic counseling and invasive ante-partum diagnostic procedures is expected. Night call will be required and can be worked into the core rotation's student call schedule. Teaching will be on an ongoing bases with Dr. Floyd keeping daily routine with the students expected to participate in management decisions.

**Credit Hours:** 5**Prerequisites:** Ob-Gyn Clerkship. Core reading for this rotation will include Obstetrics, Normal and Problem Pregnancies, latest edition, edited by Gabbe, Niebyl and Simpson**OB\_GYN 6867: Obstetrical/Gynecological Outpatient**

Obstetrical/Gynecological Outpatient

**Credit Hours:** 5**OB\_GYN 6868: Urogynecology Selective**

The 4th year medical student will work as part of a team providing hands-on clinical services in an inpatient, outpatient, and consultative setting. Students will participate in daily morning report, weekly didactic sessions, weekly surgical procedures and Friday afternoon seminars. Students will learn using a variety of evidence-based resources and direct faculty interaction. Successful completion of one of the core Obstetrics and Gynecology Clerkship courses: OB\_GYN 6004 or OB\_GYN 6014, and/or OB\_GYN 6104.

**Credit Hours:** 5**Prerequisites:** Successful completion of the first two years of medical school**OB\_GYN 6930: Obstetrics/Gynecology Outpatient Two-Week Elective**

The 3rd or 4th year medical student will work as part of a team providing hands-on clinical services in an outpatient setting. Students will

participate in daily clinic evaluations of patients. Students will learn using a variety of evidence-based resources and direct faculty teaching. Students will also participate in weekly teaching didactics within the OB/GYN department such as Grand Rounds.

**Credit Hours:** 2**Prerequisites:** Successful completion of the first two years of medical school**OB\_GYN 6937: Ultrasound Two Week Elective**

To provide additional clinical ultrasound experience in the outpatient setting. Students will learn how to integrate acquired knowledge and concepts; then apply them in the management of patients in an outpatient OB/GYN setting.

**Credit Hours:** 2**Prerequisites:** Successful completion of the first two year of medical school**OB\_GYN 6960: Gynecologic/Oncology Surgery**

Goals/Objectives: To provide the student with additional surgical and gynecological clinical experience. All gynecologic surgical electives are performed at Ellis Fischel Cancer Center and the University Hospital. Evaluations: An evaluation for this rotation will be completed by the elective chairmen and appropriate resident physicians. The students will be graded on their clinic, ward, and operating room performance. Notes: While on this rotation, students will have exposure to faculty members, three residents, and other fellow medical students. They will have the opportunity to assist in gynecologic oncology surgical cases, attend tumor clinics where they will encounter various procedures such as colposcopies, cryotherapy, and cervical and endometrial biopsies. A copy of a representative weekly schedule is available from the department student coordinator. In addition, students will be required to make two ten minute presentations with audio-visual aids on assigned topics. The students will not take night call, but are expected to attend patient rounds on weekdays and weekends with the residents. The department also holds conferences on Tuesdays and Thursdays which are to be attended. Core reading for this rotation will include Clinical Gynecologic Oncology by DiSaia and Creasman.'

**Credit Hours:** 5**Prerequisites:** Ob-Gyn Clerkship**OB\_GYN 6963: SCC OB GYN Outpatient 2-Week Elective**

Third or fourth year medical student(s) will work as a member of the team providing hands on OB-GYN clinical and surgical services in outpatient and consultative settings. Students will participate in the daily clinical care setting and mini lectures throughout the week. Students will learn using a variety of evidence-based resources including online references, case conferences, and daily clinical dialogue with members of the care team.

**Credit Hours:** 2**Prerequisites:** Successful completion of the first two years of medical school**OB\_GYN 6964: Obstetrics/Gynecology Offsite Advanced Selective**  
Obstetrics/Gynecology Offsite Advanced Selective**Credit Hours:** 5

## Occupational Therapy (OC\_THR)

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### OC\_THR 1000: Introduction to Occupational Therapy

Introductory course to provide students information about the occupational therapy profession. Registered therapists lecture on clinical aspects. Students participate in discussions on program requirements, placement, and trends in the profession.

**Credit Hour:** 1

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### OC\_THR 4085: Problems in Occupational Therapy

Independent investigation leading to the completion of a project or paper. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** Instructor's consent

**Recommended:** Junior standing

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### OC\_THR 5010: Professional Development

This course provides a foundation for understanding professional development as students evolve into occupational therapy practitioners. Students are provided an introduction to professional associations, legislative processes affecting occupational therapy practice, and requirements for initial and ongoing professional registration, certification, and licensure. Students examine how occupational therapists interface with other stakeholders within a complex healthcare environment to ensure that the occupational needs of individuals and communities are met. Advocacy and ethical decision making as a part of contemporary practice are also introduced. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Occupational Therapy students

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### OC\_THR 5020: Foundations and Theory in Occupational Therapy

Historical, philosophical, and conceptual foundations of occupational therapy practice will be analyzed for the purpose of understanding current standards and models of practice. As a core concept of occupational therapy practice, students will be expected to analyze therapeutic activities to assure the therapy process is client and occupation centered. Concepts of occupation, occupational balance, and occupational justice will be addressed as related to contemporary domestic and global issues. Students will discover the value of professional organizations and learn how to access and utilize official documents of the OT profession. Development of a professional occupational therapy identity and methods to further personal and professional growth will be explored. Students will develop a foundational knowledge of occupational therapy management and the role of the occupational therapist in the supervision of OT assistants and OT students. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Occupational Therapy students only

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### OC\_THR 5030: Human Development and Occupation

Overview from an occupational perspective of typical development from infancy through adolescence and the biopsychosocial development and aging process from young adulthood through end of life. Emphasis on the impact of personal and contextual factors on occupational development throughout the lifespan. This course will contain a variety of instructional methods including online learning, lecture, lab, and active learning assignments. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Occupational Therapy students

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### OC\_THR 5100: Introduction to Interprofessional Practice

(same as PH\_THR 5100; cross-leveled with HTH\_PR 7100, HTH\_PR 4100). This course serves as a foundation and introduction to interprofessional education and collaboration. Students who enroll in this course will be assigned to mini-teams of students from a range of disciplines. Through this course, students will develop an understanding of their own unique role as a healthcare provider and the importance of client- and community-centered care and effective teamwork, as well as communication skills.

**Credit Hour:** 1

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### OC\_THR 5110: Introduction to Evidence-Based Practice

This course will introduce you to the importance of research for the profession of occupational therapy and provide you with basic skills necessary to locate, evaluate, and incorporate evidence into clinical practice. All of the classwork, assignments, and journal clubs are designed to provide you with the opportunity to put into practice the ideas, language, and components of research that are presented in the readings, lectures, and discussions. Writing assignments, interactive journal clubs, blog posts, and critical appraisals will be the methods of assessing your understanding of the material and assist you in learning how to communicate your understanding of evidence to support occupational therapy practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Occupational Therapy students

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### OC\_THR 5120: Principles of Assessment

This course introduces foundational knowledge regarding assessment as part of the occupational therapy process. Students will develop an understanding of the complexity of assessment for individuals with a wide range of limitations in various areas of practice that reflects occupation and evidence and occupation based practice. Throughout the course, students will be provided with opportunities to develop self-reflection and critical thinking skills as they integrate knowledge of the human condition and the occupational needs of those served. Students will also develop an understanding of how assessment is guided by theoretical knowledge and clinical reasoning. An increased understanding of the role of the OT as a member of the healthcare assessment team within an ever evolving society is also addressed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to occupational therapy students only

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### OC\_THR 5130: Conditions in Occupational Therapy

This course introduces students to a variety of health conditions relevant to occupational therapy practice and each condition's potential impact on client factors and performance skills as they relate to occupational performance across the lifespan. Course content includes an overview of developmental, mental health, neurological, orthopedic, traumatic, and chronic health conditions commonly addressed in occupational practice settings. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Restricted to occupational therapy students

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**OC\_THR 5140: Human Motion and Occupation**

Daily occupation will be explored through human movement within the context of the physical environment. Students will learn to analyze common activities while taking into account body structures and functions, activity demands, environmental supports, and technology supports. Assessment of human movement and movement-related deficits will be addressed and methods for adapting the environment and selecting appropriate assistive technologies will be introduced. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Restricted to Occupational Therapy students only

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**OC\_THR 5150: Concepts of Neuroscience**

This foundational course uses a systems-based approach to examine the major structures and functions of the human nervous system. The content will explore the effects of a normal and abnormal nervous system on occupational performance. Theories, evaluation, and treatment topics related to the neurological system will be introduced. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to occupational therapy students

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**OC\_THR 5160: Psychosocial Aspects of Occupational Therapy**

This course will engage students in the examination of the role of the occupational therapist in the promotion of mental health and wellness in a variety of clinical and community based contexts. Throughout this course students will demonstrate entry-level clinical competence in both the therapeutic use of self and in providing group interventions for clients represented by a wide range of developmental levels. Students will actively explore course content through self-guided learning, hands on and practical learning experiences including leadership of group interventions and development of service delivery plans. Upon completion of this course, students will synthesize knowledge of mental health conditions, sociocultural factors, occupational justice, and theory related to recovery and mental health interventions to develop roles for occupational therapists in addressing societies' occupational and mental health needs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Occupational Therapy students only

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**OC\_THR 5210: Adult Practice**

This course utilizes active learning methodologies to engage students in learning about occupational therapy intervention with the adult population in various practice settings. Students will use assessment results and activity analysis in combination with evidence and clinical reasoning to guide intervention planning for enhancing occupational performance. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Restricted to Occupational Therapy Students only

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**OC\_THR 5220: Pediatric Practice**

This course is designed to provide students with an understanding of common frames of reference and theories utilized in pediatric practice, as well as increase student understanding of the interplay of common conditions and the influence of conditions on participation in the home and community and the role of the occupational therapist with children and as a member of the therapeutic team. Emphasis is also placed on

development of clinical reasoning skills and implementation of evidence based practice. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Restricted to occupational therapy students

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**OC\_THR 5230: Application of Evidence Based Practice**

This course will expose you to the process of writing a research proposal. Specific topics include writing an answerable research question, literature searching, research ethics and Institutional Review Boards (IRBs), study designs, methods for recruitment, data collection, and data analysis, and funding for research. You will work with a group (or individually) to prepare a research proposal for a clinically-relevant question. Guest speakers from various healthcare fields (including physical therapy, communication sciences disorders, and medicine) will enhance learning. This course is held in conjunction with the 1 credit OC\_THR 5231 - Application of Evidence Based Practice Mentor Hour. Students will meet with a faculty mentor weekly to review progress on the proposal. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** Restricted to Occupational Therapy students

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**OC\_THR 5231: Application of Evidence Based Practice - Mentor Hour**

This course is the 1-credit mentor hour that is associated with OC\_THR 5230: Application of Evidence Based Practice. The student will meet with the research faculty mentor for 1 hour per week with additional work and meetings as appropriate. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Restricted to Occupational Therapy students

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**OC\_THR 5240: Clinical Reasoning and Documentation**

This course focuses on developing the observation, clinical reasoning, and documentation skills necessary in effectively reporting occupational therapy services across practice settings. Students are also introduced to ethical, legal, and reimbursement policies impacting occupational therapy documentation. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to Occupational Therapy students only

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**OC\_THR 5250: Emerging Trends in Occupational Therapy**

Students explore contextual factors associated with individual and population access to quality rehabilitation, health, and wellness services in societies and communities. Using their knowledge of the changing landscape of occupational therapy service delivery, students will assess the potential roles of occupational therapists in strengthening the health and wellness of communities and populations. Additionally, students will explore ways in which occupational therapists can collaborate and partner with organizations and communities to promote the full inclusion and participation of individuals in all aspects of society. Students will explore and negotiate innovative ways to deliver occupational therapy services in non-traditional clinical practice settings. Graded on A-F basis only.

**Credit Hour:** 1

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**OC\_THR 5260: Occupational Therapy Practicum I**

This clinical course is designed to provide students an opportunity to implement the occupational therapy process with individuals experiencing limitations in occupational performance. Through this hands-on experience, students will gain opportunities for application of theory and a deepened understanding of occupational therapy practice by identifying strengths and limitations during the evaluation process, developing and measuring client-centered goals, planning and executing interventions, implementing home programs, and preparing and performing discharge procedures. Graded on S/U basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to Occupational Therapy Students only

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**OC\_THR 5310: Advanced Practice Strategies**

Students will learn to synthesize knowledge regarding common conditions seen in children and adults and understand functional implications related to occupational performance. Students will also gain a greater understanding of the role of the occupational therapist across settings when working with children and adults in contemporary society. Learning will culminate with students applying theory and an understanding of cognitive, mental, physical and sensory contributions to occupational performance when developing assessment and intervention plans. Exploration and application of evidence-based practice is an essential component of this course. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Restricted to occupational therapy students

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**OC\_THR 5320: Performance, Participation, and Well-Being**

Students will explore occupational performance and participation in daily life through the lenses of health promotion and prevention. The factors that contribute to individuals' lifestyle and health choices including culture, diversity, and disability, will be discussed. Topics such as health literacy and self-management will be covered in relation to participation. Contextual factors and the environment, from narrow to broad in scope, are also the focus of this course. Environmental modifications, assistive technologies, compensatory strategies, and advanced strategies for grading and adapting tasks to support occupational performance will be explored in depth beyond introductory coursework. Other non-traditional contexts for participation such as work integration, driving, community mobility and transportation will also be explored. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to Occupational Therapy students

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**OC\_THR 5330: Functional Cognition**

This course provides an overview of theoretical models of cognitive function, an overview of an occupational therapy cognitive assessment framework and assessment tools, and an introduction to models of intervention for working with individuals with cognitive disabilities across the lifespan. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to Occupational Therapy Majors

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**OC\_THR 5340: Evidence Based Practice Seminar**

Students who wish to pursue this one credit seminar option will implement the proposal that was designed during OC\_THR 7830 - Application of Evidence-Based Practice. Working with a research mentor,

the student will carry out the proposed research project including data collection, data analysis, and dissemination. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Restricted to Occupational Therapy students

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**OC\_THR 5410: Case Based Learning**

Integrates clinical reasoning and critical thinking, client-centered practice, and evidence-based decision making into the occupational therapy process across the lifespan in various practice domains. Problem-based methodology emphasizes small group learning and problem solving, self/peer evaluation, and self-directed learning. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Restricted to Occupational Therapy students

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**OC\_THR 5420: Populations and Communities**

This course provides students with foundational knowledge and background of the broad concept of community and community based practice in occupational therapy. Students will explore community health, wellness, occupational and social justice, and health disparities. Discovering the role and emerging roles of OT in addressing social and community issues will occur through reading, reflection, discussion, and other assignment work. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Restricted to occupational therapy students

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**OC\_THR 5430: Leadership, Management, and Policy**

This course will provide an overview of the leadership and management responsibilities of occupational therapy leaders in varying practice settings. The significance of public and organizational policy will be discussed as related to service delivery and advocacy of consumer access to occupational therapy services. Content includes the supervisory roles of occupational therapists, professional standards of practice, ethics in practice, quality improvement activities, and the importance of professional competencies. The course content also includes leadership and mentoring of individuals and teams to provide evidence-based, occupation-based, and client-centered practice across a wide range of socio-cultural contexts. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Occupational Therapy students

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**OC\_THR 5440: Contemporary Issues in Occupational Therapy**

This course focuses on the integration of clinical skills, professionalism, and current trends and topics in occupational therapy. Students will engage in direct application of knowledge through a variety of experiences and guided assignments. Collaboration with other professionals will be explored in the context of client supports, referrals, and supervision of OTAs. Students will determine appropriate interventions for clients and populations considering reimbursement, in terms of group design, home programming, and appropriate discharge from services. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to Occupational Therapy students only

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**OC\_THR 5450: Occupational Therapy Practicum II**

This course is designed to further advance practice skills and an understanding of the occupational therapy process through diverse

experiences. Opportunities will be provided to increase professional development through application of evidence based practice in action. An increased emphasis and understanding of the role of families and caregivers, other stakeholders such as providers and service agencies and the greater community as they relate to occupational therapy practice are also addressed. Graded on S/U basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to occupational therapy students only

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#### **OC\_THR 5460: Professional Seminar**

This course requires students to apply and integrate information that they have learned throughout their professional coursework about the various roles of occupational therapists as practitioners, scholars, educators, and advocates. Students will reflect upon personal and professional competencies as they relate to the stated ability-based outcomes of the MU OT Department's curriculum design and each student's future career goals. They will design a plan for ongoing professional development as they prepare for transition to Level II Fieldwork and entry-level practice. To facilitate this process, this course requires students to review the AOTA Code of Ethics, AOTA Standards of Practice, AOTA Standards for Continuing Competence, and other AOTA Official Documents that guide occupational therapy practice. Students will also explore various resources for fieldwork, certification exam preparation, entry-level practice, professional development, involvement in professional associations, making ethical decisions, and resolving conflicts. Students will update their professional resume and develop a plan for employment search as they approach graduation. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Restricted to Occupational Therapy students

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#### **OC\_THR 5510: Fieldwork Level II-A**

In-depth practicum experience in delivering occupational therapy services to clients. Designed to promote clinical reasoning and reflective practice. Settings include traditional and emerging areas of occupational therapy practice. Emphasis on hands-on experiences and translation of theory into practice. Graded on S/U basis only.

**Credit Hours:** 6

**Prerequisites:** Restricted to occupational therapy students

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#### **OC\_THR 5520: Fieldwork Level II-B**

In-depth practicum experience designed to produce competent, entry-level, generalist occupational therapists. Settings include traditional and emerging areas of occupational therapy practice. Emphasis on hands-on experiences and translation of theory into practice. Graded on S/U basis only.

**Credit Hours:** 6

**Prerequisites:** Restricted to occupational therapy students

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#### **OC\_THR 5610: Theoretical Concepts of OT**

Conceptual foundations of occupational therapy practice will be analyzed for the purpose of understanding current standards and models of practice. Concepts of occupation, occupational balance, and occupational justice will be addressed as related to contemporary domestic and global issues.

**Credit Hours:** 3

**Prerequisites:** Acceptance into the Professional OT program is required

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#### **OC\_THR 5620: Evidence Based Practice**

In order to be effective practitioners, educators and clinical researchers; occupational therapists must possess a foundational understanding of the research process including the structure of qualitative and quantitative studies, methodologies and an understanding of basic statistical applications. Students will locate and critique various forms of OT literature to inform practice decisions. At the completion of this course, students will be able to locate, evaluate and incorporate evidence into clinical practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** Acceptance into the Occupational Therapy Program

**Prerequisites:** Students must be accepted into the professional Occupational Therapy Program in order to take this course

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#### **OC\_THR 5630: Community Based OT Practice**

This course provides students with foundational knowledge and background of the broad concept of community and community-based practice in occupational therapy. Students will explore community health, wellness, occupational and social justice, and health disparities. Discovering the role and emerging roles of OT in addressing social and community issues will occur through reading, reflection, discussion, and other assignments. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Acceptance into the Professional Occupational Therapy program

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#### **OC\_THR 5650: Self-directed OT Practicum**

Students will work with a faculty mentor on a self-selected project related to a practice area of interest. This course will help students identify options for the doctoral capstone project and experience. Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites:** Admission to the professional Occupational Therapy program

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#### **OC\_THR 5999: Problems in Occupational Therapy**

Independent investigation leading to the completion of a project or paper. Repeatable upon consent of department. May be offered on S/U or A-F basis.

**Credit Hour:** 1-99

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#### **OC\_THR 6010: Advanced Occupation Based Practice**

This course focuses on examination of occupation-based practice across diverse OT settings and throughout the history of the profession. Students will reflect on fieldwork and/or work-related experiences in OT practice settings and compare and contrast those experiences to theory and policy that affect OT practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Enrollment in occupational therapy program

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#### **OC\_THR 6030: OT Practicum III**

This course is designed to provide students the opportunity to develop a mentoring relationship with both faculty and other students in the foundational phase of OT learning. Students will apply practice

knowledge as well as relevant evidence through diverse experiences. Opportunities for leadership, reflection, and collaboration will be provided. This course is meant to complement content from concurrent courses in the same semester. Graded on A-F basis only.

**Credit Hours:** 2

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**OC\_THR 7085: Problems in Occupational Therapy**

Independent investigation leading to the completion of a project or paper. Repeatable upon consent of department. May be offered on S/U or A-F basis.

**Credit Hour:** 1-99

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## Ophthalmology (OPHTH)

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**OPHTH 6050: SCC Introduction to Ophthalmology**

This curriculum is designed to introduce you to the specialty of ophthalmology, which involves the recognition, diagnosis, and management of diseases of the eye. Students will work in the outpatient setting seeing patients Monday through Friday. The primary clinic for this course may be in Bolivar or Springfield. Students on the Ophthalmology elective are integrated into the outpatient, inpatient, and surgical care programs as if they were beginning first-year resident physicians in the specialty. They are taught ophthalmic instrumentation, ophthalmological examination techniques, and the fundamentals of ocular surgical procedures.

**Credit Hours:** 5

**Prerequisites:** Surgery Clerkship

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**OPHTH 6323: ABS Ophthalmology Research**

ABS Ophthalmology Research

**Credit Hour:** 5-10

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**OPHTH 6585: Ophthalmology**

Ophthalmology

**Credit Hours:** 5

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**OPHTH 6903: SCC Ophthalmology Two Week Elective**

This curriculum is designed to introduce you to the specialty of ophthalmology, which involves the recognition, diagnosis, and management of diseases of the eye. Students will work with an attending Ophthalmologist from the Springfield Clinical Campus. This may involve travel to Bolivar. During this 2 week elective, students will become familiar with the screening eye examination, learn to perform a more comprehensive ocular examination, learn about common ocular abnormalities and treatments, and become familiar with the common ophthalmic instruments.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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**OPHTH 6936: Introduction to Ophthalmology**

Welcome to the Ophthalmology Elective. This curriculum is designed to introduce you to the specialty of ophthalmology, which involves the recognition, diagnosis, and management of diseases of the eye. Students

will work in the outpatient setting seeing patients at the University Eye Institute. Students will participate in didactic sessions each week. During this 2 week elective, students will become familiar with the screening eye examination, learn to perform a more comprehensive ocular examination, learn about common ocular abnormalities and treatments, and become familiar with the common ophthalmic instruments.

**Credit Hours:** 2

**Prerequisites:** successful completion of the first two years of medical school

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**OPHTH 6990: Ophthalmology Surgical Selective**

The medical student will be exposed to the full spectrum of medical and surgical ophthalmology. The medical student will work alongside Ophthalmology attendings, fellows, and residents in outpatient clinics and in the operating room. The medical student will take histories and perform ocular examinations in an outpatient setting. The medical student will observe inpatient consultations and operating room procedures.

**Credit Hours:** 5

**Prerequisites:** Successful completion of 5 of the 7 core clerkships

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## Parks, Recreation, Sport & Tourism (PRST)

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**PRST 1010: The American Leisure Experience**

History of recreation and leisure movement; theories and philosophies of play, recreation and leisure. Developmental stages of leisure services to contemporary status. Graded on A-F basis only.

**Credit Hours:** 3

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**PRST 1011: Academic Planning and Career Orientation in Parks, Recreation and Tourism**

Orientation to the field and analysis of career opportunities in leisure services. Academic planning leading to B.S. in parks, recreation and tourism. Graded on S/U basis only.

**Credit Hour:** 1

**Recommended:** Parks, Recreation and Sport Major

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**PRST 1081: Sport Facility Design**

This course will investigate the functions of management in terms of design, implementation, operating and financing public assembly facilities in order to help sell the sport product. Venues such as public and private arenas, coliseums and stadiums will be studied. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites or Corequisites:** PRST 2010

**Prerequisites:** May be restricted to Parks, Recreation, and Tourism majors

**Corequisites:** PRST 2082, PRST 2083

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**PRST 1084: Recreational Shooting Sports**

This course provides introductory instruction and hands-on shooting with an introduction to shooting range management. Graded on A-F basis only.

**Credit Hour:** 1



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**Prerequisites:** instructor's consent

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**PRST 2010: Foundations of Sport**

This course will examine the meaning of sport management in terms of its history, scope, principles, issues and future trends. In addition, this course examines the job responsibilities and competencies required of sport managers in a variety of sport organizations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Parks, Recreation and Sport Major

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**PRST 2060: Tourism Management**

Introduction to the scope and scale of the tourism industry. Focus on the industry components, concepts, structures, relationships, and issues with regard to accommodation, transportation, travel, regional development, political system, and the economic, social and environmental effects of tourism. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PRST 1011

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**PRST 2080: Global Sport Environments**

This course will provide an overview of organization and management of domestic and international sport, including the Olympic movement and examination of the globalization of U.S. professional sports. The course will also look into facility design and technology used in sports environment. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Parks, Recreation and Tourism; Parks, Recreation and Sport Major

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**PRST 2082: Domestic and International Sports Environment**

This course will provide an overview of organization and management of domestic and international sport, including the Olympic movement and examination of the globalization of U.S. profession sports. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites or Corequisites:** PRST 2010

**Corequisites:** PRST 1081, PRST 2083

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**PRST 2083: Technological Advancement in Sport**

This course will teach students how to solve sports technology problems they will face in their future career, plus develop computer aided design and manufacturing skills. They will also gain skills in team work, communication and presentation, IT, research and project management. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites or Corequisites:** PRST 2010

**Corequisites:** PRST 1081, PRST 2082

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**PRST 2101: Topics in Parks, Recreation, Sports and Tourism**

Specialized topic content in parks, recreation and tourism programs, management and/or development. Subject content and credit may vary by semester based on faculty resources and student needs. Offered periodically.

**Credit Hour:** 1-3

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**PRST 2101W: Topics in Parks, Recreation, Sports and Tourism - Writing Intensive**

Specialized topic content in parks, recreation and tourism programs, management and/or development. Subject content and credit may vary by semester based on faculty resources and student needs. Offered periodically.

**Credit Hour:** 1-3

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**PRST 2107: Aquatics Science**

A scientific perspective on water chemistry, preventive maintenance of aquatic facilities with an emphasis on the newest safety and engineering design information and construction techniques. Graded on A-F basis only.

**Credit Hours:** 3

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**PRST 2111: Park Planning and Design**

Presentation of basic planning principles. Evaluation of existing areas and facilities based upon planning guidelines. Consideration of park plans, standards, terminology, map preparation and evaluation.

**Credit Hours:** 3

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**PRST 2115: Practicum Experience**

An organized undergraduate experiential learning opportunity. In which students and faculty visit identified cities to meet with professionals in the field, tour parks, recreation, sport and tourism venues and network with professionals.

**Credit Hour:** 1-3

**Prerequisites or Corequisites:** PRST 1011

**Prerequisites:** instructor's consent

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**PRST 2281: Business of Sport and Recreation**

This course focuses on the business side of sport management, considering issues of marketing, sponsorship, and sales. Students will also be presented with actual models relevant to working in sales in the competitive sport environment. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Parks, Recreation and Sport Major

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**PRST 2355: Private and Commercial Recreation Principles and Practice**

Considers principles, practices, influences in public/ private leisure services; influence of tourism/travel on public/private recreation services. Graded on A-F basis only.

**Credit Hours:** 3

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**PRST 2711: Experience Internship**

This course is designed as an independent study for students to gain professional experience. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** PRT/PRST Major and Instructor Consent

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**PRST 2750: Methods in Research and Evaluation**

An overview of social research methods, including terms, human and scientific inquiry, ethical behavior, literature review, sampling questionnaire construction, types of data collection, statistical analysis, and reporting of results. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** PRST 1011

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**PRST 3101: Topics in Parks, Recreation and Tourism**

Organized study of selected topics in parks, recreation and tourism. Subjects may vary from semester to semester.

**Credit Hour:** 1-3

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**PRST 3185: Sports Economics and Finance**

This course focuses on the economic and financial issues within the sport industry. The class will help students understand basic and complex concepts within economics and finance in a sport context, and to grasp the importance of financial and economic decision making. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PRST 1011; Restricted to Parks, Recreation, and Tourism majors with Sport Management emphasis or instructor consent

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**PRST 3185H: Sports Economics and Finance - Honors**

This course focuses on the economic and financial issues within the sport industry. The class will help students understand basic and complex concepts within economics and finance in a sport context, and to grasp the importance of financial and economic decision making. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PRST 1011; Restricted to Parks, Recreation, and Tourism majors with Sport Management emphasis or instructor consent. Honors eligibility required

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**PRST 3189: Pre-Internship and Career Development Seminar**

The course is designed to prepare students for PRST 4940 and careers beyond the internship. Emphasis is placed on students' responsibilities prior to enrollment in PRST 4940, selecting internship sites and completing internship requirements. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** PRT/PRST Major in Junior/Senior Standing; PRST 1011

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**PRST 3210: Personnel Management and Leadership**

Considers theories and practices of leadership and management in leisure services employment. Topic presentation in relationships, attitudes, supervision, motivation and group functioning. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Parks, Recreation and Tourism/ Parks, Recreation and Sport majors

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**PRST 3210W: Personnel Management and Leadership - Writing Intensive**

Considers theories and practices of leadership and management in leisure services employment. Topic presentation in relationships,

attitudes, supervision, motivation and group functioning. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Parks, Recreation and Tourism/ Parks, Recreation and Sport majors

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**PRST 3215: Program and Event Development**

Fundamental principles and techniques of program development and event management; seasonal, year round, specialty areas and total agency program planning. The purpose of this course is to make students better prepared to implement and evaluate recreation programming and events that fulfill the diverse needs of society. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** PRST 1011, or instructor's consent; restricted to Parks, Recreation and Tourism, Parks, Recreation and Sport majors

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**PRST 3220: Introduction to Recreation for Individuals with Disabilities**

Principles, concepts and historical development of recreation for individuals with disabilities. Explanation of attitudes, issues, practice and barriers related to recreation participation. Graded on A-F basis only.

**Credit Hours:** 3

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**PRST 3230: Outdoor Recreation Policy**

An overview of parks and outdoor recreation, natural environment, supply-demand-need relationships, interpretative programming, management philosophies/practices will be studied.

**Credit Hours:** 3

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**PRST 3230W: Outdoor Recreation Policies - Writing Intensive**

An overview of parks and outdoor recreation, natural environment, supply-demand-need relationships, interpretative programming, management philosophies/practices will be studied.

**Credit Hours:** 3

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**PRST 3231: Interpretation of Natural and Cultural Resources**

Interpretive principles and techniques employed to communicate the values/meanings of natural and cultural resources to visitors.

**Credit Hours:** 3

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**PRST 3282: Governance and Policy in Sport and Leisure**

This course serves as a comprehensive study in examining how leisure organizations address fundamental issues of governance and policy. Through careful use of policy and understanding of governance, organizations often form strategies in their attempts to gain an advantage. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PRT/PRST Major

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**PRST 4100: Ethics and Diversity**

(cross-leveled with PRST 7100). This course examines an encompassing perspective of ethics and diversity within North American and international sport and recreation organizations. Specifically, the purpose of this course is to provide students with an analysis and understanding

of the various ways that people within sport and recreation organizations can differ, and how differences based on this diversity impact life experiences and outcomes.

**Credit Hours:** 3

**Prerequisites:** Parks, Recreation, & Sport Major

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**PRST 4101: Topics in Parks, Recreation and Tourism**

Organized study of selected topics in parks, recreation and tourism. Subjects may vary from semester to semester.

**Credit Hour:** 1-3

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**PRST 4150: Contemporary Issues in Sport**

(cross-leveled with PRST 7150). This course provides an analysis of the place of sport in American society and the impact of sport on American culture. Social and cultural contexts in which sport exists and how those contexts are influenced by sport will be examined. Concepts and theories will be utilized to examine how social issues and change, relationships, and organization affect sport. Emphasis will be placed on current issues and trends in sport and society. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PRS Major

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**PRST 4208: Administration and Organizational Behavior**

(cross-leveled with PRST 7208). Theoretical foundations of the organization and administration of leisure services in both community and institutional settings. Emphasis on the roles of the administrator. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PRST 1011; Restricted to Parks, Recreation and Tourism; Parks, Recreation and Sport majors

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**PRST 4250: Parks, Health and Wellness**

(cross-leveled with PRST 7250). Exposure to nature in parks and natural areas can improve physical, psychological and social health. This course explores the concepts, research, theories and contemporary issues related to the health benefits of parks and exposure to nature. Through this course, students will examine the importance of parks and natural resources to public health. The course emphasizes case studies and practical applications in addition to guided discussions of assigned readings. Offered periodically. Graded on A-F basis only.

**Credit Hours:** 3

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**PRST 4333: Park and Sport Facility Operations**

(cross-leveled with PRST 7333). Basic principles, practices and problems associated with the operations of park and sport facilities including green space, aquatic facilities, sports fields, outdoor park facilities and buildings. Additional focus on necessary maintenance personnel management, equipment management and management of volunteers within a park system or sports facility. Graded on A-F basis only.

**Credit Hours:** 3

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**PRST 4340: Recreation Land Management**

(cross-leveled with PRST 7340). This course provides students with an understanding of the principles and practices of recreation land management. Topics include federal land management agencies,

wilderness management, benefits based management, recreation opportunity spectrum, limits of acceptable change, citizen participation in decision making, and visitor experience/resource protection.

**Credit Hours:** 3

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**PRST 4350: Problems in Parks, Recreation, Sport and Tourism**

Individual study with a designated faculty member.

**Credit Hour:** 1-3

**Prerequisites:** Instructor Consent

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**PRST 4357: Domestic and International Tourism: Resources, Market, and Impacts**

(cross-leveled with PRST 7357). Nature and scope of tourism planning at the local, regional, and national levels; economic social, environmental, and policy considerations. Comparative study of initiating, planning and implementing tourism and the organization of community resources for developing and controlling a tourism industry. Graded on A-F basis only.

**Credit Hours:** 3

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**PRST 4385: Legal Aspects of Sport**

This course studies the U. S. legal system, its structure and terminology. Legal aspects of contract law, statutory law, constitutional law, intellectual property, torts, negligence, and risk management in sport will be examined. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PRT/PRST Major; PRST 1011

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**PRST 4940: Parks, Recreation, Sport and Tourism Internship**

Supervised professional experience with an approved organization. Course entails weekly reports, case studies, agency evaluations and a special project related to the student's curricular emphasis. Students must complete core, emphasis, and pre-internship courses with a C- or better to be eligible to start the capstone. Graded on A-F basis only.

**Credit Hours:** 12

**Prerequisites:** PRST 1011 and PRST 3189, PRST majors only, instructor's consent. Students must complete core, emphasis, and pre-internship courses with a C- or better to be eligible to start the capstone

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**PRST 4949: Western Canada Study Abroad**

This course provides students an educational opportunity to explore Western Canada. Students analyze natural resource management, customer and visitor relations, community relations, cultural entrepreneurship, and transportation networks with US and Canadian Management methods.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**PRST 7101: Topics in Parks, Recreation and Sport**

Specialized topics in recreation and park administration dynamics. Subjects and credits vary by semester based on available faculty resources and expertise. Course content announced in advance. Graded on A-F basis only.

**Credit Hour:** 1-3

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**PRST 7208: Administration and Organizational Behavior**

(cross-leveled with PRST 4208). Theoretical foundations of the organization and administration of leisure services in both community and institutional settings. Emphasis on the roles of the administrator. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PRST 1011; Restricted to Parks, Recreation and Tourism; Parks, Recreation and Sport majors

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**PRST 7250: Parks, Health and Wellness**

(cross-leveled with PRST 4250). Exposure to nature in parks and natural areas can improve physical, psychological and social health. This course explores the concepts, research, theories and contemporary issues related to the health benefits of parks and exposure to nature. Through this course, students will examine the importance of parks and natural resources to public health. The course emphasizes case studies and practical applications in addition to guided discussions of assigned readings. Offered periodically. Graded on A-F basis only.

**Credit Hours:** 3

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**PRST 7260: Sustainable Tourism**

(cross-leveled with PRST 4260). Sustainability in the tourism field refers to the adoption of sound environmental, economic, and socio-cultural practices in tourism development and management. Sustainable tourism is considered an alternative to mass tourism and covers a wide range of different tourism niches (e.g., sports tourism, agritourism, ecotourism, film tourism). This course is designed to provide students with a basic understanding of tourism impacts and sustainable tourism development. Students will be introduced to theory, practice, history, terminology and issues in the planning and management of major tourism niches. Graded on A-F basis only.

**Credit Hours:** 3

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**PRST 7333: Park and Sport Facility Operations**

(cross-leveled with PRST 4333). Basic principles, practices and problems associated with the operations of park and sport facilities including green space, aquatic facilities, sports fields, outdoor park facilities and buildings. Additional focus on necessary maintenance personnel management, equipment management and management of volunteers within a park system or sports facility. Graded on A-F basis only.

**Credit Hours:** 3

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**PRST 7340: Recreation Land Management**

(cross-leveled with PRST 4340). This course provides students with an understanding of the principles and practices of recreation land management. Topics include federal land management agencies, wilderness management, benefits based management, recreation opportunity spectrum, limits of acceptable change, citizen participation in decision making, and visitor experience/resource protection.

**Credit Hours:** 3

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**PRST 7357: Domestic and International Tourism: Resources, Market, and Impacts**

(cross-leveled with PRST 4357). Nature and scope of tourism planning at the local, regional, and national levels; economic social, environmental, and policy considerations. Comparative study of initiating, planning and

implementing tourism and the organization of community resources for developing and controlling a tourism industry. Graded on A-F basis only.

**Credit Hours:** 3

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**PRST 7960: Guided Reading in Parks, Recreation, Sport and Tourism**

Selected reading in parks, recreation, sport and tourism identified to fulfill a graduate student's academic needs or specialized interests.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**PRST 8080: Foundations of Sport**

This course focuses on the business side of sport management, primarily considering issues of marketing, sponsorship, and sales. In this, students will not only supplement knowledge of these concepts, but also be presented with actual models relevant to working in sales in the competitive sport environment. Graded on A-F basis only.

**Credit Hours:** 3

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**PRST 8088: Sport and Leisure Economics**

This course focuses on the business side of sport management, primarily considering issues of marketing, sponsorship, and sales. In this, students will not only supplement knowledge of these concepts, but also be presented with actual models relevant to working in sales in the competitive sport environment. Graded on A-F basis only.

**Credit Hours:** 3

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**PRST 8089: Research Project**

Individual research on approved project. Involves creativity and scholarly inquiry where product does not adhere to the traditional thesis format. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** Parks, Recreation and Tourism graduate major

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**PRST 8090: Thesis Research in Parks, Recreation, Sport and Tourism**

Research leading to thesis in field of parks, recreation and tourism. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** Parks, Recreation and Tourism graduate major

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**PRST 8400: Constructs of Leisure**

Review analysis and implications of fundamental psycho-social determinants of leisure behavior. Application theories of determinants to existing and proposed leisure service systems.

**Credit Hours:** 3

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**PRST 8401: Topics in Recreation and Park Administration**

Specialized topics in recreation and park administration dynamics. Subjects and credits vary by semester based on available faculty resources and expertise. Course content announced in advance.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**PRST 8411: Independent Work in Parks, Recreation, Sport and Tourism**

Independent research or special projects in parks, recreation, sport and tourism.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**PRST 8430: Research Methods in Parks, Recreation and Tourism**

Analysis of basic research methodology. Review and analysis of research work completed in recreation, park and leisure field.

**Credit Hours:** 3

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**PRST 8436: Visitor Behavior and Policy**

Course presents issues, concerns and policies dealing with multi-management/planning/operations of outdoor resource based recreation. Such issues as energy, economics, social/ political, pollution and user characteristics will be studied.

**Credit Hours:** 3

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**PRST 8450: Administration in Leisure Service Delivery**

Review, analysis and synthesis of administrative functions as related to public and private recreation and leisure service enterprises.

**Credit Hours:** 3

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**PRST 8460: Financial Operations in Leisure Service Delivery**

Review and critical analysis of financial functions, strategies and methodology as related to public and private recreation and leisure service enterprises.

**Credit Hours:** 3

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**PRST 8940: Internship in Parks, Recreation and Tourism**

Supervised student practice in recreation, park or related settings under qualified instructor.

**Credit Hour:** 1-6

**Prerequisites:** Parks, Recreation and Tourism graduate major

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## Pathology & Anatomical Science (PTH\_AS)

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**PTH\_AS 2201: Human Anatomy Lecture**

A systems-based survey of human gross anatomy including structure, function and history. Internet access required: lectures and assignments will be online. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Minimum cumulative MU GPA of 2.5 required

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**PTH\_AS 2203: Human Anatomy Laboratory**

A systems-based survey of human gross anatomy. Internet access required: most materials will be online. One on-campus laboratory meeting per week. Graded A-F only. Recommend: Minimum cumulative MU GPA of 2.5 and completed or currently enrolled in PTH\_AS 2201.

**Credit Hours:** 2

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**PTH\_AS 3460: Research and Instructional Techniques**

Involves library and laboratory research. Includes development of oral and written communications skills.

**Credit Hours:** 3

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**PTH\_AS 4210: Seminar in Pathology and Anatomical Sciences**

Presentation and discussion of original investigations and current literature.

**Credit Hour:** 1

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**PTH\_AS 4220: Forensic Pathology and Death Investigation**

(cross-leveled with PTH\_AS 7020). Forensic Pathology and Death Investigation.

**Credit Hours:** 2

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**PTH\_AS 4220H: Forensic Pathology and Death Investigation - Honors**

(cross-leveled with PTH\_AS 7020). Forensic Pathology and Death Investigation.

**Credit Hours:** 2

**Prerequisites:** Honors eligibility required

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**PTH\_AS 4220W: Forensic Pathology and Death Investigation - Writing Intensive**

(cross-leveled with PTH\_AS 7020). Forensic Pathology and Death Investigation.

**Credit Hours:** 2

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**PTH\_AS 4222: Gross Human Anatomy (The Health Professions)**

(cross-leveled with PTH\_AS 7222). Gross structure and neuroanatomy of the human body; dissection of extremities, back, head, neck abdomen and thorax.

**Credit Hours:** 7

**Prerequisites:** instructor's consent

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**PTH\_AS 4222H: Gross Human Anatomy (The Health Professions) - Honors**

(cross-leveled with PTH\_AS 7222). Gross structure and neuroanatomy of the human body; dissection of extremities, back, head, neck abdomen and thorax.

**Credit Hours:** 7

**Prerequisites:** instructor's consent; Honors eligibility required

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**PTH\_AS 6033: SCC ABS Surgical Anatomy**

The 4th year anatomy student will work independently or as a team to dissect and explore regions of cadavers particular to their interests. We generally offer the following regions (Lower Limb, Upper Limb, Pelvis, Thorax, Abdomen, Head & Neck). Students will improve their anatomical knowledge and learn using hands-on experiences and a variety of evidence-based resources while exploring the human body. Requirements: A) Complete a dissection relevant to your interests of the following regions: brain, head and neck, thorax, abdomen, pelvis, upper limb (one side), lower limb (one side). B) Give a 15-minute presentation

to Occupational Therapy or Physician Assistant class about the anatomy of your region behind clinical practice. Schedule this presentation with the course coordinator and/or the course director within two months of the scheduled block. However, presentation slides must be given to the course faculty leader by the end of the block. C) Prepare 5 PowerPoint slides for use in Occupational Therapy or Physician Assistant courses on clinically-relevant anatomy for the audience by the end of the block. After review by course faculty the slides will also be sent to Columbia for consideration of use in M1 classes. D) Complete an exit interview with a faculty member to discuss the student's experience during the course.

**Credit Hours:** 5

**Prerequisites:** Successful completion of the first 2 years of medical school and 5 of the 7 core clerkships

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**PTH\_AS 6331: ABS Advanced Medical Neurosciences**

ABS Advanced Medical Neurosciences

**Credit Hour:** 5-10

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**PTH\_AS 6333: ABS Pathology/Anatomical Science Research**

ABS Pathology/Anatomical Science Research

**Credit Hours:** 5

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**PTH\_AS 6341: ABS Science Anatomical Science Teaching**

ABS Science Anatomical Science Teaching

**Credit Hours:** 5

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**PTH\_AS 6343: ABS Surgical Anatomy**

ABS Surgical Anatomy

**Credit Hours:** 5

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**PTH\_AS 6345: ABS Surgical Anatomy of the Head and Neck**

ABS Surgical Anatomy of the Head and Neck

**Credit Hours:** 5

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**PTH\_AS 6347: ABS Surgical Anatomy of the Back and Limbs**

ABS Surgical Anatomy of the Back and Limbs

**Credit Hours:** 5

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**PTH\_AS 6600: Anatomic Pathology**

Anatomic Pathology

**Credit Hours:** 5

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**PTH\_AS 6602: Clinical Pathology**

Clinical Pathology

**Credit Hours:** 5

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**PTH\_AS 6604: Forensic Pathology**

Forensic Pathology

**Credit Hours:** 5

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**PTH\_AS 6606: Anatomic/Clinical Pathology**

Anatomic/Clinical Pathology

**Credit Hours:** 5

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**PTH\_AS 6608: Anatomy Elective**

Anatomy Elective

**Credit Hours:** 5

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**PTH\_AS 6916: Anatomic Pathology Two-Week**

This is a two week rotation. Students will learn how to integrate information and apply previously acquired knowledge and concepts to the assessment and interpretation of surgical pathology, cytopathology, and/or autopsy cases. Students will learn about the procedures necessary to arrive at anatomic pathology diagnoses and the work that goes into specimen processing and examination so as to produce diagnoses.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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**PTH\_AS 7020: Forensic Pathology and Death Investigation**

Summary of Forensic Death Investigation from beginning to end. Will include some of the current laboratory techniques seen on 'CSI' Team taught by experts in the fields including medical examiners, death investigators, forensic anthropologists, police CSI teams, lawyers and others.

**Credit Hours:** 2

**Prerequisites:** Basic Biology

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**PTH\_AS 7222: Gross Human Anatomy (The Health Professions)**

(cross-leveled with PTH\_AS 4222). Gross/human structure through dissection. Graded on A-F basis only.

**Credit Hours:** 7

**Prerequisites:** Acceptance into Physical Therapy Programs or instructor's consent

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**PTH\_AS 7400: Seminars in Translational Medicine**

Students participate in regular seminars and discussion groups with other students interested in clinical and translational sciences. Students, working together with faculty in biomedical sciences and those working in clinical and translational fields, identify seminar topics. Learning objectives and written assignments are arranged on an individual basis. The course is open to all graduate level students and students enrolled in professional schools, for 0-5 credit hours, with instructor's approval. Graded on S/U basis only.

**Credit Hour:** 0-5

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**PTH\_AS 7450: Precision Medicine Informatics**

This course will introduce students with the theoretical and practical aspects of precision medicine informatics. Topics include: complex diseases, computational genomics/proteomics, informatics of molecular interactions and biological pathways, somatic mutations, signal transduction and cancer, biomarker discovery, machine learning and data mining for PMI, networks methods for PMI, knowledge representation and reasoning for PMI. The course will consist of a set of didactic lectures, computational assignments, in-class demonstrations of PMI methods and discussions of recent publications. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** INFOINST 8005 with C or better or INFOINST 7010 with C or better or instructor's consent

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**PTH\_AS 8010: Current Issues in Anatomical Sciences**

Survey of the recent literature in integrative anatomy, including functional, evolutionary, developmental and translational anatomy, conducted through readings and discussion. Grade determined by participation and presentation of weekly readings. May be repeated for a maximum of 10 hours. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**PTH\_AS 8090: Advanced Pathology**

Open only to properly qualified graduate students, with counsel of faculty. Focus of MS-related research in evolutionary morphology, genomics, neuroscience, pathobiology or laboratory sciences. Graded on S/U basis only.

**Credit Hour:** 1-99

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**PTH\_AS 8100: Fundamentals of Evolutionary Biology**

Principles of modern evolutionary biology. Topics include: phylogeny, paleobiology, developmental processes, genetic and phenotypic variation, form and function, speculation, macroevolution, and molecular mechanisms.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PTH\_AS 8150: Fundamentals of Evolutionary Morphology**

This course is a survey of the fundamentals of modern evolutionary morphology. Topics will include: patterns of vertebrate evolution, comparative methods, development and ontogeny, constraint, functional morphology, evolutionary innovations, and experimental methods. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**PTH\_AS 8201: Human Anatomy: Back and Upper Limb**

Developmental, gross, and clinical anatomy of the human back and upper limb, including skeletal, muscular, nervous, and vascular tissues. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** instructor's consent required

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**PTH\_AS 8202: Human Anatomy: Thorax and Abdomen**

Developmental, gross, and clinical anatomy of the human thorax and abdomen. Graded on an A-F basis only.

**Credit Hours:** 2

**Prerequisites:** instructor's consent required

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**PTH\_AS 8203: Human Anatomy: Head, Neck and Neuroanatomy**

Developmental, gross and clinical anatomy of the human head, neck and neuroanatomy. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** instructor's consent required

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**PTH\_AS 8204: Human Anatomy: Pelvis and Lower Limb**

Developmental, gross and clinical anatomy of the human pelvis and lower limb. Graded A-F basis only.

**Credit Hours:** 2

**Prerequisites:** instructor's consent required

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**PTH\_AS 8285: Problems in Pathology and Anatomical Sciences**

Regions or systems which may include developmental, microscopic, and gross anatomy.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PTH\_AS 8290: Research in Pathology and Anatomical Sciences**

Research unrelated to thesis work in evolutionary morphology, genomics, neuroscience, pathobiology or laboratory sciences.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PTH\_AS 8450: Human Anatomy Teaching Practicum**

Provides practical experience teaching clinically oriented human anatomy in lecture and laboratory settings. For students pursuing doctoral degrees in Pathobiology. Enrollment is limited to students who have completed PTH\_AS 8201, PTH\_AS 8202, PTH\_AS 8203, and PTH\_AS 8204. Graded on S/U basis only. May be repeated for credit.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**PTH\_AS 8500: Seminar in Translational Neuroscience**

Students participate in seminars and discussion groups. Masters students identify seminar topics and present existing data with findings. PhD students identify seminar topics, conduct research and present findings. Learning objective and written assignments are arranged individually. May be repeated for credit. Graded on S/U basis only.

**Credit Hour:** 1-5

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**PTH\_AS 8640: Quantitative Methods in Life Sciences**

(same as BIO\_SC 8640). Quantitative Methods in Life Sciences is a graduate-level course in statistical analysis designed for the specific needs of students in life sciences, focusing on statistical literacy: performing, interpreting, and writing about biological data analysis. As such, the course assumes a basic understanding of some topics and little understanding of other topics. The course will cover most topics broadly and occasionally in great depth, highlighting the perils and pitfalls of different methods, while providing guidelines for a wide array of statistical approaches to data analysis. The course seeks to find the balance between really understanding all the math involved and learning to be a competent practitioner and consumer of analysis, emphasizing the practical over the theoretical, with additional focus on the communication of data (plotting, graphs, figures) and of results. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Consent of instructor

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**PTH\_AS 9090: Research in Pathology and Anatomical Sciences**

Open only to properly qualified graduate students, with counsel of faculty. Focus of PhD-related research in evolutionary morphology, genomics, neuroscience or pathobiology. Graded on S/U basis only.

**Credit Hour:** 1-99

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**PTH\_AS 9290: Research in Pathology and Anatomical Sciences**

Open only with instructor's consent. Courses with specialized lectures in various topics such as evolutionary morphology, genomics, neuroscience and pathobiology, depending on faculty expertise and student demand. Graded on S/U basis only.

**Credit Hour:** 1-99

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## Peace Studies (PEA\_ST)

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**PEA\_ST 1050: Introduction to Peace Studies**

Interdisciplinary overview including theories on the nature of aggression and war, case studies of contemporary conflicts, consideration of various peace proposals, conditions making war or peace likely.

**Credit Hours:** 3

**Recommended:** sophomore standing. Writing intensive not fulfilled unless ENGLSH 1000 or equivalent has already been taken

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**PEA\_ST 1050W: Introduction to Peace Studies - Writing Intensive**

Interdisciplinary overview including theories on the nature of aggression and war, case studies of contemporary conflicts, consideration of various peace proposals, conditions making war or peace likely.

**Credit Hours:** 3

**Recommended:** sophomore standing. Writing intensive not fulfilled unless ENGLSH 1000 or equivalent has already been taken

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**PEA\_ST 1051: International Conflict Resolution and Group Reconciliation**

Theories of conflict resolution. We will study achieving peace through techniques and institutions that attempt personal and interactive reconciliation of opposing groups personally. Case studies might include the 'Truth and Reconciliation' committees following South African Independence, and similar projects to promote inter-group understanding in Middle East conflicts. The course will then analyze examples of the resolution of major international conflicts and issues, such as the Irish Peace Accords, the Camp David peace process for the Middle East, Strategic Nuclear Arms Limitation, and the Kyoto Protocol.

**Credit Hours:** 3

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**PEA\_ST 1051W: International Conflict Resolution and Group Reconciliation - Writing Intensive**

Theories of conflict resolution. We will study achieving peace through techniques and institutions that attempt personal and interactive reconciliation of opposing groups personally. Case studies might include the 'Truth and Reconciliation' committees following South African Independence, and similar projects to promote inter-group understanding in Middle East conflicts. The course will then analyze examples of the resolution of major international conflicts and issues, such as the Irish Peace Accords, the Camp David peace process for the Middle East, Strategic Nuclear Arms Limitation, and the Kyoto Protocol.

**Credit Hours:** 3

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**PEA\_ST 1052: Global Warming, Climate Change, Catastrophic Climate Destabilization**

Global warming, climate change and catastrophic climate destabilization as alternate conceptualizations. The greenhouse gas effect; the consequences of climate change for oceans, fresh water ecosystems, forests, agriculture, biodiversity, public health, social justice and global social stability. Potential solutions will be considered, including sustainable energy sources, efficiency of energy use, divestment from fossil fuels, and putting a price on carbon.

**Credit Hours:** 3

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**PEA\_ST 1052W: Global Warming, Climate Change, Catastrophic Climate Destabilization - Writing Intensive**

Global warming, climate change and catastrophic climate destabilization as alternate conceptualizations. The greenhouse gas effect; the consequences of climate change for oceans, fresh water ecosystems, forests, agriculture, biodiversity, public health, social justice and global social stability. Potential solutions will be considered, including sustainable energy sources, efficiency of energy use, divestment from fossil fuels, and putting a price on carbon.

**Credit Hours:** 3

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**PEA\_ST 1120: Population and Ecology**

(same as RU\_SOC 1120 and SOCIOL 1120). Changes in the structure and characteristics of population groups and their relationship to both human and non-human aspects of the biophysical environment.

**Credit Hours:** 3

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**PEA\_ST 1150: The Amish Community**

(same as RU\_SOC 1150). Examines historical antecedents and contemporary culture and social structure of the Amish. Topics include cultural symbols, life ceremonies, the family, counter cultural pressures, stresses and social change.

**Credit Hours:** 3

**Recommended:** RU\_SOC 1000, SOCIOL 1000, or ANTHRO 1000

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**PEA\_ST 1150W: The Amish Community - Writing Intensive**

(same as RU\_SOC 1150). Examines historical antecedents and contemporary culture and social structure of the Amish. Topics include cultural symbols, life ceremonies, the family, counter cultural pressures, stresses and social change.

**Credit Hours:** 3

**Recommended:** RU\_SOC 1000, SOCIOL 1000, or ANTHRO 1000

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**PEA\_ST 2000: Exploration in Social and Economic Justice**

(same as SOC\_WK 2000). This course explores issues of fairness and equality in economic, political and social systems, and applies social justice principles to major social problems. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**PEA\_ST 2000W: Exploration in Social and Economic Justice - Writing Intensive**

(same as SOC\_WK 2000). This course explores issues of fairness and equality in economic, political and social systems, and applies social justice principles to major social problems. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**PEA\_ST 2003: Topics in Peace Studies: Behavioral Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent. Graded on A-F basis only.

**Credit Hour:** 2-3

**Recommended:** Sophomore standing

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**PEA\_ST 2003W: Topics in Peace Studies: Behavioral Science - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent. Graded on A-F basis only.

**Credit Hour:** 2-3

**Recommended:** Sophomore standing

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**PEA\_ST 2004: Topics in Peace Studies - Social Sciences**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 2-3

**Recommended:** sophomore standing

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**PEA\_ST 2004W: Topics in Peace Studies - Social Sciences - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 2-3

**Recommended:** sophomore standing

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**PEA\_ST 2005: Topics in Peace Studies - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent. Graded on A-F basis only.

**Credit Hour:** 2-3

**Recommended:** sophomore standing

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**PEA\_ST 2016: Authoritarian Societies, States, and the Prospects for Democracy**

The course analyzes and critiques current authoritarian tendencies in civil society and the state, in politics, economy, culture, and individually experienced social life. It will synthesize varied approaches and theories from several disciplines, and will place developments in the US and other nations in historical and multicultural context. Topics may include: authoritarian racism and social control, movements and resistance

against authoritarianism, mobilization through mass and social media, and authoritarianism as a global phenomena.

**Credit Hours:** 3

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**PEA\_ST 2016H: Authoritarian Societies, States, and the Prospects for Democracy - Honors**

The course analyzes and critiques current authoritarian tendencies in civil society and the state, in politics, economy, culture, and individually experienced social life. It will synthesize varied approaches and theories from several disciplines, and will place developments in the US and other nations in historical and multicultural context. Topics may include: authoritarian racism and social control, movements and resistance against authoritarianism, mobilization through mass and social media, and authoritarianism as a global phenomena. Prerequisites: Honors eligibility required

**Credit Hours:** 3

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**PEA\_ST 2016W: Authoritarian Societies, States, and the Prospects for Democracy - Writing Intensive**

he course analyzes and critiques current authoritarian tendencies in civil society and the state, in politics, economy, culture, and individually experienced social life. It will synthesize varied approaches and theories from several disciplines, and will place developments in the US and other nations in historical and multicultural context. Topics may include: authoritarian racism and social control, movements and resistance against authoritarianism, mobilization through mass and social media, and authoritarianism as a global phenomena.

**Credit Hours:** 3

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**PEA\_ST 2100: The Vietnam and Iraq Wars: Lessons for the Future**

An interdisciplinary analysis of the Vietnam War and the American-led war with Iraq. Course focuses on the reasons that American lost in Vietnam, the reasons it won in Iraq, and the lessons these conflicts provided for America's future. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PEA\_ST 2140: ART: Visual Culture and The Iconography of Social Intent**

The focus of the course is to encourage students to view and discuss visual arts in an informed manner. The course will also raise key issues in the humanities, such as how certain artists reflect upon and explore the cultural, social and historical impact of human agency. Provided is a basic review of the visual arts during selected time periods of the past, along with an emphasis on creative responses by modern and post-modern artists to the changing socio-economic and cultural landscape of the present day. The influence, manipulation, and oftentimes, conflictual aspects of the arts, will be discussed together with an appropriate overview of context, and vocabulary. Students will come to recognize and appreciate art's intriguing versatility, and the power of art 'to integrate individual and communal needs' (Dissanayake, 2000).

**Credit Hours:** 3

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**PEA\_ST 2182: Critical Dialogues: Nonviolence in Peace/Democracy Movements**

(same as SOCIOL 2182). History and theory of movements for peace, justice, and democracy. Development of violent and nonviolent tactics and factions in movements; relationship to state authority. Cases such as Gandhi's Independence, American Civil Rights, Arab Spring, and Occupy movements.

**Credit Hours:** 3

**Recommended:** PEA\_ST 1050

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**PEA\_ST 2182W: Critical Dialogues: Nonviolence in Peace/Democracy Movements - Writing Intensive**

(same as SOCIOL 2182). History and theory of movements for peace, justice, and democracy. Development of violent and nonviolent tactics and factions in movements; relationship to state authority. Cases such as Gandhi's Independence, American Civil Rights, Arab Spring, and Occupy movements.

**Credit Hours:** 3

**Prerequisites:** PEA\_ST 1050 or instructor's consent

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**PEA\_ST 2200: Nuclear Weapons: Environmental, Health and Social Effects**

(same as HLTH\_SCI 2200 and SOCIOL 2281). Environmental consequences of the nuclear arms race, 'regional' nuclear war, and weapons testing for human health, agriculture, and society. Examining 'a world without nuclear weapons'; political dialogue on proliferation; Iran, North Korea, and nuclear weapons conventions. Graded on A-F basis only.

**Credit Hours:** 3

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**PEA\_ST 2200W: Nuclear Weapons: Environmental, Health and Social Effects-Writing Intensive**

(same as HLTH\_SCI 2200 and SOCIOL 2281). Environmental consequences of the nuclear arms race, 'regional' nuclear war, and weapons testing for human health, agriculture, and society. Examining 'a world without nuclear weapons'; political dialogue on proliferation; Iran, North Korea, and nuclear weapons conventions. Graded on A-F basis only.

**Credit Hours:** 3

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**PEA\_ST 2220: America in the 1960's**

(same as HIST 2220). Examines the political and cultural main currents of the 1960s. Emphasizes the challenges mounted by protest groups and the responses of America's political leadership to the ferment of the period.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PEA\_ST 2255: Youth, Islam, and Global Cultures**

(same as SOCIOL 2255). Youth subcultures and the social issues and problems faced by youth, focusing on the Islamic world and Muslim immigrants, in the United States and elsewhere. Social and behavioral theories and concepts such as paths to modernization, Orientalism, post-colonialism, population movements, social construction, identity, and recognition will be illustrated.

**Credit Hours:** 3

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**PEA\_ST 2280: Race, Democracy, and Violence in Cuba and Haiti**

(same as SOCIOL 2280, GEOG 2280). A sociological approach to understand race/ethnicity, identity, citizenship, human rights, violence, and political and economic systems in the Caribbean. Comparisons of the culture, politics, and historical trajectories of Cuba and Haiti using Post-Colonial and Feminist theories. Graded on A-F basis only.

**Credit Hours:** 3

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**PEA\_ST 2280W: Race, Democracy, and Violence in Cuba and Haiti - Writing Intensive**

(same as SOCIOL 2280, GEOG 2280). A sociological approach to understand race/ethnicity, identity, citizenship, human rights, violence, and political and economic systems in the Caribbean. Comparisons of the culture, politics, and historical trajectories of Cuba and Haiti using Post-Colonial and Feminist theories. Graded on A-F basis only.

**Credit Hours:** 3

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**PEA\_ST 2285: Large Corporations, Economic Crisis, Social Responsibility**

(same as SOCIOL 2285). Institutional power of the corporate CEO; ethical regulatory restraint. Historical contexts of economic crisis. Theories of justice, alternative concepts of justice in popular culture. Politics of policy issues in prosecution and criminalization of corporate behavior. Graded on A-F basis only.

**Credit Hours:** 3

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**PEA\_ST 2286: Technological Futures, National Security, and Civil Liberties**

(same as SOCIOL 2286). Contemporary practices and future trends in data collection and mining by the NSA and by businesses. The interplay of government and corporate power, and possibilities of regulation and maintenance of privacy and civil liberties. The development of digital intellectual copyright and its consequences on patterns of dissemination of knowledge.

**Credit Hours:** 3

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**PEA\_ST 2286W: Technological Futures, National Security, and Civil Liberties - Writing Intensive**

(same as SOCIOL 2286). Contemporary practices and future trends in data collection and mining by the NSA and by businesses. The interplay of government and corporate power, and possibilities of regulation and maintenance of privacy and civil liberties. The development of digital intellectual copyright and its consequences on patterns of dissemination of knowledge.

**Credit Hours:** 3

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**PEA\_ST 2287: Conspiracies, Popular Imagination, Evidence**

In-depth and critical analysis of cases involving allegations of 'conspiracy' in international affairs, contrasted with official reports and presentations of evidence in a variety of venues. Conspiracy theories considered might include those centering on 9-11 and the Kennedy assassination. Conspiracy theories will be compared and contrasted to what is known about secrecy and the functioning of elite political and economic institutions such as the Trilateral Commission and campaign financing organizations. Students will analyze a variety of NGO and government

documents and investigative journalism drawing on Wiki Leaks. We will compare and contrast what is considered evidence in different venues such as the criminal justice system, government reports, journalism, and academic writing by historians, social and behavioral scientists, and natural scientists. Concepts clarified and utilized will include: state corporate crime, system determination, social construction, narrative, historical memory, symbolic politics, and individual and group responsibility.

**Credit Hours:** 3

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**PEA\_ST 2287W: Conspiracies, Popular Imagination, Evidence - Writing Intensive**

In-depth and critical analysis of cases involving allegations of 'conspiracy' in international affairs, contrasted with official reports and presentations of evidence in a variety of venues. Conspiracy theories considered might include those centering on 9-11 and the Kennedy assassination. Conspiracy theories will be compared and contrasted to what is known about secrecy and the functioning of elite political and economic institutions such as the Trilateral Commission and campaign financing organizations. Students will analyze a variety of NGO and government documents and investigative journalism drawing on Wiki Leaks. We will compare and contrast what is considered evidence in different venues such as the criminal justice system, government reports, journalism, and academic writing by historians, social and behavioral scientists, and natural scientists. Concepts clarified and utilized will include: state corporate crime, system determination, social construction, narrative, historical memory, symbolic politics, and individual and group responsibility.

**Credit Hours:** 3

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**PEA\_ST 2288: Sports, Protest Movements, and Conflict Resolution**

This course will critically analyze the social significance of sports, focusing on events leading to and influencing protest movements and the peaceful outcomes (or lack thereof) of these movements through conflict resolution. We will identify the non-violent behaviors, strategies, and ideologies of numerous athletes such as: Muhammad Ali, Jim Brown, Harry Edwards, John Carlos and Tommy Smith, Colin Kaepernick, and their particular methods of rebellion and representation of issues. Furthermore, we will examine how fans, organizations, media, and sporting committees (i.e. International Olympic Committee) have reacted to athlete revolts, and the effectiveness of revolts in changing society.

**Credit Hours:** 3

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**PEA\_ST 2288W: Sports, Protest Movements, and Conflict Resolution - Writing Intensive**

This course will critically analyze the social significance of sports, focusing on events leading to and influencing protest movements and the peaceful outcomes (or lack thereof) of these movements through conflict resolution. We will identify the non-violent behaviors, strategies, and ideologies of numerous athletes such as: Muhammad Ali, Jim Brown, Harry Edwards, John Carlos and Tommy Smith, Colin Kaepernick, and their particular methods of rebellion and representation of issues. Furthermore, we will examine how fans, organizations, media, and sporting committees (i.e. International Olympic Committee) have reacted to athlete revolts, and the effectiveness of revolts in changing society.

**Credit Hours:** 3

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**PEA\_ST 2289: Towns in Missouri and the Midwest: Voices and Inequalities**

(same as GEOG 2289, RU\_SOC 2289). Focusing on towns and communities and their regional history and cultural traditions. Examines the issues and concerns of small-town America in the context of recent hardships and adverse economic trends. Examples of topics covered include case studies of communities such as Marceline, Missouri (Walt Disney's boyhood home), race and the immigration of non-whites in to rural areas; gender roles in small communities, the role of religion in small-town identity formation, and other current issues faced by 'middle America.' The responsiveness of government, large corporations, and institutions to the problems of diverse communities will be critically examined, with a multidisciplinary approach that draws on key theories and works in the disciplines of sociology, rural sociology, community development, and geography.

**Credit Hours:** 3

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**PEA\_ST 2289W: Towns in Missouri and the Midwest: Voices and Inequalities - Writing Intensive**

Focusing on towns and communities and their regional history and cultural traditions. Examines the issues and concerns of small-town America in the context of recent hardships and adverse economic trends. Examples of topics covered include case studies of communities such as Marceline, Missouri (Walt Disney's boyhood home), race and the immigration of non-whites in to rural areas; gender roles in small communities, the role of religion in small-town identity formation, and other current issues faced by 'middle America.' The responsiveness of government, large corporations, and institutions to the problems of diverse communities will be critically examined, with a multidisciplinary approach that draws on key theories and works in the disciplines of sociology, rural sociology, community development, and geography.

**Credit Hours:** 3

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**PEA\_ST 2290: Drugs, Violence and the Police in Latin America and Latina/o Communities in the United States**

A regional and global perspective on the 'war on drugs' and violence in Latin American countries such as Mexico and Colombia, as well as the United States. The course may include units on such topics as: the recent history of gangs in US urban areas; political violence in Central America and such countries as Colombia and Venezuela; and attempts to mediate and reconcile social conflicts and war in those areas. The interplay between gangs, drug policies, policing, and citizens' action and protests in major cities of the hemisphere, such as in Argentina and Brazil. Drugs, policing, gangs, and violence as a symbolic and hot button issue in domestic politics, and the consequences for public policy and the character of the discourse about public policy.

**Credit Hours:** 3

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**PEA\_ST 2291: Artificial Intelligence Big Data: Social, Political, Ethical Issues**

This course will enable students to evaluate contrasting interpretations by leading thinkers about the development of information technologies, the internet, and robotics and artificial intelligence. Current debates will be covered; topics might include: views that social media are constraining the development of human relationships (Turkel); that commercialization of the internet reduces its function to attention getting (Wu); that automation degrades the humanity of work (Carr) and restricts the pay for producing creative content (Lanier). On the other hand, the course

will consider arguments that human mind can be reverse reengineered to advance a new era of artificially intelligent machines (Kurzweil). Current theories of information technology and society will be grounded in the multidisciplinary thinking about mind, intelligence, art, and work.

**Credit Hours:** 3

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**PEA\_ST 2291W: Artificial Intelligence Big Data: Social, Political, Ethical Issues - Writing intensive**

This course will enable students to evaluate contrasting interpretations by leading thinkers about the development of information technologies, the internet, and robotics and artificial intelligence. Current debates will be covered; topics might include: views that social media are constraining the development of human relationships (Turkel); that commercialization of the internet reduces its function to attention getting (Wu); that automation degrades the humanity of work (Carr) and restricts the pay for producing creative content (Lanier). On the other hand, the course will consider arguments that human mind can be reverse reengineered to advance a new era of artificially intelligent machines (Kurzweil). Current theories of information technology and society will be grounded in the multidisciplinary thinking about mind, intelligence, art, and work.

**Credit Hours:** 3

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**PEA\_ST 2292: Internet Identities, and the Clash of Global Countercultures and Oppositional Cultures**

This course problematizes the development of individual and group identities on the internet and social media due to their multiple, global, shallow, shifting, segmented, and conflictual character. We emphasize a multidisciplinary examination of the internet presentation of diverse identities such as those of the 1960s counter-culture, the Christian right, militias, the alt-right, rural towns, terrorist cells, and life-style and sectarian political and religious groups. We will also examine the processes of publicity and celebrity in the creation of personal identities such as 'entrepreneur' (Bill Gates and Steve Jobs), 'geek', 'hacker,' and anonymous, and the development of internet technologies and personal identities in the context of commercialism and ideals such as freedom and rebellion. The intersection of personal, work, and professional identities will be considered. Sources will include autobiography, biography, and literature on such topics as diaspora, borders, Empire, and exile.

**Credit Hours:** 3

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**PEA\_ST 2293: Globalization, Identity and Citizenship**

(same as GEOG 2293, POL\_SC 2293). This course examines the forces of globalization that are transforming our world, and explores the various responses -- psychological, social and political -- that people have been making over the past fifty years. Part I examines globalization as an economic and geographical process, generating huge social consequences, with rapid growth, population movements, political change and a vast gap between global wealth and poverty. Part II focuses on the ways in which individuals are now seeking to find themselves in this globalizing world. Emphasis will be placed on the ways in which national identity, faith, gender and sexuality are emerging as key loci around which contemporary people (especially young people) are trying to forge new social identities for themselves. The course will conclude by examining the recently emerging (and highly contested) concept of 'global citizenship'. Graded on A-F basis only.

**Credit Hours:** 3

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**PEA\_ST 2293W: Globalization, Identity and Citizenship - Writing Intensive**

(same as GEOG 2293W, POL\_SC 2293W). This course examines the forces of globalization that are transforming our world, and explores the various responses -- psychological, social and political -- that people have been making over the past fifty years. Part I examines globalization as an economic and geographical process, generating huge social consequences, with rapid growth, population movements, political change and a vast gap between global wealth and poverty. Part II focuses on the ways in which individuals are now seeking to find themselves in this globalizing world. Emphasis will be placed on the ways in which national identity, faith, gender and sexuality are emerging as key loci around which contemporary people (especially young people) are trying to forge new social identities for themselves. The course will conclude by examining the recently emerging (and highly contested) concept of 'global citizenship'. Graded on A-F basis only.

**Credit Hours:** 3

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**PEA\_ST 2294: Public Health, Social Justice, Health Activism**

This course features a focus on (1) the literature on health and social justice movements and activism, and (2) community-based and local health problems and organizing, with a consideration of the relation between local community and the global. In a 'place matters' assignment, students will identify, collect, analyze, synthesize, and present relevant place-based data on factors influencing health. The concept of 'structural competency' underlies the approach of this course. Topics pursued might include: the water crisis in Flint, Michigan; women's health; racism and morbidity and mortality crisis; HIV/ AIDS activism; public health mobilization for immigrant rights; and health educators and ethical issues.

**Credit Hours:** 3

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**PEA\_ST 2294W: Public Health, Social Justice, Health Activism - Writing Intensive**

This course features a focus on (1) the literature on health and social justice movements and activism, and (2) community-based and local health problems and organizing, with a consideration of the relation between local community and the global. In a 'place matters' assignment, students will identify, collect, analyze, synthesize, and present relevant place-based data on factors influencing health. The concept of 'structural competency' underlies the approach of this course. Topics pursued might include: the water crisis in Flint, Michigan; women's health; racism and morbidity and mortality crisis; HIV/ AIDS activism; public health mobilization for immigrant rights; and health educators and ethical issues.

**Credit Hours:** 3

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**PEA\_ST 2320: Literature of Spanish Civil War**

(same as SPAN 2320). Study of the Spanish Civil War: History, Politics, Literature. May not be included in the area of concentration in Spanish.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PEA\_ST 2321: Germany in War and Peace: Division and Unity 1945-89**

This course will compare notions of war and peace in East (German Democratic Republic) and West Germany (Federal Republic of

Germany), 1945-1989. In particular, there are three main ways to think about war and peace: 1. Dealing with the Nazi past; 2. Dealing with the Cold War present; Negotiating violence and peace within various dissent and peace movements.

**Credit Hour:** 2-3

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**PEA\_ST 2322: Rise of Hitler: Politics and Society in Germany**

This course will examine the social climate of Germany that contributed to the rise of Hitler and the National Socialist Party, 1914-1933. The Nazis, in order to revise the last peace at Versailles and to construct a New Racial Order, organized a national community and planned and initiated a world war.

**Credit Hours:** 2

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**PEA\_ST 2410: Philosophies of War and Peace**

(same as PHIL 2410). Moral issues about the recourse to war by the nation and the individual's obligations to participate. The nature of peace, social and personal. Special attention to the Vietnam War and the nuclear age.

**Credit Hours:** 3

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**PEA\_ST 2410W: Philosophies of War and Peace - Writing Intensive**

(same as PHIL 2410). Moral issues about the recourse to war by the nation and the individual's obligations to participate. The nature of peace, social and personal. Special attention to the Vietnam War and the nuclear age.

**Credit Hours:** 3

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**PEA\_ST 2490: Introduction to Indigenous Literatures**

(Same as ENGLISH 2490). Introduces students to global indigenous literatures in English and translation. Graded on A-F basis only.

**Credit Hours:** 3

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**PEA\_ST 2550: Human Rights, Law, War and Peace**

Interdisciplinary exploration of how human rights, law, war and peace are connected through an analysis of various theories and contemporary examples, which may include issues regarding citizenship in the United States today, the regulation of economic markets in the U.S. today, state surveillance, the military industrial complex, the manner in which gender affects the experience of warfare and individuals.

**Credit Hours:** 3

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**PEA\_ST 2600: CAFO: Concentrated Animals, Deep Ecology**

Throughout the ages humans have toiled and tilled the land confirming their role as integral providers as well as graceful recipients of nature's bounty. The significant metamorphosis that this gentle and cautious stewardship of the earth has undergone, necessitates close scrutiny. This multi-disciplined humanities course will consider the prose of the human community as it intersects widespread industrialized animal production with its inevitable social, economic and environmental realities. Eco-Feminist readings and the Fine Arts with its theoretical underpinnings associated with a liberal arts aesthetic will invite a wider perspective.

**Credit Hours:** 3

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**PEA\_ST 2600W: CAFO: Concentrated Animals, Deep Ecology - Writing Intensive**

Throughout the ages humans have toiled and tilled the land confirming their role as integral providers as well as graceful recipients of nature's bounty. The significant metamorphosis that this gentle and cautious stewardship of the earth has undergone, necessitates close scrutiny. This multi-disciplined humanities course will consider the prose of the human community as it intersects widespread industrialized animal production with its inevitable social, economic and environmental realities. Eco-Feminist readings and the Fine Arts with its theoretical underpinnings associated with a liberal arts aesthetic will invite a wider perspective.

**Credit Hours:** 3

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**PEA\_ST 3003: Topics in Peace Studies - Behavioral Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent.

**Credit Hour:** 2-3

**Recommended:** sophomore standing

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**PEA\_ST 3005: Topics in Peace Studies - Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing

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**PEA\_ST 3005H: Topics in Peace Studies - Humanities - Honors**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing. Honors eligibility required

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**PEA\_ST 3140: Art of War and Peace**

Exploration of selected visual art pieces and consideration of humanistic concerns during times of war and peace from various perspectives including a peace studies perspective. Viewing and discussing art within varied selected historical and cultural contexts that generated the imagery. Includes visits to studios and galleries. May be repeated for credit.

**Credit Hour:** 2-3

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**PEA\_ST 3230H: Terrorism and Conflict Resolution - Honors**

Religious, ethnic, ideological movements; state and international reactions. Case studies from South America, Europe, Africa, Asia. Identifying problems, possible resolution. Dramatized thru discussions, documentaries, role-playing; short term paper, exams.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**PEA\_ST 3280: Internship in Peace Studies**

Students work in a peace-related agency or institution for 1 to 3 credit hours. Repeatable for maximum of 6 hours. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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**PEA\_ST 3330: Environmental Justice**

(same as SOCIOL 3330). Environmental justice refers to the ways in which the 'cost and benefits' of modern industrial society are distributed among social groups. This course is concerned with justice, not as an abstract concept, and inequality not in terms of numbers in a bank account. Social justice or inequality are lived, embodied experiences. An individual's likelihood of experiencing environmental harm is related to intersecting gender, race and class formations, among other things. Justice or inequality is not only embodied, it also happens in places--national and regional differences matter. In this course we will look at some of the extensive literature documenting the ways in which communities of color and poor communities are subject to disproportionate environmental risks. In addition, we will focus on gender as an important category in understanding environmental inequality. Graded on A-F basis only.

**Credit Hours:** 3

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**PEA\_ST 3350: Readings in Peace Studies**

Students may receive 1 to 3 credit hours for doing readings and research in a particular area of peace studies. At least one paper will be required. Repeatable for a maximum of 6 hours.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**PEA\_ST 3400: Fake News and Media Politics**

(same as SOCIOL 3400). In this course we study the political impact of the growing concentration of media ownership in the U.S. We develop critical thinking skills to identify 'fake news,' and types of media bias to compare U.S. media coverage of current issues with media in other parts of the world.

**Credit Hours:** 3

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**PEA\_ST 3400W: Fake News and Media Politics - Writing Intensive**

(same as SOCIOL 3400). In this course we study the political impact of the growing concentration of media ownership in the U.S. We develop critical thinking skills to identify 'fake news,' and types of media bias to compare U.S. media coverage of current issues with media in other parts of the world.

**Credit Hours:** 3

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**PEA\_ST 3401: Global Public Health and Health Care Systems**

(Same as HLTH\_SCI 3400). An introduction to public health in a global context, with an emphasis on understanding how disparities in socioeconomic status, differences in political and national health care systems and the work of international organizations impact health in communities around the world. Graded on A-F basis only.

**Credit Hours:** 3

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**PEA\_ST 3496: Digital Indigenous Studies**

(same as GEOG 3496). This course introduces students to Indigenous studies in a digital world. The course begins with study of Indigenous sovereignty and representation, and moves quickly to critical and theoretical readings in new media, tracing both the historical impact of digital technologies (such as GIS) on Native communities, and the

ways that both urban and rural Native communities have engaged in innovative digital projects that expand the way we understand information and storytelling in digital environments. The course materials will cover a wide range of platforms and audio-visual genres, from documentary, community video, and animation productions, to GIS, video games, and social media sites. Students will engage with both scholars and artists working with new media through a program of public lectures, classroom visits, and Skype interviews. All interview will be archived as podcasts from the course website. Students will write weekly short response papers and produce independent audio-visual projects over the course of the semester, with opportunities to revise their work leading up to substantial final projects. The course will also integrate community outreach into the curriculum through online participation of students from the Kiowa Kids, an Indigenous language immersion and storytelling program.

**Credit Hours:** 3

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**PEA\_ST 3496H: Digital Indigenous Studies - Honors**

(same as GEOG 3496H). This course introduces students to Indigenous studies in a digital world. The course begins with study of Indigenous sovereignty and representation, and moves quickly to critical and theoretical readings in new media, tracing both the historical impact of digital technologies (such as GIS) on Native communities, and the ways that both urban and rural Native communities have engaged in innovative digital projects that expand the way we understand information and storytelling in digital environments. The course materials will cover a wide range of platforms and audio-visual genres, from documentary, community video, and animation productions, to GIS, video games, and social media sites. Students will engage with both scholars and artists working with new media through a program of public lectures, classroom visits, and Skype interviews. All interview will be archived as podcasts from the course website. Students will write weekly short response papers and produce independent audio-visual projects over the course of the semester, with opportunities to revise their work leading up to substantial final projects. The course will also integrate community outreach into the curriculum through online participation of students from the Kiowa Kids, an Indigenous language immersion and storytelling program. Prerequisites: Honors eligibility required

**Credit Hours:** 3

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**PEA\_ST 3496W: Digital Indigenous Studies - Writing Intensive**

(same as GEOG 3496). This course introduces students to Indigenous studies in a digital world. The course begins with study of Indigenous sovereignty and representation, and moves quickly to critical and theoretical readings in new media, tracing both the historical impact of digital technologies (such as GIS) on Native communities, and the ways that both urban and rural Native communities have engaged in innovative digital projects that expand the way we understand information and storytelling in digital environments. The course materials will cover a wide range of platforms and audio-visual genres, from documentary, community video, and animation productions, to GIS, video games, and social media sites. Students will engage with both scholars and artists working with new media through a program of public lectures, classroom visits, and Skype interviews. All interview will be archived as podcasts from the course website. Students will write weekly short response papers and produce independent audio-visual projects over the course of the semester, with opportunities to revise their work leading up to substantial final projects. The course will also integrate community

outreach into the curriculum through online participation of students from the Kiowa Kids, an Indigenous language immersion and storytelling program.

**Credit Hours:** 3

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**PEA\_ST 3510: Think Global: Fundamentals of Globalization and Digital Technologies**

(same as JOURN 3510, GERMAN 3510, DST\_VS 3510, T\_A\_M 3010). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or instructor's consent

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**PEA\_ST 3510HW: Think Global: Fundamentals of Globalization and Digital Technologies - Honors - Writing Intensive**

(same as GERMAN 3510HW, T\_A\_M 3010HW, JOURN 3510HW, DST\_VS 3510HW). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing required and 2.75 GPA. Honors eligibility required

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**PEA\_ST 3510W: Think Global: Fundamentals of Globalization and Digital Technologies - Writing Intensive**

(same as JOURN 3510W, T\_A\_M 3010W, GERMAN 3510W, DST\_VS 3510W). This interdepartmental course serves as one of the core seminars for students pursuing the undergraduate Certificate in Digital Global Studies. The course focuses on the impact of technological change and globalization on cultures around the world from various interdisciplinary perspectives. The course is open to students in any discipline. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or instructor's consent

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**PEA\_ST 3520: Collective Behavior**

(same as SOCIOL 3520). Analysis of crowd behavior and related phenomena: rumors, disasters, fashions. Social responses to unclear, dangerous or unjust conditions. The dynamics of conflict, consensus and change.

**Credit Hours:** 3

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**PEA\_ST 3520W: Collective Behavior - Writing Intensive**

(same as SOCIOL 3520). Analysis of crowd behavior and related phenomena: rumors, disasters, fashions. Social responses to unclear, dangerous or unjust conditions. The dynamics of conflict, consensus and change.

**Credit Hours:** 3

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**PEA\_ST 3521: Group Decision Making Processes**

(same as COMMUN 3571). Procedures and techniques for interpersonal communication and decision making in small groups.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PEA\_ST 3522: New Media, Conflict and Control**

(same as SOCIOL 3522) This course will explore the increasing role of new media tools in conflict and surveillance. Examples from recent conflicts will illustrate how citizens and regimes use new media to communicate, report, mobilize, monitor, and/or control. Students will utilize new media as they research instances of democracy and control.

**Credit Hours:** 3

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**PEA\_ST 3600: Criminology**

(same as SOCIOL 3600). Sociology of law; constitutional, psychological, sociological theories of criminal behavior; process of criminal justice; treatment of corrections; control of crime.

**Credit Hours:** 3

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**PEA\_ST 3610: Ireland, 1100s to 1850**

(same as HIST 3610). Ireland, from Conquest to Famine: Ireland's history as the first British Colony, from the conquests of the 1100s and 1500s-1600s to the Irish rebellion of 1798 and the Great Famine and mass emigration of 1845-50.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PEA\_ST 3611: Ireland, 1850-1923**

(same as HIST 3611). Ireland, from Famine to Partition: Irish history from the Great Famine of 1845-50 to the revolutions of 1916-23 that brought partial independence from Britain but partitioned Ireland into two hostile and trouble states.

**Credit Hours:** 3

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**PEA\_ST 3612: Ireland, 1920-Present**

(same as HIST 3612). Ireland, from Partition to the Present: After surveying the conflicts that led to Irish revolution and partition in 1916-23, the course focuses on the development of post partition Ireland and Northern Ireland, and on the violence that has scarred Northern Ireland since the 1960s.

**Credit Hours:** 3

**Recommended:** HIST 3610 and/or HIST 3611

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**PEA\_ST 3780: World Political Geography**

(same as GEOG 3780). Geographic factors in the development of political boundaries traditions, and societal perspectives. Spatial patterns and geopolitical processes are explored in selected regions of the world.

**Credit Hours:** 3

**Prerequisites:** GEOG 1100 or GEOG 1200 or sophomore standing

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**PEA\_ST 3870: Social Revolution in Latin America**

(same as HIST 3870 and SOCIOL 3870). Twentieth century social revolutions in selected Latin American countries.

**Credit Hours:** 3

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**PEA\_ST 4003: Topics in Peace Studies - Behavioral Sciences**

Upperclass Topics. Subject may vary from semester to semester.

**Credit Hours:** 3

**Prerequisites:** junior standing required

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**PEA\_ST 4005: Topics in Peace Studies: Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent. Graded on A-F basis only.

**Credit Hour:** 2-6

**Recommended:** sophomore standing

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**PEA\_ST 4005H: Topics in Peace Studies: Humanities - Honors**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent. Graded on A-F basis only.

**Credit Hour:** 2-6

**Prerequisites:** Honors eligibility required

**Recommended:** sophomore standing

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**PEA\_ST 4005W: Topics in Peace Studies: Humanities - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated to a maximum of 6 hours with departmental consent. Graded on A-F basis only.

**Credit Hour:** 2-6

**Recommended:** sophomore standing

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**PEA\_ST 4080: American Foreign Policy from Colonial Times to 1898**

(same as HIST 4080, CNST\_DEM 4080; cross-leveled with HIST 7080, PEA\_ST 7080). This class probes the entwined development of the U.S. nation and empire, to the backdrop of accelerating structures of global economic integration, technological innovation, and the hardening of national, racial, and ideological formations.

**Credit Hours:** 3

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**PEA\_ST 4230: Women, Development and Globalization**

(same as SOCIOL 4230 and WGST 4230 and BL\_STU 4230; cross-leveled with SOCIOL 4230, WGST 7230, BL\_STU 7230). Examines the history and structure of 'development' discourse and practices. Stresses the interconnections and impact on women globally. Reviews women's strategies in defining and instituting programs to improve quality of life in communities.

**Credit Hours:** 3

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**PEA\_ST 4240: Theory and Practice of Theatre of the Oppressed**

(same as THEATR 4240; cross-leveled with PEA\_ST 7240, THEATR 7240). Theory and practice of Augusto Boal's liberatory interactive theatre process, including application of techniques of specific social issues.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PEA\_ST 4260: The Age of Ascendancy: U.S. Foreign Relations, 1945-Present**

(same as HIST 4260; cross-leveled with PEA\_ST 7260, HIST 7260). Surveys the Cold War in Europe and Asia, the Korean and Vietnam Wars, and Middle East policy.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PEA\_ST 4287: Empire: Intellectual History, Literature, and Society**

(same as REL\_ST 4287; cross-leveled with PEA\_ST 7287; REL\_ST 7287). Intellectuals and writers passionately debated the wisdom of colonies, free trade, and war as economies became increasingly global over the centuries. The proponents, critics, and interpreters of Empire will offer us rich examples of themes and theories in the culture of specific nations and eras. Intellectual life will be studied in the context of developments in social inequality, the culture of classes, media of communication, education, identities, transnational governance, and the nation-state. The course will be offered with different national and historical foci under different instructors, and may be repeated for credit with different instructors. Counts as the capstone experience for Peace Studies and is open to majors of other disciplines.

**Credit Hours:** 3

**Prerequisites:** junior standing

**Recommended:** senior standing

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**PEA\_ST 4288: Law and Society: Corporate and White Collar Crime and Malfeasance**

(cross-leveled with PEA\_ST 7288). Instances of corporate crime and ethical misconduct analyzed through major theories of the sociology of law including critical legal studies, Legal Realism, sociological jurisprudence, collective representation theory, state- corporate crime, rationalization of legal institutions/ critical theory, and post-structuralism. Cases to be analyzed might include mortgage lending fraud and malpractice, insider trading, pyramid schemes, the Erie Railroad scandals, and Enron, Worldcom, Tyco, and other instances in the hi tech collapse of 2001. Other topics: Corporate crime in the media and in novels and popular culture, appropriate sentencing, global corporate crime.

**Credit Hours:** 3

**Prerequisites:** at least junior standing

**Recommended:** senior standing, 3.0 or above GPA, interest in graduate school

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**PEA\_ST 4331: Nonproliferation Issues for Weapons of Mass Destruction**

(same as NU\_ENG 4331). Nonproliferation impact on technology and world events.

**Credit Hours:** 3

**Prerequisites:** junior or senior standing

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**PEA\_ST 4331W: Nonproliferation Issues for Weapons of Mass Destruction - Writing Intensive**

(same as NU\_ENG 4331). Nonproliferation impact on technology and world events.

**Credit Hours:** 3

**Prerequisites:** junior or senior standing required or instructor's consent

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**PEA\_ST 4410: Politics and War**

(same as POL\_SC 4410). Why do wars occur? The function of force and uses of a threat of force. Problems of national security strategy and arms control.

**Credit Hours:** 3

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**PEA\_ST 4520: Political Sociology**

(same as SOCIOL 4520). Social bases of power and politics, economic and political elites, the political economy of the advanced societies, sources of political conflict and change. MA core course.

**Credit Hours:** 3

**Recommended:** SOCIOL 3200, SOCIOL 3510, SOCIOL 3520, or SOCIOL 3700

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**PEA\_ST 4550: Gender and Human Rights in Cross Cultural Perspective**

(same as SOCIOL 4550 and WGST 4550; cross-leveled with WGST 7550, SOCIOL 7550, PEA\_ST 7550) This course focuses on the global discourse on human rights and gender, emphasizing cross-cultural theories. Course includes the meaning of rights, Western and nonwestern perspectives, feminist contributions, important substantive debates, violations, policymaking and activism.

**Credit Hours:** 3

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**PEA\_ST 4600: Political and Social Philosophy**

(same as PHIL 4600). Contemporary and/or historical theories of justice and the state. Utilitarianism, liberalism, libertarianism, Marxism, Communitarianism and feminism may be among the views covered.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent

**Recommended:** two courses in Philosophy

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**PEA\_ST 4810: Case Studies in an Inter/Multicultural World**

(same as GERMAN 4810, T\_A\_M 4810, DST\_VS 4805). This inter-departmental course examines the ways in which people across the globe are affected every day by an unprecedented array of linkages that defy geographic and political boundaries. Also serves as one of the seminars for the certificate in Digital Global Studies. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing; 2.75 GPA or instructor's consent

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**PEA\_ST 4970: Senior Thesis I**

Senior essay on a Peace Studies topic requiring major research.

**Credit Hours:** 3

**Prerequisites:** PEA\_ST 1050, senior standing, and instructor's consent

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**PEA\_ST 4980: Peace Studies Abroad - Social Sciences**

A study abroad experience organized by MU and led by MU faculty.

Provides students with interdisciplinary study in foreign cultures, career development, and global experience with issues such as war, domestic conflict, sustainable development, human rights, and nonviolent movements for peace and justice. May be repeated for credit.

**Credit Hour:** 3-6

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**PEA\_ST 7240: Theory and Practice of Theatre of the Oppressed**

(same as THEATR 7240; cross-leveled with PEA\_ST 4240, THEATR 4240). Theory and practice of Augusto Boal's liberatory interactive theatre process, including application of techniques of specific social issues.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PEA\_ST 7287: Empire: Intellectual History, Literature, and Society**

(same as REL\_ST 7287; cross-leveled with PEA\_ST 4287, REL\_ST 4287). Intellectuals and writers passionately debated the wisdom of colonies, free trade, and war as economies became increasingly global over the centuries. The proponents, critics, and interpreters of Empire will offer us rich examples of themes and theories in the culture of specific nations and eras. Intellectual life will be studied in the context of developments in social inequality, the culture of classes, media of communication, education, identities, transnational governance, and the nation-state. The course will be offered with different national and historical foci under different instructors, and may be repeated for credit with different instructors. Counts as the capstone experience for Peace Studies and is open to majors of other disciplines.

**Credit Hours:** 3

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**PEA\_ST 7288: Law and Society: Corporate and White Collar Crime and Malfeasance**

(cross-leveled with PEA\_ST 4288). Instances of corporate crime and ethical misconduct analyzed through major theories of the sociology of law including critical legal studies, Legal Realism, sociological jurisprudence, collective representation theory, state-corporate crime, rationalization of legal institutions/ critical theory, and post-structuralism. Cases to be analyzed might include mortgage lending fraud and malpractice, insider trading, pyramid schemes, the Erie Railroad scandals, and Enron, Worldcom, Tyco, and other instances in the hi tech collapse of 2001. Other topics: Corporate crime in the media and in novels and popular culture, appropriate sentencing, global corporate crime.

**Credit Hours:** 3

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**PEA\_ST 7550: Gender and Human Rights in Cross Cultural Perspective**

(same as SOCIOL 7550 and WGST 7550; cross-leveled with WGST 4550, SOCIOL 4550, PEA\_ST 4550). Focuses on the global discourse on human rights and gender, emphasizing cross-cultural theories. Course includes the meaning of human rights, western and nonwestern perspectives, feminist contributions, important substantive debates, violations, policymaking and activism.

**Credit Hours:** 3

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**PEA\_ST 7980: Peace Studies Abroad**

A study abroad experience organized by MU and led by MU faculty. Provides students with interdisciplinary study in foreign cultures, career development, and global experience with issues such as war, domestic conflict, sustainable development, human rights, and nonviolent movements for peace and justice. May be repeated for credit.

**Credit Hour:** 3-6

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## Personal Financial Planning (FINPLN)

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**FINPLN 1183: Financial Survival**

Examines financial management issues needed to survive the critical college years-credit/credit cards, budgeting/planning, financial aid, loans, common financial mistakes, debt management, setting financial goals, effective use of financial resources. Graded on S/U basis only.

**Credit Hour:** 1

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**FINPLN 2083: Financial Planning Careers**

This course will provide the student with a broad, general introduction to careers in financial planning. Through readings, introspection, discussions, and guest speakers, the student will develop an understanding of the field.

**Credit Hour:** 1

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**FINPLN 2183: Personal and Family Finance**

Individual and family finance, with particular emphasis on financial planning, savings, insurance, investments, taxes, use of credit, and financial aspects of housing. Math Reasoning Proficiency Course. Students who wish to pursue a Personal Financial Planning emphasis must earn a B- or better, in FINPLN 2183.

**Credit Hours:** 3

**Prerequisites:** MATH 1050 or MATH 1100 (or higher) with grade of C- or above

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**FINPLN 2183H: Personal and Family Finance - Honors**

Individual and family finance, with particular emphasis on financial planning, savings, insurance, investments, taxes, use of credit, and financial aspects of housing. Math Reasoning Proficiency Course. Students who wish to pursue a Personal Financial Planning emphasis must earn a B- or better, in FINPLN 2183.

**Credit Hours:** 3

**Prerequisites:** MATH 1050 or MATH 1100 (or higher) with grade of C- or above; Honors eligibility required

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**FINPLN 3282: Financial Counseling**

Practical course on client financial counseling. Course emphasizes client money issues including budgeting, credit, debt management, bankruptcy and other issues. Students also will learn counseling strategies and communication skills to motivate clients to change negative behaviors and/or adopt positive behaviors.

**Credit Hours:** 3

**Prerequisites or Corequisites:** FINPLN 2183 or instructor's consent

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**FINPLN 3283: Financial Planning: Computer Applications**

Development of expertise in analyzing and understanding family financial case situations. Applications include the use of leading financial planning software, as well as applications with spreadsheets.

**Credit Hours:** 3

**Prerequisites:** FINPLN 2183 with grade of C or above

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**FINPLN 4000: Problems in Personal Financial Planning**

Supervised and independent work.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**FINPLN 4187: Tax Planning**

(cross-leveled with FINPLN 7187). Principles, current law and practice of income taxation and its impact on personal financial planning for individuals, couples and families in their roles as investors, employees, and business owners. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FINPLN 2183; FINPLN 3283 or ACCTCY 2258.

Restricted to Personal Financial Planning emphasis area with a 2.5 cumulative gpa or higher; restricted to Personal Financial Management Services emphasis area with a 2.0 cumulative gpa or higher; restricted to Financial Counseling emphasis area with a 2.25 cumulative gpa; or instructor consent

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**FINPLN 4188: Community Agencies and Volunteerism**

Service learning in a non-profit community social support agency. Examines economic role of non-profits and volunteerism. Students engage in service and evaluate experience in seminar. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FINPLN 4187 or FINPLN 7187. Restricted to Personal Financial Planning majors or instructor's consent

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**FINPLN 4380: Assessing the American Dream**

A systems perspective examining ways choice and culture shape American levels and standards of living. The impact of trends in personal and family values, technology, the economy, mass media and social movements on household resource management.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

**Recommended:** junior standing

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**FINPLN 4380W: Assessing the American Dream - Writing Intensive**

(cross-leveled with FINPLN 7380). A systems perspective examining ways choice and culture shape American levels and standards of living. The impact of trends in personal and family values, technology, the economy, mass media and social movements on household resource management.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

**Recommended:** junior standing

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**FINPLN 4381: Securities Industry Essentials**

(cross-leveled with FINPLN 7381). The Securities Industry Essentials (SIE) curriculum will prepare students for the Financial Industry Regulatory Authority (FINRA) SIE exam increasing their chances for career placement in the financial services industry upon graduation. Additionally, this course will explore current trends and techniques for financial advisor marketing and prospect/client management. Taught in a blended format, students will attend class 1 hour per week for 15 weeks. This course is open to any MU student in any degree program with a desire to enter the financial services industry. Graded on A-F basis only.

**Credit Hour:** 1

**Recommended:** Recommended for upper level students preparing for graduation and entering the financial services career field. Prior financial investment education is not required but recommended

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**FINPLN 4382: Financial Planning: Risk Management**

(cross-leveled with FINPLN 7382). Analysis of family financial risks and conservation of family assets via risk management, with primary focus on personal lines of insurance.

**Credit Hours:** 3

**Prerequisites:** FINPLN 2183; FINPLN 3283 or ACCTCY 2258; ECONOM 1014 or ABM 1041; ECONOM 1015 or ABM 1042; STAT 2500 or STAT 1300 and STAT 2200 or STAT 1400 and STAT 2200 or STAT 1200 and STAT 2200. Restricted to Personal Financial Planning emphasis area with a 2.5 cumulative gpa or higher; restricted to Personal Financial Management Services emphasis area with a 2.0 cumulative gpa or higher; restricted to Financial Counseling emphasis area with a 2.25 cumulative gpa; or instructor consent

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**FINPLN 4383: Financial Planning: Investment Management**

(cross-leveled with FINPLN 7383). Introduction to investment for family financial planning.

**Credit Hours:** 3

**Prerequisites or Corequisites:** ECONOM 3229  
**Prerequisites:** FINPLN 2183; FINPLN 3283 or ACCTCY 2258; STAT 2500 or STAT 1300 and STAT 2200 or STAT 1400 and STAT 2200 or STAT 1200 and STAT 2200. Restricted to Personal Financial Planning emphasis area with a 2.5 cumulative gpa or higher; restricted to Personal Financial Management Services emphasis area with a 2.0 cumulative gpa or higher; restricted to Financial Counseling emphasis area with a 2.25 cumulative gpa; or instructor consent

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**FINPLN 4386: Financial Planning: Employee Benefits and Retirement Planning**

(cross-leveled with FINPLN 7386). Fundamentals of employee benefits and retirement planning. Consideration of options via government, employer, financial markets. Special circumstances of women, part-time, and contingent workers considered. Restricted to Personal Financial Planning majors: Personal Financial Planning, Personal Financial Management Services, and Financial Counseling or instructor consent.

**Credit Hours:** 3

**Prerequisites:** FINPLN 4187 and FINPLN 4382 and FINPLN 4383

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**FINPLN 4387: Consumer and Household Economics**

Economic theory of consumer and household behavior, focusing on rationality, uncertainty, optimal search, heuristics, interactive decisions

and considering implications for financial decision making and policy analysis.

**Credit Hours:** 3

**Prerequisites:** ECONOM 1014 or ABM 1041; STAT 2500 or STAT 1300 and STAT 2200 or STAT 1400 and STAT 2200 or STAT 1200 and STAT 2200

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**FINPLN 4389: Financial Planning: Capstone**

The course emphasizes the use of analytical tools to develop effective financial plans for individuals and households.

**Credit Hours:** 3

**Prerequisites:** FINPLN 4187 and FINPLN 4382 and FINPLN 4383 and FINPLN 4386 and FINPLN 4393. Restricted to Personal Financial Planning majors or instructor's consent

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**FINPLN 4393: Financial Planning: Estate and Gift Planning**

Fundamentals, practical problems and solutions in basic estate and gift planning, business succession planning, and taxation issues.

**Credit Hours:** 3

**Prerequisites:** FINPLN 4187 and FINPLN 4382 and FINPLN 4383 or instructor's consent. Not available to Pre-Personal Financial Planning majors

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**FINPLN 4418: Topics in Personal Financial Planning**

Selected current topics in field of interest.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**FINPLN 4483: Financial Success**

Examines financial management issues needed to survive the critical post-college years - managing educational debt; after-school budgeting; auto, health, and other forms of insurance; retirement planning and other investment issues; setting financial goals; effective use of financial resources. Graded on S/U basis only.

**Credit Hour:** 1

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**FINPLN 4992: Readings in Personal Financial Planning**

Selected readings in field of interest.

**Credit Hour:** 1-12

**Prerequisites:** Instructor's consent

**Recommended:** 2-3 hours in Personal Financial Planning

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**FINPLN 4993: Internship in Personal Financial Planning**

Enrollment in a major in the Department of Personal Financial Planning - Financial Planning (PFP), Personal Financial Management Services (PFMS), or Financial Counseling (FC). An exception may be made for those with a minor in PFMS or who obtain permission from the Department.

**Credit Hour:** 1-99

**Prerequisites:** Instructor consent required. Enrollment in a major in the Department of Personal Financial Planning - Financial Planning (PFP), Personal Financial Management Services (PFMS), or Financial Counseling (FC). An exception may be made for those with a minor in PFMS or who obtain consent from the Department

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**FINPLN 7000: Problems in Personal Financial Planning**

Prerequisites: Restricted to Personal Financial Planning Majors Only.

**Credit Hour:** 1-99

**Prerequisites:** 4000-level course in field of problem and instructor's consent

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**FINPLN 7001: Topics in Household Economics and Finance**

Selected current topics in field of interest.

**Credit Hour:** 1-99

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**FINPLN 7183: Fundamentals of Personal Financial Planning**

Issues and concepts related to the financial planning process, including determination of financial goals and expectations and analysis and evaluation of personal and family financial data with emphasis on savings, insurance, investments, taxes, credit and financial aspects of housing.

**Credit Hours:** 3

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**FINPLN 7187: Financial Planning: Tax Planning**

(cross-leveled with FINPLN 4187). Principles, current law and practice of income taxation and its impact on personal financial planning for individuals, couples and families in their roles as investors, employees, and business owners. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FINPLN 2183; FINPLN 3283 or ACCTCY 2258 or equivalent or instructor's consent

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**FINPLN 7282: Advanced Financial Counseling**

Students will learn client-centered financial counseling. Includes development of interviewing techniques, focus on personality strengths and weaknesses, creation of the sales process, and the role of technology in counseling. Graded on A-F basis only.

**Credit Hours:** 3

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**FINPLN 7380: Assessing the American Dream**

(cross-leveled with FINPLN 4380). A systems perspective examining ways choice and culture shape American levels and standards of living. The impact of trends in personal and family values, technology the economy, mass media and social movements on household resource management.

**Credit Hours:** 3

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**FINPLN 7381: Securities Industry Essentials**

(cross-leveled with FINPLN 4381). The Securities Industry Essentials (SIE) curriculum will prepare students for the Financial Industry Regulatory Authority (FINRA) SIE exam increasing their chances for career placement in the financial services industry upon graduation. Additionally, this course will explore current trends and techniques for financial advisor marketing and prospect/client management. Taught in a blended format, students will attend class 1 hour per week for 15 weeks. This course is open to any MU student in any degree program with a desire to enter the financial services industry. Graded on A-F basis only.

**Credit Hour:** 1

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**Recommended:** Recommended for students preparing for graduation and entering the financial services career field. Prior financial investment education is not required but recommended

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**FINPLN 7382: Financial Planning: Risk Management**

(cross-leveled with FINPLN 4382). Analysis of family financial risks and conservation of family assets via risk management, with primary focus on personal lines of insurance.

**Credit Hours:** 3

**Prerequisites:** FINPLN 3283 or ACCTCY 2258; ECONOM 1014 or ABM 1041; ECONOM 1015 or ABM 1042; STAT 2500 or STAT 1300 and STAT 2200 or STAT 1400 and STAT 2200 or STAT 1200 and STAT 2200

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**FINPLN 7383: Financial Planning: Investment Management**

(cross-leveled with FINPLN 4383). Management of family financial investments.

**Credit Hours:** 3

**Prerequisites or Corequisites:** ECONOM 3229

**Prerequisites:** FINPLN 2183; FINPLN 3283 or ACCTCY 2258; STAT 2500 or STAT 1300 and STAT 2200 or STAT 1400 and STAT 2200 or STAT 1200 and STAT 2200. Restricted to Personal Financial Planning emphasis area with a 2.5 cumulative gpa or higher; restricted to Personal Financial Management Services emphasis area with a 2.0 cumulative gpa or higher; restricted to Financial Counseling emphasis area with a 2.25 cumulative gpa; or instructor consent

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**FINPLN 7386: Financial Planning: Employee Benefits and Retirement Planning**

(cross-leveled with FINPLN 4386). Fundamentals of employee benefits and retirement planning. Consideration of options via government, employer, financial markets. Special circumstances of women, part-time, and contingent workers considered.

**Credit Hours:** 3

**Prerequisites:** FINPLN 4382, FINPLN 4383, or instructor's consent

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**FINPLN 7387: Consumer and Household Economics II**

(cross-leveled with FINPLN 4387). Economic theory of consumer and household behavior, focusing on rationality, uncertainty, optimal search, heuristics, interactive decisions and considering implications for financial decision making and policy analysis.

**Credit Hours:** 3

**Prerequisites:** ECONOM 4351 or equivalent

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**FINPLN 7389: Financial Planning: Capstone**

The course emphasizes the use of analytical tools to develop effective financial plans for individuals and households.

**Credit Hours:** 3

**Prerequisites:** FINPLN 4187, FINPLN 4382, FINPLN 4383 or instructor's consent. Not available to Pre-Personal Financial Planning majors

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**FINPLN 7393: Financial Planning: Estate and Gift Planning**

Fundamentals, practical problems and solutions in basic estate and gift planning, business succession planning, and taxation issues.

**Credit Hours:** 3

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**Prerequisites:** FINPLN 4382 and FINPLN 4382

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**FINPLN 7960: Readings in Household Economics and Finance**

Readings in recent research in household economics and finance.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**FINPLN 7993: Internship in Personal Financial Planning**

Internship in Personal Financial Planning.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent; Restricted to Personal Financial Planning Majors Only

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**FINPLN 8001: Topics in Personal Financial Planning**

Selected current topics in field of interest.

**Credit Hour:** 1-99

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**FINPLN 8085: Problems in Household Economics and Finance**

Supervised independent work related to household economics and finance.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**FINPLN 8087: Seminar in Household Economics and Finance**

Report and discussion of recent research and practice in household economics and finance.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**FINPLN 8090: Master's Thesis Research in Personal Financial Planning**

Independent research leading to thesis or dissertation. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**FINPLN 8183: Military Personal Financial Readiness**

Financial planning process applied to military personnel and their families. Focus on service member status; financial readiness; record-keeping; management of cash flow, risk, credit and debt, savings, investments, tax, savings; education planning, retirement and estate planning. Graded on A-F basis only.

**Credit Hours:** 3

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**FINPLN 8187: Professional Practices in Financial Planning**

Practice management techniques for Financial Planners. Graded on A-F basis only.

**Credit Hours:** 3

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**FINPLN 8380: Family Systems**

Exploration of the family as a system within the broader context of society.

**Credit Hours:** 3

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**FINPLN 8381: Theories and Research in Personal Financial Planning I**

Course introduces students to the social science of family finances. Course covers the theories of family functioning, microeconomic theory related to family resource allocation decisions, the family as an economic unit, and the interaction of families and the economy. Graded on A-F basis only.

**Credit Hours:** 3

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**FINPLN 8382: Theories and Research in Personal Financial Planning II**

Course reviews theories and empirical research in household financial decision-making, drawing from macroeconomic theory, theories of household behavior, lifecycle hypothesis, behavioral economics and finance, theories of behavioral change and psychological theories of family well-being. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** FINPLN 8381

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**FINPLN 8385: Housing and Real Estate**

The study of real estate as a component to household wealth. Graded on A-F basis only.

**Credit Hours:** 3

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**FINPLN 8389: Financial Planning Case Studies**

The analysis and development of appropriate presentations for effective financial plans.

**Credit Hours:** 3

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**FINPLN 8450: Applied Research in Household Economics and Planning**

Independent research not leading to a thesis. Report required. For students completing Master's in Personal Financial Planning.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**FINPLN 8483: Family Economics**

Multidisciplinary study of research on families as economic units. Examines trends in family income, wealth, labor market participation, household production, distribution of household resources, use of public goods, and underground economy.

**Credit Hours:** 3

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**FINPLN 8485: Human Resource Development and Allocation**

Economic analysis of conditions, programs and policies related to development and use of human resources, with special reference to impact on families and households.

**Credit Hours:** 3

**Prerequisites:** FINPLN 4387 or instructor's consent

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**FINPLN 8488: Household Financial Decision Making**

This course provides a solid foundation for critical thinking and research on household financial decision making. A selective but extensive review

of normative and descriptive theories and empirical studies pertinent to household financial decision making is provided. The focus is on developing a critical perspective in students that enables them to identify opportunities to advanced theory toward relevant applications through research on household financial decision making.

**Credit Hours:** 3

**Prerequisites:** instructor's consent. A knowledge of intermediate micro economics, introductory statistics, and introductory differential calculus is assumed

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#### **FINPLN 8500: Personal Financial Planning Capstone**

Independent work on project approved by major advisor and CFP (R) Program Director. For students completing Master's in Personal Financial Planning. May be repeated for credit.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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#### **FINPLN 9090: Doctoral Dissertation Research in Personal Financial Planning**

Independent research leading to thesis or dissertation. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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## **Philosophy (PHIL)**

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#### **PHIL 1000: The Big Questions: An Introduction to Philosophy**

Introduction to traditional philosophical problems and methods of philosophical inquiry. Consideration given to different philosophical theories on the nature of reality, human beings, nature and God; knowledge and how it is acquired; values and social issues.

**Credit Hours:** 3

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#### **PHIL 1000H: The Big Questions: An Introduction to Philosophy - Honors**

Introduction to traditional philosophical problems and methods of philosophical inquiry. Consideration given to different philosophical theories on the nature of reality, human beings, nature and God; knowledge and how it is acquired; values and social issues.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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#### **PHIL 1100: The Difference Between Right and Wrong: An Introduction to Ethics**

Introduction to different philosophical theories regarding when acts are morally right rather than wrong; when things are good rather than bad; nature of the 'good life', nature of ethical reasoning and justification.

**Credit Hours:** 3

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#### **PHIL 1100H: The Difference Between Right and Wrong: An Introduction to Ethics - Honors**

Introduction to different philosophical theories regarding when acts are morally right rather than wrong; when things are good rather than bad; nature of the 'good life', nature of ethical reasoning and justification.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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#### **PHIL 1150: Introductory Bioethics**

This course approaches moral problems in biomedical and scientific research from a philosophical perspective. First, we'll familiarize ourselves with ethics and political philosophy. Then we'll study the ethical issues that arise in connection with a series of issues, including research involving human and animal subjects, eugenics, the human genome project, cloning and stem cell research. By thinking about these issues, we learn how to think critically about particular moral quandaries, as well as to uncover and examine some of our deepest moral commitments.

**Credit Hours:** 3

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#### **PHIL 1159: Blind Spots**

The human mind is systematically biased towards illusion, distortion, and error. Failing to recognize one's own biases, moreover, is a bias in itself - the so-called Blind Spot Bias. PHIL 1159 is an online philosophy course that will provide a comprehensive introduction to cognitive biases, and to the skills that can be used to identify and negotiate their influences on patterns of cognition and behavior. The course will be structured around case studies of particular biases, such as confirmation bias, probability neglect, and overconfidence. The course will employ a variety of instructional materials including popular science articles, essays written by philosophers and psychologists, and video lectures by the instructors and by other researchers. Assignments include discussion board posts, a few short essays, and the creation of argument maps using MindMup, a free, web-based platform developed by researchers at Princeton University. Graded on A-F basis only.

**Credit Hours:** 3

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#### **PHIL 1200: How to Think: Logic and Reasoning for Everyday Life**

Methods of analyzing and evaluating arguments of all types. Uses both informal and formal techniques. Identifies informal fallacies and introduces elementary symbolic logic.

**Credit Hours:** 3

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#### **PHIL 1200H: How to Think: Logic and Reasoning for Everyday Life - Honors**

Methods of analyzing and evaluating arguments of all types. Uses both informal and formal techniques. Identifies informal fallacies and introduces elementary symbolic logic.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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#### **PHIL 2005: Topics in Philosophy-Humanities**

Organized study of philosophical issues to which no regular course is devoted. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

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#### **PHIL 2010: The Philosophy of Film**

(same as FILMS\_VS 2010). Philosophical problems having to do with film. Topic may include the nature of films, the differences between fiction and documentary film, ethical issues with film and filmmaking.

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**Credit Hours:** 3

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**PHIL 2100: Philosophy: East and West**

(same as S\_A\_ST 2100). Compares the interpretation and role of philosophical concepts such as experience, reason, permanence, change, immortality, soul, God, etc., in Indian, Chinese and European traditions.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PHIL 2150: Philosophy of Race**

This course surveys developments in the philosophy of race. We will examine the ordinary conception of race and consider criticisms of it. Theorists in the field generally hold the ordinary notion of race in disrepute. The line of inquiry then becomes 'What does 'race' denote?' and 'Why'? In response, we will disambiguate race from closely associated concepts such as ethnicity, culture, nation, and class as part of a sustained investigation into the relationship between race and racism. Toward the end of the course, we will more directly reflect on implications of the inequality that race seems to track with a focus on mass incarceration and reparations. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** PHIL 1000, PHIL 1100, or PHIL 1200

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**PHIL 2200: Philosophy and Intellectual Revolution**

Examines such revolutions as the Copernican, Darwinian, Marxian and Freudian. What are the new views? How is our place in the universe affected? What puzzles arise in replacing old by new views?

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PHIL 2300: Philosophy and Human Nature**

Philosophical exploration and examination of theories of human nature with reference to relevant developments in such sciences as biology, psychology, and economics.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PHIL 2350: The Meaning of Life**

Does life have meaning, or is it essentially meaningless, absurd? This course will examine some of answers philosophers have given to this and related questions.

**Credit Hours:** 3

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**PHIL 2400: Ethics and the Professions**

Examination of ethical issues confronted by members of different professions such as medicine, law, business, journalism and engineering.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PHIL 2410: Philosophies of War and Peace**

(same as PEA\_ST 2410). Moral issues about the recourse to war by the nation and the individual's obligations to participate. The nature of peace, social and personal. Special attention to the Vietnam War and the nuclear age.

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**Credit Hours:** 3

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**PHIL 2410W: Philosophies of War and Peace - Writing Intensive**

(same as PEA\_ST 2410W). Moral issues about the recourse to war by the nation and the individual's obligations to participate. The nature of peace, social and personal. Special attention to the Vietnam War and the nuclear age.

**Credit Hours:** 3

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**PHIL 2420: Ethical Issues in Business**

Major theories of moral obligation and justice and their application to business practices. Corporate responsibility, government regulation, investment and production, advertisement, the environment, preferential hiring, etc. through case studies, legal opinions and philosophical analysis.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PHIL 2430: Contemporary Moral Issues**

Review of the major contemporary ethical theories and their contribution to the resolution of major social issues such as euthanasia, suicide, abortion, capital punishment, violence and war. Emphasis on nature, interests, and rights of persons. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PHIL 2440: Medical Ethics**

Considers moral issues posed by developments in biological sciences and medical technology. Topics may include: genetic engineering, abortion and euthanasia, distribution of health care.

**Credit Hours:** 3

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**PHIL 2500: Philosophy and Gender**

(same as WGST 2500). A critical examination of central ideas and themes in feminist philosophical thought. Topics may include: sex, marriage, parenthood, reproduction, body image, pornography, prostitution.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PHIL 2500H: Philosophy and Gender - Honors**

A critical examination of central ideas and themes in feminist philosophical thought. Topics may include: sex, marriage, parenthood, reproduction, body image, pornography, prostitution.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**PHIL 2600: Rational Decisions**

Principles for making decisions in a rational way. Special attention to principles that use probabilities and utilities. Some discussion of decisions made in conjunction with other people, and decisions made for other people. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and grade of C or better in MATH 1050, MATH 1100, MATH 1160, MATH 1400, or MATH 1500

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**PHIL 2700: Elementary Logic**

(same as LINGST 2700). Introduces a symbolic language for representing the structure of arguments. Presents precise rules for demonstrating the validity of arguments. Covers natural deduction for sentence and predicate logic. Develops skill in constructing derivations. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and grade of C or better in MATH 1050, MATH 1100, MATH 1160, MATH 1400, or MATH 1500

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**PHIL 2820: Minds, Brains, and Machines**

(same as PSYCH 2820 and LINGST 2820). Cognitive science is a many-splendored thing. It draws on a variety of disciplines, including psychology, neuroscience, computer science, linguistics, anthropology, and philosophy. The purpose of this course is to introduce the central questions of cognitive science, the conceptual and empirical tools used to investigate those questions, and some of the answers that have emerged so far. After an initial overview of the foundations of the cognitive-scientific enterprise as a whole, we will see what particular sectors of it have to say about mental capacities such as language, categorization, reasoning, social cognition, and consciousness.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** PSYCH 1000

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**PHIL 2850: Minds and Morals: An Introduction to Moral Psychology**

Moral psychology is the interdisciplinary study of how we reason and act morally. This course is a systematic introduction to the field, drawing on research from both psychology and philosophy. Topics include competing theories of moral judgment, the situationist challenge to virtue ethics, and the role of deliberation in moral agency.

**Credit Hours:** 3

**Recommended:** PHIL 1100, PHIL 2820

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**PHIL 2900: Environmental Ethics**

Environmental Ethics explores the ethical, ecological, and policy dimensions of a range of issues such as climate change, land and natural resource management, sustainability, animal rights, hunting and fishing, ecofeminism, property rights, and environmental justice. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** PHIL 1100

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**PHIL 3000: Ancient Western Philosophy**

(same as AMS 3025). Philosophical thought on nature, knowledge, the gods, human life and society, from Thales to Augustine. Emphasis on Plato and Aristotle. The relevance of the ancients to contemporary life.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 3100: Medieval Philosophy**

Major thinkers from St. Augustine through 14th century Ockhamists.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 3200: Modern Philosophy**

Surveys critical and speculative thinking of modern period from Descartes to Kant in relation to scientific, religious and social movements.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 3200W: Modern Philosophy - Writing Intensive**

Surveys critical and speculative thinking of modern period from Descartes to Kant in relation to scientific, religious and social movements.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 3400: 19th Century Philosophy**

A careful and sympathetic study of some of the major thinkers of this period, notably Kierkegaard and Nietzsche.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 3500: Existentialism**

The nature of human existence, the meaning of life, the relation of the individual to nature, society, and any gods that may be, according to Kierkegaard, Nietzsche, Heidegger, Sartre, de Beauvoir, Camus and others. Students are encouraged to come to grips with the issues in relation to their own lives.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 3600: 20th Century Philosophy**

The course will be a survey of some of the notable philosophers/thinkers whose contributions have been made in the twentieth century.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 3700: Selected Modern Philosophers**

Advanced study of a particular philosopher or a number of philosophers from the same school in the modern period. May be taken twice for credit with permission of the department.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 3800: Selected Contemporary Philosophers**

Advanced study of a particular contemporary philosopher or philosophers. May be taken twice for credit with permission of the department.



**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 4001: Topics in Philosophy-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing and two courses in Philosophy, or instructor's consent; departmental consent for repetition

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**PHIL 4005: Topics in Philosophy-Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent for repetition.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing

**Recommended:** two courses in Philosophy, or instructor's consent

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**PHIL 4100: Philosophy of Language**

(same as LINGST 4100; cross-leveled with PHIL 7100, LINGST 7100). Examination of contemporary views of the relationship between language, minds, and the world.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and PHIL 2700

**Recommended:** one other course in Philosophy

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**PHIL 4110: Advanced Logic**

(same as LINGST 4110; cross-leveled with PHIL 7110, LINGST 7110). Presents the method of truth trees for sentence and predicate logic. Examines proofs concerning the decidability, soundness, and completeness of formal systems. Emphasizes the theory of formal systems. Math Reasoning Proficiency Course.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and PHIL 2700

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**PHIL 4120: Selected Topics in Logic**

(cross-leveled with PHIL 7120). Possible topics include elementary set theory and modal logic, the logic of possibility and necessity.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and either PHIL 2700 or PHIL 4110

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**PHIL 4130: Probability and Induction**

(cross-leveled with PHIL 7130). This course studies probability, its various interpretations, and its basic principles. It identifies forms of reasoning that establish the probability of a conclusion. The methods of reasoning it treats are at the heart of science and practical affairs.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and PHIL 2700

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**PHIL 4150: Formal Semantics**

(cross-leveled with PHIL 7150). The course provides a systematic introduction to the semantics of natural languages, using the tools of formal logic. Prerequisites: Sophomore standing and one of the following classes: PHIL 2700, PHIL 4110, or ENGLSH 4640.

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**Credit Hours:** 3

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**PHIL 4200: Metaphysics**

Metaphysics studies what there is and how things are, most generally speaking. Topics may include realism versus nominalism, substance and attribute, facts, modality, identity and causality.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** Previous work in PHIL 1000, PHIL 3000 or PHIL 3200

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**PHIL 4210: Philosophy of Mind**

(cross-leveled with PHIL 7210). Considers theories and arguments in contemporary philosophy of mind, focusing on the nature of mental states, their relation to brain states and the plausibility of various materialist theories of the mind.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** two Philosophy courses

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**PHIL 4220: Philosophy of Religion**

(cross-leveled with PHIL 4210). Considers basis for and nature of religious beliefs.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** One course in Philosophy

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**PHIL 4300: Epistemology**

(cross-leveled with PHIL 7300). An examination of contemporary philosophical theories concerning the nature, sources and limits of knowledge and justified belief.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** Previous work in PHIL 1000, PHIL 3000, PHIL 3200

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**PHIL 4400: Philosophy of Science**

(cross-leveled with PHIL 7400). Why believe the scientific world-view? What, if anything, is the scientific method? Are today's theories really superior to past theories? Examines contemporary philosophical answers to such questions.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** two courses in Philosophy

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**PHIL 4410: Philosophy of History**

(cross-leveled with PHIL 7210). Readings from classic and contemporary philosophers of history. Problems about nature and limits of historical knowledge; relation between history and other disciplines; the existence, nature, and kinds of historical laws.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** two courses in Philosophy

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**PHIL 4420: Philosophy of Biology**

A survey of philosophical problems arising from consideration of evolutionary theory and the biological sciences. Topics may include

reductionism, sociobiology, biological laws, and epistemic problems relating to evolutionary theory.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** two courses in Philosophy

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**PHIL 4500: Theories of Ethics**

(cross-leveled with PHIL 7500). Normative and meta-ethical theories. Topics may include the rationality and objectivity of morality, the meaning of moral language, the differences between deontological, utilitarian and virtue theories.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** two courses in Philosophy

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**PHIL 4600: Political and Social Philosophy**

(same as PEA\_ST 4600; cross-leveled with PHIL 4210). Contemporary and/or historical theories of justice and the state. Utilitarianism, Liberalism, Libertarianism, Marxism, Communitarianism and Feminism may be among the views covered.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** two courses in Philosophy

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**PHIL 4610: Philosophy of Law**

(cross-leveled with PHIL 7610). What is law? Are there pre- or trans-legal rights? Is punishment justifiable? How can judicial decisions be justified? What are the relations between law and morality?

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 4620: Marxism**

(cross-leveled with PHIL 7620). A philosophical examination of (a) the notion of critique as seen in Marx's early and middle writings, and (b) specific topics by such authors as Lenin, Lukacs and Plekhanov.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing

**Recommended:** two courses in Philosophy

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**PHIL 4700: Aesthetics**

(cross-leveled with PHIL 7700). Typical components of art; theories of art as representation, form, expression; relation of art to value.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 4700W: Aesthetics-Writing Intensive**

(cross-leveled with PHIL 7700). Typical components of art; theories of art as representation, form, expression; relation of art to value.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 4800: Asian Philosophy**

(same as S\_A\_ST 4800; cross-leveled with PHIL 7800). This course traces the origins of Indian and Chinese philosophical world views. Included are the major ideas in Hindu, Jaina, and Buddhist thought in India, and Taoism and Confucianism in China. Emphasis is placed on the diverse, assimilative, and pragmatic nature of Indian thought and its impact on contemporary Asian philosophy.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 4810: Philosophy of India**

(same as S\_A\_ST 4810; cross-leveled with PHIL 7810). General development of Indian philosophy.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

**Recommended:** one course in Philosophy

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**PHIL 4850: Special Readings in Philosophy**

Regular individual meetings with an instructor as part of studying a sequence of readings, comparable in difficulty and number to readings assigned in a regularly-offered 4000-level course. Only by special arrangement with an instructor.

**Credit Hour:** 1-3

**Prerequisites:** junior standing

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**PHIL 4950: Senior Seminar in Philosophy**

A capstone course required of and only open to senior Philosophy majors. Course content will vary, depending on the professor teaching the course.

**Credit Hours:** 3

**Prerequisites:** senior Philosophy major

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**PHIL 4950W: Senior Seminar in Philosophy - Writing Intensive**

A capstone course required of and only open to senior Philosophy majors. Course content will vary, depending on the professor teaching the course.

**Credit Hours:** 3

**Prerequisites:** senior Philosophy major

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**PHIL 4998: Honors I in Philosophy**

Special work for Honors candidates.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**PHIL 4999: Honors II in Philosophy**

Special work for Honors candidates.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**PHIL 7100: Philosophy of Language**

(same as LINGST 7100; cross-leveled with PHIL 4100, LINGST 4100). Examination of contemporary views of the relationship between language, minds, and the world.

**Credit Hours:** 3

**Prerequisites:** PHIL 2700 or instructor's consent

**Recommended:** Some work in PHIL 1000, PHIL 3000 or PHIL 3200

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**PHIL 7110: Advanced Logic**

(same as LINGST 7110; cross-leveled with PHIL 4110, LINGST 4110). Presents the method of truth trees for sentence and predicate logic. Examines proofs concerning the decidability, soundness, and completeness of formal systems. Emphasizes the theory of formal systems.

**Credit Hours:** 3

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**PHIL 7120: Selected Topics in Logic**

(cross-leveled with PHIL 4120). Possible topics include elementary set theory and modal logic, the logic of possibility and necessity.

**Credit Hours:** 3

**Prerequisites:** PHIL 2700 or PHIL 7110

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**PHIL 7130: Probability and Induction**

(cross-leveled with PHIL 4130). This course studies probability, its various interpretations, and its basic principles. It identifies forms of reasoning that establish the probability of a conclusion. The methods of reasoning it treats are at the heart of science and practical affairs. Prerequisites: PHIL 2700

**Credit Hours:** 3

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**PHIL 7150: Formal Semantics**

(cross-leveled with PHIL 4150). The course provides a systematic introduction to the semantics of natural languages, using the tools of formal logic.

**Credit Hours:** 3

**Prerequisites:** Basic proficiency in first order logic

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**PHIL 7210: Philosophy of Mind**

(cross-leveled with PHIL 4210). Considers theories and arguments in contemporary philosophy of mind, focusing on the nature of mental states, their relation to brain states and the plausibility of various materialist theories of the mind.

**Credit Hours:** 3

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**PHIL 7220: Philosophy of Religion**

(cross-leveled with PHIL 4220). Considers basis for and nature of religious beliefs. Philosophical approaches to religion, cultural implications of religion, psychoanalysis and religion, mysticism and myth.

**Credit Hours:** 3

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**PHIL 7300: Epistemology**

(cross-leveled with PHIL 4300). An examination of contemporary philosophical theories concerning the nature, sources and limits of knowledge and justified belief.

**Credit Hours:** 3

**Recommended:** Previous work in PHIL 1000, PHIL 3000, or PHIL 3200

---

**PHIL 7400: Philosophy of Science**

(cross-leveled with PHIL 4400). Why believe the scientific world-view? What, if anything, is the scientific method? Are today's theories really superior to the past theories? Examines contemporary philosophical answers to such questions.

**Credit Hours:** 3

---

**PHIL 7410: Philosophy of History**

(cross-leveled with PHIL 4410). Readings from classic and contemporary philosophers of history. Problems about nature and limits of historical knowledge; relation between history and other disciplines; the existence, nature, and kinds of historical laws.

**Credit Hours:** 3

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**PHIL 7500: Theories of Ethics**

(cross-leveled with PHIL 4500). Normative and meta-ethical theories. Topics may include the rationality and objectivity of morality, the meaning of moral language, the differences between deontological, utilitarian and virtue theories.

**Credit Hours:** 3

**Recommended:** one course in Philosophy

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**PHIL 7600: Political and Social Philosophy**

(cross-leveled with PHIL 4600, PEA\_ST 4600). Contemporary and/or historical theories of justice and the state. Utilitarianism, Liberalism, Libertarianism, Marxism, Communitarianism and Feminism may be among the views covered.

**Credit Hours:** 3

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**PHIL 7610: Philosophy of Law**

(cross-leveled with PHIL 4610). What is law? Are there pre- or trans-legal rights? Is punishment justifiable? How can judicial decisions be justified? What are the relations between law and morality?

**Credit Hours:** 3

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**PHIL 7620: Marxism**

(cross-leveled with PHIL 4620). A philosophical examination of (a) the notion of critique as seen in Marx's early and middle writings, and (b) specific topics by such authors as Lenin, Lukacs and Plekhanov.

**Credit Hours:** 3

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**PHIL 7700: Aesthetics**

(cross-leveled with PHIL 4700). Typical components of art; theories of art as representation, form, expression; relation of art to value.

**Credit Hours:** 3

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**PHIL 7810: Philosophy of India**

(cross-leveled with PHIL 4810, S\_A\_ST 4810). General development of Indian philosophy.

**Credit Hours:** 3

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**PHIL 7850: Special Readings in Philosophy**

Special Readings in Philosophy.

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**Credit Hour:** 1-3

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**PHIL 8090: Research in Philosophy**

Research not leading to thesis. Graded S/U only.

**Credit Hour:** 1-99

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**PHIL 8100: Protoseminar in Philosophy**

Introduction to graduate level work in philosophy. Required of all students entering the program, in the first year. An intensive workshop focused on skills rather than any particular philosophical content.

**Credit Hours:** 3

**Prerequisites:** restricted to first year graduate students

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**PHIL 8210: Teaching of Philosophy I**

Seminar meetings on course design, teaching methods, the evaluation of teaching, grading, instructor obligations, and teaching aids. Some individualized instruction, including help preparing for and assessing the effectiveness of practice teaching.

**Credit Hour:** 1

**Prerequisites:** graduate philosophy students

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**PHIL 8300: Dissertation Seminar**

The course will address writing and time management for Ph.D. students writing a dissertation. Also discussed will be preparation for the academic job market in philosophy, especially the development of an application dossier. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Philosophy Ph.D. student

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**PHIL 8510: Metaphysics: A Survey**

A graduate-level survey of central issues in metaphysics. May be repeated up to 6 hours of credit.

**Credit Hours:** 3

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**PHIL 8520: Philosophy of Mind: A Survey**

A graduate-level survey of central issues in the philosophy of mind.

**Credit Hours:** 3

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**PHIL 8530: Epistemology: A Survey**

A graduate-level survey of central issues in epistemology.

**Credit Hours:** 3

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**PHIL 8540: Philosophy of Language: A Survey**

A graduate-level survey of central issues in philosophy of language.

**Credit Hours:** 3

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**PHIL 9001: Topics in Philosophy**

Organized study of selected topics. Need departmental consent for repetition.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PHIL 9030: Topics in Modern Philosophy: 17th-19th Centuries**

Interpretation and evaluation of philosophical debates from the 17th to the 19th centuries. These will be addressed in relation to their historical context and current philosophical problems.

**Credit Hours:** 3

**Prerequisites:** Graduate Philosophy Student

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**PHIL 9050: Plato**

Advanced studies in Plato; emphasis on recent scholarship.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9060: Aristotle**

Advanced studies in Aristotle; emphasis on recent scholarship.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9090: Research in Philosophy**

Work toward preparation of thesis or dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** graduate Philosophy students

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**PHIL 9110: The Rationalists**

Interpretation and evaluation of major works of Descartes, Leibniz, and/or Spinoza in relation to their historical context and current philosophical problems.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9120: The Empiricists**

Epistemological and metaphysical doctrines of Locke, Berkeley and Hume.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9130: Kant**

Critique of Pure Reason: historical context, meaning and cohesion of its claims, critical assessment of them.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9240: Russell and Wittgenstein**

Each initially defends, but then rejects logical atomism. Metaphysical and epistemological themes of such intellectual phases and shifts of one or both philosophers.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9320: Social and Political Philosophy**

Topics of current interest in social and political philosophy. generally one of the following: social contract theory, utilitarianism, voting procedures, or convention.

**Credit Hours:** 3

**Prerequisites:** PHIL 4600 or instructor's consent and graduate Philosophy student

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**PHIL 9350: History of Eastern Ethics**

Historical survey of major eastern ethical theories. Explores broad range of ethical theories developed in Asia: Hindu and Buddhist in India; Taoism and Confucianism in China; and Zen in Japan.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9510: Decision Theory**

Principles for making rational decisions, including principles of expected utility theory, game theory, and social choice theory. A survey of basic ideas and an introduction to selected research topics.

**Credit Hours:** 3

**Prerequisites:** PHIL 4110; graduate Philosophy student

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**PHIL 9520: Ethical Theory**

Contemporary theories of the right and the good. Metaethical topics such as moral language, reasoning, and justification.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9610: Metaphysics**

Theories of the categories and structures of reality, e.g., appearance and reality, causality, space and time, God, Nature, the human being.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9710: Philosophy of Mind and Psychology**

Survey of important recent work in contemporary philosophy of mind and psychology. Graduate seminar.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9720: Foundations of Cognitive Science**

Examination of philosophical questions arising in cognitive science concerning, for instance, the nature of computation and representation, inter-disciplinary relations, the nature of cognitive scientific explanation, and its relation to folk psychological explanation.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9820: Epistemology**

Knowledge and opinion, the types, sources, and extent of knowledge, according to a variety of views.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9830: Philosophy of Science**

Examines central issues in general philosophy of science concerning the scientific method and the role in it of observation, the nature of

rational theory-choice, progress, and the status of theories postulating unobservables.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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**PHIL 9840: Philosophy of Language**

Topics of current interest in the philosophy of language.

**Credit Hours:** 3

**Prerequisites:** Graduate Philosophy student

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**PHIL 9850: Philosophy of Biology**

Philosophical problems relating to the life sciences, with attention given especially to explanation and reductionism in biology.

**Credit Hours:** 3

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**PHIL 9887: Seminar in Logic**

Topics of current interest in logic. Generally one of the following: inductive logic, set theory, conditionals, epistemic logic, or formal semantics.

**Credit Hours:** 3

**Prerequisites:** PHIL 4110 graduate Philosophy student

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**PHIL 9901: Seminar in Philosophy**

Special topics. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** graduate Philosophy student

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## Physical Medicine And Rehabilitation (PM\_REH)

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**PM\_REH 6615: Physical Medicine and Rehabilitation**

Physical Medicine and Rehabilitation

**Credit Hours:** 5

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**PM\_REH 6915: Rehabilitation of Musculoskeletal and Neurologic Diseases**

The rotating student will be an integral part of the inpatient team, serving in an active role on the floor and participating in the evaluation and treatment of clinic patients. Daily morning rounds will be completed with the inpatient teams and will be followed by scheduled didactic sessions with various faculty throughout the week. Outpatient rotations will be included as a fundamental clinical experience and will encompass the breadth of PM&R to the best that can be accomplished in this short block. In-depth examinations of the neurologic and musculoskeletal systems will be performed.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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## Physical Therapy (PH\_THR)

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### PH\_THR 1000: Introduction to Physical Therapy

Acquaints students with the physical therapy profession including the required educational preparation, practice settings, sample interventions, current issues, trends and research. Graded on S/U basis only.

**Credit Hour:** 1

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### PH\_THR 4250: Human Kinesiology

(same as HTH\_PR 4250). Study of principles of physical laws, biomechanics and anatomic structure relative to human movement. Applications through analysis of daily functional performance, exercise, and sport.

**Credit Hours:** 3

**Prerequisites:** PTH\_AS 2201

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### PH\_THR 4420: Foundations of Therapeutic Exercise

Physiological basis of exercise throughout the lifespan with emphasis on the musculoskeletal, neuromuscular, cardiovascular/pulmonary and integumentary systems and the effects of injury and disease on these systems.

**Credit Hours:** 3

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### PH\_THR 5100: Introduction to Interprofessional Practice

(same as OC\_THR 5100; cross-leveled with HTH\_PR 7100, HTH\_PR 4100). This course serves as a foundation and introduction to interprofessional education and collaboration. Students who enroll in this course will be assigned to mini-teams of students from a range of disciplines. Through this course, students will develop an understanding of their own unique role as a healthcare provider and the importance of client- and community-centered care and effective teamwork, as well as communication skills.

**Credit Hour:** 1

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### PH\_THR 5110: Fundamentals of Physical Therapy

Introduction to professional school and expectations, history of physical therapy; the profession, basic skills, first aid, infection control, vital signs, surface anatomy.

**Credit Hour:** 1

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### PH\_THR 5200: Problems in Physical Therapy

Organized study of selected content/topics in physical therapy, health and wellness, prevention of disease and disability, and the rehabilitation sciences. Specific content may vary from semester to semester.

**Credit Hour:** 1

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### PH\_THR 5210: Applied Neurophysiology for Allied Health Students

Principles of basic neurophysiology, emphasizing correlation of structure and function of the nervous system.

**Credit Hours:** 3

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### PH\_THR 5220: Biophysical Agents

Includes biophysics, theory and techniques concerning usage of biophysical agents as adjuncts to exercise programs. This entails the use of thermal, electrical, light, hydrotherapy, and mechanical agents.

**Credit Hours:** 3

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### PH\_THR 5230: Clinical Evaluation and Procedures

Principles and procedures of basic evaluation methods and documentation: transfers, body mechanics, muscle strength, range of motion, muscle length, neurologic tests.

**Credit Hours:** 4

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### PH\_THR 5240: Foundations of Therapeutic Exercise

Physiologic basis of exercise throughout the lifespan with emphasis on the musculoskeletal, neuromuscular, cardiovascular/ pulmonary and integumentary systems and the effects of injury and disease on these systems.

**Credit Hours:** 3

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### PH\_THR 5250: Human Kinesiology

Study of principles of physical laws, biomechanics and anatomic structure relative to human movement. Applications through analysis of daily functional performance, exercise, and sport.

**Credit Hours:** 3

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### PH\_THR 5260: Introduction to Clinical Education and PhysZOU I

Introduction to the aspects of clinical education. Development of foundational clinical skills and behaviors, includes clinical experience in PhysZOU.

**Credit Hour:** 1

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### PH\_THR 5310: Applied Therapeutic Exercise

Application of therapeutic exercise with an emphasis on evidenced-based exercise prescription, modes and techniques of exercise typically seen in rehabilitation.

**Credit Hours:** 3

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### PH\_THR 5320: Clinical Kinesiology

Advanced Kinesiology addressing functional mobility; specifics of normal human gait; pathokinetics of gait. Assistive devices; wheelchairs; orthoses and prostheses.

**Credit Hours:** 3

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### PH\_THR 5330: Clinical Pathophysiology

Interdisciplinary and case-based examination of the pathophysiology, prevention and general health management of disease/injury across the lifespan encountered in rehabilitation.

**Credit Hours:** 3

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### PH\_THR 5340: Introduction to Clinical Education and PhysZOU II

Continuation of Introduction to Clinical Education and PhysZOU I with further emphasis on current events in the Physical Therapy profession as well as the professional attributes of communication, teamwork and problem solving, includes clinical experience in PhysZOU.

**Credit Hour:** 1

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**PH\_THR 5350: Introduction to Orthopedic Physical Therapy with Laboratory**

The physical therapy management of musculoskeletal disorders. a systematic clinical decision making model is introduced that considers the stage of inflammation and repair, impairments, and the systematic anatomical structure.

**Credit Hours:** 3

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**PH\_THR 5360: Pharmacology in Rehabilitation**

Principles of pharmacology including pharmacokinetics, pharmacodynamics, and toxicology of common drugs encountered in rehabilitation. Emphasis on pharmacology related to the musculoskeletal, neuromuscular, cardiovascular/ pulmonary and integumentary systems across the lifespan.

**Credit Hours:** 2

**Prerequisites:** Restricted to students accepted into professional major

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**PH\_THR 6000: Topics in Physical Therapy**

Organized study of selected topics in physical therapy, health and wellness, prevention of disease and disability, and the rehabilitation sciences. Specific content may vary from semester to semester.

**Credit Hour:** 1-99

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**PH\_THR 6010: Problems in Physical Therapy**

Organized study of selected content/topics in physical therapy, health and wellness, prevention of disease and disability, and the rehabilitation sciences. Specific content may vary from semester to semester.

**Credit Hour:** 1-3

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**PH\_THR 6410: Clinical Education I**

Full time, supervised clinical experience addressing application of basic skills in patient evaluation and treatment, documentation and professional behaviors.

**Credit Hours:** 5

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**PH\_THR 6510: Differential Diagnosis in Physical Therapy**

Evidence-based clinical decision making emphasizing health screenings and system review to determine physical therapy diagnosis/need for referral to other health care professionals.

**Credit Hours:** 3

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**PH\_THR 6520: Evidence-Based Practice**

This course focuses on improving students' knowledge and skills for asking clinical questions, accessing and appraising research evidence, and integrating research, patient preferences, clinical expertise, and context into clinical decision making.

**Credit Hours:** 3

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**PH\_THR 6530: Orthopedic Physical Therapy**

Physical therapy diagnosis, management, and prevention of disorders of the musculoskeletal systems; continuation of Introduction to Orthopedic Physical Therapy emphasizing physical therapy interventions.

**Credit Hours:** 3

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**PH\_THR 6540: Pediatric Physical Therapy**

Physical therapy evaluation and treatment of children with movement dysfunction. Emphasis on therapeutic exercise.

**Credit Hours:** 4

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**PH\_THR 6550: PhysZOU III**

Part-time clinical experience through PhysZOU clinic. Students will work as a team with peers and a clinical instructor to develop, perform and document physical therapy sessions.

**Credit Hours:** 0.5

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**PH\_THR 6560: Rehabilitation of the Neurologically Impaired Adult**

Physical Therapy evaluation and treatment of adults who have incurred neurological deficits; emphasis on the restorative care of individuals following spinal cord injury, stroke, and traumatic head injury.

**Credit Hours:** 4

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**PH\_THR 6610: Assessment and Neuropsychology of Pain**

Pain is a common problem that impairs people's quality of life and costs millions of dollars annually. Yet, an investigation of physical therapy education programs in the U.S. supported inadequate coverage of pain. This course focuses on the assessment and neuropsychology of pain in order to help future health care providers and scientists to improve the health and well-being of people with impaired quality of life due to pain.

**Credit Hour:** 1

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**PH\_THR 6620: Case Management: Acute and Chronic Medical and Surgical Conditions**

Evaluation and team approach to physical therapy management for persons of all ages with medical and surgical conditions: cardiopulmonary, rheumatic, oncologic, integumentary or wound care, including major burn injury. Psychosocial and ethical issues incorporated.

**Credit Hours:** 5

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**PH\_THR 6630: Clinical Education II**

Continuation of full time, supervised clinical experiences addressing application of clinical skills in patient evaluation, treatment, documentation and professional behaviors. Progression of performance expectations from prior Clinical Education courses.

**Credit Hours:** 7

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**PH\_THR 6640: Diagnostic Imaging in Rehabilitation**

Diagnostic imaging used by disciples within and outside of physical therapy. Emphasis placed on basic skills for analyzing images to determine interpretation of results as they apply to physical therapy examination and intervention.

**Credit Hours:** 3

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**PH\_THR 6650: PHYSZOU IV**

Continuation of part-time clinical experience through PhysZOU clinic. Students work as a team with peers and a clinical instructor to develop, perform and document physical therapy sessions.

**Credit Hours:** 0.5

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**PH\_THR 6660: Psychosocial Issues for Health Promotion**

Psychological and social factors impact people's health and the American Physical Therapy Association has called for interprofessional approaches for the provision of fitness, health promotion, wellness, and risk reduction programs to enhance quality of life for persons across the life-span. This course focuses on psychosocial issues for health promotion in order to help future health care providers and scientists to improve the health and well-being of people.

**Credit Hours:** 2

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**PH\_THR 6710: Case Management: Neurological Impairments Across the Lifespan**

Traditional and contemporary theories of physical therapy in advanced rehabilitation of children and adults with neurologic disorders; education/employment, ethical/legal issues; patient/client advocacy.

**Credit Hours:** 5

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**PH\_THR 6810: Case Management: Geriatrics and Orthopedics**

Complex orthopedic problems in older adults; supervision, reimbursement, ethical/legal situations; community programs for injury prevention.

**Credit Hours:** 5

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**PH\_THR 6820: Clinical Education III**

Continuation of full time, supervised clinical experiences addressing application of clinical skills in patient evaluation, treatment, documentation, and professional behaviors. Progression of performance expectations from prior Clinical Education courses.

**Credit Hours:** 6

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**PH\_THR 6830: Health Policy for Physical Therapy**

This course is designed for physical therapy students and will provide an introduction to health policy along with an overview of the health care system in the United States, including its structures, financing mechanisms, and outcomes.

**Credit Hours:** 2

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**PH\_THR 6840: PhysZOU V**

Continuation of part-time clinical experience through PhysZOU clinic. Students will work as a team with peers and a clinical instructor to develop, perform and document physical therapy sessions.

**Credit Hours:** 0.5

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**PH\_THR 6850: Professional Issues**

The physical therapist as health care professional, administrator, and educator; legal, ethical, and political issues. Service delivery management; delegation of care; rural vs. urban health care needs.

**Credit Hours:** 3

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**PH\_THR 6910: Clinical Education IV**

Continuation of full time, supervised clinical experiences addressing application of clinical skills in patient evaluation, treatment,

documentation and professional behaviors. Progression of performance expectations from prior Clinical Education courses.

**Credit Hours:** 5

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**PH\_THR 6920: PhysZOU VI And Professional Development Plan**

Continuation of part-time clinical experience through PhysZOU clinic. Students will work as a team with peers and a clinical instructor to develop, perform and document physical therapy sessions as well as finalize their Professional Development Plan.

**Credit Hours:** 0.5

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**PH\_THR 6930: Seminar in Physical Therapy**

Integrate previously learned content in unique patient cases and comprehensive review and evaluation of readiness for entry level physical therapist practice, in both didactic and psycho-motor domains. Enrollment is limited to students in professional physical therapy program.

**Credit Hours:** 4

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**PH\_THR 6940: Special Skills in Physical Therapy**

This course will offer a menu of options to students to develop additional knowledge about specific skills in the physical therapy profession. Students may choose topics of interest in addition to the mandatory sessions.

**Credit Hour:** 1

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**PH\_THR 7250: Human Kinesiology**

(same as HTH\_PR 4250). Study of principles of physical laws, biomechanics and anatomic structure relative to human movement. Applications through analysis of daily functional performance, exercise, and sport.

**Credit Hours:** 3

**Prerequisites:** Human Anatomy

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**PH\_THR 7420: Foundations of Therapeutic Exercise**

Physiologic basis of exercise throughout the lifespan with emphasis on the musculoskeletal, neuromuscular, cardiovascular/ pulmonary and integumentary systems and the effects of injury and disease on these systems.

**Credit Hours:** 3

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**PH\_THR 7550: Psychosocial Issues for Health Promotion**

Psychological and social factors impact people's health and the American Physical Therapy Association has called for interprofessional approaches for the provision of fitness, health promotion, wellness, and risk reduction programs to enhance quality of life for persons across the life-span. This course focuses on psychosocial issues for health promotion in order to help future health care providers and scientists to improve the health and well-being of people. Graded on A-F basis only.

**Credit Hours:** 2

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**PH\_THR 7850: Assessment and Neuropsychology of Pain**

Pain is a common problem that impairs people's quality of life and costs millions of dollars annually. Yet, an investigation of physical therapy education programs in the U.S. supported inadequate coverage of pain.



This course focuses on the assessment and neuropsychology of pain in order to help future health care providers and scientists to improve the health and well-being of people with impaired quality of life due to pain. Graded on A-F basis only.

**Credit Hour:** 1

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## Physics (PHYSCS)

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### **PHYSCS 1007: Topics in Physics and Astronomy - Physical Science**

Study of selected topics in physics and astronomy. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

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### **PHYSCS 1050: Concepts in Cosmology**

This course explores the development of our understanding of the origin and evolution of the Universe. We will embark on a qualitative description of the Big Bang theory, the expansion of the universe and its current structure, the cosmic microwave background radiation, the existence of dark matter and dark energy and their implications for the Universe's ultimate fate.

**Credit Hours:** 3

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### **PHYSCS 1100: Science and Inventions**

This course covers the history of some of the most important inventions in science and their impact on past civilizations, current advances in science and inventions, funding and policies, and critical advances in technology required for future generations.

**Credit Hour:** 1

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### **PHYSCS 1150: Concepts in Physics**

Introduction to fundamental concepts of physics for non-science majors. Concepts include the conservation of energy, the second law of thermodynamics, and the special theory of relativity. Students learn to reason and apply these concepts through writing assignments.

**Credit Hours:** 3

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### **PHYSCS 1200: Everyday Wonders: Explaining How Ordinary Things Work**

How does an airplane fly? How does a steel boat float? How does your phone know when you are swiping the screen? Many things that seem wondrous can be explained using basic principles of physics. In this course students develop concepts in simple machines, fluids, waves, optics, and electricity as they explore real-world applications using simulations and hands-on experiments.

**Credit Hours:** 4

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### **PHYSCS 1210: College Physics I**

This introductory college physics course uses algebra and trigonometry in developing some of the fundamental concepts of classical physics. Topics covered are vectors, kinematics, dynamics, gravity, momentum, energy, rotational kinematics, rotational dynamics, fluids, simple harmonic motion, waves and sound, and thermodynamics. Three lectures, one discussion, one lab weekly. Students may receive credit for PHYSCS 1210 or PHYSCS 2750, but not both.

**Credit Hours:** 4

**Prerequisites:** MATH 1100

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### **PHYSCS 1220: College Physics II**

This introductory second semester college physics course uses algebra and trigonometry in developing some of the fundamental concepts of classical physics. Topics covered include electricity and magnetism, optics and modern physics. Three lectures, one discussion, one lab weekly. Students may receive credit for PHYSCS 1220 or PHYSCS 2760, but not both.

**Credit Hours:** 4

**Prerequisites:** grade of C- or better in PHYSCS 1210

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### **PHYSCS 2002: Topics in Physics and Astronomy- Biological Science**

Study of selected topics in physics and astronomy. Subjects and earnable credit may vary from semester to semester. Course may be repeated for credit.

**Credit Hour:** 1-3

**Prerequisites:** MATH 1100

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### **PHYSCS 2002H: Topics in Physics and Astronomy- Biological Science - Honors**

Study of selected topics in physics and astronomy. Subjects and earnable credit may vary from semester to semester. Course may be repeated for credit.

**Credit Hour:** 1-3

**Prerequisites:** MATH 1100; Honors eligibility required

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### **PHYSCS 2007: Topics in Physics and Astronomy- Physical Science**

Study of selected topics in physics and astronomy. Subjects and earnable credit may vary from semester to semester. Course may be repeated for credit.

**Credit Hour:** 1-3

**Prerequisites:** MATH 1100

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### **PHYSCS 2007H: Topics in Physics and Astronomy- Physical Science - Honors**

Study of selected topics in physics and astronomy. Subjects and earnable credit may vary from semester to semester. Course may be repeated for credit.

**Credit Hour:** 1-3

**Prerequisites:** MATH 1100; Honors eligibility required

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### **PHYSCS 2010: Undergraduate Seminar in Physics**

Introduction to the Physics Department and presentation of topics of current interest in physics by faculty and students. Intended for physics majors at the freshman or sophomore level only. Graded on A-F basis only.

**Credit Hours:** 2

**Recommended:** for physics majors

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### **PHYSCS 2200: Life and the Universe**

This course explores the connection between our everyday existence and the underlying physics' processes. Students will look at processes

- essential to life - ranging from the very small (atomic level) to the very large (universe), and the many length scales in between (cellular level and human being level) as well as make connections between the laws of physics and the numbers that go into them and the prerequisites for the existence of life.

**Credit Hours:** 3

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#### **PHYSICS 2330: Exploring the Principles of Physics**

A hands-on course covering topics in Electricity, Magnetism, Forces, Motion and Energy. Pedagogy reflects styles used in K-12 classrooms; emphasis on inquiry, concept development, quantitative applications and technology. Enrollment limited to Elementary and Early Childhood Education majors who have completed MATH 1100 or higher.

**Credit Hours:** 4

**Prerequisites:** instructor's consent required

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#### **PHYSICS 2500: The Beautiful Invisible: Exploring Physics, Fiction, and Reality**

This course explores the conceptual structure of modern physics from a humanistic perspective. Rather than describing the natural world 'as it is', physical science weaves some key observations in a convincing and memorable narrative. It is not within its power to explain reality, but it can make it understandable, sometimes even predictable. Due to the presence of internal and external constraints, physical theories are akin to myths, i.e., fiction created by many authors over an extended period of time. The mythical character of a theory does not diminish its scientific validity - quite the contrary. Convincing myths are not easily found and better observations demand better myths. The mythical content of the theory is not some extraneous content that we introduce for the sake of popularization, but an essential part of the science itself.

**Credit Hours:** 3

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#### **PHYSICS 2750: University Physics I**

First course in calculus-based physics for science and engineering students. Topics covered are vectors, translational and rotational kinematics, translational and rotational dynamics, energy, momentum, gravity, oscillations, waves, fluids and thermodynamics. Three lectures, one discussion, one lab weekly. Students may receive credit for PHYSICS 1210 or PHYSICS 2750, but not both.

**Credit Hours:** 5

**Prerequisites:** MATH 1500 or equivalent

**Recommended:** MATH 1700

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#### **PHYSICS 2750H: University Physics I - Honors**

First course in calculus-based physics for science and engineering students. Topics covered are vectors, translational and rotational kinematics, translational and rotational dynamics, energy, momentum, gravity, oscillations, waves, fluids and thermodynamics. Three lectures, one discussion, one lab weekly. Students may receive credit for PHYSICS 1210 or PHYSICS 2750, but not both. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites:** MATH 1500 or equivalent. Honors eligibility required

**Recommended:** MATH 1700

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#### **PHYSICS 2760: University Physics II**

Second semester course in calculus-based physics for science and engineering students. Topics covered are electrostatics, circuits, magnetism, electromagnetic phenomena, optics, matter waves and particles and modern physics. Three lectures, one discussion, one lab weekly. Students may receive credit for PHYSICS 1220 or PHYSICS 2760, but not both.

**Credit Hours:** 5

**Prerequisites:** MATH 1700 and grade of C- or better in PHYSICS 2750

**Recommended:** MATH 2300

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#### **PHYSICS 2760H: University Physics II - Honors**

Second semester course in calculus-based physics for science and engineering students. Topics covered are electrostatics, circuits, magnetism, electromagnetic phenomena, optics, electromagnetic waves and relativity. Three lectures, one discussion, one lab weekly. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites:** MATH 1700 and grade of C- or better in PHYSICS 2750.

Honors Eligibility required

**Recommended:** MATH 2300

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#### **PHYSICS 3002: Topics in Physics and Astronomy - Biological Science**

Study of selected topics in physics and astronomy. Subjects and earnable credit may vary from semester to semester. May be repeated 3 times for credit.

**Credit Hour:** 1-3

**Prerequisites:** PHYSICS 1210 or PHYSICS 2750

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#### **PHYSICS 3007: Topics in Physics and Astronomy -Physical Science**

Study of selected topics in physics and astronomy. Subjects and earnable credit may vary from semester to semester. May be repeated 3 times for credit.

**Credit Hour:** 1-3

**Prerequisites:** PHYSICS 1210 or PHYSICS 2750

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#### **PHYSICS 3010: Introduction to Modern Astrophysics**

(same as ASTRON 3010). Elements of stellar, and galactic astrophysics. Interpretation of observations and physical conditions of various astronomical objects including stars, gaseous nebulae and galaxies.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 2760

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#### **PHYSICS 3100: Teaching Physics**

Introduces modeling and inquiry methods of teaching about force, motion, energy, electricity and magnetism. Students learn research-based physics teaching methods, including eliciting prior understanding, facilitating conceptual change, and active learning strategies.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 1220 or PHYSICS 2760

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**PHYSICS 3150: Introduction to Modern Physics**

Relativistic kinematics and Lorentz transformations; historical basis for quantum mechanics; atomic structure; physics of solids; nuclear structure and decay.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 2760

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**PHYSICS 3150W: Introduction to Modern Physics - Writing Intensive**

Relativistic kinematics and Lorentz transformations; historical basis for quantum mechanics; atomic structure; physics of solids; nuclear structure and decay.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 2760

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**PHYSICS 3200: Physics of Space Explorations**

The course provides an overview of the solar system, spaceflight history, a review of Newtonian physics and law of universal gravitation, the application of these laws to spacecraft launch, entry, and orbit, planetary trajectories, and other special topics. Three focused case studies of actual space missions are addressed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 1100

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**PHYSICS 3700: Introduction to Methods in Mathematical Physics**

The course discusses the application of mathematical techniques that students need for upper-level physics courses. Topics include: applications of complex variables, second-order linear differential equations with applications to AC circuits, matrices/linear algebra, calculus of variations, Fourier transforms and vector analysis.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 2760 and MATH 2300

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**PHYSICS 4020: Astrophysical Techniques**

(same as ASTRON 4020; cross-leveled with PHYSICS 7020). Elements of modern astronomical instruments, observations and analysis, with the emphasis in the optical regime. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 2760

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**PHYSICS 4050: Electronic Laboratory**

(cross-leveled with PHYSICS 7050). Acquaints students with the foundations and techniques of electronics design, with emphasis on data acquisition and processing. Topics: circuits with discrete and integrated circuits, active and passive filters, amplifiers, power supplies, instrumentation and interfacing. Integrated lectures and labs. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** PHYSICS 2760

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**PHYSICS 4060: Advanced Physics Laboratory I**

This upper-level undergraduate laboratory course familiarizes students with the methods and procedures of experimental physics at an advanced level. The course covers principles of magnetism, graphic programming and interface techniques, weak-signal detection, and some modern physics discoveries such as, magneto-optical Kerr effect, digital

holography and gamma-ray spectroscopy. Students work on research projects in the areas of condensed matter physics, materials science, modern spectroscopy, superconductivity, and quantum physics.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 3150

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**PHYSICS 4080: Major Themes in Classical Physics**

Introduction to classical physics: mechanics, electromagnetism and thermodynamics, emphasizing the unity and the connections between different parts of it.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 2760

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**PHYSICS 4080W: Major Themes in Classical Physics - Writing Intensive**

Introduction to classical physics: mechanics, electromagnetism and thermodynamics, emphasizing the unity and the connections between different parts of it.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 2760

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**PHYSICS 4100: Electricity and Magnetism I**

Mathematical preliminaries, properties of charge distributions at rest and in motion, the field concept, introduces electromagnetic radiation.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 2760

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**PHYSICS 4102: Topics on Physics and Astronomy-Biological/Physical/Mathematics**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. Departmental consent for repetition.

**Credit Hour:** 1-3

**Prerequisites:** PHYSICS 2760 or instructor's consent

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**PHYSICS 4110: Light and Modern Optics**

(cross-leveled with PHYSICS 7110). Interaction of light with matter, spectroscopic techniques, wave optics, interferometry, multilayer films, polarization, non-linear optics, design of optical instruments, matrix methods, waveguides, fiber optics, acousto-optic and photo-elastic modulation. Includes both lectures and laboratory.

**Credit Hours:** 4

**Prerequisites:** PHYSICS 2760

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**PHYSICS 4120: Introduction to Thermodynamics**

Development of the concepts of temperature, heat, work, entropy, enthalpy and free energy. Applications to gases, liquids and solids. Statistical methods.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 2760

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**PHYSICS 4140: Mechanics**

Development of fundamental concepts, principles of mechanics using mathematical methods. Many problems used.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**PHYSCS 4180: Solar System Science**

(same as GEOL 4180, ASTRON 4180; cross-leveled with GEOL 7180, PHYSCS 7180). Investigates physical states, interior structures and comparative geology of solar systems bodies: planets, moons, asteroids, comets, sun. Solar system formation and evolution.

**Credit Hours:** 3

**Prerequisites:** ASTRON 3010

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**PHYSCS 4190: Physics and Chemistry of Materials**

(same as NU\_ENG 4319, BIOL\_EN 4480, CHEM 4490, BME 4480; cross-leveled with PHYSCS 7190, NU\_ENG 7319, BIOL\_EN 7480, CHEM 7490). Physics and Chemistry of Materials is a 3 credit hours course offered every spring semester for students from Physics, Chemistry, Engineering and Medical Departments and consists of lectures, laboratory demonstrations, two mid-term and one final exam. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2750, CHEM 1320 or equivalent, or instructor's consent

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**PHYSCS 4210: Contributions to Science from Under-represented Groups**

(same as ASTRON 4210; cross-leveled with ASTRON 7210, PHYSCS 7210). STEM fields are amongst the areas of human endeavor that struggle with increasing their human diversity. Teaching of science rarely discusses the contributions or marginalizations of under-represented groups. Meanwhile, many women and indigenous cultures have contributed to progress in STEM but are often not recognized. In this course we will investigate these contributions, and the lack of recognition both historically and in the present day. The aim is to provide students with a better understanding of the advantages of and challenges in inclusive, diverse science. Initially the course will use astronomy as its frame of reference because the sky was one of the earliest laboratories and consequently it has a long history with many indigenous cultures developing their own cosmologies and ways of studying the sky. As we discuss the role of Indigenous peoples, people of color, and women, we will investigate the role of power structures as well as systemic biases in the marginalization of these groups. This class will be strongly discussion oriented, with assessment based on the development throughout the semester, of a final project. As many students will be pursuing graduate school in STEM fields, the final project will be to develop a Broader Impact statement. Many federal funding agencies request or even require that research grants include a component aimed at 'broadening participation', i.e. making STEM more inclusive and diverse. Student will work on a multipart assignment that will culminate in a Broader Impact statement that may well be directly applicable to an NSF GRFP (Graduate Research Fellowship Program) or NSF Post-Doctoral Fellowship. In addition to the Broader Impact statement - students will give presentations and learn how to be more inclusive in their presentation design, following the principles of Inclusive Design for Learning. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760 or PHYSCS 1200 or instructors consent

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**PHYSCS 4230: Scanning and Transmission Electron Microscopy and Microanalysis**

(cross-leveled with PHYSCS 7230). This course is designed for senior undergraduate/graduate students. This course covers the basic principles and practical considerations using SEM, TEM, EDS, and EELS in the characterization of materials. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150 and instructor's consent

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**PHYSCS 4250: Stellar Astrophysics**

(same as ASTRON 4250). Basic astrophysics of stable and unusual stars, stellar systems. Investigates stellar dimensions, radiation, spectra, energy, evolution, populations; interstellar medium, stellar motions and aggregation.

**Credit Hours:** 3

**Prerequisites:** ASTRON 3010

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**PHYSCS 4310: Physics in Cell and Developmental Biology**

(same as BIO\_SC 4310). Discusses the role of physical mechanisms in specific cellular and developmental processes and phenomena, in particular those characterizing the embryonic stage of multicellular organisms. Each process and phenomenon is first described in biological terms and then within a physical model, with special emphasis on the interplay between the two descriptions.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760 and BIO\_SC 2300 or instructor's consent

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**PHYSCS 4350: Galactic Astronomy**

(same as ASTRON 4350). Observational properties of normal galaxies and clusters of galaxies, Seyfert and emission-line structure and dynamics of galaxies; interacting galaxies, quasi-stellar objects. Introduction to cosmology.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

**Recommended:** PHYSCS 4140

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**PHYSCS 4360: Extragalactic Astronomy**

(same as ASTRON 4360; cross-leveled with ASTRON 7360, PHYSCS 7360). This course introduces students to the most basic knowledge of extragalactic astronomy, starting from Milky Way and extending to the most distant universe. Topics covered will include galaxy morphology and classification, groups and clusters of galaxies, active galactic nuclei, and galaxy formation and evolution.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**PHYSCS 4390: Problems in Physics**

Problems in Physics

**Credit Hour:** 1-3

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**PHYSCS 4400: The Physics of Electronic Devices**

(cross-leveled with PHYSCS 7400). This course is designed for graduate and undergraduate students of Physics and Electrical Engineering who have an interest in learning the basic physical idea underlying the operation of electronic devices. The course consists of lectures, handout

lecture notes, problem sets, two mid-term and one final exam. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150 or equivalent

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**PHYSCS 4410: Analysis of Biological Macromolecules and Biomaterials**

(cross-leveled with PHYSCS 7410). This interdisciplinary, team-taught course introduces basic concepts and experimental techniques for studying bio-macromolecules and biomaterials. A Problem Based Learn/ Writing Intensive approach uses four modules: Proteins, membranes, cellular interactions and biomaterials.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**PHYSCS 4420: Introduction to Biomedical Imaging**

(same as BIOL\_EN 4420, BME 4420; cross-leveled with PHYSCS 7420, BIOL\_EN 7420). This course offers a broad introduction to medical imaging. Topics to be covered include the physics basics and instrumentation of X-ray, CT, PET, SPECT, ultrasound, MRI, and optical imaging, as well as recent developments in biomedical imaging.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**PHYSCS 4450: Introduction to Cosmology**

(cross-leveled with PHYSCS 7450). Develops the physical concepts necessary for understanding the major recent discoveries in cosmology, such as the acceleration of the universe and dark energy. No prior knowledge of general relativity is assumed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150 or equivalent

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**PHYSCS 4460: Interstellar Medium**

(same as ASTRON 4460). The course discusses observational properties and physical and chemical processes occurring in the interstellar medium. Topics include interstellar diffuse and molecular clouds, HII regions, dust grains, interstellar chemistry, star formation, supernova remnants, and interstellar shock waves.

**Credit Hours:** 3

**Prerequisites:** ASTRON 3010

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**PHYSCS 4500: Computational Biological Physics**

(cross-leveled with PHYSCS 7500). Provides a practical introduction (hands-on approach) to the study of the structure and function of biomolecular systems by employing computational methods and theoretical concepts familiar from the physical sciences.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760 or instructor's consent

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**PHYSCS 4510: Single Molecule Biophysics**

(same as BIOCHM 4510; Cross-leveled with PHYSCS 7510). The course provides an overview of the biophysics of enzymes, nucleic acids and the cytoskeleton. Topics covered will include diffusion, molecular motors, polymerization and the cytoskeleton and the polymer properties of nucleic acids and microtubules

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**PHYSCS 4520: Introduction to Biophysics**

This course introduces the study of biological systems from the perspective of a physicist. Students will learn how to relate the structure of a particular system and its constituents to its function. The treatment of molecular and cellular phenomena will be based on physical principles quantified through the necessary analytical tools. Prominent biophysical methods and their fundamental operating principles will also be discussed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 1220 or PHYSCS 2760 or instructor's consent

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**PHYSCS 4550: Cosmochemistry**

(same as ASTRON 4550; cross-leveled with ASTRON 7550, PHYSCS 7550). Cosmic dust, stardust, spectra, energy, interstellar medium, meteorites, astromineralogy.

**Credit Hours:** 3

**Prerequisites:** ASTRON 3010

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**PHYSCS 4600: Semiconductor Optics**

(cross-leveled with PHYSCS 7600). It is an introductory-level course in the field of optical processes in semiconductors (both inorganic and organic) and solid-state optoelectronics, designed both for graduate and undergraduate students of Physics, Chemistry and Electrical Engineering. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150

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**PHYSCS 4620: Introduction to Materials Science**

This course on the science and technology of materials explores the interrelationship between processing, structure, properties (electrical, optical, magnetic), and performance. Observable properties of materials will be used to explore and understand the consequences of atomic- and molecular-level events. Structure-property correlations, including electronic, thermal, and mechanical properties, will be presented for different classes of materials including nanoscale materials. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150

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**PHYSCS 4650: Modern Condensed Matter Physics**

(cross-leveled with PHYSCS 7650). Introduces the basic concepts and gives an overview of the latest developments of modern condensed-matter physics as the forefront of (nano) science and technology. Combines lectures and computational laboratory, where students use and develop interactive computer simulations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150 or instructor's consent

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**PHYSCS 4680: Introduction to Density-Functional Theory**

(cross-leveled with PHYSCS 7680). This course provides an introduction to density-functional theory (DFT), the most widely used technique for calculating the electronic structure of materials. The course covers the

basic formalism of DFT and practical applications, including hands-on computational exercises. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150 or instructor's consent

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**PHYSCS 4720: Nonlinear Dynamics**

(cross-leveled with PHYSCS 7720). This course provides an introduction to nonlinear dynamical systems and chaos, with examples from physics, chemistry, biology and engineering. The emphasis will be on applications, using a combination of analytical, computational and intuitive geometrical methods. Topics covered include phase portraits, fixed point analysis, bifurcations, limit cycles, strange-attractors, iterated maps, period doubling, chaos, fractals, scaling and universality. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** MATH 4100 or instructor's consent

**Recommended:** MATH 4140

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**PHYSCS 4800: Introduction to Quantum Mechanics I**

Foundations of wave mechanics; wave packets; Schrodinger equation and I-D problems; operators and eigenfunctions, spherically symmetric systems.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150 and MATH 4100

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**PHYSCS 4810: Introduction to Quantum Mechanics II**

Review of quantum mechanics and units, forms of radiation, radiation detectors, spacetime symmetries, internal symmetries, nuclear structure and form factors, low-energy nuclear models, recent developments.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 4800 or equivalent

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**PHYSCS 4850: Computational Methods in Physics**

(cross-leveled with PHYSCS 7850). Use of modern computational techniques in solving a wide variety of problems in solid state, nuclear, quantum and statistical physics.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 4800 or instructor's consent

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**PHYSCS 4940: Physics Internship**

This internship course will provide students with work experience in a public/private company/lab organization that is relevant to the physics major. It will enable students to apply their academic knowledge and critical thinking skills in a work environment, while enhancing personal and professional development. The internship is coordinated by a faculty member. Graded on S/U basis only.

**Credit Hour:** 0-3

**Prerequisites:** Instructor's Consent

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**PHYSCS 4950: Undergraduate Research in Physics**

Special studies for advanced undergraduate students in physics covering subjects not included in courses regularly offered. Departmental consent for repetition.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**PHYSCS 4960: Senior Thesis in Physics**

Special studies for senior undergraduate students in physics. The course requires an oral or poster presentations, or faculty-guided writing of a senior thesis involving independent research.

**Credit Hours:** 3

**Prerequisites:** instructor's consent and 3 units of PHYSCS 4950. Departmental consent required for repetition

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**PHYSCS 4985: Issues in Modern Physics and Engineering**

Students are expected to write a major paper on a selected topic from modern physics or engineering. The paper will review the current state of the experimental and theoretical research on the topic at a level appropriate to their peers.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150

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**PHYSCS 7020: Astrophysical Techniques**

(same as ASTRON 7020; cross-leveled with PHYSCS 4020). Elements of modern astronomical instruments, observations and analysis, with the emphasis in the optical regime. Graded on A-F basis only. .

**Credit Hours:** 3

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**PHYSCS 7050: Electronic Laboratory**

(cross-leveled with PHYSCS 4050). Acquaints students with the foundations and techniques of electronics design, with emphasis on data acquisition and processing. Topics: circuits with discrete and integrated circuits, active and passive filters, amplifiers, power supplies, instrumentation and interfacing. Integrated lectures and labs. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** PHYSCS 2760

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**PHYSCS 7085: Problems in Physics**

Laboratory work involving study of literature of special experiments in physics. Introduces research methods.

**Credit Hour:** 1-99

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**PHYSCS 7110: Light and Modern Optics**

(cross-leveled with PHYSCS 4110). Interaction of light with matter, spectroscopic techniques, wave optics, interferometry, multilayer films, polarization, non-linear optics, design of optical instruments, matrix methods, waveguides, fiber optics, acousto-optic and photo-elastic modulation. Includes both lectures and laboratory.

**Credit Hours:** 4

**Prerequisites:** PHYSCS 2760

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**PHYSCS 7180: Solar System Science**

(same as GEOL 7180 and ASTRON 7180; cross-leveled with GEOL 4180 and ASTRON 4180). Investigates physical states, interior structures and comparative geology of solar systems bodies: planets, moons, asteroids, comets, sun. Solar system formation and evolution.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 1220 or PHYSCS 2760 or instructor's consent

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**PHYSICS 7190: Physics and Chemistry of Materials**

(same as NU\_ENG 7319, BIOL\_EN 7480, CHEM 7490; cross-leveled with PHYSICS 4190, NU\_ENG 4319, BIOL\_EN 4480, CHEM 4490, BME 4480). Physics and Chemistry of Materials is a 3 credit hours course offered every spring semester for students from Physics, Chemistry, Engineering and Medical Departments and consists of lectures, laboratory demonstrations, two mid-term and one final exam. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 2750, CHEM 1320 or equivalent, or instructor's consent

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**PHYSICS 7201: Topics in Physics**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester

**Credit Hour:** 1-3

**Prerequisites:** Instructor's consent required

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**PHYSICS 7210: Contributions to Science from Under-represented Groups**

(same as ASTRON 7210; cross-leveled with PHYSICS 4210, ASTRON 4210). STEM fields are amongst the areas of human endeavor that struggle with increasing their human diversity. Teaching of science rarely discusses the contributions or marginalizations of under-represented groups. Meanwhile, many women and indigenous cultures have contributed to progress in STEM but are often not recognized. In this course we will investigate these contributions, and the lack of recognition both historically and in the present day. The aim is to provide students with a better understanding of the advantages of and challenges in inclusive, diverse science. Initially the course will use astronomy as its frame of reference because the sky was one of the earliest laboratories and consequently it has a long history with many indigenous cultures developing their own cosmologies and ways of studying the sky. As we discuss the role of Indigenous peoples, people of color, and women, we will investigate the role of power structures as well as systemic biases in the marginalization of these groups. This class will be strongly discussion oriented, with assessment based on the development throughout the semester, of a final project. As many students will be pursuing graduate school in STEM fields, the final project will be to develop a Broader Impact statement. Many federal funding agencies request or even require that research grants include a component aimed at 'broadening participation', i.e. making STEM more inclusive and diverse. Student will work on a multipart assignment that will culminate in a Broader Impact statement that may well be directly applicable to an NSF GRFP (Graduate Research Fellowship Program) or NSF Post-Doctoral Fellowship. In addition to the Broader Impact statement - students will give presentations and learn how to be more inclusive in their presentation design, following the principles of Inclusive Design for Learning. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 2760 or PHYSICS 1200 or instructors consent

---

**PHYSICS 7230: Scanning and Transmission Electron Microscopy and Microanalysis**

(cross-leveled with PHYSICS 4230). This course is designed for senior undergraduate/graduate students. This course covers the basic principles

and practical considerations using SEM, TEM, EDS, and EELS in the characterization of materials. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 3150 and instructor's consent

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**PHYSICS 7360: Extragalactic Astronomy**

(same as ASTRON 7360; cross-leveled with PHYSICS 4360, ASTRON 4360). This course introduces students to the most basic knowledge of extragalactic astronomy, starting from Milky Way and extending to the most distant universe. Topics covered will include galaxy morphology and classification, groups and clusters of galaxies, active galactic nuclei, and galaxy formation and evolution.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 2760

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**PHYSICS 7400: Physics of Electronic Devices**

(cross-leveled with PHYSICS 4400). This course is designed for graduate students of Physics and Electrical Engineering who have an interest in learning the basic physical idea underlying the operation of electronic devices. The course consists of lectures, handout lecture notes, problem sets, two mid-term and one final exam.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 3150 or equivalent

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**PHYSICS 7410: Analysis of Biological Macromolecules and Biomaterials**

(cross-leveled with PHYSICS 4410). This interdisciplinary, team-taught course introduces basic concepts and experimental techniques for studying bio-macromolecules and biomaterials. A Problem Based Learning/ Writing Intensive approach uses four modules: proteins, membranes, cellular interactions and biomaterials.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 2760

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**PHYSICS 7420: Introduction to Biomedical Imaging**

(same as BIOL\_EN 7420; crossleveled with PHYSICS 4420, BIOL\_EN 4420, BME 4420). This course offers a broad introduction to medical imaging. Topics to be covered include the physics basics and instrumentation of X-ray CT, PET, SPECT, ultrasound, MRI, and optical imaging, as well as recent developments in biomedical imaging.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 2760

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**PHYSICS 7450: Introduction to Cosmology**

(cross-leveled with PHYSICS 4450). Develops the physical concepts necessary for understanding the major recent discoveries in cosmology, such as the acceleration of the universe and dark energy. No prior knowledge of general relativity is assumed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSICS 3150 or equivalent or instructor's consent

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**PHYSICS 7500: Computational Biological Physics**

(cross-leveled with PHYSICS 4500). Provides a practical introduction (hands-on approach) to the study of the structure and function of

biomolecular systems by employing computational methods and theoretical concepts familiar from the physical sciences.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 1220 or PHYSCS 2760 or instructor's consent

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**PHYSCS 7510: Single Molecule Biophysics**

(same as BIOCHM 7510; cross-leveled with PHYSCS 4510). The course provides an overview of the biophysics of enzymes, nucleic acids and the cytoskeleton. Topics covered will include diffusion, molecular motors, polymerization of the cytoskeleton and the polymer properties of nucleic acids and microtubules

**Credit Hours:** 3

**Prerequisites:** PHYSCS 2760

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**PHYSCS 7550: Cosmochemistry**

(same as ASTRON 7550; cross-leveled with PHYSCS 4550, ASTRON 4550). Cosmic dust, stardust, spectra, energy, interstellar medium, meteorites, astromineralogy.

**Credit Hours:** 3

**Prerequisites:** ASTRON 3010

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**PHYSCS 7600: Semiconductor Optics**

(cross-leveled with PHYSCS 4600). It is an introductory-level course in the field of optical processes in semiconductors (both inorganic and organic) and solid-state optoelectronics, designed both for graduate and undergraduate students of Physics, Chemistry and Electrical Engineering.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150 or instructor's consent

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**PHYSCS 7650: Modern Condensed Matter Physics**

(cross-leveled with PHYSCS 4650). Introduces the basic concepts and gives an overview of the latest developments of modern condensed matter physics as the forefront of (nano) science and technology. Combines lectures and computational laboratory, where students use and develop interactive computer simulations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150 or instructor's consent

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**PHYSCS 7680: Introduction to Density-Functional Theory**

(cross-leveled with PHYSCS 4680). This course provides an introduction to density-functional theory (DFT), the most widely used technique for calculating the electronic structure of materials. The course covers the basic formalism of DFT and practical applications, including hands-on computational exercises. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150 or instructor's consent

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**PHYSCS 7720: Nonlinear Dynamics**

(cross-leveled with PHYSCS 4720). This course provides an introduction to nonlinear dynamical systems and chaos, with examples from physics, chemistry, biology and engineering. The emphasis will be on applications, using a combination of analytical, computational and intuitive geometrical methods. Topics covered include phase portraits, fixed point analysis, bifurcations, limit cycles, strange-attractors, iterated maps, period

doubling, chaos, fractals, scaling and universality. Graded on A-F basis only.

**Credit Hours:** 3

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**PHYSCS 7750: Interstellar Medium**

The course discusses observational properties and physical and chemical processes occurring in the interstellar medium. Topics include interstellar diffuse and molecular clouds, HII regions, dust grains, interstellar chemistry, star formation, supernova remnants, and interstellar shock waves.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 1220

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**PHYSCS 7850: Computational Methods in Physics**

(cross-leveled with PHYSCS 4850). Use of modern computational techniques in solving a wide variety of problems in solid state, nuclear, quantum and statistical physics.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 4800 or instructor's consent

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**PHYSCS 8040: Study of Techniques of Teaching College Physics**

Objectives, methods and problems related to teaching college physics. Some credit in this course is required for all students teaching physics. May repeat for 3 hours maximum.

**Credit Hour:** 1-3

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**PHYSCS 8090: Research in Physics**

Graduate research. Graded on S/U Basis only.

**Credit Hour:** 1-99

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**PHYSCS 8101: Topics of Physics and Astronomy**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent. Departmental consent for repetition

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**PHYSCS 8110: Physics for High School Teachers I**

This is a physics course designed primarily for high school teachers. Topics include motion, forces, Newton's Laws, electricity, k and magnetism. The course uses research based pedagogical methods utilizing inquiry, modeling, and hands-on techniques. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** instructor's consent

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**PHYSCS 8130: Physics for High School Teachers 3**

This is a physics course designed primarily for high school teachers. Topics include modern physics and history of science. The course uses research based pedagogical methods utilizing inquiry, modeling, and hands-on techniques. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** instructor's consent

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**PHYSCS 8150: Condensed Matter Physics I**

Crystal structure, reciprocal lattice, phonons, neutron and x-ray scattering, free electron theory of metals, Fermi surfaces, energy bands, static properties of solids, semiconductors, devices, and quantum structures, optical properties, excitons, introduction to magnetism and superconductivity.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 4800 or equivalent

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**PHYSCS 8160: Condensed Matter Physics II**

The basic Hamiltonian, Phonons, theory of the electron gas, second quantization, Hartree and Hartree-Fock approximation, local-density method, tight-binding theory, electron-electron interaction and screening, Fermi liquid theory, transport properties, impurities, Green's function's, Localization, Quantum Hall effect, magnetism, superconductivity.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 8150

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**PHYSCS 8170: Structure, Electronic Structure and Properties of Condensed Matter**

This course covers the connections between the properties of matter and their atomic and electronic properties, especially by understanding macroscopic behaviors of condensed matter, such as magnetic ordering, vibrational properties, structural phase transitions, transport, optical properties and superconductivity. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** PHYSCS 8150

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**PHYSCS 8301: Topics in Astronomy and Astrophysics**

Selected topics from solar system, stellar, galactic and extragalactic astronomy and astrophysics. May be repeated to a maximum of six hours.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PHYSCS 8310: College Science Teaching**

(same as ASTRON 8310, BIO\_SC 8724 and LTC 8724). Study of learner characteristics, teaching strategies, and research findings related to teaching science at the post-secondary level.

**Credit Hours:** 3

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**PHYSCS 8350: Science Outreach: Public Understanding of Science**

(same as BIO\_SC 8725 and AN\_SCI 8725) This course is aimed at promoting public understanding and appreciation of science. The students will develop presentations that increase awareness of the impact of science on many aspects of our daily lives.

**Credit Hour:** 1-2

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**PHYSCS 8410: Concepts in Nanoscale Materials: Interdisciplinary Science**

This interdisciplinary course covers basic concepts in nanoscale materials, their characterization, and how and why they differ from conventional bulk materials. The course focuses on neutron scattering methods and uses lectures, problem-based modules, and writing assignments.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 3150 and instructor's consent

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**PHYSCS 8420: X-ray and Neutron Scattering Methods for Studying Surfaces/Interfaces of Nanocrystalline Materials**

This course develops the conceptual foundation of neutron and x-ray scattering methods for probing the structure of epitaxial films, nanomaterials and their buried interfaces. A particular emphasis is given to the use of intense synchrotron x-ray radiation. Course graded on A-F basis only.

**Credit Hours:** 3

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**PHYSCS 8550: Stellar Structure and Evolution**

(same as ASTRON 8550). Reviews of atomic and molecular spectra. Investigates quantum radiation law, emission and absorption processes, radiation transfer theory, continuous and discrete line spectra of stars, stellar composition.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 4250, PHYSCS 4800, or instructor's consent

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**PHYSCS 8610: Classical Mechanics**

The interplay of dynamics and symmetry, Hamilton's principle and Noether's theorem, Lagrangian, Hamiltonian, Hamilton-Jacobi theories of mechanics in special relativity. Rigid body motion, small oscillation, canonical transformations and fields as continuous mechanical systems.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 4140 or equivalent

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**PHYSCS 8620: Electrodynamics I**

Electrostatic potential and fields, boundary-value problems in electrostatics, methods of images, Green's functions, multipole expansion, dielectrics, magnetostatics, magnetic materials, Maxwell's equations, time-varying fields.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 8610 or instructor's consent

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**PHYSCS 8640: Electrodynamics II**

Electromagnetic wave propagation, reflection, refraction, wave guides, cavities antennas and diffraction, tensors, special relativity, the Lorentz group, dynamics of relativistic particles and fields radiation by moving charges, retardation, bremsstrahlung. Additional topics may include magnetohydrodynamics and plasma physics.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 8620 or instructor's consent

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**PHYSCS 8660: Methods in Mathematical Physics**

Concentrates on mathematical techniques used in modern physics. Infinite series, functions of a complex variable, differential equations, Fourier series and integral, etc.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 4700 or instructor's consent

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**PHYSCS 8680: Thermodynamics and Statistical Mechanics**

Thermodynamics as applied in physics, chemistry; laws of distribution; statistical methods of study matter, radiation.

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**Credit Hours:** 3

**Prerequisites:** PHYSCS 8710 or concurrently

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**PHYSCS 8700: Non-Equilibrium Statistical Mechanics**

This course provides an introduction to the theoretical and mathematical description of classical stochastic systems with examples from biophysics and condensed matter physics.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 8680 or consent of instructor

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**PHYSCS 8710: Quantum Mechanics I**

Non-relativistic quantum theory in Hilbert space. States and self-adjoint observables, unitary time evolution in various pictures, the path-integral, identical particles, Fock space, angular momentum and some perturbation theory.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 8610

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**PHYSCS 8720: Quantum Mechanics II**

More perturbation theory, variational methods, semi-classical methods and application to radiation theory, linear response theory and rudiments of relativistic quantum mechanics including the Klein-Gordon equation and the Dirac equation.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 8710

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**PHYSCS 8820: Relativity and Gravitation**

Special and general theories of relativity. Discussion of accelerated observers and the principles of equivalence. Einstein's gravitational field equations, black holes, gravitational waves and cosmology.

**Credit Hours:** 3

**Prerequisites:** PHYSCS 8610, PHYSCS 8620

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**PHYSCS 9090: Research in Physics**

Research leading to Ph.D. dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** PhD candidacy has been established

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## Plant Science (PLNT\_S)

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**PLNT\_S 1002: Topics in Plant Science - Biological**

Initial offering of a course(s) in a specific subject matter area. Offered when proposed by a faculty member in that area of expertise.

**Credit Hour:** 1-4

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**PLNT\_S 1120: Career Development**

Introductory course for students planning a career in plant sciences. Includes an overview of each emphasis area, as well as development of professional skills required for a successful career. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Plant Science majors only

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**PLNT\_S 2002: Topics in Plant Science - Biological**

Initial offering of a course(s) in a specific subject matter area. Offered when proposed by a faculty member in that area of expertise.

**Credit Hour:** 1-4

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**PLNT\_S 2075: Environmental Horticulture**

Investigate interrelationships between plants and the environment. Special emphasis placed on improving homeowners' environmental stewardship and their knowledge of sustainable practices. Graded on A-F basis only.

**Credit Hours:** 3

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**PLNT\_S 2100: Introduction to Soils**

(same as SOIL 2100). Introduction to soil sciences with emphasis placed on physical, biological, and chemical properties and application to land use, plant growth and environmental problems.

**Credit Hours:** 3

**Recommended:** 3 hrs of Chemistry

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**PLNT\_S 2110: Plants and their Cultivation**

Principles of plant growth with emphasis on anatomy, physiology, and response to environmental factors. Production and protection of economically important crop and horticulture species.

**Credit Hours:** 3

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**PLNT\_S 2125: Plant Structure and Function**

Introduction to plant anatomy; physiology; how plant structures and processes are involved in growth/development. Labs explore photosynthesis, mineral nutrition, water relations, growth, and hormonal regulation.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1200 and CHEM 1100 or CHEM 1320

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**PLNT\_S 2155: Interior Plants**

Identification, cultural requirements and use of plants adaptable or capable of becoming acclimated to interior environments. Graded on A-F basis only.

**Credit Hour:** 1

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**PLNT\_S 2195: Grapes and Wines of the World**

(same as F\_S 2195). Explores the world of wine through study of viticultural principles and practices, wine styles, classifying wine, the winemaking process and New World and Old World wine regions. Learn wine tasting skills and experience wines from around the world. World wine consumption, social and physical health benefits of moderate wine consumption.

**Credit Hours:** 3

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**PLNT\_S 2210: Ornamental Woody Plants**

Identification and evaluation of trees and shrubs for landscape use.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1200 or instructor's consent

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**PLNT\_S 2215: Ornamental Herbaceous Plants**

Annuals, biennials, perennials, ground covers, and bulbs; their identification, nomenclature classification, culture and use.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1010 or BIO\_SC 1500 or BIO\_SC 1200

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**PLNT\_S 2220: Introduction to Floral Design**

Introduction to the basics of floral design with special emphasis on design mechanics, flower processing, care and handling. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Some sections of this course may be restricted to Plant Science Majors Only and/or students with 75 credit hours or less

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**PLNT\_S 2221: Everyday Floral Design**

Intermediate floral design course expanding skills from introductory floral design with emphasis on the elements and principles of design. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2220

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**PLNT\_S 2240: Landscape Graphic Communication**

Landscape design is a blend of art and science. This course is designed to help students expand their artistic skills, including graphic communications. Topics included to achieve this goal are drawing mediums and techniques, coloring mediums and techniques, symbol usage, and elevation drawings. Graded on A-F basis only.

**Credit Hours:** 2

**Recommended:** ART\_DRAW 1050

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**PLNT\_S 2250: Landscape Site Analysis**

In order to effectively design what a site can become a landscape designer must first be able to accurately see what it is. This course presents a detailed look at obtaining, calculating, and manipulating a site's topography and features while offering a glimpse into the methods and means required for implementation of the final landscape design. Graded on A-F basis only.

**Credit Hours:** 2

**Recommended:** MATH 1100 or equivalent

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**PLNT\_S 2254: Landscape Design**

An introduction into the processes, principles, and practices of landscape design, this course begins with site analysis and moves through the drawing and presentation of your landscape concepts.

**Credit Hours:** 3

**Prerequisites:** Completion of 30 hours

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**PLNT\_S 3002: Topics in Plant Science - Biological**

Initial offering of a course(s) in a specific subject matter area. Offered when proposed by a faculty member in that area of expertise.

**Credit Hour:** 1-4

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**PLNT\_S 3110: Horticultural Drainage and Irrigation Systems**

This course is designed to provide practical knowledge of drainage and irrigation systems for golf courses, sports fields, lawns, landscapes, greenhouses, nurseries and vineyards. Graded on A-F basis only.

**Credit Hours:** 2

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**PLNT\_S 3130: Undergraduate Seminar in Plant Science**

Discussion of assigned or selected topics in Plant Science, including participation in a panel debate and individual seminar oral presentations.

**Credit Hour:** 1

**Prerequisites:** Completion of 60 credit hours

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**PLNT\_S 3210: Principles of Weed Science**

Introduction to principles of weed growth, reproduction, and impact on human activities. Discussion of weed control techniques and technology, weed identification, and developing weed management strategies.

**Credit Hours:** 4

**Prerequisites:** PLNT\_S 2110 or BIO\_SC 1200

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**PLNT\_S 3213: Genetics of Agricultural Plants and Animals**

(same as AN\_SCI 3213). Concepts of molecular, transmission, and population and quantitative genetics. Emphasis given to breeding and biotechnological applications in plant and animal agriculture. Prerequisites: MATH 1100 or higher and one of the following: BIO\_SC 1100 or BIO\_SC 1200 or BIO\_SC 1500 or FW 1100.

**Credit Hours:** 3

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**PLNT\_S 3220: Special Occasion Floral Design**

Advanced floral design course with emphasis in silk décor, sympathy design and public ceremony design. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2220 and PLNT\_S 2221 with grade of B or above in both

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**PLNT\_S 3221: Wedding Floral Design**

Advanced floral design course with emphasis in wedding floral design and personal pieces design. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2220 and PLNT\_S 2221 with grade of B or above in both

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**PLNT\_S 3222: Retail Floral Management**

Course focusing on all areas of retail floral management: business finance, marketing, products and services, employee management, and customer service. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2220 and PLNT\_S 2221

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**PLNT\_S 3222W: Retail Floral Management - Writing Intensive**

Course focusing on all areas of retail floral management: business finance, marketing, products and services, employee management, and customer service. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2220 and PLNT\_S 2221

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**PLNT\_S 3225: Plant Breeding and Genetics**

Mendelian genetic principles and related genetic developments applicable in plant breeding. Discussion of established and new plant breeding procedures applicable to cultivar development.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2110 or equivalent

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**PLNT\_S 3230: Plant Propagation**

Principles and practices of propagation of horticultural plants. Prerequisites: One of the following: PLNT\_S 2075, BIO\_SC 1200, or BIO\_SC 1500 or Instructor's consent.

**Credit Hours:** 3

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**PLNT\_S 3230W: Plant Propagation - Writing Intensive**

Principles and practices of propagation of horticultural plants. Prerequisites: One of the following: PLNT\_S 2075, BIO\_SC 1200, or BIO\_SC 1500 or Instructor's consent.

**Credit Hours:** 3

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**PLNT\_S 3240: Principles of Viticulture I**

(same as F\_S 3240). Grapevine growth, development, selection, propagation, training systems, pruning, and harvesting; vineyard site selection, design, and development. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** F\_S 1010 and F\_S 2195 or PLNT\_S 2195; or PLNT\_S 2100; or PLNT\_S 2110; or PLNT\_S 2125

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**PLNT\_S 3250: Green Industry Bidding**

Principles of interpreting drawings, estimating labor, equipment, materials and other costs and recordkeeping for preparation of competitive green industry bids. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Plant Science major and completion of 30 credit hours

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**PLNT\_S 3252: Arboriculture and Pruning**

Concepts for establishment and management of urban trees. Emphasis on planting, fertilization, pruning, disease, hazard assessment and components of a municipal trees ordinance.

**Credit Hour:** 1

**Prerequisites:** PLNT\_S 2210 or instructor's consent

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**PLNT\_S 3254: Landscape AutoCAD**

AutoCAD is the most widely utilized computer aided drafting software program in the professional landscape design industry. This course will teach students how to utilize AutoCAD to transform their landscape design skills into a digital format and investigate the benefits of utilizing technology as a design tool. We will also explore other industry utilized software, and their functionality, with focus on landscape design and presentation. Additional software will include, but not be limited to, AutoDesk Revit; Adobe Photoshop; and Sketchup. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** PLNT\_S 2250 and PLNT\_S 2254

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**PLNT\_S 3260: Greenhouse Management**

Greenhouse design, environmental control and equipment. Practices associated with plant nutrition management, greenhouse pest control, postproduction handling and marketing of greenhouse crops, and greenhouse management are also covered.

**Credit Hours:** 4

**Prerequisites:** PLNT\_S 2075 or instructor's consent

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**PLNT\_S 3270: Forage Crops**

An introduction to principle forage crops, including identification, anatomy, physiology, and growth characteristics. Pasture production and management, grazing systems, and forage preservation and utilization will also be covered.

**Credit Hours:** 3

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**PLNT\_S 3275: Grain Crops**

Lecture and discussion covering production and utilization, plus growth and development of a wide range of grain crops, including Missouri crops. Problem solving tasks include agronomics, economics and environmental factors.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2110 or PLNT\_S 2125

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**PLNT\_S 3355: Introductory Turfgrass Management**

Characteristics of turf materials, principles of establishment and maintenance.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2100 or instructor's consent

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**PLNT\_S 3385: Problems in Plant Science**

Not accepted as a substitute for any regularly scheduled course. Problems arranged with individual faculty member in specific matter area.

**Credit Hour:** 1-4

**Prerequisites:** consent required

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**PLNT\_S 3510: Biology of Fungi**

(same as BIO\_SC 3510). The diverse roles of fungi in the biosphere will be explored by considering fungi we eat, fungi which destroy our food, fungi in folklore and fungi as global nutrient recyclers.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1200 or BIO\_SC 1500 or equivalent

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**PLNT\_S 3710: Introductory Entomology**

(same as BIO\_SC 3710). Emphasizes the role insects play in the scheme of life. Topics include insect structure, development, diversity, ecology, communication and behavior, and management. Prerequisites: Completion of 60 credit hours and one of the following: BIO\_SC 1100 (or F\_W 1100) or BIO\_SC 1200, or BIO\_SC 1500.

**Credit Hours:** 3

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**PLNT\_S 3715: Insect Diversity**

(same as BIO\_SC 3715). Laboratory exercises emphasizing external insect anatomy, classification, and identification (to family level). Preparation of an insect collection is required.

**Credit Hours:** 2

**Prerequisites or Corequisites:** PLNT\_S 3710 (or BIO\_SC 3710)

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**PLNT\_S 4002: Topics in Plant Science - Biological**

Initial offering of a course(s) in a specific subject matter area. Offered when proposed by a faculty member in that area of expertise.

**Credit Hour:** 1-4

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**PLNT\_S 4003: Topics in Plant Science - Biological- Lab**

Initial offering of a course(s) in a specific subject matter area. Offered when proposed by a faculty member in that area of expertise.

**Credit Hour:** 1-4

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**PLNT\_S 4225: Principles of Plant Breeding**

(cross-leveled with PLNT\_S 7225). This is an introductory course exploring the principles of plant breeding where we examine the application of genetics and the plant sciences to the breeding and improvement of field crops, focusing on conventional plant breeding principles. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2110 or PLNT\_S 2125 or BIO\_SC 1200

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**PLNT\_S 4270: Laboratory Techniques in Forage Analysis**

(cross-leveled with PLNT\_S 7270). This course explores the analysis of forages for yield and nutritive value. Students will learn how to properly collect forage samples in the field, followed by proper preservation and processing techniques. Students will perform all of the laboratory analyses necessary to determine the full nutritive value of their sampled forages (dry matter yield, crude protein, fiber and digestibility), learning the what, how and why behind each analysis performed along the way. Lastly, students will learn how to compare different forage samples and draw conclusions based on their results. Students will be prepared for employment in the feed and forage analysis industry following completion of this course. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites or Corequisites:** PLNT\_S 3270

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**PLNT\_S 4313: Soil Fertility and Plant Nutrition**

(same as SOIL 4313; cross-leveled with PLNT\_S 7313, SOIL 7313). Explanation of principles of delivery of plant nutrients to plants, discussion of the role of each essential nutrient in crop plants and introduction to the management of soil amendments.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100 or instructor's consent

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**PLNT\_S 4315: Crop Physiology**

(cross-leveled with PLNT\_S 7315). Basic course on crop growth and development. Emphasis is on physiological processes and morphology of crop plants, and their application to crop breeding and management decisions.

**Credit Hours:** 3

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**Prerequisites:** PLNT\_S 2125 or equivalent

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**PLNT\_S 4320: Molecular Plant Physiology**

(same as BIO\_SC 4320; cross-leveled with PLNT\_S 7320, BIO\_SC 7320). Modern physiology of higher plants using common cultivated plants as examples. Prerequisites: CHEM 1320 or CHEM 1330 and one of the following: BIO\_SC 1500 or BIO\_SC 1200.

**Credit Hours:** 3

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**PLNT\_S 4325: Advanced Plant Breeding**

(cross-leveled with PLNT\_S 7325). Will introduce students to the application of genetics and the plant sciences to the breeding and improvement of self-pollinated field crops. Classical, current and innovative plant breeding techniques will be addressed.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2110 or PLNT\_S 2125, and PLNT\_S 3213 (or equivalent), and PLNT\_S 3225 (or equivalent)

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**PLNT\_S 4340: Principles of Viticulture II**

(same as F\_S 4340). Environmental and biological factors influencing vine physiology and winegrape quality. Irrigation, canopy management, pest and disease control, budgets and current trends in viticulture. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** F\_S 3240 or PLNT\_S 3240

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**PLNT\_S 4345: Principles of Viticulture and Winemaking**

(same as F\_S 4345; cross-leveled with PLNT\_S 7345, F\_S 7345). This course will cover the basics needed by viticulturists and winemakers to understand grape vine growth and vineyard considerations along with winemaking principles. Viticultural topics will include grapevine growth and development, vineyard design and development, cultivar selection, grapevine propagation, training systems, and harvest and pruning. Winemaking topics will include sensory analysis of grapes, chemical, microbiological and technological aspects of winemaking, and the analytical methods used for juice and wine analysis. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1010 or BIO\_SC 1020 or BIO\_SC 1030

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**PLNT\_S 4355: Advanced Turfgrass Management**

(cross-leveled with PLNT\_S 7355). Provides turfgrass majors a more informative and applicable look at mathematics of turfgrass management, application techniques, cultural practices, and soil/water relationships applicable to careers in golf course and sports turf management, lawn care, and professional grounds maintenance.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 3355 or instructor's consent

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**PLNT\_S 4360: Precision Agriculture Science and Technology**

(same as AG\_S\_M 4360, SOIL 4360; cross-leveled with PLNT\_S 7360, AG\_S\_M 7360, SOIL 7360). Precision agriculture is an information-based approach to farming whereby variability is managed to optimize crop production and reduce environmental pollution. This course provides an overview of precision agriculture technologies (like GIS, GPS, remote

sensing), mapping methods, and case studies illustrating decisions and management.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2100 or SOIL 2100, or PLNT\_S 2110; MATH 1100; AG\_S\_M 1040

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**PLNT\_S 4365: Greenhouse Crops Production**

(cross-leveled with PLNT\_S 7365). Production management decision and commercial culture of the major floriculture crops.

**Credit Hours:** 4

**Prerequisites:** PLNT\_S 3260 or instructor's consent

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**PLNT\_S 4385: Problems in Plant Science**

Special problem in plant pathology designed for the minor program in Plant Pathology. Problems arranged on an individual student basis.

**Credit Hours:** 3

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**PLNT\_S 4400: Plant Anatomy**

(same as BIO\_SC 4400; cross-leveled with PLNT\_S 7400, BIO\_SC 7400). Comparative structure, growth of meristems; development, structure of important cell types, tissues systems; comparative anatomy of stem, root, leaf. Emphasizes anatomy of gymnosperms, angiosperms. Includes lab. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1200 or equivalent

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**PLNT\_S 4500: Biology and Pathogenesis of Plant-Associated Microbes**

(cross-leveled with PLNT\_S 7500). Diagnosis of diseases of plants caused by fungi, nematodes, viruses and bacteria Environmental and genetic factors leading to disease development and strategies for disease management, including biotechnology. Prerequisites: 5 hours from the following courses: BIO\_SC 1010, BIO\_SC 1020, BIO\_SC 1030, BIO\_SC 1100, BIO\_SC 1200 or BIO\_SC 1500; and completion of 60 credit hours.

**Credit Hours:** 4

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**PLNT\_S 4520: Environmental Microbiology**

Fundamental knowledge of selected microbial processes that are important in agriculture, environmental detoxification, and microbial biotechnology. Emphasis is on molecular, genetic and physiological aspects of nitrogen metabolism, bioconversions, antibiosis and biocontrol.

**Credit Hours:** 3

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**PLNT\_S 4550: Plant Biotechnology**

(cross-leveled with PLNT\_S 7550). Principles of gene expression, metabolic pathway analysis and data mining, plant tissue culture and transformation, transgene integration and expression analysis, plant epigenome, emerging transgenic technologies, etc. Prerequisites: PLNT\_S 2125 and one of the following: PLNT\_S 3213, or BIO\_SC 2200 or BIO\_SC 2300.

**Credit Hours:** 4

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**PLNT\_S 4720: Aquatic Entomology**

(cross-leveled with PLNT\_S 7720). Identification, life histories, ecology of aquatic insects. Grading is based on lecture, lab, and a collection. For students of wildlife, fisheries management, aquatic biology, advanced entomology.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 3710 or PLNT\_S 3715 or equivalent, or instructor's consent

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**PLNT\_S 4730: Insect Pest Management for Plant Protection**

(cross-leveled with PLNT\_S 7730). History and concepts of Integrated Pest Management of insect pests, emphasizing complementary use of biological control, plant resistance, environmental manipulations, genetic manipulations, and selective use of insecticides.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 3710 or instructor's consent

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**PLNT\_S 4940: Internship in Plant Science**

Combines study, observation, and employment with an industry or government agency in area of agronomy or horticulture. Written and oral reports and faculty evaluation.

**Credit Hours:** 3

**Prerequisites:** Completion of 75 hours including two courses in department and instructor's consent

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**PLNT\_S 4950: Undergraduate Research in Plant Science**

Capstone experience consisting of investigations in Plant Science in support of an undergraduate thesis or special project portfolio.

**Credit Hour:** 1-3

**Prerequisites:** Completion of 75 credit hours and Plant Science Majors only

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**PLNT\_S 4970: Readings in Plant-Insect Interactions**

(cross-leveled with PLNT\_S 7970). This course is designed to provide graduate and advanced undergraduate students with skills to critically read and evaluate the primary scientific literature using the current primary literature in the field of plant-herbivore interactions. The rich history of chemical, physiological, population, and multi-trophic ecology studies on plant-insect interactions has produced an exciting, fast-paced interdisciplinary field at the forefront of ecology. This course is an ideal way to help students working in this field, or other areas of plant stress, to understand what is currently known, to experience the breadth of questions asked, and to think critically about what's published. Learning to evaluate the literature and prepare well-written critiques will help students to participate effectively in the important peer-review process of science. Graded on S/U basis only.

**Credit Hour:** 1

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**PLNT\_S 4975: Advanced Landscape Design**

(cross-leveled with PLNT\_S 7975). Development of project presentation techniques by analysis of the social, cultural, historical and ecological aspects of landscape design.

**Credit Hours:** 4

**Prerequisites:** PLNT\_S 2254 or instructor's consent

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**PLNT\_S 7001: Topics**

Initial offering of a course(s) in a specific subject matter area. Offered when proposed by a faculty member in that area of expertise.

**Credit Hour:** 1-4

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**PLNT\_S 7002: Topics- Lab**

Initial offering of a course(s) in a specific subject matter area. Offered when proposed by a faculty member in that area of expertise.

**Credit Hour:** 1-4

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**PLNT\_S 7085: Problems**

Advanced studies not expected to terminate in thesis. Problems arranged with individual faculty member in specific matter area.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**PLNT\_S 7087: Seminar**

In-depth development of advanced aspects of plant, insect, or microbial sciences through reviews of results of research in progress and current scientific publications. Graded on S/U basis only.

**Credit Hour:** 1

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**PLNT\_S 7225: Principles of Plant Breeding**

(cross-leveled with PLNT\_S 4225). This is an introductory course exploring the principles of plant breeding where we examine the application of genetics and the plant sciences to the breeding and improvement of field crops, focusing on conventional plant breeding principles. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2110 or PLNT\_S 2125 or BIO\_SC 1200

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**PLNT\_S 7270: Laboratory Techniques in Forage Analysis**

(cross-leveled with PLNT\_S 4270). This course explores the analysis of forages for yield and nutritive value. Students will learn how to properly collect forage samples in the field, followed by proper preservation and processing techniques. Students will perform all of the laboratory analyses necessary to determine the full nutritive value of their sampled forages (dry matter yield, crude protein, fiber and digestibility), learning the what, how and why behind each analysis performed along the way. Lastly, students will learn how to compare different forage samples and draw conclusions based on their results. Students will be prepared for employment in the feed and forage analysis industry following completion of this course. Graded on A-F basis only.

**Credit Hours:** 2

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**PLNT\_S 7313: Soil Fertility and Plant Nutrition**

(same as SOIL 7313; cross-leveled with PLNT\_S 4313, SOIL 4313). Explanation of principles of delivery of plant nutrients to plants, discussion of the role of each essential nutrient in crop plants and introduction to the management of soil amendments.

**Credit Hours:** 3

**Prerequisites:** SOIL 2110 or instructor's consent

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**PLNT\_S 7315: Crop Physiology**

(cross-leveled with PLNT\_S 4315). Basic course on crop growth and development. Emphasis is on physiological processes and morphology of crop plants, and their application to crop breeding and management decisions.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2125 or equivalent

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**PLNT\_S 7320: Molecular Plant Physiology**

(same as BIO\_SC 7320; cross-leveled with PLNT\_S 4320, BIO\_SC 4320). Modern physiology of higher plants using common cultivated plants as examples. May be taken with or without laboratory.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1500 or BIO\_SC 1200 and five hours of chemistry

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**PLNT\_S 7325: Advanced Plant Breeding**

(cross-leveled with PLNT\_S 4325). Will introduce students to the application of genetics and the plant sciences to the breeding and improvement of self-pollinated field crops. Classical, current and innovative plant breeding techniques will be addressed.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2110 or PLNT\_S 2125, and PLNT\_S 3213 (or equivalent), and PLNT\_S 3225 (or equivalent)

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**PLNT\_S 7345: Principles of Viticulture and Winemaking**

(same as F\_S 7345; cross-leveled with PLNT\_S 4345, F\_S 4345). This course will cover the basics needed by viticulturists and winemakers to understand grape vine growth and vineyard considerations along with winemaking principles. Viticultural topics will include grapevine growth and development, vineyard design and development, cultivar selection, grapevine propagation, training systems, and harvest and pruning. Winemaking topics will include sensory analysis of grapes, chemical, microbiological and technological aspects of winemaking, and the analytical methods used for juice and wine analysis. Graded on A-F basis only.

**Credit Hours:** 3

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**PLNT\_S 7355: Advanced Turfgrass Management**

(cross-leveled with PLNT\_S 4355). Provides turfgrass majors a more informative and applicable look at mathematics of turfgrass management, application techniques, cultural practices, and soil/water relationships applicable to careers in golf course and sports turf management, lawn care, and professional grounds maintenance. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 3355 or instructor's consent

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**PLNT\_S 7360: Precision Agriculture Science and Technology**

(same as AG\_S\_M 7360 and SOIL 7360; cross-leveled with PLNT\_S 4360, AG\_S\_M 4360, SOIL 7360). Precision agriculture is an information-based approach to farming whereby variability is managed to optimize crop production and reduce environmental pollution. This course provides an overview of precision agriculture technologies (like GIS, GPS, remote sensing), mapping methods, and case studies illustrating decisions and management.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2100 or SOIL 2100, or PLNT\_S 2110; MATH 1100; AG\_S\_M 1040

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**PLNT\_S 7365: Greenhouse Crops Production**

(cross-leveled with PLNT\_S 4365). Production management decision and commercial culture of the major floriculture crops.

**Credit Hours:** 4

**Prerequisites:** PLNT\_S 3260 or instructor's consent

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**PLNT\_S 7370: Small Fruit and Vegetable Production**

Emphasizes production, management and marketing practices for small fruit and vegetable crops.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2100, PLNT\_S 3230, and PLNT\_S 3235

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**PLNT\_S 7400: Plant Anatomy**

(same as BIO\_SC 7400; cross-leveled with PLNT\_S 4400, BIO\_SC 4400). Comparative structure, growth of meristems; development, structure of important cell types, tissue systems; comparative anatomy of stem, root, leaf. Emphasized anatomy of gymnosperms, angiosperms. Includes lab. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 1200 or equivalent

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**PLNT\_S 7500: Biology and Pathogenesis of Plant-Associated Microbes**

(cross-leveled with PLNT\_S 4500). Diagnosis of disease of plants caused by fungi, nematodes, viruses and bacteria. Environmental and genetic factors leading to disease development and strategies for disease management, including biotechnology.

**Credit Hours:** 4

**Prerequisites:** 5 hours BIO\_SC

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**PLNT\_S 7550: Plant Biotechnology**

(cross-leveled with PLNT\_S 4550). Principles of gene expression, metabolic pathway analysis and data mining, plant tissue culture and transformation, transgene integration and expression analysis, plant epigenome, emerging transgenic technologies, etc.

**Credit Hours:** 4

**Prerequisites:** BIO\_SC 2960 or equivalent; BIO\_SC 2200 or equivalent; BIO\_SC 2300 or equivalent; PLNT\_S 2125

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**PLNT\_S 7710: Systematic Entomology**

(cross-leveled with PLNT\_S 4710). Taxonomy of insects: emphasizes biology and classification of orders and suborders in lecture, and major families in lab. Insect collection required.

**Credit Hours:** 5

**Prerequisites:** PLNT\_S 3710 and PLNT\_S 3715 or 10 hours Biological Sciences

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**PLNT\_S 7720: Aquatic Entomology**

(cross-leveled with PLNT\_S 4720). Identification, life histories, ecology of aquatic insects. Grading is based on lecture, lab, and a collection. For students of wildlife, fisheries management, aquatic biology, advanced entomology.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 3710, PLNT\_S 3715 or equivalent or instructor's consent

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**PLNT\_S 7730: Insect Pest Management for Plant Protection**

(cross-leveled with PLNT\_S 4730). History and concepts of Integrated Pest Management for insects pests, emphasizing complementary use of biological control, plant resistance, environmental manipulations, genetic manipulations, and selective use of insecticides.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 3710 or instructor's consent

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**PLNT\_S 7820: Principles of Insect Physiology**

Major concepts of insect physiology emphasizing functions of organ-systems sensory physiology hormones in development, nutrition.

**Credit Hours:** 4

**Prerequisites:** PLNT\_S 3710, PLNT\_S 3715 and PLNT\_S 7810 or equivalent

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**PLNT\_S 7965: Readings in Plant Stress Biology**

Independent readings and discussion of recent research publications. Topics selected in consultation with supervisory faculty member.

**Credit Hour:** 1-9

**Prerequisites:** instructor's consent

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**PLNT\_S 7970: Readings in Plant-Insect Interactions**

(cross-leveled with PLNT\_S 4970). This course is designed to provide graduate and advanced undergraduate students with skills to critically read and evaluate the primary scientific literature using the current primary literature in the field of plant-herbivore interactions. The rich history of chemical, physiological, population, and multi-trophic ecology studies on plant-insect interactions has produced an exciting, fast-paced interdisciplinary field at the forefront of ecology. This course is an ideal way to help students working in this field, or other areas of plant stress, to understand what is currently known, to experience the breadth of questions asked, and to think critically about what's published. Learning to evaluate the literature and prepare well-written critiques will help students to participate effectively in the important peer-review process of science. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Instructor's consent

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**PLNT\_S 7975: Advanced Landscape Design**

(cross-leveled with PLNT\_S 4975). Development of project presentation techniques by analysis of the social, cultural, historical and ecological aspects of landscape design.

**Credit Hours:** 4

**Prerequisites:** PLNT\_S 2254, instructor's consent

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**PLNT\_S 8001: Topics**

Instruction in specific subject matter areas in plant, insect or microbial sciences.

**Credit Hour:** 1-4

**Prerequisites:** instructor's consent



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**PLNT\_S 8010: Professionalism and Ethics**

Ethical issues in the conduct of scientific research including data integrity, plagiarism, and intellectual property. Scientific writing, lab management, peer review and other professional skills for the life sciences. Graded on A-F basis only.

**Credit Hours:** 2

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**PLNT\_S 8090: Thesis Research**

Original investigations in plant, insect or microbial science in support of thesis for master's candidates. Graded on S/U basis only.

**Credit Hour:** 1-10

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**PLNT\_S 8330: Molecular Breeding and Genomic Technology**

Development of molecular plant breeding, including genome sequencing, molecular markers, genotyping methods, and genome editing. The course provides the principles and application of marker-assisted trait introgression, genomics-assisted selection, and fundamental and methodology of genome editing for crop improvement. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 4325 or equivalent

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**PLNT\_S 8362: Introduction to Plant Metabolism**

(same as BIO\_SC 8362 and BIOCHM 8362). This course is part of a series that aims to provide a solid conceptual foundation in interdisciplinary plant biology for graduate students with a research emphasis in plant biology. This course examines the basic concepts and techniques used to understand plant metabolism. Graded on A-F basis only.

**Credit Hours:** 2

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**PLNT\_S 8365: Introduction to Molecular Cell Biology**

(same as BIOCHM 8365 and BIO\_SC 8365). This course is part of a series that aims to provide a solid conceptual foundation in interdisciplinary plant biology for graduate students with a research emphasis on plant biology. This course examines the basic concepts and techniques used to understand molecular cell biology. Graded on A-F basis only.

**Credit Hours:** 2

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**PLNT\_S 8410: Advanced Weed Science**

Discussion of herbicide physiology and fate in the environment, current development in weed science theory and methodology, and application of analytical procedures in weed research.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 3210

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**PLNT\_S 8420: Herbicide Mode of Action and Symptomology**

Designed for graduate students to gain an understanding of the in-depth processes by which herbicides interrupt normal plant growth and development at a tissue, cellular, and enzymatic level while learning to diagnose visual symptoms associated with herbicide injury. Course maybe repeated for credit. Graded on A-F basis.

**Credit Hours:** 2

**Prerequisites:** PLNT\_S 3210; instructor's consent

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**PLNT\_S 8430: Introduction to Bioinformatics Programming**

(same as AN\_SCI 8430). This course provides the basics of programming and database development to students in the life sciences who have little prior programming experience. It covers Unix/Linux, Perl, MySQL, the relational database design process, and common data formats used in genome informatics. Students will learn how programming skills can enhance their ability to analyze large biological datasets, and will gain hands on experience with examples focused on genomics and bioinformatics. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Instructor's consent

**Recommended:** Undergraduate or graduate course in Genetics

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**PLNT\_S 8505: Introduction to Plant Stress Biology**

(same as BIO\_SC 8505) This course is part of a series that aims to provide a solid conceptual foundation to interdisciplinary plant biology for graduate students with a research emphasis in plant biology. This course examines the basic concepts and techniques used to understand plant stress biology. Graded on A-F basis only.

**Credit Hours:** 2

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**PLNT\_S 8530: Research with Plant Stress Agents**

Students will learn key research strategies for abiotic and biotic plant stress agents. Students will complete two focused hands-on projects. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 7500 and PLNT\_S 7510 or PLNT\_S 7315, or PLNT\_S 7320, or equivalent

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**PLNT\_S 8720: Insect Behavior**

An examination of the breadth of behaviors found in insects, such as orientation mechanisms, communication, dispersal and migration, defensive mechanisms, lost location, feeding strategies, pollination, courtship and reproduction, and social behavior.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 3710 and PLNT\_S 3715 or 10 hours of Biological Sciences

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**PLNT\_S 9001: Topics**

Instruction in specific subject matter areas in plant, insect or microbial sciences.

**Credit Hour:** 1-4

**Prerequisites:** instructor's consent

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**PLNT\_S 9087: Seminar in Plant Science**

In-depth development of advanced aspects of plant, insect and microbial sciences through reviews of results of research in progress and current scientific publications. Graded on A-F or S/U basis dependent on section.

**Credit Hour:** 1

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**PLNT\_S 9090: Dissertation Research**

Original investigations in plant, insect or microbial science in support of dissertation for doctoral candidates. Graded on a S/U basis only.

**Credit Hour:** 1-10

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**PLNT\_S 9310: Ecology of Grazing Lands Systems**

Students travel to grazing lands ecosystems to learn: the components and function of grazing lands; research techniques in soil-plant-animal research; forage-livestock ecology; and the role of forages in conservation practices, wildlife habitat, and sustainable agriculture.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PLNT\_S 9415: Advanced Plant Physiology**

Advanced course in the physiology of plant growth and development. Discussion of current and classical studies in plant physiology with emphasis on responses to environmental variation.

**Credit Hour:** 1-3

**Prerequisites:** PLNT\_S 4315 or PLNT\_S 4320 or equivalent. Instructor's consent required

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**PLNT\_S 9440: Applied Quantitative and Statistical Genetics**

Estimation of genetic effects using means and variances, diallel analysis, environmental stability responses, index selection, and gain from selection.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 4330, STAT 4510, STAT 4530, AN\_SCI 9423, or equivalent

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**PLNT\_S 9540: Genetics of Plant-Microorganism Interaction**

Molecular and general genetics of the interactions between plants and pathogenic or symbiotic microorganisms.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 7500 and PLNT\_S 7510, one course each in Biochemistry and Genetics

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**PLNT\_S 9810: Insect Ecology**

Ecological aspects of insect populations and communities including population dynamics, predator-prey interactions, competition, diversity and stability. Quantitative methods are emphasized.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 3710 and PLNT\_S 3715, STAT 1400 and BIO\_SC 3650 or instructor's consent

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## Political Science (POL\_SC)

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**POL\_SC 1100: American Government**

Topics covered include Constitution, federalism, civil liberties, political attitudes, interest groups, political parties, nominations, elections, and campaigns, voting behavior, Congress, Presidency, bureaucracy, and judiciary. Meets state law requirement.

**Credit Hours:** 3

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**POL\_SC 1400: International Relations**

Contemporary international affairs including family of nations, control of national foreign policies, competition and cooperation in legal, political, economic, social fields.

**Credit Hours:** 3

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**POL\_SC 1704: Introduction to Black Politics**

(same as BL\_STU 1704). This course is oriented toward the development of concepts and theory in the study of black politics. The readings in the course are divided into political science categories such as ideology, electoral participation, movement politics and public policy. In addition, major periods in black political history are examined in the light of the behavioral and theoretical concerns prominent in political science. Black Politics seeks an increased understanding of Black Diaspora history as a group and the various political effects of the history of slavery and racism; and (2) studies Black Diaspora struggles for racial justice, civil rights, political equality, and fundamental respect in the face of both explicit and structural or systematic racism.

**Credit Hours:** 3

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**POL\_SC 2004: Topics in Political Science - Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-3

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**POL\_SC 2100: State Government**

Government and politics at the state level, with emphasis on Missouri. Meets state law constitutional requirement.

**Credit Hours:** 3

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**POL\_SC 2200: The Judicial Process**

Analysis of roles played by American judges and courts in democratic policy formation.

**Credit Hours:** 3

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**POL\_SC 2250: Missouri Politics**

This course examines the government and politics of the state of Missouri. We will study the Missouri Constitution, the structure and function of the Missouri state government, and the politics - partisan and otherwise - of the state of Missouri. We will consider public policy development and implementation and examine several areas of that public policy: health, public safety, education, resource management, and others.

**Credit Hours:** 3

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**POL\_SC 2293: Globalization, Identity and Citizenship**

(same as PEA\_ST 2293, GEOG 2293). This course examines the forces of globalization that are transforming our world, and explores the various responses -- psychological, social and political -- that people have been making over the past fifty years. Part I examines globalization as an economic and geographical process, generating huge social consequences, with rapid growth, population movements, political change and a vast gap between global wealth and poverty. Part II focuses on the ways in which individuals are now seeking to find themselves in this globalizing world. Emphasis will be placed on the ways

in which national identity, faith, gender and sexuality are emerging as key loci around which contemporary people (especially young people) are trying to forge new social identities for themselves. The course will conclude by examining the recently emerging (and highly contested) concept of 'global citizenship'. Graded on A-F basis only.

**Credit Hours:** 3

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**POL\_SC 2293W: Globalization, Identity and Citizenship - Writing Intensive**

(same as PEA\_ST 2293W, GEOG 2293W). This course examines the forces of globalization that are transforming our world, and explores the various responses -- psychological, social and political -- that people have been making over the past fifty years. Part I examines globalization as an economic and geographical process, generating huge social consequences, with rapid growth, population movements, political change and a vast gap between global wealth and poverty. Part II focuses on the ways in which individuals are now seeking to find themselves in this globalizing world. Emphasis will be placed on the ways in which national identity, faith, gender and sexuality are emerging as key loci around which contemporary people (especially young people) are trying to forge new social identities for themselves. The course will conclude by examining the recently emerging (and highly contested) concept of 'global citizenship'. Graded on A-F basis only.

**Credit Hours:** 3

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**POL\_SC 2410: The Politics of International Law**

This course provides an introduction to the development and evolution of international law. Using contemporary events and international relations theory, we explore the origins of international law, discuss why (or why not) states choose to comply, and consider important areas such as war, trade, environmental protection, and human rights to determine the importance of international law in the contemporary international system.

**Credit Hours:** 3

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**POL\_SC 2425: Race and the American Story**

(same as BL\_STU 2425, CNST\_DEM 2425). This course represents a collaboration between the University of Missouri's Department of Black Studies and the Kinder Institute on Constitutional Democracy. Building upon the existing Citizenship@Mizzou program, the course aims to carry forward the goals of the Citizenship program and to further solidify and magnify its impact on campus. In so doing, the course will also serve as a model for improving diversity education on campuses across the country and contribute to a more informed and unified national culture. The core syllabus will consist in readings that tell the story of the confrontation between American political principles and the practice of racial injustice throughout our history. Students will read and discuss the Declaration of Independence, the slavery clauses in the Constitution, the poetry of Phillis Wheatley, and the speeches of Frederick Douglass, Abraham Lincoln, and Martin Luther King, Jr., among others. They will achieve a greater understanding of how diversity relates to humanity, and will learn to dialogue productively and civilly with others who may not share their background or opinions.

**Credit Hours:** 3

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**POL\_SC 2445: American Constitutional Democracy**

(same as HIST 2445, CNST\_DEM 2445) This course offers an introduction to American constitutional democracy. On the one hand,

this course will strive to set the development of America's constitutional democracy into its historical context and to explain it in relation to larger social, political, military, and economic events. A second emphasis is on the nature and character of the American democratic system. Graded on A-F basis only.

**Credit Hours:** 3

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**POL\_SC 2450: The Intellectual World of the American Founders**

(same as CNST\_DEM 2450). This course demonstrates that truly understanding the American constitutional and democratic traditions begins with acknowledging and studying how, in framing the Constitution and in imagining the new nation, the Founders drew on the work and cobbled together the ideas of thinkers from multiple eras and continents and, moreover, thinkers of vastly different political ideologies and disciplinary expertise.

**Credit Hours:** 3

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**POL\_SC 2450H: The Intellectual World of the American Founders - Honors**

(same as CNST\_DEM 2450H). This course demonstrates that truly understanding the American constitutional and democratic traditions begins with acknowledging and studying how, in framing the Constitution and in imagining the new nation, the Founders drew on the work and cobbled together the ideas of thinkers from multiple eras and continents and, moreover, thinkers of vastly different political ideologies and disciplinary expertise.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**POL\_SC 2455: Constitutional Debates**

(same as CNST\_DEM 2455). While we will make reference to the work of canonical political thinkers from the Western tradition during the semester--and while we will also, at times, take a broadly philosophical approach to describing certain of the Founders' theses on governance--this is not a course in 'high theory.' Instead, our examination of the process of drafting and ratifying the United States Constitution will be more pragmatic in nature, focusing on the practical problems and questions concerning national governance that shaped the final design of the Constitution. At the same time, this description of the class as one that addresses the Constitution in terms of the practical problems that the Founders saw it solving drastically understates the complexity and contentiousness of the subject matter that we will be examining. Specifically, the readings for the course will allow us to identify the ways in which, and reasons for which, the Founders disagreed not only on how to solve the problems of governance that the nation faced in 1787 but, moreover, on what these problems actually were. With regard to this task of understanding the principles underlying the heated debates that arose during the drafting and ratification process, it should be noted that this is not a class in Framer-worship. While we will discuss why the Federalists ultimately 'won the day,' we will also devote significant attention to how the Anti-Federalists both profoundly influenced how we understand constitutional democracy in the United States and provided an intellectual lineage that still informs contemporary political debate. We will, that is, give each side their due. In addition, we will conclude the semester by considering the Constitution's post-ratification history, looking at a handful of Supreme Court decisions and constitutional amendments in order to think about some of the questions that the 1787 Constitution left unanswered and some of the problems that it left un-solved.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 2455H: Constitutional Debates - Honors**

(same as CNST\_DEM 2455H). While we will make reference to the work of canonical political thinkers from the Western tradition during the semester--and while we will also, at times, take a broadly philosophical approach to describing certain of the Founders' theses on governance--this is not a course in 'high theory'. Instead, our examination of the process of drafting and ratifying the United States Constitution will be more pragmatic in nature, focusing on the practical problems and questions concerning national governance that shaped the final design of the Constitution. At the same time, this description of the class as one that addresses the Constitution in terms of the practical problems that the Founders saw it solving drastically understates the complexity and contentiousness of the subject matter that we will be examining. Specifically, the readings for the course will allow us to identify the ways in which, and reasons for which, the Founders disagreed not only on how to solve the problems of governance that the nation faced in 1787 but, moreover, on what these problems actually were. With regard to this task of understanding the principles underlying the heated debates that arose during the drafting and ratification process, it should be noted that this is not a class in Framers-worship. While we will discuss why the Federalists ultimately 'won the day,' we will also devote significant attention to how the Anti-Federalists both profoundly influenced how we understand constitutional democracy in the United States and provided an intellectual lineage that still informs contemporary political debate. We will, that is, give each side their due. In addition, we will conclude the semester by considering the Constitution's post-ratification history, looking at a handful of Supreme Court decisions and constitutional amendments in order to think about some of the questions that the 1787 Constitution left unanswered and some of the problems that it left un-solved.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required; POL\_SC 1100

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**POL\_SC 2500: The Science of Politics**

This course provides an introduction to the Science of Politics. We will consider a variety of research methods, including historical case study research, field research, quantitative analysis, survey research, experimental techniques, and more. Whatever the research method, one of the central objectives of the course is for students to come away with a clear understanding of how to evaluate causal relationships in the political world. The course is also chock-full of real world applications, with the goal of using actual science to empower you in three ways. First, you will appreciate that the root of science is skepticism and logic, allowing you to make freer choices and to become a better problem solver. Second, in this course you will become a practiced consumer of social science, giving you substantial power to understand, evaluate, and utilize scientific knowledge, whether you choose to work in politics, journalism, industry, government, or elsewhere. Third, the course will provide you with actual research explaining why politicians seek and win elections, why countries go to war, why we follow our parents' political ideologies, why some countries are rich and others poor, and so much more of vital importance for our planet. To think scientifically, in short, is to develop understanding of humanity, seeing the invisible yet powerful forces that shape our lives. Graded on A-F basis only.

**Credit Hours:** 3

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**POL\_SC 2600: Canadian Politics and Government**

Introductory survey of Canada, including constitutional development, governmental institutions, political participation, and Canadians' political attitudes and behaviors.

**Credit Hours:** 3

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**POL\_SC 2700: Comparative Political Systems**

Analysis of major political systems selected from Europe, Asia, Africa, and Latin America, emphasizing basic concepts of comparative political study.

**Credit Hours:** 3

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**POL\_SC 2710: Politics and the Military**

Comparative study of post-cold war civil-military relations; military as an interest group, change agent, policy instrument and competitor of civilian politicians.

**Credit Hours:** 3

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**POL\_SC 2720: European Democracies**

This course provides an introduction to the institutions and issues in contemporary European political systems. It covers domestic institutions and policies as well as the developments of the European Union.

**Credit Hours:** 3

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**POL\_SC 2800: Liberty, Justice and the Common Good**

(same as CNST\_DEM 2800). Selected great political theorists and their contemporary relevance. How to think critically about political ideas and ideologies.

**Credit Hours:** 3

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**POL\_SC 2860: American Political Thought**

Examines major themes that shaped three centuries of American political thought, including slavery, religion, and the tension between unity and difference. Readings are drawn from primary sources (Jefferson, Adams, Mason, Tocqueville, Calhoun, Lincoln, Stowe, Baldwin) as well as contemporary analytic commentary on those sources (Bercovitch, Hartz, Wolin, Guinier, Morrison).

**Credit Hours:** 3

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**POL\_SC 3000: Introduction to Political Research**

This course is an introduction to the systematic analysis of political phenomenon. It examines the meaning of 'explanation' and 'causal reasoning,' and research strategies designed to make valid causal inferences. The course overview experimental design, measurement, hypothesis formulation and testing, and the display of information, using substantive examples from two or more fields of political science for illustrative purposes. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing; C- or higher in STAT 1200, STAT 1300, STAT 1400, STAT 2200, or STAT 2500 or C- or higher in MATH 1300, MATH 1400, or MATH 1500

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**POL\_SC 3000W: Introduction to Political Research - Writing Intensive**

This course is an introduction to the systematic analysis of political phenomenon. It examines the meaning of 'explanation' and 'causal reasoning,' and research strategies designed to make valid causal inferences. The course overview experimental design, measurement, hypothesis formulation and testing, and the display of information, using substantive examples from two or more fields of political science for illustrative purposes. Graded on A-F basis only.

**Credit Hours:** 3**Prerequisites:** Sophomore standing; C- or higher in STAT 1200, STAT 1300, STAT 1400, STAT 2200, or STAT 2500 or C- or higher in MATH 1300, MATH 1400, or MATH 1500

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**POL\_SC 3164: Nation Building through a Barrel of a Gun**

(same as MIL\_SC 3164). This course was developed to provide students the opportunity to examine the dilemmas of military intervention, nation-building/peacekeeping operations and exit strategies. This course is designed to challenge students to think critically and arrive at their own conclusions about the use of military power to settle differences between nations, and use of military forces to conduct nation building.

**Credit Hours:** 3

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**POL\_SC 3165: 'Chasing Ghost', The History of Irregular Warfare**

(same as MIL\_SC 3165). This course explores the history of irregular warfare from the guerrilla perspective. The course examines the works of Mau Tse-Tung, Che Guevara, T.E. Lawrence and several other guerrilla leaders. You will analyze the evolution of irregular warfare through history and understand the complexities associated with the difficulties of countering and defeating irregular warfare. Graded on A-F basis only.

**Credit Hours:** 3

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**POL\_SC 4000: Introductory Statistics for Political Science**

Basic course in applied statistics and inference using extensive examples from voting behavior, congressional behavior, international relations and public policy. Topics included nonparametric measures, probability, and rudimentary hypothesis testing; computer applications with political data using SAS. Math Reasoning Proficiency Course.

**Credit Hours:** 3**Prerequisites:** MATH 1100 or MATH 1120 or equivalent, concurrent enrollment in POL\_SC 4010

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**POL\_SC 4004: Topics in Political Science - Social Science**

Organized study of selected topics. Subjects and earnable credit vary from semester to semester.

**Credit Hour:** 1-99

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**POL\_SC 4004W: Topics in Political Science - Social Science - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit vary from semester to semester

**Credit Hour:** 1-99

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**POL\_SC 4010: Computing Methods**

(cross-leveled with POL\_SC 7010). Develops computer-based skills with political science data. SAS, and other packages used in mainframe and PC environments. Graded on S/U basis only.

**Credit Hour:** 1**Prerequisites:** concurrent enrollment in POL\_SC 4000

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**POL\_SC 4100: Political Parties and Election Campaigns**

Development, organization, functions, activities of major and minor political parties; principles and procedures of managing campaigns; campaign finance; election administration.

**Credit Hours:** 3

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**POL\_SC 4110: Political Behavior**

Economic, psychological, and social dimensions of political behavior; participation, leadership and elites; political attitudes; voting behavior and decision-making processes.

**Credit Hours:** 3

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**POL\_SC 4120: Politics and the Media**

The role and importance of mass media in the political process, primarily the U. S. Constitutional protections of the press, politics of media control, political news and advertising, effects of information on election campaigns, political institutions, and policymaking.

**Credit Hours:** 3

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**POL\_SC 4120W: Politics and the Media - Writing Intensive**

The role and importance of mass media in the political process, primarily the U. S. Constitutional protections of the press, politics of media control, political news and advertising, effects of information on election campaigns, political institutions, and policymaking.

**Credit Hours:** 3

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**POL\_SC 4130: African-American Politics**

(same as BL\_STU 4130). Surveys political participation of African-Americans in American politics. Analyzes their public lives in the context of elections, behavior of political organizations, social movements, parties, and level of government.

**Credit Hours:** 3

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**POL\_SC 4131: Race and Politics**

This course provides a selective survey of the vast literature on race and politics in the contemporary United States. Our purpose is to understand the complex relationship between racial and ethnic identity and political outcomes in the United States. As such, we will explore broad political science concepts in the context of racial and ethnic groups. We will focus on African Americans and Latino/as in this course, but where appropriate, we will look to Asian Americans and Native Americans.

**Credit Hours:** 3

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**POL\_SC 4132: Race, Immigration, and Urban Politics**

The global world is increasingly an urban world: about half of humanity lives in cities and this trend is expected to continue apace. In the United States, over 80 percent of people live in metropolitan regions. Urban

areas present enormously complex opportunities and challenges, from the perceived failure of urban public schools, to seemingly intractable racial inequalities, to the integration of a new wave of immigrants, to affordable housing, to efficient public transportation. On the other hand, cities have long been heralded as places of opportunity, spaces of economic development, entrepreneurship, and multiculturalism. Under what conditions are urban spaces socially just, diverse, and prosperous? Under what conditions do they become spaces contested by different interest groups? Cities are the canvas upon which many of the most pressing social issues of our day are being constructed. This course will give students an interdisciplinary understanding and analysis of these urban social problems, by bridging the literature on urban politics with that on urban geography. The complexity of urban issues calls for diverse perspectives in order to imagine creative responses. Approaching the urban experience from qualitative and quantitative perspectives will help students address structural as well as individual solutions to the problems urban residents face.

**Credit Hours:** 3

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**POL\_SC 4140: Congress and Legislative Policy**

Study of national and state legislative systems and legislative policy making, with emphasis on Congress.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4150: The American Presidency**

Evolution of the presidency; particular emphasis on constitutional and political roles played by chief executive in shaping public policy.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4150W: The American Presidency - Writing Intensive**

Evolution of the presidency; particular emphasis on constitutional and political roles played by chief executive in shaping public policy.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4160: Interest Groups**

Development, organization, functions, activities, internal politics of special interest groups such as business, labor, agricultural and public interest groups; lobbying and techniques for influencing public policy in the American political system.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4160W: Interest Groups - Writing Intensive**

Development, organization, functions, activities, internal politics of special interest groups such as business, labor, agricultural and public interest groups; lobbying and techniques for influencing public policy in the American political system.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4170: Politics of the American South**

This course focuses on the politics of the American South in the latter part of the 20th century and the early years of the current millennium. For undergraduate credit only.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4180: Politics and Hollywood**

This course examines the impact of entertainment media on politicians, the public, and politics in the United States. We will examine the worlds of film, television, and celebrity involvement in politics.

**Credit Hours:** 3

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**POL\_SC 4180W: Politics and Hollywood - Writing Intensive**

This course examines the impact of entertainment media on politicians, the public, and politics in the United States. We will examine the worlds of film, television, and celebrity involvement in politics.

**Credit Hours:** 3

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**POL\_SC 4190: Elections and Democracy in the United States**

This is a class on United States election processes and their relationship to democratic governance. By election processes I mean the rules and procedures under which elections are contested. These include franchise, balloting methods, vote aggregation rules, apportionment, districting and related subjects. The class does not engage public opinion, partisanship, voter choice and other subjects typically classified as political behaviors. Elections are a means to an end; that end is normatively defensible democratic governance. Consequently, we discuss these subjects in the context of American democratic thought and ideals. Election processes can either contribute towards our democratic goals and aspirations or detract from them. More precisely, different election methods privilege different democratic values. To understand whether United States elections work well or poorly one must understand the democratic ideals that have most deeply influenced the American experience. We study election processes from a historical development perspective informed by political thought. However, our assessment of United States elections is deeply informed by contemporary theory and empirical analysis.

**Credit Hours:** 3

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**POL\_SC 4200: The American Constitution**

Leading American constitutional principles as they have evolved through important decisions of the United States Supreme Court.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4200W: The American Constitution - Writing Intensive**

Leading American constitutional principles as they have evolved through important decisions of the United States Supreme Court.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4210: Constitutional Rights**

Survey of Supreme Court cases involving the Constitution's protections for life, liberty, and property and guarantee of equal protection of the law.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4210W: Constitutional Rights - Writing Intensive**

Survey of Supreme Court cases involving the Constitution's protections for life, liberty, and property and guarantee of equal protection of the law.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4220: The United States Supreme Court**

Role of Supreme Court in American system of government; particular attention given to reading biographies and writings of the Justices.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4230: Constitution and Civil Liberties**

Civil liberties in the American constitutional context emphasizing freedom of expression (religion, speech, press, assembly), rights of accused and right to privacy.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4310: Comparative State Politics**

Analyzes similarities and differences of state politics and the ways in which such politics are shaped by political and socioeconomic environments of the states.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4320: Public Policy**

Introduction to the study of public policy in the United States. Analyzes public policy choices at the national, state and local level and the variety of forces which serve to shape policy decisions.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4320W: Public Policy - Writing Intensive**

Introduction to the study of public policy in the United States. Analyzes public policy choices at the national, state and local level and the variety of forces which serve to shape policy decisions.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4370: Law, Policy, and Regulation**

Off in the quiet corners of the policy process, public servants distribute public benefits, write rules that have the force of law, adjudicate conflicts and selectively enforce the law. Frequently the government delegates these tasks to non-profit organizations. These public and quasi- public administrative organizations play, therefore, a critical role in the politics of who gets what, when and how - the essential question of public policy. Administrative organizations in the United States play this powerful role, however, within a constitutional democracy. This course focuses on policymaking through the administrative state and the relationship between the administrative state, democracy and the U.S. Constitution.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4380: Politics of Criminal Justice**

Course explores the political motivations for and the substantive consequences of state and federal criminal justice policy in the United States.

**Credit Hours:** 3

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**POL\_SC 4390: United States Health Politics and Policy**

This course deals with the politics and public policy of health in the United States. This topic is broader than you may think - when many Americans hear 'health policy,' they probably think first of the Affordable Care Act (Obamacare) and other policies dealing with health insurance. There is no doubt that these issues are important and deserve our attention, they are just the tip of the iceberg of how politics and policy affect the health of the US population. In addition to issues of health insurance coverage, this course will cover topics ranging from the quality of medical care, to socioeconomic disparities in health outcomes, to substance abuse and addiction, to gender and reproductive health, to the question of what counts as a 'disease,' and more. All of these issues are deeply political, whether you may realize it or not, and all present public policy challenges. In addition to building your subject matter knowledge, this course will help you to develop critical thinking and argumentation skills about public policy issues. It will also give you experience in conceiving and drafting a policy memo, a common format of written communication in the policy world.

**Credit Hours:** 3

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**POL\_SC 4400: Theories of International Relations**

Surveys Theories of International Relations. Analyzes conceptions of decision-making, foreign policy behavior and international society. Prerequisites: junior standing

**Credit Hours:** 3

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**POL\_SC 4410: Politics and War**

(same as PEA\_ST 4410). Why do wars occur? The functions of force and uses of a threat of force. Problems of national security strategy and arms control.

**Credit Hours:** 3

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**POL\_SC 4411: Genocide, Terrorism and Civil War**

This course explores the conditions that lead to the initiation, escalation and termination of civil wars as well as the causes and targets of terrorism and the effects of genocide.

**Credit Hours:** 3

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**POL\_SC 4412: Strategy and Warfare**

Examines strategic theory, traditional forms of warfare (on land, sea, and in the air), as well as irregular warfare and terrorism. Additional topics include weapons of mass destruction, deterrence, and technology.

**Credit Hours:** 3

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**POL\_SC 4413: Politics of Cyber-Security**

This course is an introduction to the politics of cyber-security. It will discuss what cyber-security is, from both a technical and political standpoint; examine the importance of cybersecurity for global economic activity and national security; and discuss current technical, political, and ethical debates over cyber-security topics. The course will focus largely on cases and applications of cyber-security knowledge for students in the social sciences, and will include guest lectures, either virtual or in-person, from leading national and state-level civilian and military practitioners on the topic. In order to understand the mechanics of cyber-security and the technical issues at stake, students will also take an online Security + training course, with guidance and discussion during the class and will leave with an entry-level certification for employment in the field. By the end of the semester, students will understand the technical basics and key political debates around major cyber-security topics; be familiar with a range of cases where cyber-security directly affected global commerce and international/national security; and be able to apply their knowledge to current events and professional environments.

**Credit Hours: 3**

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**POL\_SC 4415: Peacekeeping and Intervention**

This course will survey the causes and consequences of peacekeeping and intervention as well as assess the conditions that lead to successful and failed missions.

**Credit Hours: 3**

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**POL\_SC 4420: Politics of International Economic Relations**

Study of reciprocal interaction between global politics and economics. Includes politics of north/south relations, multinational non-state actors, arms transfers and dependency.

**Credit Hours: 3**

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**POL\_SC 4430: Global Human Rights**

Human rights violations are widespread. The majority of the world's citizenry lives with inadequate civil and political and economic, social, and cultural rights, often with dire consequences on economic and human security. What caused this situation? And, moreover, what can be done to fix it? This course focuses on the social scientific study of human rights. We will focus on scientific explanations of the rise of the human rights movement, political and economic explanations for human rights conditions, and the effects of advocacy efforts concerning human rights. After this class, you will have not only an understanding of the major players and factors influencing human rights, but a base understanding of the social scientific processes which govern human rights conditions and improvements. As such, this class is not a history class or a class on current events. Though current and historical events will be discussed, your grade will not depend on your rote memorization of these events. Instead, the focus will be on understanding the underlying interests of important actors towards human rights, the arenas in which these actors interact, and the rules which govern their interactions. This focus on the basic principles will provide you with a rich practical knowledge of human rights. At the conclusion of the course, you will be able to actively engage with the global human rights community.

**Credit Hours: 3**

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**POL\_SC 4440: International Organization**

Forms and functions of governmental (United Nations, European Union, NATO) and nongovernmental international organizations.

**Credit Hours: 3**

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4540: American Foreign Policies**

Bases, formulation, evaluation of current American foreign policies.

**Credit Hours: 3**

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**POL\_SC 4540W: American Foreign Policies - Writing Intensive**

Bases, formulation, evaluation of current American foreign policies.

**Credit Hours: 3**

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**POL\_SC 4550: Environmental Conflict**

This course introduces advanced undergraduate students to the linkages between the environment and conflict. This includes the use of natural resources to fund rebellion, the relationship between human-induced environmental stress and political violence, and competition between states over resources. During the course students will develop a basic understanding of climate change science, conflict studies, and conflict management strategies employed by local, regional, and international actors.

**Credit Hours: 3**

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**POL\_SC 4600: Latin American Politics**

Development, present status of political institutions in South America; emphasizes current political problems.

**Credit Hours: 3**

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**POL\_SC 4610: European Political Systems**

Comparison of political cultures, institutions, and processes of Britain, France, West Germany, and selected smaller countries in Western Europe.

**Credit Hours: 3**

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**POL\_SC 4630: The Politics of Modern Europe**

The course is an introduction to the politics of modern Europe. Europe provides an ideal setting to explore the central concepts and debates of comparative politics in industrialized countries. The course introduces the wide variety of political institutions, political economics and cultures existing in contemporary Europe and probes the question how such discrepancies might affect political outcomes and the possibility to coordinate EU policy. Several central topics in comparative politics, including political parties, elections, the welfare state, civil society and corruption will be introduced with application to modern European democracies. Graded on A-F basis only.

**Credit Hours: 3**

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**POL\_SC 4640: African Politics**

(same as BL\_STU 4640). A general comparative course focusing on post-independent Africa. Theories and concepts related to decolonization, nationalism, democratization, and ethnicity; also



institutional forms and organizations: political parties, parliaments, and executives.

**Credit Hours:** 3

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**POL\_SC 4660: Canada in North America**

This course focuses on the role of Canada in North America. The main topic areas include the evolution of Canada as a political system; political structures and processes; regionalism and social movements; political, economic and social connections with North America; and the future of Canada in North America.

**Credit Hours:** 3

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**POL\_SC 4670: The Political System of the European Union**

This course examines the politics, political actors, and institutions of the European Union from a comparative perspective. It questions whether we can view the EU as a federal democratic system similar to the U.S.

**Credit Hours:** 3

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**POL\_SC 4680: Chinese Politics and Foreign Policy**

This course is intended to introduce you to the history and analysis of Chinese politics and foreign policy since 1949. The course has two main goals. The first is that during the semester, you should learn the key historical events in Chinese political development and foreign policy. Second, you will examine these events and developments in light of major theories in comparative politics and international relations.

**Credit Hours:** 3

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**POL\_SC 4690: Korean Politics: North and South Korea**

(same as KOREAN 4690). This course is an introduction to the development of North and South Korea since 1945. By the end of the semester, students will 1) Know the key events and historical trends in the political development and foreign policy of the two Koreas 2) Be able to explain these developments using major theories in comparative politics and international relations We will focus on processes of continuity and change, both for the two political systems and for the everyday lives of individuals on both sides of the DMZ. We will explore the questions and topics covered in the course using historical, literary, and audiovisual materials.

**Credit Hours:** 3

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**POL\_SC 4695: Understanding Korea Through Film**

This course will familiarize students with major historical developments, substantive political issues, and theoretical debates in the study of Korea's twentieth-century history and politics. The course touches on issues such as the impact of colonialism, revolution, civil and international conflict, political economy and corruption, contemporary social issues, and authoritarian and democratic political development in both North and South Korea. The course pairs analytical and explanatory readings with weekly films - either documentary or non-documentary - to interrogate major social and political developments on the Korean peninsula since the start of the twentieth century.

**Credit Hours:** 3

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**POL\_SC 4700: America's Wars in Asia/War and Peace in Asia**

This course is an introduction to the causes and character of conflict in Asia, especially the conflicts that either have involved or could plausibly involve the United States of America. These conflicts often combine aspects of civil conflict with aspects of international politics, and one of the important themes of the course will be to look at Asia's conflicts through both of these lenses. In addition, we will examine America's foreign policy options and how it selected strategies to deal with these conflicts. By the end of the semester, students will 1) Be familiar with the key historical events and concepts related to conflict in East Asia 2) Be able to explain these developments using a range of major theories and conceptual lenses in comparative politics and international relations. The course will explore the questions and topics covered in the course using historical, literary, and audiovisual materials.

**Credit Hours:** 3

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**POL\_SC 4710: Terrorism: Religious, Ethnic and Ideological Politics**

Terrorism as political violence extending beyond the acts themselves. Examines major modern movements, e.g. Northern Ireland, Basques (Spain), Germany, Algeria, Arab-Israeli, Iran, India, Sri Lanka, Peru, Argentina, Uruguay.

**Credit Hours:** 3

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**POL\_SC 4720: Politics of Development**

(same as BL\_STU 4720). Comparative, interdisciplinary analysis of the politics of developing countries in Asia, Africa, and Latin America. Special attention given to the problems of political and socioeconomic development.

**Credit Hours:** 3

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**POL\_SC 4730: Women and Politics**

(same as WGST 4730). This course examines women's political participation and public policies towards women in countries around the world.

**Credit Hours:** 3

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**POL\_SC 4750: Power and Money**

This course provides an introduction to comparative political economy by focusing on the following questions. How and why do governments promote economic prosperity? Does democracy make people richer or poorer? Is it true that 'money is power'? Can poor countries enjoy a stable democracy?

**Credit Hours:** 3

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**POL\_SC 4770: Comparative Political Behavior**

Explores research questions related to cross-national differences and similarities in public opinion formation, political culture and values, voting behavior, and other forms of political participation. Violent forms of political participation are also considered. Graded on A-F basis only.

**Credit Hours:** 3

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**POL\_SC 4780: Dictatorship and Democracy**

Why did the Arab Spring happen? Will China survive or collapse? Did North Korea's new dictator Kim Jong Un really execute his old girlfriend? Throughout history, the majority of the world's regimes have been

dictatorships rather than democracies. This course is an introduction to the causes and character of contemporary authoritarian and democratic regimes: how and why they are created, why they survive, why people resist dictatorship or don't, and why regimes survive or fall. We will use academic articles, news stories, and films to study dictatorship and democracy. You will come away from this course with an understanding of the major theoretical debates about dictatorship and democracy, and how these debates apply to important countries and issues in the world today.

**Credit Hours:** 3

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**POL\_SC 4790: The Age of Democratization?**

Democracy has become a global norm. After repeated waves of democratization, democracy has now reached all corners of the world and spread far beyond the affluent West. How can we understand transitions to democracy and democratic stability? What is the relationship between democracy and development and what can America and other Western powers do to promote democracy abroad? Although democracy has been on the rise in the last decades we have also seen new challenges emerge. Many countries have adopted democratic facades hiding the persistent stability of authoritarianism. We have also seen the rise of China and Russia in world politics, creating a powerful counterweight to the previously dominant liberal order. How will this change affect the prospects for democratization in the future? These and other questions will be debated in this course as students will be introduced to central question, theories, and findings in comparative democratization.

**Credit Hours:** 3

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**POL\_SC 4800: Classical Political Theory**

(same as AMS 4800, CNST\_DEM 4800; cross-leveled with AMS 7800). Great Greek, Roman, and Medieval political theorists on the relation of psychology, ethics, politics, and the best form of government.

**Credit Hours:** 3

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**POL\_SC 4810: Modern Political Theory**

(same as CNST\_DEM 4810). Great political theorists from Machiavelli through Marx on the nation state, capitalism, liberalism, conservatism, and Marxism.

**Credit Hours:** 3

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**POL\_SC 4820: Contemporary Political Theory**

Great contemporary thinkers on Western vs. Eastern Marxism, existentialism, critical theory, political theologies, postmodernism, feminism, environmentalist ideologies, biological approaches to politics.

**Credit Hours:** 3

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**POL\_SC 4830: Democracy in America (and Elsewhere)**

(same as CNST\_DEM 4830). This course focuses on the dynamics of democracy. We will explore various topics in the history, development, and practice of democracy through an examination of the writings of Alexis de Tocqueville, one of the most insightful and prescient observers of American political culture.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4840: Developing Dynamics of Democracy**

(same as POL\_SC 4840). This course examines developments in the theory and practice of democracy from the ancient Greeks to the present. Beginning with the origins of democracy in the Hellenic city states, we consider the transformation of democratic concepts in the classical liberal period, review the development of democratic institutions in the United States and Europe, examine the emergence of supra-national democratic institutions such as the European Union, and assess the future of democratization in the 21st century.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4850: Scots and the Making of America**

(same as CNST\_DEM 4850). This class is on the influence of the Scottish Enlightenment on the founding of the United States. The Scottish Enlightenment refers to uniquely Scottish advances in social, political, scientific and literary thought that transpired in the 18th and early 19th centuries. This line of thought, especially in its social and political dimensions, was especially influential in shaping the founding of the United States.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100

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**POL\_SC 4850H: Scots and the Making of America - Honors**

This class is on the influence of the Scottish Enlightenment on the founding of the United States. The Scottish Enlightenment refers to uniquely Scottish advances in social, political, scientific and literary thought that transpired in the 18th and early 19th centuries. This line of thought, especially in its social and political dimensions, was especially influential in shaping the founding of the United States.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 1100, Honors eligibility required

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**POL\_SC 4900: Beltway History and Politics: American Constitutional Democracy in Theory and Practice**

(same as HIST 4900, CNST\_DEM 4900). This course is an experiential overview of American political history for students on the Kinder Forum's Washington program, showing how American constitutional democracy was developed and implemented right here on the Potomac, as much as possible in the actual places where the events occurred. Emphasis will be placed on interplay between constitutional theory and actual political experience over time, and the tensions and institutional changes that emerged as Americans and their government coped with cataclysmic social changes, unparalleled economic development, and fearsome international challenges.

**Credit Hours:** 3

**Prerequisites:** This course is limited to students participating in the Kinder Scholars Washington D.C. Internship program

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**POL\_SC 4940: Political Science Internship**

Work experience in a public or private organization that is relevant to the political science major coordinated by a faculty member.

**Credit Hour:** 3-6

**Prerequisites:** junior standing with a 3.0 GPA; or senior standing with 2.67 GPA. Must be in good standing

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**POL\_SC 4975: Journal on Constitutional Democracy**

(same as HIST 4975, CNST\_DEM 4975). The journal is sponsored by the Kinder Institute on Constitutional Democracy and staffed by current former participants in the institute's undergraduate Society of Fellows program. Each volume of the journal is organized around a student-selected idea or era central to the historical development and philosophical foundations of constitutional democracy in the United States. Student-authored essays address this theme via arguments and historical overviews crafted from the close reading and analysis of primary source documents, with the exception being that participating in the journal will relate back to and advance students' study of American political thought and history.

**Credit Hour:** 1-3

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**POL\_SC 4985: Problems in Political Science**

Independent investigation to meet needs of the individual student.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**POL\_SC 4986: Special Readings in Political Science**

Independent readings selected in consultation with supervisory faculty member.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**POL\_SC 4996: Political Science Capstone, Honors**

Special readings, reports in the several fields of political science. For political science Honors students.

**Credit Hour:** 1-6

**Prerequisites:** senior standing. Honors eligibility required

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**POL\_SC 7000: Introductory Statistics for Political Science**

Basic course in applied statistics and inference using extensive examples from voting behavior, congressional behavior, international relations and public policy. Topics included nonparametric measures, probability, and rudimentary hypothesis testing; computer applications with political data using SAS.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 or MATH 1120 or equivalent

**Corequisites:** POL\_SC 4010

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**POL\_SC 7010: Computing Methods**

(cross-leveled with POL\_SC 4010). Develops computer-based skills with political science data. SAS, and other packages used in mainframe and PC environments. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** concurrent enrollment in POL\_SC 4000

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**POL\_SC 7085: Problems in Political Science**

Individual study in one of the fields of Political Science.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**POL\_SC 7500: Insurgency and Counterinsurgency**

Why do insurgent movements emerge and end? How do they fight? How do governments and foreign armies respond? This course will address these questions from different perspectives and in different historical and geographic contexts. The course will examine theories and concepts of insurgency and counterinsurgency, as well as strategies and tactics of each. Graded on A-F basis only.

**Credit Hours:** 3

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**POL\_SC 7900: Topics in Strategic Studies**

Organized study of selected topics in Strategic Studies. Subjects vary from semester to semester. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

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**POL\_SC 8085: MA Research in Political Science--Non-Thesis**

Independent research not leading to a thesis. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**POL\_SC 8090: MA Research in Political Science--Thesis**

Independent research leading to thesis. Graded on S/U basis only.

**Credit Hour:** 1-99

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**POL\_SC 8550: Strategic Studies**

The purpose of this course is to analyze important theories regarding strategic studies. We will explore what makes the militaries of some states highly proficient fighting machines, whereas others seemingly cannot execute the simplest tasks. Beginning with an overview of military history to provide important background, the course covers topics explaining war outcomes and military effectiveness, such as military strategy, regime type, and civil-military relations. Additional topics may be considered. Graded on A-F basis only.

**Credit Hours:** 3

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**POL\_SC 9005: Professional Development in Political Science**

The purpose of this course is to familiarize doctoral students with the expectations of the discipline and requirements for success as a professional political scientist, in graduate training and afterward. It is designed to complement and contribute to but not directly overlap with other courses offered in the Department. Graded on S/U basis only

**Credit Hour:** 1

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**POL\_SC 9010: Research Design and Analysis**

Research design, social measurement and statistical analysis for study of political phenomena.

**Credit Hours:** 3

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**POL\_SC 9030: Linear Models in Politics**

Linear and non-linear multivariate estimation techniques with applications to political science research.

**Credit Hours:** 3

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**POL\_SC 9040: Advanced Political Methodology**

Analytic strategies and statistical models applicable to social science research. Emphasis on modeling political phenomena. Topics vary, include linear and nonlinear models, multidimensional scaling.

**Credit Hours:** 3

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**POL\_SC 9050: Introduction to Formal Political Theory**

Formal and mathematical models of political institutions and behavior. Topics may include social choice, game theory, spatial models, coalition formation.

**Credit Hours:** 3

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**POL\_SC 9070: Research Design and Qualitative Methods**

Seminar on research design for qualitative research in political science. Topics include case-study, archival, multi-method, and field research and other qualitative methods.

**Credit Hours:** 3

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**POL\_SC 9085: Problems in Political Science**

For graduate students with necessary prerequisite courses. Topics in one of the fields of political science for individual study. Some sections may be offered either on A-F or S/U basis only.

**Credit Hour:** 1-99

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**POL\_SC 9090: Ph D Research in Political Science**

Independent research leading to thesis. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**POL\_SC 9100: American Political Behavior**

Critical examination of literature on political behavior in the United States. Topics include voting and elections, public opinion, parties and interest groups, political psychology, communication, elites, and collective action.

**Credit Hours:** 3

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**POL\_SC 9120: Voting and Elections**

Research seminar on political participation, voter choice, campaigns, and elections, primarily in the United States. Covers theories, approaches and research on electoral behavior.

**Credit Hours:** 3

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**POL\_SC 9140: American Political Institutions**

Critical examination of literature on political institutions in the United States. Topics include Congress, the Presidency, courts, the bureaucracy, political organizations, federalism, and institutional dynamics.

**Credit Hours:** 3

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**POL\_SC 9145: American State Politics**

Research seminar on state government and politics in the U.S. Topics include state culture, mass politics, elections, state executives, legislatures, courts, and public policy.

**Credit Hours:** 3

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**POL\_SC 9150: Political Parties**

Research seminar on the organization and activities of political parties, primarily in the United States. Attention to historical development, nature of party change, functions, elites, membership, political finance, and policy formulation.

**Credit Hours:** 3

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**POL\_SC 9160: Interest Groups**

Research seminar on nonpartisan organizations seeking to influence the public policy agenda. Includes problems of collective action, mobilization and organization of interest groups, strategies and tactics, lobbying, political movements, theories and research.

**Credit Hours:** 3

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**POL\_SC 9170: Legislative Institutions**

Research seminar on the U.S. Congress and legislative institutions generally. Topics include the legislative process, policy change, committees, political parties, leadership, representation, and relations with other branches of government.

**Credit Hours:** 3

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**POL\_SC 9175: Evolution of American Legislatures, 1619 to the Present**

Examination of the organizational evolution of American legislatures from the colonial era to the present.

**Credit Hours:** 3

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**POL\_SC 9180: Executive Politics**

Research seminar on the U.S. Presidency, executive decision-making and influence. Topics include presidential leadership, historical development of the presidency, presidential power, agenda-setting, governors, mayors, and influences on opinion and other branches of government.

**Credit Hours:** 3

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**POL\_SC 9190: Research in American Politics**

Directed research into one or more specific aspects of American Politics, behavior, and institutions.

**Credit Hours:** 3

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**POL\_SC 9210: Civil Rights and Civil Liberties**

Research seminar on the U.S. Constitution, civil liberties, and civil rights. Topics include the First Amendment and freedom of expression and of belief, due process, the rights of the accused, privacy, equal protection, and constitutional interpretation. Graded on A-F basis only.

**Credit Hours:** 3

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**POL\_SC 9230: Public Law**

Research seminar on the judicial process in the United States.

**Credit Hours:** 3

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**POL\_SC 9240: Racial and Ethnic Politics**

Theories, institutional processes, and behaviors pertaining to social defined racial and ethnic groups. Topics include social dominance,

representation, mobilization, public opinion, and the influence of racial and ethnic factors on the American political process.

**Credit Hours:** 3

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**POL\_SC 9310: Public Policy**

Covers the basic theory, approaches, problems and issues relating to the scope, development and implementation of public policy.

**Credit Hours:** 3

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**POL\_SC 9320: Administrative Politics**

Critical examination of literature relating to selected topics in public bureaucracies.

**Credit Hours:** 3

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**POL\_SC 9330: Research in Policy and Administration**

Contemporary research in public policy, bureaucratic politics, public management and administration.

**Credit Hours:** 3

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**POL\_SC 9400: Introduction to International Relations**

Analysis, evaluation of some basic theories which attempt to explain international affairs.

**Credit Hours:** 3

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**POL\_SC 9430: International Political Economy**

Theories of political economy and current problems such as North-South relations, international trade, monetary relations, aid regimes, and international divisions of labor.

**Credit Hours:** 3

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**POL\_SC 9440: Foreign Policy Analysis**

Research seminar assessing foreign policy decisions and outcomes with particular attention given to decision-making. Both theoretical and empirical methods for testing foreign policy are considered. Approaches include domestic politics, bureaucratic, and psychological models.

**Credit Hours:** 3

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**POL\_SC 9450: International Conflict**

This is an advanced seminar in international conflict. The range of material that might be included is vast, so an effort will be made to balance overall coverage with the need to look in more depth at some especially salient areas in the literature. The seminar unfolds in five parts.

**Credit Hours:** 3

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**POL\_SC 9460: Coercive Diplomacy**

Research seminar on how nations apply political and economic sanctions on other nations in order to compel or entice changes in foreign policy and/or government behavior. How threats (short of conflict) and incentives govern international relations.

**Credit Hours:** 3

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**POL\_SC 9470: Theories of Civil War**

Seminar on why groups may engage in violence against the state or other opposition groups. Topics include causes of civil wars, terrorism as a strategy of violence and possible solutions including third party security, partition, intervention, power sharing and treaty design. Graded on A-F basis only.

**Credit Hours:** 3

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**POL\_SC 9480: Human Security**

Seminar on cross-national civil, political, economic, social, and cultural rights. The determinants of human security issues and the efficacy and dynamics of efforts from intergovernmental organizations, foreign aid, peacekeeping, interventions, and treaties on human rights.

**Credit Hours:** 3

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**POL\_SC 9490: Selected Themes in International Relations**

Graduate seminar in International Relations. Variable content. May be repeated for credit.

**Credit Hours:** 3

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**POL\_SC 9550: Strategic Studies**

This graduate seminar analyzes important theories regarding strategic studies. The course explores topics such as war outcomes, military effectiveness, military history, military strategy, civil-military relations, counterinsurgency, military innovation, and air warfare. Graded on A-F basis only.

**Credit Hours:** 3

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**POL\_SC 9600: Introduction to Comparative Politics**

Study of theories and approaches to comparative politics in Europe, Asia and/or Latin America.

**Credit Hours:** 3

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**POL\_SC 9610: Latin American Politics**

Research seminar on politics and government in Central and South America. Topics include modernization and dependency theories, civil-military relations, economic adjustment, democratic transitions, and area and country studies.

**Credit Hours:** 3

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**POL\_SC 9645: China and Political Science Research**

This is a graduate-level seminar on Chinese politics and foreign policy since 1949 covering the key historical events in Chinese political development and foreign policy. These events and developments will be examined in light of major theories in and methodological approaches adopted by the subfields of comparative politics and international relations, with the goal of exploring the strengths and weaknesses of alternative perspectives. At the end of the course, students should be familiar with the key debates and questions in the study of Chinese politics and foreign policy, and have a better sense of how to research questions on these topics. The course is also intended to encourage a dialogue between the study of China and the broader fields of comparative politics and international relations. Thus by the end of the course, students should have a sense not only for how the study of Chinese politics and foreign policy applies broader CP/IR theories to

explain key patterns and events in China, but also gain insight into the question of what China as a case (or cases) can contribute back to major theories and debates in these fields.

**Credit Hours:** 3

**Prerequisites:** POL\_SC 9600

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**POL\_SC 9690: Democracy and Dictatorship**

Research seminar on comparative politics of authoritarian and democratic regimes. Topics include characteristics and durability of authoritarianism, political institutions under autocracy, tactics of rule, state-society relations, transition and breakdown of regimes.

**Credit Hours:** 3

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**POL\_SC 9700: Democratization**

Research seminar on the third wave of democratization. Classical and contemporary conceptions of democracy, measurement, theories, trends, and influences on democratization across the globe.

**Credit Hours:** 3

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**POL\_SC 9710: Comparative Political Economy**

Interdisciplinary, comparative analysis of political aspects of political economy, rural development, and related issues.

**Credit Hours:** 3

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**POL\_SC 9720: Comparative Political Institutions**

Research seminar on comparative political institutions. Debates in comparative politics on the influence of rules and institutions on political decisions in developed democracies. Topics include political parties, legislatures, governments, and electoral rules.

**Credit Hours:** 3

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**POL\_SC 9730: Comparative Elections and Voting Behavior**

This is a graduate level seminar in comparative political behavior. We will discuss a variety of topics dealing with comparative political behavior, such as the formation of partisan identification, public opinion formation, the decision to vote, organize and protest, and how foreign and domestic policy influence elections. The readings will introduce you to the various methodological techniques--including case studies, quantitative analysis, and agent-based modeling--used to test the empirical expectations of these theories. The goal of this course is to provide a solid foundation upon which you can build for comprehensive examinations. Graded on A-F basis only.

**Credit Hours:** 3

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**POL\_SC 9790: Seminar in Comparative Politics**

Comparative study of selected aspects of political systems. Variable content. May be repeated for credit.

**Credit Hours:** 3

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**POL\_SC 9901: Topics in Political Science**

Organized study of selected topics. Subjects and earnable credit vary from semester to semester.

**Credit Hour:** 1-99

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**POL\_SC 9970: Independent Readings for Ph.D. Comprehensive Examinations**

Graded on S/U basis only.

**Credit Hour:** 1-9

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## Portuguese (PORT)

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**PORT 1100: Elementary Portuguese I**

This is the first course in the three-part elementary Portuguese-language sequence. The focus is on building common vocabulary and learning basic verb tenses and syntax, as well as other grammar basics such as noun/adjective number and gender, adverbs, and preposition usage. Students gain practice with Brazilian Portuguese through written and oral homework assignments, and in-class structured conversation and discussion of texts, videos, music and additional cultural materials related to Brazilian and other Lusophone cultures. Audio and video recordings provide ample exposure to a variety of native speakers of Brazilian Portuguese, and to a lesser extent of European Portuguese.

**Credit Hours:** 4

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**PORT 1200: Elementary Portuguese II**

This is the second course in the three-part elementary Portuguese-language sequence. The focus is on increasing vocabulary (including common idiomatic expressions) and reviewing basic verb tenses and syntax. The course also includes further study of key grammatical concepts such as irregular and reflexive verbs, progressive and past tenses, the imperative, and pronoun usage. Students gain practice with Brazilian Portuguese through written and oral homework assignments, as well as in-class structured conversation and discussion of texts, videos, music and other cultural materials related to Brazilian and additional Lusophone cultures. Audio and video recordings provide ample exposure to a variety of native speakers of Brazilian Portuguese, and to a lesser extent of European Portuguese.

**Credit Hours:** 4

**Prerequisites:** Grade in the C range or better in PORT 1100 or its equivalent

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**PORT 2100: Elementary Portuguese III**

This is the third course in the three-part elementary Portuguese-language sequence. The focus is on a review of basic verb tenses and syntax, and an introduction to more advanced grammatical structures including present, past and future subjunctive usages, as well as conditional, future and perfect verb forms. Students continue to build on their existing vocabulary base and to gain practice with Brazilian Portuguese through written and oral homework assignments, as well as in-class structured conversation and discussion of texts, videos, music and other cultural materials related to Brazilian and additional Lusophone cultures. Audio and video recordings provide ample exposure to a variety of native speakers of Brazilian Portuguese, and to a lesser extent of European Portuguese. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** grade in the C range or better in PORT 1200 or equivalent

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**PORT 2160: Intermediate Portuguese**

Review of grammar through Brazilian culture. Designed for students who have taken either PORT 2100 or PORT 4070 and wish to continue studying the language.

**Credit Hours:** 3

**Prerequisites:** Grade in the C range or better in PORT 2100 or equivalent

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**PORT 2310: Brazilian Civilization**

Survey of Brazilian history, arts and culture. Open to any student interested. No knowledge of Portuguese required.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PORT 3001: Topics in Portuguese-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing

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**PORT 3005: Topics in Portuguese-Humanities/Fine Arts**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing

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**PORT 3160: Advanced Portuguese Composition and Conversation**

Development of more sophisticated skills of written and oral expression.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or better in PORT 2160

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**PORT 3260: Cinema for Portuguese Conversation**

This course is for intermediate and advanced students of Portuguese and uses film as the basis for teaching vocabulary, strengthening oral and written skills, and presenting Brazilian culture. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** grade of C- or better in PORT 2160 or equivalent

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**PORT 3420: Survey of Brazilian Literature**

Masterpieces of Brazilian literature in translation from its origins to present.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**PORT 3420H: Survey of Brazilian Literature - Honors**

Masterpieces of Brazilian literature in translation from its origins to present.

**Credit Hours:** 3

**Prerequisites:** sophomore standing; Honors eligibility required

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**PORT 3875: Brazilian Cinema**

(same as FILMS\_VS 3875). An introduction to Brazilian cinema, culture and society through the study of contemporary cinematic productions. Topics include: Hollywood perceptions of Brazil; re-definitions of national identity and history, representations of race and gender.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**PORT 3885: Twenty-First Century South American Cinema**

(same as FILMS\_VS 3885, SPAN 3885). Broad overview of the major national cinemas of the 21st century in South America. Approximately 14 feature films screened from Argentina, Brazil, Chile and other nations of the region. Instructor provides a thematic framework for films within the context of film theory, Latin American cinematic history and cultural studies. Course taught in English. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000 or ENGLSH 1000H

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**PORT 4070: Intensive Beginning Portuguese**

Designed for rapid acquisition of a reading knowledge of Portuguese. Cannot be taken to fulfill undergraduate language requirement.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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## Psychiatry (PSCHTY)

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**PSCHTY 6005: Psychiatry Clerkship**

Students see patients with psychiatric disorders in the outpatient clinics, in hospital settings and on consultation services.

**Credit Hours:** 6

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**PSCHTY 6015: Rural Psychiatry Clerkship**

Rural Psychiatry Clerkship

**Credit Hours:** 6

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**PSCHTY 6025: Springfield Psychiatry Clerkship**

Students see patients with psychiatric disorders in the outpatient clinics, in hospital settings and on consultation services.

**Credit Hours:** 8

**Prerequisites:** successful completion of the first two years of medical school

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**PSCHTY 6105: Remediation Psychiatry Clerkship**

Enrolled students are those who received an unsatisfactory grade in a Psychiatry Clerkship at any Mizzou Med location or site. This course gives the student an opportunity to rectify their deficiency.

**Credit Hours:** 6

**Prerequisites:** PSCHTY 6005 Psychiatry Clerkship, received unsatisfactory grade

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**PSCHTY 6363: ABS Psychiatry Research**

ABS Psychiatry Research

**Credit Hour:** 5-10

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**PSCHTY 6630: Narrative Med and the Meaningful Life**

The 4th year medical student will attend didactics and participate in discussions. They will complete suggested readings (short stories, poems and essays), assessments and writing assignments/projects. May be repeated for credit.

**Credit Hours:** 5

**Prerequisites:** 4th year medical student, all core clerkships

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**PSCHTY 6731: Psychiatry Rural Elective**

The 4th year medical student will participate in the evaluation of adult psychiatric patients and child psychiatric patients in a clinical setting.

**Credit Hours:** 5

**Prerequisites:** PSCHTY 6005; restricted to 4th year medical students

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**PSCHTY 6835: Psychiatry Outpatient Clinic**

Psychiatry Outpatient Clinic

**Credit Hours:** 5

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**PSCHTY 6836: Psychiatry Adult Inpatient Service**

Psychiatry Adult Inpatient Service

**Credit Hours:** 5

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**PSCHTY 6837: Psychosomatic Medicine**

Psychosomatic Medicine

**Credit Hours:** 5

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**PSCHTY 6838: Forensic Psychiatry**

Forensic Psychiatry

**Credit Hours:** 5

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**PSCHTY 6839: Child/Adolescent Psychiatry**

Child/Adolescent Psychiatry

**Credit Hours:** 5

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**PSCHTY 6840: Geriatric Psychiatry**

Geriatric Psychiatry

**Credit Hours:** 5

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**PSCHTY 6939: Two Week - Psychiatry Adult Inpatient Service**

The student will work as a member of an inpatient multidisciplinary team and participate in the evaluation and treatment of adults on an acute care inpatient psychiatry service at MUPC. Typical activities include following several patients, observing and conducting psychiatric evaluation, collecting collateral information, reviewing medical records, participation in staffings, rounds and therapeutic groups and documentation in the medical record.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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**PSCHTY 6940: Two Week - Child and Adolescent Psychiatry**

The student will work as a member of an inpatient multidisciplinary team and participate in the evaluation and treatment of children and adolescents on an acute care child inpatient psychiatry service at MUPC. Typical activities include following several patients, observing and conducting psychiatric evaluation, collecting collateral information, reviewing medical records, participation in staffings, rounds and therapeutic groups and documentation in the medical record.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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**PSCHTY 6941: Two Week - Psychiatry Consultation and Liaison**

Students will participate in the psychiatric consultation process for medical rehabilitation, medical and surgical inpatients. The types of patients seen present with a wide spectrum of psychiatric conditions such as depression, substance abuse, anxiety disorders, delirium, dementia, somatoform disorders, personality disorders, psychotic disorders and organic behavior/mood disorders. Typical duties include bedside evaluation in collaboration with attendings and residents, documentation and presentation of findings and recommendations and participation in rounds.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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## Psychology (PSYCH)

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**PSYCH 1000: General Psychology**

Survey of theories, principles, and methods in the study of human behavior.

**Credit Hours:** 3

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**PSYCH 1000H: General Psychology - Honors**

Survey of theories, principles, and methods in the study of human behavior.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**PSYCH 1003H: Topics in Psychology - Honors - Behavioral Science**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course carries behavioral science distribution credit for non-psychology majors. Repeatable upon consent of department.

**Credit Hour:** 1-3

**Prerequisites:** Honors eligibility required. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 1003HW: Topics in Psychology - Behavioral Science - Honors/Writing Intensive**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course carries behavioral science distribution credit for non-psychology majors. Repeatable upon consent of department.

**Credit Hour:** 1-3



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**Prerequisites:** Honors eligibility required. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 1030: Orientation to the Psychology Major**

This course is intended to help students choose the best major for themselves and to provide information on careers available to psychology majors.

**Credit Hour:** 1

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**PSYCH 2001: Topics in Psychology-General**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course may not be used toward behavioral science distribution credit. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** May be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 1000

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**PSYCH 2003: Topics in Psychology-Behavioral Science**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course carries behavioral science distribution credit for non-psychology majors. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** This course may be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 1000

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**PSYCH 2110: Learning, Memory, and Cognition**

Students will gain an understanding of the fundamental principles of learning, memory and cognition, and will be able to recognize important historical figures and their contributions. Students will also learn how the principles can be applied to their everyday lives.

**Credit Hours:** 3

**Prerequisites:** This course may be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 1000

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**PSYCH 2210: Mind, Brain, and Behavior**

Introduction to the structures and processes of the mind and the nervous system, including the psychobiology of eating, sleeping, emotion, stress and learning. No credit if taken after PSYCH 4210.

**Credit Hours:** 3

**Prerequisites:** This course may be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 1000

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**PSYCH 2220: Drugs and Behavior**

Basic principles of drug action on the nervous system; the effects of important psychoactive drugs; drug use and society.

**Credit Hours:** 3

**Prerequisites:** This course may be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 1000

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**PSYCH 2310: Social Psychology**

An introduction to how people's thoughts, feelings and behaviors are influenced by the actual or imagined thoughts, feelings and behaviors of others.

**Credit Hours:** 3

**Prerequisites:** This course may be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 1000

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**PSYCH 2320: Introduction to Personality**

Personality is the scientific study of individual differences (e.g., traits, motives, abilities). This course reviews historical theoretical perspectives as well as current research. Students will have an opportunity to learn about on their own motives and traits.

**Credit Hours:** 3

**Prerequisites:** This course may be restricted to undergraduate psychology majors during Early Registration

**Recommended:** PSYCH 1000

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**PSYCH 2410: Developmental Psychology**

Origins and development of child behavior, emphasizing basic physical, cognitive, affective and social processes, and theory and research rather than application or guidance. Cannot receive credit for more than one of the following: PSYCH 2410, H\_D\_FS 2420 or H\_D\_FS 3420 or ESC\_PS 2500.

**Credit Hours:** 3

**Prerequisites:** This course may be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 1000

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**PSYCH 2410H: Developmental Psychology - Honors**

Origins and development of child behavior, emphasizing basic physical, cognitive, affective and social processes, and theory and research rather than application or guidance. Cannot receive credit for more than one of the following: PSYCH 2410, H\_D\_FS 2420 or H\_D\_FS 3420 or ESC\_PS 2500.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required. This course may be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 1000

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**PSYCH 2510: Survey of Abnormal Psychology**

Basic survey of maladaptive human behavior and experience, including personality disorders, alcohol and drug abuse, anxiety and mood disorders, sexual dysfunctions, and thought disorders.

**Credit Hours:** 3

**Prerequisites:** This course may be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 1000

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**PSYCH 2520: Introduction to Addiction Science**

This class provides an overview of the scientific study of addiction, focusing on a range of theoretical models and their implications for prevention, intervention and treatment. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** PSYCH 1000

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**PSYCH 2810: Human Sexuality**

Survey of research on sexual behavior including sex norms, gender identity, sexual dysfunctions, sexual deviation, homosexuality, and legal aspects of sexual behavior. Attendance at small group discussions may be required at the option of the instructor.

**Credit Hours:** 3

**Prerequisites:** This course may be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 1000

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**PSYCH 2820: Minds, Brains, and Machines**

(same as LINGST 2820 and PHIL 2820). Cognitive science is a many-splendored thing. It draws on a variety of disciplines, including psychology, neuroscience, computer science, linguistics, anthropology, and philosophy. The purpose of this course is to introduce the central questions of cognitive science, the conceptual and empirical tools used to investigate those questions, and some of the answers that have emerged so far. After an initial overview of the foundations of the cognitive-scientific enterprise as a whole, we will see what particular sectors of it have to say about mental capacities such as language, categorization, reasoning, social cognition, and consciousness.

**Credit Hours:** 3

**Prerequisites:** sophomore standing required. May be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 1000

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**PSYCH 2830: Human-Companion Animal Interaction**

Exploration of historical and theoretical bases of human-companion animal interaction (HAI), the nature issues, and clinical applications of HAI. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** May be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 1000

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**PSYCH 2950: Special Problems in Psychology**

Research apprenticeship with a faculty member, assisting a faculty member in the development and execution of research. May be repeated to 6 hours maximum.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

**Recommended:** PSYCH 1000

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**PSYCH 3003: Topics in Psychology-Behavioral Science**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course carries behavioral science distribution credit for non-psychology majors. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3003H: Topics in Psychology-Behavioral Science - Honors**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course carries behavioral science distribution credit for non-psychology majors. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration. Honors eligibility required

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**PSYCH 3003W: Topics in Psychology-Behavioral Science - Writing Intensive**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course carries behavioral science distribution credit for non-psychology majors. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3010: Research Methods in Psychology I**

Introduction to scientific reasoning, assessing validity and reliability in research, and basic research methods.

**Credit Hours:** 3

**Prerequisites or Corequisites:** concurrent enrollment in STAT 1200 or a grade of C or better in STAT 1200 (or its equivalent)

**Prerequisites:** PSYCH 1000. This course is restricted to psychology majors with sophomore standing and above

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**PSYCH 3020: Research Methods in Psychology II**

Continuation of PSYCH 3010 and required for all further labs in psychology.

**Credit Hours:** 3

**Prerequisites:** MATH 1100 with a grade of C- or better or exemption, and PSYCH 1000, and a grade of C or better in PSYCH 3010 and STAT 1200 or exemption. This course is restricted to junior and senior psychology majors

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**PSYCH 3110: Theories of Learning**

Discusses classical issues and theories in learning and conditioning, and considers them in contemporary form.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3110W: Theories of Learning - Writing Intensive**

Discusses classical issues and theories in learning and conditioning, and considers them in contemporary form.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3130: Decisions, Values and Choice**

Survey of factors influencing choices and decisions. Topics include cause and effect decisions, values and ethical considerations, outcome

likelihood, biases and heuristics, concept formation, self-control and impulsiveness, and social factors.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3130H: Decisions, Values and Choice - Honors**

Survey of factors influencing choices and decisions. Topics include cause and effect decisions, values and ethical considerations, outcome likelihood, biases and heuristics, concept formation, self-control and impulsiveness, and social factors.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. Honors eligibility required. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3140: Cognitive Psychology**

A survey of psychological theory and research on human cognition.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3150: Human Memory**

Surveys research on human memory, including basic laboratory studies with normal subjects as well as research on amnesia and other memory impairments, life-span memory development, and the cognitive neuroscience of memory.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3160: Perception and Thought**

Covers research on various aspects of mental life: language, problem-solving, decision-making, sensory perception.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3310: Intergroup Relations**

Provides an overview of the social psychological literature on stereotyping, prejudice, discrimination, and intergroup relations. Students learn theoretical frameworks and research findings regarding the development and maintenance of intergroup conflict.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3350: Positive Psychology**

This course introduces students to the science of positive psychology, including its origin and the historical imbalances it addresses within the broader field of psychology. A wide variety of topics are covered, including happiness, materialism, purpose, flow, courage, humility, positive emotions, curiosity, mindfulness, savoring, gratitude, forgiveness, personal strengths, resilience, and compassion. Psychology majors cannot receive credit for both PSYCH 3350 and ESC\_PS 4200.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000, This course may be restricted to Undergraduate Psychology Majors during early registration

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**PSYCH 3370: The Science of Mindfulness**

To gain breadth and depth in understanding the empirical research on mindfulness and contemplative practices. To do well in the course, students must master the substantive content, psychological methodology, APA-style writing, peer-review, and presentation skills. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000 and a grade of C or better in PSYCH 3010. This course may be restricted to psychology majors through early registration

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**PSYCH 3370W: The Science of Mindfulness - Writing Intensive**

To gain breadth and depth in understanding the empirical research on mindfulness and contemplative practices. To do well in the course, students must master the substantive content, psychological methodology, APA-style writing, peer-review, and presentation skills. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000 and a grade of C or better in PSYCH 3010. This course may be restricted to psychology majors through early registration

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**PSYCH 3420: Cognitive Development in Childhood**

Theories and research on cognitive development in childhood.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3430: Social Development in Childhood**

Overview of children's social and emotional development (infancy-adolescence), includes changes in social domains, impact of social functioning on subsequent development, and influence of interpersonal contexts (e.g., family, peers, community) on children's development.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3430H: Social Development in Childhood - Honors**

Overview of children's social and emotional development (infancy-adolescence), includes changes in social domains, impact of social functioning on subsequent development, and influence of interpersonal contexts (e.g., family, peers, community) on children's development.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. Honors eligibility required. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3430W: Social Development in Childhood - Writing Intensive**

Overview of children's social and emotional development (infancy-adolescence), includes changes in social domains, impact of social functioning on subsequent development, and influence of interpersonal contexts (e.g., family, peers, community) on children's development.

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**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3440: Women's Professional Development**

This class takes a lifespan developmental perspective in regards to understanding challenges in women's professional development. Topics include: perceptions and stereotypes of successful women, division of labor in families (housework versus paid work), motherhood and the work place, social policies for working parents, girls' and boys' interests in STEM professions, and gender and workplace economics (starting salaries, negotiation, the gender pay gap). Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to undergraduate psychology majors through early registration

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**PSYCH 3440H: Women's Professional Development - Honors**

This class takes a lifespan developmental perspective in regards to understanding challenges in women's professional development. Topics include: perceptions and stereotypes of successful women, division of labor in families (housework versus paid work), motherhood and the work place, social policies for working parents, girls' and boys' interests in STEM professions, and gender and workplace economics (starting salaries, negotiation, the gender pay gap). Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000; Honors eligibility required. This course may be restricted to undergraduate psychology majors through early registration

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**PSYCH 3510: Introduction to Clinical Psychology**

Comprehensive survey of the field's historical roots, research methods, concepts of abnormality, assessment and intervention methods; also specialties that constitute clinical psychology.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3510W: Introduction to Clinical Psychology - Writing Intensive**

Comprehensive survey of the field's historical roots, research methods, concepts of abnormality, assessment and intervention methods; also specialties that constitute clinical psychology.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3815: Cross-Cultural Psychology**

We will adopt a psychological approach to the study of the cross-cultural experience. We will spend our time investigating how culture affects and determines human, behavior, thoughts, emotions and interactions with others.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**PSYCH 3815H: Cross-Cultural Psychology - Honors**

We will adopt a psychological approach to the study of the cross-cultural experience. We will spend our time investigating how culture affects and determines human, behavior, thoughts, emotions and interactions with others.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000; Honors eligibility required

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**PSYCH 3825: Psychology at the Movies**

We will watch, discuss, and interpret films from a psychological-social perspective. Connections will be made between cinematic content and contemporary theory and research in psychology and diversity studies. The focus of this course will be on watching and discussing films, as well as on reading and writing about psychological aspects of film.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**PSYCH 3825H: Psychology at the Movies - Honors**

We will watch, discuss, and interpret films from a psychological-social perspective. Connections will be made between cinematic content and contemporary theory and research in psychology and diversity studies. The focus of this course will be on watching and discussing films, as well as on reading and writing about psychological aspects of film. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000; Honors eligibility required

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**PSYCH 3830: Health Psychology**

A hands-on approach to the study of health psychology including research on a topic of current relevance to the field.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3840: Individual Differences**

Surveys individual and group differences. Contributions of various factors to variations in behavior.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**PSYCH 3860: Law and Psychological Science**

This survey course examines the interactions of law and psychology across the justice system. Emphasis is placed on how psychological research does (and does not) inform important legal issues. Requirements may include an in-class team debate of relevant controversy in law.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 3870: Sleep and Sleep Disorders**

This course provides a critical review of the current research on both normal sleep and sleep disorders.

**Credit Hours:** 3

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**PSYCH 3880: African-American Psychology**

(Same as BL\_STU 3100 and ESC\_PS 3100). The research, theories and paradigms developed to understand the attitudes, behaviors and psychosocial realities of African-Americans are discussed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors through Early Registration

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**PSYCH 4001: Topics in Psychology-General**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course may not be used toward behavioral science distribution credit. Repeatable upon consent of department. Enrollment limited to students who have completed PSYCH 1000.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PSYCH 4003: Topics in Psychology-Behavioral Science**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course carries behavioral science distribution credit for non-psychology majors. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 4003W: Topics in Psychology-Behavioral Science - Writing Intensive**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester. This course carries behavioral science distribution credit for non-psychology majors. Repeatable upon consent of department.

**Credit Hour:** 1-6

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 4010H: Topics in Psychology Capstone - Honors**

Students review, evaluate and conduct research on selected topics in psychology. The particular topic will vary by semester and instructor. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required, honors eligibility required

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**PSYCH 4010HW: Topics in Psychology Capstone - Honors/Writing Intensive**

Students review, evaluate and conduct research on selected topics in psychology. The particular topic will vary by semester and instructor. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required, honors eligibility required

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**PSYCH 4010W: Topics in Psychology Capstone - Writing Intensive**

Students review, evaluate and conduct research on selected topics in psychology. The particular topic will vary by semester and instructor. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required

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**PSYCH 4110: Perception**

(cross-leveled with PSYCH 7110). Data and contemporary theories of perception in all of the senses, with emphasis on visual and auditory perception.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 4210: Physiological Psychology**

An introduction to neuroscience with an overview of the relation between the brain and behavior. Topics include intercellular communication, drugs and reward, emotions and stress psychoimmunology, psychopathology, nervous system development and repair, perception, cognition, learning and memory.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 4220: Animal Behavior and Cognition**

The purpose of this course is to introduce the basic findings, concepts and principles of animal behavior, associative learning, memory and cognition.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 4240: Cognitive Neuroscience**

The neural basis of human information processing in memory, attention, perception, imagery, movement, and language.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 2210 and PSYCH 4210

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**PSYCH 4360: Social Cognition**

The overarching goal of this course is to provide an overview of current research and theory in social cognition. If there is a running theme to this course, it is in the use of 'top down' processes in how we construct an understanding of the world around us. That is, we use our past experiences and memories to interpret new experiences, people and behavior. This fact does not dictate whether that understanding is accurate or not. However, social psychologists have historically been interested in the ways that this process leads to errors or biases in a vast array of human endeavors. This perspective has had a strong impact on the trajectory of social cognition. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to undergraduate Psychology majors during early registration

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**PSYCH 4440: Sex Differences**

This course covers the evolution of sex differences and hormonal and environmental influences on their expressions in nonhuman species. These insights are used to understand human sex differences in mate choices, emotions, development, brain and cognition, and in modern societies.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 4520: Behavior Genetics**

(cross-leveled with PSYCH 7520). The study of genetic influences on behavioral traits such as mood, personality, intelligence, mental health, or activity level.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000; This course may be restricted to Undergraduate Psychology Majors during Early Registration  
**Recommended:** Grade of C or better in PSYCH 3010 and STAT 1200 or higher

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**PSYCH 4530: Research in Psychopathology**

Intensive survey and evaluation of the psychological literature on abnormal behavior, emphasizes experimental and explanatory approaches.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 4540: Emotional Disorders in Childhood and Adolescence**

Surveys disturbed behavioral development during childhood and adolescence, emphasizing factors that produce deviation from normal developmental patterns.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration  
**Recommended:** PSYCH 2410

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**PSYCH 4560: Schizophrenia**

This course will examine one of the most severe, debilitating, and complex mental disorders. We will review the major symptoms and clinical features of schizophrenia, explore possible causes of Psychology disorder, and critically assess treatments for the disorder.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 4561: Psychosis and the Brain**

The goal of this course is to better understand the nature of psychosis that occurs in psychotic disorders such as Schizophrenia and in many other disorders/conditions. The course will take a translational approach to understanding psychosis, focusing on neural mechanisms and their role in behavior. The nature of psychotic symptoms in psychotic disorders, in non-psychotic disorders and in the general population will be examined. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**PSYCH 4570: Pediatric Neuropsychology**

Introduction to the field of pediatric neuropsychology and the study of individuals with early brain dysfunction. Common central nervous system disorders of childhood (e.g. autism, ADHD, epilepsy) will be discussed.

**Credit Hours:** 3

**Prerequisites:** This course may be restricted to Undergraduate Psychology Majors during Early Registration

**Recommended:** PSYCH 1000, PSYCH 2210 or PSYCH 4240

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**PSYCH 4580: Externalizing Spectrum Disorders**

The purpose of this course is to provide an overview of the symptoms, etiology, and treatment of psychiatric disorders that fall within the externalizing spectrum, including Attention-Deficit Hyperactivity Disorder, Oppositional Defiant Disorder, Conduct Disorder, Alcohol and other Substance Use Disorders, and Antisocial Personality Disorder. This course will attempt to provide an overview of key issues and topics related to the classification of psychiatric disorders and how research in this area has led to current conceptualizations of the externalizing spectrum. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 4830: Psychology of Women**

(same as WGST 4830). Overview of current theories and research relating to the psychology of women. Topics include gender stereotyping, psychological sex differences, achievement motivation in women, and women and mental health.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**PSYCH 4840: The History of Psychology**

(cross-leveled with PSYCH 7840). Historical foundations of contemporary psychology.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000. This course may be restricted to Undergraduate Psychology Majors during Early Registration

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**PSYCH 4940: Internship in Psychology**

Work experience in an organization that is relevant to the psychology major. Enrollment limited to students who are in good standing and have completed 9 credit hours in psychology. Intended for students with junior or senior standing.

**Credit Hour:** 3-6

**Prerequisites:** Instructor's consent required

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**PSYCH 4940W: Internship in Psychology - Writing Intensive**

Work experience in an organization that is relevant to the psychology major. Enrollment limited to students who are in good standing and have completed 9 credit hours in psychology. Intended for students with junior or senior standing.

**Credit Hour:** 3-6

**Prerequisites:** Instructor's consent required

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**PSYCH 4950: Special Problems in Psychology**

Independent investigation leading to a project or paper. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PSYCH 4960: Special Readings in Psychology**

Independent readings selected in consultation with supervisory faculty member. Repeatable upon consent of department.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PSYCH 4971: Developmental Psychology Capstone**

Introduces students to developmental research methods through relevant readings and by students conducting original research. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** consent required

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**PSYCH 4971W: Developmental Psychology Capstone - Writing Intensive**

Introduces students to developmental research methods through relevant readings and by students conducting original research. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** consent required

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**PSYCH 4972: Animal Learning Capstone**

Survey of principles of animal behavior and animal learning and cognition. The course includes laboratory projects on research in animal behavior and animal learning. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Department consent required

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**PSYCH 4972W: Animal Learning Capstone - Writing Intensive**

Survey of principles of animal behavior and animal learning and cognition. The course includes laboratory projects on research in animal behavior and animal learning. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** consent required

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**PSYCH 4973: Human Cognition Capstone**

Students review, evaluate and conduct research on various aspects of human cognition. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Department consent required

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**PSYCH 4973W: Human Cognition Capstone - Writing Intensive**

Students review, evaluate and conduct research on various aspects of human cognition. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** consent required

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**PSYCH 4974W: Psychology of Art Capstone - Writing Intensive**

Students will examine how the psychological processes of sensation and perception influence the experience of beauty - music, cuisine, movies, dance and other artistic endeavors. grade of C or better in PSYCH 3020.

This course is restricted to psychology majors with senior standing. Consent required.

**Credit Hours:** 3

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**PSYCH 4975: Social/Personality Capstone**

Experimental methods course emphasizing research in social psychology. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Consent required

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**PSYCH 4975W: Social/Personality Capstone - Writing Intensive**

Experimental methods course emphasizing research in social psychology. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Consent required

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**PSYCH 4976: Independent Research Capstone I**

Individual thesis on a topic selected with a faculty advisor. Student projects are carried out over the course of two semesters (with PSYCH 4977) and presented as posters in a spring conference. Weekly class discussions of student progress. For students who plan to pursue a PhD in Psychology or Neuroscience. Enrollment limited to psychology majors with senior standing who have taken PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Consent required

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**PSYCH 4976H: Honors Research Capstone I**

Individual thesis on a topic selected with a faculty advisor. Student projects are carried out over the course of two semesters (with PSYCH 4977H) and presented as posters in a spring conference. Weekly class discussions of student progress. For students who plan to pursue a PhD in Psychology or Neuroscience. Enrollment limited to psychology majors with senior standing, honors eligibility, a cumulative GPA of 3.5, who have taken PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Consent required

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**PSYCH 4976HW: Honors Research Capstone I - Honors/Writing Intensive**

Individual thesis on a topic selected with a faculty advisor. Student projects are carried out over the course of two semesters (with PSYCH 4977HW) and presented as posters in a spring conference. Weekly class

discussions of student progress. For students who plan to pursue a PhD in Psychology or Neuroscience. Enrollment limited to psychology majors with senior standing, honors eligibility, a cumulative GPA of 3.5, who have taken PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Consent required

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**PSYCH 4976W: Independent Research Capstone I - Writing Intensive**

Individual thesis on a topic selected with a faculty advisor. Student projects are carried out over the course of two semesters (with PSYCH 4977W) and presented as posters in a spring conference. Weekly class discussions of student progress. For students who plan to pursue a PhD in Psychology or Neuroscience. Enrollment limited to psychology majors with senior standing who have taken PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Consent required

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**PSYCH 4977: Independent Research Capstone II**

Continuation of PSYCH 4976. Completion of research project, presentation of poster in a spring conference. Weekly class discussions of student progress. Enrollment limited to psychology majors with senior standing who have completed PSYCH 4976.

**Credit Hours:** 3

**Prerequisites:** Consent required

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**PSYCH 4977H: Honors Research Capstone II**

Continuation of PSYCH 4976H. Completion of research project, presentation of poster in a spring conference. Weekly class discussions of student progress. Enrollment limited to psychology majors with senior standing, honors eligibility, a cumulative GPA of 3.5, who have completed PSYCH 4976H.

**Credit Hours:** 3

**Prerequisites:** Consent required

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**PSYCH 4977HW: Honors Research Capstone II - Honors/Writing Intensive**

Continuation of PSYCH 4976HW. Completion of research project, presentation of poster in a spring conference. Weekly class discussions of student progress. Enrollment limited to psychology majors with senior standing, honors eligibility, a cumulative GPA of 3.5, who have completed PSYCH 4976HW.

**Credit Hours:** 3

**Prerequisites:** Consent required. Honors Eligibility Required

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**PSYCH 4977W: Independent Research Capstone II - Writing Intensive**

Continuation of PSYCH 4976W. Completion of research project, presentation of poster in a spring conference. Weekly class discussions of student progress. Enrollment limited to psychology majors with senior standing who have completed PSYCH 4976W.

**Credit Hours:** 3

**Prerequisites:** Consent required

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**PSYCH 4979: Judgement and Decision Making Capstone**

This course examines the psychology of human judgement and decision-making. We will discuss major theories, methods and basic experimental findings and identify how those findings are being used to develop public policy or in applied settings.

**Credit Hours:** 3

**Prerequisites:** grade of C or better in PSYCH 2030; This course is restricted to psychology majors with senior standing. Consent required

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**PSYCH 4979W: Judgement and Decision Making Capstone - Writing Intensive**

This course examines the psychology of human judgement and decision-making. We will discuss major theories, methods and basic experimental findings and identify how those findings are being used to develop public policy or in applied settings.

**Credit Hours:** 3

**Prerequisites:** grade of C or better in PSYCH 2030; This course is restricted to psychology majors with senior standing. Consent required

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**PSYCH 4980: Human Relationships Capstone**

Students design a study, collect data, and describe their research on some aspect of human relationships. Emphasis on survey research techniques. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Department consent required

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**PSYCH 4980W: Human Relationships Capstone - Writing Intensive**

Students design a study, collect data, and describe their research on some aspect of human relationships. Emphasis on survey research techniques. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Department consent required

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**PSYCH 4981: Advanced Developmental Psychology Capstone I**

Students propose a study to be conducted with preschool children. The course teaches skills needed to develop research questions, develop a coding system, and write a research proposal that reviews past literature in a way that makes the case for the importance of the project. Graded on A-F basis only. Enrollment limited to psychology majors with senior standing and a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Departmental consent required

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**PSYCH 4981W: Advanced Developmental Psychology Capstone I - Writing Intensive**

Students propose a study to be conducted with preschool children. The course teaches skills needed to develop research questions, develop a coding system, and write a research proposal that reviews past literature in a way that makes the case for the importance of the project. Graded on A-F basis only. Enrollment limited to psychology majors with senior standing and a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Departmental consent required



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**PSYCH 4982: Advanced Developmental Psychology II**

Students conduct a research project involving observations of preschool children. The course teaches skills needed to collect data, analyze data, and write a research report. These skills provide excellent preparation for graduate school in psychology or a related field. Graded on A-F basis only. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Departmental consent required

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**PSYCH 4982W: Advanced Developmental Psychology II - Writing Intensive**

Students conduct a research project involving observations of preschool children. The course teaches skills needed to collect data, analyze data, and write a research report. These skills provide excellent preparation for graduate school in psychology or a related field. Graded on A-F basis only. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Departmental consent required

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**PSYCH 4983W: Consumer Psychology Capstone - Writing Intensive**

This course examines numerous social and psychological issues related to the area of consumer psychology. The course begins by examining how media exposure influences consumption, prejudice in marketing and advertising, and the question of whether children should be targets of marketing strategies. The second section examines how consumption can be influenced by unconscious and automatic factors. The third section examines unhealthy forms of consumption and consumption's relationship to well being. The fourth section focuses on ethical and social responsibility issues like consumption's impact on the environment and the voluntary simplicity movement. The last section of the course is devoted to student presentations of term papers. Graded on A-F basis only. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Consent required

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**PSYCH 4984W: Promoting Social Justice, Diversity, and Inclusion Capstone - Writing Intensive**

This course is an advanced exploration of diversity and social justice in the United States and provides students with a framework for understanding specific forms and the interlocking systems of oppression; a process to explore how oppression affects our lives; a pedagogical framework for teaching and training about concepts of oppression and diversity; and an application of these ideologies and skills in community settings. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Department Consent required

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**PSYCH 4985: Health Psychology Capstone**

The objectives of this course are to understand the psychosocial processes that influence health and health care delivery. Topics to

be examined are the psychophysiological and sociocultural bases of health and illness; pain and healing; adaptation to chronic illness; stress; personality and illness; death, dying, and grief; substance use; health-promoting behaviors; patient adherence; physician-patient communication; and using health care. Graded on A-F only. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020.

**Credit Hours:** 3

**Prerequisites:** Department consent required

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**PSYCH 4986: Perception and Action Capstone**

Together we will explore how the brain creates our conscious experience of, and controls our actions in, the world. A variety of weekly assignments will challenge you to improve your written communication skills. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Departmental consent required

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**PSYCH 4986W: Perception and Action Capstone - Writing Intensive**

Together we will explore how the brain creates our conscious experience of, and controls our actions in, the world. A variety of weekly assignments will challenge you to improve your written communication skills. Enrollment limited to psychology majors with senior standing who have a grade of C or better in PSYCH 3020. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Departmental consent required

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**PSYCH 4987: Cross-Cultural Psychology Capstone**

This course adopts a psychological approach to the study of the cross-cultural experience. It will investigate how culture affects and determines human behavior, thoughts, emotions, and interactions. Graded on A-F basis only. Enrollment is limited to senior Psychology majors who have completed PSYCH 1000; PSYCH 3020 with a grade of C or better.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**PSYCH 4987H: Cross-Cultural Psychology Capstone - Honors**

This course will adopt a psychological approach to the study of the cross-cultural experience. It will investigate how culture affects and determines human behavior, thoughts, emotions, and interactions with others. Students will be part of public scholarship and have opportunities for public presentations of projects. Graded on A-F basis only. Enrollment is limited to senior Psychology majors who have completed PSYCH 1000; PSYCH 3020 with a grade of C or better; honors eligibility required.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**PSYCH 4987W: Cross-Cultural Psychology Capstone - Writing Intensive**

This course adopts a psychological approach to the study of the cross-cultural experience. It will investigate how culture affects and determines human behavior, thoughts, emotions, and interactions. Graded on A-F basis only. Enrollment is limited to senior Psychology majors who have completed PSYCH 1000; PSYCH 3020 with a grade of C or better.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**PSYCH 4988: Medical Decision Making Capstone**

Students will learn how patients make decisions about their own healthcare and how doctors make diagnostic and treatment decisions for their patients. Enrollment is limited to senior Psychology majors who have completed PSYCH 1000; PSYCH 3020 with a grade of C or better. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Department Consent

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**PSYCH 4988W: Medical Decision Making Capstone - Writing Intensive**

Students will learn how patients make decisions about their own healthcare and how doctors make diagnostic and treatment decisions for their patients. Enrollment is limited to senior Psychology majors who have completed PSYCH 1000; PSYCH 3020 with a grade of C or better. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Department Consent

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**PSYCH 7085: Problems in Psychology**

Advanced studies to meet needs of individual student. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PSYCH 7110: Perception**

(cross-leveled with PSYCH 4110). Data and contemporary theories of perception in all of the senses, with emphasis on visual and auditory perception.

**Credit Hours:** 3

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**PSYCH 7520: Behavior Genetics**

(cross-leveled with PSYCH 4520). The study of genetic influences on behavioral traits such as mood, personality, intelligence, mental health, or activity level.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**PSYCH 7840: The History of Psychology**

(cross-leveled with PSYCH 4840). Historical foundations of contemporary psychology.

**Credit Hours:** 3

**Prerequisites:** PSYCH 1000

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**PSYCH 8050: Research in Psychology - Non-Thesis**

Research in psychology not leading to thesis. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PSYCH 8085: Problems in Psychology**

Advanced studies to meet needs of individual student. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PSYCH 8090: Research in Psychology - Thesis**

Research in psychology leading to thesis. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PSYCH 8110: Cognitive Psychology**

Focuses on basic research on human perception, memory, attention, language, and thought.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 8210: Functional Neuroscience**

Basic techniques, data and theory in the neurosciences applied to the study of psychopathology, psychopharmacology, neural development, brain damage, memory and other areas of 'behavior.'

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 8410: Psychology of Development**

Principles, theories, research in normal human development.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 8420: Cognitive Development**

(same as H\_D\_FS 8420). An introduction to central theories and issues in the study of cognitive development in infancy and childhood. Emphasis is on major theoretical frameworks for studying cognitive development, and topics such as perception, memory, language, categorization, and reasoning.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 8440: Social and Emotional Development**

(same as H\_D\_FS 8440). There are two major objectives for this course. The first is a 'content' objective and involves familiarizing students with theory and research regarding social, emotional, and personality development in childhood and adolescence and also regarding the relationships in which such development takes place. The second objective is a 'process' objective and involves enhancing students skills at interpreting empirical research, identifying gaps in the literature, and identifying research strategies for addressing those gaps.

**Credit Hours:** 3

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**PSYCH 8510: Developmental Psychopathology**

Etiology, diagnosis, and treatment of disordered behavior from infancy through adolescence. Emphasizes contrasting theories and research issues.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 8520: Adult Psychopathology**

Problems of etiology, diagnosis, treatment in psychopathology. Considers theory, research, case histories.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 8610: Motivation**

Survey of historical and contemporary theories and models of human motivation. Major emphasis on different levels of motivational analysis.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 8620: Personality Psychology**

Graduate-level introduction to the field of personality psychology, including readings and discussion of both classic and contemporary works.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 8710: General Linear Models in Psychology I**

Principles of interval estimation and hypothesis testing, scalar and matrix forms of simple and multiple regression with continuous and categorical predictors, regression diagnostics.

**Credit Hours:** 4

**Prerequisites:** undergraduate course in statistics; concurrent enrollment in PSYCH 8730; instructor's consent

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**PSYCH 8720: General Linear Models in Psychology II**

Complex analysis of variance; experimental design.

**Credit Hours:** 4

**Prerequisites:** PSYCH 8710 or equivalent, concurrent enrollment in PSYCH 8730; instructor's consent

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**PSYCH 8730: Statistical Software Packages**

Computer implementation of data management and statistical analysis. Covers elementary computer operations, data entry and quality control, and computer implementation of statistical models covered in PSYCH 8710 and PSYCH 8720.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**PSYCH 8910: Responsible Conduct of Research**

This course exposes students to important concepts in the responsible conduct of research. Graded on A-F basis only.

**Credit Hour:** 1

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**PSYCH 8920: Social and Behavioral Sciences in Public Health**

(same as P\_HLTH 8920). This course will take both a theoretical and a practical approach to understanding health-related behavior and the field of public health. Students will gain an understanding of theory and empirical research in the social and behavioral sciences, as well as developing practical skills in critically evaluating research and in applying scientific evidence to address real world health concerns.

**Credit Hours:** 3

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**PSYCH 9001: Topics in Psychology-General**

Organized study of selected topics in psychology. Particular topic and earnable credit may vary by semester.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent, departmental consent for repetition

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**PSYCH 9050: Research in Psychology - Non-Dissertation**

Research in Psychology not leading to dissertation. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PSYCH 9090: Research in Psychology - Dissertation**

Research in Psychology leading to dissertation. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PSYCH 9110: Studies in Experimental Psychology**

Critical consideration of selected research in neuroscience and cognitive psychology.

**Credit Hours:** 3

**Prerequisites:** PSYCH 4972 or PSYCH 4973; departmental consent for repetition; instructor's consent

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**PSYCH 9120: Studies in Physiological Psychology**

Weekly seminars given by local and regional cognitive psychologists and cognitive neuroscientists. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** PSYCH 7210, departmental consent for repetition, and instructor's consent

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**PSYCH 9140: Conditioning and Learning: Theory and Application**

Basic principles of operant and Pavlovian learning, motivation, extinction, inhibition, avoidance, etc., and their application to human behavior and its modification.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9150: Human Learning and Memory**

Current theory and research in the area of human learning and memory will be investigated. A major component of the course will involve the critical review of existing literature in this area.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9210: Psychopharmacology**

Basic principles of drug action on the nervous system, the theory and clinical use of the various psychotherapeutic drugs, drug abuse and its treatment.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9220: Clinical Neuropsychology Seminar**

In this course students will analyze published cases in the neuropsychology literature. By studying how behavioral and mental processes break down, the supposition is that one can infer how intact processes must have been constructed, and how a brain supports them.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

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**PSYCH 9230: Seminar on fMRI**

Fundamentals of MRI and its application to brain imaging, including experimental design, analysis and contemporary issues. During the lab component, students will use FSL and other software to analyze fMRI data and will design and implement their own fMRI experiments.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9240: Advanced Neural Systems**

The course provides in-depth coverage of the neurophysiology, neuroanatomy, and function of the brain. Course lectures and discussions cover the brain and its systems in a 'bottom-up' sequence starting with basic sensory pathways and concluding with higher cognitive functions. The course also includes hands-on laboratory sessions, which include dissection component. Graded on A-F basis only.

**Credit Hours:** 3

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**PSYCH 9310: Theories of Social Psychology**

Intensive review of classic and contemporary concepts and theories of social psychology; emphasizes readings from primary sources. PhD candidates only. Required for all PhD candidates in social psychology.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9320: Social Psychology Methodology**

Advanced study of experimental methods in social psychological research.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9330: Field Research Methods**

Advanced course in research methods and designs commonly used in field settings; theoretical, ethical, and pragmatic issues that arise in field settings are considered; emphasis is on learning and skill acquisition through a series of hands-on assignments.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9350: Studies in Social Psychology**

Critical coverage of selected research and theory in social psychology.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent, departmental consent for repetition

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**PSYCH 9360: Seminar in Social Psychology**

Intensive review of concepts and theories of social psychology; emphasizes readings from primary sources. Ph.D. candidates only. Required for all Ph.D. candidates in social psychology program. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**PSYCH 9365: Positive Psychology**

This seminar will discuss and critique modern research in positive psychology. Each chapter of the textbook provides overviews of positive psychology research topics at various levels of analysis, while providing suggestions for further research. Graded on A-F basis only.

**Credit Hours:** 3

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**PSYCH 9440: Studies in Developmental Psychology**

Covers contemporary research and professional topics in developmental psychology. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PSYCH 9460: Studies in Evolution and Behavior**

Reading and discussion of classic and contemporary works in evolution.

**Credit Hour:** 1

**Prerequisites:** instructor's consent

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**PSYCH 9470: Women's Professional Development**

This class takes a lifespan developmental perspective in regards to understanding challenges in women's professional development. Topics include: perceptions and stereotypes of successful women, division of labor in families (housework versus paid work), motherhood and the work place, social policies for working parents, girls' and boys' interests in STEM professions, and gender and workplace economics (starting salaries, negotiation, the gender pay gap). Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor Consent Required

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**PSYCH 9510: Studies in Clinical Psychology**

Contemporary research and theory for advanced graduate students in clinical psychology. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent, departmental consent for repetition

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**PSYCH 9515: Orientations in Psychotherapy**

The introductory psychotherapy course for students in the clinical psychology doctoral program. The focus of the course is on development of knowledge and skills in the following four areas: (1) Theory and practice of contemporary (brief) psychotherapy; (2) Basic interviewing skills; (3) Psychotherapy research and empirically supported treatments; and (4) The role and impact of managed care in contemporary psychotherapy.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9520: Psychometrics**

Introduction to concepts and issues essential to psychological assessment including psychometrics, test construction, controversies in psychological testing, behavioral assessment, and structured interviewing.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9525: Orientations to Clinical Assessment**

Topics include psychometric principles, intelligence testing, objective and projective personality testing and behavioral assessment.

**Credit Hours:** 3

**Prerequisites:** PSYCH 9520 and instructor's consent

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**PSYCH 9530: Clinical Child Assessment**

Introduction to clinical instruments, techniques and problems in the psychological assessment of children.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9540: Ethical and Professional Issues II**

Legal issues, state and national codes, ethical decision-making, dangerousness, ethical clinical treatment issues, mandated reporting, and ethics in specialized clinical settings. This course is the second in a sequence for clinical psychology doctoral students.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9545: Clinical Practicum**

Intensive supervised training in use and interpretation of psychological techniques and in psychotherapy. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent and professional liability insurance

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**PSYCH 9550: Clinical Intervention with Children**

Introduction to theory, research and practice in the area of behavior change with children and adolescents.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9560: Family and Group Process**

Theory, intervention, and research in the areas of family and group dynamics. Emphasis on family therapy approaches.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9575: Clinical Research Methods**

Focus on research design with emphasis on active critique of methodological challenges (e.g., subject selection, control groups, multimodal measures, and treatment issues), includes lecture and active review or research.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9585: Introduction to Alcohol Studies**

Intensive seminar on alcohol research primarily intended for alcohol research training fellows. Covers a range of topics of interest to psychologist, including pharmacology, research methods, genetics, diagnosis, expectancies, and treatment.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PSYCH 9710: Multivariate Statistics in Psychology**

Multivariate statistical methods, including multivariate analysis of variance, discriminant analysis, principal component analysis, and elements of matrix algebra, as applied to problems in psychology.

**Credit Hours:** 3

**Prerequisites:** PSYCH 8710 and PSYCH 8720; instructor's consent

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**PSYCH 9715: Multilevel Modeling**

Introduction to random coefficient multilevel modeling of clustered data. Topics include two- and three-level models, estimation techniques, computing options, model fitting issues, advanced model applications, and growth modeling.

**Credit Hours:** 3

**Prerequisites:** instructor's consent, a graduate course in regression analysis

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**PSYCH 9720: Latent Variable Models in Statistical Analysis**

Covers Matrix Algebra fundamentals, Factor Rotation, Communality Estimation techniques, High Order and Dynamic Factor Models, Path Analysis, Use of computer programs.

**Credit Hours:** 3

**Prerequisites:** instructor's consent and PSYCH 8720

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**PSYCH 9735: Psychological Process Models**

Examines mathematical and statistical models of cognition and perception. Emphasis on modeling basics such as estimation, hypothesis testing, and assessment of fit.

**Credit Hours:** 3

**Prerequisites:** PSYCH 8710 and PSYCH 8720 or instructor's consent

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**PSYCH 9750: Advanced Structural Equation Modeling**

Growth Mixture Models, Dynamic Factor models, and nonlinear structural models.

**Credit Hours:** 3

**Prerequisites:** PSYCH 8710 or departmental consent

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**PSYCH 9755: Quantitative Psychology Seminar**

Quantitative Psychology Topics Seminar. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** departmental consent required

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**PSYCH 9760: Categorical Data Analysis**

This course will provide an applied introduction to the most important methods for analyzing categorical data. Topics include; logistic regression modeling Poisson regression modeling, multinomial sampling, and classic analysis of contingency tables.

**Credit Hours:** 3

**Prerequisites:** PSYCH 8710 and PSYCH 8720; instructor's consent

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**PSYCH 9765: Cluster Analysis and Network Analysis**

The course covers traditional and modern clustering techniques (hierarchical, partitioning, and mixture modeling), both from an algorithmic and modeling perspective. Several types of data types are explored, including traditional two-mode data sets and network structures.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**PSYCH 9780: Item Response Theory I**

Introduction to item response theory, including classical test theory, popular item response models, model estimation, software considerations, and application. Graded on A-F basis only.

**Credit Hours:** 3

**Corequisites:** PSYCH 8710

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**PSYCH 9910: Teaching of Psychology Practicum**

Focuses on development and enhancement of teaching skills for graduate students in psychology who are primary instructors of undergraduate psychology courses. Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**PSYCH 9920: Advanced History of Psychology**

Advanced course in history of psychology designed to show how general philosophical models of mind and behavior have been linked to doctrines of mental health and pathology and to theories of social behavior.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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## Public Affairs (PUB\_AF)

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**PUB\_AF 1000: Principles of Public Policy Administration**

This course introduces students to the basics of public administration and policy implementation. It focuses on what happens after public policy is passed. Students will learn how actors within and outside of government influence the administrative aspects of public policy, what motivates and influences the decision making of the individuals within the administrative state, and how non-government organizations are often tasked with administering public services. By the end of the course, students will be able to understand what makes for successful or unsuccessful implementation of public policy by public (and non-government) organizations. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 4001: Topics in Public Affairs**

Selected topics in public affairs.

**Credit Hours:** 3

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**PUB\_AF 4175: Early Childhood Policy**

(cross-leveled with PUB\_AF 7175). This course explores early childhood development issues and their impacts on policy formation. We will study

a range of family situations in the United States and other countries (e.g., maternal employment and job policies, divorce, child abuse and neglect) that may be of concern for child policy analysts and policy makers.

Additionally, we will examine the effects of different early childhood programs in the United States and other countries using both qualitative and quantitative criteria. This course is applied in focus; as such, by the end of the semester, students should expect to understand policy analysis and the trade-offs of implementing policy choices, as well as be able to apply analytical skills for early childhood and family policies. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** undergraduate junior or senior level; instructor consent

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**PUB\_AF 4340: Regional and Economic Development Policy**

(cross-leveled with PUB\_AF 7340). Presents an overview of historical perspectives and current practice in regional development policy. Topics include the major theories of economic development in the U.S., major trends affecting local economic development, local strategies for economic development, analyzing data from secondary sources, and federal strategies for economic development and regional collaboration. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Senior standing, instructor consent

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**PUB\_AF 4540: Local Government Management**

(cross-leveled with PUB\_AF 7540). Organization and division of service responsibility within local governments. Problems of managing delivery of services with special emphasis upon program implementation, productivity, planning, responsiveness. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 4700: Social Entrepreneurship**

(cross-leveled with PUB\_AF 7700). This course will help illustrate social entrepreneurship in a broad sense and understand how it differs from entrepreneurship as understood in the private sector, social innovation and social enterprise. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 7001: Topics in Public Affairs**

Select current topics in public affairs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** consent required

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**PUB\_AF 7175: Early Childhood Policy**

(cross-leveled with PUB\_AF 4175). This course provides an understanding of early childhood development issues and their impact on policy formation. Will study different family situations in the US and other countries (e.g. maternal employment and job policies, divorce, child abuse and neglect) that may be a concern for child policy makers and analysis. In addition we are going to examine the effects of different early childhood programs in the US and other countries around the world. Also, US federal regulations that have an impact on child policy, such as the National Health Policy and Welfare reform will be examined. Will use both qualitative and quantitative criteria to analyze these policies. This course is applied in focus, so by the end of the semester students should be able to understand policy analysis and the trade-offs of implementing

policy choices, as well as being able to develop analytical skills for early childhood and family policies in their work. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 7330: Scientific and Technological Aspects Terrorism and Counter Terrorism**

(same as NU\_ENG 7330). Terrorism has been a familiar tool of political conflict, and it has assumed greater importance during the past twenty years. This subject has been treated by political scientists in various forms, but the scientific and technological aspects of different forms of terrorism cannot be found in a single place. It is important for persons who propose counter measures to understand the basics of different types of terrorism such as for instance the nature of chemical agents, their properties such as toxicity, etc. in order to build better defense systems.

**Credit Hours:** 3

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**PUB\_AF 7340: Regional and Economic Development Policy**

(cross-leveled with PUB\_AF 4340). Presents an overview of historical perspectives and current practice in regional development policy. Topics include the major theories of economic development in the U.S., major trends affecting local economic development, local strategies for economic development, analyzing data from secondary sources, and federal strategies for economic development and regional collaboration. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 7540: Local Government Management**

(cross-leveled with PUB\_AF 4540). Organization and division of service responsibility within local governments. Problems of managing delivery of services with special emphasis upon program implementation, productivity, planning, responsiveness. Graded on A-F basis.

**Credit Hours:** 3

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**PUB\_AF 7700: Social Entrepreneurship**

(cross-leveled with PUB\_AF 4700). This course will help illustrate social entrepreneurship in a broad sense and understand how it differs from entrepreneurship as understood in the private sector, social innovation and social enterprise. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 7810: Comparative and Global Governance**

This course examines governance and the policy process at the international. Course topics include differences in political regimes, the structure and powers of institutions and the effect on quality of governance, roles of multi-national and non-governmental organizations in coordinating efforts to promote peace and security, human rights, education, health, and economic development. The course also examines the situations within the world's poorest countries and how the international community act to improve the lives of citizens. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8001: Topics in Public Affairs**

Select current topics in public affairs.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PUB\_AF 8085: Problems in Public Affairs**

Intensive study of an area of public affairs related to the student's special interest.

**Credit Hour:** 1-99

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**PUB\_AF 8110: Introduction to Public and Nonprofit Management**

This course introduces students to the field of public and nonprofit management. It examines the histories of public and nonprofit management in the US and provides students with the knowledge of some subfields. Graded on A-F only.

**Credit Hours:** 3

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**PUB\_AF 8150: Collaborative Governance**

Political, economic, and social context of government and public service; examines theories and models of collaborative governance and implications for policy-making, public management, and public service delivery. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8160: Organizational Dynamics and Leadership**

Focuses on understanding human action in administrative situations and on developing personal capacities for effective action in varied and difficult organizational situations. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8170: Public Policy Processes and Strategies**

Processes through which public demands are generated, converted into public policy, and implemented. Examines the intersection of politics, policy, and management as well as the diverse strategies and tools of public action. Graded on A-F basis.

**Credit Hours:** 3

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**PUB\_AF 8171: Environmental Policy**

This course is an introduction to U.S. environmental policy, focusing on important political institutions and political actors. The course provides a survey of the primary laws, regulations, and policies that comprise pollution control and natural resource management policy.

**Credit Hours:** 3

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**PUB\_AF 8174: Social Policy**

This seminar will examine the nature and extent of poverty in the U.S., its causes and consequences, and the antipoverty effects of existing and proposed government programs and policies.

**Credit Hours:** 3

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**PUB\_AF 8177: Energy Economics**

The course examines economic theory and empirical analyses of global energy supply and demand. It examines the role of non-renewable and renewable energy in the economy and trends in energy production and consumption. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Principles of Economics, Instructor's permission

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**PUB\_AF 8178: Sustainable Energy Policy**

This course examines the concept of sustainability as it applies to energy production and consumption, and explores policy options for achieving sustainable energy use.

**Credit Hours:** 3

**Prerequisites:** PUB\_AF 8177

**Recommended:** Principles of Economics, Instructor's permission

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**PUB\_AF 8180: Research Methods and Inquiry in Public Affairs I**

Introduction to research methods for graduate students in public affairs. Topics include measurement, quantitative description, problem definition, the policy research process, and basic analytical tools commonly applied in public affairs. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8181: Research Methods and Inquiry in Public Affairs II**

Advanced topics and applications in research methods for public affairs. Topics include: multivariate analysis and other advanced quantitative techniques; evaluation of policy research products.

**Credit Hours:** 3

**Prerequisites:** PUB\_AF 8180 or permission of instructor

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**PUB\_AF 8185: Research Methods and Inquiry in Public Affairs - Mid Career**

Applications in research methods for graduate students in public affairs mid-career program. Topics include: measurement; quantitative description; problem definition; the policy research processes; basic analytical tools commonly applied in public affairs; multivariate analysis and other advanced quantitative techniques; evaluation of policy research products. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PUB\_AF 8190: Economic Analysis for Public Affairs**

Application of tools of economic analysis to understand and interpret the behavior of government, consumers and producers. Sources of economic inefficiency, including market failures and limitations, and policy solutions. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8195: Economic Analysis for Public Policy - Mid Career**

Application of tools of economic analysis to understand and interpret the behavior of government, consumers and producers. Sources of economic inefficiency, including market failures and limitations, and policy solutions.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PUB\_AF 8210: Public Service and Democracy**

This course examines some of the challenges of public service in a liberal democracy. It addresses basic questions about the design of institutions through which public power is exercised and about the ethical and administrative obligations of people who work within those institutions.

The aim of the course is to provide students with tools for thinking about such questions, and practice addressing them. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8211: MPA Capstone (Applied Project)**

Application of concepts and methods of public affairs to actual policy or management problems. Diagnosis of problem or decision situation, collection of relevant data, development of alternative solutions, recommendations of proposed course of action.

**Credit Hours:** 3

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**PUB\_AF 8280: Public Affairs Internship**

Gives students an opportunity to gain experience in government operations by providing supervised work with an agency at the local, state, or federal level of government or in nonprofit agencies. Graded on A-F basis.

**Credit Hours:** 3

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**PUB\_AF 8282: Practicum in Public Affairs**

Supervised field experience in an approved community, public agency, or nonprofit organizations. Opportunity for observation and participation under the guidance of a qualified advisor. Formal study of advanced theories and techniques is integrated into the student's experience. Graded on A-F basis only.

**Credit Hour:** 3-6

**Prerequisites:** advanced standing and instructor's consent required

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**PUB\_AF 8320: Spatial Analysis for Public Affairs**

Examines theoretical and empirical issues related to the spatial analysis of economic activity and local public issues. Major topics include the role of the public sector, the economics of public services, social accounting matrices, input-output analysis, econometric models of regional economies, and geographic information systems. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8350: Regional Development Issues and Analysis**

(same as AAE 8350). Examines theories of regional growth and development and methods for analysis with applications to current policy issues. Topics include firm location, new economic geography and agglomeration theory, clusters, human capital, migration, social capital, tax and development incentives, and sustainable regional development. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ECONOM 7351 or PUB\_AF 8190 or equivalent

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**PUB\_AF 8420: Public Program Evaluation**

Covers implementation and outcome evaluation models, research design strategies, and data collection methods used to assess the effectiveness of public programs and means of their improvement. Graded on A/F basis only.

**Credit Hours:** 3

**Prerequisites:** PUB\_AF 8181 or equivalent

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**PUB\_AF 8430: Public Policy Analysis**

Uses economic logic and statistical techniques to design, analyze and evaluate public policy. Applies social choice theory, cost/benefit analysis, forecasting, regression analysis, trend analysis, time series methods, and other analytic techniques to policy decision. Graded on A-F basis.

**Credit Hours:** 3

**Prerequisites:** PUB\_AF 8181 and PUB\_AF 8190 or equivalent, or permission of instructor

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**PUB\_AF 8510: Public Budgeting and Taxation**

Intensive study of the institutions, processes, politics, and social and economic impact of public taxation and expenditures.

**Credit Hours:** 3

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**PUB\_AF 8520: Human Resources Management and Development in Public and Nonprofit Sector**

Examines the political, economic, and legal context of the personnel function, as well as the technical aspects of the personnel administrator's job. Stresses the dynamics of bureaucratic organizations. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8530: Strategic Management of Public Service****Organizations: People, Information and Money**

Presents the rationale for strategic planning, and techniques and processes to develop and implement strategic planning in the public sector. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8610: Group Dynamics and Conflict Resolution**

Focuses on the study of group psychology in the context of communities and organizations. It provides a specific examination of the emergence and resolution of conflict. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8620: Organizational Analysis and Change**

Investigates processes and methodologies of organizational diagnosis, intervention strategies, and the role of a change agent. Graded on A-F basis.

**Credit Hours:** 3

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**PUB\_AF 8630: Organizational Change in a Community and Global Context**

Examines changing organizations in their task environments, which include communities and the global economy. The phenomenon of ambiguous boundaries between public and private as well as nonprofit sectors will be investigated as these profound changes impact organizational behavior. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8710: The Nonprofit and Voluntary Sector**

Provides an overview of the history, function, size, scope, development, and management of the nonprofit sector. Historical, political, economic,

and social perspectives are used to examine the meaning of voluntarism, charity, philanthropy, and the nonprofit sector. Graded on A-F basis.

**Credit Hours:** 3

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**PUB\_AF 8720: Budgeting and Financial Management in the Nonprofit Sector**

Nature and environment of public and nonprofit financial administration. Principles of accountability for management of public and nonprofit funds; management and investment of cash balances; special problems related to long- and short-term debt. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8830: Grant Writing I**

Provides students with knowledge regarding the process of seeking grant funding. Students will work in small groups to complete a letter proposal. They will experience the peer review process both as applicant and reviewer. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 8831: Grant Writing II**

Provides students with knowledge regarding the process of seeking grant funding. Students will work in small groups to complete a full-blown state or federal grant proposal. They will experience the peer review process both as applicant and reviewer. The course will cover a variety of funding sources and a range of funding types to provide students with an information base for preparing future grant applications.

**Credit Hours:** 3

**Prerequisites:** PUB\_AF 8830

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**PUB\_AF 8832: Sponsor Relationships**

Provides students with knowledge of the landscape and culture of grant seeking with an emphasis on understanding how private and public sector sponsors are in many ways, significantly different enterprises. Students will gain an understanding of the pivotal role relationships play in grant seeking and gain an appreciation of the particularities and rigors of both public and private grant seeking.

**Credit Hours:** 3

**Prerequisites:** Proposed Grant Writing 2 course

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**PUB\_AF 8833: Grant Award Management**

Provides students with knowledge regarding the process and policies entailed in managing grant awards. Course content includes federal OMB circulars, basic human resource issues, project management strategies, reporting obligations, and project close-out.

**Credit Hours:** 3

**Prerequisites:** Proposed Grant Writing 2 course

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**PUB\_AF 8850: Policies and Institutions of the European Union**

Policies and Institutions of the European Union

**Credit Hours:** 3

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**PUB\_AF 8860: International Comparative Rural Policy**

(same as AAE 8860, NAT\_R 8860). Compares the rural policy objectives and implementation strategies of various countries, and assesses these

policies in terms of economic, social, environmental outcomes and their implications for international relations. Includes 2-weeks of study Abroad. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**PUB\_AF 8864: Administrative Law**

(same as LAW 5310). Administrative Law is concerned with the process government agencies use to make decisions. As such it develops the requirements for establishing rules and policies. It also covers the means by which agencies enforce regulations and statutory provisions, and the means for securing judicial review of rules and enforcement actions. Graded on A-F basis only.

**Credit Hours:** 3

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**PUB\_AF 9000: Directed Individual Study**

Supervised readings and research in area of doctoral specialization. Student must submit formal written proposal to doctoral supervising faculty member prior to registration. May be repeated up to 6 hours.

**Credit Hours:** 3

**Prerequisites:** PhD standing or permission of instructor

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**PUB\_AF 9090: Dissertation**

Independent research for Ph.D. dissertation. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** PhD standing or permission of instructor

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**PUB\_AF 9150: Governance and Public Affairs**

Examines theories of governance, the role of the state and other social institutions. Other topics include administrative reform, the new public management, and the emergence of the multi-sector public service. International comparative dimensions emphasized. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PUB\_AF 8150, PhD standing or permission of professor

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**PUB\_AF 9160: Organization Studies in Public Affairs**

Examines theories of public and nonprofit organizations, including classical and contemporary perspectives in organization science; individual and group behavior; leadership, power and influence; organization design and structure; and organizational culture. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PhD standing or permission of instructor

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**PUB\_AF 9170: Policy Theory**

This seminar examines theories on the policy process, institutions, and delegation of power that influence public policy. Topics covered may include agenda setting, policy design, implementation, legislative decision-making, state political institutions, and federalism. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PhD standing or permission of instructor

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**PUB\_AF 9180: Advanced Research Methods for Public Affairs I**

Focuses on multiple regression analysis, the implications and treatment of serial correlation, heteroskedasticity, multicollinearity, specification error, and measurement error. Students estimate models, use diagnostic information, and interpret and present findings for public affairs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PUB\_AF 8180 or equivalent, PhD standing or permission of instructor

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**PUB\_AF 9181: Advanced Research Methods for Public Affairs II**

The seminar examines statistical modeling tools for limited dependent variables and complex data situations, such as time-series cross-sectional data, clustered observations, and multilevel data. Other topics include simultaneous equation modes and instrument variable in public affairs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PUB\_AF 9180 or equivalent, PhD standing or permission of instructor

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**PUB\_AF 9182: Logics of Inquiry in Public Affairs**

This course examines the philosophical foundations of social inquiry public affairs. Topics include investigation of epistemological and methodological issues in development and use of social research, and exploration of the theoretical underpinnings of multiple paradigms in public affairs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** PhD standing or permission of instructor

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**PUB\_AF 9183: Public Affairs Research and Professional Development Seminar**

Research and professional development through participation in research seminars, colloquia, academic conferences, lectures, and professional workshops. Students required to register every spring semester in residence. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** PhD standing or permission of instructor

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**PUB\_AF 9185: Supervised Research**

Research experience directed by major professor designed to prepare doctoral students for independent scholarship in area of doctoral specialization.

**Credit Hours:** 3

**Prerequisites:** PUB\_AF 8150, PhD standing or permission of instructor

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**PUB\_AF 9446: Advanced Empirical Methods**

(same as ECONOM 9446). Empirical and modeling techniques for evaluation of microeconomic policy questions. Graded A-F only.

**Credit Hours:** 3

**Prerequisites:** Instructors consent or PUB\_AF 8181, PUB\_AF 9180, and PUB\_AF 9181

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**PUB\_AF 9447: Topics in Microeconomic Policy Analysis**

(same as ECONOM 9447). Applies the methods and techniques of microeconomics and to specific timely policy questions. Taught by

applied-microeconomics faculty and focuses on current topics in labor economics, public economics, the economics of education, health economics, and other applied areas of microeconomics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent

**Recommended:** PUB\_AF 8181, PUB\_AF 9180 and PUB\_AF 9181

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## Public Health (P\_HLTH)

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### **P\_HLTH 1000: Introduction to Public Health**

Acquaints students with the Public Health profession including educational preparation, public health careers, current issues, trends, and research.

**Credit Hour:** 1

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### **P\_HLTH 2050: Gender and Public Health**

Addresses issues of gender and public health in the US and abroad. Considers how race, class, gender, sexuality, and geopolitical context may impact health. May focus on specific health issues. May be repeated for credit (up to 6 hours) with different semester themes.

**Credit Hours:** 3

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### **P\_HLTH 2200: Introduction to Public Health and Health Promotion**

Public Health is the science and practice of protecting and improving the health of communities through education, promotion of healthy lifestyles, and research for disease and injury prevention. It is an exciting, dynamic, interactive, and collaborative field, which encompasses many disciplines. P\_HLTH 2200 focuses on the basic tenets of public health, and the basic structures of the US public health system. We will concentrate on the core domains of public health, which include epidemiology, biostatistics, behavioral science/health education, environmental science, disaster preparedness, and health policy. In this course, you will be challenged to consider the complex web of factors that determine and affect health status. Graded on A-F basis only.

**Credit Hours:** 3

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### **P\_HLTH 3300: Public Health Principles, Practice, and Education**

(same as HLTH\_SCI 3300). Public Health is the science and practice of protecting and improving the health of communities through education, promotion of healthy lifestyles, and research for disease and injury prevention. This course focuses on the basic structures of the Public Health system in the U.S. and provides an introduction to the factors that influence and shape that system. Among others, factors include socioeconomic, financing, politics and global issues. Students in this course will be challenged to consider the complex web of factors affecting the health of communities. The course will explore: health needs assessments, examining relationships among behavioral, environmental and genetic factors that enhance or compromise health, examining factors that influence the learning process, and examining factors that enhance or compromise the process of health education. Graded on an A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Public Health Majors during pre-registration

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### **P\_HLTH 3310: Social and Behavioral Health Theory and Practice**

(same as HLTH\_SCI 3310). Social and Behavioral Health (SBH) is the core discipline of public health that focuses on the factors that influence individuals' and communities health actions and decisions. This course will take both a theoretical and a practical approach to understanding SBH. Students will gain an understanding of theory and develop practical skills to apply theories to real world health issues. Readings, assignments, and discussions will focus largely on ways to understand and change health behaviors and various individual, relational, community, and social-level influences on health. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Public Health Majors during pre-registration

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### **P\_HLTH 3400: Global Public Health and Health Care Systems**

(same as HLTH\_SCI 3400, PEA\_ST 3401). An introduction to public health in a global context, with an emphasis on understanding how disparities in socioeconomic status, differences in political and national health care systems and the work of international organizations impact health in communities around the world. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Public Health Majors during Pre-Registration

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### **P\_HLTH 3450: Introduction to Epidemiology**

(same as HLTH\_SCI 3450). Epidemiology is the basic science of Public Health, focusing on the study of distribution and determinants of health-related states and events. The purpose of this course is to gain a basic understand of Epidemiology principles and methods and how to use these as a framework in assessing and addressing population health issues. Employing a mix of lecture, discussion, and assignments, students will explore the epidemiological investigation process, the etiology of disease, disability, and death, how to identify population subgroups with increased risk of disease, disability, and death and how to contribute to the development and evaluation of public health programs and services that improve the health of subgroups at risk and the general population. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Acceptance into the Public Health Program or by Department Consent

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### **P\_HLTH 3460: Introduction to Public Health and Emergency Preparedness**

Introduces public health emergency preparedness procedures, including procedures for natural and technological disasters; terrorism; emerging threats; and methods to address these from planning and response perspectives. Includes domestic and international public health emergency contexts, and integrates knowledge and skills learned from other courses within the Health in Crisis: Human Rights, Disaster Preparedness and Humanitarian Assistance. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Public Health Science Majors during pre-registration

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### **P\_HLTH 3560: Public Health and Environmental Justice**

This course is designed to give students an overview of the connection between environmental justice and public health work. Students will use current and past events as a foundation for learning about environmental

health disparities faced by minorities and indigenous communities. Looking through the lens of public health, students will tackle difficult topics such as social justice, environmental racism, and climate change as it relates to minority and indigenous communities. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Public Health Science Majors during preregistration

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**P\_HLTH 3600: Health Promotion Programs I: Assessment and Planning**

(same as HLTH\_SCI 3600). Health promotion planning is the development and implementation of a well-researched and tailored intervention to increase the health status of an individual and population. This course will provide a comprehensive introduction to health promotion planning and assessment by integrating a solid theoretical foundation of the discipline with hands-on experience in assessing needs, assets and capacity for health education, health education and project planning, funding, intervention development, implementation of health education projects, and evaluation. Special attention placed on implementing health education and promotion programs that are tailored to the particular population in need as well as specialized for the appropriate setting be it school, work, health care clinic, or the community. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to public health majors

**Corequisites:** P\_HLTH 3610

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**P\_HLTH 3610: Health Promotion Programs II: Implementation, Evaluation, and Communication**

(same as HLTH\_SCI 3610). This course builds on topics covered in Health Promotion Programs I: Assessment and Planning. It will provide a comprehensive introduction to the implementation, evaluation and communication required for successful health promotion programs by integrating a solid theoretical foundation of the discipline with hands-on experience in the implementation of health promotion program, developing an evaluation and communication strategies for successful health education and health promotion programs in a variety of community-based settings. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to public health majors

**Corequisites:** P\_HLTH 3600

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**P\_HLTH 3660: Chronic Disease and Public Health Approaches**

The epidemiology of major chronic diseases of high income countries will be reviewed including heart disease, cancer, stroke, diabetes, neurological diseases, and selected other conditions. In addition students will examine emerging non-communicable disease epidemics in low-and middle-income countries. Methodologic issues related to the study of these diseases, disease surveillance and strategies for prevention will also be covered. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Public Health Science Majors during preregistration

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**P\_HLTH 3760: Infectious Disease and Public Health Approaches**

In this course students will be able to define the basic concepts of Infectious Disease Epidemiology and Identify past, present, and future infectious disease threats. Students will describe the basic methods of Infectious Disease Epidemiology and identify host factors, infectious agents, and transmission factors. By the end of the course students will be able to discuss and identify basic approaches to control and prevention of infectious disease. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Public Health Science Majors during preregistration

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**P\_HLTH 3860: Autism Spectrum Disorder and Public Health**

This class is designed to help students think critically about the identification and treatment of autism spectrum disorder (ASD) in the United States. Students will explore current research and debates surrounding the definition, prevention and treatment of ASD in the United States. In addition to learning about the presentation and treatment of ASD, they will also be introduced to concepts in public health, psychology, psychiatry, and health services research. We will also discuss the history of our beliefs about ASD and how these beliefs have influenced policy, systems, services and treatment over the last century. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Public Health Science Majors during preregistration

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**P\_HLTH 3900W: Introduction to The Research Process and Evidence Base - Writing Intensive**

(same as HLTH\_SCI 3900W). This course provides an introduction to the basic quantitative and qualitative research techniques used in public health, health education and promotion, and the health professions. Conducting research, making medical decisions based on research findings, and using and interpreting research and evidence in practice settings all represent potential outcomes for students selecting a career in public health or the health professions. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to public health majors

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**P\_HLTH 3960: Public Health, Drugs and Policy**

This course is a tool to provide basic understanding of the role of legal and illegal drugs of abuse on people and the addictive processes. Using this information, the major focus will be to understand the problems and opportunities for treatment and prevention relevant to current and past policy issues. The public health implications of several Missouri and national policy decisions in treatment and prevention will be a major focus. An additional major focus will be on legal drugs of abuse - alcohol, tobacco and caffeine - which cause most of the mortality and morbidity due to drug use. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Public Health Science Majors during preregistration

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**P\_HLTH 3965: Strategies for Effective Peer Education in Public Health**

(same as WGST 3960, HLTH\_SCI 3965). Course designed to promote effective presentation skills on a variety of health topics, specifically

sexual health. Students will engage in experiential practice and skill building surrounding cultural competency, difficult discourses, discussion facilitation and behavior management. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Instructor's consent

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**P\_HLTH 4001: Topics in Public Health**

Organized study of selected topics. Subjects will vary from semester to semester. Graded on A-F basis only.

**Credit Hour:** 1-6

**Prerequisites:** Restricted to Public Health Science Majors during preregistration

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**P\_HLTH 4002: Public Health Study Abroad**

This course is designed for students to explore various public health issues through the global lens of study abroad. Public health is a diverse career field that touches every aspect of life and connects a global community through the mission of serving the public good. Public health issues are intertwined and complicated by culture, governments, and environmental systems. Each study abroad trip will uniquely address issues specific to the country of origin. Graded on A-F basis only.

**Credit Hour:** 1-6

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**P\_HLTH 4085: Problems in Public Health**

Individual study, topic/problem varies by instructor. Graded on A-F basis only.

**Credit Hour:** 1-6

**Prerequisites:** Instructor's Consent

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**P\_HLTH 4300: Health Care in the United States**

(same as HLTH\_SCI 4300). Overview of financing, structure, and outcomes in the U.S. health care system. Contemporary health care issues, policy, and politics will be addressed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing; Restricted to Public Health Majors during pre-registration

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**P\_HLTH 4350: Principles of Environmental Health for Public Health**

This course is an introduction to Environmental Health as it relates to Public Health. Students will learn about the effects of environmental factors on a population's health and identify the connections between human health, animal health, and ecosystem health. Students will explore the role governments play in environmental health and identify the how globalization affects global burdens of disease. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Public Health Science Majors during preregistration

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**P\_HLTH 4485: Ethics in Public Health**

This course provides an overview of the basis for ethics in public health. Ethical concepts, theories, and approaches that apply to public health practice will be presented. Specific topics include paternalism, confidentiality, informed consent, justice, and resource allocation. Ethical issues in the public health arena will be explored; with an emphasis

on the social determinants of health and APHA's 'health in all policies' approach. Legal and policy factors will also be considered related to ethical decision-making. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Public Health Science Majors during preregistration

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**P\_HLTH 4500: Health Care Management**

(same as HLTH\_SCI 4500). Examines various management concepts as they relate to the unique environment of health care. Concepts include planning, decision making, budgeting, staffing, organizing, and motivating for working with individuals or teams. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Public Health majors

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**P\_HLTH 4900: Seminar in Health Education**

(same as HLTH\_SCI 4900; cross-leveled with P\_HLTH 7900). This course provides students pursuing careers in health education/promotion and public health with the opportunity to synthesize their relevant coursework and prepare for the Certified Health Education Specialist (CHES) examination. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** Open to public health students during preregistration

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**P\_HLTH 4960: Qualitative Approaches to Understanding Public Health Problems**

This course will define and describe the use of qualitative approaches to explore and solve public health problems. It will also provide opportunity for collecting, analyzing and working with qualitative data from a variety of data collection methods and using multiple analysis approaches. Discussion of analyzing photograph and video data will also provide students with insights on how best to analyze these types of data. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Public Health Science Majors during preregistration

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**P\_HLTH 4970: Public Health Capstone: Digital Storytelling**

One of the primary tasks of the public health professional is to translate scientific evidence into sound programs and policies. To do this successfully, the public health practitioner must understand how to weigh and interpret evidence and how to communicate the meaning of that evidence to a variety of stakeholders, including policy makers and community members. This capstone will focus on the practical and ethical challenges inherent in public health practice through a focus on communication and storytelling. Students will choose a public health topic and conduct a literature review, conduct interviews with key stakeholders, develop a story proposal and a completed digital story that reflects current evidence and diverse viewpoints. In addition, through exercises, readings and reflection papers, they will explore their own relationship to the issue of choice, explore unfamiliar points of view on the topic and grapple with the ethical challenges of advocacy and representation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Public Health Science Majors during preregistration

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**P\_HLTH 4975: Public Health Capstone: Emerging Issues in Public Health**

In this capstone course, students will apply what they have learned throughout the program to generate solutions for an emerging issue in public health (e.g. opioids). The course is taught using Open Educational Resources (OER) and is based on current resources and materials. Research (i.e. epidemiology), practice, interventions, policy, and evaluation will be addressed with readings, reports, articles, films, and podcasts. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Public Health Science Majors during preregistration

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**P\_HLTH 7001: Topics in Public Health**

Selected topics of interest related to Public Health.

**Credit Hours:** 3

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**P\_HLTH 7150: Principles of Public Health**

This course provides an overview of public health, including concentration areas of public health systems, epidemiology, social and behavioral determinants of health, environmental health, and public health policy. Case studies from local, state, national and international public health issues are incorporated into each segment, culminating in a discussion of the future of public health.

**Credit Hours:** 3

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**P\_HLTH 7160: Interdisciplinary Perspectives in Global Health**

This course is designed for those interested in health issues from a global perspective. It explores contemporary issues, problems, and controversies in global health through an interdisciplinary perspective. This course will follow a lecture and case study discussion format. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Department consent required

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**P\_HLTH 7751: Psychosocial Function and Older Adults**

(same as ARCHST 7650, F\_C\_MD 7751, HMI 7751, H\_D\_FS 7751, NURSE 7751, P\_HLTH 7751 and SOC\_WK 7751). This course takes an Interdisciplinary approach to understanding the psychosocial function of older adults and explores approaches to alleviate disabling conditions that interfere with psychosocial function and quality of life in old age. Graded on A-F basis only.

**Credit Hours:** 3

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**P\_HLTH 7800: Public Health Campaign Successes and Failures**

Explains public health campaigns from assessing needs to planning and implementing interventions, as well as taking lessons learned from previous public health campaigns to create strategies that increase the likelihood of success and reduce the chance of failure. Graded on A-F basis only.

**Credit Hours:** 3

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**P\_HLTH 7850: Mental Health Policy**

This course is an introductory survey of the principles and practice of mental health policy, beginning with its early history and continuing to the present day. Topics will include the nature of mental illness, its incidence and prevalence, mental health stigma, policy concerns related to mental health finance, the process of policy making, involvement of mental health care consumers in the policy process, and mental health in health policy reform. The needs of special populations including the homeless, persons in the criminal justice system, ethnic/minority groups, persons living in rural areas and veterans will be examined as well as needs specific to children and the elderly. Students are also expected to understand mental health policy considerations related to current health care reform and ethical issues in the practice of mental health policy. Graded on A-F basis only.

**Credit Hours:** 3

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**P\_HLTH 7900: Seminar in Health Education**

(cross-leveled with HLTH\_SCI 4900, P\_HLTH 4900). This course provides students pursuing careers in health education/promotion and public health with the opportunity to synthesize their relevant coursework and prepare for the Certified Health Education Specialist (CHES) examination. Graded on S/U basis only.

**Credit Hour:** 1

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**P\_HLTH 7952: Research Methods in Public Health**

This course is designed to introduce students to the process of research as a sequence of events, systematically organized to further knowledge. A scientific and conceptual stance to knowledge development is emphasized, along with the importance of the empirical approach in establishing relationships between theories, concepts, and behavior phenomena. May be repeated for credit.

**Credit Hours:** 3

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**P\_HLTH 7960: Qualitative Approaches to Understanding Public Health Problems**

(cross-leveled with P\_HLTH 4960). This course will define and describe the use of qualitative approaches to explore and solve public health problems. It will also provide opportunity for collecting, analyzing and working with qualitative data from a variety of data collection methods and using multiple analysis approaches. Discussion of analyzing photograph and video data will also provide students with insights on how best to analyze these types of data. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Restricted to Public Health Majors during preregistration

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**P\_HLTH 8001: Topics in Public Health**

Selected topics of interest related to Public Health.

**Credit Hour:** 1-3

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**P\_HLTH 8085: Problems in Public Health**

Guided readings, intensive study of an area in Public Health related to special interest of student or an area in which the student needs to strengthen.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent. May be repeated for credit

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**P\_HLTH 8090: Masters Thesis Research**

Leads to preparation of masters thesis. May only be repeated for credit for six hours. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** P\_HLTH 8980. Instructor's consent required

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**P\_HLTH 8120: Applied Epidemiology in Community Assessment**

The purpose of this course is to enable students to gain skills and abilities in assessing population groups and determining their priority public health problems. Students will consider a variety of strategies for empowering and mobilizing populations in collaborative public health efforts. Communication skills are key to the community assessment and intervention process, particularly in translating epidemiological data to lay audiences, and advocating for action. Students will be challenged to communicate public health issues effectively both on-line and in writing. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** P\_HLTH 7952

**Prerequisites:** P\_HLTH 8420, Graduate level Statistics (STAT 7020 or STAT 7410)

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**P\_HLTH 8150: Human Health and the Environment**

This graduate level course will address threats to public health related to environmental factors including biological, physical and chemical factors. Subjects will include environmental contamination and remediation, zoonotic disease food and water quality. This course will include recorded lectures with optional synchronous participation. Lectures will be recorded live and students will have the option to virtually attend live lecture, but this will not be required. Lecture recordings are archived for students to view at their convenience. Graded on A-F basis only.

**Credit Hours:** 3

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**P\_HLTH 8251: Immigrant Health**

Public health professions have considerable interest in understanding the unique health concerns of immigrants, in order to prevent disease, promote health, and prolong life in this specific population and in the population as a whole. This course will be based on readings in the peer-reviewed literature, discussion in a seminar format, community visits and observations/interviews, and guest speakers on topics of importance when considering issues of public health particular to immigrant communities. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**P\_HLTH 8260: Emergency Preparedness**

An overview of current national guidance and basic assessment of the current health care system level of readiness focusing on the critical role of the health care system for community, regional, state, and nationally based emergency preparedness efforts. Graded on A-F basis only.

**Credit Hours:** 3

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**P\_HLTH 8270: Storytelling in Public Health and Public Policy**

Storytelling for public health and public policy offers students an opportunity to become familiar with the literature and theoretical frameworks underlying the use of narrative and digital storytelling in

public health and policy advocacy and public health interventions focused on behavior change. Students will review case studies of effective narrative communication and practice elements of effective storytelling in a variety of print and digital platforms. Graded on A-F basis only.

**Credit Hours:** 3

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**P\_HLTH 8300: Health Care in the United States**

(same as PUB\_AF 8172). Overview of financing, structure, and outcomes in the U.S. health care system. Contemporary health care issues, policy, and politics will be addressed. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 3

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**P\_HLTH 8400: Clinical Veterinary Regulatory Medicine and Public Health**

(same as V\_M\_S 8400). The goal of this course is to familiarize the student with clinical aspects of veterinary public health/regulatory medicine. Must be enrolled in MPH (veterinary public health concentration) or DVM curriculum.

**Credit Hours:** 2

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**P\_HLTH 8420: Principles of Epidemiology**

This course is intended to provide a general introduction to the course epidemiological concepts and methods as grounded in the essential services of public health. The focus of the course is on developing critical thinking skills and providing a foundation in applied epidemiologic competencies. May be repeated for credit. Graded on A-F only.

**Credit Hours:** 3

**Prerequisites:** graduate level statistics; instructor's consent

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**P\_HLTH 8470: GIS for Public Health**

The purpose of this course is to understand the capacity and limitations of geographic information system (GIS) in public health. The guiding principle of developing the course is the practical aspects of using GIS while understanding the basic science behind mapping. The course is based on a weekly format of brief narrated lectures, readings and assignments similar to what you would have in a classroom. Graded on A-F basis only.

**Credit Hours:** 3

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**P\_HLTH 8620: Emerging Zoonoses Diseases**

This course will enhance student understanding of epidemiology and ecology as it relates to emerging and established zoonotic diseases. Risk factors for the emergence of and mechanisms for control and prevention of zoonotic diseases will be discussed. Course will involve individual and group assignments, use of discussion board, and several blackboard collaborate sessions. Blackboard collaborate sessions (time is TBA) will be held throughout the semester as an introduction to course modules and for help sessions. Students must have audio capability (microphone and speakers) for the course. Built in microphones and speakers work nicely, an inexpensive headset helps screen out background noise. If your computer does not have a built in microphone, an inexpensive one can be purchased at an electronics/computer store. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** P\_HLTH 8420 or V\_PBio 8455 and P\_HLTH 8150

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**P\_HLTH 8625: Data Analysis for Health Researchers**

The goal of this course is to introduce students to the systematic approach to data analysis, statistical computing, correct interpretation and presentation of results. Note that mathematical equations or their derivations forms are not emphasized. However, candidates taking this course are required to have a basic understanding of the epidemiologic and statistical principles and data analysis. The course is not expected to convert you into an expert data analyst within 16 weeks but upon completing the course, you will have acquired skills needed to analyze and interpret cohort, case-control and cross-sectional studies by cross tabulations, stratification, and regression. In addition, you will be able to build and interpret findings from complex multivariable models after controlling for confounding. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** P\_HLTH 8420 or V\_PBio 8455, STAT 7020

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**P\_HLTH 8675: Strategic Health Communication**

Funding for public health is at historic lows, meaning to create change more must be done with less. One of the best ways to facilitate change is through strategic health communication. By making messages easy to understand, developing campaigns to create behavior, attitude and/or belief change, and understanding how to utilize the concepts of social marketing, public health professionals can break away from the old way of doing business to make a difference in our society. Graded on A-F basis only.

**Credit Hours:** 3

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**P\_HLTH 8767: Epidemiology of Vaccine-Preventable Diseases**

This course is designed to provide a basic overview of epidemiology by exploring issues regarding various vaccine-preventable diseases (VPDs) and immunization program policies. Participants will learn about VPDs, while gaining skills in epidemiology, the science of public health. Graded on A-F basis only.

**Credit Hours:** 3

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**P\_HLTH 8920: Social and Behavioral Sciences in Public Health**

(same as PSYCH 8920). This course will take both a theoretical and a practical approach to understanding health-related behavior and the field of public health. Students will gain an understanding of theory and empirical research in the social and behavioral sciences, as well as developing practical skills in critically evaluating research and in applying scientific evidence to address real world health concerns.

**Credit Hours:** 3

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**P\_HLTH 8953: Evaluating Global Public Health Programs**

This course is designed to prepare students to evaluate global public health programs, preferably in developing countries. Students will identify a global public health issue, find one or more global health intervention or prevention programs, evaluate the programs using principles of evaluation research methods, and suggest implications for global public health promotion. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** P\_HLTH 7952 or P\_HLTH 8420

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**P\_HLTH 8970: Public Health Capstone**

As an integrating experience, the Public Health Capstone will allow students to articulate and share what they have learned in coursework and to supplement previous learning by exploring areas of knowledge the students identify as most relevant to their readiness for professional practice. It will enable students to test theoretical knowledge against real life practical experiences, and to integrate and refine basic and advanced concepts, values, and methods acquired during the professional education.

**Credit Hours:** 3

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**P\_HLTH 8971: Veterinary Public Health Capstone**

This capstone experience provides a unique set of opportunities and responsibilities. It is generally scheduled after completion of at least 2 semesters of the MPH curriculum and is designed to serve as a capstone experience integrating previous coursework and experiences. Exceptions to the requirement of completion of 2 semesters of MPH coursework will be granted for students who have completed or concurrent degree. Examples of relevant preparatory coursework will include epidemiology and veterinary public health. As an integrating experience, the capstone will require students to apply knowledge in an independent manner, integrate knowledge into cohesive production, and communication the results of this experience.

**Credit Hour:** 1-99

**Prerequisites:** completion of at least 2 semester of MPH curriculum

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**P\_HLTH 8980: Public Health Internship**

The field experience, or internship, is an opportunity for the student to test many of the theories, concepts, and information about public health learned during the first year and translate them into practice. Using the internship site as the 'organizational laboratory,' the student begins to develop the necessary professional skill sets for becoming a successful public health professional. The current knowledge, skills, abilities, and experiences will continue to develop and grow as each student becomes a life-long learner and practitioner of public health. Graded on S/U basis only.

**Credit Hour:** 1-99

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## Radiologic Sciences (RA\_SCI)

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**RA\_SCI 3110: Radiography Procedures I**

This course is an introduction to basic radiographic positioning and procedures. Specific radiographic procedures of the chest, upper extremity, shoulder girdle, pelvis and lower extremity are taught.

**Credit Hours:** 2

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 3120: Fundamentals of Radiography**

Orientation to radiology department, ethics, psychodynamics of patient care, medical legal considerations and radiation safety procedures.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 3130: Basic Radiographic Skills**

Radiographic film processing techniques, intensifying screens and sensitometry will be discussed. The x-ray tube, x-ray production and some of the factors which affect the quantity and quality of the x-ray beam as well as the x-ray image will also be introduced.

**Credit Hours:** 2

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 3140: Principles in Radiographic Exposure I**

Theory and principles of X-ray technique; correlation of factors with application.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 3150: Radiologic Pharmacology**

Pharmacological principles, biopharmaceutics, pharmacokinetics, pharmacodynamics, drug classifications, drug names, administration routes, and infection prevention and control will be covered. Attention will be given to contrast agents relative to radiographic imaging. Ethical and legal implications will be explored.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 3160: Radiologic Physics**

Fundamental physics of electricity and radiant energy; principles of generation of electromagnetic radiation and applicable equipment; and principles of digital image capture, display and storage.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 3170: Imaging Modalities**

The study of radiographic and fluoroscopic equipment with attention to automatic exposure devices, image intensification, and imaging detectors. Consideration will be given to equipment in such modalities as computed tomography, magnetic resonance imaging, ultrasound, nuclear medicine and radiation therapy.

**Credit Hours:** 2

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 3180: Radiography Procedures II**

Instruction in radiographic procedures of the upper and lower gastrointestinal system, urinary system, bony thorax, vertebral column, and cranium.

**Credit Hours:** 2

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 3190: Radiography Procedures III**

Instructions in advanced radiographic imaging techniques with emphasis in trauma radiography, vascular studies and other specialty radiographic procedures.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 3941: Clinical Education I**

First in a five-part series focusing on the application and evaluation of radiography in the clinical setting. Supervised clinical experience emphasizing radiographic procedures of the chest, abdomen, and extremities.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 3942: Clinical Education II**

Second in a five-part series focusing on the application and evaluation of radiography in the clinical setting. Supervised clinical experience emphasizing the development of technical skills and procedural knowledge of routine radiographic procedures.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 4085: Problems in Medical Imaging**

Supervise investigation in an aspect of medical imaging science usually culminating in a written report.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**RA\_SCI 4110: Sectional Anatomy**

(same as DMU 4312; cross-leveled with RA\_SCI 7110, DMU 7312). A study of human anatomy using the sectional approach; anatomical structures will be related to modern medical imaging techniques. Graded on an A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**RA\_SCI 4140: Magnetic Resonance Imaging: Physics and Procedures**

(cross-leveled with RA\_SCI 7140). Magnetic Resonance imaging fundamentals, applications, instrumentation, physical principles. Basic imaging concepts including positioning, scanning protocols, contrast imaging, anatomy review, and pathological considerations. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites:** Acceptance into Radiologic Sciences

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**RA\_SCI 4150: Computed Tomography: Physics and Procedures**

(cross-leveled with RA\_SCI 7150). Computed tomography imaging fundamentals, applications, instrumentation, physical principles. Applied concepts regarding patient care and CT imaging procedures. Graded on an A-F basis only.

**Credit Hours:** 5

**Prerequisites:** Acceptance into Radiologic Sciences

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**RA\_SCI 4303: Radiation Safety**

(same as NU\_ENG 4303). Types and origins of radiation; radiation detection and measurement; radiation interactions; shielding; dose calculations; federal, state and local regulations; and procedures for safe uses of radiation. Laboratory experiments in radiation measurements and protection.

**Credit Hours:** 3

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**RA\_SCI 4943: Clinical Education III**

Third in a five-part series focusing on the application and evaluation of radiography in the clinical setting. Supervised clinical experience emphasizing the transition to self-directed practice of routine radiographic procedures and the development of technical skills and procedural knowledge of more advanced radiographic procedures.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Science, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 4944: Clinical Education IV**

Fourth in a five-part series focusing on the application and evaluation of radiography in the clinical setting. Supervised clinical experience emphasizing self-directed clinical practice and the development of technical skills and procedural knowledge of more advanced radiographic procedures and modalities.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 4944W: Clinical Education IV - Writing Intensified**

Fourth in a five-part series focusing on the application and evaluation of radiography in the clinical setting. Supervised clinical experience emphasizing self-directed clinical practice and the development of technical skills and procedural knowledge of more advanced radiographic procedures and modalities.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Science students only

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**RA\_SCI 4945: Clinical Education V**

Final clinical course. Supervised clinical experience emphasizing self-directed performance of complex radiographic procedures, continued competency in routine diagnostic radiography and the investigation of advanced modalities, while transitioning to reflective, critical, and strategic professional practice.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program. Restricted to Radiologic Sciences students only

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**RA\_SCI 4946: Advanced Medical Imaging Externship**

(cross-leveled with RA\_SCI 7946). Supervised clinical experience in a medical imaging specialty with emphasis on patient care and technical practice.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required. Certification in a primary area of imaging. An affiliation agreement between the University of Missouri Radiologic Sciences Program and the clinical facility. Satisfactory completion of all Clinical Screening Requirements

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**RA\_SCI 4947: Radiography Overview**

A comprehensive overview of all aspects of diagnostic radiology with emphasis on procedures, technique, radiation protection, positioning, radiographic anatomy and patient care.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program

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**RA\_SCI 4980: Imaging Pathology**

Etiology and processes of disease. Emphasis on pathology of body systems and the manifestation of pathology through imaging.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program

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**RA\_SCI 4980W: Imaging Pathology - Writing Intensive**

Etiology and processes of disease. Emphasis on pathology of body systems and the manifestation of pathology through imaging.

**Credit Hours:** 3

**Prerequisites:** Acceptance into Radiologic Sciences, Radiography Program

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**RA\_SCI 7110: Sectional Anatomy**

(same as DMU 7312; cross-leveled with RA\_SCI 4110, DMU 4312). A study of human anatomy using the sectional approach; anatomical structures will be related to modern medical imaging techniques. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Instructor consent required

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**RA\_SCI 7140: Magnetic Resonance Imaging: Physics and Procedures**

(cross-leveled with RA\_SCI 4140). Magnetic Resonance imaging fundamentals, applications, instrumentation, physical principles. Basic imaging concepts including positioning, scanning protocols, contrast imaging, anatomy review, and pathological considerations. Graded on A-F basis only.

**Credit Hours:** 5

**Prerequisites:** Instructor consent

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**RA\_SCI 7150: Computed Tomography: Physics and Procedures**

(cross-leveled with RA\_SCI 4150). Computed tomography (CT) imaging fundamentals, applications, instrumentation, physical principles. Applied concepts regarding patient care and CT imaging procedures. Graded on an A-F basis only.

**Credit Hours:** 5

**Prerequisites:** Instructor's consent required

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**RA\_SCI 7946: Advanced Medical Imaging Externship**

(cross-leveled with RA\_SCI 4946). Supervised clinical experience in a medical imaging specialty with emphasis on patient care and technical practice.

**Credit Hours:** 3

**Prerequisites:** Instructor's consent required. Certification in a primary area of imaging. An affiliation agreement between the University of Missouri Radiologic Sciences Program and the clinical facility. Satisfactory completion of all Clinical Screening Requirements

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## Radiology (RADIOL)

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**RADIOL 4328: Introductory Radiation Biology**

(same as BIO\_SC 4328, NU\_ENG 4328, V\_M\_S 7328). Concepts of ionizing radiations, their actions on matter through effects on simple chemical systems, biological molecules, cell, organisms, man.

**Credit Hours:** 3

**Prerequisites:** junior standing Sciences/Engineering; one course in Biological Sciences and Physics/Chemistry; or instructor's consent

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**RADIOL 6044: SCC Radiation Oncology Elective**

Students will enhance their knowledge, skills, and attitudes about patient-centered care through active participation in direct patient care activities while under the supervision of a faculty preceptor. Students will integrate previously acquired knowledge and concepts and apply them to the care and management of patients. During the elective, students will be expected to work-up patients, perform physical exams, and present cases to faculty. Students will also be exposed to treatment planning, simulations, and treatment deliveries throughout the rotation. At the end of the elective, students will be expected to give a 10-minute presentation on a topic of their choosing.

**Credit Hours:** 5

**Prerequisites:** Successful completion of the first two years of medical school

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**RADIOL 6373: ABS Radiology Research**

ABS Radiology Research

**Credit Hour:** 5-10

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**RADIOL 6645: Radiology**

Goals/Objectives: General survey of all subspecialties of radiology. Evaluations: Written evaluations performed by both faculty and residents.

**Credit Hours:** 5

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**RADIOL 6646: SCC Radiology Elective**

Students on this elective rotate through the various areas of radiology, spending time in each of the following subspecialties: musculoskeletal, ultrasound/mammography, chest/body imaging, neuroradiology (CT/MRI), pediatric imaging, and/or Interventional Radiology. Students participate in workstation rounds. Information is presented using a variety of evidence-based resources and online modules, including case conferences, daily mini-lectures, and case review websites.

**Credit Hours:** 5

**Prerequisites:** Successful completion of the first two years of medical school; faculty approval

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**RADIOL 6650: Advanced Radiology**

Advanced Radiology

**Credit Hours:** 5

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**RADIOL 6745: Radiology - Rural**

Radiology - Rural

**Credit Hours:** 5

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**RADIOL 6931: Introduction to Radiology**

This two week elective will provide students with exposure to chest and body imaging (1 week per area). They will participate in 2-3 didactic sessions focused on the basics of radiology and imaging that is important to all fields of medicine, as well as video lectures one day a week along with the upperclassmen that are doing their 4 week elective at that time. Videos present a case based learning plan involving common emergent situations that may be encountered during their clinical training.

**Credit Hours:** 2

**Prerequisites:** successful completion of the first two years of medical school

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**RADIOL 6952: SCC Radiation Oncology 2 week elective**

This course is intended as an introductory experience in the field of Radiation Oncology. Students will enhance their knowledge, skills, and attitudes about patient-centered care through active participation in direct patient care activities while under the supervision of a faculty preceptor. Students will integrate previously acquired knowledge and concepts and apply them to the care and management of patients. During the clerkship, students will be expected to work-up patients, perform physical exams, and present cases to faculty. Students will also be exposed to treatment planning, simulations, and treatment deliveries throughout the rotation.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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**RADIOL 6961: Radiation Oncology-2-Week Elective**

This will be an introduction of radiation oncology including the basics of radiation physics, radiation biology, and treatment planning. Each student will be asked to attend multidisciplinary tumor conference. They will participate in evaluation and management of patients with cancer. This will include seeing consults, participating in treatment planning, seeing patients who are on treatment, and follow-up of patients. Special procedures include radiation oncology three-dimensional treatment planning, INRT, stereotactic radiosurgery and stereotactic body radiation therapy, and brachytherapy.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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**RADIOL 6962: SCC Introduction to Radiology**

This two week elective will provide students with exposure to Chest, Body Imaging, Neuroradiology and Pediatric Imaging. Information is presented in a variety of evidence-based resources and online modules, including daily discussion and case review.

**Credit Hours:** 2

**Prerequisites:** Successful completion of the first two years of medical school

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## Religious Studies (REL\_ST)

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### REL\_ST 1100: Introduction to Religion

Engages students in reflection on the religious questions that human existence poses, and introduces them to conceptual tools for understanding and evaluating answers which have emerged in human history.

**Credit Hours:** 3

**Prerequisites:** Sections are restricted to Freshmen and Sophomores only or Juniors and Seniors only

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### REL\_ST 1100H: Introduction to Religion - Honors

Engages students in reflection on the religious questions that human existence poses, and introduces them to conceptual tools for understanding and evaluating answers which have emerged in human history.

**Credit Hours:** 3

**Prerequisites:** Sections are restricted to Freshman and Sophomores only and Juniors and Seniors only. Honors eligibility required

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### REL\_ST 1500: Religion and Culture

The study of religion as expressed in art, literature, music, dance, drama, architecture.

**Credit Hours:** 3

**Prerequisites:** Restricted to Freshmen and Sophomores only

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### REL\_ST 2005: Topics in Religious Studies-Humanities

Organized study of selected topics which vary by semester and are announced at time of registration.

**Credit Hour:** 1-3

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### REL\_ST 2100: Indigenous Religions

(same as ANTHRO 2100). Explores the central aspects of religious life in indigenous communities. Focusing on specific groups, it considers individual and group identity, the meaning of the sacred, and the impact of foreign domination.

**Credit Hours:** 3

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### REL\_ST 2100H: Indigenous Religions - Honors

(same as ANTHRO 2100H). Explores the central aspects of religious life in indigenous communities. Focusing on specific native communities, it considers individual and group identity and the meaning of the sacred.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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### REL\_ST 2110: Global Religions

This course explores approaches to the academic study of religion and introduces students to a variety of global religious traditions through the study of their myths, rituals, beliefs, and practices.

**Credit Hours:** 3

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### REL\_ST 2110H: Religions of the World - Honors

Explores the differing ways in which Asian and Western religions interpret life and reality. Includes study of Hinduism, Buddhism, Chinese and Japanese religions, Judaism, Christianity, and Islam.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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### REL\_ST 2220: Death and Dying in the Western World

Death is a topic most Americans wish to avoid. Once we were very familiar with it since people before the mid-19th c. usually died at home, their bodies mourned at home, and then buried either in a designated public space or on their property (especially in the South). Today, most people die in hospitals or medical-oriented institutions (like nursing homes). Because death is so hidden (even disguised) most of us have never seen a dead body except in film or on television and those bodies are often a result of an exceptionally gruesome, yet highly staged death. Hidden death in everyday life has led to the fact that most Americans are unfamiliar with death and even outright afraid of it. People unconsciously treat death, the process of dying, and grief as a sort of infectious disease. However, death surrounds us both personally and collectively and this means that the living and the dead do not exist (and have never existed) in completely separate realms. This class explores how death has historically been approached in the Western world and familiarizes us with different types of death (natural death, death by execution, death from illness, and death by murder). Using a religious studies and American studies approach we will examine overarching themes of grief, loss, mourning, and even anger in association with death and dying.

**Credit Hours:** 3

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### REL\_ST 2230: Religion and Popular Culture in the U.S.

Explores intersections of religion and popular culture and methods for analysis.

**Credit Hours:** 3

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### REL\_ST 2240: Harry Potter, Magic, and Religion

This course explores religious themes in J.K. Rowling's Harry Potter series. Topics include ancient Greek, Roman, Celtic, and Norse mythological themes, the relationship between religion and magic, and reactions to the books among various religious groups.

**Credit Hours:** 3

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### REL\_ST 2240H: Harry Potter, Magic, and Religion - Honors

This course explores religious themes in J.K. Rowling's Harry Potter series. Topics include ancient Greek, Roman, Celtic, and Norse mythological themes, the relationship between religion and magic, and reactions to the books among various religious groups. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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### REL\_ST 2260: Gods, Dwarves, and Dragons: Introduction to Old Norse Mythology

This course is an introduction to the pre-Christian religion and mythology of Northern Europe. Topics covered include Old Norse society, gender

roles, and values. Main deities and mythological figures are explored through images and texts. Graded on A-F basis only.

**Credit Hours:** 2

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**REL\_ST 2270: Religion and Literature**

This course explores religious themes such as myth, rituals and rites, sacred power, transcendence, salvation, and pilgrimage in secular literature. Selections in English, include novels and short stories from a variety of cultures and religious traditions.

**Credit Hours:** 3

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**REL\_ST 2310: Religions of China and Japan**

Introduction to the religions of East Asia, focusing on both popular beliefs and institutionalized religion. Topics include: Buddhist, Confucian, and Daoist traditions of China; Buddhism and Shinto in Japan; self-cultivation practices; spirit mediumship; ritual; cosmology; religion and society; religion and the state.

**Credit Hours:** 3

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**REL\_ST 2310H: Religions of China and Japan - Honors**

Introduction to the religions of East Asia, focusing on both popular beliefs and institutionalized religion. Topics include: Buddhist, Confucian, and Daoist traditions of China; Buddhism and Shinto in Japan; self-cultivation practices; spirit mediumship; ritual; cosmology; religion and society; religion and the state.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**REL\_ST 2500H: Introduction to the Old Testament/Hebrew Bible and its World - Honors**

An introduction to the literature of the Hebrew Bible in its Ancient Near Eastern cultural context. Students are exposed to the art, archaeology, literature, and histories of the great civilizations of the ANE and their impact on Israelite history and the formation of the Hebrew Bible. Emphasis is placed on the development and changes in Israelite theology in response to historical circumstances over the centuries that witnessed the Hebrew Bible's composition, compilation, and canonization.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**REL\_ST 2610: Medieval Christianity**

(same as HIST 2610). History of Christian practices and teachings from the 5th-15th centuries, including Byzantine and Western Christianity Themes such as the influence of the Islamic world on Christianity, popular and elite formulations of theology and ritual activities.

**Credit Hours:** 3

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**REL\_ST 2610H: Medieval Christianity - Honors**

History of Christian practices and teachings from the 5th-15th centuries, including Byzantine and Western Christianity Themes such as the influence of the Islamic world on Christianity, popular and elite formulations of theology and ritual activities.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**REL\_ST 2630: History of Christian Traditions**

(same as HIST 2630). An overview of the origins and development of Christianities from the first century of the Common Era to the present day. Topic will include competing Christian theologies, colonialism, conversion narratives, globalization, religious violence, and heresy. May be repeated for credit.

**Credit Hours:** 3

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**REL\_ST 2700: Islam**

Examines the historical development of Islamic traditions, noting the manner in which various sects & factions understand religion, humanity and God.

**Credit Hours:** 3

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**REL\_ST 2850: Religious History of the Middle East I**

An introduction to the early history and development of religion in the Middle East. The course begins with the religious traditions of ancient Egypt, Anatolia, and Mesopotamia; describes how these traditions shaped the subsequent development of Judaism, Christianity, and Islam; and concludes with the transformation of the religious landscape following the Islamic conquests. In addition to mapping out these historical linkages, the course will focus on using the category of religion as a unique method in the study of social and political history. Graded on A-F basis only.

**Credit Hours:** 3

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**REL\_ST 2860: Religious History of the Middle East II**

This course is a historical introduction to the religions of the pre-modern and modern Middle East. It follows the histories of Judaism, Christianity, and Islam from the defeat of the Mongol army in Palestine in 1260 to the present day. In particular it focuses on the social, political, and economic interactions of the Jewish, Christian, and Muslim populations, and the role religion has (and has not) played in the formation and development of the modern Middle East. Graded on A-F basis only.

**Credit Hours:** 3

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**REL\_ST 2900: Contemporary Religious Thought**

Explores issues within contemporary Christian theology that cut across denominational lines such as: the nature and existence of God; secularization, relativism, and humanism; the authority of the Bible; attitudes toward other religions; the moral integrity of Christianity; and the purpose of human existence.

**Credit Hours:** 3

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**REL\_ST 2910: Religion and Contemporary Social Issues**

Study of the social ethics of Jewish and Christian theologians and movements of the 19th and 20th centuries and an examination of selected social problems in light of these systems.

**Credit Hours:** 3

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**REL\_ST 2930: Religion and Psychological Perspectives**

Examines how religion is understood from various psychological perspectives, and how psychological theories reflect religious presuppositions about the nature and purpose of human life.

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**Credit Hours:** 3

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**REL\_ST 2939: Religion and Human Sexuality**

Examines attitudes within the Christian tradition toward sexuality, with particular reference to the alternatives of patriarchy and feminism, especially as they consider issues such as the meaning of bodiliness, masturbation, pornography, prostitution, homosexuality and sexual pluralism.

**Credit Hours:** 3

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**REL\_ST 2940: African Religions**

(same as BL\_STU 2940). This course will serve as an introduction to various forms of religiosity in sub-Saharan Africa. Greater emphasis will be devoted to the indigenous religious traditions of the continent, but we will also examine Christianity and Islam as they are practiced on the continent. The aim of this class is to help students to better understand various aspects of African cultures by dismantling stereotypes and assumptions that have long characterized the study of religions in Africa. The readings and lectures are will be drawn from historical, anthropological, sociological, and literary sources. Graded on A-F basis only.

**Credit Hours:** 3

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**REL\_ST 2950: Directed Readings in Religious Studies**

Independent readings selected in consultation with supervisory faculty member. May not be repeated.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**REL\_ST 3000: History of Religion in America to the Civil War**

(same as HIST 3000). Surveys major American religious traditions, patterns, and themes from 1492 to the Civil War, especially the role of religion in American social, cultural, and political developments.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent

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**REL\_ST 3005: Topics in Religious Studies-Humanities**

Organized study of selected topics which vary by semester and are announced at time of registration.

**Credit Hours:** 3

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**REL\_ST 3020: Religion, Health, and Healing**

What does it mean to 'be healthy' and 'to heal' in different contexts? What sorts of medical, ritual, or religious expertise authorizes different sorts of healers and forms of healing? What conceptions of human bodies and their capabilities are assumed? These questions probe entanglements of religion, culture, and medicine in everyday life. This course focuses on ways in which these issues might inform, challenge, and enrich thinking about global health. We will examine moral and religious histories of the global health movement alongside pressing contemporary questions such as, how do disease epidemics shape religious practice? How does religious belief shape the reception of biomedical technologies? We will consider examples from a range of contexts and traditions. Topics include colonialism, medical missionaries, social gospel and public health, human rights, bioethics, and liberation theology. Throughout the course, we will

discuss the relevance of socio-economics, race, gender, and sexuality. Graded on A-F basis only.

**Credit Hours:** 3

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**REL\_ST 3042: Sacred Humor: Tricksters, Clowns, and Contraries**

This class will explore the notion that humor plays an important role in conveying sacred meaning. To that end, we will need to adopt a fairly common vocabulary regarding the concepts 'humor' and 'sacred,' and will do so while exploring some of the key aspects of the sacred humor discourse, especially the 'trickster,' 'clown,' and 'contrary' motifs in mythic narrative.

**Credit Hours:** 3

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**REL\_ST 3100: Religious Literacy for the Public and Professions**

This course teaches students to engage and encounter religion in day-to-day life and in the professional workplace. Its primary goal is to examine religious diversity in private and professional contexts from a practical standpoint by examining a variety of case studies.

**Credit Hours:** 3

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**REL\_ST 3200: Hinduism**

(same as S\_A\_ST 3200). Origin and development of central themes of traditional Hinduism from earliest times to the modern period. Topics include: the Vedic tradition, rituals and practice, varieties of yoga, and meditation, Indian religious thought, and devotional Hinduism.

**Credit Hours:** 3

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**REL\_ST 3210: History of Religion in Post-Civil War America**

(same as HIST 3210). Surveys major American religious traditions, patterns, and themes from 1865 to the present, especially the role of religion in American social, cultural and political developments.

**Credit Hours:** 3

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**REL\_ST 3210H: History of Religion in Post-Civil War America - Honors**

Surveys major American religious traditions, patterns, and themes from 1865 to the present, especially the role of religion in American social, cultural and political developments. Prerequisites: Honors Eligibility Required.

**Credit Hours:** 3

**Prerequisites:** sophomore standing or instructor's consent

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**REL\_ST 3220: Tibetan Buddhism**

This course explores the Buddhist tradition in Tibet, from its introduction in the 8th century to the present. Topics include the merger of Indian Buddhism with the local Bon religion, the relationship between Tibetan Buddhism and Mahayana Buddhism, the Tibetan Buddhist canon, lamas and tulkus, religion and material culture in Tibet, and the influence of Tibetan Buddhism in Central Asia. Graded on A-F basis only.

**Credit Hours:** 3

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**REL\_ST 3230: Buddhism and Environmental Ethics**

(same as S\_A\_ST 3230). Global environmental crisis is associated with rapidly expanding human population. Buddhist teachings about

the interdependent aspects of existence and interrelatedness of all life may provide critical insights for how humanity can achieve balance and reciprocity with nature.

**Credit Hours:** 3

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**REL\_ST 3240: Buddhism of South and Southeast Asia**

(same as S\_A\_ST 3240). Examines the origins of Buddhism in India, the narratives of the life of the Buddha, the development of early Buddhist schools, the extension of Buddhism into Central and Southeast Asia, and the current practice of Buddhism in South and Southeast Asia.

**Credit Hours:** 3

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**REL\_ST 3250: Buddhism in East Asia**

This course will trace the transmission of Buddhism from the Indian subcontinent to China, and from there to Korea and Japan. We will examine the historical development of East Asian forms of Buddhism, deal with key issues of Buddhist thought and practice, and look at the role of Buddhism in modern East Asian societies.

**Credit Hours:** 3

**Prerequisites:** REL\_ST 2110, REL\_ST 2310 or REL\_ST 3200, or instructor's consent

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**REL\_ST 3260: Hindu Goddesses**

(same as S\_A\_ST 3261). This course examines the vast range of Hindu Goddesses and their worship in South Asia. It includes information about goddess origins, mythology, symbolism, and attendant ritual practices. In order to approach this topic, background information about the history of Hinduism, major religious narratives, devotional practices, and iconographic representations of the divine are discussed. The course introduces the approaches of various scholars to Hindu Goddess worship within the context of religion, social relations, and gender roles, and explores ways in which South Asian women experience and negotiate feminine power in contemporary socio-cultural contexts.

**Credit Hours:** 3

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**REL\_ST 3270: Yoga and Meditation in the Modern World**

(same as S\_A\_ST 3270). This course explores the practice of Yoga and meditation, both as an ancient tradition of India and as an example of the globalization of religion. It will examine how the ancient Hindu religious tradition of Yoga was reinvented against the backdrop of India's colonial experience. Then it will look at a variety of emerging and transforming varieties of Hindu inspired yoga and meditation that spread globally in the context of increasing transnational interaction. To better appreciate both the traditional and the modern aspects of yoga and meditation, a secular meditation practice is included as an instructional and experiential component of this class.

**Credit Hours:** 4

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**REL\_ST 3350: Monsters in Western Religion and Folklore**

This course focuses on monsters found in Western cultures and more specifically how monsters are instantiated and put to use in contexts of popular culture. Theoretical and methodological approaches to the material are drawn from both Religious Studies and Folkloristics. Graded on A-F basis only.

**Credit Hours:** 3

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**REL\_ST 3350W: Monsters in Western Religion and Folklore - Writing Intensive**

This course focuses on monsters found in Western cultures and more specifically how monsters are instantiated and put to use in contexts of popular culture. Theoretical and methodological approaches to the material are drawn from both Religious Studies and Folkloristics. Graded on A-F basis only.

**Credit Hours:** 3

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**REL\_ST 3360: Cults and New Religious Movements**

While religious traditions constantly change, and new religions emerge in every historical time period, the new religious movements of the past century (many of which are often referred to negatively as 'cults') present a particular challenge to contemporary cultures and societies. We will begin with a theoretical overview of new religious movements (NRMs) and will proceed gradually to discuss in detail the religion of the Peoples Temple and its charismatic leader and founder, Jim Jones. Recommended: An introductory course in any of the following disciplines/area studies: Religious Studies, Psychology, Communication Studies (emphasis on Media and Society/Media Theory); or Sociology.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing

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**REL\_ST 3380: Native American Religions**

(same as ANTHRO 3380). Investigation of religious lives of the native peoples of the Americas through cultural contact with modernity. Perspectives based on historical, anthropological and native texts.

**Credit Hours:** 3

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**REL\_ST 3445: The Body in Western Christianity**

This course is a survey of Western Christian Perspectives of the human body ranging from the Early Church Fathers to trends in contemporary American culture.

**Credit Hours:** 3

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**REL\_ST 3445W: The Body in Western Christianity - Writing Intensive**

This course is a survey of Western Christian Perspectives of the human body ranging from the Early Church Fathers to trends in contemporary American culture.

**Credit Hours:** 3

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**REL\_ST 3451: Religion in Science Fiction**

Investigation of religious themes in science fiction novels, short stories and films. Themes include the nature of the sacred, the limits of human knowledge, understanding and experiencing transcendence, revelation and apocalypse.

**Credit Hours:** 3

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**REL\_ST 3451W: Religion in Science Fiction - Writing Intensive**

Investigation of religious themes in science fiction novels, short stories and films. Themes include the nature of the sacred, the limits of human knowledge, understanding and experiencing transcendence, revelation and apocalypse.

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**Credit Hours:** 3

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**REL\_ST 3455: Robots and Religion: Reflection on Self, Soul, and Humanity**

This course explores ancient and modern texts about robots, androids, and other artificial and virtual humans in order to analyze cultural and religious notions of what it means to be human. Course readings include ancient Indian, Tibetan, and Chinese robot stories in translation, medieval Jewish legends about golems, as well as contemporary Western science fiction

**Credit Hours:** 3

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**REL\_ST 3500: Judaism in the Time of Jesus**

This course is an introduction to the origin and development of Judaism from the time of the destruction of the first Jerusalem temple (587 BCE) to the Bar Kochba revolt (132-135 CE).

**Credit Hours:** 3

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**REL\_ST 3550: Introduction to the Qur'an**

This course is meant to introduce students with little or no background to the history, content, and interpretive traditions of the Qur'an. Given the text's unfamiliarity to most non-Muslim readers, students will spend the first half of the semester learning to navigate and read the Qur'an. Students then spend the second half of the semester examining what Muslims have said about and done with the Qur'an, with an emphasis on the diversity of voices - both past and present - engaged with the text. Graded on A-F basis only.

**Credit Hours:** 3

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**REL\_ST 3610: Angry Theologians**

This course examines how intense debates and furious prose helped define many of modern Christianity's most widely agreed upon tenets of faith. Through close readings of theological treatises laced with profanity, insults, and outrage, we shall explore how central Christian theological convictions about baptism, the nature of Jesus, gender roles, sin, salvation, and other topics were constructed through argumentation and compromise. Though some theological disputes were settled politely through votes at church councils, even these peaceable compromises often emerged through a spate of insults and red-faced polemic. We shall read and discuss some of the most colorful--and enduringly influential--cases of theology developing through brash confrontation, from the Luther Insult Generator to the fiercely angry articulations of Christian theology in contemporary America. Students will learn to understand the logic and purpose behind these vehement arguments in their historical context and practice evaluating competing claims about complex issues such as the Trinity, the path to salvation, and sin. Graded on A-F basis only.

**Credit Hours:** 3

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**REL\_ST 3610W: Angry Theologians - Writing Intensive**

This course examines how intense debates and furious prose helped define many of modern Christianity's most widely agreed upon tenets of faith. Through close readings of theological treatises laced with profanity, insults, and outrage, we shall explore how central Christian theological convictions about baptism, the nature of Jesus, gender roles, sin, salvation, and other topics were constructed through argumentation

and compromise. Though some theological disputes were settled politely through votes at church councils, even these peaceable compromises often emerged through a spate of insults and red-faced polemic. We shall read and discuss some of the most colorful--and enduringly influential--cases of theology developing through brash confrontation, from the Luther Insult Generator to the fiercely angry articulations of Christian theology in contemporary America. Students will learn to understand the logic and purpose behind these vehement arguments in their historical context and practice evaluating competing claims about complex issues such as the Trinity, the path to salvation, and sin. Graded on A-F basis only.

**Credit Hours:** 3

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**REL\_ST 3619: Religion and Race in the U.S.**

This course explores intersections of race and religion in the United States. Areas explored in this course include but are not limited to: the role of religious institutions in the construction of race and racialization; the complex relationships between race, religion, and U.S. law, as well as historical and contemporary theologies of race. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** REL\_ST 1100, REL\_ST 2110

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**REL\_ST 3710: Reality of God**

Will explore the meaning of 'the loss of God' (Tillich) and various modern and contemporary attempts to reaffirm the reality of God.

**Credit Hours:** 3

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**REL\_ST 3740: Religion and Film**

Addresses issues of interpretation and analysis in the convergence of religion and film. Addresses three areas under this broad rubric: 1) film representations of established religions; 2) film and the construction of social values; 3) film as contemporary 'myth'. Treating films as social texts, we will ask what such representations of ourselves to ourselves suggest about culture in general.

**Credit Hours:** 3

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**REL\_ST 3760: Geography of the World's Religions**

(same as GEOG 3760). Explores the significance of place in the origin, diffusion, distribution and practice of religions, emphasizing imprints of religion on the cultural landscape and connections between culture, politics, economics, and religion.

**Credit Hours:** 3

**Prerequisites:** 1000/2000 level Geography course; junior standing or instructor's consent

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**REL\_ST 3760W: Geography of the World's Religions - Writing Intensive**

(same as GEOG 3760). Explores the significance of place in the origin, diffusion, distribution and practice of religions, emphasizing imprints of religion on the cultural landscape and connections between culture, politics, economics, and religion.

**Credit Hours:** 3

**Prerequisites:** 1000/2000 level Geography course; junior standing or instructor's consent

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**REL\_ST 3840: Religion and Criminal Justice**

This course helps students become more familiar with a religious, sociological, and American studies approach toward understanding the complicated relationship between religion and the U.S. prison system. It addresses the influence of religion on the development of the justice system in the United States and enables students to understand how this influence extends into the present day. Unit one centers on understanding religion and familiarizing ourselves with certain components of the criminal justice system. Unit two examines the direct relationship between the two institutions, and Unit three is an exploration specifically of religion and capital punishment (the death penalty). Throughout this class we will also explore via the podcast 'Serial', as well as other sources both fictional and nonfictional that give students the opportunity to contemplate complex concepts frequently taken for granted such as criminality, justice, punishment, and of course - guilt and innocence. Recommended: Introductory courses in one or more of the following disciplines: Sociology, Religious Studies, Psychology, Philosophy, Interdisciplinary Studies, and Political Science.

**Credit Hours:** 3

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**REL\_ST 3900: Islam and the Myth of Religious Violence**

This course explores the widespread claim that Islam is an inherently violent religion. After an overview of the history of Islam, and an introduction to the concepts of myth, religion, and violence, we examine systematically the historical, social, political, and religious contexts of a series of case studies. These case studies will underscore the nature of religious language and motivation within specific contexts, exposing students to a much more complex picture of the means and ends of so-called religious violence. No prior knowledge of Islam is required. Graded on A-F basis only.

**Credit Hours:** 3

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**REL\_ST 3990: Majors Seminar**

In this seminar religious studies majors will be encouraged to form a community of inquiry focused on the subject of religion and public life. Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites:** Religious Studies majors in their junior year

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**REL\_ST 4001: Topics in Religious Studies-General**

Organized study of selected topics which vary by semester and are announced at time of registration.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**REL\_ST 4005: Topics in Religious Studies-General**

Organized study of selected topics which vary by semester and are announced at time of registration.

**Credit Hours:** 3

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**REL\_ST 4100: Advanced Theories and Methods**

(cross-leveled with REL\_ST 7100). The course investigates the history of the modern academic study of religion, closely exploring influential theories and methods that have shaped scholarly perspective. May include approaches such as structuralism, phenomenology, Durkheimian

and Weberian sociology, Marxism, feminism, thick description, psychoanalysis, and others.

**Credit Hours:** 3

**Prerequisites:** Restricted to Religious Studies majors and MA students

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**REL\_ST 4100W: Advanced Theories and Methods - Writing Intensive**

(cross-leveled with REL\_ST 7100). The course investigates the history of the modern academic study of religion, closely exploring influential theories and methods that have shaped scholarly perspective. May include approaches such as structuralism, phenomenology, Durkheimian and Weberian sociology, Marxism, feminism, thick description, psychoanalysis, and others.

**Credit Hours:** 3

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**REL\_ST 4110: Religious Myth and Ritual**

(cross-leveled with REL\_ST 7110). This course will unpack theoretical and methodological issues surrounding the study of embodied religious practice and the nature of religious narrative using myths and rituals from around the world's religious traditions.

**Credit Hours:** 3

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**REL\_ST 4130: Haunting and Healing: The Supernatural in American Culture**

This course explores instances, stories, and representations of haunting in the United States. We apply a variety of theoretical and methodological approaches to illuminate the diversity of meanings, functions, and contexts of supernatural beings in American popular and folk cultures.

**Credit Hours:** 3

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**REL\_ST 4150: Religion, Spirituality, and the Brain**

(cross-leveled with REL\_ST 7150). Explores neuropsychology of religion, spirituality, transcendence, and mystical experience. Covers development in neuroscience about how the brain works in a variety of religious and spiritual contexts, including prayer, meditation, and altered states of consciousness.

**Credit Hours:** 3

**Prerequisites:** Restricted to juniors and seniors only

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**REL\_ST 4210: African-American Religion**

(same as BL\_STU 4210). Historical and thematic examination of African American religious traditions and practices. Addresses intersections of religious expression with race, identity, culture, and society.

**Credit Hours:** 3

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**REL\_ST 4280: Archaeology of Religion**

(same as ANTHRO 4280; cross-leveled with REL\_ST 7280, ANTHRO 7280 ). This course examines how anthropologists conceptualize religious behavior, and how archaeologist use material remains to examine past religious behavior, rituals, religious practitioners, cosmological constructs, worldview and ideology in the Americas.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2020 and/or REL\_ST 2100

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**REL\_ST 4287: Empire: Intellectual History, Literature, and Society** (same as PEA\_ST 4287; cross-leveled with REL\_ST 7287, PEA\_ST 7287). Intellectuals and writers passionately debated the wisdom of colonies, free trade, and war as economies became increasingly global over the centuries. The proponents, critics, and interpreters of Empire will offer us rich examples of themes and theories in the culture of specific nations and eras. Intellectual life will be studied in the context of developments in social inequality, the culture of classes, media of communication, education, identities, transnational governance, and the nation-state. The course will be offered with different national and historical foci under different instructors, and may be repeated for credit with different instructors. Counts as the capstone experience for Peace Studies and is open to majors of other disciplines.

**Credit Hours:** 3

**Prerequisites:** junior standing, senior standing preferred

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**REL\_ST 4320: Introduction to Daoism**

An introduction to the Daoist religious tradition, beginning with its background in earlier forms of philosophy, ritual, and belief. We will follow the development of the various Daoist schools and movements over the centuries and examine key aspects of their belief and practice, both historical and contemporary.

**Credit Hours:** 3

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**REL\_ST 4380: Anthropological Theories of Religion**

(same as ANTHRO 4380; cross-leveled with REL\_ST 7380, ANTHRO 7380). Course provides a critical evaluation of anthropological explanations of various forms of traditional religious behavior such as magic, shamanism, divination, ritual, mythology, and witchcraft. The anthropological explanations examined range from nineteenth century classics to the current approaches of today.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2030, ANTHRO 2100 or REL\_ST 2100, or instructor's consent

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**REL\_ST 4400: The Catholic Intellectual Tradition**

(cross-level with REL\_ST 7110). Students will read the great thinkers of the Catholic church such as Augustine, Abelard, Bernard of Clairvaux, Aquinas, Bonaventure, Nicholas of Cusa, Pascal, Newman, Maritain, Rahner, Johnson, Tracy. The theme examined may vary from year to year.

**Credit Hours:** 3

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**REL\_ST 4400H: The Catholic Intellectual Tradition - Honors**

(cross-level with REL\_ST 7110). Students will read the great thinkers of the Catholic church such as Augustine, Abelard, Bernard of Clairvaux, Aquinas, Bonaventure, Nicholas of Cusa, Pascal, Newman, Maritain, Rahner, Johnson, Tracy. The theme examined may vary from year to year.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**REL\_ST 4500: Greek and Roman Religion**

(same as AMS 4500; cross-leveled with REL\_ST 7500). Survey of religious development among the Greeks and Romans.

**Credit Hours:** 3

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**Recommended:** AMS 1060 and junior standing

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**REL\_ST 4535: Monastic Worlds**

(same as MDVL\_REN 4535; cross-leveled with REL\_ST 7535, MDVL\_REN 7535). Monastic Worlds is an experiential learning course designed to serve as a Humanities Field School in medieval and early modern studies. It will be taught by faculty from UMKC and UMC through the Intercampus Course Sharing initiative. The class introduces students to humanities research methodology and the religious history and culture of premodern Europe and the contemporary Midwest by using the monastic communities as a focal point to learn about musicology, history, art history, literature, and religion. Following two weeks of online course modules, students will travel to the Benedictine communities of Conception Abbey in Conception, Missouri and Mount Saint Scholastica's in Atchison, Kansas, for additional face-to-face classes and research projects. On-site, students will participate in communal living and attend face-to-face classes on the historical and cultural worlds of medieval and early modern Europe. They will practice ethnography through observation of and participation in communal life of prayer, study, book production, and labor. Students will also have the opportunity to work with the manuscripts and rare books owned by these communities and visit the largest reliquary collection in North America, housed at the nearby Benedictine community of the Sisters of Perpetual Adoration in Clyde, MO. This course has an associated fee. Contact teaching faculty for this year's fee details. Graded on A-F basis only.

**Credit Hours:** 3

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**REL\_ST 4630: Sanskrit I**

(same as S\_A\_ST 4630). This intensive course will cover the essentials of Sanskrit grammar in one semester and prepare students for further readings in Hindu and Buddhist Literature.

**Credit Hours:** 3

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**REL\_ST 4640: Sanskrit II**

(same as S\_A\_ST 4640; cross-leveled with REL\_ST 7640). This course is intended as a 'sampler' of Sanskrit literature. We will read Sanskrit texts in the original. The objectives of the course are 1) Expanding the students' knowledge of the Sanskrit language, 2) To acquaint the students with a broad range of textual genres in Sanskrit literature, and 3) To acquaint the students with some central ideas of Hindu and Buddhist philosophy.

**Credit Hours:** 3

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**REL\_ST 4704: Religion and Black Freedom**

(same as BL\_STU 4704). In this course, we will explore the role of religion in the shaping of the African diaspora in the Americas through discussions of the readings. We will focus on the use of religion to pursue emancipation from enslavement and the concept of full freedom. Research and theories from mainly history, religious studies, and literature will be used to examine some of the ways in which black people have improved their condition through religion. The main objective of this course is to study the connections between religion and the fashioning of black resistance to slavery and systems of domination after slavery.

**Credit Hours:** 3

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**REL\_ST 4750: Women, Religion and Culture**

(same as WGST 4750; cross-leveled with REL\_ST 7750, WGST 7750).

An advanced study of the role of women in religion, focusing on the methods of determining the significance of gender in religious life, sacred texts, symbols, rituals and/or beliefs. Traditions studied include Christianity, Islam, contemporary pagan communities, and Native American traditions.

**Credit Hours:** 3

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**REL\_ST 4960: Directed Readings in Religious Studies**

Independent readings selected in consultation with supervisory faculty member. May be repeated up to 6 hrs.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**REL\_ST 4990: Senior Seminar in Religious Studies**

A seminar in which Religious Studies majors use methods of understanding and comparing religions by focusing on times and places of significant contact among peoples of different religions.

**Credit Hours:** 3

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**REL\_ST 7001: Topics in Religious Studies-General**

Organized study of selected topics which vary by semester and are announced at time of registration.

**Credit Hours:** 3

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**REL\_ST 7005: Topics in Religious Studies - General**

Organized study of selected topics which vary by semester and are announced at time of registration.

**Credit Hours:** 3

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**REL\_ST 7100: Advanced Theories and Methods**

(cross-leveled with REL\_ST 4100). The course investigates the history of the modern academic study of religion, closely exploring influential theories and methods that have shaped scholarly perspective. May include approaches such as structuralism, phenomenology, Durkheimian and Weberian sociology, Marxism, feminism, thick description, psychoanalysis, and others.

**Credit Hours:** 3

**Prerequisites:** Restricted to Religious Studies major or minor or instructor's consent

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**REL\_ST 7110: Religious Myth and Ritual**

(cross-leveled with REL\_ST 4110). Comparative analysis of religious mythologies and symbolism as well as the ritual systems associated with those mythologies.

**Credit Hours:** 3

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**REL\_ST 7150: Religion, Spirituality, and the Brain**

(cross-leveled with REL\_ST 4150). Explores neuropsychology of religion, spirituality, transcendence, and mystical experience. Covers development in neuroscience about how the brain works in a variety of religious and spiritual contexts, including prayer, meditation, and altered states of consciousness.

**Credit Hours:** 3

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**REL\_ST 7280: Archaeology of Religion**

(same as ANTHRO 7280; cross-leveled with REL\_ST 4280, ANTHRO 4280). This course examines how anthropologists conceptualize religious behavior, and how archaeologists use material remains to examine past religious behavior, rituals, religious practitioners, cosmological constructs, worldview and ideology in the Americas.

**Credit Hours:** 3

**Prerequisites:** ANTHRO 2020 and/or REL\_ST 2100

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**REL\_ST 7287: Empire: Intellectual History, Literature, and Society**

(same as PEA\_ST 7287; cross-leveled with REL\_ST 4287, PEA\_ST 4287). Intellectuals and writers passionately debated the wisdom of colonies, free trade, and war as economies became increasingly global over the centuries. The proponents, critics, and interpreters of Empire will offer us rich examples of themes and theories in the culture of specific nations and eras. Intellectual life will be studied in the context of developments in social inequality, the culture of classes, media of communication, education, identities, transnational governance, and the nation-state. The course will be offered with different national and historical foci under different instructors, and may be repeated for credit with different instructors. Counts as the capstone experience for Peace Studies and is open to majors of other disciplines.

**Credit Hours:** 3

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**REL\_ST 7380: Anthropological Theory of Religions**

(same as ANTHRO 7380; cross-leveled with REL\_ST 4380, ANTHRO 4380). Course provides a critical evaluation of anthropological explanations of various forms of traditional religious behavior such as magic, shamanism, divination, ritual, mythology and witchcraft. The anthropological explanations examined range from nineteenth century classics to the current approaches of today.

**Credit Hours:** 3

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**REL\_ST 7500: Greek and Roman Religion**

(cross-leveled with REL\_ST 4500, AMS 4500). Survey of religious development among the Greeks and Romans.

**Credit Hours:** 3

**Recommended:** AMS 1060 and junior standing

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**REL\_ST 7510: The Catholic Intellectual Tradition**

(cross-leveled with REL\_ST 4400), Students will read the great thinkers of the Catholic church such as Augustine, Abelard, Bernard of Clairvaux, Aquinas, Bonaventure, Nicholas of Cusa, Pascal, Newman, Maritain, Rahner, Johnson, Tracy. The theme examined may vary from year to year.

**Credit Hours:** 3

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**REL\_ST 7535: Monastic Worlds**

(same as MDVL\_REN 7535; cross-leveled with MDVL\_REN 4535, REL\_ST 4535). Monastic Worlds is an experiential learning course designed to serve as a Humanities Field School in medieval and early modern studies. It will be taught by faculty from UMKC and UMC through the Intercampus Course Sharing initiative. The class introduces students to humanities research methodology and the religious history and

culture of premodern Europe and the contemporary Midwest by using the monastic communities as a focal point to learn about musicology, history, art history, literature, and religion. Following two weeks of online course modules, students will travel to the Benedictine communities of Conception Abbey in Conception, Missouri and Mount Saint Scholastica's in Atchison, Kansas, for additional face-to-face classes and research projects. On-site, students will participate in communal living and attend face-to-face classes on the historical and cultural worlds of medieval and early modern Europe. They will practice ethnography through observation of and participation in communal life of prayer, study, book production, and labor. Students will also have the opportunity to work with the manuscripts and rare books owned by these communities and visit the largest reliquary collection in North America, housed at the nearby Benedictine community of the Sisters of Perpetual Adoration in Clyde, MO. This course has an associated fee. Contact teaching faculty for this year's fee details. Graded on A-F basis only.

**Credit Hours:** 3

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#### **REL\_ST 7630: Sanskrit I**

(same as S\_A\_ST 7630). This intensive course will cover the essentials of Sanskrit grammar in one semester and prepare students for further readings in Hindu and Buddhist literature.

**Credit Hours:** 3

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#### **REL\_ST 7640: Sanskrit II**

(same as S\_A\_ST 7640). This course is intended as a "sampler" of Sanskrit literature. We will read Sanskrit texts in the original. The objectives of the course are 1) Expanding the students' knowledge of the Sanskrit language, 2) To acquaint the students with a broad range of textual genres in Sanskrit literature, and 3) To acquaint the students with some central ideas of Hindu and Buddhist philosophy.

**Credit Hours:** 3

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#### **REL\_ST 7720: Introduction to Daoism**

An introduction to the Daoist religious tradition, beginning with its background in earlier forms of philosophy, ritual, and belief. We will follow the development of the various Daoist schools and movements over the centuries and examine key aspects of their belief and practice, both historical and contemporary.

**Credit Hours:** 3

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#### **REL\_ST 7750: Women, Religion and Culture**

(same as WGST 7750; cross-leveled with REL\_ST 7750, WGST 7750). An advanced study of the role of women in religion, focusing on the methods of determining the significance of gender in religious life, sacred texts, symbols, rituals and/or beliefs. Traditions studied include Christianity, Islam, contemporary pagan communities, and Native American traditions.

**Credit Hours:** 3

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#### **REL\_ST 7990: Independent Readings in Religious Studies**

Independent readings and research selected in consultation with supervisory faculty.

**Credit Hours:** 3

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#### **REL\_ST 8005: Topics in Religious Studies-Humanities**

Organized study of selected topics which vary by semester and are announced at time of registration.

**Credit Hours:** 3

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#### **REL\_ST 8090: Research and Thesis in Religious Studies**

Research and writing for master's thesis. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** Instructor's consent

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#### **REL\_ST 8200: Religious Texts and Interpretation: The Veda**

(same as S\_A\_ST 7200). This course examines the Veda, the foundational scripture of Hinduism. It includes close study of Vedic texts and rituals and the influence, interpretation, and application of the Veda in the later Hinduism.

**Credit Hours:** 3

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#### **REL\_ST 8210: Indian Buddhism**

This course examines the role of sacred texts in the Theravada and Mayayana Buddhist traditions. The course will emphasize canon formation and ideas about sacred texts in Buddhist traditions.

**Credit Hours:** 3

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#### **REL\_ST 8700: Seminar in Folklore**

(same as ANTHRO 8157 and ENGLSH 8700). Focus on the roots of folklore scholarship and methodology and their evolution in modern approaches to the study of oral, traditional verbal genres and their performance in natural folk groups.

**Credit Hours:** 3

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## **Respiratory Therapy (RS\_THR)**

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#### **RS\_THR 1000: Introduction to Respiratory Therapy**

Introductory course to assist students acquiring information about the respiratory therapy profession. Students observe therapists in hospitals and participate in lectures on credentialing, program requirements, placement and future trends in the profession. Graded on S/U basis only.

**Credit Hour:** 1

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#### **RS\_THR 3000: Fundamentals of Respiratory Care**

Orientation to the profession. Focus on professional attributes of communication, teamwork, licensure and safety.

**Credit Hour:** 1

**Prerequisites:** acceptance into respiratory therapy major

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#### **RS\_THR 3220: Equipment and Therapeutics**

History, organization of respiratory therapy. Theory, application of gas laws. Equipment for invasive and non-invasive pulmonary assessment, therapeutic aerosol and humidity, gas delivery, airway management. Techniques for infection control, lung expansion, bronchial hygiene. Graded on A-F basis only.

**Credit Hours:** 3

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**Prerequisites:** Restricted to students in the Respiratory Therapy Program

**Corequisites:** RS\_THR 3240

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**RS\_THR 3240: Assessment and Therapeutics Lab**

Evidence-based application of assessment techniques and therapeutic management of cardiopulmonary disorders. Course content includes equipment and skills associated with physical examination, blood gas analysis, chest imaging, oxygen and aerosolized pharmaceutical delivery, airway clearance therapy, lung expansion, and airway management. Emphasis placed on competency development for clinical application. Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** RS\_THR 3220, RS\_THR 3941

**Prerequisites:** Restricted to students admitted into the Respiratory Therapy Program

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**RS\_THR 3290: Cardiopulmonary Pharmacology**

To provide the student with specific knowledge of the pharmacologic strategies in treating cardiopulmonary disorders. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** restricted to students in the respiratory therapy program

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**RS\_THR 3420: Principles of Mechanical Ventilation**

Continuation of RS\_THR 3220. Emphasis on the principles of mechanical ventilation, including physiologic and clinical application.

**Credit Hours:** 3

**Prerequisites:** RS\_THR 3220, RS\_THR 3941 and RS\_THR 4040

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**RS\_THR 3420W: Principles of Mechanical Ventilation - Writing Intensive**

Continuation of RS\_THR 3220. Emphasis on the principles of mechanical ventilation, including physiologic and clinical application.

**Credit Hours:** 3

**Prerequisites:** RS\_THR 3220, RS\_THR 3941 and RS\_THR 4040

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**RS\_THR 3440: Mechanical Ventilation Lab**

Application of mechanical ventilation emphasizing acute care: pressure, volume, and oscillatory ventilation of adults, Pediatrics, and infants. Related graphical, laboratory, and hemodynamic analysis; therapeutic intervention. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** RS\_THR 3220, RS\_THR 3941, RS\_THR 4040

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**RS\_THR 3941: Clinical Practice I**

To be taken concurrently with RS\_THR 3220 for which it serves as an extension of the laboratory time and an opportunity for structured clinical experience exposures.

**Credit Hours:** 2

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**RS\_THR 3942: Clinical Practice II**

To be taken concurrently with RS\_THR 3420, for which it serves as an extension of the laboratory time, and an opportunity for structured clinical experience exposures.

**Credit Hours:** 4

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**RS\_THR 3943: Clinical Practice III**

Continuation of supervised clinical experience from RS\_THR 3942. Graded on A-F basis only.

**Credit Hours:** 2

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**RS\_THR 4020: Perinatal/Neonatal Respiratory Care**

Evaluation and management of perinatal/neonatal pulmonary, medical and surgical conditions which require respiratory care. Emphasis on resuscitation, pathophysiology, evaluation, blood gas and x-ray interpretation, treatment and mechanical ventilation.

**Credit Hours:** 3

**Prerequisites:** RS\_THR 4040; Respiratory Therapy students only

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**RS\_THR 4040: Respiratory Pathophysiology**

Clinical pulmonary disease, organized around the gross structural components of the lung, airways, alveoli and pulmonary vasculature. Impact of disease on normal structure function; clinical, roentgenographic, and physiologic manifestations are described.

**Credit Hours:** 5

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**RS\_THR 4085: Problems in Respiratory Therapy**

Independent work on special problems related to cardiopulmonary health. Course not offered for graduate credit. Some sections of the course may be graded on either A-F or S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**RS\_THR 4220: Community and Patient Education I**

Design and implement materials for educational presentations for a given patient population. Graded on A-F basis only.

**Credit Hour:** 1

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**RS\_THR 4240: Pulmonary Rehabilitation**

Focus is on an interdisciplinary approach to pulmonary rehabilitation and home care of the adult cardiopulmonary patient. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent required

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**RS\_THR 4420: Pediatric Respiratory Care**

Evaluation and management of pulmonary, medical and surgical pediatric conditions requiring respiratory care. Emphasis on pediatric resuscitation, pathophysiology, treatment and prevention of respiratory conditions, mechanical ventilation, lab interpretation.

**Credit Hours:** 3

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**RS\_THR 4440: Organization and Administration**

(same as RA\_SCI 4440 and CDS 4440). Examines design and operation of allied health service departments and educational programs, including facilities, personnel procedures, record systems, ethics, medical-legal aspects, interdepartmental relations and curriculum development.

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**Credit Hours:** 3

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**RS\_THR 4460: Evidence-Based Medicine in Respiratory Care**

This course is intended to facilitate the development of the student's ability to obtain and integrate patient assessment information and key findings and to formulate clinical decisions in respiratory therapy practice as well as use an evidence-based medicine approach to define respiratory clinical practice.

**Credit Hours:** 3

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**RS\_THR 4460W: Evidence-Based Medicine in Respiratory Care - Writing Intensive**

This course is intended to facilitate the development of the student's ability to obtain and integrate patient assessment information and key findings and to formulate clinical decisions in respiratory therapy practice as well as use an evidence-based medicine approach to define respiratory clinical practice.

**Credit Hours:** 3

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**RS\_THR 4620: Pulmonary Function Technologies**

This course will provide the student with a specific knowledge of the testing procedures and equipment for pulmonary function technology. The student will learn to interpret pulmonary function tests and perform quality assurance within the pulmonary function laboratory.

**Credit Hours:** 2

**Prerequisites:** restricted to Respiratory Therapy students only

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**RS\_THR 4640: Teaching Practicum**

Structured and supervised experience identifying student characteristics, methods for teaching, improving assessment, current development and instructional design.

**Credit Hours:** 3

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**RS\_THR 4660: Advanced Mechanical Ventilation Theory**

Exploration of advanced disease management via specific disease processes as well as concepts and modes of mechanical ventilation. Emphasis will be placed on mode selection for various disease and how new modes of mechanical ventilation impact disease management.

**Credit Hours:** 3

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**RS\_THR 4720: Advanced Pulmonary Function Technology**

This course will focus on the respiratory therapist's role in diagnostic testing. Topics include pulmonary function tests, exercise tests, and metabolic studies. In addition the course briefly addresses polysomnography, pulmonary rehabilitation, and home care. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to Respiratory Therapy students only

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**RS\_THR 4820: Adult Critical Care**

This course will focus on the respiratory therapist's role in the adult critical care environment. Topics include airway management, mechanical ventilation, general adult critical care and functioning as a vital member of the critical care team.

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**Credit Hours:** 3

**Prerequisites:** restricted to Respiratory Therapy students only

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**RS\_THR 4860: Neonatal and Pediatric Critical Care**

This course will facilitate the evaluation and management of pulmonary, medical and surgical neonatal and pediatric conditions requiring respiratory care. There will be an emphasis on neonatal and pediatric resuscitation, pathophysiology, blood gas and x-ray interpretation, treatment and prevention of respiratory conditions, mechanical ventilation, and laboratory interpretation. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Respiratory therapy degree advancement students only

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**RS\_THR 4930: Current Issues in Respiratory Care**

(cross-leveled with RS\_THR 7930). Identification and analysis of current issues in Respiratory Care with practice implications. Emphasis given to identification and evaluation of nontraditional information sources (e.g., social networking, internet). Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites or Corequisites:** HLTH\_SCI 3900 or instructor consent

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**RS\_THR 4940: Clinical Practice IV**

Structured and supervised clinical experience and case conferences regarding bioterrorism response and emergency/disaster planning.

**Credit Hours:** 5

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**RS\_THR 4973: Clinical Practice V**

An extension of the supervised practicum begun in RS\_THR 4940. Emphasis in adult critical care and special procedures including bronchoscopies, cardiac catheterization and chest tube placement.

**Credit Hours:** 4

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**RS\_THR 4983: Clinical Practice VI**

An extension of the supervised practicum begun in RS\_THR 4940. Emphasis in perinatal and pediatric critical care including pediatric pulmonary function testing and airway management.

**Credit Hours:** 4

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**RS\_THR 4990: Respiratory Therapy Capstone**

Integration of literature, knowledge of previous coursework and clinical experience.

**Credit Hours:** 2

**Prerequisites:** Respiratory Therapy Majors Only

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**RS\_THR 4993: Clinical Practice VII**

An extension of the supervised practicum begun in RS\_THR 4940. Emphasis in rehabilitation and home care, inservice education, and management. Students will participate in on-going research projects and community service activities.

**Credit Hours:** 5

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**RS\_THR 7930: Current Issues in Respiratory Care**

(cross-leveled with RS\_THR 4930). Identification and analysis of current issues in Respiratory Care with practice implications. Emphasis given to

identification and evaluation of nontraditional information sources (e.g., social networking, internet).

**Credit Hours:** 3

**Prerequisites:** CDS 4955 or HLTH\_SCI 3900 or Instructor consent

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## Romance Languages (RM\_LAN)

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### **RM\_LAN 2200: Introduction to Catalan Language and Culture**

This is an introductory course to Catalan language and culture. Previous knowledge of another Romance language might be beneficial. Students will learn basic Catalan expressions, vocabulary and grammatical structures. Furthermore, students will begin to familiarize themselves with elements of Catalan culture.

**Credit Hours:** 3

**Recommended:** Some knowledge of a Romance language desirable

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### **RM\_LAN 2310: Literature of the African Diaspora**

(same as BL\_STU 2310). A postcolonial analysis of selected literary texts interpreting the African diaspora in the Americas. Exemplary texts from the Caribbean (English, French, Spanish), South America and the United States are discussed in comparative perspective. No knowledge of Spanish required.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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### **RM\_LAN 2820: Trends in World Cinema**

(same as FILMS\_VS 2820 and GERMAN 2820). This course is a historical overview of the major trends in international cinema. It focuses on the intersection of aesthetics, industry, and ideological and social concerns in cinematic production.

**Credit Hours:** 3

**Prerequisites:** sophomore standing, ENGLISH 1800 or FILMS\_VS 1800

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### **RM\_LAN 3200: Catalan Culture and Identity**

Students in this course are not expected to have previous exposure to Catalan instruction. If they do, it will enhance their learning experience. Knowledge of another Romance language might be beneficial as well. This is a course focused on Catalan culture and identity. Students will learn about the history of the language, the language policies in Spain and Europe, Catalan literature, cinema, music, and food. Students will read different materials in English for the most part. Course is taught in English.

**Credit Hours:** 3

**Prerequisites:** sophomore standing required

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### **RM\_LAN 4310: Literature of the African Diaspora**

A study, in English translation, of writings by authors of African descent in the Americas.

**Credit Hours:** 3

**Prerequisites:** junior standing

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### **RM\_LAN 8085: Problems in Romance Languages**

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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## Rural Sociology (RU\_SOC)

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### **RU\_SOC 1000: Rural Sociology**

Introduction to basic concepts and principles of sociology with a focus on rural populations and places. The course explores interconnections between rural/urban and local global economies and cultures. Students are exposed to the rich diversity of rural society, social changes underway, and to current social issues. (Students may not earn credit for both RU\_SOC 1000 and SOCIOL 1000).

**Credit Hours:** 3

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### **RU\_SOC 1104: Topics in Rural Sociology - Social Science**

Organized study of selected topics. Subjects and earnable credit vary from semester to semester. May be repeated.

**Credit Hour:** 1-3

**Recommended:** RU\_SOC 1000 or SOCIOL 1000

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### **RU\_SOC 1120: Population and the Environment**

(same as SOCIOL 1120 and PEA\_ST 1120). Changes in the structure and characteristics of population groups and their relationship to both human and non-human aspects of the biophysical environment.

**Credit Hours:** 3

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### **RU\_SOC 1150: The Amish Community**

(same as PEA\_ST 1150). Examines historical antecedents and contemporary culture and social structure of the Amish. Topics include cultural symbols, life ceremonies, the family, counter-cultural pressures, stresses, social change.

**Credit Hours:** 3

**Recommended:** RU\_SOC 1000 SOCIOL 1000 or ANTHRO 1000

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### **RU\_SOC 1150W: The Amish Community - Writing Intensive**

(same as PEA\_ST 1150). Examines historical antecedents and contemporary culture and social structure of the Amish. Topics include cultural symbols, life ceremonies, the family, counter-cultural pressures, stresses, social change.

**Credit Hours:** 3

**Recommended:** RU\_SOC 1000 SOCIOL 1000 or ANTHRO 1000

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### **RU\_SOC 2203W: Topics in Rural Sociology - Behavioral Science - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit vary from semester to semester. May be repeated.

**Credit Hour:** 1-3

**Recommended:** RU\_SOC 1000 or SOCIOL 1000

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### **RU\_SOC 2289: Towns in Missouri and the Midwest: Voices and Inequalities**

(same as PEA\_ST 2289, GEOG 2289). Focusing on towns and communities and their regional history and cultural traditions. Examines the issues and concerns of small-town America in the context of recent hardships and adverse economic trends. Examples of topics covered include case studies of communities such as Marceline, Missouri (Walt

Disney's boyhood home), race and the immigration of non-whites in to rural areas; gender roles in small communities, the role of religion in small-town identity formation, and other current issues faced by 'middle America.' The responsiveness of government, large corporations, and institutions to the problems of diverse communities will be critically examined, with a multidisciplinary approach that draws on key theories and works in the disciplines of sociology, rural sociology, community development, and geography.

**Credit Hours:** 3

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**RU\_SOC 3010: Leadership in Today's World**

(same as AG\_ED\_LD 3010). Critically examines the leaders and leadership surrounding the greatest challenges to society today and in the future, while developing awareness and understanding of global and local issues in agriculture, democracy, civil society, business, and the environment. Course also focuses on fostering civil discourse and enhancing engagement. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** RU\_SOC 1000 or SOCIOL 1000

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**RU\_SOC 3010H: Leadership in Today's World - Honors**

(same as AG\_ED\_LD 3010H). Critically examines the leaders and leadership surrounding the greatest challenges to society today and in the future, while developing awareness and understanding of global and local issues in agriculture, democracy, civil society, business, and the environment. Course also focuses on fostering civil discourse and enhancing engagement. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** RU\_SOC 1000 or SOCIOL 1000

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**RU\_SOC 3085: Problems in Rural Sociology**

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**RU\_SOC 3100: Recent Theories in Sociology**

(same as SOCIOL 3100). Introduction to major theoretical positions and issues in contemporary American sociology. Logical and intellectual structure of major theoretical schools: functionalism, conflict, exchange, symbolic interaction, phenomenological-ethnomethodological theories.

**Credit Hours:** 3

**Recommended:** SOCIOL 2200

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**RU\_SOC 3235: Global Perspectives and Realities**

Designed for students who have or wish to study, live or work outside of their home country. Presents sociological perspectives on globalization and intercultural communication as well as the steps needed to prepare for a valuable and safe experience abroad.

**Credit Hours:** 3

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**RU\_SOC 3235W: Global Perspectives and Realities - Writing Intensive**

Designed for students who have or wish to study, live or work outside of their home country. Presents sociological perspectives on globalization and intercultural communication as well as the steps needed to prepare for a valuable and safe experience abroad.

**Credit Hours:** 3

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**RU\_SOC 3304: Topics in Rural Sociology - Social Science**

Organized study of selected topics. Subjects and earnable credit vary from semester to semester. May be repeated.

**Credit Hour:** 2-3

**Recommended:** 6 hours Rural Sociology or Sociology, or junior standing

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**RU\_SOC 3310: Society, Agriculture and Natural Resources**

Explore the human dimensions of agriculture and natural resources through an overview of key areas in natural resource social science. Diverse conceptual approaches and empirical research topics related to society-natural resource interactions are included.

**Credit Hours:** 3

**Recommended:** junior standing or instructor's consent

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**RU\_SOC 3325: Sociology of Food and Nutrition**

This class explores individual food choices and larger social forces. Topics include: world hunger, food and the environment; food choices and culture, class and personal identity; the effects of social stigmas, advertising trends, and government regulations on body image; new social movements for sustainable food systems.

**Credit Hours:** 3

**Recommended:** ENGLSH 1000 and junior or senior standing or instructor's permission

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**RU\_SOC 3325W: Sociology of Food and Nutrition - Writing Intensive**

This class explores individual food choices and larger social forces. Topics include: world hunger, food and the environment; food choices and culture, class and personal identity; the effects of social stigmas, advertising trends, and government regulations on body image; new social movements for sustainable food systems.

**Credit Hours:** 3

**Recommended:** ENGLSH 1000 and junior or senior standing or instructor's permission

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**RU\_SOC 3950: Social Research I**

(same as SOCIOL 3950). Introduction to principles of methodology; theory and research; survey of basic research designs and perspectives; preparation for understanding and conducting social research. Required for Sociology majors.

**Credit Hours:** 3

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**RU\_SOC 3950W: Social Research I - Writing Intensive**

(same as SOCIOL 3950W). Introduction to principles of methodology; theory and research; survey of basic research designs and perspectives; preparation for understanding and conducting social research. Required for Sociology majors.

**Credit Hours:** 3

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**RU\_SOC 4301: Topics in Rural Sociology**

Current and new topics not currently offered in applied and/or theoretical areas in Rural Sociology. Graded on A-F basis only.

**Credit Hours:** 3



**Recommended:** RU\_SOC 1000 or SOCIOL 1000 or equivalent

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**RU\_SOC 4315: Social Demography**

(same as SOCIOL 4315; cross-leveled with SOCIOL 7315 and RU\_SOC 7315).

**Credit Hours:** 3

**Recommended:** RU\_SOC 1000 or SOCIOL 1000 and junior standing

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**RU\_SOC 4325: American Community Studies**

(cross-leveled with RU\_SOC 7325). An introduction to the study of American communities. The course starts with community theories and then focuses on a wide variety of historic and contemporary community studies such as Plainville, Middletown, Sidewalk and others. Seminar format.

**Credit Hours:** 3

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**RU\_SOC 4335: Social Change and Development**

(same as SOCIOL 4335; cross-leveled with SOCIOL 7335, RU\_SOC 7335). Nature of social change and development. Emphasizes sociological theories of social change and development contrasting them with approaches from the disciplines.

**Credit Hours:** 3

**Recommended:** RU\_SOC 1000 or SOCIOL 1000 and junior standing

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**RU\_SOC 4335H: Social Change and Development - Honors**

(same as SOCIOL 4335; cross-leveled with SOCIOL 7335, RU\_SOC 7335). Nature of social change and development. Emphasizes sociological theories of social change and development contrasting them with approaches from the disciplines.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** RU\_SOC 1000 or SOCIOL 1000 and junior standing

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**RU\_SOC 4341: Building Communities from the Grassroots**

(same as PEA\_ST 4341; cross-leveled with RU\_SOC 7341). Introduction and application of basic community development concepts, methods and practical skills for involving and empowering local citizens and leaders effectively in community-based efforts regardless of the issue.

**Credit Hours:** 3

**Recommended:** instructor's consent

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**RU\_SOC 4342: Empowering Communities for the Future**

(cross-leveled with RU\_SOC 7342). Focuses on the professional practice and applications of community-based development including participatory action research, community economic development, organizational development, use of technology, citizen education and integration of practice. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** instructor's consent

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**RU\_SOC 4343: Creating Capacity for Dynamic Communities**

(cross-leveled with RU\_SOC 7343). Addresses community and citizen power; large group intervention processes for change; facilitating small group process; community organizing; community sustainability, dealing

with poverty and disenfranchisement; community conflict resolution; ethics; and integration into practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**RU\_SOC 4370: Environmental Sociology**

(same as SOCIOL 4370; cross-leveled with SOCIOL 7370, RU\_SOC 7370). An interdisciplinary examination of domestic and international environmental issues focusing on social, cultural, and policy dimensions. Perspectives of the social sciences and humanities are included.

**Credit Hours:** 3

**Recommended:** junior standing

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**RU\_SOC 7120: Social Statistics**

(same as SOCIOL 7120; cross-leveled with RU\_SOC 4120, SOCIOL 4120). Descriptive statistics and bivariate quantitative analysis techniques commonly used by social scientists. Includes coverage of parametric and non-parametric methods. Introduction to computer analysis.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 2950

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**RU\_SOC 7315: Social Demography**

(same as SOCIOL 7315; cross-leveled with RU\_SOC 4315, SOCIOL 4315).

**Credit Hours:** 3

**Prerequisites:** RU\_SOC 1000 or SOCIOL 1000

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**RU\_SOC 7325: American Community Studies**

(cross-leveled with RU\_SOC 4325). An introduction to the study of American communities. The course starts with community theories and then focuses on a wide variety of historic and contemporary community studies such as Plainville, Middletown, Sidewalk and others. Seminar format.

**Credit Hours:** 3

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**RU\_SOC 7335: Social Change and Development**

(same as SOCIOL 7335; cross-leveled with SOCIOL 4335, RU\_SOC 4335). Nature of social change and development. Emphasizes sociological theories of social change and development contrasting them with approaches from other disciplines.

**Credit Hours:** 3

**Prerequisites:** RU\_SOC 1000 or SOCIOL 1000

---

**RU\_SOC 7341: Building Communities from the Grassroots**

(cross-leveled with RU\_SOC 4341). Introduction and application of basic community development concepts, methods and practical skills for involving and empowering local citizens and leaders effectively in community-based efforts regardless of the issue.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**RU\_SOC 7342: Empowering Communities for the Future**

(cross-leveled with RU\_SOC 7342). Focuses on the professional practice and applications of community-based development including participatory

action research, community economic development, organizational development, use of technology, citizen education and integration of practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

---

**RU\_SOC 7343: Creating Capacity for Dynamic Communities**

(cross-leveled with RU\_SOC 4343). Addresses community and citizen power; large group intervention processes for change; facilitating small group process; community organizing; community sustainability, dealing with poverty and disenfranchisement; community conflict resolution; ethics; and integration into practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**RU\_SOC 7370: Environmental Sociology**

(same as SOCIOL 7370; cross-leveled with SOCIOL 4370, RU\_SOC 4370). An interdisciplinary examination of domestic and international environmental issues focusing on social, cultural, and policy dimensions. Perspectives of the social sciences and humanities are included.

**Credit Hours:** 3

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**RU\_SOC 7446: Community Social Structure**

(same as SOCIOL 7446). A comparative study of communities in different nations and in urban and rural areas. A primary focus of the course will be on social change in communities in response to changing economic, political, social, cultural, and ecological factors.

**Credit Hours:** 3

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**RU\_SOC 8085: Problems in Rural Sociology**

Research for student capable of semi-independent work.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**RU\_SOC 8090: Research in Rural Sociology**

Research leading to thesis or dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**RU\_SOC 8130: Advanced Social Statistics**

(same as SOCIOL 8130). Introduction to multivariate analysis for social scientists. Emphasis on non-experimental applications of analysis of variance and correlation-regression. Computer applications emphasized.

**Credit Hours:** 3

**Prerequisites:** RU\_SOC 4120 or equivalent

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**RU\_SOC 8287: Seminar on Sustainable Development**

(same as SOCIOL 8287). An interdisciplinary examination of sustainable development focusing on social, economic, cultural and environmental dimensions of development. International and domestic issues and approaches to sustainable development are included.

**Credit Hours:** 3

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**RU\_SOC 8435: Political Ecology**

Political ecology is an analytical approach to environment and natural resource issues at local, regional and global scales, emphasizing political, economic, cultural, social and historical factors and their relationship to ecological trends and processes. Seminar format. Graded on A-F basis only.

**Credit Hours:** 3

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**RU\_SOC 8436: Community, Natural Resources and Sustainability**

A graduate seminar on conceptual and methodological (mixed methods) approaches to natural resource sustainability issues at the human community level. Focuses on theoretical, methodological, and empirical topics related to the interactions between community, natural resources and sustainability. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** RU\_SOC 3310

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**RU\_SOC 8444: Agriculture, Food and Community**

Introduces key debates in the sociology of food and agriculture. Includes research on the structure and history of the agriculture system and its impacts on farmers, communities and the natural environment.

**Credit Hours:** 3

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**RU\_SOC 8447: Seminar on Contemporary Issues in Rural Sociology**

Seminar on Contemporary Issues in Rural Sociology

**Credit Hour:** 1-99

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**RU\_SOC 8448: Society and Ecosystems Research Seminar**

(same as AAE 8448 and NAT\_R 8448). This seminar, capstone for the Graduate Certificate Program in Society and Ecosystems, exposes students to interdisciplinary research on interactions between social, economic and ecological systems.

**Credit Hours:** 3

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**RU\_SOC 8450: Research in Rural Sociology**

Research not expected to terminate in thesis or dissertation.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**RU\_SOC 8510: Research Methods and Design**

(same as AG\_ED\_LD 8510, AAE 8510). This course will give students a foundational understanding of quantitative research methods and design in the social and behavioral sciences. The main objective is to help students identify and formulate their own research questions and develop and implement a process for answering them. Students will examine the nature of the research process, explore the connection between theory and empirical research, identify viable research topics, critique published research, learn how to structure good arguments, understand the structure of research papers and proposals, plan and manage research activities, and become familiar with research ethics. Graded on A-F basis only.

**Credit Hours:** 3

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**RU\_SOC 8540: Methods of Qualitative Research**

(same as AG\_ED\_LD 8540). Overview of philosophies, approaches toward, design, data collection, analysis and reporting of qualitative research.

**Credit Hours:** 3

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**RU\_SOC 8610: Economic and Sociological Approaches to Collective Action**

(same as AAE 8610). This course identifies analytical and methodological tools, including rational choice and social capital, to deal with practical problems of collective action in: agricultural cooperatives, rural community development, political interest groups and other mutuals.

**Credit Hours:** 3

**Prerequisites:** AAE 7972

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**RU\_SOC 9090: Research in Rural Sociology**

Research leading to thesis or dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**RU\_SOC 9287: Seminar in Qualitative Methods in Sociology**

(same as SOCIOL 9287). Examination of various qualitative methods of research, including problem-formulation, access and interpretation of data, theory-generation, and preparation of research reports.

**Credit Hours:** 3

**Prerequisites:** RU\_SOC 8510 or instructor's consent

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**RU\_SOC 9437: Synthesis of Theory and Method in Sociology**

The purpose of the course is to provide the student with a critical understanding of the basic theoretical paradigms employed in the development of research projects in sociology. The course is designed for graduate students.

**Credit Hours:** 3

**Prerequisites:** RU\_SOC 4130 and RU\_SOC 8510, or instructor's consent

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**RU\_SOC 9480: Community Survey Research**

(same as SOCIOL 9987). This course applies social science survey research methods to the unique kinds of problems that arise in the study of whole communities.

**Credit Hours:** 3

**Prerequisites:** RU\_SOC 8510 or equivalent

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**RU\_SOC 9510: Data Collection, Analysis and Interpretation**

(same as AG\_ED\_LD 9510). A quantitative methods course in measurement, data collection and analysis related to social and behavioral science research. An applied approach is taken on instrumentation and analyzing data using descriptive and inferential statistics. Practical skills in data manipulation using SPSS are developed. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** AG\_ED\_LD 8510 or RU\_SOC 8510 or instructor's consent

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## Russian (RUSS)

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**RUSS 1100: Elementary Russian I**

Five hours of classroom instruction, with one hour lab work weekly. For beginners with no prior knowledge of Russian.

**Credit Hours:** 6

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**RUSS 1200: Elementary Russian II**

Five hours of classroom instruction, with one hour lab work weekly.

**Credit Hours:** 6

**Prerequisites:** C- or better in RUSS 1100 or equivalent. or instructor consent

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**RUSS 2001: Undergraduate Topics in Russian-General**

Organized study of selected topics. Subjects and credits may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

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**RUSS 2005: Undergraduate Topics in Russian-Humanities**

Organized study of selected topics. Subjects and credits may vary from semester to semester. May be repeated for credit with departmental consent. No language credit.

**Credit Hour:** 1-3

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**RUSS 2100: Classics and Iconoclasts: An Introduction to Russian Literature**

Designed to introduce students to some of the major genres, issues, and approaches in the study of Russian literature. Begins with the most classic of Russian authors, the so-called 'father of Russian literature' Aleksandr Pushkin, then moves on to two 'classics' from the 19th century (Gogol, Chekhov) and two 'iconoclasts' from the first part of the 20th (Mayakovsky, Kharms). Covers a range of genres, including poetry, short story, and drama, as well as letters, essays and manifestoes. Course reading list includes secondary essays that both shed light on specific texts/authors as well as provide models for critical and theoretical approaches to literature, with an emphasis on Russian Formalism. Readings and discussions in English; no knowledge of Russian language or literature required.

**Credit Hours:** 3

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**RUSS 2100W: Classics and Iconoclasts: An Introduction to Russian Literature - Writing Intensive**

Designed to introduce students to some of the major genres, issues, and approaches in the study of Russian literature. Begins with the most classic of Russian authors, the so-called 'father of Russian literature' Aleksandr Pushkin, then moves on to two 'classics' from the 19th century (Gogol, Chekhov) and two 'iconoclasts' from the first part of the 20th (Mayakovsky, Kharms). Covers a range of genres, including poetry, short story, and drama, as well as letters, essays and manifestoes. Course reading list includes secondary essays that both shed light on specific texts/authors as well as provide models for critical and theoretical approaches to literature, with an emphasis on Russian Formalism. Readings and discussions in English; no knowledge of Russian language or literature required.

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**Credit Hours:** 3

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**RUSS 2130: Second-Year Russian I**

Students will solidify their command of Russian grammar and begin developing their reading skills.

**Credit Hours:** 4

**Prerequisites:** RUSS 1200, equivalent, or instructor's consent

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**RUSS 2160: Second-Year Russian II**

Continuation of RUSS 2130.

**Credit Hours:** 4

**Prerequisites:** RUSS 2130 or equivalent, or instructor's consent

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**RUSS 2310: Between Heaven and Earth: Russian Civilization**

Survey of Russian culture from the Christianization of the Slavic peoples to late imperial period. No foreign language credit.

**Credit Hours:** 3

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**RUSS 2310W: Between Heaven and Earth: Russian Civilization - Writing Intensive**

Survey of Russian culture from the Christianization of the Slavic peoples to late imperial period. No foreign language credit.

**Credit Hours:** 3

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**RUSS 2320: The Arts of Survival: Civilization in Soviet Times**

Historical, social, and artistic topics. No foreign language credit.

**Credit Hours:** 3

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**RUSS 2320W: The Arts of Survival: Civilization in Soviet Times - Writing Intensive**

Historical, social, and artistic topics. No foreign language credit.

**Credit Hours:** 3

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**RUSS 2340: Icons and Revolutions: Russia from its Beginnings to Today**

A survey of Russian culture and history from the pre-Christian era to the present. Topics will include politics, religion, philosophy, literature, music, and visual art. Classes and readings in English; no prior courses in Russian required. Graded on A-F basis only.

**Credit Hours:** 3

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**RUSS 2340W: Icons and Revolutions: Russia from its Beginnings to Today - Writing Intensive**

A survey of Russian culture and history from the pre-Christian era to the present. Topics will include politics, religion, philosophy, literature, music, and visual art. Classes and readings in English; no prior courses in Russian required. Graded on A-F basis only.

**Credit Hours:** 3

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**RUSS 2865: The Art of Soviet and Russian Cinema**

(same as FILMS\_VS 2865), Topics (e.g. Distorted Picture: Post-War Cinema in the Soviet State, Cinema in the Soviet Times and Beyond,

etc.) announced at time of registration. Only 6 hours may be taken towards major.

**Credit Hours:** 3

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**RUSS 2865W: The Art of Soviet and Russian Cinema - Writing Intensive**

(same as FILMS\_VS 2865). Topics (e.g. Distorted Picture: Post-War Cinema in the Soviet State, Cinema in the Soviet Times and Beyond, etc.) announced at time of registration. Only 6 hours may be taken towards major.

**Credit Hours:** 3

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**RUSS 3001: Topics in Russian-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing

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**RUSS 3005: Topics in Russian-Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing

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**RUSS 3005W: Topics in Russian-Humanities - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing

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**RUSS 3130: Intermediate Russian**

Normally taken as 5th semester of Russian language sequence.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or higher in RUSS 2160 or RUSS 3160 or instructor's consent

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**RUSS 3160: Intermediate Conversation and Composition**

Further develops oral command of Russian as well as listening comprehension and some letter writing skills.

**Credit Hours:** 3

**Prerequisites:** Grade of C- or higher in RUSS 2160 or RUSS 3130 or instructor's consent

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**RUSS 3380: Sinners, Saints, and Madmen: 19th Century Russian Literature**

Introduction to foundational periods (Sentimentalism, Romanticism, Realism and its decline), narratives, and authors of 19th century Russian literary tradition. Traces development of the 'Russian' short story and novel forms, as well as the all-important 'Petersburg' theme.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or instructor's consent

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**RUSS 3380W: Sinners, Saints, and Madmen: 19th Century Russian Literature - Writing Intensive**

Introduction to foundational periods (Sentimentalism, Romanticism, Realism and its decline), narratives, and authors of 19th century Russian literary tradition. Traces development of the 'Russian' short story and novel forms, as well as the all-important 'Petersburg' theme.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000; sophomore standing or instructor's consent

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**RUSS 3390: True Fictions: Russian Prose since 1900**

Survey of Russian prose fiction of the twentieth and early twenty-first century. During this time Russia experienced a series of drastic changes in society and culture, and as often happens the artists responded more rapidly and insightfully than anyone else. This was a time of radical experimentation with the very nature of literature, and we will read and examine some of the fascinating results. Course gives a short history of Russian prose fiction after 1900, offers a theory of analytical reading of imaginative prose, and hones the skills of intelligent writing about evaluative reading. Readings, lecture and discussion in English; no previous knowledge of Russian literature is assumed.

**Credit Hours:** 3

**Prerequisites:** sophomore standing, or instructor's consent

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**RUSS 3390W: True Fictions: Russian Prose since 1900 - Writing Intensive**

Survey of Russian prose fiction of the twentieth and early twenty-first century. During this time Russia experienced a series of drastic changes in society and culture, and as often happens the artists responded more rapidly and insightfully than anyone else. This was a time of radical experimentation with the very nature of literature, and we will read and examine some of the fascinating results. Course gives a short history of Russian prose fiction after 1900, offers a theory of analytical reading of imaginative prose, and hones the skills of intelligent writing about evaluative reading. Readings, lecture and discussion in English; no previous knowledge of Russian literature is assumed.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000 and sophomore standing, or instructor's consent

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**RUSS 3630: Russian Classics I**

Reading and discussion of selected works by major Russian writers of the nineteenth century. Course conducted in Russian. May be taken before or after RUSS 3640.

**Credit Hours:** 3

**Prerequisites:** RUSS 3130 or RUSS 3160 or instructor's consent

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**RUSS 3640: Russian Classics II**

Reading and discussion of selected works by major Russian writers of the twentieth century. Course conducted in Russian. May be taken before or after RUSS 3630.

**Credit Hours:** 3

**Prerequisites:** RUSS 3130 or RUSS 3160 or instructor's consent

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**RUSS 3890: Russian and Soviet Cinema**

(same as FILMS\_VS 3890). Survey and analysis of selected Soviet films. Emphasis on film-making as a form of art. English or subtitled. Second screenings by arr. Some films may run over 2 hrs. No foreign language credit.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or instructor's consent

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**RUSS 4001: Topics in Russian-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-9

**Prerequisites:** instructor's consent

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**RUSS 4005: Topics in Russian-Humanities**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent. Prerequisites: instructor's consent,

**Credit Hour:** 1-3

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**RUSS 4005H: Topics in Russian-Humanities - Honors**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1

**Prerequisites:** instructor's consent; Honors eligibility required

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**RUSS 4005W: Topics in Russian-Humanities - Writing Intensive**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent. Prerequisites: instructor's consent,

**Credit Hour:** 1-3

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**RUSS 4160: Advanced Russian Conversation**

Advanced syntax, idiomatic constructions, and vocabulary building.

**Credit Hours:** 3

**Prerequisites:** RUSS 3130 or RUSS 3160 or instructor's consent

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**RUSS 4350: Special Readings in Russian**

Special Readings in Slavic literature or linguistics.

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**RUSS 4420: Russian Poetry**

(cross-leveled with RUSS 7420). Survey of readings in Russian poetry from its beginnings to present.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**RUSS 4430: Russian Drama**

(cross-leveled with RUSS 7430). Selected readings in and discussions of major Russian plays of the nineteenth and twentieth century.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**RUSS 4430W: Russian Drama - Writing Intensive**

(cross-leveled with RUSS 7430). Selected readings in and discussions of major Russian plays of the nineteenth and twentieth century.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**RUSS 4435: Russian Prose**

(cross-leveled with RUSS 7435). Explores the development of prose writing in modern Russian letters, paying special attention to native generic designations. Considers dual imagery of realist/naturalist and romantic/fantastic approaches. Studies diverse examples: raskaz (story), the povest' (tale), the novella, novel essay early 19th c. through 20th c. Considers ways in which literature can itself stand as a philosophical form.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**RUSS 4440: The Russian Novel**

(cross-leveled with RUSS 7440). Selected readings and seminar discussion of major novelists of the 19th and 20th centuries.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**RUSS 4550: Nabokov's Russian Fiction**

(cross-leveled with RUSS 7550). Systematic analysis of Vladimir Nabokov's fiction, both novels and short stories. Emphasis on the artistic properties of prose. Lectures and class discussion in English. Readings in Russian (English translations for undergraduate students).

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**RUSS 4820: Blogging the World: The Web in Cultural Context**

(same as GERMAN 4820, FRENCH 4820). Innovative interdisciplinary course addresses issues of access to international news and specific cultural context working in cross-disciplinary teams. Students in journalism, foreign language, international studies, political science and various other disciplines track cultural developments and information on no-US Web sites, blogs and digital social networks along with exploring various historical forms of communication that preceded the digital era of the Web. Students analyze the potential and limitations/ effects of blogs and the web in specific contemporary cultural contexts and as part of the broader historical evolution of the web. The course is taught in English. The goal of this course is two-fold; students learn the particulars of web blogging, explore various features of the contemporary social network landscape while focusing on the concept of culture, in particular the cultures of Europe and the US. Questions asked are: what is culture? What is common or popular right now in other cultures? And how do new social networks amplify or alter certain features or culture across national and international contexts?

**Credit Hours:** 3

**Prerequisites:** sophomore standing required

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**RUSS 4820W: Blogging the World: The Web in Cultural Context - Writing Intensive**

(same as GERMAN 4820, FRENCH 4820). Innovative interdisciplinary course addresses issues of access to international news and specific cultural context working in cross-disciplinary teams. Students in journalism, foreign language, international studies, political science and various other disciplines track cultural developments and information on no-US Web sites, blogs and digital social networks along with exploring various historical forms of communication that preceded the digital era of the Web. Students analyze the potential and limitations/ effects of blogs and the web in specific contemporary cultural contexts and as part of the broader historical evolution of the web. The course is taught in English. The goal of this course is two-fold; students learn the particulars of web blogging, explore various features of the contemporary social network landscape while focusing on the concept of culture, in particular the cultures of Europe and the US. Questions asked are: what is culture? What is common or popular right now in other cultures? And how do new social networks amplify or alter certain features or culture across national and international contexts?

**Credit Hours:** 3

**Prerequisites:** sophomore standing required

---

**RUSS 4840: Totalitarianism and Culture**

(same as GERMAN 4840; cross-leveled with GERMAN 7840, RUSS 7840). In this course, we will explore the politics and poetics of totalitarian culture by examining the paintings, music, sculptures, buildings, and films produced under the rule of these regimes. In the process, we will learn how Nazi and Soviet culture producers made carefully calibrated appeals to their respective mass audiences, drawing upon the German and Russian cultural traditions - and on scientific rhetorics of cultural history and racial destiny - in crafting their utopian visions of worlds transformed, wrongs righted, and societies perfected.

**Credit Hours:** 3

**Recommended:** Junior standing or above; students taking this course for WI should have taken a 2000- or 3000-level WI course before beginning this class

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**RUSS 4840H: Totalitarianism and Culture - Honors**

(same as GERMAN 4840W; cross-leveled with GERMAN 7840, RUSS 7840). In this course, we will explore the politics and poetics of totalitarian culture by examining the paintings, music, sculptures, buildings, and films produced under the rule of these regimes. In the process, we will learn how Nazi and Soviet culture producers made carefully calibrated appeals to their respective mass audiences, drawing upon the German and Russian cultural traditions - and on scientific rhetorics of cultural history and racial destiny - in crafting their utopian visions of worlds transformed, wrongs righted, and societies perfected.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** Junior standing or above; students taking this course for WI should have taken a 2000- or 3000-level WI course before beginning this class

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**RUSS 4840HW: Totalitarianism and Culture - Honors/Writing Intensive**

(same as GERMAN 4840HW; cross-leveled with GERMAN 7840, RUSS 7840). In this course, we will explore the politics and poetics of totalitarian culture by examining the paintings, music, sculptures, buildings, and films

produced under the rule of these regimes. In the process, we will learn how Nazi and Soviet culture producers made carefully calibrated appeals to their respective mass audiences, drawing upon the German and Russian cultural traditions - and on scientific rhetorics of cultural history and racial destiny - in crafting their utopian visions of worlds transformed, wrongs righted, and societies perfected.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

**Recommended:** Junior standing or above; students taking this course for WI should have taken a 2000- or 3000-level WI course before beginning this class

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**RUSS 4840W: Totalitarianism and Culture - Writing Intensive**

(same as GERMAN 4840; cross-leveled with GERMAN 7840, RUSS 7840). In this course, we will explore the politics and poetics of totalitarian culture by examining the paintings, music, sculptures, buildings, and films produced under the rule of these regimes. In the process, we will learn how Nazi and Soviet culture producers made carefully calibrated appeals to their respective mass audiences, drawing upon the German and Russian cultural traditions - and on scientific rhetorics of cultural history and racial destiny - in crafting their utopian visions of worlds transformed, wrongs righted, and societies perfected.

**Credit Hours:** 3

**Recommended:** Junior standing or above; students taking this course for WI should have taken a 2000- or 3000-level WI course before beginning this class

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**RUSS 4850: Revolution and Media in a Global Perspective**

(same as GERMAN 4850; cross-leveled with RUSS 7850, GERMAN 7850). This course offers a historical and global survey of the rise of modern revolution, from France to Haiti to Russia to the Black Power movement and beyond. Drawing on media studies and cultural studies, we will explore how revolutions are tied up in specific medial environments. This entails asking how media spread revolution, whether in print and visual culture, in the broadcast media of the twentieth century, or in the digital landscapes of the twenty-first century, and how revolutions can be understood themselves as media events. In the process students will develop a critical vocabulary for discussing the role of media in political and cultural revolution and counter-revolution in a global perspective. Graded on A-F basis only.

**Credit Hours:** 3

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**RUSS 4850H: Revolution and Media in a Global Perspective - Honors**

(same as GERMAN 4850; cross-leveled with RUSS 7850, GERMAN 7850). This course offers a historical and global survey of the rise of modern revolution, from France to Haiti to Russia to the Black Power movement and beyond. Drawing on media studies and cultural studies, we will explore how revolutions are tied up in specific medial environments. This entails asking how media spread revolution, whether in print and visual culture, in the broadcast media of the twentieth century, or in the digital landscapes of the twenty-first century, and how revolutions can be understood themselves as media events. In the process students will develop a critical vocabulary for discussing the role of media in political and cultural revolution and counter-revolution in a global perspective. Graded on A-F basis only. Prerequisites: Honors eligibility required

**Credit Hours:** 3

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**RUSS 4850W: Revolution and Media in a Global Perspective - Writing Intensive**

(same as GERMAN 4850W; cross-leveled with RUSS 7850, GERMAN 7850). This course offers a historical and global survey of the rise of modern revolution, from France to Haiti to Russia to the Black Power movement and beyond. Drawing on media studies and cultural studies, we will explore how revolutions are tied up in specific medial environments. This entails asking how media spread revolution, whether in print and visual culture, in the broadcast media of the twentieth century, or in the digital landscapes of the twenty-first century, and how revolutions can be understood themselves as media events. In the process students will develop a critical vocabulary for discussing the role of media in political and cultural revolution and counter-revolution in a global perspective. Graded on A-F basis only.

**Credit Hours:** 3

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**RUSS 7085: Problems in Russian and Slavonic Studies**

Special problems in Slavic literature or linguistics.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**RUSS 7087: Seminar in Russian**

Course content varies.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**RUSS 7105: Topics in 19th Century Russian Literature-General**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**RUSS 7205: Topics in 20th Century Russian Literature**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**RUSS 7350: Special Readings in Russian**

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**RUSS 7420: Russian Poetry**

(cross-leveled with RUSS 4420). Survey of readings in Russian poetry from its beginnings to present.

**Credit Hours:** 3

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**RUSS 7430: Russian Drama**

(cross-leveled with RUSS 4430). Selected readings in and discussions of major Russian plays of the nineteenth and twentieth century.

**Credit Hours:** 3

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**RUSS 7435: Russian Prose**

(cross-leveled with RUSS 4435). Explores the development of prose writing in modern Russian letters, paying special attention to native generic designations. Considers dual imagery of realist/naturalist and romantic/fantastic approaches. Studies diverse examples: rasskaz (story), the povest' (tale), the novella, novel essay, early 19th c. through 20th c. Considers ways in which literature can itself stand as a philosophical form.

**Credit Hours:** 3

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**RUSS 7550: Nabokov's Russian Fiction**

(cross-leveled with RUSS 4550). Systematic analysis of Vladimir Nabokov's fiction, both novels and short stories. Emphasis on the artistic properties of prose. Lectures and class discussion in English. Readings in Russian.

**Credit Hours:** 3

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**RUSS 7730: Internship in Russian**

Supervised introduction to the methodology of the teaching of elementary Russian; conducted in a classroom environment.

**Credit Hours:** 3

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**RUSS 7840: Totalitarianism and Culture**

(same as GERMAN 7840; cross-leveled with GERMAN 4840, RUSS 4840). In this course, we will explore the politics and poetics of totalitarian culture by examining the paintings, music, sculptures, buildings, and films produced under the rule of these regimes. In the process, we will learn how Nazi and Soviet culture producers made carefully calibrated appeals to their respective mass audiences, drawing upon the German and Russian cultural traditions - and on scientific rhetorics of cultural history and racial destiny - in crafting their utopian visions of worlds transformed, wrongs righted, and societies perfected.

**Credit Hours:** 3

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**RUSS 7850: Revolution and Media in a Global Perspective**

(same as GERMAN 7850; cross-leveled with RUSS 4850, GERMAN 4850). This course offers a historical and global survey of the rise of modern revolution, from France to Haiti to Russia to the Black Power movement and beyond. Drawing on media studies and cultural studies, we will explore how revolutions are tied up in specific medial environments. This entails asking how media spread revolution, whether in print and visual culture, in the broadcast media of the twentieth century, or in the digital landscapes of the twenty-first century, and how revolutions can be understood themselves as media events. In the process students will develop a critical vocabulary for discussing the role of media in political and cultural revolution and counter-revolution in a global perspective. Graded on A-F basis only.

**Credit Hours:** 3

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**RUSS 8050: Research in Russian**

Translations or creative work not leading to thesis.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**RUSS 8085: Problems in Russian and Slavonic Studies**

Special problems in Slavic literature or linguistics.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**RUSS 8090: Thesis Research in Russian**

Independent research leading to a Master's thesis. Graded on S/U basis only.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**RUSS 8220: Russian Intellectual History and Critical Theory I**

Survey of Russian literary and cultural criticism of the 18th and 19th centuries. Course texts will include representative critical essays as well as selected literary texts. May be taken before or after RUSS 8230.

**Credit Hours:** 3

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**RUSS 8305: Topics in Slavic Linguistics**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**RUSS 8405: Topics in Slavic Literatures**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**RUSS 8510: The Art and Life of Pushkin**

Gives a conceptual thematic overview of Alexander Pushkin's lyrical poetry, as well as some dramatic work and prose. Special attention paid to the parallel development of his artistic and religious beliefs. Poetry read in Russian; prose and dramatic poems in Russian and English.

**Credit Hours:** 3

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**RUSS 8650: Old Church Slavonic**

Designed to familiarize student with the phonological system, inflectional morphology and most important literature of the oldest recorded Slavic language. Comparisons of OCS to modern Slavic languages.

**Credit Hours:** 3

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## Service Learning (SRV\_LRN)

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**SRV\_LRN 1090: Independent Study-Service Learning**

Students participate in community service activities, attend regular meetings, conduct research, submit four journals, a short bibliography and a research paper on their service in the community

**Credit Hour:** 1-3

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**SRV\_LRN 1090H: Independent Study-Service Learning - Honors**

Students participate in community service activities, attend regular meetings, conduct research, submit four journals, a short bibliography and a research paper on their service in the community.

**Credit Hour:** 1-3

**Prerequisites:** Honors eligibility required

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**SRV\_LRN 2021: MU Community Engagement Project**

The MU Community Engagement Project offers students the opportunity to engage in academically-based community services; project sections include tutoring and mentoring, public health policy and outreach, international services, and community development.

**Credit Hour:** 2-3

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**SRV\_LRN 2021H: MU Community Engagement Project - Honors**

The MU Community Engagement Project offers students the opportunity to engage in academically-based community services; project sections include tutoring and mentoring, public health policy and outreach, international services, and community development.

**Credit Hour:** 2-3

**Prerequisites:** Honors eligibility required

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**SRV\_LRN 2021HW: MU Community Engagement Project - Honors/  
Writing Intensive**

The MU Community Engagement Project offers students the opportunity to engage in academically-based community services; project sections include tutoring and mentoring, public health policy and outreach, international services, and community development.

**Credit Hour:** 2-3

**Prerequisites:** Honors eligibility required

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**SRV\_LRN 2021W: MU Community Engagement Project - Writing  
Intensive**

The MU Community Engagement Project offers students the opportunity to engage in academically-based community services; project sections include tutoring and mentoring, public health policy and outreach, international services, and community development.

**Credit Hour:** 2-3

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**SRV\_LRN 3028: Civic Leaders Internship**

Students in any major may enroll in 3-6 credit hour internships with state government offices and agencies.

**Credit Hour:** 3-6

**Prerequisites:** consent and application required

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**SRV\_LRN 3028H: Civic Leaders Internship - Honors**

Students in any major may enroll in 3-6 credit hour internships with state government offices and agencies.

**Credit Hour:** 3-6

**Prerequisites:** consent and application required. Honors eligibility required

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**SRV\_LRN 3028HW: Civic Leaders Internship - Honors/Writing  
Intensive**

Students in any major may enroll in 3-6 credit hour internships with state government offices and agencies.

**Credit Hour:** 3-6

**Prerequisites:** consent and application required. Honors eligibility required

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**SRV\_LRN 3028W: Civic Leaders Internship - Writing Intensive**

Students in any major may enroll in 3-6 credit hour internships with state government offices and agencies.

**Credit Hour:** 3-6

**Prerequisites:** consent and application required

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## Social Work (SOC\_WK)

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**SOC\_WK 1110: Introduction to the Social Work Major**

Students examine their interest in social work and other human service professions; learn of career possibilities in their interest area; and develop an educational plan to reach their goal.

**Credit Hour:** 1

**Prerequisites:** freshman or sophomore standing

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**SOC\_WK 1115: Social Welfare and Social Work**

Survey course that examines the history and development of social welfare in the United States and the profession of social work, as well as contemporary issues.

**Credit Hours:** 3

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**SOC\_WK 1200: Criminal Justice**

This course provides an introduction to the history and development of criminal justice in our country and includes policing and law enforcement, and the adjudication and court process as well as the terminology associated with each system. Theories on crime, prison, community corrections and reentry discussions for both juvenile and adult systems will be addressed. Emphasis will be placed on an overview to the major sociological and psychological perspectives on variations from normative individual and group behaviors prevalent in the U.S. society while providing a strengths perspective in which to understand them. Finally, this course will evaluate the delicate balance between community interest and personal freedom that criminal justice decision-making requires.

**Credit Hours:** 3

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**SOC\_WK 2000: Exploration in Social and Economic Justice**

(same as PEA\_ST 2000). This course explores issues of fairness and equality in economic, political and social systems, and applies social justice principles to major social problems. Course may be repeated two times for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000

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**SOC\_WK 2000W: Exploration in Social and Economic Justice - Writing Intensive**

(same as PEA\_ST 2000). This course explores issues of fairness and equality in economic, political and social systems, and applies social justice principles to major social problems. Course may be repeated two times for credit. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**SOC\_WK 2220: Human Behavior in the Social Environment**

The first of two required courses providing an introduction to selected theories, multidisciplinary knowledge, and perspectives into human development and behavior. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000 or sophomore standing

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**SOC\_WK 2220W: Human Behavior in the Social Environment - Writing Intensive**

The first of two required courses providing an introduction to selected theories, multidisciplinary knowledge, and perspectives into human development and behavior. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000 or sophomore standing

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**SOC\_WK 3101: Topics in Social Work**

Special and emerging topics in social work and social welfare. Subject, content and credit varies depending on available faculty and student interest. For undergraduate and graduate students.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent required

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**SOC\_WK 3101W: Topics in Social Work - Writing Intensive**

Special and emerging topics in social work and social welfare. Subject, content and credit varies depending on available faculty and student interest. For undergraduate and graduate students.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent required

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**SOC\_WK 3320: Understanding Personality in a Social Context**

Introduces students to diverse personality theories and examines background, key concepts, motivation, structure, development dynamics and applications of each theory in a social context. Required of all undergraduate social work majors.

**Credit Hours:** 3

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**SOC\_WK 3350: Problems in Social Work**

Research and independent study projects offered on a tutorial basis to undergraduate social work students.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent required

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**SOC\_WK 4101: Topics in Social Work**

Special and emerging topics in social work and social welfare. Subject, content and credit varies depending on available faculty and student interest. May be repeated for credit.

**Credit Hour:** 1-6

**Prerequisites:** departmental consent required

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**SOC\_WK 4310: Social Statistics**

Descriptive, analytic techniques applied to qualitative and quantitative social data. Math Reasoning Proficiency Course.

**Credit Hours:** 4

**Prerequisites:** sophomore standing required

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**SOC\_WK 4330: Addiction Treatment and Prevention**

(cross-leveled with SOC\_WK 7330). Provides knowledge generic to social work and other disciplines involved in substance abuse treatment. Integrated approach to problems of substance abuse and development of self-awareness are emphasized. Didactic and experiential methods employed.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**SOC\_WK 4370: Delinquency, Corrections and Social Treatment**

(cross-leveled with SOC\_WK 7370). Focuses on problems and causative factors in developing and maintaining delinquent and criminal behavior and attitudes: addressing critical and comparative understanding of social change strategies employed in this field.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**SOC\_WK 4390: Helping Strategies With Children and Adolescents**

(cross-leveled with SOC\_WK 7390). Theory and practice of work with children and adolescents. Focus on youth in transition, protective services and permanency planning, and special needs populations.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**SOC\_WK 4395: Death, Grief and Loss**

(cross-leveled with SOC\_WK 7395). This course is designed to provide an awareness of the impact of grief and loss whether as a result of a death or major life alteration. The perspective that grief exists in many contexts beyond death will be a focal point of the course. Theory associated with the process of dying, grief and grief resolution will be examined. Additionally, students will explore influencing factors such as life span development, religion, culture and personal responses to loss.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**SOC\_WK 4400: Domestic Violence**

(same as WGST 4400; cross-leveled with SOC\_WK 7400, WGST 7400). Covers history of the domestic violence movement, intimate partner violence theories and data, legislative and organizational policy issues, and intervention models for practice with individuals who have experienced domestic violence including co-occurring issues such as trauma.

**Credit Hours:** 3

**Prerequisites:** Junior or Senior standing required

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**SOC\_WK 4410: Law and Social Work Practice**

(cross-leveled with SOC\_WK 7410). This course explores the intersection of human services, law, and policy. It explores how law shapes services directed at children, families, women, and racial and sexual minorities. Students learn to work with legal professionals, prepare for proceedings, and avoid malpractice.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**SOC\_WK 4450: Professional Perspectives on Child Welfare Services in the 21st Century**

(cross-leveled with SOC\_WK 7450). This course examines the development and current state of child welfare services in America with an emphasis on the role of the public child welfare agency in delivery of those services. It is an overview course which addresses the relationship between practice issues in service delivery and administrative policy issues which enable and constrain service delivery activities. The overarching concepts of child safety, family stability, permanency for the child, and well-being of the child as a long-term outcome will be used to examine the five focal service delivery areas in child welfare; family support, preservation and reunification, child protection, foster placement, residential care, and adoptive services. This is a dual level BSW/MSW course and is an elective within the program's curricular structure. The differentiating objectives and assignments for the MSW members of the class are noted in the appropriate areas of the syllabus.

**Credit Hours:** 3

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**SOC\_WK 4480: Helping Strategies with Older Persons**

This course is designed to provide knowledge and skill development for work with older adults and their families. It offers an intensive examination of the concepts and skills needed for effective social work practice with these populations. In particular, sociological, psychological, political, and economic factors affecting older adults will be examined as they relate to intervention, programmatic, and policy responses. Special attention will be given to assessment and intervention from macro, mezzo, and micro perspectives. The interrelationship between the aging person, the family, and society is explored since these factors affect all levels of practice. Content in this course related to the social and economic mission of the School of Social Work.

**Credit Hours:** 3

**Prerequisites:** Junior standing

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**SOC\_WK 4710: Social Justice and Social Policy**

Based on the concepts of human need and social justice, a historical and analytical approach to social welfare policies and programs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** junior standing and departmental consent required

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**SOC\_WK 4711: Social Justice and Social Policy II**

Advanced course in the analysis of policies and programs relevant to social work and social welfare. Prepares students to understand and

conduct policy analysis of public, voluntary, and proprietary human service organizations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SOC\_WK 4710; Social Work Professional standing

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**SOC\_WK 4720: Variations in Human Behavior**

Basic concepts and principles regarding psychological/social dynamics of deviance; implications for social welfare policy and social interventions.

**Credit Hours:** 3

**Prerequisites:** junior standing and departmental consent required

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**SOC\_WK 4730: Introduction to Social Work Practice**

Introductory, generalist practice theory course promoting student's understanding of professional social work practice as holistic, identifiable, unique configuration of knowledge, values and skills. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Social Work Professional Standing and departmental consent required

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**SOC\_WK 4740: Introduction to Community and Organizational Processes**

Introduction to contextual framework of social work practice with particular emphasis on community and organization as social systems. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Social Work professional standing and departmental consent required

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**SOC\_WK 4750: Interaction Skills Workshop**

Generalist practice at individual, group and community levels. Group communication and social influence theories address generic and unique aspects of interaction across systems. Uses laboratory instruction. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Social Work Professional standing and departmental consent required

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**SOC\_WK 4760: Theory and Practice of Social Group Work**

Focuses on small group dynamics and models of group work practice suitable in all social work fields. Emphasizes practice theory and skills. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Social Work Professional standing

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**SOC\_WK 4770: Strategies of Direct Practice**

Examines social structures, processes, underlying assumptions/concepts of social change, client constellation, organizational arrangements, role relationships by which social workers define professional intervention.

**Credit Hours:** 3

**Prerequisites:** SOC\_WK 4730 and SOC\_WK 4750; third semester professional program standing; departmental consent required

**Corequisites:** SOC\_WK 4971 and SOC\_WK 4970

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**SOC\_WK 4770W: Strategies of Direct Practice - Writing Intensive**

Examines social structures, processes, underlying assumptions/concepts of social change, client constellation, organizational arrangements, role relationships by which social workers define professional intervention.

**Credit Hours:** 3

**Prerequisites:** SOC\_WK 4730 and SOC\_WK 4750; third semester professional program standing; departmental consent required

**Corequisites:** SOC\_WK 4971 and SOC\_WK 4970

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**SOC\_WK 4951: Research for Social Work Practice**

This course introduces social work research and its relevance to practice, emphasizing the School of Social Work's social justice mission. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Social Work Professional standing or consent required

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**SOC\_WK 4951W: Research for Social Work Practice - Writing Intensive**

This course introduces social work research and its relevance to practice, emphasizing the School of Social Work's social justice mission. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Social Work Professional standing or consent required

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**SOC\_WK 4952: Research Methods for Social Work**

Survey of research methods germane to the development of the knowledge base of social work practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Social Work Professional standing or consent required

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**SOC\_WK 4952W: Research Methods for Social Work - Writing Intensive**

Survey of research methods germane to the development of the knowledge base of social work practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Social Work Professional standing or consent required

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**SOC\_WK 4960: Special Readings in Social Work**

Extensive readings in selected area or intensive reading in a special field.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent required

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**SOC\_WK 4970: Senior Professional Seminar**

Integrative professional practice seminar for BSW students, focusing on the principles of generic social work and its application to direct practice in diverse fields, career planning and responsibilities. Enrollment is limited to students who have completed SOC\_WK 2220, SOC\_WK 4710, SOC\_WK 4730, SOC\_WK 4740, SOC\_WK 4750, SOC\_WK 4760, and SOC\_WK 4720; and currently enrolled in SOC\_WK 4770 and SOC\_WK 4971.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**SOC\_WK 4971: Undergraduate Field Practicum**

Supervised social work practice in a school-approved agency focusing on development of direct practice skills. Fall semester, three days per week. Graded on S/U basis only.

**Credit Hours:** 6

**Prerequisites:** senior standing; SOC\_WK 2220, SOC\_WK 4710, SOC\_WK 4730, SOC\_WK 4740, SOC\_WK 4750, SOC\_WK 4760, and SOC\_WK 4720; departmental consent required

**Corequisites:** SOC\_WK 4770 and SOC\_WK 4970

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**SOC\_WK 4971H: Advanced Study for Social Work Honors**

Individual study and research or practicum leading to Honors in Social Work. Enrollment is limited to students accepted into the Professional BSW Program and for Social Work Honors. Enrollment is limited to students who are Honors eligible, have an Social Work Honors application, completed SOC\_WK 2220 and completed or currently enrolled in SOC\_WK 4730, SOC\_WK 4740 and SOC\_WK 4750.

**Credit Hour:** 3-6

**Prerequisites:** Instructor's consent

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**SOC\_WK 7000: Professional Social Work Practice**

This course introduces the social work profession within a historical and contemporary context, provides an overview of key concepts, standards and regulations, and assists students in examining personal and professional values and ethics related to practice. Graded on an A-F basis only.

**Credit Hour:** 1

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**SOC\_WK 7001: Topics in Social Work**

Special and emerging topics in social work and social welfare. Subject, content, and credit varies depending on available faculty and student interest.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent required

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**SOC\_WK 7085: Problems in Social Work**

Intensive study of an area of social welfare related to special interest of student.

**Credit Hour:** 1-6

**Prerequisites:** departmental consent required

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**SOC\_WK 7220: Advanced Social Work Practice in Integrated Healthcare**

The course will introduce students to the essential practice skills needed to effectively address the challenges of integrating services, care, and support for persons with health, mental health, and substance use problems. Graded on A-F basis only.

**Credit Hours:** 3

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**SOC\_WK 7230: Integrative Behavioral Health Clinic**

This is an elective course devoted to assessment, intervention and research with under-served individuals, couples, groups and families. This course is facilitated as a skills-training laboratory. Intervention methods will be applied to client's coping with major life stressors and relational problems. Students should leave this course with increased

confidence in their ability to analyze patterns, assess, and intervene using diverse clinical methods. Graded on A-F basis only.

**Credit Hour:** 2-4

**Prerequisites:** Masters of Social Work students only

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**SOC\_WK 7320: Rural Human Services**

A study of the effect of rural and small community environments on the planning and delivery of social and health services. Emphasis on policy and program analyses relevant to rural issues and concerns.

**Credit Hours:** 3

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**SOC\_WK 7330: Addiction Treatment and Prevention**

(cross-leveled with SOC\_WK 4330). Provides knowledge generic to social work and other disciplines involved in substance abuse treatment. Integrated approach to problems of substance abuse and development of self-awareness are emphasized. Didactic and experiential methods employed.

**Credit Hours:** 3

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**SOC\_WK 7340: Military Culture**

An introduction to the branches of the military and related cultural issues. Examines the historical and contemporary complexities of military service and personal and professional values and ethics related to practice with military personnel, families, and veterans. Graded on A-F basis only.

**Credit Hours:** 3

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**SOC\_WK 7370: Delinquency, Corrections and Social Treatment**

(cross-leveled with SOC\_WK 4370). Focuses on problems and causative factors in developing and maintaining delinquent and criminal behavior and attitudes: addressing critical and comparative understanding of social change strategies employed in this field.

**Credit Hours:** 3

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**SOC\_WK 7390: Helping Strategies With Children and Adolescents**

(cross-leveled with SOC\_WK 4390). Theory and practice of work with children and adolescents. Focus on youth in transition, protective services and permanency planning, and special needs populations.

**Credit Hours:** 3

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**SOC\_WK 7395: Death, Grief and Loss**

(cross-leveled with SOC\_WK 4395). This course is designed to provide an awareness of the impact of grief and loss whether as a result of a death or major life alteration. The perspective that grief exists in many contexts beyond death will be a focal point of the course. Theory associated with the process of dying, grief and grief resolution will be examined. Additionally, students will explore influencing factors such as life span development, religion, culture and personal responses to loss.

**Credit Hours:** 3

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**SOC\_WK 7400: Domestic Violence**

(same as WGST 7400; cross-leveled with SOC\_WK 4400, WGST 4400). Covers history of the domestic violence movement, intimate partner violence theories and data, legislative and organizational policy issues, and intervention models for practice with individuals who have

experienced domestic violence including co-occurring issues such as trauma.

**Credit Hours:** 3

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**SOC\_WK 7410: Law and Social Work Practice**

(cross-leveled with SOC\_WK 4410). This course explores the intersection of human services, law, and policy. It explores how law shapes services directed at children, families, women, and racial and sexual minorities. Students learn to work with legal professionals, prepare for proceedings, and avoid malpractice.

**Credit Hours:** 3

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**SOC\_WK 7450: Professional Perspectives on Child Welfare Services in the 21st Century**

(cross-leveled with SOC\_WK 4450). This course examines the development and current state of child welfare services in America with an emphasis on the role of the public child welfare agency in delivery of those services. It is an overview course which addresses the relationship between practice issues in service delivery and administrative policy issues which enable and constrain service delivery activities. The overarching concepts of child safety, family stability, permanency for the child, and well-being of the child as a long term outcome will be used to examine the five focal service delivery areas in child welfare; family support, preservation and reunification, child protection, foster placement, residential care, and adoptive services. This is a dual level BSW/MSW course and is an elective within either program's curricular structure. The differentiating objectives and assignments for the MSW members of the class are noted in the appropriate areas of the syllabus.

**Credit Hours:** 3

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**SOC\_WK 7470: Organizational Issues in Social Work Practices in Child Welfare**

Intensive seminar in meso-level practice in the field of child welfare. Examines communication theory, team building, and interorganizational dynamics as they affect professional practice in child welfare.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**SOC\_WK 7480: Helping Strategies with Older Persons**

Focus on interdisciplinary methods of assessment and intervention strategies designed to optimize healthy functioning for older persons and their families.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**SOC\_WK 7485: Military Social Work**

An overview of military culture, resilience, challenges, and behavioral health needs of military personnel and veterans. Content draws on theories and research relevant to this population. Graded on A-F basis only.

**Credit Hours:** 3

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**SOC\_WK 7490: Family Treatment**

Comparative study of theories and methods required for work with problems of family functioning. Both conjoint and subsystem approaches to family treatment are examined.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**SOC\_WK 7530: Contemporary Issues in Human Trafficking**

(cross-leveled with SOC\_WK 4530). This three hour course gives an overview of modern human trafficking typologies, issues, and responses. We will cover theories, policies, and intervention practices that drive our prevention and response for working with victims and survivors of this human rights abuse. Graded on A-F basis only.

**Credit Hours:** 3

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**SOC\_WK 7710: Social Policy and Service Delivery in Social Work**

Covers historic and contemporary issues in social welfare policy. Focuses on relationships among social problems, public policies, private actions, poverty, racism, sexism and social work practice/values. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** restricted to graduate Social Work majors

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**SOC\_WK 7720: Foundations of Human Behavior**

Substantive sources from behavioral sciences used in social work toward understanding the biosocial processes and constraints of human development.

**Credit Hours:** 3

**Prerequisites:** restricted to graduate Social Work majors

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**SOC\_WK 7730: Social Work Skills**

Introduces theory and application of strengths-based generalist practice. Develops knowledge, values, and techniques of professional social work practice at micro, mezzo, and macro levels, emphasizing assessment and interaction skills.

**Credit Hours:** 3

**Prerequisites:** graduate standing in social work; Foundation level course

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**SOC\_WK 7740: Large Group Theory**

Examination of social environment in which social work is practiced with particular emphasis on development of analytic framework for understanding formal organizations and communities.

**Credit Hour:** 2-3

**Prerequisites:** graduate standing in Social Work

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**SOC\_WK 7751: Psychosocial Function and Older Adults**

(same as ARCHST 7650, F\_C\_MD 7751, H\_D\_FS 7751, NURSE 7751, P\_HLTH 7751 and HMI 7751). This course takes an Interdisciplinary approach to understanding the psychosocial function of older adults and explores approaches to alleviate disabling conditions that interfere with psychosocial function and quality of life in old age. Graded on A-F basis only.

**Credit Hours:** 3

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**SOC\_WK 7760: Social Justice Seminar**

Provides integrative learning experience in social work practice in foundation level social work practice focusing on social and economic justice experiences in field practicum.

**Credit Hours:** 2

**Prerequisites:** restricted to graduate Social Work majors

**Corequisites:** SOC\_WK 7971

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**SOC\_WK 7770: Strategies of Clinical Social Work Intervention**

Strategies of social treatment with individuals and small groups applicable to practice in public and private social agency settings.

**Credit Hours:** 3

**Prerequisites:** graduate standing in social work; departmental consent required

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**SOC\_WK 7780: Fundamentals of Social Work Administration**

Basic managerial skills which social workers need for supervision, planning, staff development and administrative positions in social agencies; focus on individual management functions and skills associated with them.

**Credit Hours:** 3

**Prerequisites:** restricted to graduate Social Work majors

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**SOC\_WK 7820: DSM V and Psychopathology: A Social Work Perspective**

Examines psychopathology of human behavior within social work context, prevailing diagnostic models (Diagnostic and Statistical Manual of Mental Disorders V), and historically oppressive categorizations.

**Credit Hours:** 3

**Prerequisites:** Graduate standing in Social Work

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**SOC\_WK 7920: Advanced Foundations of Human Behavior for Administrators**

Examination of relevant theoretical and behavioral foundations in order that students can acquire the knowledge to function as a social work administrator.

**Credit Hours:** 3

**Prerequisites:** graduate Social Work majors

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**SOC\_WK 7952: Research Methods in Social Work**

Examines research methodology and design as applied to the study of social work techniques and problems. Emphasizes differential uses of scientific observation and techniques for developing knowledge and improving practice.

**Credit Hours:** 3

**Prerequisites:** Graduate Social Work Majors

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**SOC\_WK 7971: Graduate Field Practicum I**

Supervised social work practice in a school-approved agency providing a full range of interventive experiences. Graded on S/U basis only.

**Credit Hour:** 2-4

**Prerequisites:** admission to MSW program; SOC\_WK 7710, SOC\_WK 7720, SOC\_WK 7730, SOC\_WK 7740, SOC\_WK 7760. Departmental Consent Required

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**SOC\_WK 8010: Child Abuse and Neglect Assessment and Intervention**

In-depth exploration of identification of and interventions with abused/neglected children and their families. Examines roles for social work with both victims and perpetrators. Examines how environmental factors affect successful intervention.

**Credit Hours:** 3

**Prerequisites:** SOC\_WK 7770; instructor's consent for non MSW students

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**SOC\_WK 8020: Social Work in Schools**

The course focuses on the etiology and development of child and adolescent educational, social, emotional, and behavioral health disorders encountered, identified and treated in school settings. Educational disabilities and related policies and the interdisciplinary nature of school settings will be highlighted. Graded on A-F basis only.

**Credit Hours:** 3

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**SOC\_WK 8050: Resiliency and Solution-Focused Practice**

Focuses on brief therapy approaches to dealing with clinical problems in a time-efficient, clinically effective method. Various approaches to solution-oriented work based in resiliency theory are presented. Stresses client empowerment across the lifespan.

**Credit Hours:** 3

**Prerequisites:** Social Work [SOC\_WK] 7770; graduate level Social Work Majors only. Graded on A/F basis only

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**SOC\_WK 8060: Trauma Informed Practice and Intervention**

This clinical practice course focuses on evidence-based techniques for intervening with survivors of trauma. Content includes developmental theories on trauma and attachment, holistic and culturally aware assessment of post-traumatic stress disorder, the impact of trauma on the development of 'self', and evidence-based models for micro clinical practice. Resiliency, generational trauma, and trauma-informed agency are additional topics used to facilitate learning.

**Credit Hours:** 3

**Prerequisites:** SOC\_WK 7770; graduate level Social Work majors only

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**SOC\_WK 8070: Cognitive Behavioral Practice**

Focuses on the theory, concepts, and techniques of cognitive behavioral therapies, with a particular emphasis on clinical intervention methods that may be used by the social worker to address specific client needs. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SOC\_WK 7770. Restricted to graduate Social Work majors

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**SOC\_WK 8080: Introduction to Dialectical Behavioral Therapy Practice**

This course is an introduction to the theory, concepts and practice of Dialectical Behavioral Therapy, an evidenced-based practice and form of cognitive-behavioral treatment. There will be an emphasis on application methods across settings that a social worker may use to work with clients with pervasive emotion dysregulation as well as other difficult to treat

clients where other forms of treatment have not been effective. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Graduate level Social Work majors only

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**SOC\_WK 8210: Disability Rights Advocacy**

Highlights historical views of disabilities in relationship to contemporary policies, programs and services. This cross-disability focus examines the shift in focus from cure, care, and treatment to participation, capabilities, adapting environments, and building community. Graded on A-F basis only.

**Credit Hours:** 3

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**SOC\_WK 8220: Integrated Health Policy and Services**

The course focuses on the role of social workers as social policy practitioners within an Integrated Behavioral Health environment. Strategies to influence policies and promote change in the interest of service consumer, agency, and society will be presented. Graded on A-F basis only.

**Credit Hours:** 3

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**SOC\_WK 8240: Social Policy for Older Adults**

Examines local, state, and federal social policies related to older adults highlighting challenges related to diverse and special needs. Students will explore and appraise needs, values, ageism, and human rights related to social policies for older adults.

**Credit Hours:** 3

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**SOC\_WK 8350: Management of a Social Agency**

Basic resource management and control techniques common to social agencies with emphasis on personnel management, information and data management, and fiscal management.

**Credit Hours:** 3

**Prerequisites:** restricted to Graduate Social Work majors

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**SOC\_WK 8952: Evaluative Research in Clinical Social Work Practice**

Develop ability to systematically evaluate effectiveness of interventive strategies designed to produce positive change in clients' environment and/or cognitive, affective and behavioral functioning.

**Credit Hours:** 3

**Prerequisites:** SOC\_WK 7952. Restricted to graduate Social Work majors

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**SOC\_WK 8953: Evaluative Research in Social Work**

Develop ability to design and implement appropriate evaluative research methods and strategies employed in social and human service delivery.

**Credit Hours:** 3

**Prerequisites:** SOC\_WK 7952. Restricted to graduate Social Work majors

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**SOC\_WK 8955: Independent Study in Social Work**

Intensive investigation of phenomena germane to area of concentration carried out with guidance of faculty. May include data collection; leads to a written report in publishable format.

**Credit Hour:** 1-6

**Prerequisites:** departmental consent required

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**SOC\_WK 8970: Professional Practice Seminar I**

Provides integrative learning experience in social work practice in an area of beginning specialization in autonomous social work practice.

**Credit Hours:** 3

**Prerequisites:** restricted to graduate Social Work majors

**Corequisites:** SOC\_WK 8971

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**SOC\_WK 8971: Graduate Field Practicum II**

Field instruction tailored to concentration interests, developing depth in clinical skills in direct service or in planning and administration. Graded on S/U basis only.

**Credit Hour:** 1-13

**Prerequisites:** Restricted to graduate Social Work majors. Completion of all required graduate coursework except SOC\_WK 8970

**Corequisites:** SOC\_WK 8970

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**SOC\_WK 9001: Topics in Social Work**

Special and emerging topics in social work and social welfare. Subject, content, and credit varies depending on available faculty and student interest. May be repeated for credit.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent required

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**SOC\_WK 9090: Research in Social Work**

Research in Social Work. Graded on S/U basis only.

**Credit Hour:** 1-12

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**SOC\_WK 9100: Knowledge Building I**

Advanced systemic review of theories requisite for study and implementation of practice and policy centered research in social welfare and development; emphasis placed on critical analysis of theories needed for research and study of integrated social development.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**SOC\_WK 9150: Statistical Concepts in the Social and Behavioral Sciences**

This course is designed to impart knowledge in the basic principles of statistics and data analysis for the social and behavioral sciences. Skills in data input, management, and analysis will be covered, including the construction of analytical tables, graphical analysis of data, use and interpretation of statistical tests, application of univariate and bivariate statistics, and ANOVA models to social work data as well as the use of software to analyze those data. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Basic college level math

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**SOC\_WK 9300: Research Methodology and Design Seminar**

Review of historical development of social welfare and social work research with emphasis on critical analysis of seminal studies; examination of 'state-of-the-art' social welfare and development initiatives, designs and methodology.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**SOC\_WK 9350: Advanced Quantitative and Qualitative Methods in Social Research**

The course provides an in-depth understanding of the use of both quantitative and qualitative methods. The curriculum emphasizes an integration of quantitative and qualitative approaches, methods, and data analysis. Computer application sessions are included. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SOC\_WK 9300 or permission of instructor

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**SOC\_WK 9400: Macro Social Theory**

(Same as NURSE 9400). Building on the foundation laid in SOC\_WK 9100, in depth examination of human development and social environment theories appropriate to scientific examination of social welfare practice with formal organizations, interorganizational combinations, communities and larger political entities.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**SOC\_WK 9500: Pro Seminar I**

Joint student-faculty exercise in intellectual discovery focusing on current and emerging issues in the field of social work and social development; emphasis on integration of multi-disciplinary perspectives. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** departmental consent required

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**SOC\_WK 9600: Professional Seminar II**

This second seminar focuses on topics related to long term professional success for doctoral students. The seminar covers topics on conference presentations, peer-reviewed publications, external funding, and academic job search process. Graded on S/U basis only.

**Credit Hour:** 1

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**SOC\_WK 9650: Pedagogical Methods in Social Work and Applied Professional Programs**

An in depth examination of the pedagogical issues, policies, and principles associated with teaching social work in higher education. Topics include the history and philosophy of social work education, instructional models and methods, assessing educational outcomes, and instructional improvement methods. Issues specific to social work include the need to differentiate teaching methods relative to direct practice, human services administration, community organization, policy practice, and program evaluation. Particular focus will be directed toward online education and its role in the 21st century. Graded on S/U basis only.

**Credit Hour:** 1

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**SOC\_WK 9700: Social Welfare Policy Seminar**

(Same as NURSE 9700). Critical examination of comparative models of social policy development; preparation of a professional social work policy analysis in the student's area of interest/specialization that is suitable for submission to an appropriate referred journal.



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**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**SOC\_WK 9800: Research Application I**

Research practicum for Social Work doctoral students.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**SOC\_WK 9850: Research Application II**

Research Practicum. In most cases it will be a second research practicum but may also be a continuation of the research conducted in SOC\_WK 9800. Prerequisites: departmental consent required

**Credit Hour:** 1-3

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**SOC\_WK 9890: Dissertation Seminar**

This course will assist doctoral students in planning and writing the dissertation.

**Credit Hours:** 3

**Prerequisites:** departmental consent required

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**SOC\_WK 9900: Doctoral Dissertation Research in Social Work**

Independently conducted research that includes concept development, data collection, statistical analysis and social policy implications prepared in a format suitable for publication. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** departmental consent required

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## Sociology (SOCIOLOGY)

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**SOCIOLOGY 1000: Introduction to Sociology**

Nature of organization and activities of human groupings-family, community, crowd, social class, etc.; structure, function of institutions; social influences shaping personality, behavior, social change. No credit for both SOCIOLOGY 1000 and RU\_SOC 1000.

**Credit Hours:** 3

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**SOCIOLOGY 1000H: Introduction to Sociology Honors**

Nature of organization and activities of human groupings-family, community, crowd, social class, etc.; structure, function of institutions; social influences shaping personality, behavior, social change. No credit for both SOCIOLOGY 1000 and RU\_SOC 1000.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**SOCIOLOGY 1010: Social Problems**

Introduces a sociological perspective on what constitutes social problems and their impact on individuals and societies. Emphasizes critical thinking skills. Topics covered may include poverty, inequalities of gender, race, class, religion, education, and political power, the environment and global conflicts among others.

**Credit Hours:** 3

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**SOCIOLOGY 1120: Population and Ecology**

(same as RU\_SOC 1120 and PEA\_ST 1120). Changes in the structure and characteristics of population groups and their relationship to both human and non-human aspects of the biophysical environment.

**Credit Hours:** 3

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**SOCIOLOGY 1360: The Female Experience: Body, Identity, Culture**

(same as WGST 1360). Study of the experience of being female in American culture. Course will focus on development of women's identities through such topics as: sexuality, reproduction, self-image, rape and health care.

**Credit Hours:** 3

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**SOCIOLOGY 1650: Social Deviance**

Survey of approaches to the study of behaviors commonly regarded as deviant such as crime, sexual abuse, substance abuse, mental illness, etc.

**Credit Hours:** 3

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**SOCIOLOGY 2103: Topics in Sociology-Behavioral Science**

Organized study of selected topics. Particular topics may vary from semester to semester. Departmental consent for repetition.

**Credit Hour:** 1-3

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**SOCIOLOGY 2182: Critical Dialogues: Nonviolence in Peace/Democracy Movements**

(same as PEA\_ST 2182). History and theory of movements for peace, justice, and democracy. Development of violent and nonviolent tactics and factions in movements; relationship to state authority. Cases such as Gandhi's Independence, American Civil Rights, Arab Spring, and Occupy movements.

**Credit Hours:** 3

**Recommended:** PEA\_ST 1050

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**SOCIOLOGY 2182W: Critical Dialogues: Nonviolence in Peace/Democracy Movements - Writing Intensive**

(same as PEA\_ST 2182W). History and theory of movements for peace, justice, and democracy. Development of violent and nonviolent tactics and factions in movements; relationship to state authority. Cases such as Gandhi's Independence, American Civil Rights, Arab Spring, and Occupy movements.

**Credit Hours:** 3

**Recommended:** PEA\_ST 1050

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**SOCIOLOGY 2200: Social Inequalities**

(same as BL\_STU 2200). Survey of inequalities based upon criteria such as race, ethnicity, sex, age, religion and social class in contemporary societies. Focus on dynamics by which privilege and inequalities are structured.

**Credit Hours:** 3

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**SOCIOL 2210: The Black Americans**

(same as BL\_STU 2210). Analysis of history of blacks in the United States. Assessment of contemporary black community in terms of its institutions, styles of life, patterns of work and intergroup relations.

**Credit Hours:** 3

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**SOCIOL 2255: Youth, Islam, and Global Cultures**

(same as PEA\_ST 2255). Youth subcultures and the social issues and problems faced by youth, focusing on the Islamic world and Muslim immigrants, in the United States and elsewhere. Social and behavioral theories and concepts such as paths to modernization, Orientalism, post-colonialism, population movements, social construction, identity, and recognition will be illustrated.

**Credit Hours:** 3

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**SOCIOL 2280: Race, Democracy, and Violence in Cuba and Haiti**

(same as PEA\_ST 2280, GEOG 2280). A sociological approach to understand race/ethnicity, identity, citizenship, human rights, violence, and political and economic systems in the Caribbean. Comparisons of the culture, politics, and historical trajectories of Cuba and Haiti using Post-Colonial and Feminist theories. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 2280W: Race, Democracy, and Violence in Cuba and Haiti - Writing Intensive**

(same as PEA\_ST 2280, GEOG 2280). A sociological approach to understand race/ethnicity, identity, citizenship, human rights, violence, and political and economic systems in the Caribbean. Comparisons of the culture, politics, and historical trajectories of Cuba and Haiti using Post-Colonial and Feminist theories. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 2281: Nuclear Weapons: Environmental, Health and Social Effects**

(same as HLTH\_SCI 2200 and PEA\_ST 2200). Environmental consequences of the nuclear arms race, 'regional' nuclear war, and weapons testing for human health, agriculture, and society. Examining 'a world without nuclear weapons'; political dialogue on proliferation; Iran, North Korea, and nuclear weapons conventions. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 2281W: Nuclear Weapons: Environmental, Health and Social Effects - Writing Intensive**

(same as HLTH\_SCI 2200 and PEA\_ST 2200). Environmental consequences of the nuclear arms race, 'regional' nuclear war, and weapons testing for human health, agriculture, and society. Examining 'a world without nuclear weapons'; political dialogue on proliferation; Iran, North Korea, and nuclear weapons conventions. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 2285: Large Corporations, Economic Crisis, Social Responsibility**

(same as PEA\_ST 2285). Institutional power of the corporate CEO; ethical regulatory restraint. Historical contexts of economic crisis. Theories of justice, alternative concepts of justice in popular culture. Politics of policy issues in prosecution and criminalization of corporate behavior. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 2286: Technological Futures, National Security, and Civil Liberties**

(same as PEA\_ST 2286). Contemporary practices and future trends in data collection and mining by the NSA and by businesses. The interplay of government and corporate power, and possibilities of regulation and maintenance of privacy and civil liberties. The development of digital intellectual copyright and its consequences on patterns of dissemination of knowledge.

**Credit Hours:** 3

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**SOCIOL 2286W: Technological Futures, National Security, and Civil Liberties - Writing Intensive**

(same as PEA\_ST 2286). Contemporary practices and future trends in data collection and mining by the NSA and by businesses. The interplay of government and corporate power, and possibilities of regulation and maintenance of privacy and civil liberties. The development of digital intellectual copyright and its consequences on patterns of dissemination of knowledge.

**Credit Hours:** 3

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**SOCIOL 2300: Self and Society**

Analysis of the self in modern society. Topics covered include social interaction, social perception, language and learning, the sociology of emotions and the social construction of identity.

**Credit Hours:** 3

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**SOCIOL 2310: Culture and Mass Media**

Sociological study of modern folk, local, popular and mass cultural production and consumption; mass media, diffusion, change, differentiation.

**Credit Hours:** 3

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**SOCIOL 3000: Urban Sociology**

Urbanism as a world phenomenon; ecological, demographic characteristics of cities; organization of urban society including status systems, occupational structure, formal and informal associations, racial and cultural relations, forms of communication, housing, city planning.

**Credit Hours:** 3

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**SOCIOL 3100: Recent Theories in Sociology**

(same as RU\_SOC 3100). Introduction to major theoretical positions and issues in contemporary American sociology. Logical and intellectual structure of major theoretical schools: functionalism, conflict, exchange, symbolic interaction, phenomenological-ethnomethodological theories.

**Credit Hours:** 3

**Prerequisites:** Sociology majors only. Non-sociology majors may petition the instructor to add the course

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**SOCIOL 3200: Class, Status, and Power**

Study of the structure of wealth, poverty, prestige, and power. Concepts of social justice in political, economic and legal issues and policies. Provides student engagement in research.

**Credit Hours:** 3

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**SOCIOL 3210: Sociology of Globalization**

Globalization's origin and dynamics; the social and political effects of globalization: countervailing forces to economic globalization, in particular reassertions of 'traditional' identities, labor movements, new social movements, and the global democracy movement.

**Credit Hours:** 3

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**SOCIOL 3230: Education and Social Inequalities**

Examination of the ways in which inequalities are constructed, reproduced, maintained or transformed by and within educational institutions. Particular attention will be given to inequalities based on gender, race, and social class.

**Credit Hours:** 3

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**SOCIOL 3255: Youth in Today's World**

Study of what factors influence the development of youth in today's society. Examined are types of behavior such as mating, deviance and the role of schools, parents, TV and friendship groups.

**Credit Hours:** 3

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**SOCIOL 3300: Queer Theories/Identities**

(same as WGST 3300). Analysis of gay, lesbian, bisexual, transgender (GLBT) and queer identities in culture and society with an emphasis on the contributions of queer theory and other GLBT standpoint theories to sociology and the study of society.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 2200 or instructor's consent

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**SOCIOL 3300W: Queer Theories/Identities - Writing Intensive**

(same as WGST 3300). Analysis of gay, lesbian, bisexual, transgender (GLBT) and queer identities in culture and society with an emphasis on the contributions of queer theory and other GLBT standpoint theories to sociology and the study of society.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 2200 or instructor's consent

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**SOCIOL 3310: Social Psychology**

Survey of theories and research concerned with the ways in which individuals construct social situations and are affected by them. Topics covered include self-identities, social influence, personal relationships, prejudice and discrimination.

**Credit Hours:** 3

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**SOCIOL 3310W: Social Psychology - Writing Intensive**

Survey of theories and research concerned with the ways in which individuals construct social situations and are affected by them. Topics covered include self-identities, social influence, personal relationships, prejudice and discrimination.

**Credit Hours:** 3

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**SOCIOL 3320: Sociology of Gender**

(same as WGST 3320). Study of the ways in which femininities and masculinities are constructed in American society with particular attention to gender ideologies and the gendered nature of the social structure.

**Credit Hours:** 3

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**SOCIOL 3330: Environmental Justice**

(same as PEA\_ST 3330). Environmental justice refers to the ways in which the 'cost and benefits' of modern industrial society are distributed among social groups. This course is concerned with justice, not as an abstract concept, and inequality not in terms of numbers in a bank account. Social justice or inequality are lived, embodied experiences. An individual's likelihood of experiencing environmental harm is related to intersecting gender, race and class formations, among other things. Justice or inequality is not only embodied, it also happens in places--national and regional differences matter. In this course we will look at some of the extensive literature documenting the ways in which communities of color and poor communities are subject to disproportionate environmental risks. In addition, we will focus on gender as an important category in understanding environmental inequality.

**Credit Hours:** 3

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**SOCIOL 3400: Fake News and Media Politics**

(same as PEA\_ST 3400). In this course we study the political impact of the growing concentration of media ownership in the U.S. We develop critical thinking skills to identify 'fake news,' and types of media bias to compare U.S. media coverage of current issues with media in other parts of the world.

**Credit Hours:** 3

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**SOCIOL 3400W: Fake News and Media Politics - Writing Intensive**

(same as PEA\_ST 3400). In this course we study the political impact of the growing concentration of media ownership in the U.S. We develop critical thinking skills to identify 'fake news,' and types of media bias to compare U.S. media coverage of current issues with media in other parts of the world.

**Credit Hours:** 3

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**SOCIOL 3420: The Family**

Families, kin and households as interacting groups; roles, socialization, problems, structural change; family in relation to other social institutions; historical, cultural and class variations.

**Credit Hours:** 3

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**SOCIOL 3430: The Sociology of Sport**

The role of sport in modern society. Includes violence in sport; politics and economics of sport; male, female, and racial inequalities; and international comparisons of sport structures.

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**Credit Hours:** 3

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**SOCIOL 3440: Sociology of Health**

A survey of sociological thinking and research on health, health problems, health occupations and health services. How these are shaped by the society. Problems faced by individuals and the system. Potential solutions to problems.

**Credit Hours:** 3

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**SOCIOL 3450: The Sociology of Religion**

Sociology of religious experience, action, organization, movements and social change; contemporary trends, including mainline and new religions, civil religion, secularization.

**Credit Hours:** 3

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**SOCIOL 3460: Technology and Society**

In the last few decades science and technology have permeated our lives as never before. This has led to wide ranging intellectual debates and social movements in and around the issue of relationship between science, technology, and society. This course, which is organized on a lecture-seminar format, will critically investigate different aspects of the relationship between science, technology, and society. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 3460W: Technology and Society - Writing Intensive**

In the last few decades science and technology have permeated our lives as never before. This has led to wide ranging intellectual debates and social movements in and around the issue of relationship between science, technology, and society. This course, which is organized on a lecture-seminar format, will critically investigate different aspects of the relationship between science, technology, and society. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 3520: Collective Behavior**

(same as PEA\_ST 3520). Analysis of crowd behavior and related phenomena: rumors, disasters, fashions. Social responses to unclear, dangerous or unjust conditions. The dynamics of conflict, consensus and change.

**Credit Hours:** 3

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**SOCIOL 3520W: Collective Behavior - Writing Intensive**

(same as PEA\_ST 3520). Analysis of crowd behavior and related phenomena: rumors, disasters, fashions. Social responses to unclear, dangerous or unjust conditions. The dynamics of conflict, consensus and change.

**Credit Hours:** 3

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**SOCIOL 3522: New Media, Conflict and Control**

(same as PEA\_ST 3522). This course will explore the increasing role of new media tools in conflict and surveillance. Examples from recent conflicts will illustrate how citizens and regimes use new media to communicate, report, mobilize, monitor, and/or control. Students will utilize new media as they research instances of democracy and control.

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**Credit Hours:** 3

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**SOCIOL 3600: Criminology**

(same as PEA\_ST 3600). Sociology of law; constitutional, psychological, sociological theories of criminal behavior; process of criminal justice; treatment of corrections; control of crime.

**Credit Hours:** 3

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**SOCIOL 3700: Institutions and Society**

Institutions of societies with focus on institutional arrangements (economy, polity, media, education, religion); organizational structures; interorganizational networks; interrelations of institutional sectors.

**Credit Hours:** 3

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**SOCIOL 3710: The Sociology of Work**

Analysis of occupational, professional aspects of American society. Division of labor; occupational mobility; work and the self; collegueship and informal organizations of work.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 1000 or SOCIOL 1650

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**SOCIOL 3710W: Work in the 21st Century - Writing Intensive**

Analysis of occupational, professional aspects of American society. Division of labor; occupational mobility; work and the self; collegueship and informal organizations of work.

**Credit Hours:** 3

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**SOCIOL 3942: Service Learning in Sociology**

The service learning course combines an independent study with a faculty member with practical experience in a related non-profit or other worksite.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**SOCIOL 3950: Social Research I**

(same as RU\_SOC 3950). Introduction to principles of methodology; theory and research; survey of basic research designs and perspectives; preparation for understanding and conducting social research.

**Credit Hours:** 3

**Prerequisites:** Required for Sociology majors

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**SOCIOL 3950W: Social Research I - Writing Intensive**

(same as RU\_SOC 3950W). Introduction to principles of methodology; theory and research; survey of basic research designs and perspectives; preparation for understanding and conducting social research.

**Credit Hours:** 3

**Prerequisites:** Required for Sociology majors

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**SOCIOL 4104: Topics in Sociology-Social Science**

Organized study of selected topics. Particular topics may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hours:** 3

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**SOCIOL 4210: Aging and the Life Course**

Course will take a life course perspective on the sociological aspects of aging in contemporary American society. Begins with birth, then childhood, adolescence, emergent adulthood, middle life, old age, and death. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Junior standing or above

**Recommended:** At least three credits in Sociology prior to enrollment is preferred

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**SOCIOL 4220: Race and Ethnic Relations**

The experience of racial and ethnic minorities; inequality, assimilation, ethnic and racial conflict, accommodation.

**Credit Hours:** 3

**Prerequisites:** junior standing or instructor's consent

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**SOCIOL 4230: Women, Development, and Globalization**

(same as BL\_STU 4230 and WGST 4230 and PEA\_ST 4230; cross-leveled with BL\_STU 4230, WGST 4230 and SOCIOL 7230). Examines the history and structure of 'development' discourse and practices. Stresses the interconnections and impact on women globally. Reviews women's strategies in defining and instituting programs to improve quality of life in communities.

**Credit Hours:** 3

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**SOCIOL 4315: Social Demography**

(same as RU\_SOC 4315). General demographic theories; age, sex, and ethnic composition of population; fertility, mortality and migration as components of population change; social, economic and political implications of demographic trends.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 1000 or RU\_SOC 1000 and junior standing

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**SOCIOL 4320: Culture, Identity and Interaction**

Examines the interplay between culture, identity, and interaction as these intersect with issues of social inequality, social control, social change, and the everyday production of subjectivities.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 3310 graduate standing or instructor's consent

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**SOCIOL 4335: Social Change and Development**

(same as RU\_SOC 4335). Nature of social change and development. Emphasizes sociological theories of social change and development contrasting them with approaches from the disciplines.

**Credit Hours:** 3

**Prerequisites:** RU\_SOC 1000 or SOCIOL 1000 and junior standing

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**SOCIOL 4370: Environment and Society**

(same as RU\_SOC 4370). An interdisciplinary examination of domestic and international environmental issues focusing on social, cultural, and policy dimensions. Perspectives of the social sciences and humanities are included.

**Credit Hours:** 3

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**Prerequisites:** junior, senior or graduate standing

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**SOCIOL 4450: Research Practicum in Health, Place, and Community**

(cross-leveled with SOCIOL 7450). This course is a research practicum with a substantive focus on health, place, and community. The course combines lecture and field work outside the classroom. Students take part in real-world research projects with local organizations, government agencies, and/or businesses. Projects are based on the needs of participating organizations and will be conducted using a variety of research methodologies. Students will engage in data analysis, write research reports for community partners, and present findings as applicable. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 2950, SOCIOL 3950, or equivalent. Junior or senior standing

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**SOCIOL 4500: Sociology of Social Policy**

Sociological theories and methodologies focused on social policy; policy as process; contextual and critical policy analyses; assessing policy effects and consequences.

**Credit Hours:** 3

**Prerequisites:** senior standing

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**SOCIOL 4510: Social Movements and Conflicts**

Survey of approaches and research on social movements and social change. Historical and contemporary social movements in the U.S.; collective protest and violence; political revolutions. MA core course.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 3520, SOCIOL 3700, or SOCIOL 3320 or graduate standing

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**SOCIOL 4520: Political Sociology**

(same as PEA\_ST 4520). Social bases of power and politics, economic and political elites, the political economy of the advanced societies, sources of political conflict and change.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 3200, SOCIOL 3510, SOCIOL 3520, or SOCIOL 3700

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**SOCIOL 4545: Sociology of Immigration**

(cross-leveled with SOCIOL 7545). This course will cover both classic and contemporary research on immigration within US sociology. Major topics of concern will be how immigration intersects with issues of law, race and ethnicity, gender and sexuality, social mobility, education, employment, politics, urban studies, marriage and family, health, and social networks. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 4550: Gender and Human Rights in Cross Cultural Perspective**

(same as WGST 4550 and PEA\_ST 4550; cross-leveled with WGST 7550, SOCIOL 7550, PEA\_ST 7550). This course focuses on the global discourse on human rights and gender, emphasizing cross-cultural theories. Course includes the meaning of rights, Western and non-western perspectives, feminist contributions, important substantive debates, violations, policymaking and activism.

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**Credit Hours:** 3

**Prerequisites:** WGST 1120 or SOCIOL 2200; senior standing required

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**SOCIOL 4610: Society and Social Control**

(cross-leveled with SOCIOL 7610). The concept of social control is analyzed from both micro and macro theoretical perspectives. Focus is on patterns of social domination.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 3700 or SOCIOL 3710

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**SOCIOL 4620: Drugs and Society**

Course will examine the social, political, and economic aspects of legal and illegal drug use in American society. Issues include: theories of drug use, the social correlates of drug use, the war on drugs and policy alternatives, and the rise of the pharmaceuticals industry. Graded on A/F basis only

**Credit Hours:** 3

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**SOCIOL 4630: Sociology of Mental Health**

Course examines the social aspects of mental health and illness. Topics include: stress and mental health, medicalization of behavior, stigma and labeling, mental health care systems, social correlates of mental health (such as gender, childhood, work status, and social support).

**Credit Hours:** 3

**Recommended:** 1000 level sociology course or 1000 level Psychology course

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**SOCIOL 4940: Internship in Sociology**

Professional experience under faculty supervision. Project must be arranged by student and faculty member prior to registration.

**Credit Hour:** 1-9

**Prerequisites:** junior standing and instructor's consent

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**SOCIOL 4950: Research in Sociology**

Students gain research experience by assisting a faculty member with a research project in sociology. Enrollment is limited to Sociology majors with Junior standing. Repeatable upon consent of the department.

**Credit Hours:** 3

**Prerequisites:** Instructor consent

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**SOCIOL 4960: Special Readings in Sociology**

Extensive reading in selected area or special field.

**Credit Hour:** 1-99

**Prerequisites:** 12 hours Sociology and departmental consent

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**SOCIOL 4970: Senior Seminar**

Integrates perspectives, methods, substantive foci of undergraduate courses. Analysis of sociology as a discipline and profession. Discussion of opportunities for graduate study, employment.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 2950 and SOCIOL 3100 and senior sociology major

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**SOCIOL 4970W: Senior Seminar - Writing Intensive**

Integrates perspectives, methods, substantive foci of undergraduate courses. Analysis of sociology as a discipline and profession. Discussion of opportunities for graduate study, employment.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 2950 and SOCIOL 3100 and senior sociology major

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**SOCIOL 4995: Honors in Sociology**

Intensive work in a selected field within sociology, including readings and research. Repeatable up to 6 hours with departmental consent.

**Credit Hours:** 3

**Prerequisites:** for honors candidates; SOCIOL 2950 and SOCIOL 3100

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**SOCIOL 7004: Topics in Sociology-Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated with departmental consent.

**Credit Hour:** 1-99

**Prerequisites:** junior standing and instructor's consent

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**SOCIOL 7085: Problems in Sociology**

Directed research not leading to thesis or dissertation.

**Credit Hour:** 1-99

**Prerequisites:** 12 hours Sociology and departmental consent

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**SOCIOL 7110: Feminist Research and Criticism**

(same as WGST 7110). Examination of both feminist critiques of traditional social research and recent, feminist-oriented research that attempts to answer these criticisms.

**Credit Hours:** 3

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**SOCIOL 7120: Social Statistics**

(same as RU\_SOC 7120). Descriptive statistics and bivariate quantitative analysis techniques commonly used by social scientists. Includes coverage of parametric and non-parametric methods. Introduction to computer analysis.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 2950

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**SOCIOL 7200: Social Inequalities**

Examination of theories and research concerned with inequalities based on social class, gender, and race-ethnicity. M.A. core course for sociology students.

**Credit Hours:** 3

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**SOCIOL 7230: Women, Development and Globalization**

(same as WGST 7230 and BL\_STU 7230; cross-leveled with BL\_STU 4230, PEA\_ST 4230, SOCIOL 4230, WGST 4230). Examines the history and structure of 'development' discourse and practices. Stresses the interconnections and impact on women globally. Reviews women's strategies in defining and instituting programs to improve quality of life in communities.

**Credit Hours:** 3

---

**SOCIOL 7315: Social Demography**

(same as RU\_SOC 7315). General demographic theories; age, sex, and ethnic composition of population; fertility, mortality and migration as components of population change; social, economic and political implications of demographic trends.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 1000 or RU\_SOC 1000

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**SOCIOL 7320: Culture, Identity and Interaction**

Examines the interplay between culture, identity, and interaction as these intersect with issues of social inequality, social control, social change, and the everyday production of subjectives.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 3310

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**SOCIOL 7335: Social Change and Development**

(same as RU\_SOC 7335). Nature of social change and development. Emphasizes sociological theories of social change and development contrasting them with approaches from the disciplines.

**Credit Hours:** 3

**Prerequisites:** RU\_SOC 1000 or SOCIOL 1000

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**SOCIOL 7340: Self, Language, and Social Life**

Examines the interplay between self, language, and social life. Particular attention is paid to how the everyday construction of inner lives relates to diverse social worlds. The effects of situational and institutional conditions as they shape identity and social interactions are important considerations.

**Credit Hours:** 3

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**SOCIOL 7370: Environment and Society**

(same as RU\_SOC 7370). An interdisciplinary examination of domestic and international environmental issues focusing on social, cultural, and policy dimensions. Perspectives of the social sciences and humanities are included.

**Credit Hours:** 3

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**SOCIOL 7410: Sociology of Education**

(same as ED\_LPA 7458; cross-leveled with SOCIOL 4410). Contexts, structures and processes of schooling; effects on class, race, ethnicity and gender; social change, educational policy, and organizational dynamics; higher education and the economy.

**Credit Hours:** 3

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**SOCIOL 7450: Research Practicum in Health, Place, and Community**

(cross-leveled with SOCIOL 4450). This course is a research practicum with a substantive focus on health, place, and community. The course combines lecture and field work outside the classroom. Students take part in real-world research projects with local organizations, government agencies, and/or businesses. Projects are based on the needs of participating organizations and will be conducted using a variety of research methodologies. Students will engage in data analysis, write research reports for community partners, and present findings as applicable. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 2950, SOCIOL 3950, or equivalent

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**SOCIOL 7500: Sociology of Social Policy**

Sociological theories and methodologies focused on social policy; policy as process; contextual and critical policy analyses; assessing policy effects and consequences.

**Credit Hours:** 3

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**SOCIOL 7510: Social Movements and Conflicts**

Survey of approaches and research on social movements and social change. Historical and contemporary social movements in the U.S.; collective protest and violence; political revolutions.

**Credit Hours:** 3

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**SOCIOL 7520: Political Sociology: Power and Inequalities**

Focus on Power Relations, Inequalities, and Institutions. The intersections of power with the inequalities of race, ethnicity, gender, place, and economic class in global context. Application to issues of public policy and democratic decision-making and culture. Graduate students from other departments are welcome to enroll through MyZou.

**Credit Hours:** 3

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**SOCIOL 7545: Sociology of Immigration**

(cross-leveled with SOCIOL 4545). This course will cover both classic and contemporary research on immigration within US sociology. Major topics of concern will be how immigration intersects with issues of law, race and ethnicity, gender and sexuality, social mobility, education, employment, politics, urban studies, marriage and family, health, and social networks. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 7550: Gender and Human Rights in Cross Cultural Perspective**

(same as PEA\_ST 7550 and WGST 7550; cross-leveled with WGST 4550, SOCIOL 4550, PEA\_ST 4550).. Focuses on the global discourse on human rights and gender, emphasizing cross-cultural theories. Course includes the meaning of human rights, western and non-western perspectives, feminist contributions, important substantive debates, violations, policymaking and activism.

**Credit Hours:** 3

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**SOCIOL 7610: Society and Social Control**

(cross-leveled with SOCIOL 4610). The concept of social control is analyzed from both micro and macro theoretical perspectives. Focus is on patterns of social domination.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 3700 or SOCIOL 3710

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**SOCIOL 7960: Special Readings in Sociology for the Graduate Level**

Extensive reading in selected area or special field. Graded on A-F basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**SOCIOL 8086: Teaching Sociology**

This graduate seminar will cover current issues in higher education, building a teaching portfolio, the daily work of teaching, and work/life balance in academia. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 8087: Critical Race Theory**

Critical examination of key sociological theories of race, racialization, and racism in contemporary society.

**Credit Hours:** 3

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**SOCIOL 8100: Theoretical Thinking in Sociology**

Close analysis of the texts of classical and contemporary social theory. Key concepts will be elaborated in the context of intellectual history, and will be applied to deepening the theoretical significance of an empirical research question on the student's emerging agenda. Required for all entering graduate students in Sociology.

**Credit Hours:** 3

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**SOCIOL 8110: Research in Sociology**

Research not expected to terminate in thesis or dissertation.

**Credit Hour:** 1-6

**Prerequisites:** instructor's consent

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**SOCIOL 8120: The Logic of Social Research**

Meta-theoretical and conceptual issues at the core of design decision making, questionnaire construction, qualitative field techniques, interviewing, scaling, panel analysis, computer applications to qualitative data; experimental, survey and case study designs, ethics. Required for Ph.D. students.

**Credit Hours:** 3

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**SOCIOL 8130: Advanced Social Statistics**

(same as RU\_SOC 8130). Introduction to multivariate analysis for social scientists. Emphasis on non-experimental applications of analysis of variance and correlation-regression. Computer applications emphasized.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 7120 or equivalent

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**SOCIOL 8140: Seminar in Population Health**

Graduate Seminar on the social distribution of morbidity and mortality. Covers major theoretical perspectives and the state of empirical evidence regarding several individuals and contextual explanations of health disparities. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor permission

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**SOCIOL 8187: Seminar on Interview Theory and Technique**

The seminar has three goals: First is the consideration of literature dealing with recent theoretical formulations of the interview. This will provide a basis, second, for critically examining a number of popular interview guidebooks. The third goal is to offer the opportunity to put

theory and technique into practice by analyzing selected interview material.

**Credit Hours:** 3

**Prerequisites:** doctoral standing

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**SOCIOL 8250: Media and Power in Comparative Perspective Seminar**

This course traces the historical development of U.S. and selected international media systems. We analyze and debate the relationship of differing media systems to political power, popular culture, and the facilitation or inhibition of democratic practices. Students do comparative analyses of international media institutions and related analyzes of media content.

**Credit Hours:** 3

**Prerequisites:** undergraduate seniors may enroll with instructor's consent

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**SOCIOL 8277: Race, Ethnicity, and Transnational Inequalities**

(same as BL\_STU 8277). This graduate seminar examines the global contest of our radicalized modern world system. How do people develop and give meaning to race/ethnicity in different regions? Focus on the construction of bodies Creole identities, gender, sexualities, citizenships and immigration. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 8387: Seminar on Narrative and Identity**

**Credit Hours:** 3

**Prerequisites:** graduate standing required; instructor's consent required

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**SOCIOL 8435: Graduate Seminar in Medicine, Technology, and Globalization**

In the last two hundred years medicine and technology have transformed our day-to-day living as never before. They have permeated our social and personal imagination, our epistemological bearing, disciplinary practices, and not to forget national and global agendas. A key aspect of such transformations, which we are going to investigate in this course, has been the intertwining of medicine and technology in a variety of ways, resulting in wide ranging impact - from the emergence of medical gaze, transformation of healthcare practices, to present day transnationalization and globalization of medical practices. This course would utilize recent theoretical developments to interrogate different interrelated facets of medicine, technology, and globalization. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 8687: Seminar in Criminology and Deviant Behavior**

Survey of empirical research and sociological theory in criminology and deviant behavior. May be repeated once with instructor's consent.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 3600

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**SOCIOL 9090: Research**

Advanced work leading to thesis or dissertation. Graded on a S/U basis only.

**Credit Hour:** 1-99



**Prerequisites:** consent of major advisor

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**SOCIOL 9187: Seminar in Sociological Theory I**

Traces development of sociological theory from the 'generation of 1890' through the 1940s, including the work of Durkheim, Weber, Parsons and others.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 8100 or equivalent

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**SOCIOL 9287: Seminar in Qualitative Methods in Sociology**

(same as RU\_SOC 9287). Examination of various qualitative methods of research, including problem-formulation, access and interpretation of data, theory-generation, and preparation of research reports.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 8120 and instructor's consent

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**SOCIOL 9288: Ethnographic Fieldwork**

History of sociological ethnography, the analysis of key ethnographic texts, forms of ethnographic fieldwork, and recent debates related to representational practices. Applications to participant observation, field interviewing, and strategies of discourse analysis in various social settings.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 9287, instructor's consent

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**SOCIOL 9350: Graduate Seminar in Environmental Discourses**

This seminar explores human cultural interactions with nature: how we understand ourselves in relation to space, how we interact with and learn about nature, and how we use nature. Readings will include exemplary texts from sociology, geography and anthropology, science studies and cultural studies. Graduate Standing required.

**Credit Hours:** 3

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**SOCIOL 9487: Seminar in Sociological Theory II**

Theoretical developments in sociology in Europe and United States since 1950. Recent formulations, controversies.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 8100 or equivalent

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**SOCIOL 9525: Culture, Difference, and Inequality**

This course is an examination of exemplary, interdisciplinary texts employing a variety of cultural approaches to understanding difference and inequality. In this seminar, we will think about what is gained from various cultural approaches to difference and inequality, how such approaches can be achieved methodologically, and how students can apply such approaches to their own research. The main focus of the course is on cultural studies and poststructural feminist studies, but readings will also be included from intersectionality studies, affect studies, critical race studies and cultural sociology.

**Credit Hours:** 3

**Prerequisites:** restricted to Sociology graduate students or instructor permission

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**SOCIOL 9687: Topical Seminar in Historical Sociology**

Methodological approaches to sociological explanation of historical phenomena; related sociological theories of historical development, including Weberian, Marxist and other perspectives applied to a topical historical problem.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 8100 or equivalent

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**SOCIOL 9777: Graduate Seminar in Body and Society**

The course is organized around three major themes - body as a site of personal and political experience; the social body, emphasizing the relationship between society, culture, and individuals; and the body as a site and instrument of politics. Readings assigned for the course are aimed at critical engagement with the 'body: within and across these themes. Graded on A-F basis only.

**Credit Hours:** 3

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**SOCIOL 9887: Seminar in Sociology of Gender**

Analysis of recent research in which gender is a major focus. This research is chosen to exemplify a variety of theoretical perspectives, research strategies, and substantive topics.

**Credit Hours:** 3

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**SOCIOL 9920: Independent Readings in Preparation for Comprehensive Examinations**

Independent readings for PhD comprehensives. Open only to PhD candidates who have passed qualifying examinations.

**Credit Hour:** 1-6

**Prerequisites:** consent of major advisor

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## Soil Science (SOIL)

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**SOIL 2100: Introduction to Soils**

(same as PLNT\_S 2100). Introduction to soil sciences with emphasis placed on physical, biological, and chemical properties and application to land use, plant growth and environmental problems.

**Credit Hours:** 3

**Recommended:** 3 hours of Chemistry

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**SOIL 2106: Soil Science Laboratory**

Laboratory application of fundamental soil science concepts.

**Credit Hours:** 2

**Corequisites:** SOIL 2100

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**SOIL 3001: Topics in Soil Science**

Organized study of selected topics in soil science.

**Credit Hour:** 1-99

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**SOIL 3085: Problems in Soil Science**

Special individualized research projects or readings in soil science.

**Credit Hour:** 1-99

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**SOIL 3290: Soils and the Environment**

(same as ENV\_SC 3290). Addresses the role of soils and soil properties on environmental pollution and management. Emphasis will be placed on carbon, nitrogen, phosphorus, and sulfur transformations and transport in natural and disturbed ecosystems and soil management practices and technology to prevent or remediate environmental pollution.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100 and ENGLSH 1000

**Recommended:** 3 hours of chemistry

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**SOIL 3290W: Soils and the Environment - Writing Intensive**

(same as ENV\_SC 3290W). Addresses the role of soils and soil properties on environmental pollution and management. Emphasis will be placed on carbon, nitrogen, phosphorus, and sulfur transformations and transport in natural and disturbed ecosystems and soil management practices and technology to prevent or remediate environmental pollution.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100 and ENGLSH 1000

**Recommended:** 3 hours of chemistry

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**SOIL 4085: Problems in Soil Science**

Special individualized non-thesis research projects or readings in soil science.

**Credit Hour:** 1-99

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**SOIL 4305: Environmental Soil Physics**

(same as ENV\_SC 4305; cross-leveled with ENV\_SC 7305, SOIL 7305). Study of soil physical properties and processes important in solving environmental problems. Topics include soil solids, water content and energy, and transport of water, solutes, gas and heat.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100

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**SOIL 4306: Environmental Soil Physics Laboratory**

(same as ENV\_SC 4306; cross-leveled with ENV\_SC 7306, SOIL 7306). Introduction to the methodology and equipment for measurement of soil physical properties and processes.

**Credit Hours:** 2

**Prerequisites or Corequisites:** SOIL 4305

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**SOIL 4308: Soil Conservation**

(cross-leveled with SOIL 7308). Conservation of soil with respect to topsoil, soil productivity, and fertility.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100

**Recommended:** AG\_S\_M 4420

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**SOIL 4312: Environmental Soil Microbiology**

(same as ENV\_SC 4312; cross-leveled with SOIL 7312, ENV\_SC 7312). Microbiology/ecology of life in the soil ecosystem. Emphasis is placed on the role of microbes in nutrient cycling, microbial pesticide/xenobiotic transformation bioremediation, etc.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100

**Recommended:** general microbiology

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**SOIL 4313: Soil Fertility and Plant Nutrition**

(same as PLNT\_S 4313; cross-leveled with SOIL 7313, PLNT\_S 4313). Explanation of principles of delivery of plant nutrients to plants, discussion of the role of each essential nutrient in crop plants and introduction to the management of soil amendments.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100 or instructor's consent

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**SOIL 4318: Environmental Soil Chemistry**

(same as ENV\_SC 4318 and GEOL 4318; cross-leveled with ENV\_SC 7318, GEOL 4318, SOIL 7318). Study of chemical constituents and processes occurring in soils. Topics include soil minerals, and weathering processes, organic matter, solution chemistry, oxidation-reduction reactions and adsorption processes.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100 or GEOL 2400, CHEM 1320 and CHEM 1330; junior standing or instructor's consent

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**SOIL 4320: Genesis of Soil Landscapes**

(cross-leveled with SOIL 7320). The co-evolution of soil landscapes. The role of water in the accumulation of parent materials and development of soil horizons. Factors and processes of soil genesis. Distribution of soil in their natural settings.

**Credit Hours:** 4

**Recommended:** introductory soil science or introductory geology course

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**SOIL 4360: Precision Agriculture Science and Technology**

(same as AG\_S\_M 4360, PLNT\_S 4360; cross-leveled with SOIL 7360, AG\_S\_M 7360, PLNT\_S 7360). Precision agriculture is an information-based approach to farming whereby variability is managed to optimize crop production and reduce environmental pollution. This course provides an overview of precision agriculture technologies (like GIS, GPS, remote sensing), mapping methods, and case studies illustrating decisions and management.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2100 or SOIL 2100, or PLNT\_S 2110; MATH 1100; AG\_S\_M 1040

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**SOIL 4940: Soil Science Internship**

Supervised professional experience with an approved public or private organization. Course may be repeated for credit. Graded on S/U basis only.

**Credit Hour:** 1-12

**Prerequisites:** Soil and Atmospheric Sciences majors only, instructor's consent

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**SOIL 7001: Topics in Soil Science**

Organized study of selected topics in soil science. Intended for graduate students.

**Credit Hour:** 1-99

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**SOIL 7085: Problems in Soil Science**

Special individualized non-thesis research projects or readings in soil science.

**Credit Hour:** 1-99

**Prerequisites:** graduate standing

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**SOIL 7305: Environmental Soil Physics**

(same as ENV\_SC 7305; cross-leveled with SOIL 4305, ENV\_SC 4305).

Study of soil physical properties and processes important in solving environmental problems. Topics include soil solids, water content and energy, and transport of water, solutes, gas and heat.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100, PHYSCS 1210 or equivalent

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**SOIL 7306: Environmental Soil Physics Laboratory**

(same as ENV\_SC 7306; cross-leveled with ENV\_SC 4306, SOIL 4306).

Introduction to the methodology and equipment for measurement of soil physical properties and processes.

**Credit Hours:** 2

**Prerequisites or Corequisites:** SOIL 4305

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**SOIL 7308: Soil Conservation**

(cross-leveled with SOIL 4308). Conservation of soil with respect to topsoil, soil productivity, and fertility.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100

**Recommended:** AG\_S\_M 4420

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**SOIL 7312: Environmental Soil Microbiology**

(same as ENV\_SC 7312; SOIL 4312, ENV\_SC 4312). Microbiology/ecology of life in the soil ecosystem. Emphasis is placed on the role of microbes in nutrient cycling, microbial pesticide/xenobiotic transformations bioremediation, etc.

**Credit Hours:** 3

**Prerequisites:** general microbiology, SOIL 2100, or instructor's consent

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**SOIL 7313: Soil Fertility and Plant Nutrition**

(same as PLNT\_S 7313; cross\_leveled with SOIL 4313, PLNT\_S 4313). Explanation of principles of delivery of plant nutrients to plants, discussion of the role of each essential nutrient in crop plants and introduction to the management of soil amendments.

**Credit Hours:** 3

**Prerequisites:** SOIL 2100 or instructor's consent

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**SOIL 7314: Soil Fertility and Plant Nutrition Laboratory**

(same as PLNT\_S 7314; cross\_leveled with SOIL 4314, PLNT\_S 4314).

The application of elementary analytical procedures to the evaluation of the nutrient status of soils and crop plants.

**Credit Hours:** 2

**Prerequisites or Corequisites:** SOIL 7313

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**SOIL 7320: Genesis of Soil Landscape**

(cross-leveled with SOIL 4320). The co-evolution of soil landscapes. The role of water in the accumulation of parent materials and development of soil horizons. Factors and processes of soil genesis. Distribution of soil in their natural settings.

**Credit Hours:** 4

**Prerequisites:** introductory soil science or introductory geology or permission of instructor

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**SOIL 7360: Precision Agriculture Science and Technology**

(same as AG\_S\_M 7360 and PLNT\_S 7360; cross-leveled with SOIL 4360, AG\_S\_M 4360, PLNT\_S 7360). Precision agriculture is an information-based approach to farming whereby variability is managed to optimize crop production and reduce environmental pollution. This course provides an overview of precision agriculture technologies (like GIS, GPS, remote sensing), mapping methods, and case studies illustrating decisions and management.

**Credit Hours:** 3

**Prerequisites:** PLNT\_S 2100 or SOIL 2100, or PLNT\_S 2110; MATH 1100; AG\_S\_M 1040

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**SOIL 8001: Topics in Soil Science**

Organized study of selected topics in soil science. Intended for graduate students.

**Credit Hour:** 1-99

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**SOIL 8085: Problems in Soil Science**

Special individualized non-thesis research projects or readings in soil science.

**Credit Hour:** 1-99

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**SOIL 8090: Masters Research in Soil Science**

Original investigations in soil science for presentation in a thesis. Graded on S/U basis only.

**Credit Hour:** 1-10

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**SOIL 8400: Solute Transport in the Vadose Zone**

(same as ENV\_SC 8400). Transport of water and solutes in geomedia with emphasis on development of the equations of flow. Evaluation of analytical and numerical solutions to equations describing transport phenomena.

**Credit Hours:** 3

**Prerequisites:** ENV\_SC 7305 or SOIL 7305

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**SOIL 8500: Chemistry of the Vadose Zone**

(same as ENV\_SC 8500). Chemical reactions occurring in geomedia with emphasis on understanding molecular scale processes occurring at the solid-water interface, aqueous geochemistry, and soil organic matter.

**Credit Hours:** 3

**Prerequisites:** SOIL 7318 or GEOL 7300 or instructor's consent

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**SOIL 9085: Problems in Soil Science**

Special individualized non-thesis research projects or readings in soil science.

**Credit Hour:** 1-99

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**SOIL 9087: Seminar in Soil Science**

In-depth development of advanced aspects of soil science through reviews of results of research in progress and current scientific publications.

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**Credit Hour:** 1

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**SOIL 9090: Doctoral Research in Soil Science**

Original investigations in soil science for presentation in a dissertation. Graded on S/U basis only.

**Credit Hour:** 1-10

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**SOIL 9422: Pedology**

Three one-hour lectures. Detailed study of processes of soil horizonization and current topics in soil genesis including quantitative assessment of spatial and temporal variability and application of GIS in landuse planning.

**Credit Hours:** 3

**Prerequisites:** SOIL 7320, one statistics course beyond ANOVA

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## South Asia Studies (S\_A\_ST)

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**S\_A\_ST 1152: Asian Humanities**

(same as REL\_ST 1820, HIST 1820 and ARH\_VS 1230). This course is an introduction to the literature and visual arts of Asia through selected master works. It focuses principally on India and China and investigates the distinctive features of their cultures.

**Credit Hours:** 3

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**S\_A\_ST 1861: History of Modern India**

(same as HIST 1861). This course surveys the history of the South Asian subcontinent from the early seventeenth through the twentieth century. Emphasis will be placed on cultural and social history, religion, arts and literature, imperialism and colonialism, and the sources used for the study of modern civilizations. Students will develop a basic knowledge and vocabulary necessary to pursue additional South Asian courses.

**Credit Hours:** 3

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**S\_A\_ST 2100: Philosophy: East and West**

(same as PHIL 2100). Compares the interpretation and role of philosophical concepts such as experience, reason permanence, change, immortality, soul, God, etc., in Indian, Chinese and European traditions.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**S\_A\_ST 3200: Hinduism**

(same as REL\_ST 3200). Origin and development of central themes of traditional Hinduism from earliest times to the modern period. Topics include: the Vedic tradition, rituals and practice, varieties of yoga and meditation, Indian religious thought and devotional Hinduism.

**Credit Hours:** 3

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**S\_A\_ST 3230: Buddhism and Environmental Ethics**

(same as REL\_ST 3230). Global environmental crisis is associated with rapidly expanding human population. Buddhist teachings about the interdependent aspects of existence and interrelatedness of all life may provide critical insights for how humanity can achieve balance and reciprocity with nature.

**Credit Hours:** 3

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**S\_A\_ST 3240: Buddhism of South and Southeast Asia**

(same as REL\_ST 3240). Examines the origins of Buddhism in India, the narratives of the life of the Buddha, the development of early Buddhist schools, the extension of Buddhism into Central and Southeast Asia, and the current practice of Buddhism in south and Southeast Asia.

**Credit Hours:** 3

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**S\_A\_ST 3261: Hindu Goddesses**

(same as REL\_ST 3260). This course examines the vast range of Hindu Goddesses and their worship in South Asia. It includes information about goddess origins, mythology, symbolism, and attendant ritual practices. In order to approach this topic, background information about the history of Hinduism, major religious narratives, devotional practices, and iconographic representations of the divine are discussed. The course introduces the approaches of various scholars to Hindu Goddess worship within the context of religion, social relations, and gender roles, and explores ways in which South Asian women experience and negotiate feminine power in contemporary socio-cultural contexts.

**Credit Hours:** 3

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**S\_A\_ST 3270: Yoga and Meditation in the Modern World**

(same as REL\_ST 3270). This course explores the practice of Yoga and meditation, both as an ancient tradition of India and as an example of the globalization of religion. It will examine how the ancient Hindu religious tradition of Yoga was reinvented against the backdrop of India's colonial experience. Then it will look at a variety of emerging and transforming varieties of Hindu inspired yoga and meditation that spread globally in the context of increasing transnational interaction. To better appreciate both the traditional and the modern aspects of yoga and meditation, a secular meditation practice is included as an instructional and experiential component of this class.

**Credit Hours:** 4

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**S\_A\_ST 3490: Indian Cinema**

(same as ANTHRO 3490, FILMS\_VS 3490, ARH\_VS 3790). Indian Cinema provides an overview of the key genres and themes of Indian film, including Bollywood, art cinema/parallel cinema, Indian regional cinemas, and diasporan cinema. The course combines film studies, anthropological, historical, and visual culture analyses to provide a holistic view of Indian culture and society through cinema.

**Credit Hours:** 3

**Prerequisites:** Sophomore standing or higher

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**S\_A\_ST 4630: Sanskrit I**

(same as REL\_ST 4630; cross-leveled with S\_A\_ST 7630, REL\_ST 7630). This intensive course will cover the essentials of Sanskrit grammar in one semester and prepare students for further readings in Hindu and Buddhist Literature.

**Credit Hours:** 3

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**S\_A\_ST 4790: Culture and Society in South Asia**

(same as ANTHRO 4790; cross-leveled with S\_A\_ST 7790, ANTHRO 7790). Survey of the cultures, social organizations, and lived experience of people from across the Indian subcontinent. Major topics include caste,

kinship, gender, religion, village life, urbanization, public culture, popular culture, social change, and the South Asian diaspora.

**Credit Hours:** 3

**Recommended:** junior standing

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#### **S\_A\_ST 4800: Asian Philosophy**

(same as PHIL 4800). This course traces the origins of Indian and Chinese philosophical world views. Included are the major ideas in Hindu, Jaina, and Buddhist thought in India, and Taoism and Confucianism in China. Emphasis is placed on the diverse, assimilative, and pragmatic nature of Indian thought and its impact on contemporary Asian philosophy.

**Credit Hours:** 3

**Prerequisites:** sophomore standing and one course in Philosophy; or instructor's consent

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#### **S\_A\_ST 4850: Traversing the Muslim World**

(same as HIST 4850). The traveler's tale formed an important part of the medieval world's system of knowledge. The writing intensive discussion-based course examines a wide array of the most influential travelers in Muslim lands such as Ibn Fadlan, Ibn Buttuta, Benjamin of Tudela and Marco Polo.

**Credit Hours:** 3

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#### **S\_A\_ST 4850W: Traversing the Muslim World - Writing Intensive**

(same as HIST 4850). The traveler's tale formed an important part of the medieval world's system of knowledge. The writing intensive discussion-based course examines a wide array of the most influential travelers in Muslim lands such as Ibn Fadlan, Ibn Buttuta, Benjamin of Tudela and Marco Polo.

**Credit Hours:** 3

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#### **S\_A\_ST 7630: Sanskrit I**

(same as REL\_ST 7630; cross-leveled with S\_A\_ST 4630, REL\_ST 4630). This course is intended as a "sampler" of Sanskrit literature. We will read Sanskrit texts in the original. The objectives of the course are 1) Expanding the students' knowledge of the Sanskrit language, 2) To acquaint the students with a broad range of textual genres in Sanskrit literature, and 3) To acquaint the students with some central ideas of Hindu and Buddhist philosophy.

**Credit Hours:** 3

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## **Spanish (SPAN)**

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### **SPAN 1100: Elementary Spanish I**

An introductory course for students who wish to begin their study of Spanish. It teaches the four skills - listening, speaking, reading, and writing. The class meets four days a week (with the exception of the online section, which taught completely online). Class time is used to integrate new structures and vocabulary into spoken and written language.

**Credit Hours:** 4

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### **SPAN 1100H: Elementary Spanish I - Honors**

This designated honors section of Elementary Spanish will challenge students to explore more deeply the currently existing thematic units of the SPAN 1100 curriculum. Students will participate in group discussions, creative projects, independent study and use of authentic written and aural material from primary sources. Honors Spanish 1100 will integrate cultural events outside the classroom such as movies, guest lectures, art exhibits, seminars or concerts as available. Once a semester, Honors Spanish 1100 will meet with Honors SPAN 1200H and SPAN 2100H as a cohort group for further intellectual exchange and enrichment. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Honors eligibility required

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### **SPAN 1200: Elementary Spanish II**

The second course of the beginning sequence in the continuation of SPAN 1100. It places equal emphasis on the four skills; listening, speaking, reading, and writing. Students who have prior knowledge of Spanish are encouraged to take this course.

**Credit Hours:** 4

**Recommended:** Grade in the C range or better in SPAN 1100 or equivalent course

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### **SPAN 1200H: Elementary Spanish II - Honors**

This course, designed for students who have taken SPAN 1100 or an equivalent course and enrolled in the Honors College, offers an introduction to the Spanish language and the many cultures in encompasses. Your course work will allow you to develop all four language skills: reading, speaking, listening and writing along with the cultural background necessary to help you to communicate effectively in Spanish. With the honors designation section, the course will allow students to access greater challenges in the existing thematic units in the curriculum through group discussion, creative projects and authentic situations. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Honors eligibility required

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### **SPAN 2005: Undergraduate Topics in Spanish-Humanities/Fine Arts**

Organized study of selected topics. Subjects may vary from semester to semester. May be repeated with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** SPAN 1200 with a grade of C or better

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### **SPAN 2100: Elementary Spanish III**

A multi-skill course following SPAN 1200, centering on cultural/ literary readings, and including a grammar review, practice in the spoken language, as well as some practice in written expression.

**Credit Hours:** 4

**Recommended:** grade in the C range or better in SPAN 1200, or equivalent course

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### **SPAN 2100H: Elementary Spanish III - Honors**

A multi-skill course following SPAN 1200, centering on cultural/literary readings, and including a grammar review, practice in the spoken language, as well as some practice in written expression. The course seeks to improve student's fluency in Spanish and to expose them to

the many cultures it encompasses. This course will integrate cultural events outside the classroom as well such as movies, guest lectures, art exhibits, seminars or concerts as available. Graded on A-F basis only.

**Credit Hours:** 4

**Prerequisites:** Honors eligibility required

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**SPAN 2160: Intermediate Spanish Composition and Conversation**

This course is designed specifically to strengthen overall writing skills and to develop further conversational ability with equal emphasis on both of these aspects. Classwork will involve written compositions and oral presentations.

**Credit Hours:** 3

**Prerequisites:** SPAN 2100 or equivalent

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**SPAN 2160H: Intermediate Spanish Composition and Conversation - Honors**

This class is fundamentally different from other 2160 classes in that it focuses on the application and refinement of grammatical concepts through the introduction of new vocabulary and cultural topics. In this course it is assumed that students have mastered the vocabulary and grammatical concepts taught in the elementary levels. Throughout the semester students enrolling in Spanish 2160 for Honors credit will write a series of essays on current and past events, as well as literary analysis utilizing the grammar and material learned in learned in class. The goal is to strengthen their communicative and written skills while allowing them to be creative and engage in research.

**Credit Hours:** 3

**Prerequisites:** SPAN 2100 or equivalent from any other institution. Honors eligibility required

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**SPAN 2320: Literature of Spanish Civil War**

(same as PEA\_ST 2320). Study of the Spanish Civil War: History, Politics, Literature. May not be included in the area of concentration in Spanish.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**SPAN 2330: Latin American Civilization**

Survey of Latin American history, arts and culture. Open to any student interested. No knowledge of Spanish required. May not be included in area of concentration in Spanish.

**Credit Hours:** 3

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**SPAN 2340: Hispanic Minority Literature**

This course studies the literature of Hispanic minorities in the United States: Chicanos (Mexican American), Mainland Puerto Ricans, and Cuban exile writers. It explores the question of minority versus majority literatures and the creation of a Hispanic minority discourse. No knowledge of Spanish required.

**Credit Hours:** 3

**Prerequisites:** ENGLSH 1000

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**SPAN 3005: Topics in Spanish-Humanities/Fine Arts**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** sophomore standing

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**SPAN 3150: Advanced Spanish Conversation**

Course puts into practice the linguistic skills learned at intermediate levels. It develops and increases the capacity for comprehension and oral expression in the language. Focus is on practice of certain syntactic structures and idiomatic expressions, and on acquisition of new vocabulary.

**Credit Hours:** 3

**Prerequisites:** SPAN 2160 or equivalent

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**SPAN 3150H: Advanced Spanish Conversation - Honors**

Course puts into practice the linguistic skills learned at intermediate levels. It develops and increases the capacity for comprehension and oral expression in the language. Focus is on practice of certain syntactic structures and idiomatic expressions, and on acquisition of new vocabulary.

**Credit Hours:** 3

**Prerequisites:** SPAN 2160 or equivalent. Honors Eligibility required

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**SPAN 3160: Advanced Spanish Composition**

Course emphasizes writing at an advanced level, with a certain degree of sophistication about varied subjects and using different techniques of composition. Classwork consists mainly of the discussion of both the ideas and techniques used in different textual forms.

**Credit Hours:** 3

**Prerequisites:** SPAN 2160 or equivalent

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**SPAN 3170: Conversational Spanish Practice**

Study Abroad Conversational Spanish course for students who have already completed SPAN 3150, but want more practice. Does not count for majors/minors. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SPAN 3150 and instructor's consent

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**SPAN 3280: Commercial Spanish**

Business terminology and forms. Translate and compose business letters and documents for advertising and promotion, trade and commerce, imports and exports, money and banking.

**Credit Hours:** 3

**Prerequisites:** SPAN 2160 or equivalent

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**SPAN 3420: Introduction to Hispanic Literature I**

Selected prose fiction and nonfiction prose of Spain and Spanish America.

**Credit Hours:** 3

**Prerequisites:** SPAN 3160 or equivalent

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**SPAN 3420W: Introduction to Hispanic Literature I - Writing Intensive**

Selected prose fiction and nonfiction prose of Spain and Spanish America.

**Credit Hours:** 3

**Prerequisites:** SPAN 3160 or equivalent

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**SPAN 3430: Introduction to Hispanic Literature II**

Selected plays and poetry of Spain and Spanish America.

**Credit Hours:** 3

**Prerequisites:** SPAN 3160 or equivalent

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**SPAN 3430H: Introduction to Hispanic Literature II - Honors**

Selected plays and poetry of Spain and Spanish America.

**Credit Hours:** 3

**Prerequisites:** SPAN 3160 or equivalent. Honors eligibility required

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**SPAN 3430W: Introduction to Hispanic Literature II - Writing Intensive**

Selected plays and poetry of Spain and Spanish America.

**Credit Hours:** 3

**Prerequisites:** SPAN 3160 or equivalent

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**SPAN 3710: Survey of Minority and Creole Languages of the U.S. and the Caribbean**

(same as FRENCH 3710 and LINGST 3710). Analysis of the state of the minority languages of the U.S. and the Creole languages of the Caribbean with particular attention to the social status of these languages and speakers' attitudes toward them in the context of ethnic, culture and national identity (taught in Eng.).

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**SPAN 3721: Spanish Phonetics**

(same as LINGST 3721). Introductory course to the study of Spanish phonological, phonetic and spelling systems, practice of pronunciation, phonetic transcriptions, and introduction to the variation of Spanish pronunciation in the Hispanic world. The course is conducted in Spanish.

**Credit Hours:** 3

**Prerequisites:** SPAN 2160 or equivalent

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**SPAN 3885: Twenty-First Century South American Cinema**

(same as FILMS\_VS 3885, PORT 3885). Broad overview of the major national cinemas of the 21st century in South America. Approximately 14 feature films screened from Argentina, Brazil, Chile and other nations of the region. Instructor provides a thematic framework for films within the context of film theory, Latin American cinematic history and cultural studies. Course taught in English. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** ENGLISH 1000 or ENGLISH 1000H

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**SPAN 4004: Topics in Spanish-Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-3

**Prerequisites:** junior standing

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**SPAN 4070: Intensive Beginning Spanish**

Designed for rapid acquisition of a reading knowledge of Spanish. Cannot be taken to fulfill undergraduate language requirement.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**SPAN 4120: Foreign Language Teaching Methodology**

(same as FRENCH 4120, LATIN 4121; cross-leveled with FRENCH 7120, SPAN 7120). Theory and techniques of current foreign language methodology and their application in the classroom. Presentation of instructional projects, classroom observations, and strategies for classroom management. May not be used towards Arts and Science major.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**SPAN 4130: Stylistics**

(cross-leveled with SPAN 7130). Advanced composition class. Discussion of complex grammatical structures necessary for formal writing as well as orthographic rules in Spanish. Examination of stylistic devices and structures beyond sentence level, in order to learn to organize discourse level production.

**Credit Hours:** 3

**Recommended:** SPAN 3420 and SPAN 3430

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**SPAN 4130W: Stylistics - Writing Intensive**

(cross-leveled with SPAN 7130). Advanced composition class. Discussion of complex grammatical structures necessary for formal writing as well as orthographic rules in Spanish. Examination of stylistic devices and structures beyond sentence level, in order to learn to organize discourse level production.

**Credit Hours:** 3

**Recommended:** SPAN 3420 and SPAN 3430

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**SPAN 4420: Golden Age Poetry**

(cross-leveled with SPAN 7420). Poetry of the principal Spanish poets of the 16th and 17th centuries and of literary criticism devoted to it. Special emphasis is placed on the works of Garcilaso de la Vega, Fray Luis de Leon, among others. Short papers and explications are generally required.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4422: Spanish Theatre in the Golden Age**

(cross-leveled with SPAN 7422). Dramatists to be studied include Lope de Vega, Calderon, Ruiz de Alarcon, Tirso de Molina, Guillen de Castro, Velez de Guevara, and some of Cervantes' theatre.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4423: Don Quijote**

(cross-leveled with SPAN 7423). In this course students read the two parts of Don Quijote in the original Spanish. Analysis and class discussion highlight elements of literary interest. Neo-positivist methodology, factual background, formalist considerations and psychoanalytic approaches are used in this course.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4460: Advanced Contemporary Culture of Spanish America**

(cross-leveled with SPAN 7460). A study of Spanish-American culture and civilization through selected readings in history and literature, and the use of visual media. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SPAN 3150 and SPAN 3160

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**SPAN 4461: Advanced Spanish Civilization**

(cross-leveled with SPAN 7461). A survey of Spanish culture and Spanish history from the Middle Ages to the present with special emphasis on contemporary culture. Students will be provided with knowledge of chronology, geography and contemporary issues from readings of journals, novels and Internet news.

**Credit Hours:** 3

**Prerequisites:** SPAN 3150 and SPAN 3160

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**SPAN 4470: Survey of Spanish American Literature I**

(cross-leveled with SPAN 7470). This is an introductory course in Spanish American literature. The reading material in prose and verse is studied in chronological order from the early 16th to the early 20th century. Readings include selections from 22 major Spanish American authors.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4471: Survey of Spanish American Literature II**

(cross-leveled with SPAN 7471). Survey of contemporary Latin American literature from approximately 1910 to the present. Close analysis and reading of representative major texts of Latin American literature. Students read complete selections and short excerpts from a standard anthology, and three complete novels.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4480: Mexican Literature**

(cross-leveled with SPAN 7480). Analysis of selected poetry, prose, and drama of contemporary Mexico. Course examines the writings of major and minor figures from several critical perspectives. Works by Agustin, Aviles, Fabila, Carballido, Castellanos, Fuentes, Paz, and others are read.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4490: Hispanic Oral Traditions**

(cross-leveled with SPAN 7490). This course proposes to examine the Hispanic Oral Tradition through a study of romances and related genres, the corrido, decima and folktale.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4530: The Spanish American Theatre**

(cross-leveled with SPAN 7530). Intended as an overview of a vital genre in contemporary Spanish American studies, this survey introduces dramatists whose works are the focus of increasing attention from international specialists. The works of Emilio Carballido, Egon Wolff, Griselda Gambaro and Osvald Dragun, among others are discussed.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4540: Afro-Hispanic Literature**

(cross-leveled with SPAN 7540). A study of prose, poetry, and drama, in Spanish, written by authors of African descent in the Americas.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4711: History of the Spanish Language**

(same as LINGST 4711; cross-leveled with SPAN 7711). ). Diachronic analysis of phonological, morphological, and syntactical systems of Spanish, from Vulgar Latin to contemporary dialects.

**Credit Hours:** 3

**Prerequisites:** Completion with a passing grade of any Linguistics course at the 3000 level or above or instructor's consent

**Recommended:** SPAN 3420 and SPAN 3430

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**SPAN 4721: Structure of Modern Spanish**

(same as LINGST 4721; cross-leveled with SPAN 7721). Synchronic analysis of phonology, morphology and syntax of spoken Spanish dialects.

**Credit Hours:** 3

**Prerequisites:** four 3000-level courses in Spanish

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**SPAN 4722: Spanish Across the Continents**

(same as LINGST 4722; cross-leveled with SPAN 7722). This course focuses on the effects of migratory movements on language change, considering the Spanish spoken in Latin America, Puerto Rico, Spain and the USA. The class sharpens awareness and recognition of the linguistic diversity of the Spanish-speaking regions of the world. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** four 3000-level courses in Spanish

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**SPAN 4722W: Spanish Across the Continents - Writing Intensive**

(same as LINGST 4722; cross-leveled with SPAN 7722). This course focuses on the effects of migratory movements on language change, considering the Spanish spoken in Latin America, Puerto Rico, Spain and the USA. The class sharpens awareness and recognition of the linguistic diversity of the Spanish-speaking regions of the world. Graded on A-F basis only.



**Credit Hours:** 3

**Prerequisites:** four 3000-level courses in Spanish

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**SPAN 4723: Language and Society: Spanish in the U.S.**

(same as LINGST 4723; cross-leveled with SPAN 7723). This class surveys linguistic and social issues pertaining to Spanish in the U.S. (past, present and future). Topics include bilingualism, code switching (a.k.a. Spanglish), first language attrition, linguistic identity, and the role of Spanish in education, services and media. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** four 3000-level courses in Spanish

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**SPAN 4960: Special Readings in Spanish**

Independent study through readings, conferences, reports.

**Credit Hour:** 1-3

**Prerequisites:** SPAN 3420 and SPAN 3430 and departmental consent

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**SPAN 4980: Special Themes in Spanish**

Subject varies according to instructor. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 4993: The Capstone Experience in Spanish**

This course is required of all majors. Topics vary but all courses synthesize and review essential components of the major: speaking, writing, reading in Spanish, and the ability to think critically and analytically.

**Credit Hours:** 3

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**SPAN 7004: Topics in Spanish-Social Science**

Organized study of selected topics. Subjects and earnable credit may vary from semester to semester. May be repeated for credit with departmental consent.

**Credit Hour:** 1-99

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**SPAN 7120: Foreign Language Teaching Methodology**

(same as FRENCH 7120; cross-leveled with FRENCH 4120, SPAN 4120 and LATIN 4121). Theory and techniques of current foreign language methodology and their application in the classroom. Presentation of instructional projects, classroom observations, and strategies for classroom management. May not be used towards Arts and Science major.

**Credit Hours:** 3

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**SPAN 7130: Stylistics**

(cross-leveled with SPAN 4130). Advanced composition class. Discussion of complex grammatical structures necessary for formal writing as well as orthographic rules in Spanish. Examination of stylistic devices and structures beyond sentence level, in order to learn to organize discourse level production.

**Credit Hours:** 3

**Recommended:** SPAN 3420 and SPAN 3430

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**SPAN 7420: Golden Age Poetry**

(cross-leveled with SPAN 4420). Poetry of the principal Spanish poets of the 16th and 17th centuries and of literary criticism devoted to it. Special emphasis is placed on the works of Garcilaso de la Vega, Fray Luis de Leon, among others. Short papers and explications are generally required.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 7422: Spanish Theatre in the Golden Age**

(cross-leveled with SPAN 4422). Dramatists to be studied include Lope de Vega, Calderon, Ruiz de Alarcon, Tirso de Molina, Guillen de Castro, Velez de Guevara, and some of Cervantes' theatre.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 7423: Don Quijote**

(cross-leveled with SPAN 4423). In this course students read the two parts of Don Quijote in the original Spanish. Analysis and class discussion highlight elements of literary interest. Neo-positivist methodology, factual background, formalist considerations and psychoanalytic approaches are used in this course.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 7460: Advanced Contemporary Culture of Spanish America**

(cross-leveled with SPAN 4460). A study of Spanish-American culture and civilization through selected readings in history and literature, and the use of visual media. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SPAN 3150 and SPAN 3160

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**SPAN 7470: Survey of Spanish American Literature I**

(cross-leveled with SPAN 4470). This is a course in Spanish American literature. The reading material in prose and verse is studied in chronological order from the early 16th to the early 20th century. Readings include selections from 22 major Spanish American authors.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 7471: Survey of Spanish American Literature II**

(cross-leveled with SPAN 4471). Survey of contemporary Latin American literature from approximately 1910 to the present. Close analysis and reading of representative major texts of Latin American literature. Students read complete selections and short excerpts from a standard anthology, and three complete novels.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 7480: Mexican Literature**

(cross-leveled with SPAN 4480). Analysis of selected poetry, prose, and drama of contemporary Mexico. Course examines the writings of major and minor figures from several critical perspectives. Works by Agustin, Aviles, Fabila, Carballedo, Castellanos, Fuentes, Paz, and others are read.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 7490: Hispanic Oral Traditions**

(cross-leveled with SPAN 4490). This course proposes to examine the Hispanic Oral Tradition through a study of romances and related genres, the corrido, decima and folktale.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 7530: The Spanish American Theatre**

(cross-leveled with SPAN 4530). Intended as an overview of a vital genre in contemporary Spanish American studies, this survey introduces dramatists whose works are the focus of increasing attention from international specialists. The works of Emilio Carballido, Egon Wolff, Griselda Gambaro and Osvald Dragun, among others are discussed.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 7540: Afro-Hispanic Literature**

(cross-leveled with SPAN 4540). A study of prose, poetry, and drama, in Spanish, written by authors of African descent in the Americas.

**Credit Hours:** 3

**Prerequisites:** SPAN 3420 and SPAN 3430

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**SPAN 7711: History of the Spanish Language**

(same as LINGST 7711; cross-leveled with SPAN 4711, LINGST 4711). Diachronic analysis of phonology, morphology, and syntax from Vulgar Latin to modern period.

**Credit Hours:** 3

**Prerequisites:** Completion with a passing grade of any Linguistics course at the 3000 level or above or instructor's consent

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**SPAN 7721: Structure of Modern Spanish**

(same as LINGST 7721; cross-leveled with LINGST 4721, SPAN 4721). Synchronic analysis of phonology, morphology and syntax of spoken Spanish dialects.

**Credit Hours:** 3

**Prerequisites:** four 3000-level courses in Spanish

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**SPAN 7722: Spanish Across the Continents**

(cross-leveled with LINGST 4722, SPAN 4722). This course focuses on the effects of migratory movements on language change, considering the Spanish spoken in Latin America, Puerto Rico, Spain and the USA. The class sharpens awareness and recognition of the linguistic diversity of the Spanish-speaking regions of the world. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** four 3000-level courses in Spanish

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**SPAN 7723: Language and Society: Spanish in the US**

(cross-leveled with LINGST 4723, SPAN 4723). This class surveys linguistic and social issues pertaining to Spanish in the US (past, present and future). Topics include bilingualism, code switching (a.k.a. Spanglish), first language attrition, linguistic identity, and the role of Spanish in education, services and media. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** four 3000-level courses in Spanish

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**SPAN 7960: Special Readings in Spanish**

Independent study through readings, conferences, reports.

**Credit Hour:** 1-3

**Prerequisites:** departmental consent

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**SPAN 7980: Special Themes in Spanish**

Subject varies according to instructor.

**Credit Hours:** 3

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**SPAN 7993: The Capstone Experience in Spanish**

Topics vary but all courses synthesize and review essential components of the major: speaking, writing, reading in Spanish, and the ability to think critically and analytically.

**Credit Hours:** 3

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**SPAN 8080: Readings in Spanish**

Independent readings in preparation for MA or MALT comprehensive examination in Spanish. Graded on A-F basis only.

**Credit Hour:** 1-99

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**SPAN 8085: Problems in Spanish**

Problems in Spanish.

**Credit Hour:** 1-99

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**SPAN 8087: Seminar in Spanish**

Subject varies according to instructor.

**Credit Hour:** 2-3

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**SPAN 8090: Research in Spanish**

Leads to preparation of MA or MALT thesis. Graded on S/U basis only.

**Credit Hour:** 1-99

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**SPAN 8120: Bilingualism and Language Contact**

(same as FRENCH 8120 and LINGST 8120). Global analysis of the study of Bilingualism from a combined sociocultural, sociolinguistic and psycholinguistic perspective based on current research and examination of various phenomena of language contact (taught in English).

**Credit Hours:** 3

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**SPAN 8412: Studies in Spanish Literature of the Medieval Period**

Studies in Spanish Literature of the Medieval Period.

**Credit Hours:** 3

**Recommended:** SPAN 8460

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**SPAN 8416: Studies in Spanish Literature in the Golden Age**

Studies in Spanish Literature in the Golden Age

**Credit Hours:** 3

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**SPAN 8420: Studies in Twentieth-Century Spanish Literature**

Studies in Twentieth-Century Spanish Literature

**Credit Hours:** 3

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**SPAN 8427: Studies in Colonial Spanish American Literature**

Analysis of seminal literary and "Historical" texts interpreting the Encounter, Conquest and Colonization of Spanish America.

**Credit Hours:** 3

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**SPAN 8433: Studies in Latin American Literature**

Studies in Latin American Literature

**Credit Hours:** 3

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**SPAN 8460: Old Spanish--Phonology, Morphology and Syntax**

**Credit Hours:** 3

**Prerequisites:** knowledge of Latin, to be demonstrated by passing departmental written examination or by completing LATIN 7110 with grade of B or better

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**SPAN 9080: Readings in Spanish**

Independent readings in preparation for Ph.D. comprehensive examination in Spanish.

**Credit Hour:** 3-6

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**SPAN 9090: Research in Spanish**

Leads to preparation of PhD dissertation in Spanish. Graded on S/U basis only.

**Credit Hour:** 1-99

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## Special Education (SPC\_ED)

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**SPC\_ED 1100: Orientation: Special Education**

This course familiarizes and orients students with MU resources, College of Education programs and expectations and career options, emphasizing Special Education. Graded on S/U basis only.

**Credit Hour:** 1

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**SPC\_ED 3100: Applied Behavior Analysis and Autism**

Students will learn the behavioral principles and techniques currently employed to help children with autism acquire functional language, appropriate social behavior, and general academic and living skills as well as decrease problematic behaviors. The objectives of this course are to: 1) To identify and describe key features of applied behavior analysis (ABA), particularly as it applies to intervention for children with autism. 2) To identify and describe key issues in curricular design, program development, and evidence-based interventions in autism. 3) To become familiar with key outcome research in behavioral interventions for children with autism. 4) To become familiar with key research on language, social skills, self-help skills, and problem behavior reduction as these areas relate to the behavioral treatment of autism. Graded on A-F basis only.

**Credit Hours:** 3

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**SPC\_ED 3600: Research and Practice in Applied Behavior Analysis**

Students will learn about the principles and procedures of applied behavior analysis through weekly reading assignments, discussions, and presentations. Student will gain experience applying this knowledge to improve behavior in a practical setting. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 3100

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**SPC\_ED 4020: Teaching the Exceptional Learner**

Teaching the Exceptional Learner addresses topics in the foundations of pedagogy for students with disabilities in inclusive settings, including the roles and responsibilities of the general educator and related service personnel with respect to special education law and policy, behavior management, universal design for learning, and evidence-based practices. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Progression into Phase II

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**SPC\_ED 4300: Introduction to Special Education**

Introductory overview of the field of special education; historical developments, characteristics of special populations, and compliance with state and federal regulations.

**Credit Hours:** 3

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**SPC\_ED 4310: Behavioral and Classroom Management**

(cross-leveled with SPC\_ED 7310). Study of classroom management and applied behavior analysis strategies. Focus on teacher as decision-maker in the design, implementation, evaluation of individual and group management programs. Graded on A-F basis only.

**Credit Hours:** 3

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**SPC\_ED 4320: Assessment and Evaluation in Special Education**

(cross-leveled with SPC\_ED 7320). Procedures and instruments used in the assessment of individual with disabilities, including standardized and non-standardized measures of intellectual ability, academic achievement, oral language, social/emotional behaviors, career/vocational needs.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 4300

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**SPC\_ED 4325: Language Development of Exceptional Students**

(cross-leveled with SPC\_ED 7325). Study of language and communication issues and disorders in special education; normal and atypical language development; language assessment and intervention models and programs.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 4300

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**SPC\_ED 4330: Collaboration and Consultation in Special Education**

(cross-leveled with SPC\_ED 4330). Study of communication, problem-solving, collaboration strategies. Application of strategies to work with exceptional students, their families, other professional members of interdisciplinary, interagency teams.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 4300

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**SPC\_ED 4370: Literacy in Special Education**

(cross-leveled with SPC\_ED 7370). Addresses specific literacy needs of students who are at-risk or have special needs with a focus on assessment and instruction in general education classrooms.

**Credit Hours:** 3

**Prerequisites or Corequisites:** SPC\_ED 4300

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**SPC\_ED 4371: Literacy in Special Education II**

(cross-leveled with SPC\_ED 7371). Advanced study in literacy methods and research for students with disabilities. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 4370 or SPC\_ED 7370

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**SPC\_ED 4375: Cross Categorical Special Education**

(cross-leveled with SPC\_ED 4371). Study of characteristics of students with cross categorical disabilities and other pertinent issues including inclusion, assessment, and evaluation practices.

**Credit Hours:** 3

**Recommended:** Admittance to Phase II

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**SPC\_ED 4380: Methods in Cross-Categorical Special Education**

(cross-leveled with SPC\_ED 7380). This course is designed to provide students with research-based instructional and behavior management methods for use with student with cross-categorical disabilities.

**Credit Hour:** 3-4

**Prerequisites:** SPC\_ED 4375 and SPC\_ED 4940

**Recommended:** Admittance to Phase II

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**SPC\_ED 4380W: Methods in Cross-Categorical Special Education - Writing Intensive**

(cross-leveled with SPC\_ED 7380). This course is designed to provide students with research-based instructional and behavior management methods for use with student with cross-categorical disabilities.

**Credit Hour:** 3-4

**Prerequisites:** SPC\_ED 4375 and SPC\_ED 4940

**Recommended:** Admittance to Phase II

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**SPC\_ED 4390: Methods in Vocational Education for the Disabled and Disadvantaged**

(same as LTC\_V 4770). Study of legislation, interagency cooperation, curriculum, transition, evaluation/grading role of support personnel. For educators, counselors and administrators working in vocational settings with special needs students and students with disabilities.

**Credit Hour:** 2-3

**Prerequisites:** SPC\_ED 4300

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**SPC\_ED 4401: Topics in Special Education**

In-depth study of certain developments, findings, trends and issues in one or more areas of special education.

**Credit Hours:** 3

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**SPC\_ED 4500: Science and Social Studies for Struggling Learners**

(cross-leveled with SPC\_ED 7500). This course will focus on the study of diagnostic and instructional techniques for the teaching of science and social studies. In this course, students will study the characteristics of students who struggle in science and social studies. Students will develop a knowledge base of effective practices for assessment and teaching strategies in science and social studies. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Admitted to Phase II in Special Education

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**SPC\_ED 4600: Diagnosis and Remediation of Learning Problems in Math - Middle**

(cross-leveled with SPC\_ED 7600). The study of diagnostic and remedial instructional techniques for the teaching of mathematics. Emphasis is placed on alternative teaching methods and strategies. Graded on A-F basis only.

**Credit Hours:** 3

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**SPC\_ED 4940: Cross-Categorical Special Education: Practicum I**

Involvement in meaningful field-based activities that extend and/or apply content information from SPC\_ED 4375.

**Credit Hour:** 1-4

**Prerequisites or Corequisites:** SPC\_ED 4375

**Recommended:** Admittance to Phase II

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**SPC\_ED 4941: Practicum in Cross-Categorical II**

(cross-leveled with SPC\_ED 7941). The purpose of this course is to provide students with experience in applying the content of Special Education 4380 (i.e. assessment and intervention strategies for use with students with cross categorical disabilities). This course may be repeated for credit.

**Credit Hour:** 2-3

**Prerequisites or Corequisites:** SPC\_ED 4380

**Prerequisites:** SPC\_ED 4375 and SPC\_ED 4940

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**SPC\_ED 4972: Capstone Seminar and Portfolio in Special Education**

Students in final student teaching internship will meet weekly to examine and compare their internship experiences. Analysis, synthesis, evaluation and problem solving are the focus of the examination of various aspects of pedagogy and experience. Additionally, students will develop and submit for scoring their State mandated certification portfolio.

**Credit Hour:** 1

**Prerequisites:** SPC\_ED 4981

**Recommended:** Enrollment in final semester of student teaching internship

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**SPC\_ED 4981: Internship in Special Education**

(cross-leveled with SPC\_ED 7981). This field experience provides preservice interns a semester-long public school experience where they simultaneously engage in a unique combination of observation and teaching. Through observation, conferencing, reading, discussion, demonstration, and participation, the preservice intern will synthesize the course concepts of the Senior Year On-Site Program (SYOSP). Graded on A-F basis only.

**Credit Hour:** 4-10

**Prerequisites:** ED\_LPA 4060  
**Recommended:** Admittance to Phase II

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**SPC\_ED 7020: Teaching the Exceptional Learner**

Teaching the Exceptional Learner addresses topics in the foundations of pedagogy for students with disabilities in inclusive settings, including the roles and responsibilities of the general educator and related service personnel with respect to special education law and policy, behavior management, universal design for learning, and evidence-based practices. Graded on A-F basis only.

**Credit Hours:** 3  
**Recommended:** Progression into Phase II

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**SPC\_ED 7300: Introduction to Special Education**

Introductory overview of the field of special education; historical developments, characteristics of special populations, and compliance with state and federal regulations.

**Credit Hours:** 3

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**SPC\_ED 7310: Behavioral and Classroom Management**

(cross-leveled with SPC\_ED 4310). Study of classroom management and applied behavior analysis strategies. Focus on teacher as decision-maker in the design, implementation, evaluation of individual and group management programs. Graded on A-F basis only.

**Credit Hours:** 3

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**SPC\_ED 7320: Assessment and Evaluation in Special Education**

(cross-leveled with SPC\_ED 4320). Procedures and instruments used in the assessment of individual with disabilities, including standardized and non-standardized measures of intellectual ability, academic achievement, oral language, social/emotional behaviors, career/vocational needs.

**Credit Hours:** 3  
**Prerequisites:** SPC\_ED 4300

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**SPC\_ED 7325: Language Development of Exceptional Students**

(cross-leveled with SPC\_ED 7325). Study of language and communication issues and disorders in special education; normal and atypical language development; language assessment and intervention models and programs.

**Credit Hours:** 3  
**Prerequisites:** SPC\_ED 4300

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**SPC\_ED 7330: Collaboration and Consultation in Special Education**

(cross-leveled with SPC\_ED 4330). Study of communication, problem-solving, collaboration strategies. Application of strategies to work with exceptional students, their families, other professional members of interdisciplinary, interagency teams.

**Credit Hours:** 3  
**Prerequisites:** SPC\_ED 4300

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**SPC\_ED 7370: Literacy in Special Education**

(cross-leveled with SPC\_ED 4370). Addresses specific literacy needs of students who are at-risk or have special needs with a focus on assessment and instruction in general education classrooms.

**Credit Hours:** 3  
**Prerequisites or Corequisites:** SPC\_ED 4300

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**SPC\_ED 7371: Literacy in Special Education II**

(cross-leveled with SPC\_ED 4371). Advanced study in literacy methods and research for students with disabilities. Graded A-F only.

**Credit Hours:** 3  
**Prerequisites:** SPC\_ED 4370 or SPC\_ED 7370

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**SPC\_ED 7375: Cross Categorical Special Education**

(cross-leveled with SPC\_ED 4375). Study of characteristics of students with cross categorical disabilities and other pertinent issues including inclusion, assessment, and evaluation practices.

**Credit Hours:** 3  
**Prerequisites:** professional standing in Phase II

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**SPC\_ED 7380: Methods in Cross-Categorical Special Education**

This course is designed to provide students with research-based instructional and behavior management methods for use with student with cross-categorical disabilities.

**Credit Hours:** 4  
**Prerequisites:** professional standing in Phase II, SPC\_ED 4375, SPC\_ED 4940

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**SPC\_ED 7390: Methods in Vocational Education for the Disabled & Disadvantaged**

(same as LTC\_V 7770). Study of legislation, interagency cooperation, curriculum, transition, evaluation/grading role of support personnel. For educators, counselors and administrators working in vocational settings with special needs students and students with disabilities.

**Credit Hour:** 2-3  
**Prerequisites:** SPC\_ED 4300

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**SPC\_ED 7500: Science and Social Studies for Struggling Learners**

(cross-leveled with SPC\_ED 4500). This course will focus on the study of diagnostic and instructional techniques for the teaching of science and social studies. In this course, students will study the characteristics of students who struggle in science and social studies. Students with develop a knowledge base of effective practices for assessment and teaching strategies in science and social studies. Graded on A-F basis only.

**Credit Hours:** 3

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**SPC\_ED 7600: Diagnosis and Remediation of Learning Problems in Math-Middle**

(cross-leveled with SPC\_ED 4600). The study of diagnostic and remedial instructional techniques for the teaching of mathematics. Emphasis is placed on alternative teaching methods and strategies. Graded on A-F basis only.

**Credit Hours:** 3

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**SPC\_ED 7940: Cross-Categorical Special Education: Practicum I**

Involvement in meaningful field-based activities that extend and/or apply content information from SPC\_ED 4375.

**Credit Hours:** 3

**Prerequisites or Corequisites:** SPC\_ED 4375, professional standing in Phase II

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**SPC\_ED 7941: Practicum in Cross-Categorical II**

(cross-leveled with SPC\_ED 4941). The purpose of this course is to provide students with experience in applying the content of Special Education 4380 (i.e. assessment and intervention strategies for use with students with cross categorical disabilities). This course may be repeated for credit.

**Credit Hour:** 2-3

**Prerequisites or Corequisites:** SPC\_ED 4380

**Prerequisites:** SPC\_ED 4375 and SPC\_ED 4940

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**SPC\_ED 7981: Internship in Special Education**

(cross-leveled with SPC\_ED 4981). This field experience provides preservice interns a semester-long public school experience where they simultaneously engage in a unique combination of observation and teaching. Through observation, conferencing, reading, discussion, demonstration, and participation, the preservice intern will synthesize the course concepts of the Senior Year On-Site Program (SYOSP). Graded on A-F basis only.

**Credit Hour:** 4-10

**Prerequisites:** ED\_LPA 7060; Admittance to the College of Education

**Recommended:** Admittance into Phase II

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**SPC\_ED 8085: Problems in Special Education**

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**SPC\_ED 8090: Masters Project Research Hours**

Restricted to students enrolled in the graduate program. Graded S/U only.

**Credit Hour:** 1-3

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**SPC\_ED 8100: Concepts and Principles in Behavior Analysis**

This course will provide an overview of both classic and contemporary theory and research on nonhuman and human learning. We will focus on a behavior-analytic conceptualization of learning and the underlying research on basic processes and operations that result in learning. The readings and class discussions will provide you with a strong foundation in the psychology of learning from a behavioral orientation, with particular emphasis on the relation between biological and environmental contributions to selection of behavior. To effectively produce socially significant behavior change among members of clinical populations, we must approach the task with a thorough understanding of these basic principles - we cannot stray from our principles.

**Credit Hours:** 3

**Prerequisites or Corequisites:** Admission to the Master's Program in Applied Behavior Analysis or Graduate Certificate program in Applied Behavior Analysis. Others need to contact faculty individually

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**SPC\_ED 8210: Using Assessment to Guide Instruction**

This course is designed to present information on the evaluation of individual student skills and the effects of instruction on those skills. Graded on A-F basis only.

**Credit Hours:** 3

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**SPC\_ED 8250: Developmental Processes in Autism and Neurodevelopmental Disorders**

This graduate level course will focus on understanding autism and other neurodevelopmental disorders from within a developmental framework. An understanding of typical development is essential in order to recognize when developmental problems arise. By the same token, developmental disorders can elucidate the complexity of development among typically functioning children. The course will compare and contrast typical and atypical development across major developmental domains. We will begin with an overview of the field and foundational concepts, and will then move to an examination of key developmental domains and selected neurodevelopmental disorders (as examples of atypical development in each domain). Throughout the course, students will be encouraged to relate concepts and empirical findings to their respective professional interests. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** Recommended for students in the Applied Behavior Analysis master's and graduate certificate program

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**SPC\_ED 8300: Students with Behavioral Disorders**

Study of characteristics of students with behavioral disorders as they relate to best practices for assessment, instruction, and intervention.

**Credit Hours:** 4

**Prerequisites:** SPC\_ED 4300 and instructor's consent

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**SPC\_ED 8305: Ethics in Applied Behavior Analysis**

This graduate level course provides the student with an in-depth coverage of ethics and professional behavior in applied behavior analysis. This course will help the student become prepared to sit for the Behavior Analyst Certification Board exam. This course primarily emphasizes Content Area #1 (Ethical Considerations) but also Content Areas #4, 5, and 8 (Behavioral Assessment, Experimental Evaluation of Interventions, and Selecting Intervention Outcomes and Strategies) of the Behavior Analysis Task List - Fourth Edition. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Student must be enrolled in the Graduate Certificate in ABA or Master's in ABA program

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**SPC\_ED 8310: Students With Learning Disabilities**

Study of characteristics of students with learning disabilities as they relate to best practices for assessment, instruction, and intervention.

**Credit Hours:** 4

**Prerequisites:** SPC\_ED 4300 and instructor's consent

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**SPC\_ED 8330: Advanced Teaching Mathematics in Special Education**

This course will focus on the advanced study of diagnostic and remedial instructional techniques for the teaching of mathematics. In this course, students will study the characteristics of students who struggle in mathematics. Students will develop a knowledge base of effective practices for assessment and teaching strategies in mathematics. Graded on A-F basis only.

**Credit Hours:** 3

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**SPC\_ED 8340: Advanced Studies in Developmental Disabilities**

Current theories and practices and their historic roots through examination of empirical and descriptive literature.

**Credit Hours:** 3

**Prerequisites:** admission to graduate study and instructor's consent

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**SPC\_ED 8350: Research with Exceptional Children**

Explores significant, historical, and current research in special education. Emphasizes the application of research, methodology, and findings relative to problems facing the practitioner.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**SPC\_ED 8353: Advanced Studies: Single Subject Design**

The course is for advanced graduate students in special education, psychology, related fields and includes behavioral measurement, single subject research designs, data analysis methods, critical analysis and evaluation of single subject research and research proposal. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**SPC\_ED 8355: Grant Writing**

Preparation of research, demonstration, training, or other grant proposals meeting the criteria for competitive funding by a federal agency; review and evaluation of proposals.

**Credit Hours:** 3

**Prerequisites:** admission to graduate study and instructor's consent

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**SPC\_ED 8360: Special Education Administration**

Principles, protective safeguards, and general practices associated with the organization and administration of special education; legal foundations for special education; selection, training, and supervision of personnel.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**SPC\_ED 8365: Research Design in Special Education**

Overview of professional writing and intermediate research applications with a focus on knowledge and skills needed for higher level doctoral work in statistics and research design.

**Credit Hours:** 3

**Prerequisites:** ESC\_PS 4170 or equivalent, SPC\_ED 8350 or equivalent, and instructor's consent

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**SPC\_ED 8370: Foundations I: History, Law and Policy in Special Education**

The changing concept of disability will be viewed from the perspectives of history, legal issues, and policy traced from early Greek and European periods through contemporary times.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**SPC\_ED 8375: Foundations II: Pedagogical Theories in Special Education**

A study of theories of teaching as they apply to special education with emphases on empirically based practices, historical trends, current theories, and the relationship between theories of learning and teaching.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**SPC\_ED 8380: Nature and Needs of Gifted and Talented Students**

A conceptual and empirical examination for educational personnel of student identification procedures, special populations, programming issues, research topics and teacher competencies.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**SPC\_ED 8385: Individualized Assessment and Intervention**

This course builds upon the basic principles of learning and applied behavior analysis presented during previous courses in the Behavior Analysis core. The course will offer advanced coverage of the functional assessment of problem behaviors. In particular, there will be a strong emphasis in the functional analysis of problem behaviors. Additionally, this course will focus on how identification of function guides treatment development (i.e., function-based treatments). Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 8100

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**SPC\_ED 8387: Seminar in Special Education**

**Credit Hour:** 1-3

**Prerequisites:** instructor's consent

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**SPC\_ED 8391: Curriculum Methods for Gifted and Talented Students**

A theoretical examination for educational personnel of specific instructional approaches including structure of intellect, enrichment triad, empirical research, and creative problem solving.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 8380 or instructor's consent

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**SPC\_ED 8405: Assessment and Evaluation in Gifted Education**

Seminar focuses on practices for identifying students for gifted education programs, evaluation models applicable to school programs and strategies for grading and evaluation of gifted students.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 8380 or instructor's consent

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**SPC\_ED 8406: Differentiating Instruction: Reaching Gifted, Typical and Struggling Learners**

Explores various instructional approaches to help meet the learning needs of a range of learners from gifted through struggling and at-risk students. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Introduction to Special Education; instructor's consent

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**SPC\_ED 8410: Administration and Supervision of Gifted Education Programs**

This course focuses on developing a working knowledge of issues and competencies, policies and evaluation in the administration of gifted education programs. Rational, goals, and design for gifted education programming will be addressed. Current research and best practices in program design and administration will be examined. Assessment, communication with all stakeholders, advocacy and professional development will be addressed. Graded on A-F basis only.

**Credit Hours:** 3

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**SPC\_ED 8440: Advanced Behavior Management: Applied Behavior Analysis**

This course will provide graduate students with advanced theory and knowledge in behavior management. Emphasis will be placed on understanding and using the principles of applied behavior analysis.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 4310 and instructor's consent

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**SPC\_ED 8450: Verbal Behavior**

This course will provide an introduction to a behavior analytic approach to the study of language (i.e., verbal behavior). The course will have two related focuses: (a) the theoretical underpinnings of a functional approach to language and (b) a review of the testing and application of the theory of verbal behavior in research and practice. During the first half of the semester, we will read and discuss Skinner's analysis of verbal behavior (VB). During the second half of the semester we will survey the literature base supporting a behavior analytic approach to language and will also discuss the application of verbal behavior analysis to practice. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 8100

**Recommended:** HLTHPSYC 8200

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**SPC\_ED 8455: Advanced Studies in Behavioral Disorders**

Contemporary issues a historical perspective; theoretical perspectives or models which guide research, policy, and intervention approaches.

**Credit Hours:** 3

**Prerequisites:** admission to graduate study and instructor's consent

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**SPC\_ED 8460: Survey of Applied Behavior Analysis**

This course builds upon the basic principles of learning and applied behavior analysis presented during previous courses in the Behavior Analysis core. The course will offer coverage of the many different applications of behavior analysis (e.g., behavioral medicine, behavioral gerontology, substance abuse, organizational behavior management, etc.). Finally, this class will cover topics related to professional development. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 8100 OR HLTHPSYC 8200

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**SPC\_ED 8475: Advanced Studies in Learning Disabilities**

Major current issues, trends, and controversies in learning disabilities; theories, research, and practices in learning disabilities.

**Credit Hours:** 3

**Prerequisites:** admission to graduate study and instructor's consent

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**SPC\_ED 8485: Introduction and Methods of Early Intervention**

This course will enhance individual knowledge and skills necessary to design, implement, and evaluate research-based strategies and practices in home and center-based programs for infants and toddlers with disabilities, consistent with the philosophical and legal requirements of IDEA Part C.

**Credit Hours:** 3

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**SPC\_ED 8490: Assessment in Early Childhood Special Education**

Procedures and instruments used in assessment of children with special needs, including screening, diagnosis, interpretation of diagnostic findings, and application to instructional plans.

**Credit Hours:** 3

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**SPC\_ED 8495: Introduction and Methods of Early Childhood Special Education**

This course will enhance individual knowledge and skills necessary to design, implement, and evaluate research-based strategies and practices in community or public school integrated programs for preschools with disabilities, consistent with the philosophical and legal requirements of IDEA Part B Section 619.

**Credit Hour:** 2-3

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**SPC\_ED 8500: Systems Level Behavior Analysis**

This course will offer an introduction to the application of behavior analytic concepts and principles to problems of human behavior at the systems level. Students will learn the basics of modifying behavior at the systems level, which includes clinical settings. Class assignments will help the students learn to apply the concepts discussed in class to their own work environment. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 8100

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**SPC\_ED 8520: Meeting the Needs of all Learners**

The purpose of this course is to provide information on current research and methodology on teaching students who are struggling or who have disabilities. Open only to teaching fellows. Graded on A-F basis only.

**Credit Hours:** 3

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**SPC\_ED 8601: Introduction to Autism**

This course provides an introduction of children youth with autism spectrum disorders. Topics include: historical and theoretical foundations, diagnostic and assessment approaches, and characteristics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Introduction to Special Education; instructor's consent

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**SPC\_ED 8602: Methods of Instruction for Students with Autism**

Overview of interventions for individuals with autism spectrum disorders and strategies needed for teaching. Best practices and promising practices will be presented. Course graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 8601, instructor's consent required

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**SPC\_ED 8603: Social Competency for Students with Autism**

Course provides a framework for addressing social competence deficits experienced by students with autism. Course graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 8601, instructor's consent required

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**SPC\_ED 8604: High Functioning Students with Autism**

The course is designed to increase understanding and ability to support individuals on the Autism Spectrum who have average to above average intelligence. Course graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**SPC\_ED 8605: Young Children with Autism**

Current research on characteristics, diagnosis, and intervention for very young children with autism. Strategies for support children and their families. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**SPC\_ED 8606: Assessment in Autism, Special Education**

This course covers procedures and instruments used in assessment of school-aged children with autism, including screening, diagnosis, interpretation of assessment findings, and application to instructional plans. Graded on A-F only.

**Credit Hours:** 3

**Prerequisites:** SPC\_ED 7300

**Corequisites:** SPC\_ED 8601

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**SPC\_ED 8700: Evidence Based Methods and Critical Inquiry in Cross Categorical Disabilities**

This course provides students with research-based instructional and behavioral management methods for use with students with cross-categorical disabilities. In addition to creating a more detailed knowledge of strategies related to the instructional needs of children, youth, and adults with learning disabilities, emotional and behavioral disorders, and intellectual disabilities, students will learn to apply critical inquiry skills in evaluating the evidence base for specific interventions as well as how best to implement techniques and support schools in the adopting these interventions. Graded on A-F basis only.

**Credit Hours:** 4

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**SPC\_ED 8800: Practicum in Applied Behavior Analysis**

The Practicum in Applied Behavior Analysis provides practical training in ABA. Graduate students will participate in an intensive practicum that focuses on developing well-rounded training in ABA. Students will work hands on with children at the MU Thompson Center for Autism and Neurodevelopmental Disorders. By the completion of the practicum, students will be well versed in the development of skill building programs as well as behavioral reduction programs that focus on function-based interventions (e.g., functional analyses). Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** Students must be enrolled in the Graduate Certificate in ABA or Masters of Science in ABA programs

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**SPC\_ED 8900: Capstone in Applied Behavior Analysis**

The capstone will consist of a clinical question or direct replication of previous research, which will serve as a demonstration of the student's knowledge of applied behavior analysis. The expectation is that the thesis will add to our current clinical knowledge in ABA. Graded on S/U basis only.

**Credit Hour:** 1-9

**Prerequisites:** Graduate student in the M.S. program in Applied Behavior Analysis

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**SPC\_ED 8940: Practicum: Students with Behavioral Disorders**

Graduate field experience in educational setting for students with behavioral disorders. Application of competencies from SPC\_ED 8300.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**SPC\_ED 8943: Practicum in Special Education**

Provides graduate practicum experience relevant to the education of exceptional students.

**Credit Hour:** 1-10

**Prerequisites:** SPC\_ED 4300 and instructor's consent

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**SPC\_ED 8946: Practicum: Gifted Education**

Provides graduate field experience in the area of gifted education.

**Credit Hours:** 3

**Prerequisites:** instructor or advisor's consent

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**SPC\_ED 8947: Practicum: Early Childhood Special Education**

Graduate field experience in an approved setting for young children with special needs. May be repeated.

**Credit Hour:** 1-10

**Prerequisites:** instructor's consent

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**SPC\_ED 9090: Research in Special Education**

Graded on a S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**SPC\_ED 9387: Professional Seminar in Special Education**

Designed to provide overview of Special Education, COE program requirements, and general graduate student expectations. Students STRONGLY encouraged to take course first semester in graduate program. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** acceptance into a master's degree program

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**SPC\_ED 9940: Internship: College Teaching in Special Education**

Individually guided and supervised college teaching experiences. Competency based activities using portfolio assessment methods. May be taken more than once. Graded on S/U basis only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**SPC\_ED 9941: Internship: Special Education Research**

Individually guided research internship with doctoral advisor and/or faculty mentor(s). Opportunity to develop research competencies either on individual or collaborative projects. May be taken more than once. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**SPC\_ED 9942: Internship: Professional Practice in Special Education**

Individually guided internship in the public schools and/or agencies serving students with special needs or exceptionalities. Focus on professional practices, administrative practices, and/or evaluation practices. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**Speech, Language, and Hearing Sciences (SLHS)**

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**Statistics (STAT)**

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**Student Success Center (SSC)**

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**Surgery (SURGRY)**

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**Textile And Apparel Management (T\_A\_M)**

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**Theatre (THEATR)**

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**Veterinary Biomedical Science (V\_BSCI)**

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**Veterinary Medicine And Surgery (V\_M\_S)**

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**V\_M\_S 6001: Topics in Veterinary Medicine**

Current topics, infrequently-taught courses, or new courses not yet designated by a permanent course number. Some sections may be graded A-F only or S/U only. Course instructor consent prior to enrollment is required.

**Credit Hour:** 0.5-6

**Prerequisites:** Restricted to Veterinary Medicine students

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**V\_M\_S 6002: Veterinary Raptor Medicine**

This multiple-block course is designed to introduce veterinary students to wildlife rehabilitation practices through lectures, laboratories, hands-on rehabilitation, and release of wild birds of prey. Professional veterinary

students organize this course with oversight by the course directors. Graded on S/U basis only.

**Credit Hours:** 0.5

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**V\_M\_S 6005: Clinical Skills**

A hands -on laboratory class to provide experience with handling and examining Horses, Cattle, Small ruminants and Camelid species, Cats and Dogs for veterinary students.

**Credit Hours:** 0.5

**Prerequisites:** first year veterinary students. Graded on S/U basis only

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**V\_M\_S 6006: Clinical Skills**

A hands -on laboratory class to provide experience with handling and examining Horses, Cattle, Small ruminants and Camelid species, Cats and Dogs for veterinary students. Graded on S/U basis only.

**Credit Hours:** 0.5

**Prerequisites:** first year veterinary students

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**V\_M\_S 6007: Healer's Art: Awakening the Heart of Medicine**

The Healer's Art is set-up as a 15-hour elective course for VM1 and VM2 students. The 15 contact hours are achieved across 5 evening sessions. Each three-hour session is divided into a large-group and small-group experience. The course addresses the hidden crisis in veterinary medicine - the growing loss of meaning and commitment experienced by veterinarians under the stresses of today's world. The curriculum is process-based and enables the formation of a community of open dialogue between students and faculty. The tools used in the course include faculty sharing from personal experience, generous listening and open discussion in the small group setting, experiential learning, and reflection exercises. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** VM1 and VM2

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**V\_M\_S 6010: Evaluated Veterinary Preceptorship**

This required co-op style course provides the student with practical exposure and experience in nonacademic veterinary medicine. Duration of 2-6 weeks. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** VM-3 standing

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**V\_M\_S 6020: Veterinary Radiology with Laboratory**

Introduces through lectures and demonstrations the principles of radiographic examination and interpretation of disease processes of domestic animals. Instructional period 8.

**Credit Hours:** 2

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**V\_M\_S 6030: Veterinary Anesthesiology with Laboratory**

Basic principles of anesthesiology for any species of domestic and exotic animals. Instructional period 9.

**Credit Hours:** 2

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**V\_M\_S 6040: Companion Animal Medicine with Laboratory**

Covers basic principles of veterinary internal medicine and selected subdisciplines. Instructional period 9.

**Credit Hours:** 4

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**V\_M\_S 6050: Small Animal Medicine**

Didactic presentations regarding pathophysiology, diagnosis and therapeutic management of organ system diseases in small animals.

**Credit Hours:** 2.5

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**V\_M\_S 6060: Small Animal Surgery with Laboratory**

Basic principles including suture materials, suture patterns, operative techniques, wound healing, and body system approach to soft tissue surgery conditions.

**Credit Hours:** 2

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**V\_M\_S 6071: Small Animal Surgery**

Continuation of V\_M\_S 6060 lectures, focusing primarily on orthopedics.

**Credit Hours:** 2

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**V\_M\_S 6072: Optional Surgery and Anesthesia Laboratory**

Designed to teach entry-level surgical and anesthesia skills using models, live animals, and cadavers. This laboratory is offered as a substitute to V\_M\_S 6073 for students who wish to gain anesthesia and surgical experience with live tissues. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** V\_M\_S 6060

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**V\_M\_S 6073: Fundamental Surgery Laboratory**

Designed to teach entry-level surgical skills using models and cadavers. Canine cadavers will be substituted for pigs in the first two celiotomy laboratories. Students will not anesthetize pigs but will observe clinical anesthesia by following one clinical case from start to finish. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** complete V\_M\_S 6060

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**V\_M\_S 6081: Food Animal Medicine and Surgery**

Covers the important diseases of cattle, goats, sheep, camelids, and swine recognition, management and prevention of diseases are stressed.

**Credit Hours:** 2.5

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**V\_M\_S 6082: Food Animal Medicine and Surgery**

Continuation of V\_M\_S 6081. Covers the important diseases of cattle, goats, sheep, camelids, and swine recognition, management and prevention of diseases are stressed.

**Credit Hours:** 2

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**V\_M\_S 6090: Small Animal Emergency and Critical Care with Laboratory**

Basic principles of emergency and critical care of companion animals, and body system approach to emergency and critical care.

**Credit Hour:** 1

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**V\_M\_S 6100: Evaluation of Animal Disease Monitoring and Surveillance Pro**

(cross-leveled with V\_M\_S 8100). This course will allow students to articulate and share what they have learned in coursework and to supplement previous learning by exploring additional areas of knowledge relevant to their readiness for professional practice. It will enable students to test theoretical knowledge against real life practical experiences, and to integrate and refine basic and advanced concepts, values, and methods acquired during the professional education. Graded on A-f only.

**Credit Hours:** 2

**Prerequisites:** second year standing in the DVM program, enrollment in the dual degree MPH program, or consent of instructor

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**V\_M\_S 6110: Theriogenology**

Reproductive function, estrous cycle manipulation, and breeding of individual domestic animals and herds. Pathogenesis, diagnosis and management (medical and surgical) of common reproductive disorders.

**Credit Hours:** 3

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**V\_M\_S 6120: Veterinary Ophthalmology**

Covers examination, diagnostic procedures and treatment of important eye diseases of domestic animals.

**Credit Hour:** 1

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**V\_M\_S 6130: Fundamentals of Veterinary Business Management**

To realistically present to the second-year veterinary student a basic explanation of the essential need for strong base of knowledge pertaining to business and management in order to be successful in the veterinary profession.

**Credit Hour:** 1

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**V\_M\_S 6140: Nutrition with Laboratory**

Nutrition of companion and food producing animals and nutritional principles important to veterinary medicine. Subjects presented include feeding of animals for maintenance of healthy conditions during all life stages, evaluation of foods and supplements, and methods of diet formulation and evaluation.

**Credit Hour:** 1.5

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**V\_M\_S 6151: Equine Medicine and Surgery**

Covers the fundamentals of diseases of the equine species. Case Management approaches are utilized to provide examples of disease conditions.

**Credit Hours:** 2

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**V\_M\_S 6152: Equine Medicine and Surgery**

Continuation of V\_M\_S 6151. Covers the fundamentals of diseases of the equine species. Case Management approaches are utilized to provide examples of disease conditions.

**Credit Hour:** 1.5

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**V\_M\_S 6400: Food Animal Medicine and Surgery I**

Clinical Rotation. Technical, diagnostic and therapeutic procedures common to the practice of large animal medicine and surgery. Experience in the operation of a large animal hospital and farm outpatient practice.

**Credit Hours:** 6

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**V\_M\_S 6411: Small Animal Internal Medicine**

Clinical rotation in small animal internal medicine for veterinary degree students. Students will obtain history and conduct physical examination of client-owned dogs and cats. After reviewing findings with faculty, they will perform diagnostic tests and carry out treatments. Graded on A-F basis only. May be repeated for credit.

**Credit Hour:** 1-99

**Prerequisites:** the entire pre-clinical curriculum of the CVM must be completed before taking this course; that is, students must have successfully completed the DVM curriculum through instruction period 12. Restricted to students in years 3 and 4 of the DVM curriculum

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**V\_M\_S 6412: Small Animal Community Practice**

Clinical rotation in small animal general medicine and surgery for veterinary degree students. Students will obtain history and conduct physical examination of client-owned dogs and cats. After reviewing findings with faculty, they will perform diagnostic tests and carry out treatments. The entire course may not be repeated for credit but smaller sections may with approval.

**Credit Hour:** 1-99

**Prerequisites:** the entire pre-clinical curriculum of the CVM must be completed before taking this course; students must have successfully completed the DVM curriculum through instructional period 12. Restricted to students in years 3 and 4 of the DVM curriculum

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**V\_M\_S 6413: Small Animal Behavior and Dermatology**

The Small Animal Behavior and Dermatology Rotation is designed to give students experience in the evaluation and management of dogs and cats with behavioral problems and to provide students with hands-on experience in the evaluation, diagnosis and management of dermatology cases. During the rotation the student will develop skills in history taking, behavioral evaluations, dermatology examinations and diagnostic procedures and in the management of behavioral and dermatology cases. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to third- and fourth-year Veterinary Medicine students

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**V\_M\_S 6420: Equine Medicine and Surgery I**

Clinical rotation. Technical, diagnostic and therapeutic procedures common to equine practice. Emphasis on fundamental principles.

**Credit Hours:** 6

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**V\_M\_S 6432: Small Animal Soft Tissue Surgery**

Clinical rotation. Diagnostic procedures and surgical techniques applicable to companion animal soft tissue surgery. Practical experience in the operation of a small animal soft tissue surgical practice.

**Credit Hours:** 2

**Prerequisites:** completion of Vet Med years 1 and 2 and specifically V\_M\_S 6072 or V\_M\_S 6073

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**V\_M\_S 6434: Small Animal Orthopedic Surgery**

Clinical rotation. Diagnostic procedures and surgical techniques applicable to companion animal orthopedic surgery. Practical experience in the operation of a small animal orthopedic surgical practice. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** completion of Veterinary Medicine years 1 and 2

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**V\_M\_S 6436: Veterinary Neurology/Neurosurgery**

Clinical rotation. A hands-on applied clinical rotation to provide experience in examination and diagnosis of domestic animals with neurologic disease.

**Credit Hours:** 2

**Prerequisites:** completion of preclinical curriculum of Veterinary Medicine years 1 and 2. Restricted to VM3 and VM4 students

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**V\_M\_S 6441: Clinical Radiology I**

Clinical rotation. Fundamentals of radiology: indications for use, techniques, pathophysiologic alterations, interpretation of results, patient aftercare, protective measures against radiation hazards.

**Credit Hours:** 3

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**V\_M\_S 6442: Clinical Anesthesiology I**

Clinical rotation. Fundamentals of anesthesiology: indications for use techniques, pathophysiologic alterations, and interpretations of results, patient aftercare.

**Credit Hours:** 3

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**V\_M\_S 6450: Theriogenology I**

Clinical rotation. Practical experience in reproductive techniques, obstetrics, breeding soundness and herd reproductive problems.

**Credit Hours:** 2

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**V\_M\_S 6460: Clinical Ophthalmology I**

Clinical rotation. Practical application in problem solving and medical and surgical management of eye conditions of domestic animals.

**Credit Hours:** 2

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**V\_M\_S 6490: Small Animal Specialty Medicine I**

Clinical rotation in small animal oncology. Taught in the clinical setting using animals presented to the VMTH for evaluation and treatment of oncologic diseases.

**Credit Hours:** 2

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**V\_M\_S 6700: Food Animal Medicine and Surgery II Elective**

Additional food animal experience located off-site or on-site under special circumstances.

**Credit Hour:** 2-6

**Prerequisites:** V\_M\_S 6400. Consent required

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**V\_M\_S 6710: Small Animal Medicine II Elective**

Clinical rotation offered to VM3 and VM4 students. Opportunity for concentrated study and experience in medical areas. Enrollment subject to approval of course coordinator.

**Credit Hour:** 2-6

**Prerequisites:** The entire pre-clinical curriculum of the CVM must be completed before taking this course

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**V\_M\_S 6711: Small Animal Internal Medicine Elective Clinical or Research Rotation**

Clinical rotation in SAIM to focus on either clinical diagnostics and therapy, or research relevant to clinically important issues of pet animals.

**Credit Hours:** 2

**Prerequisites:** Veterinary curriculum up until the clinical rotations; must be VM3 or VM4 students

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**V\_M\_S 6712: Private Practice Small Animal Internal Medicine Elective**

Clinical rotation. Improve critical thinking skills in disease diagnosis and management for internal medicine of dogs and cats. Clinical rotation off-site at Associated Veterinary Specialists. Teaching by cases seen by AVS clinician on duty. Student participation determined by supervising clinician.

**Credit Hours:** 2

**Prerequisites:** All required VM1 and VM2 courses. VM3 or VM4 standing required

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**V\_M\_S 6713: Shelter Medicine Elective at the Humane Society of Missouri**

Comprehensive shelter medicine rotation at Humane Society of Missouri.

**Credit Hour:** 2-6

**Prerequisites:** Restricted to VM3 and VM4 students

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**V\_M\_S 6714: Shelter Medicine Clinical Elective**

The shelter medicine clinical elective provides the veterinary student with a diverse training experience in shelter medicine accompanied by exposure to the critical aspects of animal sheltering. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Restricted to Veterinary Medicine students

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**V\_M\_S 6720: Equine Medicine and Surgery II Elective**

Clinical rotation. Continuation of V\_M\_S 6420. Open to VM3 and VM4 students, subject to approval of course coordinator. Opportunity for concentration in specific area of interest.

**Credit Hour:** 2-6

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**V\_M\_S 6732: Small Animal Soft Tissue Surgery II Elective**

Clinical rotation. Opportunity for concentrated study and advanced soft tissue surgical experience.

**Credit Hours:** 2

**Prerequisites:** V\_M\_S 6432 and completion of year VM1 and VM2

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**V\_M\_S 6734: Small Animal Orthopedic Surgery II Elective**

Clinical rotation. Opportunity for concentrated study and advanced orthopedic surgical experience.

**Credit Hours:** 2

**Prerequisites:** completion of VM years 1 and 2

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**V\_M\_S 6736: Veterinary Neurology/ Neurosurgery-Elective**

A hands-on applied clinical rotation to provide experience in examination and diagnosis of domestic animals with neurologic disease.

**Credit Hours:** 2

**Prerequisites:** completion of preclinical curriculum of Veterinary Medicine years 1 and 2. Restricted to VM3 and VM4 students

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**V\_M\_S 6741: Clinical Radiology II Elective**

Clinical rotation. Continuation of V\_M\_S 6441.

**Credit Hour:** 1-99

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**V\_M\_S 6742: Clinical Anesthesiology II Elective**

Clinical rotation. Continuations of V\_M\_S 6442. This course will focus on anesthetizing and monitoring the more challenging anesthetic cases during rotation. Required projects include a review paper on a relevant topic of choice, a written case report and assistance in research activities.

**Credit Hour:** 1-99

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**V\_M\_S 6743: Radiology - Special Imaging Elective**

Introduction to special imaging modalities including ultrasound, computed tomography, magnetic resonance and nuclear scintigraphy with emphasis towards small animal patients. A major part of the course will be devoted to recognition and interpretation of abdominal ultrasound. Graded on A-F basis only. Prerequisites: V\_M\_S 6020; VM III and VM IV

**Credit Hour:** 2-3

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**V\_M\_S 6750: Theriogenology II Elective**

Continuation of V\_M\_S 6450. Opportunity for concentrated study and experience. An elective, subject to approval of course coordinator and faculty member(s) who supervise student's work.

**Credit Hour:** 1-99

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**V\_M\_S 6751: External Food Animal Service and Theriogenology Teaching Program**

Additional options for off-site clinical training in Theriogenology and Food Supply Veterinary Medicine beyond the core curriculum.

**Credit Hour:** 1-99

**Prerequisites:** V\_M\_S 6081, V\_M\_S 6082, V\_M\_S 6110, and VM3 or VM4 students

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**V\_M\_S 6760: Small Animal Nutrition**

Clinical rotation designed to allow students to gain hands-on experience with canine and feline nutrition.

**Credit Hours:** 2

**Prerequisites:** V\_M\_S 6140. Restricted to VM3 or VM4

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**V\_M\_S 6800: Clinical Ophthalmology II Elective**

Clinical rotation offered to VM 3 and VM 4 students. Opportunity for concentrated study and experience. Subject to approval of course coordinator and faculty member(s) who supervise student's work.

**Credit Hour:** 1-99

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**V\_M\_S 6810: Cardiology II Elective**

Cardiology course consists of a three-week clinical rotation in the small animal clinic. Duties include primary care receiving and patient care with clinical case work-up. Additional responsibilities include attendance at clinical rounds and participating in related clinical activities.

**Credit Hour:** 1-99

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**V\_M\_S 6820: Small Animal Emergency and Critical Care**

Clinical rotation offered to VM 3 and VM 4 students. Opportunity for concentrated study and experience in small animal emergency and critical care.

**Credit Hour:** 1-99

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**V\_M\_S 6821: Small Animal Emergency Critical Care Elective**

Clinical rotation providing focused experience in care management and issues pertinent to small animal emergency and critical care. Graded on A-F basis only. May be repeated for credit.

**Credit Hour:** 2-6

**Prerequisites:** Restricted to levels VM 3 or VM 4

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**V\_M\_S 6830: Food Animal Production Medicine**

Clinical rotation will focus primarily on beef, dairy, and swine with emphasis on preventive medicine by looking at the herd incorporating spreadsheet and the date base application analysis. The course participants will visit various operations and write reports to the producer, which will enhance their farms.

**Credit Hour:** 1-99

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**V\_M\_S 6850: Clinical Oncology**

Clinical rotation in small animal oncology. Taught in the clinical setting using animals presented to the VMTH for evaluation and treatment of oncologic diseases.

**Credit Hour:** 1-99

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**V\_M\_S 6920: Equine Techniques Elective**

This course provides an opportunity for equine oriented veterinary students wishing to enhance their understanding of the clinical techniques used in equine veterinary medicine and gain hands on practical experience in selected clinical techniques. It is offered as a 2 credit, 2 week elective clinical rotation.

**Credit Hours:** 2

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**V\_M\_S 6986: Advanced Clinical Neurology and Neurosurgery**

This is a supplement to neurology taught in the small animal course to improve preparedness for clinical practice. Topics include neurolocalization techniques, electrodiagnostic and CT/MR interpretation, wider exposure to differential diagnosis, and neurosurgical principals.

**Credit Hour:** 1

**Prerequisites:** Passing grade in V\_M\_S 6040

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**V\_M\_S 6987: Problem-Based Learning Clinic Preparation**

This course is designed to prepare the VM 3 student about to enter clinics for a systematic approach to a clinical case. Emphasis will be placed on developing focused problem and differential lists, and logical choices of diagnostic tests. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** VM 3 level

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**V\_M\_S 6988: Small Animal Clinical Nutrition**

Application of nutritional principles to prevention and management of common diseases of dogs and cats. Including review of nutrients, commercial and home diets, and basic pathophysiology of nutritional aspects of disorders seen in companion animal practice.

**Credit Hour:** 1

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**V\_M\_S 6989: Advanced Oncology of Animals**

Expanded discussion of veterinary oncology topics not covered in the oncology section V\_M\_S 6050. Important for veterinary students who intend to enter private or academic practice and manage oncology cases, specific tumor types, diagnostic tools, and treatment modalities.

**Credit Hour:** 1

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**V\_M\_S 6990: Zoological Medicine**

Interested students of Zoological Medicine would significantly broaden their understanding of this discipline and increase the likelihood they could enter zoological veterinary practice or a zoological veterinary medical residency. Graded on A-F basis only

**Credit Hours:** 2

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**V\_M\_S 6991: Advanced Equine Lameness with Laboratory**

Learn to recognized forelimb and hind limb lameness through diagnostic techniques for localization of lameness. Gain practical experience in limb support for sever musculoskeletal injuries. One surgical laboratory using equine cadaver limbs to illustrate and practice common distal limb surgeries.

**Credit Hour:** 1

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**V\_M\_S 6993: Advanced Veterinary Anesthesia**

Advanced Veterinary Anesthesia

**Credit Hour:** 1

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**V\_M\_S 6994: Advanced Techniques in Small Animal Surgery with Laboratory**

Course designed for students who want exposure to small animal surgical techniques above and beyond the experience gained from the basic surgical training in V\_M\_S.

**Credit Hour:** 1

**Prerequisites:** V\_M\_S 6072; limited enrollment

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**V\_M\_S 6995: Clinical Cardiology**

Students will utilize a combination of lectures, hands on laboratories, and problem based clinical correlates covering cardiovascular physical

examination, radiographic and electrocardiographic interpretation, and the pathophysiology and management of congenital and acquired cardiac diseases.

**Credit Hour:** 1

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**V\_M\_S 6996: Advanced Dermatology**

This is a lecture course that will supplement and expand upon the canine and feline dermatology principles covered in the general pathology and small animal medicine courses. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** V\_M\_S 6050

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**V\_M\_S 6997: Food Animal Diagnostic Exercises**

Discussion based course designed to integrate and review didactic coursework to increase knowledge of livestock diseases. A list of appropriate differential diagnoses will be generated for each problem.

**Credit Hour:** 1

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**V\_M\_S 6998: Small Animal Behavioral Medicine**

Small Animal Behavioral Medicine

**Credit Hour:** 1

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**V\_M\_S 6999: Food Animal Surgery Laboratory**

Routine food animal surgical procedures laboratory.

**Credit Hour:** 1

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**V\_M\_S 7301: Topics in Veterinary Medicine and Surgery**

Organized study of select topics.

**Credit Hour:** 1-99

**Prerequisites:** junior standing and instructor's consent

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**V\_M\_S 7320: Fundamentals of Small Animal Emergency and Critical Care**

(cross-leveled with BIOMED 4320). This course will provide students with the knowledge and skills to assist in a small animal medical emergency and critical care facility.

**Credit Hours:** 3

**Prerequisites:** a bachelor's degree in biological science or veterinary technology, or DVM degree, or instructor's consent

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**V\_M\_S 7328: Introductory Radiation Biology**

(same as RADIOL 7328, NU\_ENG 7328, BIO\_SC 7328).

**Credit Hours:** 3

**Prerequisites:** junior standing Sciences/Engineering; one course in biological sciences and physics/chemistry; or instructor's consent

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**V\_M\_S 7355: Advanced Techniques in Radiology**

Special application to domestic animals.

**Credit Hour:** 1-99

**Prerequisites:** D.V.M

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**V\_M\_S 7510: Equine Clinical Anatomy: Forelimbs**

Basic Foundation in selected aspects of equine clinical anatomy for veterinary technicians, pre-veterinary students, and other students wishing to enhance their understanding of anatomical structure of the horse's forelimbs.

**Credit Hour:** 1

**Prerequisites:** A bachelor's degree in a biological science or veterinary technology, or DVM degree, or instructor's consent

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**V\_M\_S 8021: Neurology Journal Review**

Weekly journal review and seminar on current topics in veterinary neurology, related clinical disciplines and basic neurosciences. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** DVM degree

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**V\_M\_S 8022: Internal Medicine Clinicopathologic Conference**

Advanced discussion of small animal medicine cases with an emphasis on pathophysiology and clinicopathologic findings. Graded on S/U basis only.

**Credit Hour:** 1

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**V\_M\_S 8023: Internal Medicine Journal Review**

Resident led review of the current veterinary internal medicine literature. Graded on S/U basis only.

**Credit Hour:** 1

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**V\_M\_S 8024: Medicine-Surgery-Pathology Conference**

This is a case-based course in which clinical and pathological findings of interesting cases from the VMTH are presented by those who treated and interpreted the case. Dogs, cats, cows, horses, and small ruminants are included with occasional non-traditional species. Graded on S/U basis only.

**Credit Hour:** 1

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**V\_M\_S 8025: Equine Medicine Journal Review**

Aid Residents in preparing for board certification in ACVIM and ACVS. Articles pertaining to current equine veterinary literature are reviewed on a weekly basis. Participants select, distribute articles to group prior to meeting, then present short review with a discussion following. Graded on S/U basis only.

**Credit Hour:** 1

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**V\_M\_S 8026: Surgery Journal Review**

Resident led review of the current veterinary surgical peer-reviewed literature. Graded on S/U basis only.

**Credit Hour:** 1

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**V\_M\_S 8027: Food Animal Medicine Journal Review**

Critical review of the scientific literature with a focus on ACVIM board preparation. May also be used as a forum for information exchanged relevant to ACVIM board preparation. Graded on S/U basis only.

**Credit Hour:** 1

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**V\_M\_S 8028: Cardiovascular Medicine Journal Review**

Resident led review of the current veterinary cardiovascular medicine literature. Graded on S/U basis only.

**Credit Hour:** 1

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**V\_M\_S 8029: Emergency and Critical Care Journal Review**

This course will concentrate on review of emergency and critical care literature. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** DVM degree

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**V\_M\_S 8030: Seminars in Vet. Med. & Surgery: Ophthalmology Pathology Seminar**

Review of clinical cases presented in two formats: histopathology slides and kodachrome slides. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** DVM degree or equivalent and acceptance into an ophthalmology residency program

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**V\_M\_S 8031: Sem. in Vet. Med & Surgery: Ophthalmology Seminar & Journal Review**

Weekly journal review and seminar on current topics in veterinary ophthalmology, review of pertinent literature in human ophthalmology, and review of ophthalmic texts. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** DVM or equivalent degree and acceptance into the ophthalmology residency program

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**V\_M\_S 8032: Seminars in Veterinary Anesthesiology**

A journal review will focus on advances in veterinary anesthesiology, pharmacology, and physiology. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** DVM and graduate school enrollment or instructor's consent

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**V\_M\_S 8033: Seminars in Clinical Sciences-Equine Surgery Journal Review**

Journal review will focus on advances in equine surgery and will consist of a review of recent manuscripts pertaining to equine surgery in current journals and review of pertinent book chapters. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** DVM degree and instructor's consent

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**V\_M\_S 8034: Seminars in Veterinary Radiology**

This journal review will focus on advances in veterinary radiology, ultrasound and alternate imaging. Current and past literature will be reviewed weekly and will be chosen by the class coordinator. Graded on S/U basis only.

**Credit Hour:** 1

**Prerequisites:** DVM and graduate school enrollment or instructor's consent

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**V\_M\_S 8036: Advanced Physiology of the Dog and Cat**

To understand advanced medical physiology: cell physiology, muscle function, cardiac and circulatory physiology, renal function, distribution of fluid in the body, functions of red and white blood cells, mechanisms of hemostasis, resistance to infection and pulmonary physiology. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Instructor's consent

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**V\_M\_S 8040: Advanced Small Animal Clinical Nutrition**

Advanced study of veterinary clinical nutrition in the dog and cat. Includes review of applied biochemistry, nutrients, and feeding principles along with pathophysiology and nutritional management of common diseases. May be repeated for credit. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Introductory Veterinary Nutrition

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**V\_M\_S 8090: Research in Veterinary Medicine and Surgery (Thesis)**

Thesis research. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**V\_M\_S 8100: Evaluation of Animal Disease Monitoring and Surveillance Programs**

This course will allow students to articulate and share what they have learned in coursework and to supplement previous learning by exploring additional areas of knowledge relevant to their readiness for professional practice. It will enable students to test theoretical knowledge against real life practical experiences, and to integrate and refine basic and advanced concepts, values, and methods acquired during the professional education. Graded on A-F basis only.

**Credit Hours:** 2

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**V\_M\_S 8401: Topics in Veterinary Clinical Sciences**

Current topics, infrequently-taught courses, or new courses not yet designated by a permanent course number. Some sections may be graded A-F only or S/U only.

**Credit Hour:** 1-3

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**V\_M\_S 8402: Seminar in Veterinary Clinical Sciences**

Graduate seminars and conferences with a focus on current literature within a specialty area. Graded on S/U basis only.

**Credit Hour:** 1

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**V\_M\_S 8405: Comparative Respiratory Pathophysiology**

A consideration of clinical pathophysiology of the respiratory system relative to diseases of the thorax and clinical anesthesiology.

**Credit Hour:** 1

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**V\_M\_S 8406: Topics in Veterinary Medicine and Surgery**

Current topics, infrequently taught courses, or new courses not yet designated by a permanent course number.

**Credit Hour:** 1-99

**Prerequisites:** must be a DVM or be enrolled in the Veterinary curriculum; instructor's consent



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**V\_M\_S 8410: Veterinary Medicine and Surgery Research Seminar**

Current research in veterinary medicine and surgery. Literature reviews and presentation or original graduate student research. Graded on S/U basis only.

**Credit Hour:** 1

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**V\_M\_S 8411: Clinical Veterinary Endocrinology**

A 2-hour course for post-DMV graduate students. It will focus on clinically relevant physiology, pathophysiology, and diagnostic evaluation of hormone systems.

**Credit Hours:** 2

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**V\_M\_S 8413: Equine Internal Medicine**

The purpose of the course is to aid in the preparation of the Resident for board certification in the American College of Veterinary Internal Medicine-LAIM. Current concepts in the pathophysiology, diagnosis and management of medical disorders of horses.

**Credit Hours:** 2

**Prerequisites:** DVM degree or equivalent

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**V\_M\_S 8415: Advanced Veterinary Neurology**

Basic neuroscience as it relates to clinical neurology and the pathophysiology of diseases of the brain, spinal cord, peripheral nerve and muscle in domestic animals. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** DVM degree

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**V\_M\_S 8417: Advanced Veterinary Internal Medicine - Clinical Oncology**

Provides graduate students in the clinical and basic sciences alike with a working knowledge of the biological mechanisms of cancer development and progression and the related approaches to cancer prevention and therapy. It is assumed that students will have a strong background in biology as a foundation for discussion.

**Credit Hours:** 2

**Prerequisites:** DVM or equivalent degree recommended

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**V\_M\_S 8418: Advanced Veterinary Internal Medicine: Food Animal Medicine**

Current concepts in the pathophysiology, diagnosis and management of medical disorders, diseases of the limbs, and infectious diseases of cattle and food producing animals.

**Credit Hours:** 2

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**V\_M\_S 8419: Advanced Topics in Cancer Biology and Clinical Oncology**

This course will provide students with a knowledge base in cancer cell biology that may be applied to the practice of clinical oncology. Monthly clinically-oriented seminars by invited speakers will be preceded by a weekly in-depth review of the basic science related to the seminar topic.

**Credit Hours:** 2

**Recommended:** MD or DVM

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**V\_M\_S 8421: Advanced Veterinary Surgery: Small Animal Surgery**

Current concepts in the pathophysiology, diagnosis and management of surgical disease of the dog and the cat. Includes laboratories of advanced surgical techniques.

**Credit Hour:** 2-4

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**V\_M\_S 8423: Comparative Arthrology**

Lectures and discussion covering anatomy, physiology, biomechanics, pathophysiology, and clinical aspects of mammalian diarthrodial joints.

**Credit Hours:** 3

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**V\_M\_S 8425: Advanced Veterinary Surgery: Equine Surgery**

Current concepts in the pathophysiology, diagnosis and management of surgical disorders of the horse. Taught yearly as sections A, B, C. Repeatable to a maximum of 10 credit hours (individual sections may be taken once).

**Credit Hour:** 2-4

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**V\_M\_S 8426: Advanced Veterinary Surgery - Ophthalmic Surgery**

Surgery labs consisting of 2-4 hours of surgical instruction per week. Graded on A-F basis only.

**Credit Hour:** 2-4

**Prerequisites:** DVM or equivalent degree and acceptance into the ophthalmology residency program

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**V\_M\_S 8431: Research Methods and Data Analysis**

A consideration of research methods, data analysis, and practical approaches to analyzing data sets derived from veterinary and biomedical studies.

**Credit Hours:** 2

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**V\_M\_S 8432: Applied Statistics and Informatics**

Educate students in the practical application of statistics and information research tools. Students will learn about application of statistical modeling to biomedical research. They will be trained to use statistical software programs and then use those skills to analyze data sets. Additionally, students will learn about the use of informatics systems for researching scientific questions, data searching, and data dissemination. At the end of the course successful students should be able to develop and perform statistical analyses appropriate for most basic research study designs. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** DVM or equivalent degree and enrollment in a veterinary residency program unless an exception is approved by the course coordinator

**Recommended:** Successful completion of a general statistics course is highly recommended prior to taking this course

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**V\_M\_S 8435: Veterinary Clinical Sciences: Clinical Immunology**

Advanced concepts in veterinary immunology and immunopathology.

**Credit Hours:** 2

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**V\_M\_S 8437: Advanced Topics in Veterinary Medicine (Nuclear Medicine)**

An in-depth review of veterinary nuclear medicine. Includes the physics of nuclear medicine, common imaging techniques, common radiopharmaceuticals, radiopharmaceutical kinetic evaluation and some common physiological applications.

**Credit Hour:** 1

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**V\_M\_S 8439: Advanced Veterinary Ultrasonography**

Advanced concepts in veterinary ultrasonography; including ultrasound and Doppler physics, instrumentation, examination methodology, and interpretation of studies.

**Credit Hour:** 2-3

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**V\_M\_S 8440: Adv Veterinary Clinical Sciences: Advanced Clinical Ophthalmology**

Case-based discussion course. Graded on A-F basis only.

**Credit Hour:** 1-3

**Prerequisites:** DVM or equivalent degree and acceptance into the ophthalmology residency program

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**V\_M\_S 8445: Veterinary Critical Care and Emergency Medicine**

Advanced study of veterinary critical care and emergency medicine and surgery focusing on current research and literature as well as clinical application.

**Credit Hour:** 2-3

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**V\_M\_S 8450: Research in Veterinary Medicine and Surgery (non-thesis)**

Non-Thesis research.

**Credit Hour:** 1-99

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**V\_M\_S 8485: Problems in Veterinary Clinical Sciences**

Supervised individuals studies arranged with a faculty member and approved by the advisory committee. Some sections may be graded A-F only or S/U only.

**Credit Hour:** 1-3

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**V\_M\_S 8487: Nuclear Medicine**

Principles of radiation detection instrumentation, monitoring radiological safety and diagnostic procedures used on veterinary nuclear medicine.

**Credit Hours:** 3

**Prerequisites:** one year College Physics, D.V.M. degree, and departmental consent

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**V\_M\_S 8488: Radiation Therapy**

Intermediate level course to review basic and advanced concepts in radiation biology, radiation physics, and clinical application of ionizing radiation for the treatment of cancer Teletherapy, brachytherapy and radiation oncology are covered.

**Credit Hours:** 3

**Prerequisites:** A basic course in radiation physics/dosimetry, radiation biology and medical oncology. One year college physics, DVM degree and departmental consent

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**V\_M\_S 8489: Veterinary Radiographic Physics**

In depth review of the fundamental principles of radiographic physics, with an emphasis on preparation for the American college of Veterinary Radiology board examination. Graded on an S/U basis only.

**Credit Hour:** 1

**Prerequisites:** DVM and graduate school enrollment or instructor's consent

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**V\_M\_S 8640: Biological Radiochemistry**

(same as CHEM 8640). Covers the interaction of radiation with biological material. Aspects of radiation physics, chemistry, and biology are discussed, along with the use of radiation in imaging and therapy. Graded on A-F basis only.

**Credit Hours:** 3

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## Veterinary Pathobiology (V\_PBIO)

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**V\_PBIO 2001: Fundamentals of Microbiology**

This course, which is designed for microbiology or life sciences majors, provides an overview of the classification, structure, metabolism, genetics, and isolation and identification of the principal groups of bacteria. Additional topics to be covered include an introduction to viruses, protozoa, and fungi, the nature of infectious diseases, and the immune response. The course includes both lecture and laboratory. The laboratory component of the course is intended to provide students with a broad background in microbiology laboratory practice and theory. Students will learn fundamentals of light microscopy, bacterial culture techniques, and methods to isolate and identify microorganisms. Other laboratory testing platforms, such as PCR and ELISA, will be covered. The laboratory will meet for two hours, twice a week. Graded on A-F basis only.

**Credit Hours:** 5

**Recommended:** BIO\_SC 1500 or equivalent

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**V\_PBIO 2950: Undergraduate Research in Microbiology**

Research for students in which independent research is less than 50% of total. Graded on S/U basis only.

**Credit Hour:** 1-3

**Prerequisites:** Departmental consent

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**V\_PBIO 3345: Fundamentals of Parasitology**

This course will provide a basic understanding of protozoan and metazoan parasites as well as the vectors that transmit these parasites. Special emphasis will be placed on those parasites and vectors of major medical/veterinary consequence throughout the world. Because parasites cause significant morbidity and mortality throughout the world, the main focus of lectures will be on the biology and epidemiology of parasitic diseases and on the parasite-host association. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1030 or BIO\_SC 1500 or consent of instructor

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**V\_PBIO 3551: Introduction to Immunology I**

Comprehensive introduction to the basic principles of immunology. The course is designed for undergraduates majoring in biology, biochemistry

or health professions. Introduction to cells and organs of the immune system, innate and adaptive immunity, development, activation and effector functions of lymphocytes, hypersensitivity, host response to infection and vaccination, autoimmunity and tumor immunology. Introduction to Immunology 1. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** BIO\_SC 2200 and BIO\_SC 2300

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#### **V\_PBIO 3554: Introduction to Virology**

Comprehensive introduction to the basic principles of virology. The course is designed for undergraduates majoring in biology, biochemistry, or health professions. The course covers general virology including the molecular structure of viruses, the multiplication strategies of the major virus families, and viral latency, persistence, and oncology. The major families of the bacterial, plant, and animal viruses are discussed. Human viruses and infectious diseases are emphasized. Viral immunology, viral defenses, viral vaccines and antiviral compounds will also be addressed. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** BIO\_SC 3750, BIO\_SC 2300

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#### **V\_PBIO 3557: Microbial Pathogenesis I**

This course is the first of two courses that examine the relationships between microbes and their hosts that lead to human disease. Emphasis is placed on bacterial and fungal infection, and the basic mechanisms of pathogenesis that lead to disease. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 2200, BIO\_SC 3750, or consent of instructor

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#### **V\_PBIO 3558: Microbial Pathogenesis II**

This course is the second of two courses that examine the relationships between pathogens and their hosts that lead to human disease. Emphasis is placed on viral and parasite infection and the basic properties of pathogenesis. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 3750, V\_PBIO 3554, or consent of instructor

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#### **V\_PBIO 3560: Microbial Physiology**

The course will focus on introducing the basic principles of the functions and activities of microorganisms and we will discuss on the normal cellular mechanisms associated with growth, metabolism, reproduction and survival. The course will cover our understanding and knowledge about the way in which a living microorganism functions including all physical and chemical processes. We will also focus on anatomy i.e., physical characteristics, growth and living, metabolism, chemical processes and control functions and functional entities. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** A course in microbiology or biochemistry or permission of the instructor

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#### **V\_PBIO 3600: Bacterial Genetics and Genomics**

This course will provide undergraduate students with an understanding of bacterial genes, genomes and genetic systems that will serve as both a 'stand-alone' course as well as one that synergizes with courses taken by students pursuing degrees in Microbiology, Biochemistry,

Biological Sciences, Food Science, Animal Sciences, Health Professions or students interested in the 'One Health' paradigm. The course covers diverse aspects of bacterial genetics and genomics, beginning with asking 'what is a gene?' through understanding how this genetic information is stored and processed into biological function in a highly regulated manner. The course will also familiarize students with the discoveries that have powered the field of molecular biology (e.g. cloning, DNA sequencing and CRISPR-mediated gene editing) to current cutting-edge research that is driving advances at the interface of microbial science and engineering, as well as microbiomes. Knowledge gained by completion of this course will be of value to those interested in basic microbiology, bacterial pathogenesis, environmental and food microbiology. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** V\_PBIO 2001 or BIO\_SC 3750 or equivalent

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#### **V\_PBIO 3650: Applied Microbiology and Biotechnology**

Introduction to the basic principles of molecular microbiology in relation to the industrial applicability. The course will focus on microorganisms commonly used in industrial microbiology and biotechnology with an emphasis on the biological and molecular basis of productivity. We will also focus on nutrition of industrial organisms and metabolic pathways for the biosynthesis of industrial microbiology products such as engineered or designer proteins, antibiotics and products of medical importance. Manipulation of the genome of industrial organisms will be discussed in the context of making beneficial products. Graded on A-F basis only.

**Credit Hours:** 3

**Recommended:** BIO\_SC 3750 or V\_PBIO 2001 or a course in microbiology

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#### **V\_PBIO 3658: Public Health Microbiology**

Epidemiology of transmissible diseases including pathogenic characteristics of the infectious organism, modes of transmission, mechanism of infection, diagnostic aids, effective treatments, immunizing procedures, and methods of preventing infection. Subjects covered will include emerging infectious diseases, vector borne diseases, control of infectious human disease, water and food borne disease, zoonotic diseases, sexually transmitted diseases and antibiotic resistance. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** BIO\_SC 1500 or equivalent

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#### **V\_PBIO 3700: Medical and Veterinary Entomology**

Ecology and systematics of arthropods that affect the health of animals and people, including insect and tick vectors of pathogens causing tropical and temperate diseases such as African sleeping sickness, anaplasmosis, babesiosis, bartonellosis, Chagas' disease, chikungunya, dengue, ehrlichiosis, filariasis and heartworm disease, leishmaniasis, Lyme disease, malaria, mosquito-borne encephalitis, plague, rickettsiosis, theileriosis, tick-borne encephalitis and yellow fever. Emphasis will be placed on arthropod identification and effects of arthropods and arthropod-borne pathogens on vertebrate hosts. Graded on A-F basis only. Prerequisites: Completion of 60 credit hours and one of the following: BIO\_SC 1500 or equivalent, or consent of instructor.

**Credit Hours:** 4

**Recommended:** V\_PBIO 3345 or PLNT\_S 3710

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**V\_PBio 4787: Historical, Societal and Ethical Topics in Medicine and Biomedical Research**

(cross-leveled with V\_PBio 7787). Advances in medicine, genetics, reproduction and technologies underpinning biomedical research can have profound implications not only scientifically but in terms of societal and ethical impact. Using several historical events such as the establishment of the first immortal cell line, the Tuskegee syphilis study, the eugenics movement in the United States and the cloning of Dolly the sheep as starting points, we will explore the historical, societal and ethical context and issues surrounding these events and relate them to current ethical and moral questions that have been generated by recent scientific and medical progress. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** B or better in BIO\_SC 2300 and BIO\_SC 2200

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**V\_PBio 4950: Advanced Undergraduate Research in Microbiology**

Research credit for students doing an independent microbiology research project under the guidance of a faculty member. Project must be arranged by student and faculty member prior to registration. May be repeated to a maximum of 6 hours. Student may choose the S/U grading option only if not using course to fulfill microbiology degree capstone and/or honors program requirements.

**Credit Hour:** 1-3

**Prerequisites:** Departmental consent

**Recommended:** Overall GPA of at least 2.75; 20 hours of Microbiology/Biological Sciences and/or Chemistry

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**V\_PBio 4970: Capstone Undergraduate Research in Microbiology**

Capstone research course for students doing an independent microbiology research project under the guidance of a faculty member. Project must be arranged by student and faculty member prior to registration. Includes presentation of the research as an oral presentation or poster at a scientific meeting OR writing up the research project in a scientific journal article format. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** 3 credit hours of V\_PBio 4950

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**V\_PBio 4980: Capstone Senior Seminar**

Readings and critical evaluation of selected problems and theories in microbiology. Integrates perspectives, methods, and topics from undergraduate courses. Requires written and oral presentations. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Microbiology major, senior standing, or instructor's consent

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**V\_PBio 5511: Veterinary Immunology**

(same as V\_PBio 8451). Basic immunology techniques. Topics include innate and adaptive immunity, development of the immune system, induction and expression of the immune response, structure and function of antibodies, antigen-antibody reactions, the major histocompatibility complex, aspects of immunology in disease.

**Credit Hour:** 1.5

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**V\_PBio 5512: Veterinary Immunology**

(same as V\_PBio 8451). Continuation of V\_PBio 5511.

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**Credit Hour:** 1.5

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**V\_PBio 5552: Veterinary Bacteriology with Laboratory**

Classification and properties of pathogenic bacteria and fungi of animals; relationship to public health; considers pathogenesis, immunology of infection. Instructional period 5.

**Credit Hours:** 3

**Prerequisites:** enrollment in the College of Veterinary Medicine

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**V\_PBio 5553: Veterinary Bacteriology II**

Continuation of V\_PBio 5552. Instructional period 6.

**Credit Hours:** 2.5

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**V\_PBio 5554: Veterinary Virology**

(same as V\_PBio 8454). Classification and properties of viruses. Considers the etiologic, pathologic and immunologic aspects of viral diseases of animals. Instructional periods 6 and 7.

**Credit Hours:** 2.5

**Prerequisites:** enrollment in the College of Veterinary Medicine

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**V\_PBio 5555: Epidemiology and Biostatistics with Laboratory**

(same as V\_PBio 8455). This course introduces students to methods of determining the influence of disease on populations and how this information is applied to individual animals. Biostatistics and evidence based medicine are also discussed in this course. The knowledge gained in this course is applied to reading professional literature during the course. Instructional period 4.

**Credit Hours:** 2

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**V\_PBio 5557: Veterinary Parasitology with Laboratory**

(same as V\_PBio 8457). Parasites and parasitic diseases of ruminants, horses, swine, dogs, cats, poultry and other animals. Includes classification, morphology, and bionomics of protozoa, helminths, and arthropods. Instructional period 6.

**Credit Hours:** 3

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**V\_PBio 5558: Veterinary Public Health**

(same as V\_PBio 8458). In this course students are introduced to the wide range of veterinary involvement in maintaining and assuring human health, nationally and globally. Topics discussed include: agencies such as USDA, FDA, CDC, food safety and meat inspection, veterinary responsibility in identifying diseases, legal issues of drug use, and zoonotic diseases. Instructional period 7.

**Credit Hours:** 2

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**V\_PBio 5575: Veterinary Pathology with Laboratory**

General Pathology. Tissue reactions to various disease agents in domestic animals. Instructional period 5.

**Credit Hours:** 3

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**V\_PBio 5576: Veterinary Systemic and Special Pathology with Laboratories**

Special and systemic pathology. Tissue reactions to disease in special systems in domestic animals. Instructional period 6.

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**Credit Hours:** 3

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**V\_PBIO 5577: Veterinary Systemic and Special Pathology II with**

Follows the general pathology and continues the systemic pathology taught in V\_PBIO 5576. The course, consisting of daily lectures and weekly laboratories, covers disease, mainly in domestic animals, of the following systems or organs: cardiovascular, respiratory, lymphoid, cutaneous, mammary, ophthalmic, and otic. Instructional period 7.

**Credit Hours:** 3

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**V\_PBIO 5578: Veterinary Clinical Pathology with Laboratory**

Physiologic basis, interpretation and clinical application of laboratory assays in hematology, chemistry, cytology, and urinalysis, utilization of laboratory methods to define pathological states and to diagnose disorders of domestic animals. Instructional period 8.

**Credit Hours:** 3

**Prerequisites:** enrollment in College of Veterinary Medicine

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**V\_PBIO 5579: Veterinary Genomics**

Study of genomes, an organism's entire set of the genetic information. Used for detection of pathogen genomes, and markers for mutation causing inherited disease. Instructional period 5.

**Credit Hour:** 1

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**V\_PBIO 5601: Animals in Emergencies & Basic Emergency Response Training for Vet Students**

This course will enable veterinary and graduate students to understand their role in society during disasters and credential as responders. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Students must be enrolled in the College of Veterinary Medicine and pursuing a DVM degree or be a student pursuing an MPH degree. Instructor consent required for non-veterinary graduate students seeking MPH degrees

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**V\_PBIO 5991: Introduction to Avian Medicine**

Introduction to Avian Medicine

**Credit Hour:** 1

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**V\_PBIO 5995: Foundations in Veterinary Research and Discovery**

This course will introduce veterinary students to concepts of research including hypothesis development, experimental design, data interpretation, grantsmanship, responsible conduct of research, biomedical research careers and presentation and publication methods.

**Credit Hours:** 2

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**V\_PBIO 6010: Laboratory Animal Medicine**

Principles of Veterinary Medicine applied to laboratory animals as pets and in research. Husbandry, handling and clinical techniques, diseases, and use as disease models are discussed. Instructional period 8.

**Credit Hour:** 1.5

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**V\_PBIO 6647: Diagnostic Pathology and Special Species Medicine**

Application of laboratory techniques used to diagnose disease by macroscopic, microscopic, biochemical, microbiologic, and toxicologic findings. Case method of teaching. Domestic avian species and laboratory animals included. Six times yearly.

**Credit Hours:** 8

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**V\_PBIO 6676: Laboratory Animal Medicine and Management Elective**

Elective offered 3rd- and 4th-year students, subject to approval of course coordinator and supervising faculty. Concentrated study/experience in laboratory animal disease(s)/colony management. Available to veterinarians as a continuing education program.

**Credit Hour:** 2-6

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**V\_PBIO 6678: Epidemiology and Community Health**

Elective covering advanced aspects of epidemiology and community health. Emphasizes problem solving and is designed to meet needs of the individual student. Instructional period arranged.

**Credit Hour:** 2-6

**Prerequisites:** V\_PBIO 5558 or instructor's consent

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**V\_PBIO 6679: Diagnostic Pathology and Special Species Medicine**

Third- and fourth-year students. Elective. Approval of coordinator and supervisory staff. Continuation of V\_PBIO 6647 with more depth. Available to D.V.M.'s as part of continuing education program.

**Credit Hour:** 2-6

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**V\_PBIO 6684: Research Techniques in Veterinary Pathobiology**

Research Techniques in Veterinary Pathobiology

**Credit Hour:** 1-6

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**V\_PBIO 7110: Veterinary Cytology**

(cross-leveled with BIOMED 4110). This course of Veterinary Cytology is designed to hone the skills of the practicing Veterinary Technician, Veterinary Student, or Veterinarian and assumes some basic knowledge of microscope usage and normal hematology. The review of normal cells will be minimal and emphasis will be placed on findings associated with inflammatory and neoplastic diseases. The graduate level course will include discussion of ancillary tests, special stains and treatment alternatives. The focus will be on canine and feline diseases but some common equine and bovine disease.

**Credit Hours:** 2

**Prerequisites:** DVM or equivalent degree or instructor's consent

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**V\_PBIO 7120: Principles of Toxicology**

(cross-leveled with BIOMED 4120). This course will provide an introduction to the general principles of toxicology, including the history and scope of the field; risk assessment and management; mechanisms of toxicology; the disposition of toxicants; non-target organ-directed toxicity; toxic responses of specific target organs; and various toxicological application, such as environmental toxicology.

**Credit Hours:** 3

**Prerequisites:** BS in Biology, Biochemistry, or equivalent, or permission of instructor

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**V\_PBio 7210: Animal Issues in Disasters**

(cross-leveled BIOMED 4210). Animal Issues in Disasters describes the various aspects of responding to disasters that involve animals. Government involvement, legal requirements, effects on the human-animal bond, preparation for disasters of different kinds, and impacts on animal-related businesses will be discussed.

**Credit Hour:** 1

**Prerequisites:** a bachelor's degree in a biological science or veterinary technology, or DVM degree, or instructor's consent

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**V\_PBio 7787: Historical, Societal and Ethical Topics in Medicine and Biomedical Research**

(cross-leveled with V\_PBio 4787). Advances in medicine, genetics, reproduction and technologies underpinning biomedical research can have profound implications not only scientifically but in terms of societal and ethical impact. Using several historical events such as the establishment of the first immortal cell line, the Tuskegee syphilis study, the eugenics movement in the United States and the cloning of Dolly the sheep as starting points, we will explore the historical, societal and ethical context and issues surrounding these events and relate them to current ethical and moral questions that have been generated by recent scientific and medical progress. Graded on A-F basis only.

**Credit Hours:** 2

**Prerequisites:** Consent of Instructor

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**V\_PBio 8090: Thesis Research in Veterinary Pathobiology**

Open to graduate students with requisite preparation. Research on specific animal diseases, prevention and treatment. Graded on a S/U basis only.

**Credit Hour:** 1-99

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**V\_PBio 8401: Topics in Veterinary Pathobiology**

Courses with lectures in various topics in veterinary pathobiology will be given on a trial basis, depending on faculty expertise and student demand. Credit hours are usually 1 or 3. Specialized topics will be covered.

**Credit Hour:** 1-99

**Prerequisites:** instructor's consent

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**V\_PBio 8402: Evidenced Based Medicine - Application from Literature Review**

This course is designed to teach students how to assess best current evidence in their primary area of study and apply it to their ongoing research and to patient-based delivery of care. Students are instructed in all aspects of medical literature review and complete weekly assignments to demonstrate their learning. The assignments and discussions with the instructor(s) include determination of appropriate application of the knowledge gained.

**Credit Hours:** 3

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**V\_PBio 8410: Seminar in Veterinary Pathobiology**

Discussion of current research methods in veterinary pathobiology.

**Credit Hour:** 1

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**V\_PBio 8431: Research Methods and Data Analysis**

Specific assignments on diagnostic methods including surgical pathology, necropsies, toxicology.

**Credit Hour:** 2-4

**Prerequisites:** departmental consent

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**V\_PBio 8432: Advanced Histopathology**

Advanced microscopic study of pathological tissues.

**Credit Hours:** 5

**Prerequisites:** departmental consent

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**V\_PBio 8434: Advanced Clinical Pathology**

Lecture/tutorial teaching; pathogenesis of clinical laboratory abnormalities in the common domesticated species. Emphasis is placed on mechanisms of disease and pathophysiology of the changes seen in each organ system.

**Credit Hours:** 3

**Prerequisites:** departmental consent

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**V\_PBio 8435: Advanced Microscopy in Veterinary Clinical Pathology**

Recognition and pathogenesis of abnormalities found via microscopic analysis of blood smears or cytology.

**Credit Hour:** 1

**Prerequisites:** V\_PBio 5578 and departmental consent; DVM or current enrollment in veterinary curriculum

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**V\_PBio 8436: Pathogenic Mechanisms in Veterinary Pathobiology**

This course will include disease mechanisms, described at the cellular and molecular level, which result in tissue morphologic (gross and microscopic) and clinical abnormalities. Examples of discussion topics include soluble mediators of inflammatory processes, host-agent interactions, and host defense mechanisms.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**V\_PBio 8445: Vectors and Vector-borne Diseases**

This course will focus on arthropod vectors (insects and ticks) and the medically important pathogens / diseases that they transmit, including arboviruses, bacteria, protozoa and nematodes. An emphasis will be on the interactions between the vectors and disease-causing pathogens. Topics include: introductions to systematics, anatomy, physiology, life cycles, and ecology of vectors and classification and biology of the pathogens responsible for such diseases as dengue, yellow fever, malaria, leishmaniasis, lymphatic filariasis, etc. The focus will be not only on specific pathogen-vector interactions but also on big picture topics / discussions of vector competence, insecticide resistance, vector control (including genetically modified insects) and other current issues in vector biology research. Students will learn how these important vector-borne diseases are transmitted, how they are spread and introduced into new regions, and what control strategies exist or are currently under development. Students will realize what impact vector-borne diseases have on global human and animal health as well as develop and hone critical thinking skills.

**Credit Hours:** 3

**Prerequisites:** Graduate standing in the Life Sciences

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**V\_PBio 8448: Molecular Methods in Nucleic Acids**

The course will focus on the most recent developments in technology related to eukaryotic and prokaryotic molecular biology and as analysis a manipulation of nucleic acids and their application to define structure, function and biosynthesis of macromolecules.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**V\_PBio 8450: Non-Thesis Research in Veterinary Pathobiology**

Research not expected to terminate in dissertation.

**Credit Hour:** 1-99

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**V\_PBio 8451: Introduction to Immunology**

(same as V\_PBio 5511 and V\_PBio 5512). Fundamentals of immunology as applied to domestic animals.

**Credit Hours:** 3

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**V\_PBio 8452: Cell and Molecular Electron Microscopy**

Lecture class that describes the use of electron microscopy (transmission and scanning) in biomedical research. Students receive hands-on experience by completing a laboratory project.

**Credit Hours:** 4

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**V\_PBio 8454: Domestic Animal Virology**

(cross-leveled with V\_PBio 5554). Classification and properties of viruses. Considers the etiologic, pathologic and immunologic aspects of viral diseases of animals. Instructional periods 6.

**Credit Hours:** 2.5

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**V\_PBio 8455: Epidemiology and Biostatistics**

Graduate level introduction to veterinary epidemiology and bio-statistics.

**Credit Hour:** 2-3

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**V\_PBio 8457: Animal Parasitology**

(same as V\_PBio 5557).

**Credit Hour:** 3-5

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**V\_PBio 8458: Veterinary Public Health**

(same as V\_PBio 5558).

**Credit Hours:** 2

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**V\_PBio 8552: Veterinary Pathogenic Bacteriology and Mycology I**

This course deals with the bacterial pathogens of animals emphasizing the pathogenesis and pathology of the diseases, diagnostic problems, appropriate treatments and prevention measures. Course graded A-F only.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**V\_PBio 8553: Veterinary Pathogenic Bacteriology and Mycology II**

This course deals with the bacterial pathogens of animals emphasizing the pathogenesis and pathology of the diseases, diagnostic procedures, appropriate treatments and prevention measures. Graded on A-F basis only.

**Credit Hours:** 2.5

**Prerequisites:** V\_PBio 5552 or V\_PBio 8552 and instructor's consent

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**V\_PBio 8601: Animals in Emergencies & Basic Emergency Response Training for Vet Students**

This course will enable veterinary and graduate students to understand their role in society during disasters and credential as responders.

Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** Students must be enrolled in the College of Veterinary Medicine and pursuing a DVM degree or be a student pursuing an MPH degree. Instructor consent required for non-veterinary graduate students seeking MPH degrees

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**V\_PBio 8641: Introduction to Research Ethics**

This course provides students with a brief overview of many of the ethical issues that confront today's scientist. It is important that scientist think about and develop their abilities to make well-reasoned responses to ethical problems.

**Credit Hour:** 1

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**V\_PBio 9090: Area Veterinary Pathobiology Dissertation Research**

Dissertation Research for PhD students. May be repeated for credit. Graded on S/U basis only.

**Credit Hour:** 1-99

**Prerequisites:** departmental consent

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## Women's and Gender Studies (WGST)

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**WGST 1004: Topics in Women's and Gender Studies-Social Science**

Organized study of selected topics in women's and gender studies. Subjects and earnable credit may vary from semester to semester. Repeatable up to 6 hours.

**Credit Hour:** 1-3

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**WGST 1005: Topics in Women's and Gender Studies-Humanities**

Organized study of selected topics in women's and gender studies. Subjects may vary from semester to semester. Repeatable up to 6 hours.

**Credit Hours:** 3

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**WGST 1120: Introduction to Women's and Gender Studies**

Introduction to the basic issues of Western feminist thought through a study of classical and contemporary sources. Course will consider images, conditions, activities and visions of women as they vary historically and socially.

**Credit Hours:** 3

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**WGST 1360: The Female Experience: Body, Identity, and Culture**  
(same as SOCIO 1360). Study of the experience of being female in American Culture. Course will focus on development of women's identities through such topics as: sexuality, reproduction, self-image, rape and health care.

**Credit Hours:** 3

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**WGST 1500: The Black Woman in America**  
(same as BL\_STU 1500). Review and critique of a variety of materials about Black women from slavery to the social and philosophical impact of the Black woman's struggle on all women.

**Credit Hours:** 3

**Recommended:** sophomore standing

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**WGST 2003: Topics in Women's and Gender Studies-Behavioral**  
Organized study of selected topics in women's and gender studies. Subjects may vary from semester to semester. Repeatable up to 6 hours.

**Credit Hours:** 3

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**WGST 2005: Topics in Women's and Gender Studies-Humanities**  
Organized study of selected topics in women's and gender studies. Subjects may vary from semester to semester. Repeatable up to 6 hours.

**Credit Hours:** 3

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**WGST 2010: Understanding Intersectionality**  
Explores historical and contemporary dimensions of social inequality in gender, race, class, and sexuality. Uses an interdisciplinary lens and feminist analysis to analyze the social, cultural, political and economic experiences of individuals and communities.

**Credit Hours:** 3

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**WGST 2020: Feminist Theory**  
Introduces central themes and problems in feminist thought, including consciousness-raising, motherhood, class, race, sexuality, nationalism, and transnational feminism.

**Credit Hours:** 3

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**WGST 2040: Perspectives on Empowerment**  
Women's Empowerment is a popular catch phrase in culture, politics and research. This course explores the meaning of empowerment, the ways empowerment is practiced in organizations and in the everyday lives of girls and women, and the challenges in empowering girls and women in contemporary society. May be repeated for credit (up to 6 credits) with different semester themes.

**Credit Hours:** 3

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**WGST 2050: Gender and Public Health**  
Addresses issues of gender and public health in the US and abroad. Considers how race, class, gender, sexuality, and geopolitical context may impact health. May focus on specific health issues. May be repeated for credit (up to 6 hours) with different semester themes.

**Credit Hours:** 3

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**WGST 2080: Perspectives on Sexual and Gender Diversity**  
This interdisciplinary, cross-cultural course investigates modern constructions of sexed and gendered bodies, paying particular attention to those systems of gender-based oppression that suppress multiple gender identities and expressions. May be repeated for credit with different semester themes.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**WGST 2180: Introduction to Women's Literature**  
(same as ENGLISH 2180). A study of traditional and non-traditional literature written by women from the perspective of feminist themes-love, power, work, family and other relations. No more than six hours may be taken in the Introduction to Women's Literature series.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**WGST 2180W: Introduction to Women's Literature - Writing Intensive**  
(same as ENGLISH 2180W). A study of traditional and non-traditional literature written by women from the perspective of feminist themes-love, power, work, family and other relations. No more than six hours may be taken in the Introduction to Women's Literature series.

**Credit Hours:** 3

**Recommended:** ENGLISH 1000

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**WGST 2189W: Introduction to Women's Literature, 1890 to Present-Writing Intensive**  
(same as ENGLISH 2189W). See WGST 2180 for course description.

**Credit Hours:** 3

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**WGST 2200H: British Women Writers - Honors**  
Study of works by important British women writers. We also consider the development of women's writing and the contribution of women writers to literature and to larger societal debates. May be repeated for credit.

**Credit Hours:** 3

**Prerequisites:** honors eligibility required

**Recommended:** sophomore standing

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**WGST 2250: Gender, Race, Class and Sexuality in the Americas**  
Introduction to the formation of identities in the Americas. Some areas covered are immigration, transnational identity, pop culture, literary expression, body image, spirituality, racism/sexism, assimilation, acculturation, and activism. May be repeated for credit (up to 6 credits) with different semester themes.

**Credit Hours:** 3

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**WGST 2250W: Gender, Race, Class and Sexuality in the Americas - Writing Intensive**  
Introduction to the formation of identities in the Americas. Some areas covered are immigration, transnational identity, pop culture, literary expression, body image, spirituality, racism/sexism, assimilation, acculturation, and activism. May be repeated for credit (up to 6 credits) with different semester themes.

**Credit Hours:** 3



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**WGST 2260: Perspectives on Mass Media: Constructions of Gender, Race and Sexuality**

Examines constructions of gender, race, class and sexuality in the US media in the twentieth and twenty first centuries. Emphasis placed on media's coverage and uses of various socially constructed identities. May be repeated for credit with different semester themes.

**Credit Hours:** 3

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**WGST 2340: Gender and Popular Culture**

Explores issues in popular culture in the 20th and 21st centuries with respect to feminism, gender, sexuality, race, class, and ability. Areas of study may include television, movies, music, advertisements, magazines, fiction, newspapers, the internet, and social media. May be repeated for credit (up to 6 credits) with different semester themes.

**Credit Hours:** 3

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**WGST 2400: Social History of U.S. Women**

(same as HIST 2400). This course, the social history of US women, offers a general overview of US women, beginning with the colonial period up to the present day.

**Credit Hours:** 3

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**WGST 2410: African American Women in History**

(same as HIST 2410 and BL\_STU 2410). Covers major issues affecting black women since their introduction into English-speaking North America to the present.

**Credit Hours:** 3

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**WGST 2500: Philosophy and Gender**

(same as PHIL 2500). A critical examination of central ideas and themes in feminist philosophical thought. Topics may include: sex, marriage, parenthood, reproduction, body image, pornography, prostitution.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**WGST 2960: Sexual Health Education and Advocacy**

Students will critically investigate sexuality and reproductive health within a cultural context including religious, political, social justice, familial, and societal influences. Through assigned readings, reflection, small group activities and discussion, students will increase their awareness of sexual health issues, enhance self awareness, and learn how to effectively educate their peers surrounding issues of sexual health.

**Credit Hours:** 3

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**WGST 3003: Topics in Women's and Gender Studies-Behavioral Sciences**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable up to 6 hours.

**Credit Hours:** 3

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**WGST 3004: Topics in Women's and Gender Studies-Social Sciences**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable up to 6 hours.

**Credit Hours:** 3

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**WGST 3005: Topics in Women's and Gender Studies-Humanities**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable up to 6 hours.

**Credit Hours:** 3

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**WGST 3005H: Topics in Women's and Gender Studies-Humanities - Honors**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable up to 6 hours.

**Credit Hours:** 3

**Prerequisites:** honors eligibility required

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**WGST 3080: Sexuality and Gender Theory**

(same as ENGLSH 3080). Examination of major theoretical approaches and debates in the study of gender and sexuality, with particular attention to the intersection of culture, representation, and identity. May be repeated to 6 hours with departments consent.

**Credit Hours:** 3

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**WGST 3150: Themes in Gender and Work**

This is an interdisciplinary course on gender and work. The course addresses topics such as contemporary and historical feminist debates about gender and work; problems of gender inequality at the workplace; historical context of contemporary patterns of gender inequality at work; and how gender intersects with race, class, sexuality and other social categories to shape people's work lives.

**Credit Hours:** 3

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**WGST 3180: Historical Survey of Women Writers**

(same as ENGLSH 3180). A study of writing by women from the Middle Ages to the present.

**Credit Hours:** 3

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**WGST 3180W: Historical Survey of Women Writers - Writing Intensive**

(same as ENGLSH 3180). A study of writing by women from the Middle Ages to the present.

**Credit Hours:** 3

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**WGST 3220: U.S. Women's Political History, 1880-Present**

(same as HIST 3220). This course explores American women's engagement with American politics (broadly defined) over the course of the twentieth century. It addresses issues of political identity, organization, ideology, and division.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**WGST 3230: Themes in Sexual Politics**

Explores transnational politics of sex/sexuality, examines the theoretical, historical, analytical, and socio-cultural context of race, gender and sexuality. Students learn and apply a transdisciplinary approach and analyze shifts in the field of sexuality studies. May be repeated for credit with different themes.

**Credit Hours:** 3

**Prerequisites:** WGST 1120

**Recommended:** sophomore standing

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**WGST 3260: Gender, Law and Justice**

Course addresses issues related to gender, law and the justice system in the U.S. and /or globally. Topics may include history of women's rights in the U.S.; contemporary issues in law and justice such as incarceration, human trafficking, and gay marriage; and the ways race, class, sexuality and citizenship shape experiences of justice. May be repeated for credit (up to 6 credits) with different semester themes.

**Credit Hours:** 3

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**WGST 3270: Themes in Masculinities**

Explores how male experiences are shaped by gender expectations and social context, with emphasis on challenges and privileges associated with negotiating masculine gender role expectations. Evaluates the impact of gender, especially in American popular culture, on diverse men and their families. Studies how gender interacts with sexuality, race, religion, ethnicity, socioeconomic status, and non-binary gender expressions. Course may be repeated for credit (up to 6 hours) with a different semester theme.

**Credit Hours:** 3

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**WGST 3300: Queer Theories/Identities**

(same as SOCIOL 3300). Analysis of gay, lesbian, bisexual, transgender (GLBT) and queer identities in culture and society with an emphasis on the contributions of queer theory and other GLBT standpoint theories to sociology and the study of society.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 2200 or instructor's consent

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**WGST 3300W: Queer Theories/Identities - Writing Intensive**

(same as SOCIOL 3300). Analysis of gay, lesbian, bisexual, transgender (GLBT) and queer identities in culture and society with an emphasis on the contributions of queer theory and other GLBT standpoint theories to sociology and the study of society.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 2200 or instructor's consent

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**WGST 3320: Sociology of Gender**

(same as SOCIOL 3320). Study of the ways in which femininities and masculinities are constructed in American society with particular attention to gender ideologies and the gendered nature of the social structure.

**Credit Hours:** 3

**Prerequisites:** SOCIOL 1000 or SOCIOL 1360

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**WGST 3370: Gender and Religion**

Students acquire a basic knowledge and understanding of gender in religious communities including the construction of women's/men's religious identities, their gender relations, societal roles and status. Themes may explore how the organizational structures of religion can be a vehicle of oppression and a place for justice and autonomy; may explore the representation and practices of specific religions; or may address the intersections of gender, class, race, geopolitics, and religion. May be repeated for credit (up to 6 credits) with a different semester theme.

**Credit Hours:** 3

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**WGST 3450W: Feminist Methodologies - Writing Intensive**

This course is an opportunity to explore the difference that feminism makes in doing research. Students can begin to identify the research tools and strategies suited to questions they want to pursue.

**Credit Hours:** 3

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**WGST 3480: Themes in Sexuality and Literature**

Examines sexuality and representations of sexuality in literature. The specific topic will be announced at the time of registration. May be repeated for credit with different semester themes.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**WGST 3560: Gender and Immigration**

Explores current controversies in immigration in various locations. The course will cover a number of topics including nationalism and citizenship, national identity, identity and fluidity, social inequality and others. May be repeated for credit (up to 6 credits) with different semester themes.

**Credit Hours:** 3

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**WGST 3570: European Women in the 19th Century**

(same as HIST 3570). Examines the history of European women from 1750 to 1900. The course focuses on how industrialization, the French Revolution and nation-formation changed women's role in the family, workplace and the state. Grading: exams, papers and discussions.

**Credit Hours:** 3

**Prerequisites:** sophomore standing

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**WGST 3650: Themes in Feminism**

Course may cover historical and contemporary understandings of feminism, feminist movements in the U.S. and globally, and key debates in feminism. May be repeated for credit (up to 6 credits) with different semester themes.

**Credit Hours:** 3

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**WGST 3650H: Themes in Feminism - Honors**

Course may cover historical and contemporary understandings of feminism, feminist movements in the U.S. and globally, and key debates in feminism. May be repeated for credit (up to 6 credits) with different semester themes.

**Credit Hours:** 3

**Prerequisites:** Honors eligibility required

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**WGST 3670: Gender and Globalization**

Introduces transnational feminist theories, considers the practices and material circumstances related to globalization, and explores how class, gender, place/nation, (dis) ability, sexuality and colonial practices complicate our understanding of globalization. May be repeated for credit (up to 6 credits) with different semester themes.

**Credit Hours:** 3

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**WGST 3850: Gender and the Politics of Representation**

Examines the gendered politics of representation by analyzing film, literature, popular media, and/or other popular cultural texts. May be repeated for credit (up to 6 credits) with different semester themes.

**Credit Hours:** 3

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**WGST 3960: Strategies for Effective Peer Education**

(same as HLTH\_SCI 3965, P\_HLTH 3960). Course designed to promote effective presentation skills on a variety of health topics, specifically sexual health. Students will engage in experiential practice and skill building surrounding cultural competency, difficult discourses, discussion facilitation and behavior management. Graded on A-F basis only.

**Credit Hour:** 1

**Prerequisites:** WGST 2960

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**WGST 4001: Topics in Women's and Gender Studies-General**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable up to 6 hours.

**Credit Hours:** 3

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**WGST 4003: Topics in Women's and Gender Studies-Behavioral Sciences**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable up to 6 hours.

**Credit Hours:** 3

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**WGST 4005: Topics in Women's and Gender Studies-Humanities**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable up to 6 hours.

**Credit Hours:** 3

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**WGST 4020: Studies in Feminist Thought**

(same as BL\_STU 4020; cross-leveled with WGST 7020). Examines recent problems and critical debates within feminist theory. May be repeated for credit (up to 6 credits) with different semester themes.

**Credit Hours:** 3

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**WGST 4110: Feminist Research and Criticism**

(same as SOCIO 4110; cross-leveled with WGST 7110, SOCIO 7110) Examination of both feminist critique of traditional social research and recent, feminist-oriented research that attempts to answer these criticisms.

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**Credit Hours:** 3

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**WGST 4115: Relationship and Sexual Violence Prevention: Intersections of Social Justice**

This course explores the nature and dynamics of power-based personal violence under a social justice framework. Students will learn about the anti-violence movement, increase understanding of oppression and how it relates to sexual assault, and acquire facilitation skills necessary to provide presentations on various related topics. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** junior standing

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**WGST 4120: Gender and the Arts**

(same as VS\_ARH 4120; cross-level with WGST 7120, VS\_ARH 4120). Exploration of the relationship between the visual arts and constructions of gender and sexuality in selected eras.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**WGST 4181: Themes in Literature by Women**

(same as ENGLISH 4181 and BL\_STU 4181). Examines works by a number of women writers with particular attention to their sociopolitical context. May repeat to six hours with department's consent.

**Credit Hours:** 3

**Recommended:** junior standing

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**WGST 4188: Major Women Writers, 1789-1890**

(same as ENGLISH 4188). See WGST 4180 for course description.

**Credit Hours:** 3

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**WGST 4188W: Major Women Writers, 1789-1890 - Writing Intensive**

(same as ENGLISH 4188). See WGST 4180 for course description.

**Credit Hours:** 3

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**WGST 4189: Major Women Writers, 1890-Present**

(same as ENGLISH 4189). See WGST 4180 for course description.

**Credit Hours:** 3

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**WGST 4230: Women, Development, and Globalization**

(same as SOCIO 4230, BL\_STU 4230 and PEA\_ST 4230; cross-leveled with SOCIO 7230, BL\_STU 7230, WGST 7230). Examines the history and structure of 'development' discourse and practices. Stresses the interconnections and impact on women globally. Reviews women's strategies in defining and instituting programs to improve quality of life in communities.

**Credit Hours:** 3

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**WGST 4310: Adoption, Child Welfare and the Family, 1850-Present**

(same as HIST 4310; cross-leveled with WGST 7310, HIST 7310). This interdisciplinary U.S. history course will address topics such as: changing legal and social meaning of adoption since 1850; historical connections between adoption and poverty, family, gender race, sexuality, class, fertility, identity; and more recent issues such as transnational adoption.

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**Credit Hours:** 3

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**WGST 4350: Gender and the Environment**

(cross-leveled with WGST 7350). Explores how gendered social relations affect the relationship between human beings, non-human nature, and the environment. Also examines how historically, the human relationship with nature has been governed by a dualism of culture and nature that enables both an ideology of technical control and the objectification of the environment and people. Draws from ecological feminism, the environmental justice movement, feminist science studies, materialist feminism, and feminist dystopian fiction.

**Credit Hours:** 3

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**WGST 4370: Anthropology of Gender**

(same as ANTHRO 4370; cross-leveled with ANTHRO 7370, WGST 7370). The Anthropology of Gender introduces the student to the variation in the relationships between male and females; and between men, women, and other genders from around the world. The different approaches to understanding and modeling gender are discussed, as are specific case-studies from many different cultures.

**Credit Hours:** 3

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**WGST 4400: Contemporary Issues in Domestic Violence**

(same as SOC\_WK 4400; cross-leveled with SOC\_WK 7400, WGST 7400). Covers history of the domestic violence movement, intimate partner violence theories and data, legislative and organizational policy issues, and intervention models for practice with individuals who have experienced domestic violence including co-occurring issues such as trauma. Graded on A-F basis only.

**Credit Hours:** 3

**Prerequisites:** Junior or Senior standing required

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**WGST 4420: Gender, Culture, and Politics**

Examines ethical issues, social policies and politics, and cultural practices affecting women in specific national and global contexts. May be repeated for credit (up to 6 credits) with different semester themes.

**Credit Hours:** 3

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**WGST 4480: Major African Diaspora Women Writers**

(same as BL\_STU 4480 and ENGLSH 4480). Study of selected Africana Diaspora women writers, focusing on texts originally in English. Repeatable with department's consent. Maximum of 6 hours for WGST 4180 and WGST 4480.

**Credit Hours:** 3

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**WGST 4488: Major African Diaspora Women Writers, 1789 to 1890**

(same as BL\_STU 4488, ENGLSH 4488). See WGST 4480 for course description.

**Credit Hours:** 3

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**WGST 4489: Major African Diaspora Women Writers, 1890 to Present**

(same as BL\_STU 4489, ENGLSH 4489; cross-leveled with ENGLSH 7489, BL\_STU 7489, WGST 7489). See WGST 4480 for course description.

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**Credit Hours:** 3

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**WGST 4489W: Major African Diaspora Women Writers, 1890 to Present - Writing Intensive**

(same as BL\_STU 4489W, ENGLSH 4489W; cross-leveled with ENGLSH 7489, BL\_STU 7489, WGST 7489). See WGST 4480 for course description.

**Credit Hours:** 3

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**WGST 4550: Gender and Human Rights in Cross Cultural Perspective**

(same as SOCIOL 4550 and PEA\_ST 4550; cross-leveled with WGST 7550, SOCIOL 7550, PEA\_ST 7550). This course focuses on the global discourse on human rights and gender, emphasizing cross-cultural theories. Course includes the meaning of rights, Western and nonwestern perspectives, feminist contributions, important substantive debates, violations, policymaking and activism.

**Credit Hours:** 3

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**WGST 4600: Women and Health**

A survey of international and domestic women's health issues; considers historical antecedents and specific effects of socio-cultural variables and economic development on women's health in developing and developed nations. May be repeated for credit (up to 6 credits) with different semester themes.

**Credit Hours:** 3

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**WGST 4640: Gender and Performance**

Examines the relationship among gender, race, class, and/or sexuality, and performance. Course materials may include theatre performance, visual art, literacy context, theoretical essays, films, and popular culture. May be repeated for credit (up to 6 credits) with different semester themes.

**Credit Hours:** 3

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**WGST 4660: Gender, War, and Migration: Europe, 1914 to the Present**

(same as HIST 4660; cross-leveled with HIST 7660, WGST 7660). Scholars have long recognized the fundamental ways that war and migration marked the lives of European women and men in the 20th century, and yet, rarely have they focused on the interrelations between mobilities, violence and gender. This class explores how war and mass migrations inscribed new gendered, racial and class hierarchies into the European landscape, and created new kinds of political and social divides. The total wars of World War I and World War II, requiring the participation of civilians and soldiers, erasing lines separating the home front from the battlefield, forcing millions to flee their homes, and drawing men and women from the colonies into the war effort reshaped notions of gender, work, family, nation and citizenship within Europe. The subsequent wars of decolonization and post war migrations, followed by the conflicts that erupted at the end of the Cold War challenged the postwar gender ideals underpinning the European welfare state and the European Union, and fueled the rise of contemporary xenophobic and racist populist movements. Course materials will include historical monographs, articles, memoirs and films.

**Credit Hours:** 3

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**WGST 4716: Women and the Media**

(same as JOURN 4716; cross-leveled with WGST 7716, JOURN 7716). Focus on portrayal of women in American mass media. Other goals: historical perspective on women as journalists; exposure to issues usually not covered by mass media; research and writing skills.

**Credit Hours:** 3

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**WGST 4730: Women and Politics**

(same as POL\_SC 4730). This course examines women's political participation and public policies towards women in countries around the world.

**Credit Hours:** 3

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**WGST 4750: Women, Religion and Culture**

(same as REL\_ST 4750; cross-leveled with REL\_ST 7750, WGST 7750). An advanced study of the role of women in religion, focusing on the methods of determining the significance of gender in religious life, sacred texts, symbols, rituals and/or beliefs. Traditions studied include Christianity, Islam, contemporary pagan communities, and Native American traditions.

**Credit Hours:** 3

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**WGST 4780: Women's Folklore and Feminist Theory**

(same as ENGLISH 4780; cross-leveled with ENGLISH 7780, WGST 7780). Examines folklore and artistic expression of women in relations to feminist theory and in multicultural contexts. Includes verbal genres (narrative/song) as well as material genres (quilting/arts).

**Credit Hours:** 3

**Recommended:** junior standing

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**WGST 4873: Women's and Gender Studies Abroad - Behavioral Science**

This interdisciplinary study abroad course provides students the opportunity to study women's issues in the globe, to study in a foreign culture and augment their global competencies across the Women's and Gender Studies curriculum and extend a global perspective to their study and/or career development.

**Credit Hours:** 3

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**WGST 4874: Women's and Gender Studies Abroad - Social Science**

This interdisciplinary study abroad course provides students the opportunity to study women's issues in the globe, to study in a foreign culture and augment their global competencies across the Women's and Gender Studies curriculum and extend a global perspective to their study and/or career development.

**Credit Hours:** 3

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**WGST 4875: Women's and Gender Studies Abroad - Humanities**

This interdisciplinary study abroad course provides students the opportunity to study women's issues in the globe, to study in a foreign culture and augment their global competencies across the Women's and Gender Studies curriculum and extend a global perspective to their study and/or career development.

**Credit Hours:** 3

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**WGST 4940: Internship in Women's and Gender Studies**

Directed professional experience in WGST approved agency or organization. This course can be taken in place of WGST 4990 to meet BA degree requirements. Graded on S/U basis only.

**Credit Hours:** 3

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**WGST 4965: Special Readings in Women's and Gender Studies**

Independent readings in women's and gender studies for highly qualified and motivated students. Topic selected in consultation with supervisory faculty member.

**Credit Hour:** 1-6

**Prerequisites:** Instructor Consent

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**WGST 4990: Research Seminar in Women's and Gender Studies**

Advanced seminar in Women's and Gender Studies. Topics and form of the class varies according to instructor, but all courses are designed to deepen a student's understanding of the discipline's theories and methods. Can be substituted for WGST 4940.

**Credit Hours:** 3

**Recommended:** Previous WGST courses are strongly recommended

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**WGST 7001: Topics in Women's and Gender Studies-General**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable for credit (up to 6 credits).

**Credit Hours:** 3

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**WGST 7003: Topics in Women's and Gender Studies-Behavioral Studies**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable for credit (up to 6 credits).

**Credit Hours:** 3

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**WGST 7020: Studies in Feminist Thought**

(same as BL\_STU 7020; cross-leveled with WGST 4020, BL\_STU 4020). Examines recent problems and critical debates within feminist theory.

**Credit Hours:** 3

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**WGST 7110: Feminist Research and Criticism**

(same as SOCIOL 7110; cross-leveled with WGST 4110, SOCIOL 4110). Examination of both feminist critique of traditional social research and recent, feminist-oriented research that attempts to answer these criticisms.

**Credit Hours:** 3

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**WGST 7188: Major Women Writers, 1789-1890**

(same as ENGLISH 7188). See WGST 7180 for course description.

**Credit Hours:** 3

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**WGST 7230: Women, Development, and Globalization**

(same as SOCIOL 7230, BL\_STU 7230; cross-leveled with WGST 4230, BL\_STU 4230, SOCIOL 4230, PEA\_ST 4230). Examines the history and structure of 'development' discourse and practices. Stresses the interconnections and impact on women globally. Reviews women's strategies in defining and instituting programs to improve quality of life in communities.

**Credit Hours:** 3

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**WGST 7370: Anthropology of Gender**

(same as ANTHRO 7370; cross-leveled with WGST 4370, ANTHRO 4370). The Anthropology of Gender Introduces the student to the variation in the relationships between males and females; and between men, women, and other genders from around the world. The different approaches to understanding and modeling gender are discussed, as are specific case-studies from many different cultures.

**Credit Hours:** 3

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**WGST 7400: Contemporary Issues in Domestic Violence**

(same as SOC\_WK 7400; cross-leveled with WGST 4400, SOC\_WK 4400). Covers history of the domestic violence movement, intimate partner violence theories and data, legislative and organizational policy issues, and intervention models for practice with individuals who have experienced domestic violence including co-occurring issues such as trauma. Graded on A-F basis only.

**Credit Hours:** 3

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**WGST 7420: Studies in Gender, Culture, and Politics**

(cross-leveled with WGST 4420). Examines ethical issues, social policies and politics, and cultural practices affecting women in specific national and global contexts.

**Credit Hours:** 3

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**WGST 7480: Major African Diaspora Women Writers**

(same as BL\_STU 7480 and ENGLSH 7480). Study of selected African Diaspora women writers, focusing on texts originally in English. Repeatable with department's consent. Maximum of 6 hours for WGST 7180 and WGST 7480.

**Credit Hours:** 3

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**WGST 7550: Gender and Human Rights in Cross Cultural Perspective**

(same as SOCIOL 7550 and PEA\_ST 7550; cross-leveled with WGST 4550, SOCIOL 4550, PEA\_ST 4550). Focuses on the global discourse on human rights and gender, emphasizing cross-cultural theories. Course includes the meaning of human rights, western and nonwestern perspectives, feminist contributions, important substantive debates, violations, policymaking and activism.

**Credit Hours:** 3

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**WGST 7660: Gender, War, and Migration: Europe, 1914 to the Present**

(same as HIST 7660; cross-leveled with WGST 4660, HIST 4660). Scholars have long recognized the fundamental ways that war and migration marked the lives of European women and men in the 20th

century, and yet, rarely have they focused on the interrelations between mobilities, violence and gender. This class explores how war and mass migrations inscribed new gendered, racial and class hierarchies into the European landscape, and created new kinds of political and social divides. The total wars of World War I and World War II, requiring the participation of civilians and soldiers, erasing lines separating the home front from the battlefield, forcing millions to flee their homes, and drawing men and women from the colonies into the war effort reshaped notions of gender, work, family, nation and citizenship within Europe. The subsequent wars of decolonization and post war migrations, followed by the conflicts that erupted at the end of the Cold War challenged the postwar gender ideals underpinning the European welfare state and the European Union, and fueled the rise of contemporary xenophobic and racist populist movements. Course materials will include historical monographs, articles, memoirs and films.

**Credit Hours:** 3

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**WGST 7716: Women and the Media**

(same as JOURN 7716; cross-leveled with WGST 4716, JOURN 4716). Focus on portrayal of women in American mass media. Other goals: historical perspective on women as journalists; exposure to issues usually not covered by mass media; research and writing skills.

**Credit Hours:** 3

**Prerequisites:** instructor's consent

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**WGST 7750: Women, Religion and Culture**

(same as REL\_ST 7750; cross-leveled with WGST 4750, REL\_ST 4750). An advanced study of the role of women in religion, focusing on the methods of determining the significance of gender in religious life, sacred texts, symbols, rituals and/or beliefs. Traditions studied include Christianity, Islam, contemporary pagan communities, and Native American traditions.

**Credit Hours:** 3

---

**WGST 7780: Women's Folklore and Feminist Theory**

(same as ENGLSH 7780; cross-leveled with ENGLSH 4780, WGST 4780). Examines folklore and artistic expression of women in relations to feminist theory and in multicultural contexts. Includes verbal genres (narrative/song) as well as material genres (quilting/arts).

**Credit Hours:** 3

---

**WGST 7875: Women's and Gender Studies Abroad - Humanities**

This interdisciplinary study abroad course provides students the opportunity to study women's issues in the globe, to study in a foreign culture and augment their global competencies across the Women's and Gender Studies curriculum and extend a global perspective to their study and/or career development.

**Credit Hours:** 3

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**WGST 8004: Topics in Women's and Gender Studies-Social Science**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable for credit (up to 6 credits).

**Credit Hours:** 3

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**WGST 8005: Topics in Women's and Gender Studies-Humanities**

Problems, topics, issues or review of research in any area of women's and gender studies and/or experimental development of new content areas. Repeatable (up to 6 credits).

**Credit Hours:** 3

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**WGST 8020: Graduate Feminist Theory**

This course will explore the texts and contexts of feminist theories including women of color socialist/Marxist feminism, queer theory, postmodern feminism, and feminist postcolonial theory.

**Credit Hours:** 3

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**WGST 8040: Seminar: Problems and Issues in Feminist Scholarship**

This course is a broad based exploration of a range of current feminist scholarship, both multidisciplinary and interdisciplinary. Issues of identity and difference, community and change are explored through the complicating lenses of race and sexuality.

**Credit Hours:** 3

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**WGST 8060: New Directions in Feminist Theory**

Offers an in-depth exploration of a recent direction in feminist theory. Students will learn a specific feminist approach to scholarship. Theory explored will change based on the semester and professor teaching the course.

**Credit Hours:** 3

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**WGST 8965: Problems in Women's and Gender Studies**

Directed individual study on selected topics for qualified graduate students. Plan of study subject to approval by supervising faculty.

**Credit Hour:** 1-6

**Prerequisites:** Instructor consent

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**WGST 9440: Race, Gender, Ethnicity in Higher Education**

(same as ED\_LPA 9440). Historical relationships of race, gender, and ethnic issues in United States higher education. Issues include: theory and research of curriculum and teaching, diversity within the academy, and leadership, governance, and policy.

**Credit Hours:** 3

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## Faculty

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Below is a listing of faculty who are currently scheduled to teach Spring 2019 through Spring 2020. Information includes the faculty's name, title, department, highest degree attained and institution of highest degree. The last two items of information are self-reported.

Additional faculty members may be listed on the Faculty tabs in the degree areas within the catalog, or on the College, School, or Department websites.

**Abbott, Carmen Casanova**; Part-Time Adjunct Faculty; MOI Therapies; Doctor of Philosophy; University of Missouri

**Abbott, Colleen Marie**; Specialist; Applied Soc Sci; Specialist of Education; University of Missouri

**Abbott, Jeanne Martha**; Journalism; Doctor of Philosophy; University of Missouri

**Abbott, Kati Marie**; Part-Time Adjunct Faculty; Economics; Master of Education; Truman State University

**Abdelaziz, Amr Samy**; Radiology; Master's Degree - 1st entry; Cairo University, Egypt

**Abdulkarim, Ghaith Ahmed**; Anesthesiology; Doctor of Medicine; Jordan University of Science and Technology

**Abdulkhalik, Karim Salaimy**; Part-Time Adjunct Faculty; Aerospace Studies

**Aberbach, Ian M**; Mathematics; Doctor of Philosophy; University of Michigan

**Abrams, Douglas E**; Emeritus; Law; Juris Doctor; Columbia University

**Acton, James D**; Child Health-Pulmonary; Doctor of Medicine; University of Illinois

**Adam, Abubakr Osman**; Medicine Hospitalist; Doctor of Medicine; University of Khartoum

**Adam, Balkozar S**; Psychiatry; Master's Degree; University of Missouri

**Adamovicz, Jeffrey Joseph**; Veterinary Pathobiology; Doctor of Philosophy; Uniformed Services University of Health Sciences

**Adams, Catherine Comley**; Part-Time Adjunct Faculty; State Historical Society; Doctor of Philosophy; University of Missouri

**Adams, Johanna R**; Prof, Asoc Extns; Applied Soc Sci; Doctor of Philosophy; University of Missouri

**Adams, John E**; Emeritus; Chemistry; Doctor of Philosophy; University of California, Berkeley

**Adams, John Henry**; Lib Spec Collectn & Archives; Doctor of Philosophy; Arizona State University

**Aderton, Andrea Hope**; Social Work

**Adib Keleh, Shady**; Anesthesiology; Doctor of Medicine; University of Cairo

**Adkins, Charlene**; Family & Community Medicine; Doctor of Medicine; MU-Columbia

**Adkins, Denice C**; Info Science & Learning Tech; Doctor of Philosophy; The University of Arizona

**Adkins, Pamela Rae**; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; The Ohio State University

**Adkins, Tanner Luke**; East Ctrl Region-Youth; Master of Science; University of Missouri

**Adu-Gyamfi, Yaw Okyere**; Civil/Environmental Engr; Doctor of Philosophy; University of Delaware

**Agca, Yuksel**; Veterinary Pathobiology; Doctor of Philosophy; Purdue University - North Central

**Aggarwal, Ajay**; Orthopaedic Surgery

**Aggarwal, Arpit**; Psychiatry

**Aggarwal, Kul B**; Medicine; Doctor of Medicine; Medical College Amritsar

**Aguiayo, David**; Fellow, Post Doctoral; Ed Leadership & Pol Analysis; Doctor of Philosophy

**Ahmad, Salman**; Surgery-Acute Care

**Ahsan, Humera**; Radiology; Doctor of Medicine; Royal College of Radiologist

**Akhmadullin, Iskander V**; School of Music; Doctor of Musical Arts; University of North Texas

**Akin, Heather Elizabeth**; Instructor, Adjunct; Dean of Journalism; Doctor of Philosophy; University of Wisconsin-Madison

**Akturk, Ismail**; Electrical Eng & Computer Sci; Doctor of Philosophy; University of Minnesota, Twin Cities

**Al Wekhian, Jamil A**; Prof, Ast Adjunct; Multidisciplinary Programs; Doctor of Philosophy; Kennesaw State University

**Al-Samarraie, Mohannad Moayad**; Ophthalmology; Doctor of Medicine; University of Baghdad, College of Medicine

**Alafaireet, Patricia Elaine**; Health Mgmt & Informatics; Master's Degree; University of Missouri

**Albright, Emily Laraine**; Surgery-Surgical Oncology; Doctor of Medicine; St Louis University

**Albright, Joyce Gay**; Management; Doctor of Education; University of Missouri

**Alcazar-Estela, Asier**; Romance Languages & Literature; Doctor of Philosophy; University of Southern California

**Aldrich, Eric Michael**; Part-Time Adjunct Faculty; Educational Technologies @ MO; Master of Science; University of Missouri

**Aldridge, Kristina J**; Path & Anat Sci - Anatomy; Doctor of Philosophy; Johns Hopkins University

**Alexander, Amanda Caroline**; Applied Soc Sci; Doctor of Philosophy; University of Missouri

**Alexander, Anne Michele**; Law

**Alexander, Gregory Lynn**; Part-Time Adjunct Faculty; School of Nursing; Doctor of Philosophy; University of Missouri

**Alexander, Rachel Lynn**; Health & Specialized Libs; Master of Library Science; University of Missouri

**Alexander, Ross Cory**; Instructor, Adjunct; Truman School of Pub Affrs Adm; Doctor of Philosophy



**Alexander Franco, Keely Daniele;** Part-Time Adjunct Faculty; Career Center; Master of Science; University of Kansas

**Ali Akbarpour, Hadi;** Electrical Eng & Computer Sci; Doctor of Philosophy; University of Coimbra

**Aljabari, Salim A;** Child Health Critical Care; Doctor of Medicine; Alquds Scool Of Medicine

**Allen, Amber Marie;** Southwest HES; Master's Degree - 1st entry; Drury University

**Allen, Carla McCaghren;** SHP/Clinical & Diagnostic Sci; Doctor of Philosophy; University of Missouri

**Allen, Chenoa Dawn;** SHP/Health Sciences; Doctor of Philosophy; University of Tennessee, Knoxville

**Allen, Stephanie Marie;** Prof, Ast Visiting; SHP/Occupational Therapy; Master's Degree; University of Missouri

**Allen, William D;** Instructor, Adjunct; Finance; Doctor of Philosophy; University of Missouri

**Allen, William H;** Emeritus; Applied Soc Sci; Master's Degree; University of Illinois at Urbana-Champgain

**Allendorf, Gregory R;** Part-Time Adjunct Faculty; Lib Research & Info Svcs; Doctor of Philosophy; University of Missouri

**Allmon, Amanda Lou;** Family & Community Medicine; Doctor of Medicine; University of Missouri

**Almasri, Mahmoud Faud;** Electrical Eng & Computer Sci; Doctor of Philosophy; Southern Methodist University

**Alnijoumi, Mohammed Mustafa;** Medicine-Pulmonary & Environ; Doctor of Medicine; University of Khartoum

**Aloysius, Noel R;** Biological Engineering; Doctor of Philosophy; Yale University

**Alsabbagh, Mustafa;** Radiology; Bachelor's Degree - 1st entry; Al-Anbar University

**Alston, Jason Kelly;** Info Science & Learning Tech; Doctor of Philosophy; University of South Carolina

**Altes, Talissa Ann;** Radiology; Doctor of Medicine; University of Washington

**Altman, Claire Estelle;** SHP/Health Sciences; Doctor of Philosophy; The Pennsylvania State University

**Alvarado, Sethabel Levi;** Anesthesiology; Doctor of Medicine

**Amelon, Sybill K;** Part-Time Adjunct Faculty; School of Natural Resources; Doctor of Philosophy; University of MO Columbia

**Amos Landgraf, James Michael;** Veterinary Pathobiology; Doctor of Philosophy; Case Western Reserve University

**An, Jella Angela;** Ophthalmology; Doctor of Medicine; McGill University

**Anbari, Allison Brandt;** School of Nursing; Doctor of Philosophy; University of Missouri

**Anders, Anjali Patel;** Child Health-Neonatology; Doctor of Medicine; University of Missouri-Columbia

**Anderson, Alex I;** Part-Time Adjunct Faculty; Dean of Arts & Science; Master of Education; University of Missouri

**Anderson, Deborah Mae;** Veterinary Pathobiology; Doctor of Philosophy; University of California, Los Angeles

**Anderson, Derek T;** Electrical Eng & Computer Sci; Doctor of Philosophy; University of Missouri

**Anderson, Elaine R;** West Central Region-Youth; Master of Business Admin; William Woods University

**Anderson, Erin Abbott;** Instructor, Adjunct; Accountancy

**Anderson, Katherine Marie;** MU Libraries; Master of Library Science; University of Wisconsin - Madison

**Anderson, Kerin Kay;** Academic Advisor Sr; Dean of College of Business; University of Missouri

**Anderson, Laura L;** Part-Time Adjunct Faculty; School of Nursing; Bachelor's Degree; University of Missouri

**Anderson, Nichole Chapel;** Animal Science; Doctor of Philosophy; Purdue University

**Anderson, Paul Ervin;** Veterinary Pathobiology; Doctor of Philosophy; University of California, Los Angeles

**Anderson, Samantha Loreli;** Southeast HES; Master of Public Admin; Murray State University

**Anderson, Sharlette Dawn;** SHP/Clinical & Diagnostic Sci; Master's Degree; University of Missouri

**Anderson, Stephen H;** School of Natural Resources; Doctor of Philosophy; North Carolina State University

**Andrisse, Teirra Michelle;** Part-Time Adjunct Faculty; Residential Life; Bachelor's Degree - 1st entry

**Andrus, Joel Leavitt;** Management; Doctor of Philosophy; Texas A&M

**Ang, Jonathan Ross;** Medicine-Pulmonary & Environ

**Angello, Dana Katherine;** Instructor, Adjunct; Truman School of Pub Affrs Adm; Doctor of Philosophy; University of Missouri-Columbi

**Angelovici, Ruthie;** Biological Science; Doctor of Philosophy; Weizmann Institute of Science

**Anguah, Katherine Osei;** Nutrition & Exercise Phys-HES; Doctor of Philosophy; Purdue University

**Anowar, Sabreena;** Civil/Environmental Engr; Doctor of Philosophy; McGill University

**Ansaf, Bahaa Ibraheem;** Part-Time Adjunct Faculty; Mechanical & Aerospace Engr; Doctor of Philosophy; University of Baghdad

**Anthony, Sarah Elizabeth;** Part-Time Adjunct Faculty; Dean of Health Professions; Bachelor's Degree; University of Missouri

**Anzaldo, David Ricardo;** Romance Languages & Literature; Bachelor's Degree - 1st entry; University of Idaho

**Appleton, Kathy Jane;** Instructor, Adjunct; German & Russian Studies; Master of Arts; University of Missouri

**Appold, Martin Stephan;** Geological Sciences; Doctor of Philosophy; Johns Hopkins University

**Arancibia, Ramon Alejandro;** West Central Region-ANR; Doctor of Philosophy; Louisiana State University

**Aregbe, Farouk Olufunmilayo**; Part-Time Adjunct Faculty; Advancement; University of North Dakota

**Argerich, Alba**; School of Natural Resources; Doctor of Philosophy; University of Barcelona, Spain

**Ariew, Andre I**; Philosophy; Doctor of Philosophy; The University of Arizona

**Armbrust, Catherine Paisley**; Prof, Ast Adjunct; School of Visual Studies; University of Missouri

**Armer, Jane M**; Emeritus; School of Nursing; Registered Nurse

**Armstrong, Elizabeth Gemma**; Lecturer; International programs

**Arndt, Haley Elizabeth**; Instructor, Adjunct; Journalism; Bachelor's Degree - 1st entry; Univeristy of Missouri, School

**Arndt, Jamie L**; Psychological Sciences; Doctor of Philosophy; The University of Arizona

**Arns, Megan Elizabeth**; School of Music; Doctor of Musical Arts; Eastman School of Music

**Aroor, Annayya R**; Medicine-Endocrinology; Doctor of Medicine

**Arora, Niraj Ashok**; Neurology; Doctor of Medicine; Drexel University College of Medicine

**Arouca, Raquel Alexandra**; Ed Leadership & Pol Analysis; Doctor of Philosophy; University of Montana

**Arriagada Mardorf, Sarah**; German & Russian Studies; Master of Arts; Kunsthochschule Berlin Weissensee

**Arteaga-Cox, Irma Angela**; Truman School of Pub Affrs Adm; Doctor of Philosophy; University of Minnesota

**Arunachalam, Vairam**; Accountancy; Doctor of Philosophy; University of Illinois at Urbana-Champaign

**Ashcraft, Nikki L**; Learning Teaching & Curriculum; Doctor of Philosophy; The University of Georgia

**Asher, Megan Claire**; Honors College; Bachelor's Degree - 1st entry; Illinois State University

**Ashraf, Komal Hargovind**; Neurology; Doctor of Osteopathic Medicine; Kirksville College of Osteopathic Medicine - A.T. Still Univ.

**Askins, Joseph D**; MU Libraries; Master of Library Science; University of Illinois at Urbana-Champaign

**Asmar, Nakhle**; Mathematics; Doctor of Philosophy; University of Washington

**Atasoy, Ulus**; Part-Time Adjunct Faculty; Surgery-Administration; Doctor of Medicine; University of Minnesota

**Atkins, Fran Coppage**; Instructor, Adjunct; Learning Teaching & Curriculum; Master of Arts; St. Mary's University

**Atwood, Jerry L**; Part-Time Adjunct Faculty; Chemistry; Doctor of Philosophy; University of Illinois

**Aufdenberg, Donna Irene**; Southeast Region-ANR; Master's Degree - 1st entry; Southern Illinois Univ Carbond

**Aura, Saku Petteri**; Economics; Doctor of Philosophy; Massachusetts Institute of Technology

**Avella Patino, Diego Mauricio**; Surgery-Cardiothoracic; Doctor of Medicine; Universidad el Bosque. Escuela Colombiana de Medicina

**Avery, Eileen E**; Sociology; Doctor of Philosophy; The Ohio State University

**Aviles Quinones, Alicia**; Romance Languages & Literature; Doctor of Philosophy; Tulane University

**Ayano, Mekonnen Firew**; Prof, Ast Visiting; Law; Doctor of Laws; Harvard Law School

**Ayllon, Miguel Elias**; Part-Time Adjunct Faculty; International programs; Doctor of Philosophy; University of Missouri

**Ba, Leigh Kathryn**; Political Science; Doctor of Philosophy; UNC Chapel Hill

**Bachmann, Bethany Nicole**; Southeast HES; Master's Degree - 1st entry; University Of Missouri-Columbi

**Bachrach, Bert E**; Child Health-Endocrinology; Doctor of Medicine; Saint Louis University

**Backes, Teresa Marie**; Medicine Hospitalist; Doctor of Medicine; University of Missouri

**Backus, Bob C**; Veterinary Medicine & Surgery; Doctor of Philosophy; University of California, Davis

**Bacon, Raymond R**; Part-Time Adjunct Faculty; Customer Service & Supp Svcs; Bachelor's Degree - 1st entry; University of Missouri

**Bader, Valerie Gwen**; School of Nursing; Master's Degree - 1st entry; University of Washington

**Badiane, Mamadou**; Romance Languages & Literature; Doctor of Philosophy; The University of Iowa

**Bae, Suyeon**; Architectural Studies; Doctor of Philosophy; University of Minnesota

**Baer, Leah Mae**; Accountancy; Doctor of Philosophy; University of Colorado Boulder

**Bagby-Stone, Stephanie D**; Prof, Asoc Adjunct; Psychiatry; Doctor of Medicine; University of Missouri

**Bailey, Eric Arthur**; Animal Science; Doctor of Philosophy; Kansas State University

**Bailey, Gina Marie**; VP for International Programs; Bachelor's Degree; University of Missouri

**Bailey, Rachel Michelle**; Social Work; Master of Social Work; University of Missouri

**Bailey, Robert Gary**; Emeritus; Law; Juris Doctor; University of Missouri

**Bailey, Ruby Lee**; Journalism; Bachelor's Degree - 1st entry; Wayne State University

**Baines, Christopher Philip**; Biomedical Sciences; Doctor of Philosophy; University of South Alabama

**Baker, Breanne Sloan**; Fellow, Post Doctoral; Orthopaedic Surgery; Doctor of Science; University of Oklahoma

**Baker, Christi Suzanne**; SHP/Speech Lang & Hearing Sci; Master of Science; Southwest Missouri State University

**Baker, Elizabeth A**; Learning Teaching & Curriculum; Doctor of Philosophy; Vanderbilt University

**Baker, Gary Allen**; Chemistry; Doctor of Philosophy; University at Buffalo, The State University of New York

**Baker, Kristi Lee**; Southeast Region-Youth; Master of Education; Arkansas State University

**Baker, Molly Danielle**; Instructor, Adjunct; SHP/Health Sciences; Master of Public Health; University of Missouri

**Baker, Sheila N**; Chemistry

**Balakrishnan, Bimal**; Architectural Studies; Doctor of Philosophy; The Pennsylvania State University

**Balasundaram, Naveen**; Surgery - Vascular; Doctor of Medicine; Stanley Medical College, Dr MGR University

**Balboula, Ahmed Zaky**; Animal Science; Doctor of Philosophy; Mansoura University, Egypt

**Baldwin, Michael Robert**; Molec Microbio & Immunology; Doctor of Philosophy; King's College

**Balek, Robert Mark**; Southwest Region-ANR; Master of Science; Kansas State University

**Bales, Ashley Morgan**; Southeast Region-Comm Dev; Master of Business Admin

**Ball, Angela Dawn**; Instructor, Adjunct; Human Devl & Family Science; University of Missouri

**Ball, Elizabeth Quarles**; Instructor, Adjunct; SHP/Health Sciences; Master of Education; University of Missouri

**Ball, Stephen Daniel**; Nutrition & Exercise Phys-HES; Doctor of Philosophy; Arizona State University

**Ballou, Matthew Glenn**; School of Visual Studies; Master of Fine Arts; Indiana University Bloomington

**Balser, Nicholas P**; Part-Time Adjunct Faculty; Dean of Engineering; Master of Education; University of Missouri

**Bana, Gergely Istvan**; Electrical Eng & Computer Sci; Doctor of Philosophy

**Banaszynski, Jacqueline M**; Emeritus; Journalism; Bachelor's Degree; Marquette University

**Bandyopadhyay, Susanta**; Neurology; Doctor of Medicine

**Banks, William D**; Mathematics; Doctor of Philosophy; Stanford University

**Bao, Suping**; School of Nursing; Doctor of Philosophy; Goldfarb School of Nursing

**Baram, Mujahida**; Emergency Medicine; Doctor of Medicine; St. George's University

**Barbee, Emily Marie**; Urban East HES; Master of Science; University of Missouri

**Bardhan, Sougata**; School of Natural Resources

**Barker, Alex W**; Director; Museum of Art & Archaeology; Doctor of Philosophy; University of Michigan

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**Cortese, Rene Gabriel**; Child Health-Administration; Doctor of Philosophy; University of Bonn

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**Cowgill, Libby Windred**; Anthropology; Doctor of Philosophy; Washington University

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- Cravens, David D;** Family & Community Medicine; Doctor of Medicine; University of Missouri
- Cravens, Lesleigh Kraft;** Plant Sciences; Master of Science; University of Missouri
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- Crespy, David A;** Theatre; Doctor of Philosophy; City University of New York
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- Cribbs, Adam Clayton;** Part-Time Adjunct Faculty; Student Success Center; Bachelor's Degree - 1st entry; University of Missouri
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- Dandachi, Dima;** Medicine-Infectious Diseases; Doctor of Medicine
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**Duan, Dongsheng**; Molec Microbio & Immunology; Doctor of Philosophy; University of Pennsylvania

**Duan, Ye**; Electrical Eng & Computer Sci; Doctor of Philosophy; Stony Brook University, The State University of New York

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**Dubose, Nadie Antranette**; Instructor, Adjunct; Social Work; Doctor of Philosophy; University of Missouri

**Duesterhaus, Megan**; Part-Time Adjunct Faculty; Residential Life; HS Graduate or Equivalent

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**Dugdale Jr, James Patrick**; Instructor, Adjunct; Finance; Master of Finance; Creighton University

**Duitsman, Pamela Kay**; Southwest Region-Comm Dev; Doctor of Philosophy; Iowa State University

**Dumas, Andrew Glynn**; Part-Time Adjunct Faculty; Dean of Journalism; Bachelor's Degree - 1st entry; University of Missouri

**Duncan, Camille Hackmack**; Part-Time Adjunct Faculty; Intercollegiate Athletics; Master of Education; University of Missouri

**Duncan, Carrie Melinda**; Instructor, Adjunct; Management; Doctor of Philosophy

**Duncan, Kathleen Anne**; Part-Time Adjunct Faculty; Reynolds Journalism Institute; Master's Degree - 1st entry; Boston University

**Duncan, Nicholas Kelly**; Instructor, Adjunct; Electrical Eng & Computer Sci; Master of Education; University of Missouri

**Dunkley, Daive Anthony**; Black Studies; Doctor of Philosophy; University of Warwick

**Dunn, Julia Marjorie**; Mizzou Academy

**Dunn, Michael Wayne**; Part-Time Adjunct Faculty; FM Station; Doctor of Philosophy; The University of Mississippi

**Dunn, Winifred**; Prof, Adjunct; SHP/Occupational Therapy; Doctor of Philosophy; University of Kansas

**Duraisamy, Kempuraj**; Neurology; Doctor of Philosophy; University of Madras, Chennai, India

**Duran, Carrie Lynne**; Part-Time Adjunct Faculty; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; Colorado State University

**Durante, William**; Med Pharmacology/Physiology; Doctor of Philosophy; University of Toronto

**Durbak, Amanda Rita**; Biological Science; Doctor of Philosophy; The University of Arizona

**Duren, Dana Leigh**; Orthopaedic Surgery; Doctor of Philosophy; Kent State University

**Durham, Jordan Marie**; Part-Time Adjunct Faculty; Academic Dean; Master of Fine Arts; University of Idaho

**Durk, Angelique McPenn**; Part-Time Adjunct Faculty; Dean of College of Business; Master's Degree - 1st entry; William Woods University

**Durkin, Ila Danielle**; Psychiatry

**Dwarica, Denicia Shane**; Ob, Gyn & Women's Health; Doctor of Medicine; Mayo Medical School

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**Dyer, Jonathan Alden**; Dermatology

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**Dyke II, Peter C**; Child Health-Cardiology; Doctor of Medicine

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**Eakin, Ardis Michael**; Fellow, Post Doctoral - Teach; History; Master of Arts; University of Mississippi

**Early, Elizabeth Kay**; Otolaryngology; Doctor of Medicine; Univesisty of MO Columbia

**Easley Marshall, Elizabeth Price**; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; University of Missouri

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**Easter, Ollie Danielle**; Social Work; Master of Social Work; University of Missouri

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**Edara, Praveen Kumar**; Civil/Environmental Engr; Doctor of Philosophy; Virginia Polytechnic Institute and State University

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**Edge, Jon Mitchell**; Part-Time Adjunct Faculty; SHP Dean's Ofc-Student Affairs; Doctor of Philosophy; Auburn University

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**Edwards, Katherine Francis**; Physical Medicine & Rehab



**Edwards, Kurt Alexander**; Communication; Doctor of Philosophy; Bowling Green State University

**Eggert, Lori Suzanne**; Emeritus; Biological Science; Doctor of Philosophy; University of California, San Diego

**Ehling, Tara Jean**; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; Kansas State University

**Eidson, Jacquelyn Irene**; Urban West Region-B&I; Master of Business Admin

**Eiffert, Kristin Carlson**; Instructor, Adjunct; Nutrition & Exercise Phys-HES; Doctor of Philosophy; University of California Davis

**Eisenstein, Kimberly Anne**; Dermatology-Derm; Doctor of Medicine; Saint Louis University

**Eisleben, Lauren Elizabeth**; Instructor, Adjunct; Journalism; Bachelor's Degree; William Woods University

**Ekweroku, Bradley E**; Instructor, Adjunct; Mizzou Online; Doctor of Philosophy; University of Missouri

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**El Kady, Rasha Mahmoud**; Psychiatry; Doctor of Medicine

**El-Halabi, Issam Mohamad**; Child Health-Gastroenterology; Doctor of Medicine; University of Jordan

**Eldridge Houser, Jennifer Lynn**; Northeast HES; Doctor of Philosophy; University of Iowa

**Elkeeb, Ahmed Mohamed**; Ophthalmology; Doctor of Medicine

**Elliott, Grant P**; Geography; Doctor of Philosophy; University of Minnesota

**Ellis, Anita Mae**; East Ctrl Region-ANR; Master of Science; Texas A&M University

**Ellis, Charles E**; Bioengineering

**Ellis, Mark Richard**; Family & Community Medicine; Doctor of Medicine; University of Arkansas for Medical Sciences

**Ellis, Ruby LaTeshia**; Fellow, Post Doctoral; Learning Teaching & Curriculum; Doctor of Philosophy; Auburn University

**Elman, Julie Passanante**; Women's & Gender Studies; Doctor of Philosophy; The George Washington University

**Elmore, Russell Allen**; Educ, School, & Counsel Psych; Master's Degree - 1st entry; University of MO Columbia

**Elsen, Carrie Beth**; Northeast HES; Master's Degree - 1st entry; University of Missouri

**Elsik, Christine G**; Animal Science

**Elsisi, Alaeldin Abdelkader**; Civil/Environmental Engr; Doctor of Philosophy

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**Emerich, David William**; Emeritus; Agriculture Biochemistry; Doctor of Philosophy; University of Wisconsin - Madison

**Emerson, Abigail Kilpatric**; Medicine-General Internal; Doctor of Medicine; University of Missouri

**Emerson, Jane Anne**; Physical Medicine & Rehab

**Empson, Derek Michael**; Honors College; Some College - 1st entry; Lee's Summit High School

**Empson, Susan Baker**; Learning Teaching & Curriculum; Doctor of Philosophy; University of Wisconsin - Madison

**Emter, Craig Allen**; Biomedical Sciences; Doctor of Philosophy; University of Colorado

**Endersby, James W**; Political Science; Doctor of Philosophy; The University of Texas at Austin

**Engel, Thomas G**; Electrical Eng & Computer Sci; Doctor of Philosophy; Texas Tech University

**England-Biggs, Laura Elizabeth**; Part-Time Adjunct Faculty; Info Science & Learning Tech; Master of Arts; University of Missouri

**English, David M**; Law; Juris Doctor; Northwestern University

**Engram, Mary Wescoat**; Human Devl & Family Science; Master of Arts; University of MO-Columbia

**Enriquez, Maithe**; Prof, Adjunct; School of Nursing; Doctor of Philosophy; University of Missouri - Kansas City

**Epping, Shane Christopher**; Part-Time Adjunct Faculty; Journalism; Master of Journalism; University of Missouri

**Erb, Joseph Lewis**; School of Visual Studies; Master of Fine Arts; University of Pennsylvania

**Erb, Laura Jane**; Agriculture Biochemistry; Doctor of Philosophy; University of Missouri

**Ericsson, Aaron C**; Veterinary Pathobiology; Doctor of Philosophy; University of Missouri

**Ersoy, Ilker**; Fellow, Post Doctoral; Inst for Data Sci & Informatic; Doctor of Philosophy; University of Missouri

**Ervin, Keona K**; History; Doctor of Philosophy; Washington University

**Erwin, Zachary L**; Northeast Region-ANR; Master's Degree - 1st entry; Northwest Missouri State Unive

**Eschweiler, Dani Anne**; Honors College; Master's Degree - 1st entry

**Escudero, Carolina**; Part-Time Adjunct Faculty; Dean of Journalism; Master's Degree; University Schuman

**Esebua, Magda**; Path & Anat Sci-Anatomic Path; Doctor of Medicine; Tbilisi State Medical University

**Estridge, Bernard R**; Child Health; Doctor of Medicine; University of Louisville

**Esser Templeton, Kelsey Christine**; Social Work; Master of Social Work; University of Missouri

**Essing, Anne Kathleen**; Instructor, Adjunct; Marketing; Master's Degree; Stephens College

**Ethchison, Judy Sanchez**; Instructor, Adjunct; Finance; Master of Science; Texas A & M Commerce

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**Evans, Laura Ann**; Urban West Region-Youth; Master of Education; Northwest Missouri State Unive

**Evans, Timothy**; Veterinary Pathobiology; Doctor of Philosophy; University of Missouri

**Evelev, John O**; English; Doctor of Philosophy; Duke University

**Evenski, Andrea J**; Orthopaedic Surgery; Doctor of Medicine; East Carolina University

**Everett, Kevin Dale**; Family & Community Medicine; Doctor of Philosophy; Louisiana State University

**Ewing, Mackenzie Christine**; Part-Time Adjunct Faculty; Student Success Center; Master of Business Admin; William Woods University

**Ezashi, Toshihiko**; Animal Science; Doctor of Philosophy; Gunma University

**Ezeugo, David**; Part-Time Adjunct Faculty; Residential Life

**Fain, Loretta Lynn**; Special Education; Master of Education; University of Missouri - Columbia

**Fales, Roger C**; Mechanical & Aerospace Engr; Doctor of Philosophy; Iowa State University

**Famuliner, Ryan M**; Journalism; Bachelor's Degree; University of Missouri

**Fan, Lu**; Personal Financial Planning; Doctor of Philosophy

**Fandrey, Katherine Rose**; Instructor, Adjunct; SHP/Physical Therapy; Doctor of Physical Therapy; University of Minnesota

**Fanning, Kim Colleen**; School of Nursing; Master's Degree - 1st entry; MU

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**Farmer, Patrick Eugene**; Anesthesiology; Doctor of Medicine

**Farrah, Shirley J**; School of Nursing; Doctor of Philosophy; University of Missouri

**Farrar, Patricia Lynn**; Part-Time Adjunct Faculty; Office of Animal Resources; Doctor of Veterinary Medicine; University of Missouri

**Farwell, Zachary A**; Instructor, Adjunct; Journalism; Bachelor's Degree - 1st entry; Northwest Missouri State Unive

**Faulk, Danae Michelle**; Instructor, Adjunct; Religious Studies; Master of Arts; University of Missouri

**Fay, William Philip**; Medicine-Cardiology; Doctor of Medicine; University of Illinois

**Feistman, Richard E**; Instructor, Adjunct; Human Devl & Family Science; Doctor of Philosophy; University of Missouri

**Feldman, Marvin Fredrick**; Instructor, Adjunct; SHP/Clinical & Diagnostic Sci; Master of Public Administration; University of Missouri

**Fellabaum-Toston, Jennifer Melissa**; Ed Leadership & Pol Analysis; Doctor of Philosophy; University of Missouri

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**Femrite, Stephanie Viola**; Northeast Region-Youth; Master of Arts; University of Missouri

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**Fennell, Hilda Martinez**; Romance Languages & Literature; Master of Arts; Univeristy of Missouri

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**Ferguson, Bradley J**; SHP/Health Psychology; Doctor of Philosophy; University of Missouri

**Ferguson, Denice Renee**; Northwest Region-ANR; Master of Mngmt Infor Systems; Missouri Western State University

**Ferguson, Jeffrey R**; Anthropology; Doctor of Philosophy; University of Colorado Boulder

**Ferguson, Kelsa Nicole**; Southwest HES; Master of Public Health; Missouri State University

**Ferguson, Shannon A**; Part-Time Adjunct Faculty; Accountancy; Master's Degree; University of Missouri

**Fernandez, Anamaria**; Part-Time Adjunct Faculty; Ctr for Acad Success & Exllnce; Bachelor's Degree - 1st entry; University of Wisconsin, Milwa

**Fernandez, Kristen Lynn**; Dermatology; Doctor of Medicine; The University of Tennessee

**Ferrieri, Richard**; Chemistry; Doctor of Philosophy; Texas A&M University

**Fete, Mary Donna**; School of Nursing; Master's Degree; University of Missouri

**Fiala, Kyle C**; Orthopaedic Surgery; Doctor of Medicine; Kent State University College of Podiatric Medicine

**Fidalgo, Maria Marta**; Civil/Environmental Engr; Doctor of Philosophy; Rice University

**Fifield, John Creighton**; Lib Spec Collectn & Archives; Master of Arts; The University of Iowa

**Figueroa-Caballero, Andrea Alexandra**; Communication; Doctor of Philosophy; University of California, Santa Barbara

**Filbert, Brent Gorsuch**; Law; Juris Doctor; UMKC School of Law

**Finch, Kim K**; Part-Time Adjunct Faculty; Ed Leadership & Pol Analysis

**Fink, Adrienne Brynn**; Instructor, Adjunct; Dean of College of Business; Master of Education; University of Missouri

**Finke, Deborah L**; Plant Sciences; Doctor of Philosophy; University of Maryland

**Finkel, Claire Elizabeth**; Physical Medicine & Rehab

**Firman, Jeffre D**; Animal Science; Doctor of Philosophy; University of Maryland

**Fischer, David Christopher**; Finance; Master of Business Admin; Indiana University

**Fischer, James D**; Electrical Eng & Computer Sci; Master's Degree; California Polytechnic State University

**Fischer, Leslie Elisabeth**; East Ctrl Region-B&I; Master's Degree - 1st entry

**Fischer, Lisa Lyn**; Instructor, Adjunct; Journalism; Bachelor's Degree; University of Central Missouri

**Fischer, Monika**; German & Russian Studies; Doctor of Philosophy; University of Oregon

**Fish, Michael Nathaniel**; Anesthesiology; Doctor of Osteopathic Medicine; Des Moines University - Osteopathic Medical Center

**Fisher, Robert B**; Anesthesiology

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**Flanagan Jr, John Robert**; Prof, Visiting; Religious Studies; Doctor of Philosophy; University of Iowa

**Flanary, Wayne Edwin**; Northwest Region-ANR; Master's Degree - 1st entry; University Of Missouri-Columbi

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**Fleming, Kasey Blair**; Part-Time Adjunct Faculty; Admissions; Some College - 1st entry; University of Missouri

**Fleming, Kathryn Lynn**; Part-Time Adjunct Faculty; Student Unions; Master of Science; University of Missouri

**Flesner, Brian Kent**; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; University of Illinois

**Flink, James Duncan**; Journalism; Master of Arts; University of Missouri

**Flink, Jamie Bono**; Journalism

**Flint-Garcia, Sherry**; Part-Time Adjunct Faculty; Plant Sciences; Doctor of Philosophy; University of Missouri

**Flock, Adam Jeremy**; Architectural Studies; Bachelor's Degree - 1st entry; University of Miami

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**Flotte, Elizabeth Cantrell**; East Ctrl Region-Youth; Doctor of Education

**FLOURNOY, Nancy**; Emeritus; Statistics; Doctor of Philosophy; University of Washington

**Floyd, Jacob Thomas**; School of Visual Studies; Doctor of Philosophy; Oklahoma State University

**Flynn, Tara E**; Emergency Medicine; Doctor of Medicine; University Of Missouri-Columbi

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**Foley, Anne-Marie**; Director; Office of Service Learning; Doctor of Philosophy; University of Missouri

**Folk, William**; Agriculture Biochemistry; Doctor of Philosophy; Stanford University

**Font-Montgomery, Esperanza Enid**; Child Health-Genetics; Doctor of Medicine; University of Puerto Rico School of Medicine

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**Foster, Gregory Mark**; McNair Program; Doctor of Philosophy; University of Missouri

**Foster, Krystal Rose**; Family & Community Medicine

**Foster, Raymond T**; Ob, Gyn & Women's Health; Doctor of Medicine; University of Missouri

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**Fowler, Thomas Randall**; Northwest Region-ANR

**Fox, Derek Bradford**; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; Michigan State University

**Fox, Neil Ian**; School of Natural Resources; Doctor of Philosophy; University of Salford

**Francis, Mark David**; School of Nursing; Master of Science; Pittsburg State University

**Francisco, Benjamin David**; Child Health-Pulmonary

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**Franko, Lisa Marie**; Prof, Ast Adjunct; School of Visual Studies; Master of Fine Arts; University of Missouri

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**Franzese, Christine Blanche**; Otolaryngology; Doctor of Medicine; The State University of New York Upstate Medical Center

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**Freeman, Kasey Elise**; Part-Time Adjunct Faculty; SHP Dean's Ofc-Student Affairs; Master of Science; University of Central Missouri

**Freeman, Seth C**; Family & Community Medicine

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**Funkenbusch, Karen Brents**; Nutrition & Exercise Phys-HES; Master's Degree; Truman State University

**Furrer, Jason Lawrence**; Molec Microbio & Immunology; Doctor of Philosophy; University of Missouri

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**Gaballah, Ayman Hamdy**; Radiology; Doctor of Medicine

**Gable, Sara E**; Nutrition & Exercise Phys-HES; Doctor of Philosophy; The Pennsylvania State University

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- Galloway, Tabitha Lynn**; Otolaryngology
- Galyen, Krista Dawn**; Instructor, Adjunct; Mizzou Online; Doctor of Philosophy; University of Missouri
- Gammon, Robin Lee**; West Central HES; Master of Education; University of Missouri
- Ganga, Rama Rao**; Surgery-General; Doctor of Medicine
- Gangloff, Karen Ashley**; Management; Doctor of Philosophy; Auburn University
- Gangopadhyay, Shubhra**; Electrical Eng & Computer Sci; Doctor of Philosophy; Indian Institute of Technology Madras
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- Ganong, Marilyn Coleman**; Emeritus; Human Devl & Family Science; Doctor of Education; University of Missouri
- Garcia, Michael Leonard**; Biological Science; Doctor of Philosophy; Mayo Clinic College of Medicine
- Gardner, David Willmark**; Medicine-Endocrinology
- Gardner, Jayme Samantha**; Part-Time Adjunct Faculty; Student Engagement; Bachelor's Degree; University of Missouri
- Gardner, Michael Jay**; Medicine; Doctor of Medicine; University of Missouri
- Garg, Megha**; Radiology
- Garner, Michelle Aaron**; Instructor, Adjunct; Mizzou Online; Doctor of Philosophy
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- Garrison, Lee Ann**; School of Visual Studies; Master of Fine Arts; University of Wisconsin-Milwau
- Garson, Scott Arnold**; English; Master's Degree; George Mason University
- Garton, Bryan L**; Applied Soc Sci; Doctor of Philosophy; The Ohio State University
- Garwood, Elizabeth Ann**; Statistics; Doctor of Technology; Penn State
- Gassmann, Walter**; Plant Sciences; Doctor of Philosophy; University of California, San Diego
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- Gates, Kent S**; Chemistry; Doctor of Philosophy; Northwestern University
- Gautam, Sandeep**; Medicine-Cardiology; Doctor of Medicine
- Gauthier, Megan Elizabeth**; Anesthesiology; Doctor of Osteopathic Medicine; Kansas City University of Medicine and Biosciences
- Gazaway, Blake Arnold**; West Central Region-Youth; Master of Arts; Pittsburg State University
- Geary, David C**; Psychological Sciences; Doctor of Philosophy; University of California, Riverside
- Geary, Roger Carl**; Part-Time Adjunct Faculty; Law; Juris Doctor; University of Missouri
- Geisert, Rodney Dean**; Animal Science; Doctor of Philosophy; University of Florida
- Geisert, Susan K**; Part-Time Adjunct Faculty; VP Undergraduate Studies
- Geiss, Steven Lewis**; Anesthesiology
- Gely, Rafael**; Law; Doctor of Philosophy; University of Illinois at Urbana-Champaign
- Gentry, Bettina Anne**; Part-Time Adjunct Faculty; Veterinary Pathobiology; Doctor of Philosophy; University of Missouri
- George, Santosh**; Orthopaedic Surgery; Doctor of Medicine; Chicago Medical School
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- Gerhardt Jr, Howard Carl**; Emeritus; Biological Science; Doctor of Philosophy; The University of Texas at Austin
- Gerlt, Scott A**; Sr Resrch Asoc; Applied Soc Sci; Master's Degree; University of Missouri
- Geyer, Elizabeth O**; Human Devl & Family Science; Master of Arts; University of Missouri
- Ghatrehsamani, Shirin**; West Central Region-ANR; Doctor of Philosophy; University of Florida
- Ghosh, Jaya**; Prgm Director, Ast; Biological Engineering; Doctor of Philosophy; University of Missouri
- Ghosh, Tushar K**; Professor; Chemical Engineering; Doctor of Philosophy; Oklahoma State University
- Ghour, Yezaz Ahmed**; Medicine-Gastroenterology; Doctor of Medicine; Dr. B. R. Ambedkar Medical College, Bangalore, India
- Ghous, Ghulam**; Medicine Hospitalist; Doctor of Medicine
- Gibson, Alan Ray**; Prof, Visiting; Political Science; Doctor of Philosophy; University of Notre Dame
- Gibson, Kyle**; SHP/Physical Therapy; Doctor of Philosophy; University of Missouri
- Gibson, Maya C**; Honors College; Doctor of Philosophy; University of Wisconsin - Madison
- Gibson, Twyla Gail**; Info Science & Learning Tech; Doctor of Philosophy; University of Toronto
- Gil Pages, Diana**; Surgery-Administration; Doctor of Philosophy; Universidad Autonoma de Madrid
- Gilbert, Lisa Kristin**; Instructor, Adjunct; Mizzou Online; Doctor of Philosophy; Saint Louis University
- Gilbert, Mark Raymond**; Otolaryngology; Doctor of Medicine

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**Gilles, Jere Lee**; Prof, Asoc Adjunct; Applied Soc Sci; Doctor of Philosophy; Cornell University

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**Gilliam, Stephanie Nicole**; Part-Time Adjunct Faculty; Dean of Veterinary Medicine; Master of Science; University of Missouri

**Gillis, Kevin D**; Biological Engineering; Doctor of Philosophy; Washington University

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**Givens, Ashley Dawn**; Social Work; Doctor of Philosophy; University of North Carolina

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**Glass, Sarah Beth**; Part-Time Adjunct Faculty; Therapies

**Glass, Timothy E**; Chemistry; Doctor of Philosophy; Stanford University

**Gleason, Catherine Honore**; Theatre; Doctor of Philosophy; University of Wisconsin - Madison

**Glendening, Matthew Ryan**; Accountancy; Doctor of Philosophy; The University of Iowa

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**Glinskii, Olga V**; Med Pharmacology/Physiology; Doctor of Medicine; Medical Institute-Ukraine

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**Godwin, Linda Maxine**; Prof, Adjunct; Physics; Doctor of Philosophy; University of Missouri

**Goggins, Sean Patrick**; Electrical Eng & Computer Sci; Master's Degree; University of Minnesota

**Gold, Michael**; School of Natural Resources; Doctor of Philosophy; Michigan State University

**Golda, Nicholas J**; Dermatology; Doctor of Medicine; University of Southern California

**Goldammer, Susan Scott**; Instructor, Adjunct; Mizzou Online; Juris Doctor; Indiana University School of L

**Goldschmidt, Michael**; Architectural Studies; Master's Degree; San Francisco Institute of Architecture

**Goldschmidt, Steven Richard**; Mathematics

**Goldsmith, Christy Dianne**; Part-Time Adjunct Faculty; Campus Writing Program; Doctor of Philosophy; University of Missouri

**Golomb, Miriam W**; Emeritus; Biological Science; Doctor of Philosophy; University of California, Berkeley

**Golzy, Moigan**; Medical Research Office; Doctor of Philosophy; University at Buffalo

**Gomez, Camilo Ramiro**; Neurology; Doctor of Medicine; Universidad Central del Este

**Gomez, Francisco Gustavo**; Geological Sciences; Doctor of Philosophy; Cornell University

**Goodman, Judith C**; SHP/Speech Lang & Hearing Sci; Doctor of Philosophy; The University of Chicago

**Gopalakrishna, Srinath**; Marketing; Doctor of Philosophy; Purdue University

**Gopalaratnam, Vellore S**; Civil/Environmental Engr; Doctor of Philosophy; Northwestern University

**Goran, Lisa Gail**; English; Doctor of Philosophy; University Of Missouri-Columbi

**Gordon, James Edward**; Part-Time Adjunct Faculty; Reynolds Journalism Institute; Bachelor's Degree - 1st entry; Hendrix College

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**Gordon, Rachel**; Finance; Doctor of Philosophy; Drexel University

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**Govindarajan, Raghav**; Neurology; Doctor of Medicine

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**Gozal, David**; Child Health-Administration; Doctor of Medicine; Hadassah Medical School

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**Grafakos, Loukas**; Mathematics; Doctor of Philosophy; University of California, Los Angeles

**Graham, Charles Nathaniel**; Mizzou Academy; Bachelor's Degree - 1st entry; Columbia College

**Graham, David Ellis**; Mizzou Academy; Master of Education

**Graham, Kendra K**; Animal Science; Master of Science; University of MO - Columbia

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**Grant, Sheila Ann**; Bioengineering; Doctor of Philosophy; Iowa State University

**Grashuis, Jasper**; Applied Soc Sci; Bachelor's Degree - 1st entry

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**Graves, Stephen Charles**; Black Studies; Doctor of Philosophy; Howard University

**Gray, Aaron D**; Orthopaedic Surgery

**Gray, Bethany Rachelle**; Part-Time Adjunct Faculty; Dean of Veterinary Medicine; Master of Business Admin; Wayne State University

**Gray, Gwendolyn**; MU Libraries; Master's Degree - 1st entry; University of Illinois-Urbana

**Green, James Robert**; Personal Financial Planning; Doctor of Business Admin; University of the Incarnate Word

**Green, Jonathan Andrew**; Animal Science; Doctor of Philosophy; University of Missouri

**Green, Morgan Miller**; Medicine-General Internal

**Greene, Robert Allison**; Journalism; Master of Fine Arts; The City College of New York

**Greenlief, C Michael**; Chemistry; Doctor of Philosophy; The University of Texas at Austin

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**Greimann, Beth Marie**; Vice Provost for International Programs; Master of Education; Ashford University

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**Griffith, Samuel Vincent**; School of Music; Doctor of Musical Arts; University of Colorado Boulder

**Grigsby, Gary Scott**; Part-Time Adjunct Faculty; TV Station; Master's Degree; University of Missouri-Columbi

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**Groh, Kieth W**; Emergency Medicine; Doctor of Medicine; University of MO - Columbia

**Grollemund, Rebecca Beatrice**; English; Doctor of Philosophy; Université Lyon 2, France

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**Gupta, Sumit Kumar**; Orthopaedic Surgery; Doctor of Medicine; University of Toronto

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**Gupta, Vijay Kumar**; Chemical Engineering; Doctor of Science; Washington University in Saint Louis

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**Hahn Cover, Kristin**; Medicine-Administration; Doctor of Medicine; The University of Texas Southwestern Medical Center at Dallas

**Hainsworth, Dean P**; Ophthalmology

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**Halabi, Sam Foster**; Law; Juris Doctor; Harvard University

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- Heckel, Marta Alexandra**; Philosophy; Doctor of Philosophy; Cornell University
- Hecker, Melinda Michelle**; Family & Community Medicine
- Hedges, Miriam Louise**; Prof, Ast Visiting; Theatre; Master of Fine Arts; Case Western Reserve University
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- Hegger, Joseph D**; Finance; Bachelor's Degree; University of Missouri
- Heidari, Manijeh B**; Sr Resrch Asoc; Molec Microbio & Immunology; Doctor of Philosophy; University of Missouri
- Heidt, Jonathan W**; Emergency Medicine; Doctor of Medicine; Washington University
- Heiman, Suzette T**; Journalism; Master's Degree; Truman State University
- Heise, David A**; Part-Time Adjunct Faculty; Electrical Eng & Computer Sci; Doctor of Philosophy; University of Missouri
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- Helfer, Adam D**; Mathematics; Doctor of Philosophy; University of Oxford
- Helmick, Linda Jean**; Learning Teaching & Curriculum; Doctor of Philosophy; Indiana University
- Hemmann, Corene Lynne**; Part-Time Adjunct Faculty; Therapy Admin B; Doctor of Physical Therapy; University of MO - Columbia
- Hemmings, Roshae A**; Part-Time Adjunct Faculty; Residential Life; HS Graduate or Equivalent
- Hempstead, Shannon Danielle**; Emergency Medicine
- Henderson, Whitney Lee**; SHP/Occupational Therapy; Doctor in Occupational Therapy
- Henderson Kelley, Laura E**; Medicine-General Internal; Doctor of Medicine; Wayne State University School of Medicine
- Hendrickson, Mary K**; Applied Soc Sci; Doctor of Philosophy; University of Missouri
- Hendrixson, Sara Shaban**; Part-Time Adjunct Faculty; Journalism; Master's Degree - 1st entry
- Henegar, Jeffrey R**; Director; Office of Animal Resources; Doctor of Philosophy; University of Missouri
- Heng, Xiao**; Biochemistry; Doctor of Philosophy; Howard Hughes Medical Institute at University of Maryland, Baltimore
- Hennkens, Heather Marie**; Chemistry; Doctor of Philosophy; Washington University
- Henrickson, Celeste N**; Mizzou Online; Doctor of Philosophy; University of California, Berkeley
- Henry, Carolyn J**; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; Auburn University
- Hensel, Brian K**; Health Mgmt & Informatics; Doctor of Philosophy; University of Missouri
- Henson, Charles Dewayne**; Law; Juris Doctor; Georgetown University
- Henson, Jordan Zachary**; Honors College; Master of Education; University of Missouri - Columbia
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- Hertel, Laura Jane**; Part-Time Adjunct Faculty; School of Natural Resources; Bachelor's Degree; University of Wisconsin - Stevens Point
- Herzog, David L**; Journalism; Bachelor's Degree; Temple University
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**Horn, Hope Halsted**; Instructor, Adjunct; School of Business; Bachelor's Degree -; Brown University

**Hornbeck, Elizabeth Jean**; School of Visual Studies; Doctor of Philosophy; University of California, Santa Barbara

**Horner, William Thomas**; Political Science; Doctor of Philosophy; The University of Texas at Austin

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**Horvit, Mark Harris**; Journalism; Bachelor's Degree; The University of Texas at Austin

**Horwitz, Bruce**; Psychiatry

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**Hossain, K S**; Electrical Eng & Computer Sci; Doctor of Philosophy; Virginia Tech

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**House, Jeffrey L**; Southeast Region-ANR; Master of Science; Arkansas State Univ

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**Howe, John S**; Finance; Doctor of Philosophy; Purdue University

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**Howland, Jane L**; Info Science & Learning Tech; Doctor of Philosophy; University of Missouri

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**Krause II, William John**; Emeritus; Path & Anat Sci - Anatomy; Doctor of Philosophy; University of Missouri

**Kraxberger, Lynda S**; Journalism; Master's Degree; University of Missouri

**Kremer, Nicholas Thomas**; Instructor, Adjunct; Mizzou Online; Master's Degree - 1st entry; Truman State University

**Kremer, Robert J**; School of Natural Resources; Doctor of Philosophy; Mississippi State Univ

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**Krishnaswamy, Kiruba**; Biological Engineering; Doctor of Engineering; McGill University, Canada

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**Kruse, John Robert**; Applied Soc Sci; Doctor of Philosophy; University of Missouri-Columbia

**Kruse, Michael Scott**; School of Natural Resources; Master of Science; State University of New York

**Krvavac, Armin**; Medicine-Pulmonary & Environ; Doctor of Medicine; University of Missouri

**Kuby, Candace Ross**; Learning Teaching & Curriculum; Doctor of Philosophy; Indiana University

**Kuehl, Brittany Lynn**; Part-Time Adjunct Faculty; Intercollegiate Athletics; Bachelor's Degree - 1st entry; University of Missouri, Colum

**Kueter, Jennifer**; Instructor, Adjunct; Mizzou Online; Specialist of Education; University of Missouri

**Kuhnert, Mark Edward**; SHP/Health Psychology; Doctor of Philosophy; Kent State University

**Kumar, Arun**; Medicine-Cardiology; Doctor of Medicine; The University of Iowa

**Kumar, Senthil Annamalai**; Medicine-Cardiology; Doctor of Medicine; Thanjavur Medical College

**Kumar, Senthil R**; Veterinary Medicine & Surgery; Doctor of Philosophy; Manipal University

**Kunin, Jeffrey Russell**; Radiology; Doctor of Medicine; UTMB

**Kunjummen, Nissi A**; Part-Time Adjunct Faculty; Ellis Fischel Oncology Unit; HS Graduate or Equivalent

**Kuroki, Keichi**; Veterinary Pathobiology; Doctor of Philosophy; University of Missouri

**Kurpius, David DeWayne**; Journalism; Doctor of Philosophy; University of Wisconsin - Madison

**Kurukulasuriya, Lilamani Rg**; Medicine

**Kuruvilla-Dugdale, Mili**; SHP/Speech Lang & Hearing Sci; Doctor of Philosophy; University of Nebraska

**Kusmec, John Donald**; Honors College; Bachelor's Degree - 1st entry; Truman State University

**Kuwajima, Vanessa Keith**; Medicine-Gastroenterology; Doctor of Medicine; University of Missouri

**Kwasniewski, Misha T**; Part-Time Adjunct Faculty; Plant Sciences; Doctor of Philosophy; Cornell University

**Kwon, Jae Wan**; Electrical Eng & Computer Sci; Doctor of Philosophy; University of Southern California

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**Kyung, Hoyoun**; Accountancy; Doctor of Philosophy; The University of Texas at Dallas

**LaLonde, Kenneth Barton**; Part-Time Adjunct Faculty; Naval Science

**Labenz, Bradley E**; Anesthesiology; Doctor of Medicine; University of Missouri

**Labyer, Sherry Lynn**; Educ, School, & Counsel Psych; Doctor of Public Admin; University of Oklahoma

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**Laffey, Mary A**; Prgm Director; MU Partnership Educ Renewal; Doctor of Philosophy; University of Missouri - Colum

**Lage, Kraig Jason**; Radiology

**Lahue, Edward John**; Urban East Region-B&I; Master of Business Admin; So Illinois Univ Edwardsville

**Lai, Yi**; Molec Microbio & Immunology; Doctor of Philosophy; Sichuan University

**Lair, Linda Marie**; SHP/Clinical & Diagnostic Sci; Master of Science; University of St. Francis

**Lalonde, Sebastien Patrick**; Orthopaedic Surgery; Doctor of Medicine; McGill University

**Lamb, Heather S**; Journalism; Bachelor's Degree; University of Missouri

**Lamberson, William R**; Animal Science; Doctor of Philosophy; University of Nebraska

**Lambert, Alix**; Part-Time Adjunct Faculty; School of Visual Studies

**Lambert, Thomas Andrew**; Law; Juris Doctor; The University of Chicago

**Lambson Jr, Steven William**; Part-Time Adjunct Faculty; TV Station; Master of Arts; University of Missouri-Columbi

**Lammers, Amber Marie**; Part-Time Adjunct Faculty; Office Civil Rights-Title IX; Juris Doctor; University of Notre Dame

**Lancaster, Eric Lee**; Instructor, Adjunct; German & Russian Studies; Master's Degree; University of Missouri

**Lancaster, Michelle Cathlene**; VP for International Programs; Bachelor's Degree - 1st entry; University of Missouri

**Lancey, Robert W**; Medicine; Doctor of Medicine; Creighton University

**Landor, Antoinette Marie**; Human Devl & Family Science; Doctor of Philosophy; The University of Georgia

**Lane, Kari Rae**; School of Nursing; Doctor of Philosophy; The University of Iowa

**Lane, Ralph Hill**; Instructor, Adjunct; Nutrition & Exercise Phys-HES; Doctor of Philosophy; Louisiana State University

**Lane, Summer Elizabeth**; Development/Behavioral; Doctor of Philosophy; The University of Texas

**Langdon, Susan Helen**; Emeritus; Ancient Mediterranean Studies; Doctor of Philosophy; Indiana University Bloomington

**Langdon II, John Michael**; East Ctrl Region-ANR; Master of Science; North Carolina State University

**Lange, Dorian Mari**; Instructor, Adjunct; Mizzou Online; Doctor of Philosophy; University of Missouri

- Lange-Osborn, Margaret Jean**; Molec Microbio & Immunology; Doctor of Philosophy; University of Missouri
- Langen, Timothy C**; German & Russian Studies; Doctor of Philosophy; Northwestern University
- Langeneckert, Mark G**; School of Visual Studies; Bachelor's Degree; Art Center College of Design
- Langford, Barry Robert**; Instructor, Adjunct; Applied Soc Sci; Juris Doctor; University of Missouri
- Langley, April C**; English; Doctor of Philosophy; University of Notre Dame
- LANIGAR, Sean E**; Neurology; Doctor of Medicine; Creighton University
- Lannin, Amy Alison**; Learning Teaching & Curriculum; Doctor of Philosophy; University of Missouri
- Lannin, John**; Learning Teaching & Curriculum; Doctor of Philosophy; Illinois State University
- Lara, Elizabeth Keiko**; School of Music; Doctor of Musical Arts; The Juilliard School
- Larimore, Erin Louise**; Southeast Region-ANR; Master of Science; South Dakota State University
- Larsen, David R**; Prof, Adjunct; School of Natural Resources; Doctor of Philosophy; University of Washington
- Larsen, Kaci Rae**; Family & Community Medicine; Doctor of Medicine; University of Alabama SOM
- Larsen, Soren C**; Geography; Doctor of Philosophy; The University of Kansas
- Lasman, Sarah Michelle**; School of Nursing; Master of Nursing; Maryville University
- Lass, Joseph Martin**; Part-Time Adjunct Faculty; Theatre; Bachelor's Degree; James Madison University
- Lasseter, Dean B**; Child Health-Gen & Ambulatory; Doctor of Medicine; The University of Kansas
- Lastra Gonzalez, Guido**; Medicine-Endocrinology; Doctor of Medicine; Universidad La Gran Colombia
- Latshaw, Sandra**; Part-Time Adjunct Faculty; SHP/Clinical & Diagnostic Sci; Master of Arts; University of Nebraska
- Lattimer, Jimmy Christian**; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; Washington State University
- Laughlin, Maurice Harold**; Emeritus; Biomedical Sciences; Doctor of Philosophy; The University of Iowa
- Lawhead, Kylee Taylor**; Instructor, Adjunct; Applied Soc Sci; HS Graduate or Equivalent; O'Fallon Township Highschool
- Lawless, Elaine Janette**; English; Doctor of Philosophy; Indiana University
- Lawrence, Frances Cogle**; Personal Financial Planning; Doctor of Philosophy; Florida State University
- Lawrence, Leanna Beth**; SHP/Speech Lang & Hearing Sci; Master's Degree; University of Missouri
- Lawson, Melissa**; Child Health-Adolescent; Doctor of Medicine; University of Missouri - Kansas City
- Layfield, Lester James**; Path & Anat Sci-Anatomic Path
- Laziuk, Katsiaryna**; Path & Anat Sci-Anatomic Path; Doctor of Medicine
- Lazzaro-Weis, Carol M**; Emeritus; Romance Languages & Literature; Doctor of Philosophy; University of Pennsylvania
- Le, Thu Ngoc**; Child Health; Doctor of Medicine
- LeBeau, Christopher**; Instructor, Adjunct; Mizzou Online; Master of Business Admin; Creighton University
- LeFevre, Michael L**; Family & Community Medicine; Doctor of Medicine; University of Missouri
- LeRoy, Michelle Lynn**; Prof, Ast Adjunct; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; Kansas State University
- Lea, Peter Tate**; School of Music; Doctor of Philosophy; University of Western Ontario
- Leach, Stacey B**; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; Texas A&M University
- Leak, Juliann**; Part-Time Adjunct Faculty; Student Engagement
- Leal, Manuel Salvador**; Biological Science; Doctor of Philosophy; Washington University
- Lear, Joe K**; Northwest Region-Admin; Master of Agriculture; University of Missouri Columbia
- Leary, Emily Vanessa**; Orthopaedic Surgery; Doctor of Philosophy; University of Florida
- Leary, Melanie Louise**; Instructor, Adjunct; Dean of College of Business; Master of Education
- Ledoux, David R**; Emeritus; Animal Science; Doctor of Philosophy; University of Florida
- Lee, Alison Jane**; Part-Time Adjunct Faculty; Student Success Center; Bachelor's Degree; Columbia College
- Lee, Ilhyung**; Law; Juris Doctor; Boston College
- Lee, Jaewon**; Chemical Engineering; Doctor of Philosophy; Purdue University
- Lee, Se Woong**; Ed Leadership & Pol Analysis; Doctor of Philosophy; University of Wisconsin-Madison
- Lee, Suhwon**; Statistics; Doctor of Philosophy; University of Missouri
- Lee, Sungkyoung**; Journalism; Doctor of Philosophy; Indiana University Bloomington
- Lee III, Ernest William**; East Ctrl Region-ANR; Master of Science; MU
- Lee Jr, Mark W**; Chemistry; Doctor of Philosophy; University of California, Los Angeles
- Legarsky, Justin J**; Electrical Eng & Computer Sci; Doctor of Philosophy; The University of Kansas
- Leigh, Geoffrey D**; Instructor, Adjunct; Journalism; Bachelor's Degree - 1st entry; University of Missouri - Colum
- Leigh, Rachel Ann**; Instructor, Adjunct; Info Science & Learning Tech; Master's Degree; University of Missouri
- Leiva Salinas, Carlos**; Radiology; Doctor of Medicine

**Lembke, Erica Suzanne**; Special Education; Doctor of Philosophy; University of Minnesota

**Leshner, Glenn M**; Emeritus; Journalism; Doctor of Philosophy; Stanford University

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**Lever, John R**; Radiology; Doctor of Philosophy; North Carolina State University

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**Lever, Teresa Elaine**; Otolaryngology; Doctor of Philosophy; East Carolina University

**Levin, James H**; Ast Director; Law; Juris Doctor; Northeastern University

**Levine, Alan**; Animal Science

**Lewis, Alexandria Monique**; Social Work; Specialist of Education; University of Missouri

**Lewis, Kaleea Regina**; Fellow, Post Doctoral; SHP Public Health; Doctor of Philosophy; University of South Carolina

**Lewis, Melissa Ann**; Prof, Ast Adjunct; School of Visual Studies; Bachelor's Degree - 1st entry; Stephens College

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**Lewis, Michael Robert**; Veterinary Medicine & Surgery; Doctor of Philosophy; City of Hope Graduate School of Biological Sciences

**Lewis, Timothy J**; Special Education; Doctor of Philosophy; University of Oregon

**Lewis, Trudy Lynne**; English; Doctor of Philosophy; University of Illinois at Chicago

**Lewis, William George**; Fellow, Post Doctoral - Teach; History; Doctor of Philosophy; University of Missouri

**Lewis Saidi, Janet Lynn**; Part-Time Adjunct Faculty; FM Station; Master's Degree; University College, London

**Li, Aigen**; Physics; Doctor of Philosophy; Leiden University

**Li, Chenhui**; School of Natural Resources; Doctor of Philosophy; Texas Tech University

**Li, De-Pei**; Medicine-Cardiology; Doctor of Medicine; Hebei Medical College

**Li, Guangfu**; Surgery-Surgical Oncology; Doctor of Philosophy; Nanjing Medical University

**Li, Hao**; Part-Time Adjunct Faculty; Missouri Innovation Center; Doctor of Philosophy; Stevens Institute of Technology

**Li, Jie**; School of Natural Resources; Doctor of Philosophy; University of Florida

**Li, Yanguang**; Mathematics; Doctor of Philosophy; Princeton University

**Li, Yuanyuan**; Ob, Gyn & Women's Health; Doctor of Philosophy; Peking Union Medical College & Chinese Academy of Medical Sciences

**Liang, Huichun**; German & Russian Studies; Master's Degree; Governors State University

**Lidholm, Susan Burnett**; Instructor, Adjunct; Dean of College of Business; Master's Degree - 1st entry; Lindenwood

**Lidsky, Howard Stuart**; Political Science; Juris Doctor; University of Texas

**Lidsky, Lyrissa Barnett**; Law; Juris Doctor; Univ. of Texas Law School

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**Light, Justin Robert**; Part-Time Adjunct Faculty; Ctr for Acad Success & Exllnce; Bachelor's Degree; University of Missouri

**Lilien, Megan Jayne**; Mizzou Academy; Master of Education; Point Loma Nazarene University

**Lim, Ji-Hey**; Veterinary Medicine & Surgery; Doctor of Philosophy; Seoul National University

**Lim, Robert W**; Emeritus; Med Pharmacology/Physiology; Doctor of Philosophy; Univesity of Washington

**Lim, Teng Teeh**; Prof, Asoc Extns; Agric Systems Management; Doctor of Philosophy; Purdue University

**Limberg, Jacqueline K**; Nutrition & Exercise Phys-HES; Doctor of Philosophy; University of Wisconsin-Madiso

**Lin, Chun Shin**; Prof, Asoc; Electrical Eng & Computer Sci; Doctor of Philosophy; Purdue University

**Lin, Chung Ho**; School of Natural Resources; Doctor of Philosophy; University of Missouri

**Lin, Dan**; Electrical Eng & Computer Sci; Doctor of Philosophy; NationalUniversityOfSingapore

**Lin, Jian**; Mechanical & Aerospace Engr; Doctor of Philosophy; University of California, Riverside

**Lin, Mengshi**; Food Science; Doctor of Philosophy; Washington State University

**Lin, Yuyi**; Mechanical & Aerospace Engr; Doctor of Philosophy; University of California, Berkeley

**Lindbloom, Erik J**; Family & Community Medicine; Doctor of Medicine; Northwestern University

**Lineback, Kelsie Jean**; East Central HES; Master of Health Admin; Capella University

**Linhardt, Richard D**; Food Science; Master of Science; University of Missouri

**Linsey, Angela**; Part-Time Adjunct Faculty; Journalism

**Linville, Michael Lynn**; Part-Time Adjunct Faculty; Office of Animal Resources; Doctor of Veterinary Medicine; University of Missouri

**Lipscomb, Diane Carol**; Child Health; Doctor of Medicine; University of Missouri

**Lipton, Emma E**; English; Doctor of Philosophy; Duke University

**Liscum III, Emmanuel**; Biological Science; Doctor of Philosophy; The Ohio State University

**Lising, Michael J**; Instructor, Adjunct; School of Visual Studies; Bachelor's Degree; University of Missouri

**Litofsky, Scott**; Surgery-Neurosurgery; Doctor of Medicine; The University of Texas Health Science Center at Houston

**Litt, Jeffrey Scott**; Surgery-Acute Care; Doctor of Osteopathic Medicine; Lake Erie College of Osteopath

**Little, Randie Raderman**; Pathology and Anatomical Sci; Doctor of Philosophy; Florida State University

**Litton, Paul J**; Law; Doctor of Philosophy; University of Pennsylvania

**Litwiller, Lauren Elizabeth**; Part-Time Adjunct Faculty; Therapy Neuro Center; Master's Degree - 1st entry; University of Missouri

**Liu, Don**; Ophthalmology; Doctor of Medicine; The State University of New York

**Liu, Mian**; Geological Sciences; Doctor of Philosophy; The University of Arizona

**Liu, Pei**; Applied Soc Sci; Doctor of Philosophy; Kansas State University

**Liu, Ying-Hsiu**; Part-Time Adjunct Faculty; Educational Technologies @ MO

**Liu, Zhenguo**; Medicine-Cardiology; Doctor of Medicine

**Lo, Clarence Y**; Prof, Adjunct; Sociology; Doctor of Philosophy; University of California, Berkeley

**Lobao, Elizabeth Grace**; Biological Engineering; Doctor of Philosophy; Stanford University

**Loehr, John Erik**; Mechanical & Aerospace Engr; Doctor of Philosophy; The University of Texas at Austin

**Loesing, Jenine**; Part-Time Adjunct Faculty; Learning Teaching & Curriculum; Specialist of Education; University of Missouri

**Logan, Nathan Daniel**; Honors College; Some College - 1st entry

**Logan, Stephanie Ann**; Part-Time Adjunct Faculty; SHP/Speech Lang & Hearing Sci; Doctor of Philosophy; University of Missouri

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**Lohman, Brenda Jo**; Human Devl & Family Science; Doctor of Philosophy; The Ohio State University

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**Lorenz, Emily Patricia**; Part-Time Adjunct Faculty; Show-Me State Games; Master of Journalism; University of Missouri

**Lorenz, Todd E**; Plant Sciences; Not Indicated - 1st entry; University of Missouri

**Lorenzen, Carol L**; Animal Science; Doctor of Philosophy; Texas A&M University

**Lorson, Christian Lawrence**; Veterinary Pathobiology; Doctor of Philosophy; University of Missouri

**Lorson, Monique Ann**; Veterinary Pathobiology

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**Lower, Emily**; Part-Time Adjunct Faculty; Residential Life

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**Lowry, Karen Eileen**; Part-Time Adjunct Faculty; Dean of College of Business; Master of Education; University of Missouri

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**Loyalka, Sudarshan Kumar**; Prof, Adjunct; Mechanical & Aerospace Engr; Doctor of Philosophy; Stanford University

**Lubahn, Dennis Bryant**; Biochemistry; Doctor of Philosophy; Duke University

**Lucas, Gina Marie**; Northwest HES; Master of Finance; University of Missouri - Colum

**Lucchese, Scott A**; Neurology

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**Luke, Andrew Jared**; Northwest Region-ANR; Master of Science; University of Missouri-Columbi

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**Luther, Jill Kristine**; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; University of Missouri

**Lynch, Jennifer Kathryn**; Neurology; Doctor of Medicine; University of Kansas School of Medicine

**Lyons, Bridget Mary**; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; University of Pennsylvania

**Lyons, Leslie A**; Veterinary Medicine & Surgery; Doctor of Philosophy; University of Pittsburgh

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**Ma, Lixin**; Radiology; Doctor of Philosophy; University of Copenhagen

**Ma, Shen Ying**; Orthopaedic Surgery

**Ma, Wenjun**; Veterinary Pathobiology; Doctor of Philosophy; Justus-Liebig-University, Giessen

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**Mabe, Nancy Carol**; Medicine-General Internal; Doctor of Medicine; University of Missouri

**MacDonald, Brandi Lee**; Anthropology; Doctor of Philosophy; McMaster University

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**MacLeod, Kenneth G**; Geological Sciences; Doctor of Philosophy; University of Washington

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**Maitz, Charles A**; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; University of Missouri

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**Makarov, Konstantin A**; Mathematics; Doctor of Philosophy; Leningrad State University

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**Malhotra, Kunal**; Medicine-Nephrology; Doctor of Medicine; University of Missouri

**Mallory, Daniel A**; Northeast Region-ANR; Master of Science; University of Missouri

**Malm-Buatsi, Elizabeth Ashiokor**; Surgery-Urology; Doctor of Medicine; The University of Iowa

**Malone, Bernard Robert**; Instructor, Adjunct; SHP Public Health; Master of Public Administration; University of Missouri

**Malone, Mary Susan**; VP for International Programs; Master's Degree - 1st entry; Lincoln University

**Mandy, David M**; Economics; Doctor of Philosophy; University of Illinois at Urbana-Champaign

**Manfra II, Louis Paul**; Human Devl & Family Science; Doctor of Philosophy; George Mason University

**Manion, Lee B**; English; Doctor of Philosophy; University of Virginia

**Mann, Fred Anthony**; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; The Ohio State University

**Mannella, Christine Pazia**; School of Visual Studies; Master of Fine Arts; Tyler School of Art, Temple University

**Manning, Noah**; Mechanical & Aerospace Engr; Doctor of Philosophy; Iowa State University

**Manrique Acevedo, Camila Margarita**; Medicine; Doctor of Medicine

**Mantrala, Suryamani**; Instructor, Adjunct; Marketing; Doctor of Philosophy; University of Florida

**Manzo, Angelo A**; School of Music; Doctor of Musical Arts; The University of Texas at Austin

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**Marcos Llinas, Monica**; Romance Languages & Literature; Doctor of Education; Universitat de les Illes Balears

**Mariea, Sherry Ann**; Management; Juris Doctor; University of Missouri

**Marinova, Detelina Christova**; Marketing; Doctor of Philosophy; University of Cincinnati

**Marium, M**; Medicine Hospitalist; Doctor of Medicine

**Market, Patrick S**; School of Natural Resources; Doctor of Philosophy; Saint Louis University

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**Marlo, Michael Robert**; English; Doctor of Philosophy; University of Michigan

**Marra, Rose M**; Info Science & Learning Tech; Doctor of Philosophy; University of Colorado Boulder

**Marrs, Mary Elizabeth**; Management; Doctor of Philosophy; University of Missouri

**Marshall, Herbert Lincoln**; Applied Soc Sci; Doctor of Philosophy; American University

**Marshall, Julie Marie**; Anesthesiology; Doctor of Medicine; University of Missouri

**Martens, Matthew P**; Educ, School, & Counsel Psych; Doctor of Philosophy; University of Missouri

**Martin, Barbara Nell**; Part-Time Adjunct Faculty; Ed Leadership & Pol Analysis; Doctor of Education; University of Missouri

**Martin, Carol Ann**; Part-Time Adjunct Faculty; Biological Science; Master of Business Administration; Northwest Missouri State University

**Martin, Carolyn Nichole**; School of Nursing; Bachelor's Degree; Central Methodist University

**Martin, Dana Elizabeth**; SHP/Physical Therapy; Doctor of Science; Andrews University

**Martin, Joseph Leslie**; Instructor, Adjunct; Truman School of Pub Affrs Adm; Juris Doctor; University of Missouri

**Martin, Kari Lyn**; Dermatology-Derm; Doctor of Medicine; University of Missouri

**Martin, Lynn Marie**; Fellow, Post Doctoral; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; University of Missouri

**Martin, Mark E**; Biochemistry; Doctor of Philosophy; The University of Mississippi Medical Center

**Martin Kratzer, Renee Ann**; Instructor, Adjunct; Journalism; University of Missouri

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**Martinez-Lemus, Luis Arturo**; Med Pharmacology/Physiology; Doctor of Philosophy; Texas A&M University

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**Maschmann, Matthew R**; Mechanical & Aerospace Engr

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**Massengale, Dana Lee**; School of Natural Resources; Doctor of Philosophy; University of Nevada Las Vegas

**Massey, Raymond E**; Prof, Extns; Applied Soc Sci; Doctor of Philosophy; Oklahoma State University

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**Masson, Dubos**; Part-Time Adjunct Faculty; School of Business

**Matheson, Jodi Suzanne**; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; University of Missouri

**Mathews, Michelle C**; Human Devl & Family Science; Doctor of Philosophy; University of Missouri

**Matisziw, Timothy C**; Geography; Doctor of Philosophy; The Ohio State University

**Matson, Toni Christian**; Biological Engineering; Master of Science; University of Missouri

**Mauldin, Elaine G**; Accountancy; Doctor of Philosophy; University of Nebraska

**Mauler, Daniela Alice**; Part-Time Adjunct Faculty; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine

**Maurer, Brian David**; Electrical Eng & Computer Sci; Master of Education; University of Missouri

**Mawhinney, Thomas Patrick**; Agriculture Biochemistry; Doctor of Philosophy; Albany Medical College

**Maze, Eric L**; Part-Time Adjunct Faculty; Public Relations

**Mazuru, Dana**; Radiology

**McAfee, Steven Ray**; Anesthesiology; Master's Degree - 1st entry; University Of Missouri-Columbi

**McBee-Black, Kerri Beth**; Textile and Apparel Mgmt; Master's Degree; University of Missouri

**McCaffrey, Kimberly A**; English; Master's Degree; University of Missouri

**McCain, George Edward**; MU Libraries; Master of Arts; University of Arizona

**McCall, Chynna Sierra**; Fellow, Post Doctoral; MO Prevention Science Inst; Doctor of Philosophy; University of Northern Colorad

**McCann, Katrina**; Instructor, Adjunct; Journalism; Bachelor's Degree - 1st entry; University of Missouri-Columbi

**McCann, Laura M**; Applied Soc Sci; Doctor of Philosophy; University of Minnesota

**McCarthy, Denis Michael**; Psychological Sciences; Doctor of Philosophy; University of Kentucky

**McCathren, Rebecca**; Prof, Asoc Adjunct; Special Education; Doctor of Philosophy

**McCaulley, Graham E**; Prof, Ast Extns; Personal Financial Planning; Doctor of Philosophy; University Of Missouri-Columbi

**McClain, Shannon Elizabeth**; Educ, School, & Counsel Psych; Doctor of Philosophy; University of Texas at Austin

**McClellan, Andrew D**; Emeritus; Biological Science; Doctor of Philosophy; Case Western Reserve University

**McClellan, Chrissa Lea**; Physical Medicine & Rehab; Doctor of Medicine; University of Missouri

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**McCracken, Megan J**; Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; Cornell University

**McCrae, Christina S**; Psychiatry; Doctor of Philosophy; Washington University

**McCullough, Michael Wayne**; Ob, Gyn & Women's Health; Doctor of Medicine; University of MO

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**McDannald, Katie Lynn**; Part-Time Adjunct Faculty; MUPC Case Management; Bachelor's Degree; University of Missouri

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**McDonald, Kerry S**; Med Pharmacology/Physiology; Doctor of Philosophy; Marquette University

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**McDowell, Zara Ashley**; Instructor, Adjunct; Journalism; Associate Degree - 1st entry

**McElhinney, Michael K**; Instructor, Adjunct; SHP/Athletic Training; Master of Science; West Virginia University

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- Morpurgo, Carlo**; Mathematics; Doctor of Philosophy; Washington University
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- Mseba, Admire**; Black Studies; Doctor of Philosophy; University of Iowa
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- Parsons, Jean L**; Textile and Apparel Mgmt; Doctor of Philosophy; University of Maryland
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- Patel, Harsha N**; Child Health
- Patel, Tarang Pankaj**; Medicine Hospitalist
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- Patil, Shakuntala Sachin**; Medicine-General Internal; Doctor of Medicine; University of Illinois -Urbana
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- Patterson, David J**; Prof, Adjunct; Animal Science; Doctor of Philosophy; Kansas State University
- Patterson, Leslie Glenn**; Instructor, Adjunct; Journalism; Bachelor's Degree - 1st entry; University Of Missouri-Columbi
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- Pawliczek, Andrea Christine**; Accountancy; Doctor of Philosophy; University of Colorado - Boulder
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- Pemberton, Elizabeth Ann**; School of Nursing; Master of Nursing; Maryville University
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- Perkowski, Michael H**; Part-Time Adjunct Faculty; Learning Center; Doctor of Philosophy; University of Missouri
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- Reynolds, Frances E;** International programs; Doctor of Education; University of Missouri-Columbi
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- Rich, Justin Keith;** Part-Time Adjunct Faculty; Dean of Engineering; Bachelor's Degree - 1st entry; Midwestern Baptist Theological
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- Ries, James E;** Electrical Eng & Computer Sci; Master of Science; University of Missouri
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- Riles, Julius Matthew;** Communication; Doctor of Philosophy; University of Illinois at Urbana/Champaign
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- Ringdahl, Erika N;** Family & Community Medicine
- Ritter, Detlef Guenther;** Path & Anat Sci-Anatomic Path; Doctor of Medicine; Ludwig Maximilians University
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**Stephens, Elizabeth Conner;** Journalism

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**Sun, Zhe**; Med Pharmacology/Physiology; Doctor of Philosophy; University of Toledo

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**Tarwater, Kurtis Daniel**; Medicine

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**Thompson, Wesley Clifford**; Psychiatry; Doctor of Psychology; Illinois School of Professional Psychology

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**Webel, Corey M**; Learning Teaching & Curriculum; Doctor of Philosophy; University of Delaware

**Weddle, Janice Diane**; Southwest Region-Youth; Master of Education; Drury University

**Weegman, Mitchell Dale**; School of Natural Resources; Doctor of Philosophy; University of Exeter

**Weems, Linda M**; Part-Time Adjunct Faculty; SHP/Clinical & Diagnostic Sci

**Wehrwein, Anna Ozaroff**; Prof, Ast Visiting; School of Visual Studies; Master of Fine Arts; University of Tennessee

**Weir, Dana Erin**; Part-Time Adjunct Faculty; Office of Animal Resources; Bachelor's Degree; University of Missouri

**Weir, Robert B**; Part-Time Adjunct Faculty; Customer Service & Supp Svcs; Bachelor's Degree; University of Missouri

**Weirich, Paul**; Philosophy; Doctor of Philosophy; University of California, Los Angeles

**Weisman, Gary A**; Agriculture Biochemistry; Doctor of Philosophy; University of Nebraska - Lincoln

**Weitkemper, Jana Lea**; Campus B&I; Master of Business Admin; University of Missouri

**Wells, Christina E**; Law; Juris Doctor; The University of Chicago

**Wells, Cynthia Irene**; Northwest Region-Youth; Doctor of Education; University of Missouri

**Wells, Jack Cody**; Family & Community Medicine

**Wells, Kevin Dale**; Animal Science; Doctor of Philosophy; North Carolina State University

**Wells, William Thomas**; Health Mgmt & Informatics; Doctor of Philosophy; University of Missouri

**Welshons, Wade Vincent**; Biomedical Sciences; Doctor of Philosophy; Harvard University

**Wen, Dennis Y**; Family & Community Medicine; Doctor of Medicine; East Carolina University

**Wenger, Janice Kay**; School of Music; Doctor of Musical Arts; University of Missouri - Kansas City

**Wentz, Jennifer Rae**; School of Natural Resources; Master's Degree; University of Houston

**Wergeles, Nickolas Michael**; Electrical Eng & Computer Sci; Bachelor's Degree; University of Central Missouri

**West, Nancy M**; English; Doctor of Philosophy; The University of North Carolina

**Westgren, Randall Edward**; Applied Soc Sci; Doctor of Philosophy; Purdue University

**Westhoff, Jacob Thomas**; Part-Time Adjunct Faculty; School of Natural Resources; Doctor of Philosophy; University of Missouri

**Westhoff, Patrick**; Applied Soc Sci; Doctor of Philosophy; Iowa State University

**Weston, Dana T**; Mathematics; Doctor of Philosophy; University of Illinois at Urbana-Champaign

**Wexler, Carlos**; Physics; Doctor of Philosophy; University of Washington

**Weyman, Jennifer Rebecca**; Special Education; Doctor of Philosophy; University of South Florida

**Whaley-Connell, Adam Tyler**; Medicine; Doctor of Osteopathic Medicine; Kansas City University of Medicine and Biosciences

**Wharton, Alexandra**; Part-Time Adjunct Faculty; Dean of Journalism

**Wheeler, Andrew Allen**; Surgery-General; Doctor of Medicine; University of Missouri, Columbia

**Wheeler, Diamond Wade**; Instructor, Adjunct; Marketing; Master of Business Admin; University of Missouri - Kansas City

**Wheeler, Michelle Ann**; Part-Time Adjunct Faculty; Therapy Neuro Center

**Whisenhunt, Kenneth Chase**; School of Natural Resources; Master's Degree; University of Missouri

**Whistance, Jarrett Lea**; Resrch Scientist/Academic; Applied Soc Sci; Doctor of Philosophy; University of Missouri

**Whitaker, Margaret (Beth) Elizabeth**; Ed Leadership & Pol Analysis; Doctor of Philosophy; Indiana State University

**White, Nathan Edward**; Part-Time Adjunct Faculty; Nuclear Science Engr Institute; Doctor of Philosophy; University of Missouri

**White, Thomas Rodney**; Instructor, Adjunct; Journalism; Bachelor's Degree - 1st entry; Penn State University

**White, Tommi A**; Director; RSCH Core Facilities

**Whites, Leeann**; Emeritus; History; Doctor of Philosophy; University of California, Irvine

**Whitesell, Angie**; Family & Community Medicine; Doctor of Medicine; University of Missouri

**Whithaus, Rhonda Kay**; MU Libraries; Master of Library Science; University of Missouri-Columbi

**Whiting, Rebecca Elizabeth**; Ophthalmology; Doctor of Philosophy; University of Missouri

**Whitney, Marlyn S**; Emeritus; Veterinary Diagnostic Laborato; Doctor of Philosophy; Purdue University

**Whitney, Stephen Dennis**; Educ, School, & Counsel Psych; Doctor of Philosophy; University of Washington

**Whitt, Stevan P**; Medicine; Doctor of Medicine; University of Missouri

**Whittaker, Kyle Lee**; Southwest Region-ANR; Master's Degree - 1st entry; William Woods University

**Whittier, Joanna Blair**; School of Natural Resources; Doctor of Philosophy; Oklahoma State University

**Whittington, Alan Geoffrey**; Part-Time Adjunct Faculty; Geological Sciences; Doctor of Philosophy; Open University

**Whitworth, Rebecca Lynn**; Prof, Ast Visiting; Economics; Master of Arts; University of Missouri Columbi

**Wiebold, William J**; Prof, Adjunct; Plant Sciences; Doctor of Philosophy; The University of Georgia

**Wiedermann, Wolfgang**; Educ, School, & Counsel Psych; Doctor of Philosophy; University of Klagenfurt

**Wiedmeyer, Charles E**; Part-Time Adjunct Faculty; Veterinary Diagnostic Laborato; Doctor of Philosophy; University of Illinois

**Wiegand, Bryon R**; Animal Science; Doctor of Philosophy; Iowa State University

**Wiese, Jeffrey A**; Dean of College of Business; Doctor of Philosophy; University of Missouri

**Wiesemann, Sebastian David**; Surgery-Cardiothoracic; Doctor of Medicine; Albert-Ludwigs-Universität

**Wigger, John H**; History; Doctor of Philosophy; University of Notre Dame

**Wiggins, Andrea Cathrina**; Instructor, Adjunct; Health Mgmt & Informatics; Master of Business Admin; University of Missouri-Columbi

**Wiggs, Anita Sue**; School of Nursing; Master's Degree - 1st entry; St Louis University

**Wightman, Stephanie Lynn**; Instructor, Adjunct; Learning Teaching & Curriculum; Master of Education; University of Missouri

**Wikiera, Andrea M**; Urban West Region-Youth; Master of Arts; University of Missouri

**Wikle, Christopher K**; Statistics; Doctor of Philosophy; Iowa State University

**Wilcox, Lori Janae**; Part-Time Adjunct Faculty; Institutional Review Board; Doctor of Education; University of Missouri

**Wilden, Peter A**; Med Pharmacology/Physiology; Doctor of Philosophy; The University of Iowa

**Wilhelm Stanis, Sonja Ann**; School of Natural Resources; Doctor of Philosophy; University of Minnesota

**Will, Matthew J**; Psychological Sciences; Doctor of Philosophy; University of Colorado Boulder

**Willard, Adam R**; Part-Time Adjunct Faculty; Dean of Health Professions; Master of Public Administration; University of Missouri

**Willard, Garrison**; Part-Time Adjunct Faculty; Residential Life

**Willett, Dan L**; School of Music; Master's Degree; Michigan State University

**Williams, Amy S**; Family & Community Medicine; Doctor of Medicine; University of Missouri

**Williams, Callie Renee**; Part-Time Adjunct Faculty; Cardiac Intensive Care; Registered Nurse

**Williams, Casey D**; Family & Community Medicine; Doctor of Medicine; University of Missouri

**Williams, Haley Jo**; Part-Time Adjunct Faculty; MPC Peds Unit; Bachelor's Degree - 1st entry; University of Missouri

**Williams, Jennifer Renae**; Southeast Region-Comm Dev; Juris Doctor; University of Arkansas - Little Rock Bowen School of Law

**Williams, Jennifer S**; Instructor, Adjunct; Mizzou Online; Doctor of Education; Walden University

**Williams, Laron K**; Political Science; Doctor of Philosophy; Texas A&M University

**Williams, Michael Steven**; Ed Leadership & Pol Analysis; Doctor of Philosophy; The Ohio State University

**Williams, Willa Louise**; Southwest Region-Youth; Doctor of Education; UALR

**Williams III, Fred**; Veterinary Pathobiology; Doctor of Veterinary Medicine

**Willis, Bradley W**; SHP/Physical Therapy; Master's Degree; University of Missouri

**Wilson, Christine Leanne**; Family & Community Medicine

**Wilson, Christopher**; English; Master of Fine Arts; Kansas State University

**Wilson, David Alan**; Prof, Adjunct; Veterinary Medicine & Surgery; Master of Science; University of Illinois at Urbana-Champaign

**Wilson, David J**; Lecturer; Learning Teaching & Curriculum; Doctor of Education; University of Missouri

**Wilson, Gwendolyn Sue**; Family & Community Medicine; Master of Library Science; Emporia State University

**Wilson, Lisa Ruth**; School of Nursing; Master of Nursing; Saint Louis University

**Wilson, Richard A**; School of Visual Studies; Master of Fine Arts; University of Missouri

**Windsor, Brice P**; Family & Community Medicine; Doctor of Osteopathic Medicine; A.T. Still University

**Winholtz, Robert Andrew**; Mechanical & Aerospace Engr; Doctor of Philosophy; Northwestern University

**Winger, Frederick A**; Part-Time Adjunct Faculty; Veterinary Medicine & Surgery; Master of Science; University Of Pennsylvania

**Winn, Hung N**; Ob, Gyn & Women's Health; Doctor of Medicine; University of Illinois

**Wintemberg, Jenna N**; SHP/Health Sciences; Doctor of Philosophy; Univeristy of Missouri

**Winters, Nathan Christopher**; Part-Time Adjunct Faculty; Sponsored Program Admin; Master of Science; Indiana University-Bloomington

**Winton, Beth Joelle**; Instructor, Adjunct; Mizzou Online; Doctor of Philosophy; Univeristy of Missouri

**Winton, Danielle Marie**; VP for International Programs; Bachelor's Degree - 1st entry

**Wipke Tevis, Deidre D**; School of Nursing; Doctor of Philosophy; University of California, San Francisco

**Wise, Ramsay B**; Lecturer; English & Tech Communication; Doctor of Philosophy; Univeristy of Missouri

**Wisniewski, Lindsey D**; Part-Time Adjunct Faculty; Dean of Engineering; Master of Public Admin; University of Missouri

**Wissman, Robert David**; Radiology; Doctor of Medicine; Ohio State University

**Wissmann, Mary Elizabeth**; Instructor, Adjunct; Nutrition & Exercise Phys-HES; Master of Science; University of Missouri

**Woelfel, Stacey W**; Journalism; Doctor of Philosophy; University of Missouri

**Wojciehowski, Kathleen Ann**; Instructor, Adjunct; SHP Public Health; Juris Doctor; University of Missouri

**Wolf, Danica Suzanne**; Instructor, Adjunct; Social Work; Master of Social Work; University of Missouri

**Wolf, Timothy J**; SHP/Occupational Therapy; Doctor of Philosophy; Washington University

**Wolff, Claire Anysie**; Urban East Region-Comm Dev; Master of Social Work; Washington University

**Womack, Abner Willis**; Emeritus; Applied Soc Sci; Doctor of Philosophy; University of Minnesota

**Wood, Bondi Jo**; Truman School of Pub Affrs Adm; Master's Degree; University of Missouri

**Wood, Jeffrey David**; School of Natural Resources; Doctor of Philosophy; University of Guelph

**Wood, Lea Ashleigh**; School of Nursing; Bachelor's Degree - 1st entry; Univ of MO-Columbia SON

**Wood, Phillip**; Psychological Sciences; Doctor of Philosophy; University of Minnesota

**Wood Turley, Sharon**; Emeritus; Applied Soc Sci; Master of Arts; University of Missouri

**Woods, Christine Michelle**; Social Work; Master's Degree; University of Missouri

**Woods, Jayne Tiana**; Prof, Asoc Adjunct; Law; Juris Doctor; Univeristy of Missouri

**Woods, Jessica Cartier**; Part-Time Adjunct Faculty; Orthopaedic Surgery; Associate Degree - 1st entry; University of Missouri-Columbi

**Woodson, Andrew Joseph**; Instructor, Adjunct; Philosophy; Master of Philosophy; Michigan State University

**Woodson, Ashley Nicole**; Learning Teaching & Curriculum; Doctor of Philosophy; Michigan State University

**Woodson, Stanley C**; Part-Time Adjunct Faculty; Civil/Environmental Engr

**Worgul, Douglas Robert**; Honors College; Master of Arts; Western Michigan University

**Worsowicz, Gregory M**; Physical Medicine & Rehab; Doctor of Medicine; University of Florida

**Worthington, Ian**; Curators Distinguished Profess; History; Doctor of Philosophy; Monash University

**Wren, Danna**; Part-Time Adjunct Faculty; eLearning; Master of Education; University of Missouri

**Wright, Abbie C**; Emergency Medicine; Doctor of Medicine; University of Washington

**Wright, Brian Timothy**; Radiology; Doctor of Medicine; Vanderbilt University

**Wright, Farroll Tim**; Emeritus; Statistics; Doctor of Philosophy; University of Missouri

**Wright, Lisa Ann**; Instructor, Adjunct; Special Education; Doctor of Philosophy; University of Missouri

**Wright, Stacy J**; Part-Time Adjunct Faculty; Dean of College of Business; Master of Business Admin; Columbia College

**Wu, Bin**; Industrial/Mfg Sys Engr; Doctor of Philosophy; Brunel University

**Wu, Zihao**; Surgery-Surgical Oncology; Doctor of Medicine; Sun Yat-sen University

**Wung, Lynn M**; Family & Community Medicine

**Wybrant, Stephanie Joy**; Instructor, Adjunct; Human Devl & Family Science; Master of Arts; University of Missouri

**Xaverius, Pamela Kathleen**; Instructor, Adjunct; Health Mgmt & Informatics; Doctor of Philosophy; University of Kansas

**Xin, Ming**; Mechanical & Aerospace Engr; Doctor of Philosophy; Missouri University of Science and Technology

**Xing, Yangchuan**; Chemical Engineering; Doctor of Philosophy; Yale University

**Xiong, Xi**; Plant Sciences; Doctor of Philosophy; Oklahoma State University

**Xu, Dong**; Electrical Eng & Computer Sci; Doctor of Philosophy; University of Illinois at Urbana-Champaign

**Xu, Shuangyu**; School of Natural Resources; Doctor of Philosophy; North Carolina State Univ.

**Xu, Xinhao**; Info Science & Learning Tech; Doctor of Philosophy; Florida State University

**Yaglom, Hayley Danielle**; Instructor, Adjunct; SHP Public Health; Master of Public Health; University of Missouri

**Yan, Haojing**; Physics; Doctor of Philosophy; Arizona State University

**Yan, Zheng**; Chemical Engineering; Doctor of Science; Rice University

**Yang, Bing**; Plant Sciences; Doctor of Philosophy; Kansas State University

**Yang, Meng-Hsuan**; History; Doctor of Philosophy; The University of British Columbia

**Yao, Gang**; Biological Engineering; Doctor of Philosophy; Texas A&M University

**Yao, Rui**; Personal Financial Planning; Doctor of Philosophy; The Ohio State University

**Yazdani, Nasser**; SHP Public Health; Doctor of Veterinary Medicine; Shahrekord University

**Yazici, Emir**; Fellow, Post Doctoral - Teach; Political Science; Doctor of Social Science; University of Missouri

**Yeh, Edward T**; Medicine-Cardiology; Doctor of Medicine; University of California, Davis

**Yerram, Preethi**; Medicine-Nephrology

**Yin, Feng**; Path & Anat Sci-Anatomic Path; Doctor of Medicine; Jiangxi Medical College

**Yohannes, Yordanos**; Anesthesiology

**Yolcu, Esma**; Child Health-Administration; Doctor of Philosophy; Ankara University

**Yona, Sergio**; Ancient Mediterranean Studies; Doctor of Philosophy

**Yonan, Michael E**; School of Visual Studies; Doctor of Philosophy; The University of North Carolina at Chapel Hill

**Yoo, Illhoi**; Health Mgmt & Informatics; Doctor of Philosophy; Drexel University

**Yoon, Dongpil**; Social Work; Doctor of Philosophy; University of Illinois at Urbana-Champaign

**Yore, Adam Shane**; Finance; Doctor of Philosophy; Drexel University

**You, Seung Kwon**; Part-Time Adjunct Faculty; Vice Provost for International Programs; Doctor of Philosophy; University of Missouri

**Youn, Song-yi**; Textile and Apparel Mgmt; Doctor of Philosophy; Purdue University

**Young, Jason S**; School of Natural Resources; Bachelor of Science; University of Missouri

**Young, Matthias John**; Chemical Engineering; Doctor of Philosophy

**Young, Taylor Anne**; Southwest Region-ANR; Master's Degree - 1st entry; Missouri State University

**Young Walker, Laine M**; Psychiatry; Doctor of Medicine; University of Missouri

**Younger, Sarah Beth**; Child Health; Doctor of Medicine; University of MO - Columbia

**Yunker, Thomas Dirk**; Anesthesiology; Doctor of Medicine; Medical College of Georgia

**Youse, M Elizabeth**; School of Nursing; Bachelor's Degree; University of Missouri

**Youtzy, Tyler Andrew**; Part-Time Adjunct Faculty; Residential Life; HS Graduate or Equivalent

**Yu, Mansoo**; Social Work; Doctor of Philosophy; Washington University

**Yu, Ping**; Physics; Doctor of Philosophy; Hong Kong University of Science & Technology

**Yu, Qingsong**; Mechanical & Aerospace Engr; Doctor of Philosophy; University of Missouri

**Yun Fowler, Sue Jean**; School of Nursing; Master's Degree - 1st entry; University Of Missouri-Columbi

**Zachary, Iris**; Health Mgmt & Informatics; Doctor of Philosophy; University of Missouri

**Zaghouni, Habib**; Molec Microbio & Immunology; Doctor of Philosophy; University of Paris

**Zaheer, Asgar**; Neurology; Doctor of Philosophy; Bombay University, India

**Zahn, Kara Jo**; Ophthalmology; Doctor of Optometry

**Zahringer, Kenneth A**; Sr Resrch Asoc; Applied Soc Sci; Master of Arts; West Virginia University

**Zambito, Peter I**; School of Music; Doctor of Musical Arts; University of North Carolina at Greensboro

**Zangori, Laura Ann**; Learning Teaching & Curriculum; Doctor of Philosophy; University of Nebraska - Lincoln

**Zaniletti, Isabella**; Prof, Ast Adjunct; Statistics; Doctor of Philosophy; University of Missouri

**Zapata, Maria Angelica**; Learning Teaching & Curriculum; Doctor of Philosophy; The University of Texas at Austin

**Zarek, Shvetha Murthy**; Ob, Gyn & Women's Health; Doctor of Medicine; University of Virginia School of Medicine

**Zawieja, Scott David**; Med Pharmacology/Physiology; Doctor of Philosophy; Texas A&M University

**Zembles, Shawn Lee**; Prof, Ast Adjunct; School of Nursing; Doctor of Nursing Practice; UMKC

**Zeng, Wenjun**; Part-Time Adjunct Faculty; Electrical Eng & Computer Sci; Doctor of Philosophy; Princeton University

**Zhang, Bing**; Biological Science; Doctor of Philosophy; Cornell University

**Zhang, Jianan**; Lecturer; Chemical Engineering; Doctor of Philosophy; The University of Iowa

**Zhang, Michael Z;** Biomedical Sciences; Doctor of Philosophy; Kansas State University

**Zhang, Qi;** Mathematics; Doctor of Philosophy; Duke University

**Zhang, Shuping;** Veterinary Pathobiology; Doctor of Philosophy; Kansas State University

**Zhang, Shuqun;** Agriculture Biochemistry; Doctor of Philosophy; The University of Texas at Austin

**Zhang, Suling;** Part-Time Adjunct Faculty; VP for International Programs

**Zhang, Yi;** Biological Engineering; Doctor of Philosophy; Georgia Institute of Technology

**Zhang, Yun;** Physics; Doctor of Philosophy; University of California, San Diego

**Zhang, Yuwen;** Mechanical & Aerospace Engr; Doctor of Philosophy; University of Connecticut

**Zhang, Zhanyuan;** Plant Sciences; Doctor of Philosophy; University of Nebraska - Lincoln

**Zhao, Li;** Textile and Apparel Mgmt; Doctor of Philosophy; University of Missouri

**Zhao, Shuoli;** Applied Soc Sci; Doctor of Philosophy; University of Minnesota

**Zhao, Yunxin;** Electrical Eng & Computer Sci; Doctor of Philosophy; University of Washington

**Zhou, Jianfeng;** Agric Systems Management; Doctor of Philosophy; Washington State University

**Zhou, Shuhua;** Journalism; Doctor of Philosophy; Indiana University

**Zhuang, Xinhua;** Emeritus; Electrical Eng & Computer Sci; Doctor of Philosophy; Peking University

**Zimmerman, Lynda A;** Nutrition & Exercise Phys-HES; Master of Science; Colorado State University

**Zinn, Michael Muller;** Veterinary Medicine & Surgery; Doctor of Veterinary Medicine; Colorado State University

**Zitsch III, Robert P;** Otolaryngology; Doctor of Medicine

**Zohrabian, Armineh;** Health Mgmt & Informatics; Doctor of Philosophy; Auburn University

**Zou, Shaoming;** Marketing; Doctor of Philosophy; Michigan State University

**Zou, Xiaoqin;** Physics; Doctor of Philosophy; University of California, San Diego

**Zulovich, Joseph M;** Prof, Ast Extns; Agric Systems Management; Doctor of Philosophy; University of Nebraska - Lincoln

**Zuluaga, Juan Manuel;** Romance Languages & Literature; Master of Arts; Illinois State University

**Zumwalt, Andrew Mark;** Prof, Ast Extns; Personal Financial Planning; Master of Science; University of Missouri

**Zweig, Alexander Paul;** Family & Community Medicine; Doctor of Medicine; University of Missouri

**Zweig, Steven C;** Family & Community Medicine; Doctor of Medicine; University of Missouri

**von Gillern, Sam Robert;** Learning Teaching & Curriculum; Doctor of Philosophy; Iowa State University

## Glossary

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**Below are definitions of academic terms used throughout the University catalog. Additional terms used at MU can be found in the Mizzou Glossary. (<http://glossary.missouri.edu/>)**

**Academic Action:** Students who do not meet requirements for University academic standing requirements are subject to academic action, such as being placed on probation or being declared ineligible to enroll, which is often called dismissal. NOTE: Academic units may have more restrictive standards. (Also refer to Academic Standing and Satisfactory Progress for additional policy information.)

**Academic Plan:** A primary field of specialized study also referred to as a degree program or major.

**Academic Program:** The academic organization to which a student applies, is admitted, and ultimately graduates. These will, in most cases, correspond to schools and colleges.

**Academic Progress for Financial Aid:** Federal regulations require the University of Missouri to establish, publish, and apply standards of satisfactory academic progress (SAP) for financial aid eligibility. For detailed criteria, please visit Student Financial Aid's website (<http://financialaid.missouri.edu/eligibility/satisfactory-academic-progress.php>).

**Academic Standing:** For further information see, Academic Policies: Academic Standing (p. 853).

**Academic Sub-plan:** An emphasis area or concentration within a specific academic plan.

**Academic Unit:** Colleges and schools are approved to offer degree programs or oversee degree or non-degree programs approved by the state Coordinating Board of Higher Education. Because the organization of these units varies across the campus, these entities are referred to as academic units, or AUs for short.

**Applied Course:** A course that is focused on the personal practice of the subject matter. Applied courses are typically found in music, art, and courses preparing for certain vocations.

**Audit:** A method of taking a course in which a student receives no grade or credit. Sometimes referred to as Hearer. See Academic Policies: Auditing a Course (Hearer (p. 854)).

**Basic Skills Courses:** Basic skills courses are considered remedial or preparatory for college level course work that follows. Credit hours for basic skills courses do apply toward minimums required for financial aid and grades earned in these courses show on the transcript and are averaged into the cumulative grade point average. However, credit hours earned in basic skills courses do NOT apply to the minimum number of hours required for a degree.

**Capstone Experience:** An academic activity that integrates general knowledge with the specialized knowledge each student has developed in the major area and, when appropriate, the related field.

**Certificate:** A program of study that requires completion of a minimum of 12 credits. It can be part of a degree program, may be completed in addition to a degree program, or may stand-alone. Officially approved Certificates are listed on transcripts.

**Commencement:** A ceremony in which students are recognized for degree completion. In May and December, each MU school and college holds commencement ceremonies for graduates, during which students walk across the stage and are recognized individually. Ceremonies are not held for summer session graduates; however, these students are invited to participate in May or December commencements.

**Consent Required:** Courses that require the permission of the instructor, department or division. Also referred to as permission required.

**Corequisite:** A course or requirement that must be met prior to or concurrent with enrolling in a course. Exceptions may be made with permissions.

**Core Requirements:** The basic, required courses or standards that students must meet for a given major, degree, minor, emphasis or concentration.

**Course Components:** A portion or part, (i.e. subset) of a course.

- **Lecture/Standard (LST):** Faculty delivered instruction to multiple students often in, but not always, a classroom setting. A lecture or standard class is the primary portion of the course that is often delivered face to face, but does not have to be. It may be presented on-line or via other delivery methods. While it is usually presented in a small or large group setting led by a faculty member the course might also be very interactive and include group activities. It may be offered in a traditional lecture format, a seminar format, sections with group interaction, etc.
- **Discussion (DIS):** A small group that meets to discuss topics introduced in a related lecture to supplement the instruction and allow for discussion.
- **Lab (LAB):** A class or the "practice" portion of a course in which experimentation, class projects or other exercises or skills conjunction with material presented, are performed.
- **Individual Study (IST):** One-on-one instruction allowing for greater individualized learning and self direction. Individual study may be directed studies that are based upon an agreed upon topic between instructor and student. Titles may include but are not limited to research, problems and readings.
- **Lesson (LES):** Typically a musical or other performance art instruction delivered one-on-one or in a small group.
- **Studio (STU):** Hands-on, interactive, project-oriented instruction that is delivered one-on-one or in a small group. May apply to art, architectural studies, textile and apparel management, broadcast media, film creation, and communication instruction.
- **Exam-only (EXM):** Graduate student enrollment required to complete the final, comprehensive examination.
- **Internship/Externship (IXT):** Provides opportunity for students to gain experience in their field outside the classroom. Instruction is hands-on, experimental learning that may require additional research and written assignments. Titles may include, but are not limited to, preceptorships, clinical, practicums.
- **Field Study (FLD):** Off-campus, hands-on instruction directed by a faculty member with one or more students. Typically part of science and social science, as well as some humanities instruction.

**Credit by Exam:** Credit earned by passing advanced-standing examinations in a subject-matter field. Examinations can include: departmental exams, CLEP subject-matter exams and International Baccalaureate and Advance Placement exams given by the College

Entrance Examination Board of Princeton, N.J. See Academic Policies: Advanced Standing - Credit By Exam. (p. 853)

**Credit:** *The following applies to MU courses, regardless of mode of delivery.* One credit represents approximately three hours of a student's time each week for one semester. This may mean one hour in lecture or standard classroom instruction, in addition to two hours spent in preparation. According to State of Missouri policy, a credit hour is a permanently transcribed instructional activity in which one semester credit hour shall consist of a minimum of 750 minutes (for example, 15 weeks x 50 minutes per week) of classroom experiences, such as lecture, discussion, or similar instructional approaches, or a minimum of 1,500 minutes of such experiences as laboratory, studio or equivalent experiences. Both of the above are exclusive of registration and final examination time. Greater amounts of supervised practicum or internship instruction are normally required to be the equivalent of one credit. (Also referred to as Units.)

**Cross-level Course:** A cross-level course is a course offered at both the undergraduate and the graduate level. Undergraduate students enroll in a course numbered in the 4000 range and graduate students enroll in a course numbered in the 7000 range. Lectures and discussions may be held jointly, but different graduate level work will be required of students in the 7000-level courses. (They are also referred to as combined sections.)

**Cross-listed Course:** A course that is considered the same as, and often may meet with a section of, another course with a different curricular abbreviation and possibly a different course number. (They are also referred to as combined sections.)

**Curriculum:** An organized program of study arranged to provide integrated cultural or professional education.

**Curriculum Designator (Subject Area):** A specific area of instruction within an academic organization. These are the subject matter headings that appear in the Course Catalog and the Schedule of Classes.

**Dean's Signature:** The dean's signature is the mark of approval for certain academic actions, such as approvals to withdraw at certain points in the term. Usually a "dean's signature" refers to a stamped signature from the academic advising office within the academic unit. A dean's signature may also be the signature of the dean or associate dean of the college or school. When instructions indicate that a student should obtain a dean's signature for approval of a process, students should first inquire in the academic advising office for their degree program.

**Degree:** A formal award or title conferred upon an individual for the completion of a program or courses of study.

**Degree Audit Report:** MU uses a degree audit system called DARS for short, which tracks degree programs. Many academic units and departments use these reports to assist in advising students. Students may look at their own DARS reports using myZou.

**Degree Program:** A primary field of specialized study also referred to as a major or academic plan.

**Discipline:** A branch of learning or field of study (e.g., mathematics, history or psychology).

**Dual Degree (undergraduate):** A student may be granted two baccalaureate degrees if all requirements for both degrees have been met and the student has completed at least 12 semester hours of course work beyond that required for the first degree. See Faculty Handbook (<https://missouri.app.box.com/v/facultyhandbook/>)

**Emphasis Area:** A sub-area of specialized study within a major that has been formally approved. Emphasis areas are printed on students' transcripts.

**General Education (University):** The MU Faculty has developed a comprehensive program of University general education course work that equips students with the skills, knowledge and foundations in the disciplines required of all informed citizens. All MU students must satisfy University general education requirements as a part of their undergraduate degrees. See General Education Requirements. (p. 36)

**GPA of Record:** The GPA stands for grade point average. A GPA of record is the official GPA. See Academic Policies: Grades. (p. 865)

**Graded Course:** A course in which credit is awarded if successfully completed. A course in which a student has enrolled as a "Hearer/Auditor" is not regarded as a graded course for that student.

**Grading Basis:** The grading system used to assign a grade. See Academic Policies: Grades (p. 865).

**Graduation:** Graduation is the completion of all degree requirements, as recorded on the official transcript, and the conferring of a diploma.

**Honors Course-Departmental:** See Academics at MU: Course Numbering section (p. 882). Catalog number is not followed by an "H".

**Honors Course-General:** A course limited to honors-eligible students. Course has been approved by Honors college for use towards Honors Certificate or University Honors. Catalog number is followed by an "H".

**Honors Eligibility:** See Undergraduate/Graduate: Honors College (p. 759) for more information.

**Instructional Mode:** The dominant delivery method of instruction of the class content.

- **Traditional (TR):** No online technology used -- content is delivered in writing or orally. May have a video of the class that is used during the initial delivery and viewed later. Course attributes should indicate this.
- **Web Facilitated (WF):** Includes face-to-face instruction. Includes those courses in which zero to 29 percent of the content is delivered online. May have a video of the class that is used during the initial delivery and viewed later. Course attributes should indicate this.
- **Blended class instruction (BL):** Defined as having between 30 percent and 80 percent of the course content delivered online. It is sometimes called hybrid.
- **On-line (OL):** A course where most or all (80% or greater) of the content is delivered online. Typically these sections have no face-to-face meeting, but there may be some or face-to-face exams, etc.
- **E-Learning (EL):** A course where 100% of the content is delivered online. (May have proctored exams)

**Interdisciplinary:** A course of study that combines two or more academic disciplines.

**Location:** An indication of where a student is taking a course for billing and informational purposes.

**Lower Division:** Undergraduate courses numbered less than 3000.

**Major:** A primary field of specialized study also referred to as a degree program or academic plan..

**Minor:** A secondary field of specialized study that does not lead to a degree. A minor will be noted on the transcript by not on the diploma.



**Mizzou Online:** Mizzou Online partners with academic units to develop, market, and deliver programs and courses designed for distance students.

**Mizzou Online-Self Paced:** Students may enroll in self-paced, online courses year-round, (minimum six weeks, maximum six months) and complete coursework at their own pace. Students with 60 or more approved credit hours may complete a bachelor of general studies degree online.

**Mizzou Online-Semester Based:** Semester-based courses have specific start and end dates and follow the University semester calendar. Students participate with other students and instructors in the courses and have assignment due dates and deadlines. Enrollment periods are the same as campus sections.

**myZou:** MU's online student information system.

**Option:** A track or other portion of a major that may be required or optional. A separate designation is not made on the transcript or diploma for an option or track.

**Prerequisite:** A course or requirement that must be met prior to enrolling in a course. Exceptions may be made with permissions.

**Readmission:** See Admissions Office (<https://admissions.missouri.edu/apply-returning-student/>) for information on the readmission process and standards.

**Recommended course:** A course that is beneficial or preferred for the student to have taken before enrolling in a subsequent course. It is a strong suggestion, but not a requirement.

**Registration:** The act of enrolling in classes for a given semester or term. At the University of Missouri, registration refers to the process in which students select course work for a term and, reserve spaces (enroll) in the courses in the University's computer system. This may be done through myZou.

**Repeat for Credit:** Courses that may be taken more than once for credit (e.g., music performance courses.)

**Satisfactory Progress towards degree:** The time progression in meeting the requirements of the student's established educational objective, typically, the completion of a degree program. Satisfactory progress is based on two concepts:

- Minimum number of credits completed expressed as a percentage of total credits attempted
- Maximum time to complete the degree as expressed by a total number of credits attempted

The term may also refer to financial aid requirements. See Financial Aid (<http://financialaid.missouri.edu/>).

**Second Undergraduate Degree:** Some academic units will admit students who have already earned one undergraduate degree to pursue a different degree program. Ordinarily students who enroll for a second degree are expected to meet requirements in place at the time of beginning work of the second degree instead of requirements in place at the beginning of work on the first degree.

**Sequence of Courses:** Two or three closely related courses that must be taken in specified order.

**Session:** A class scheduling/enrollment control time period within an academic term.

**Student Center (myZou):** The page in myZou where a student can view a synopsis of all their information. (i.e. schedule, service indicators, enrollment dates, financial information.)

**Student Level:** Students are assigned to a particular class level based upon the number of credits they have completed. (i.e. freshmen, sophomore, junior and senior.) See Academic Policies: Student Level (p. 876).

**Track:** An option or other portion of a major that may be required or optional. A separate designation is not made on the transcript or diploma for an option or track.

**Upper Division:** Undergraduate courses numbered 3000-4000.

**Variable Credit (Units):** For some courses, the student may choose the number of credits.

**Waive:** To waive a requirement is to set it aside without credit. In other words, if a requirement is waived for a student that student does not have to meet the requirement, but no credit hours are earned. For example, an international student pursuing a BA degree in the College or Arts and Science has the foreign language requirement waived but will not receive academic credit for his/her native language.

**Writing Intensive Course:** All writing intensive courses use writing as a tool for thinking and learning; all require revision as a way of improving critical thinking. WI courses can be identified on the Schedule of Classes in two ways: they will have a 'W' after the catalog number and they will have an attribute of Writing Intensive Section attached to the course.

**Writing Intensive Requirement:** After completing ENGLSH 1000, select one Writing Intensive (WI) course from anywhere in the University curriculum to meet the WI requirement in general education. After that, select a WI course at a 3000- or 4000-level in your major area of study. In some cases, your department may ask you to take a 3000- or 4000-level WI course in another department but still in an area closely related to your major. To receive credit for taking a writing intensive course, students must earn a grade in the C-range or better.

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Graduate Certificate in Society and Sustainability .....	812	Health Sciences (HLTH_SCI) .....	1952
Graduate Certificate in Sports Analytics .....	372	Hearer (see Auditing a Course) .....	854
Graduate Certificate in Sustainable Energy and Policy .....	603	Hebrew (HEBREW) .....	1957
Graduate Certificate in Taxation .....	415	History .....	219
Graduate Certificate in Teaching English to Speakers of Other Languages .....	531	History (HIST) .....	1957
Graduate Certificate in Teaching High School Physics .....	290	Holds .....	870
Graduate Certificate in User Experience and Usability .....	531	Honors College .....	759
Graduate Certificate in Veterinary Science .....	756	Honors Recognition (V) .....	871
Graduate Certificate in Youth Development Program Management and Evaluation .....	709	Honors-General (GN_HON) .....	1976
Graduate Certificate in Youth Development Specialist .....	710	Hospitality Management .....	91
Graduate Certificates .....	869	Hospitality Management (HSP_MGMT) .....	1980
Graduate Minor in Ancient Studies .....	814	Human Development And Family S (H_D_FS) .....	1985
Graduate Minor in Black Studies .....	373	Human Development and Family Science .....	656
Graduate Minor in College Teaching .....	815	Human Environmental Sciences .....	668
Graduate Minor in Health System Innovations .....	751	<b>I</b>	
Graduate Minor in International Development .....	816	Important Facts .....	843
Graduate Minor in Law and Conflict Resolution for Journalism Doctoral Students .....	725	Industrial And Manufacturing Systems (IMSE) .....	1996
Graduate Minor in Linguistics .....	243	Industrial Engineering .....	581
Graduate Minor in Medieval and Renaissance Studies .....	373	Informatics .....	785
Graduate Minor in Multicultural Psychology .....	532	Information Science and Learning Technologies .....	464
Graduate Minor in Museum Studies .....	374	Information Science And Learning Technologies (IS_LT) .....	1996
Graduate Minor in Musicology .....	374	Information Technology .....	588
Graduate Minor in Nursing Education .....	751	Information Technology (INFOTC) .....	2004
Graduate Minor in Psychological Statistics and Methods .....	374	Integrative Neuroscience (NEUROSCI) .....	2009
Graduate Minor in Statistics .....	337	Intensive English Program - Grammer (IEPG) .....	2009
Graduate Minor in Women's and Gender Studies .....	375	Intensive English Program - Listening and Speaking (IEPL) .....	2010
Graduate School .....	758	Intensive English Program - Reading (IEPR) .....	2010
Graduate School (GRAD) .....	1944	Intensive English Program - Special Topics (IEPS) .....	2010
Greek (GREEK) .....	1945	Interdisciplinary .....	227
Grievances (L) .....	870	Interdisciplinary Academic Programs .....	760
<b>H</b>		Interdisciplinary Studies (INTDSC) .....	2011
Health Administration .....	775	Internal Medicine (IN_MED) .....	2011
Health and Rehabilitation Science .....	616	International Studies .....	233
Health and Rehabilitation Science (HR_SCI) .....	1946	International Studies (INTL_S) .....	2014
Health Informatics and Bioinformatics .....	778	Italian (ITAL) .....	2015
Health Management and Informatics (HMI) .....	1947	<b>J</b>	
Health Professions (HTH_PR) .....	1951	Japanese (JAPNSE) .....	2016
		Journalism .....	714
		Journalism (JOURN) .....	2017

Juris Doctor (JD) ..... 818  
 Juris Doctor with Emphasis in Criminal Justice ..... 820  
 Juris Doctor with Emphasis in Tax Law ..... 821

**K**

Korean (KOREAN) ..... 2047

**L**

Laboratory Animal Medicine (LAB\_AN) ..... 2049  
 Late Registration ..... 871  
 Latin (LATIN) ..... 2049  
 Law (LAW) ..... 2051  
 Learning, Teaching, & Curriculum - Vocational (LTC\_V) ..... 2085  
 Learning, Teaching, & Curriculum (LTC) ..... 2066  
 Learning, Teaching and Curriculum ..... 466  
 Learning Technologies and Design ..... 486  
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 Library and Information Science ..... 490  
 Linguistics ..... 241  
 Linguistics (LINGST) ..... 2087  
 LLM in American Law ..... 762  
 LLM in Dispute Resolution ..... 772

**M**

MA in Ancient Mediterranean Studies ..... 144  
 MA in Anthropology ..... 151  
 MA in Architectural Studies ..... 648  
 MA in Architectural Studies with Emphasis in Design with Digital Media ..... 649  
 MA in Architectural Studies with Emphasis in Environment and Behavior ..... 650  
 MA in Atlantic History and Politics ..... 159  
 MA in Biological Sciences ..... 169  
 MA in Communication ..... 178  
 MA in Economics ..... 189  
 MA in Economics with Emphasis in Econometrics and Quantitative Economics ..... 189  
 MA in Educational Leadership and Policy Analysis ..... 449  
 MA in Educational Leadership and Policy Analysis with Emphasis in Higher Education ..... 449  
 MA in Educational, School, and Counseling Psychology ..... 421  
 MA in Educational, School, and Counseling Psychology with Emphasis in Health Education and Promotion ..... 423  
 MA in Educational, School, and Counseling Psychology with Emphasis in Counseling Psychology ..... 421  
 MA in Educational, School, and Counseling Psychology with Emphasis in Educational Psychology ..... 422

MA in Educational, School, and Counseling Psychology with Emphasis in School Psychology ..... 424  
 MA in Educational, School, and Counseling Psychology with Emphasis in Statistics, Measurement, and Evaluation in Education ..... 425  
 MA in English ..... 194  
 MA in Geography ..... 210  
 MA in German ..... 218  
 MA in History ..... 221  
 MA in Human Development and Family Science ..... 665  
 MA in Human Development and Family Science with Emphasis in Family and Community Service ..... 666  
 MA in Human Development and Family Science with Emphasis in Gerontology ..... 667  
 MA in Human Development and Family Science with Emphasis in Youth Development ..... 667  
 MA in Journalism ..... 720  
 MA in Journalism with Emphasis in Health Communication ..... 721  
 MA in Journalism with Emphasis in Interactive Media ..... 722  
 MA in Journalism with Emphasis in Media Management ..... 723  
 MA in Journalism with Emphasis in Strategic Communication ..... 723  
 MA in Mathematics ..... 248  
 MA in Music ..... 266  
 MA in Music with Emphasis in Musicology ..... 267  
 MA in Philosophy ..... 280  
 MA in Political Science ..... 296  
 MA in Political Science with Emphasis in Public Policy ..... 296  
 MA in Psychology ..... 304  
 MA in Psychology with Emphasis in Child Development and Developmental Psychology ..... 304  
 MA in Psychology with Emphasis in Clinical Psychology ..... 305  
 MA in Psychology with Emphasis in Cognition and Neuroscience ..... 305  
 MA in Psychology with Emphasis in Developmental Psychology ..... 305  
 MA in Psychology with Emphasis in Quantitative Psychometrics ..... 306  
 MA in Psychology with Emphasis in Social/Personality Psychology ... 306  
 MA in Romance Languages ..... 317  
 MA in Romance Languages with Emphasis in French ..... 317  
 MA in Romance Languages with Emphasis in Language Teaching .... 319  
 MA in Romance Languages with Emphasis in Spanish ..... 320  
 MA in Russian and Slavonic Studies ..... 326  
 MA in Sociology ..... 329  
 MA in Special Education ..... 514  
 MA in Special Education with Emphasis in Special Education, General 515  
 MA in Statistics ..... 334

MA in Statistics with Emphasis in Biostatistics .....	335	MEd in Educational, School, and Counseling Psychology with Emphasis in School Counselor, Secondary, Certification .....	435
MA in Statistics with Emphasis in Data Analytics .....	336	MEd in Educational, School, and Counseling Psychology with Emphasis in School Psychology .....	436
MA in Textile and Apparel Management .....	704	MEd in Educational, School, and Counseling Psychology with Emphasis in Sport Psychology .....	437
MA in Theatre .....	342	MEd in Educational, School, and Counseling Psychology with Emphasis in Statistics, Measurement, and Evaluation in Education .....	438
MA in Visual Studies .....	348	MEd in Learning, Teaching and Curriculum .....	467
MAcc in Accountancy .....	383	MEd in Learning, Teaching and Curriculum with Emphasis in Art Education .....	468
Major and Career Exploration .....	34	MEd in Learning, Teaching and Curriculum with Emphasis in Art Education, Certification .....	468
Management (MANGMT) .....	2091	MEd in Learning, Teaching and Curriculum with Emphasis in Early Childhood Education .....	469
Marketing (MRKTNG) .....	2099	MEd in Learning, Teaching and Curriculum with Emphasis in Early Childhood Education, Certification .....	470
Master of Laws (LLM) .....	821	MEd in Learning, Teaching and Curriculum with Emphasis in Elementary Education .....	470
Master's Requirements (University) .....	37	MEd in Learning, Teaching and Curriculum with Emphasis in English Education .....	471
Mathematics .....	244	MEd in Learning, Teaching and Curriculum with Emphasis in Literacy Education .....	472
Mathematics (MATH) .....	2104	MEd in Learning, Teaching and Curriculum with Emphasis in Mathematics Education .....	473
MBA in Business Administration .....	402	MEd in Learning, Teaching and Curriculum with Emphasis in Mathematics Education, Certification .....	473
ME in Engineering .....	581	MEd in Learning, Teaching and Curriculum with Emphasis in Science Education .....	474
Mechanical And Aerospace Engin (MAE) .....	2113	MEd in Learning, Teaching and Curriculum with Emphasis in Science Education, Certification .....	474
Mechanical and Aerospace Engineering .....	591	MEd in Learning, Teaching and Curriculum with Emphasis in Social Studies Education .....	475
MEd in Educational Leadership and Policy Analysis .....	450	MEd in Learning, Teaching and Curriculum with Emphasis in Teaching English to Speakers of Other Languages .....	475
MEd in Educational Leadership and Policy Analysis with Emphasis in Higher Education .....	450	MEd in Special Education .....	516
MEd in Educational Leadership and Policy Analysis with Emphasis in PK-12 Educational Leadership and Administration, Elementary and Secondary Principal, Certification .....	451	MEd in Special Education with Emphasis in Autism .....	517
MEd in Educational Leadership and Policy Analysis with Emphasis in PK-12 Educational Leadership and Administration, Elementary Principal, Certification .....	451	MEd in Special Education with Emphasis in Behavior Disorders .....	517
MEd in Educational Leadership and Policy Anyalsis with Emphasis in PK-12 Educational Leadership and Administration, Secondary Principal, Certification .....	452	MEd in Special Education with Emphasis in Combined Early Childhood and Autism .....	518
MEd in Educational, School, and Counseling Psychology .....	426	MEd in Special Education with Emphasis in Cross Categorical, Certification .....	519
MEd in Educational, School, and Counseling Psychology with Emphasis in Career Counseling Psychology .....	426	MEd in Special Education with Emphasis in Early Childhood Special Education .....	519
MEd in Educational, School, and Counseling Psychology with Emphasis in Counseling Psychology .....	427	MEd in Special Education with Emphasis in Gifted Education .....	520
MEd in Educational, School, and Counseling Psychology with Emphasis in Educational Psychology .....	428	MEd in Special Education with Emphasis in Learning Disabilities .....	521
MEd in Educational, School, and Counseling Psychology with Emphasis in Health Education and Promotion .....	429	Medical Pharmacology and Physiology .....	791
MEd in Educational, School, and Counseling Psychology with Emphasis in Mental Health Practices in Schools .....	430	Medical Pharmacology and Physiology (MPP) .....	2123
MEd in Educational, School, and Counseling Psychology with Emphasis in Positive Coaching and Athletic Leadership .....	431	Medicine-Interdisciplinary (MED_ID) .....	2127
MEd in Educational, School, and Counseling Psychology with Emphasis in School Counselor, Elementary and Secondary, Certification .....	434		
MEd in Educational, School, and Counseling Psychology with Emphasis in School Counselor, Elementary, Certification .....	433		

Medieval Renaissance Studies (MDVL_REN) .....	2132	Minor in Construction Management .....	599
MFA in Visual Studies .....	349	Minor in Creative Writing .....	359
MHA in Health Administration .....	776	Minor in Criminology/Criminal and Juvenile Justice .....	706
MHS in Clinical and Diagnostic Sciences .....	614	Minor in Digital Storytelling .....	183
MHS in Clinical and Diagnostic Sciences with Emphasis in Clinical Laboratory Science .....	615	Minor in East Asian Studies .....	360
MHS in Clinical and Diagnostic Sciences with Emphasis in Imaging Sciences .....	615	Minor in Economics .....	188
MHS in Clinical and Diagnostic Sciences with Emphasis in Respiratory Therapy .....	616	Minor in Education .....	525
MHS in Speech, Language and Hearing Sciences .....	636	Minor in Energy Engineering .....	600
MHS in Speech, Language and Hearing Sciences with Emphasis in Speech-Language Pathology .....	637	Minor in Engineering .....	580
Microbiology .....	753	Minor in Engineering Sustainability .....	600
Microbiology .....	794	Minor in English .....	194
Microbiology (MICROB) .....	2133	Minor in English Writing .....	194
Middle School Education .....	495	Minor in Entrepreneurship and Innovation Management .....	412
Military - Active Duty .....	871	Minor in Environmental Sciences .....	84
Military Science (MIL_SC) .....	2135	Minor in Film Studies .....	202
Minor in Accountancy .....	383	Minor in Financial Literacy for Helping Professionals .....	706
Minor in Aerospace Engineering .....	598	Minor in Food Science and Nutrition .....	91
Minor in Aerospace Studies .....	356	Minor in Forestry .....	134
Minor in Afro-Romance Literatures in Translation .....	356	Minor in French .....	361
Minor in Agricultural Education .....	62	Minor in Geography .....	210
Minor in Agricultural Leadership .....	133	Minor in Geological Sciences .....	214
Minor in Agricultural Systems Management .....	67	Minor in German .....	218
Minor in American Constitutional Democracy .....	356	Minor in History .....	221
Minor in Ancient Mediterranean Studies .....	144	Minor in Hospitality Management .....	96
Minor in Animal Sciences .....	71	Minor in Human Development and Family Science .....	664
Minor in Anthropology .....	151	Minor in Information Technology .....	591
Minor in Architectural Studies .....	648	Minor in International Agriculture, Food & Natural Resources .....	134
Minor in Art .....	156	Minor in Italian Area Studies .....	361
Minor in Art History .....	159	Minor in Japanese Studies .....	361
Minor in Astronomy .....	358	Minor in Jazz Studies .....	361
Minor in Biological Sciences .....	168	Minor in Journalism .....	719
Minor in Black Studies .....	358	Minor in Korean Studies .....	362
Minor in Business .....	385	Minor in Latin American Studies .....	362
Minor in Canadian Studies .....	358	Minor in Leadership and Public Service .....	362
Minor in Captive Wild Animal Management .....	133	Minor in Linguistics .....	243
Minor in Chemistry .....	174	Minor in Luso-Brazilian Area Studies .....	362
Minor in Chinese Studies .....	359	Minor in Mathematics .....	248
Minor in Computational Neuroscience .....	599	Minor in Medical/Health Physics .....	601
Minor in Computer Science .....	569	Minor in Medieval and Renaissance Studies .....	363
		Minor in Microbiology .....	755
		Minor in Middle East Studies .....	364

Minor in Military Science .....	365	MM in Music with Emphasis in Conducting .....	270
Minor in Missouri Studies .....	365	MM in Music with Emphasis in Jazz Performance and Pedagogy .....	272
Minor in Music .....	266	MM in Music with Emphasis in Music Education .....	272
Minor in Musical Theatre .....	365	MM in Music with Emphasis in Music Theory .....	273
Minor in Native American and Indigenous Studies .....	366	MM in Music with Emphasis in Performance .....	273
Minor in Naval Science .....	601	MM in Music with Emphasis in Piano Pedagogy .....	275
Minor in Nuclear Engineering .....	601	MPA in Public Affairs .....	311
Minor in Nutritional Sciences .....	707	MPH in Public Health .....	631
Minor in Peace Studies .....	366	MPH in Public Health with Emphasis in Health Promotion and Policy ..	633
Minor in Personal Financial Management Services .....	692	MPH in Public Health with Emphasis in Veterinary Public Health .....	633
Minor in Philosophy .....	280	MS in Academic Medicine .....	760
Minor in Physics .....	287	MS in Agricultural and Applied Economics .....	54
Minor in Plant Sciences .....	124	MS in Agricultural Leadership, Communication and Education .....	63
Minor in Political Science .....	295	MS in Animal Sciences .....	71
Minor in Psychology .....	303	MS in Applied Behavior Analysis .....	417
Minor in Radioenvironmental Sciences .....	601	MS in Applied Mathematics .....	250
Minor in Religious Studies .....	314	MS in Architectural Studies .....	650
Minor in Romance Literatures in Translation .....	366	MS in Architectural Studies with Emphasis in Design with Digital Media ..	651
Minor in Rural Sociology .....	128	MS in Architectural Studies with Emphasis in Environment and Behavior ..	652
Minor in Russian .....	326	MS in Biochemistry .....	75
Minor in Science and Agricultural Communications .....	135	MS in Biological Engineering .....	541
Minor in Social Justice .....	707	MS in Biomedical Science with Emphasis in Pathobiology .....	766
Minor in Social Work-Gerontology .....	707	MS in Biomedical Science with Emphasis in Veterinary Medicine and Surgery ..	766
Minor in Sociology .....	329	MS in Biomedical Sciences with Emphasis in Biomedical Sciences ...	763
Minor in South Asian Studies .....	366	MS in Biomedical Sciences with Emphasis in Biomedical Sciences ...	764
Minor in Spanish .....	367	MS in Biomedical Sciences with Emphasis in Comparative Medicine (post DVM) ..	764
Minor in Statistics .....	334	MS in Biomedical Sciences with Emphasis in Veterinary Sciences ....	767
Minor in Strategic Studies .....	367	MS in Business .....	386
Minor in Textile and Apparel Management .....	704	MS in Care Management .....	730
Minor in Theatre .....	342	MS in Chemical Engineering .....	551
Minor in Wellness .....	708	MS in Chemistry .....	174
Minor in Women's and Gender Studies .....	368	MS in Civil Engineering .....	556
MLIS Master of Library and Information Science .....	491	MS in Computer Engineering .....	562
MLIS Master of Library and Information Science with Emphasis in Archival Studies ..	492	MS in Computer Science .....	569
MLIS Master of Library and Information Science with Emphasis in E-Learning Information Professionals ..	493	MS in Data Science and Analytics .....	769
MLIS Master of Library and Information Science with Emphasis in Library Media Specialist, Certification .....	494	MS in Data Science and Analytics with Emphasis in BioHealth Analytics ..	770
MM in Music .....	268	MS in Data Science and Analytics with Emphasis in Geospatial Analytics ..	770
MM in Music with Emphasis in Collaborative Piano .....	269		
MM in Music with Emphasis in Composition .....	270		

MS in Data Science and Analytics with Emphasis in High Performance Computing .....	770	MS in Nursing with Emphasis in Leadership in Nursing and Health Care Systems .....	737
MS in Data Science and Analytics with Emphasis in Human Centered Science Design .....	771	MS in Nursing with Emphasis in Nurse Educator .....	738
MS in Data Science and Analytics with Emphasis in Strategic Communications and Data Journalism .....	771	MS in Nursing with Emphasis in Pediatric Clinical Nurse Specialist ....	738
MS in Dietetics .....	653	MS in Nursing with Emphasis in Pediatric Nurse Practitioner-Primary Care .....	739
MS in Electrical Engineering .....	579	MS in Nursing with Emphasis in Psychiatric Mental Health Nurse Practitioner .....	739
MS in Finance .....	410	MS in Nutrition and Exercise Physiology .....	680
MS in Finance with Emphasis in Financial Management .....	410	MS in Nutrition and Exercise Physiology with Emphasis in Exercise Physiology .....	681
MS in Finance with Emphasis in Investments .....	410	MS in Nutrition and Exercise Physiology with Emphasis in Nutritional Sciences .....	682
MS in Finance with Emphasis in Real Estate .....	411	MS in Pathology and Anatomical Sciences .....	806
MS in Food and Hospitality Systems .....	85	MS in Personal Financial Planning .....	692
MS in Geology .....	214	MS in Personal Financial Planning with Emphasis in Consumer and Family Economics .....	692
MS in Health Informatics and Bioinformatics .....	779	MS in Personal Financial Planning With Emphasis in Personal Financial Planning .....	693
MS in Health Informatics and Bioinformatics with Emphasis in Bioinformatics .....	781	MS in Physics .....	287
MS in Health Informatics and Bioinformatics with Emphasis in Health Informatics .....	782	MS in Plant, Insect and Microbial Sciences .....	124
MS in Human Development and Family Science .....	668	MS in Rural Sociology .....	128
MS in Industrial Engineering .....	585	MS in Textile and Apparel Management .....	705
MS in Learning Technologies and Design with Emphasis in Online Education .....	486	MST in Mathematics .....	251
MS in Learning Technologies and Design .....	486	MSW in Social Work .....	698
MS in Learning Technologies and Design with Emphasis in Technology in Schools .....	487	MU Course work Required .....	873
MS in Mechanical and Aerospace Engineering .....	595	MU Informatics Institute (INFOINST) .....	2136
MS in Medical Pharmacology and Physiology .....	792	Music .....	254
MS in Microbiology .....	795	Music-Applied Music (MUS_APMS) .....	2138
MS in Natural Resources .....	103	Music-Courses for Non-Majors (MUSIC_NM) .....	2139
MS in Natural Resources with Emphasis in Agroforestry .....	104	Music-Ensemble Courses (MUS_ENS) .....	2140
MS in Natural Resources with Emphasis in Fisheries and Wildlife Sciences .....	105	Music-General (MUS_GENL) .....	2141
MS in Natural Resources with Emphasis in Forestry .....	106	Music-Instrumental And Vocal Repertory (MUS_I_VR) .....	2143
MS in Natural Resources with Emphasis in Human Dimensions of Natural Resources .....	106	Music-Instrumental And Vocal Techniques (MUS_I_VT) .....	2144
MS in Natural Resources with Emphasis in Parks, Recreation and Tourism .....	107	Music-Music Education (MUS_EDUC) .....	2147
MS in Natural Resources with Emphasis in Soil, Environmental and Atmospheric Sciences .....	107	Music-Music History And Literature (MUS_H_LI) .....	2149
MS in Natural Resources with Emphasis in Water Resources .....	108	Music-Music Theory (MUS_THRY) .....	2152
MS in Neuroscience .....	801	<b>N</b>	
MS in Nursing .....	735	Name Changes .....	873
MS in Nursing with Emphasis in Adult Gerontology Clinical Nurse Specialist .....	736	Natural Resource Science and Management .....	96
MS in Nursing with Emphasis in Family Nurse Practitioner .....	736	Natural Resources .....	101
		Natural Resources (NAT_R) .....	2156
		Naval Science (NAVY) .....	2160

Neurology (NEUROL) .....	2161	PhD in Chemistry .....	175
Neuroscience .....	800	PhD in Civil Engineering .....	556
Non-Degree Graduate Study .....	873	PhD in Communication .....	178
Notifications .....	844	PhD in Computer Science .....	569
Nuclear Engineering (NU_ENG) .....	2161	PhD in Economics .....	190
Nuclear Medicine (NUCMED) .....	2165	PhD in Economics with Emphasis in Econometrics and Quantitative Economics .....	191
Nursing .....	731	PhD in Educational Leadership and Policy Analysis .....	458
Nursing (NURSE) .....	2167	PhD in Educational Leadership and Policy Analysis with Emphasis in Educational Administration .....	459
Nutrition and Exercise Physiology .....	674	PhD in Educational Leadership and Policy Analysis with Emphasis in Educational Policy Studies .....	459
Nutrition and Exercise Physiology (NEP) .....	2177	PhD in Educational Leadership and Policy Analysis with Emphasis in Higher Education .....	460
Nutrition (NUTRIT) .....	2177	PhD in Educational, School, and Counseling Psychology .....	442
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Obstetrics And Gynecology (OB_GYN) .....	2185	PhD in Educational, School, and Counseling Psychology with Emphasis in Counseling Psychology .....	442
Occupational Therapy .....	827	PhD in Educational, School, and Counseling Psychology with Emphasis in Educational Psychology .....	443
Occupational Therapy Assistant .....	624	PhD in Educational, School, and Counseling Psychology with Emphasis in Health Education and Promotion .....	445
Occupational Therapy (MOT) .....	829	PhD in Educational, School, and Counseling Psychology with Emphasis in School Psychology, Certification .....	445
Occupational Therapy (OC_THR) .....	2187	PhD in Educational, School, and Counseling Psychology with Emphasis in Statistics, Measurement, and Evaluation in Education .....	446
Occupational Therapy (OTD) .....	829	PhD in Electrical and Computer Engineering .....	573
Ophthalmology (OPHTH) .....	2191	PhD in English .....	196
<b>P</b>			
Parks, Recreation and Sport .....	114	PhD in Food and Hospitality Systems .....	87
Parks, Recreation, Sport and Tourism (PRST) .....	2191	PhD in Genetics Area Program .....	774
Pathobiology Area Program .....	803	PhD in Geology .....	215
Pathology & Anatomical Science (PTH_AS) .....	2196	PhD in Health and Rehabilitation Science .....	616
Pathology and Anatomical Sciences .....	805	PhD in History .....	223
Peace Studies (PEA_ST) .....	2199	PhD in Human Environmental Sciences .....	670
Personal and Financial Planning (FINPLN) .....	2209	PhD in Human Environmental Sciences with Emphasis in Architectural Studies .....	670
Personal Financial Planning .....	686	PhD in Human Environmental Sciences with Emphasis in Human Development and Family Studies .....	671
PhD in Accountancy .....	384	PhD in Human Environmental Sciences with Emphasis in Personal Financial Planning .....	672
PhD in Agricultural and Applied Economics .....	55	PhD in Human Environmental Sciences with Emphasis in Textile and Apparel Management .....	673
PhD in Agricultural Education .....	62	PhD in Industrial Engineering .....	586
PhD in Ancient Mediterranean Studies .....	145	PhD in Informatics .....	786
PhD in Animal Sciences .....	72	PhD in Informatics with Emphasis in Bioinformatics .....	787
PhD in Anthropology .....	152	PhD in Informatics with Emphasis in Health Informatics .....	789
PhD in Biochemistry .....	76	PhD in Information Science and Learning Technologies .....	465
PhD in Biological Engineering .....	542		
PhD in Biological Sciences .....	169		
PhD in Biomedical Sciences .....	768		
PhD in Business Administration .....	404		
PhD in Business Administration with Emphasis in Business .....	405		
PhD in Chemical Engineering .....	552		

PhD in Journalism .....	724	PhD in Psychology .....	306
PhD in Learning, Teaching and Curriculum .....	480	PhD in Psychology with Emphasis in Child Clinical and Developmental Psychology .....	307
PhD in Learning, Teaching and Curriculum with Emphasis in Art Education .....	481	PhD in Psychology with Emphasis in Clinical and Quantitative Psychology .....	308
PhD in Learning, Teaching and Curriculum with Emphasis in Early Childhood Education .....	481	PhD in Psychology with Emphasis in Clinical Psychology .....	308
PhD in Learning, Teaching and Curriculum with Emphasis in Elementary Education .....	482	PhD in Psychology with Emphasis in Cognition and Neuroscience ....	309
PhD in Learning, Teaching and Curriculum with Emphasis in Foreign Language Education .....	482	PhD in Psychology with Emphasis in Developmental Psychology ....	309
PhD in Learning, Teaching and Curriculum with Emphasis in General ..	482	PhD in Psychology with Emphasis in Quantitative Psychology .....	309
PhD in Learning, Teaching and Curriculum with Emphasis in Language and Literacies for Social Transformation .....	482	PhD in Psychology with Emphasis in Social/Personality Psychology ..	310
PhD in Learning, Teaching and Curriculum with Emphasis in Mathematics Education .....	483	PhD in Public Affairs .....	312
PhD in Learning, Teaching and Curriculum with Emphasis in Reading Education .....	484	PhD in Romance Languages .....	322
PhD in Learning, Teaching and Curriculum with Emphasis in Science Education .....	485	PhD in Rural Sociology .....	129
PhD in Learning, Teaching and Curriculum with Emphasis in Social Studies Education .....	485	PhD in Social Work .....	700
PhD in Mathematics .....	252	PhD in Sociology .....	329
PhD in Mechanical and Aerospace Engineering .....	596	PhD in Special Education .....	522
PhD in Medical Pharmacology and Physiology .....	793	PhD in Special Education with Emphasis in Administration and Supervision of Special Education .....	522
PhD in Microbiology (MED) .....	797	PhD in Special Education with Emphasis in Behavior Disorders .....	523
PhD in Music Education .....	276	PhD in Special Education with Emphasis in Early Childhood Special Education .....	523
PhD in Natural Resources .....	109	PhD in Special Education with Emphasis in Learning Disabilities .....	524
PhD in Natural Resources with Emphasis in Fisheries and Wildlife Sciences .....	111	PhD in Statistics .....	336
PhD in Natural Resources with Emphasis in Forestry .....	111	PhD in Theatre .....	344
PhD in Natural Resources with Emphasis in Human Dimensions of Natural Resources .....	112	PhD in Visual Studies .....	351
PhD in Natural Resources with Emphasis in Soil, Environmental and Atmospheric Sciences .....	112	Philosophy .....	277
PhD in Natural Resources with Emphasis in Water Resources .....	113	Philosophy (PHIL) .....	2213
PhD in Neuroscience .....	802	Physical Medicine And Rehabili (PM_REH) .....	2220
PhD in Nursing .....	740	Physical Therapy .....	626
PhD in Nutrition and Exercise Physiology .....	683	Physical Therapy .....	833
PhD in Nutrition and Exercise Physiology with Emphasis in Exercise Physiology .....	683	Physical Therapy (DPT) .....	833
PhD in Nutrition and Exercise Physiology with Emphasis in Nutrition ..	684	Physical Therapy (PH_THR) .....	2221
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